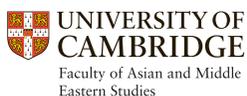


STUDIES IN
SEMITIC VOCALISATION
AND READING TRADITIONS

Studies in Semitic Vocalisation and Reading Traditions

*Edited by Aaron D. Hornkohl
and Geoffrey Khan*





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Semitic Languages and Cultures 3.

ISSN (print): 2632-6906

ISSN (digital): 2632-6914

ISBN Paperback: 978-1-78374-935-5

ISBN Hardback: 978-1-78374-936-2

ISBN Digital (PDF): 978-1-78374-937-9

DOI: 10.11647/OBP.0207

Cover image: Detail from a bilingual Latin-Punic inscription at the theatre at Lepcis Magna, IRT 321 (accessed from https://it.wikipedia.org/wiki/File:Inscription_Theatre_Leptis_Magna_Libya.JPG). Leaf of a Syriac prayer book with Western vocalisation signs (source: Wikimedia Commons). Leaf of an Abbasid-era Qurʾān (vv. 64.11–12) with red, yellow, and green vocalisation dots (source: Wikimedia Commons). Genizah fragment of the Hebrew Bible (Gen. 11–12, Cambridge University Library T-S A1.56; courtesy of the Syndics of Cambridge University Library). Genizah fragment of a Karaite transcription of the Hebrew Bible in Arabic script (Num. 14.22–24, 40–42, Cambridge University Library T-S Ar. 52.242; courtesy of the Syndics of Cambridge University Library). Greek transcription of the Hebrew for Ps. 22.2a in Matt. 27.46 as found in Codex Bezae (fol. 99v; courtesy of the Syndics of Cambridge University Library).

Cover design: Anna Gatti

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PREFACE

This volume brings together papers relating to the pronunciation of Semitic languages and the representation of their pronunciation in written form. Most of the papers originated as presentations at a series of workshops on Semitic vocalisation traditions held in Cambridge between 2016 and 2018. To these have been added other contributions from scholars who are active in this general field of research.

The papers focus on sources that date from a period extending from late antiquity until the Middle Ages. A large proportion of them concern reading traditions of Biblical Hebrew, especially the vocalisation notation systems used to represent them. Also discussed are orthography and the written representation of prosody. Beyond Biblical Hebrew, there are studies concerning Punic, Biblical Aramaic, Syriac, and Arabic, as well as post-biblical traditions of Hebrew such as *piyyuṭ* and medieval Hebrew poetry.

There were many parallels and interactions between these various language traditions and the volume demonstrates that important insights can be gained from such a wide range of perspectives across different historical periods. It was in the early Islamic period (eighth–tenth centuries CE) that the written vocalisation notation systems of Semitic languages were developed. These included the vocalisation systems of Syriac, Arabic, and Hebrew, which were created to represent the oral reading traditions of sacred texts. This was a major intellectual achievement, which came about through the interchange of knowledge and ideas across the different religious communities of the Middle East (see the paper by Posegay in this volume). It also reflects a

pivotal change in society in the region at this period whereby oral traditions of all types began to be textualized in written form.

The medieval vocalisation systems are important sources for reconstructing the Semitic reading traditions that were current in the Middle Ages. In recent research these reconstructions have been enhanced by other medieval sources, such as transcriptions of reading traditions in different scripts and phonetic descriptions of the traditions.

The medieval vocalisation sign systems and the various reading traditions they represented exhibit considerable diversity. Some of this diversity has only recently come to light and is the subject of several of the papers in the volume (e.g., the papers by Arrant, Attia, Outhwaite, Khan, and Phillips). The sacred reading traditions, moreover, were complex skeins of pronunciation, musical cantillation, and interpretation, which interacted with each other in various ways. This is shown in DeCaen and Drescher's contribution on the Tiberian Hebrew accentuation system and in Habib's paper on the exegetical dimension of the Tiberian Hebrew reading tradition. A further dimension of diversity is found in the reading traditions reflected in medieval poetry, as shown by Delgado's paper on medieval Hebrew poetic metrical systems and Rand's on the pronunciation reflected by rhyme schemes of Hebrew liturgical poetry.

The reading traditions reflected by the medieval vocalisation systems were oral traditions that had deep historical roots in late antiquity and beyond, as shown, for example, by the papers of Hornkohl, Molin, and Myers. In a number of respects, however, diachronic changes took place in the reading traditions of late

antiquity, as shown in particular in the papers by Kantor and Suchard.

The medieval written vocalisation sign systems were in some respects a further cycle in the development of vowel notation through the use of vowel letters in Semitic scripts in periods before vocalisation by means of diacritics. Of importance for the theme of the volume, therefore, is the paper by Crellin and Tamponi on the representation of vowels in Neo-Punic.

In what follows we offer summaries of the papers in order to furnish readers with an overview of the contents of the volume.

The article by Robert Crellin and Lucia Tamponi elucidates the vowel quality and quantity of Neo-Punic and Latin from North Africa and Sardinia. An important innovation presented in the article is the investigation not only of the representation of vowels in Neo-Punic by means of *matres lectionis*, but also of zero-representation and its relation to representation by *matres lectionis*. This sheds light on the degree of sensitivity of writers of Neo-Punic inscriptions to vowel length in Latin. The examination of the representation of vowel length and vowel quality further reveals that in both North Africa and Sardinia the distinction between /i, e:/ and /u, o:/ was retained despite the merger of these phonemes in Common Romance. The authors convincingly suggest that this is due to ties between North Africa and Sardinia. The article thus adds to our understanding of the linguistic development of both Romance and Punic in North Africa and Sardinia and to the relations between those two communities.

Benjamin Kantor investigates the attestations of the *way-yiqtol* form in ancient Greek and Latin transcriptions of Biblical Hebrew and compares those attestations with medieval Jewish

traditions of Biblical Hebrew (Tiberian, Babylonian) and with the Samaritan tradition. It is shown that the Greek and Latin transcriptions help us understand the development of the later Jewish and Samaritan traditions. By the time of Jerome's transcriptions (fourth/fifth century CE), the gemination following the initial *wa-* is generalised, whereas earlier, in Origen's *Secunda* (circa first–third centuries CE), it is not fully developed. In the Samaritan tradition there is no trace of this kind of gemination. The article reaches the important conclusion that gemination in *way-yiqtol* is a development of the Second Temple Jewish traditions, but not the Samaritan tradition.

Peter Myers seeks to shed light on the guttural consonants of Biblical Hebrew underlying transcriptions into Greek in 2 Esdras, the Greek translation of Ezra-Nehemiah in the Septuagint. The article goes about this by examining the vowels that are used where the underlying Hebrew pronunciation would be expected to have a guttural. Myers finds a degree of systematicity in the use of specific Greek vowels for specific Hebrew guttural consonants. The examination also corroborates earlier hypotheses regarding the loss of the velar fricatives /*ħ/ and /*ġ/ in Hebrew by the time of the writing of Septuagint Ezra-Nehemiah.

Dorota Molin's article highlights the importance of the incantation bowls in Jewish Babylonian Aramaic from the sixth–seventh centuries CE for the study of the pre-Masoretic Babylonian reading tradition of Biblical Hebrew. Biblical quotations within these bowls constitute the only direct documentation of Biblical Hebrew from Babylonia at that time. The phonetic spelling of the quotations provides much information about their pronunciation. In a series of case studies Molin shows that the

pronunciation of the quotations corresponds closely to the medieval Babylonian reading tradition. She also demonstrates that they reflect interference from the Aramaic vernacular, manifested especially in weakening of the guttural consonants, and that the writers drew from an oral tradition of the Hebrew Bible.

Benjamin Suchard treats the phenomenon of irregular reflexes of the vowels **i* and **u* in Biblical Hebrew and Biblical Aramaic from a novel perspective of ‘phonological adaptation’, whereby speakers of one language adapted borrowed forms to their own phonology. This process is known to be irregular. The author makes an innovative suggestion that in Biblical Hebrew and Biblical Aramaic, respectively, the irregular reflexes of the vowels **i* and **u* are due to the phonological adaptation of pre-Tiberian Hebrew to Aramaic phonology and of Biblical Hebrew to Palestinian Greek phonology. Such a process sheds light on general developments in the reading traditions and linguistic realities of Palestine of late antiquity.

Nick Posegay presents new data in his article on links between the various medieval vocalisation traditions of Hebrew, Syriac, and Arabic. These include the identification of overlaps in the Aramaic terminology used by Jewish Masoretes and Christian Syriac grammarians and in the phonological theories that underlie them. Posegay thus provides new evidence that the systems did not develop in isolation, but where the result of intellectual exchanges between the various religious communities.

Aaron Hornkohl examines two features in the Tiberian reading tradition of Biblical Hebrew, namely the *qal* construct infinitive and the 3ms possessive suffix that is attached to plural nouns and some prepositions. The article argues that although

the vocalisation in both cases is secondary relative to what is represented by the consonantal text, it is not artificial and post-biblical, but rather a relatively ancient product of the real language situation of an earlier period, namely, the Second Temple Period, if not earlier. The view that the vocalisation has such historical depth and is the result of natural linguistic development is often dismissed by biblical scholars. By examining the distribution of forms within the Tiberian Masoretic version of the Hebrew Bible and in extra-biblical sources, especially the Dead Sea Scrolls and First Temple period epigraphy, Hornkohl convincingly demonstrates that the incongruity between the vocalisation and the consonantal text is earlier than Rabbinic Hebrew (second–third centuries CE).

Joseph Habib examines the attitudes of medieval Karaite exegetes and Saadya Gaon with regard to the *qere* and *ketiv* in the Masoretic Hebrew Bible on the basis of their commentaries and Arabic translations. Habib presents clear evidence that both Saadya and various Karaite exegetes relied on *qere* as well as *ketiv* for their exegesis. He shows that the main motivation to use one or the other as the basis of interpretation is harmonization with parallel verses.

Vincent DeCaen and Elan Dresher investigate the reasons that pausal forms in Tiberian Hebrew, which are expected to occur at the end of ‘intonational phrases’, at times appear where Tiberian accents are conjunctive rather than disjunctive. They challenge an earlier opinion that such mismatches represent different traditions or stages of interpreting the biblical text, maintaining instead that these mismatches are due to limitations inherent in the Tiberian system of accents.

In his paper Kim Phillips focuses on *shewa* signs that are pronounced as vocalic according to the Masoretic treatises in contexts where they would normally be expected to be silent. He examines how such *shewas* are represented by the scribe Samuel ben Jacob, who produced the Leningrad Codex and various other codices. The examination reveals that the scribe strove for graphic economy and was not completely consistent in the strategies that he adopted to represent the vocalic nature of the *shewa* in these contexts across the various manuscripts.

Benjamin Outhwaite examines how deviations from the standard Tiberian tradition found in ‘Common Bibles’ from the Cairo Genizah reveal the way Biblical Hebrew was pronounced by those who produced the manuscripts. Common Bibles have to date been studied far less than other biblical manuscripts from the Cairo Genizah. The study examines five fragments. It illustrates numerous deviations in notation from the standard conventions of Tiberian vocalisation and also many features that reflect a pronunciation different from that of the standard Tiberian tradition.

Estara Arrant examines categories of Torah codices from the Cairo Genizah that have not been afforded sufficient scholarly attention, namely ‘near-model’ codices, a term coined by Arrant. The study analyses almost three hundred fragments by means of a methodology based on statistical analysis. The study shows how statistical methods can be employed to reveal sub-types of Torah fragments that share linguistic and codicological features.

Geoffrey Khan looks at imperfect performances of the prestigious Tiberian pronunciation tradition that are reflected in medieval Bible manuscripts. He proposes explanatory models for the development of such imperfect performances. Three factors are

identified: interference of a less prestigious substrate, which he identifies as the Hebrew component of Jewish vernacular Arabic; hypercorrections; and varying degrees of acquisition of the Tiberian tradition. Khan describes these various phenomena and concludes that the imperfect performances must be datable to a period when the Tiberian pronunciation tradition was still alive and was familiar, though not perfectly, to the scribes.

Élodie Attia examines the question of the relationship between early Ashkenazic Bible manuscripts and the Tiberian tradition as recorded in the earliest Tiberian manuscripts, especially the Leningrad Codex and the Damascus Pentateuch. The main Ashkenazic manuscript chosen for the study is Vat. Ebr. 14. The study challenges an earlier claim by Pérez Castro that early Ashkenazic Bible manuscripts were far removed from the Tiberian tradition in comparison with Sephardic manuscripts. Attia shows that by enlarging the corpus of Tiberian manuscripts and by including Ashkenazic manuscripts earlier than those previously studied, the relations between the two corpora appear more complex than has hitherto been believed.

José Martínez Delgado presents a detailed overview of the different models for explaining the metric system of Andalusí Hebrew poetry. The author focuses on four models, which are found in various historical documents and scholarly studies.

Michael Rand draws attention to some features in the so-called ‘Qillirian’ rhyme scheme, named after the great poet Eleazar be-Rabbi Qillir, who invented and introduced it into Hebrew *piyyuṭ*. In *piyyuṭim* with this type of rhyme, morphological elements, namely, two root consonants, form the basis of rhymes. Rand elucidates different ways in which this feature is implemented and how it may encompass both a linguistic reality and

a poetic tool. Some rhymes reflect historical phonetic changes that took place in the pronunciation of Hebrew; others constitute poetic techniques. It is shown that in some cases /a/ rhymes with /e/, which is likely to reflect a phonetic reality rooted in the speech of the poets.

We would like to express our gratitude to Ben Kantor and Ivri Bunis, who helped with the reviewing of the papers and the preparation of the summaries. The plates of the Genizah fragments Cambridge University Library Or 1080.A.1.2, T-S Misc 3.49, T-S A3.14, and T-S A5.12 are published by courtesy of the syndics of Cambridge University Library. Finally, many thanks to the Open Book Publishers team, who have handled the process of publication so efficiently.

The Editors, Cambridge April 2020

VOWEL QUANTITY AND QUALITY IN NEO-PUNIC AND LATIN INSCRIPTIONS FROM AFRICA AND SARDINIA¹

Robert Crellin and Lucia Tamponi

1.0. INTRODUCTION

We survey two sources of inscriptional evidence—Neo-Punic inscriptions from North Africa and Latin and Neo-Punic inscriptions from Sardinia—exploring the implications for better understanding the structure of the Neo-Punic vowel system, that of Latin in

¹ The paper was jointly conceived by the two authors. The composition was divided up as follows: §§1, 2.4, and 3.7 were jointly authored; the author of §§2.1–3 and 3.6 was Robert Crellin; §§3.1–3.5 were authored by Lucia Tamponi. We would like to thank Prof. Giovanna Marotta and Francesco Rovai for their support and thought-provoking comments, as well as the editors for their careful reading and helpful suggestions. Needless to say, any remaining shortfalls remain the responsibility of the authors. We would also like to thank Karel Jongeling for providing us with a copy of his PhD dissertation. Robert Crellin completed his contribution as part of ongoing research under the CREWS (Contexts of and Relations between Early Writing Systems) project, the European Research Council (ERC) under the Horizon 2020 research and innovation programme (grant agreement No. 677758).

North Africa, and what relationship these might have to the development of the Latin vowel system in Sardinia. On the basis of the evidence given, we suggest that the non-participation of Sardinian Latin and Sardinian Romance in the merger of /i, e:/ and /u, o:/ in Common Romance is to be linked to the strong distinction of these phonemes in North African Latin. Furthermore, we provide evidence for the early collapse of vowel quantity distinctions in North African Latin, so that the same development in Sardinian Romance may plausibly be seen as part of the same phenomenon, a result of contact with North Africa.

In order to show this, we devote the first section to giving a detailed survey of the representation and non-representation of vowels in a set of Roman personal names occurring in Neo-Punic inscriptions from North Africa, in terms of both vowel quality and quantity. In the second section these results are compared with a survey of the vowel alternations <e>/<i> and <o>/<v> in a set of Latin inscriptions from Sardinia. Finally, supporting evidence is adduced from Neo-Punic inscriptions in Sardinia.

2.0. NEO-PUNIC IN NORTH AFRICA

2.1. Introduction

2.1.1. Corpus and Dating

The Late Punic corpus consists almost entirely of lapidary inscriptions (Jongeling and Kerr 2005, 1); it is unfortunate that no documentary material written on perishable material has survived. The basis for the present investigation is the set of Latin personal

names from inscriptions from North Africa (modern Algeria, Tunisia, and Libya) given in the ‘Onomasticon’ section of the Neo-Punic corpus of Jongeling (2008).

For purposes of the present investigation, the following vowel tokens were excluded:

- Vowel tokens where there is doubt as to the correct reading of the token, as indicated in Jongeling (2008);²
- Tokens from names where the quantities could not be found either in Lewis and Short (1879), Gaffiot (1934), or Forcellini et al. (1940);³
- Tokens marked reconstructed or uncertain in Jongeling (2008);

² In addition, names whose Roman identification is indicated by Jongeling as uncertain are on the whole excluded. This includes: *b^st²*, *klⁿy*, *m^rrwlny*, *m^rryš*, *mrq^h*, *swl^s*, *sw^sw²*, *p²rtn^st²*, *pwly^s*, *pylkys*, *pylks*, *plk^sy*, *pntn²*, *q^sp^t²*, *q^sšy²*, *qrnt²*, *r²sttyt²*, *ryd^sy*. In addition, *yⁿnw^sr* for *Januaria* is excluded on the grounds of being a shortened form. Greek names which occur in a parallel Latin transcription are included. The name *wyt^sl²* is given as *Vitalus* by Jongeling. However, this name does not occur in Forcellini et al. (1940), whereas the name *Vitalis* does occur. Accordingly, the quantities for *Vitalus* are taken from *Vitalis*.

³ Access to Gaffiot (1934) and Forcellini et al. (1940) was provided by Brepolis (<http://apps.brepolis.net/BrepolisPortal/default.aspx>). Access to Lewis and Short was also provided by Diogenes v. 3.2.0 (<http://community.dur.ac.uk/p.j.heslin/Software/Diogenes/index.php>), in which the text of Lewis and Short is, in turn, provided by the Perseus Project (<http://www.perseus.tufts.edu/hopper/>).

- <ʾ> tokens corresponding to the final syllable of Latin second declension masculine termination *-us*, e.g., *Severus*. These likely represent /e/ (cf. Jongeling 1984, 96; 2003, 119; Kerr 2010, 44, 68–74). These were excluded on the grounds that the sheer quantity of such forms would skew the results;
- <y> tokens corresponding to the Latin second declension masculine termination *-ius* and *-eus*, e.g., *Aelius* (cf. Jongeling 1984, 96; Kerr 2010, 68–74). These were excluded for the same reason as those terminating in *-us*.

Any additional restrictions imposed for a particular part of the investigation are noted in relation to that part.

The modern country of origin of the vowel tokens considered for the present investigation is given in Table 1. Tokens from inscriptions in Italy and Sardinia are excluded in order to be in a position to assess the relationship between the Sardinian and North African systems on the basis of the Sardinian Latin inscriptions in §3.

Table 1: Locations of vowel token instances

Country	Vowel token count	Inscriptions
Algeria	20	10
Libya	155	25
Tunisia	222	67
Sum	397	102

It should be observed at the outset that terms in the study of the Punic language and its epigraphy are used differently by different scholars. Following Jongeling and Kerr (2005, 1), we use the term ‘Punic’ to refer to both the variety of the Phoenician

language spoken and used under the Carthaginians and the Punic language written in Phoenician script. By contrast, we use the term ‘Neo-Punic’ to refer to the Punic language as written in the Neo-Punic script, which is conventionally dated to post-146 BCE, i.e., after Carthage’s final defeat at the hands of Rome. We say ‘conventionally’, since it should also be borne in mind that dating these changes with any degree of precision is problematic owing to the nature of the evidence, as Wilson (2012, 265–66) observes: “Most neo-Punic inscriptions are undatable on internal evidence, and are dated after 146 BC on the basis of the cursive script—and this dating is then used, by a circular argument, to date the script [...]”. The Neo-Punic corpus as a whole can, however, be dated between the first century BCE and the second century CE (Ferjaoui 2007, 34).

The investigation does not concern Latino-Punic or Greco-Punic texts, that is, Late Punic texts written in the Latin and Greek alphabets, respectively. For a detailed study of this corpus, see Kerr (2010).

2.1.2. Previous Research: Vowel Writing in Neo-Punic

Phoenician and Punic, prior to the Third Punic War, had been very conservative in respect of the representation of vowel phonemes, so that in most cases vowels are not recorded. However, in Neo-Punic the use of *matres lectionis* becomes much more prevalent.

Considerable work has been done over the last couple of decades to show that the representation of vowels in Neo-Punic is not haphazard (Jongeling 2003; Kerr 2010, 38). Even so, the

system cannot be said to have been unified or standardised (cf. Friedrich and Röllig 1999, §107).

The basic correspondences may be given as in Table 2.

Table 2: Matres lectionis in Neo-Punic orthography (adapted from Jongeling and Kerr 2005, 7)

<i>Mater</i>	Name	Vowel phoneme represented
<ʾ>	ʾalef	/o/, /e/, /u/
<h>	he	/a/
<w>	waw	/u/
<ḥ>	ḥeth	/a/
<y>	yodh	/i/
<ʿ>	ʿayin	/a/

The following points are worth noting:

1. /a/ is represented by no fewer than three different *matres*: <ʿ>, <ḥ>, and <h>. Despite this, <ʿ> is the usual way of representing this vowel (Jongeling and Kerr 2005, 8);
2. <ʾ> represents /o/, /e/, and /u/—surprising since one, /e/, is on the front axis, while the other two are on the back axis;
3. <ʿ> and <ḥ> are used as *matres*, something unknown in Hebrew and Aramaic varieties, with the exception of Mandaic, where ʿayin is used as a *mater lectionis* (see Nöldeke 1875, 5–6).

Jongeling (1984) looked specifically at the transcription of Roman names into Neo-Punic. From his investigation, it is again striking that several graphemes, namely <ʾ>, <h>, <w>, and

<y>, have multiple interpretations. However, Jongeling does not provide figures for correspondences between vowel phonemes and their graphemes. Furthermore, he is primarily concerned with the manner of active denotation of vowels, and does not address the question of zero representation. It is these points which the present study seeks to address, and in so doing to provide additional clarity in regard to the principal distribution of vowel graphemes in Neo-Punic.

It is interesting to note in passing that <h> is not attested in names of Latin origin (Jongeling 1984, 104).

2.1.3. Method: From Graphemes to Phonemes

The transcription of Roman names into Neo-Punic can help us understand the structure of the Late Punic vowel system, since we know, at least in principle, what the structures are that are supposed to be represented. In what follows we set out to establish what may be deduced in respect of:

1. The representation of vowels in the Neo-Punic writing system, in terms of whether or not a particular vowel phoneme is represented;
2. When a particular vowel phoneme is represented, the means by which it is represented;
3. The shape of the Latin vowel system in North Africa at the time of the Neo-Punic inscriptions.

However, it should be observed that we are matching Punic vowel graphemes to Latin vowel graphemes, not phonemes to phonemes or graphemes to phonemes (for this point see also Jongeling 1984, 95–96). Indeed, we could in principle be dealing

with transliteration into Neo-Punic, rather than transcription. If this were the case, the correspondences would merely tell us how users of the Neo-Punic writing system thought the graphemes should correspond.

We need first, then, to establish that we are dealing with a transcription, rather than transliteration system. This is easily seen from an analysis of the rendering of Latin graphemes into Neo-Punic. For if we were dealing with a system of transliteration, we would expect to find two things:

1. Every Latin vowel grapheme being represented in Neo-Punic;
2. Consistency in the representation of vowel graphemes.

An analysis of Table 3 and Table 4 below shows that, while there may be trends in the rendering of Latin vowel graphemes, they can hardly be said to be particularly consistent in terms of either the fact or the manner of representation. We therefore take it to be the case that we are dealing with a transcription system, that is, an attempt on the part of inscribers using Neo-Punic script to render the Latin sounds they perceived according to Neo-Punic spelling rules or tendencies. This is important, since it allows us to move from Neo-Punic graphemes to Latin phonemes.

2.2. Vowel Representation in Neo-Punic: Analysis by Quality and Quantity

2.2.1. Vowel Quality

Previous studies of vowel representation in Neo-Punic have focused on the manner in which vowel phonemes are actively represented (cf. the previous section). If we look at this question, the

data provided in the present investigation more or less conform to the picture given in §2.1.2 above, whereby /a/ is primarily represented by <‘>, /e/ and /o/ by <’>, /u/ by <w>, and /i/ by <y>. Consider the figures given in Table 3.⁴ For the time being, diphthongs are excluded from consideration. These will be examined separately at §2.4.3 below.

Table 3: Latin vowel quality representation in Neo-Punic (observed token frequencies, percentages in parentheses)

	<‘>	<’>	<h>	<w>	<y>	Total	Primary transcription
/a/	113 (95)	5 (4)	1 (1)	-	-	119	<‘>
/e/	-	12 (80)	3 (20)	-	-	15	<’>
/i/	-	-	-	-	48 (100)	48	<y>
/o/	-	10 (91)	1 (9)	-	-	11	<’>
/u/	-	9 (41)	1 (5)	11 (50)	1 (5)	22	<w>

However, this ignores the fact that many vowel phoneme tokens are not represented in Neo-Punic. If we take these ‘zero’ representations into account, the picture looks somewhat different, as may be seen in Table 4.

⁴ Percentage totals throughout may not add up to exactly 100 owing to rounding to the nearest integer.

Table 4: Latin vowel quality representation in Neo-Punic including zero marking (observed token frequencies, percentages in parentheses)

	<∅>	<˘>	<˙>	<h>	<w>	<y>	Total	Primary transcription
/a/	8 (6)	113 (89)	5 (4)	1 (1)	-	-	127	<˘>
/e/	41 (73)	-	12 (22)	3 (5)	-	-	56	<∅>
/i/	27 (36)	-	-	-	-	48 (64)	75	<y>
/o/	22 (67)	-	10 (30)	1 (3)	-	-	33	<∅>
/u/	65 (75)	-	9 (10)	1 (1)	11 (13)	1 (1)	87	<∅>

It may be seen from the table that in the case of three vowel qualities—/e/, /o/, and /u/—zero is the primary transcription, and only in the case of /a/ and /i/ is active transcription preferred. In addition, it is worth noting that <˙> is the primary means of rendering no phoneme in particular. This is to say that <˙> indicates the presence of a vowel, without specifying its quality (for the polyvalence of <˙>, see also Jongeling 2003, 121).

In order to gain clarity on the rationale for the distribution, it is also important to assess the manner in which vowel quantity is represented.

2.2.2. Vowel Quality and Quantity

Jongeling (1984, 109), in a section on the transcription of Roman names into Neo-Punic, observes that the length of consonants and vowels is not expressed in Neo-Punic. Our data show, on the one hand, that strictly speaking this is true, in that a vowel of a given quality may be represented in the same way regardless of its length. On the other hand, however, long and short vowels are not equally likely to be represented.

Table 5 gives the means by which the vowels in Roman names are transcribed, with the vowel quantities as they would be expected to be in Classical Latin. These quantities were obtained by checking each Latin name in the Neo-Punic corpus against the quantities listed in Lewis and Short (1879), Gaffiot (1934), and/or Forcellini et al. (1940). For the analysis of vowel quality and quantity, in addition to the exclusions listed in §2.1.1 above, the following tokens were excluded:

- Initial and final vowels, since these are almost obligatorily represented regardless of quantity (or quality);
- Tokens occurring in closed syllables, that is, syllables of the shape (C)VCC were also excluded, since it is difficult to be sure of the length of the vowel in these cases;
- Tokens occurring in words terminating in *-ius* or *-eus*. These were excluded for comparability in later sections, where the Latin stress is taken into consideration (see especially §§2.3.1 and 2.4.5);
- As noted previously, diphthongs are considered separately in §2.4.3 below.

The final column of Table 5 gives the principal active means of transcription for each phoneme, without taking account of representation by zero. The table shows that in the cases of /a/ and /i/ the primary active means of transcribing each vowel is the same for the long and the short variants, consistent with Jongeling's claim. In the cases of /e/, /o/, and /u/ a difference is observable, although the frequencies are in each case very low, making it difficult to come to a conclusion. What is important to observe, however, is that, while the principal means of transcription appears to be governed primarily by quality rather than quantity, in the cases at least of /a/, /i/, and /u/ the long vowel is more likely to be represented than the short vowel, suggesting that those composing the text of the inscriptions were sensitive to distinctions in Latin vowel length. Consider, for example, the representation of /i/ in /kandide/ > *q^hndd^h* (Labdah N 9, 10) and /fortis/ > *p^hrtis* (Hr. Maktar N 83) versus that of /i:/ in /auguri:ne/ > *^hwgryn^h* (Teboursouk N 13). Similarly, note the contrasting representations of the two /i/ vowels in /wiri:lis/ written *wrylš* (Hr. Maktar N 94) and of /u/ in /ru:fus/ written *rwps* (Labdah N 13).

We will return to the question of the perception of vowel length on the part of those composing the texts of these inscriptions below, esp. §§ 2.4.3 and 2.4.5.

Table 5: Latin vowel quality and quantity transcription into Neo-Punic including zero representation (observed token frequencies, percentages in parentheses)

	Zero	Non-Zero					Total	Primary transcriptions	
	<∅>	<'>	<'>	<h>	<w>	<y>		incl. zero	excl. zero
/a/	3 (14)	17 (81)	1 (5)	-	-	-	21	<'>	<'>
/a:/	-	26 (100)	-	-	-	-	26	<'>	<'>
/e/	15 (75)	-	4 (20)	1 (5)	-	-	20	<∅>	<'>
/e:/	6 (60)	-	3 (30)	1 (10)	-	-	10	<∅>	<'>
/i/	11 (37)	-	-	-	-	19 (63)	30	<y>, (<∅>)	<y>
/i:/	2 (11)	-	-	-	-	16 (89)	18	<y>	<y>
/o/	8 (80)	-	1 (10)	1 (10)	-	-	10	<∅>	<'>
/o:/	6 (75)	-	2 (25)	-	-	-	8	<∅>	<'>
/u/	23 (88)	-	-	-	2 (8)	1 (4)	26	<∅>	<w>, <y>
/u:/	1 (11)	-	4 (44)	1 (11)	3 (33)	-	9	<'>, <w>	<'>, <w>

2.2.3. Conclusion

Neo-Punic is at one level unpredictable as to exactly how a given vowel will be represented in a particular inscription. This has been confirmed by our data. The present analysis, however, supports the identification of patterns underlying the surface phenomena. The present study differs from previous ones in that it

takes account of where a given vowel phoneme is represented by zero. The principal findings are these:

- /a/ is represented by <˘>, regardless of its length;
- The mid vowels /e/ and /o/ are liable to go unrepresented, again regardless of length;
- The high vowel /i/ is more likely than not to be represented whether long or short, and much more so when long;
- The high vowel /u/ is most likely to be represented when long, and more likely to be unrepresented when short.

This situation can be summarised in the vowel triangles for short and long vowels in Figure 1 and Figure 2, respectively.

Figure 1: Short vowel triangle

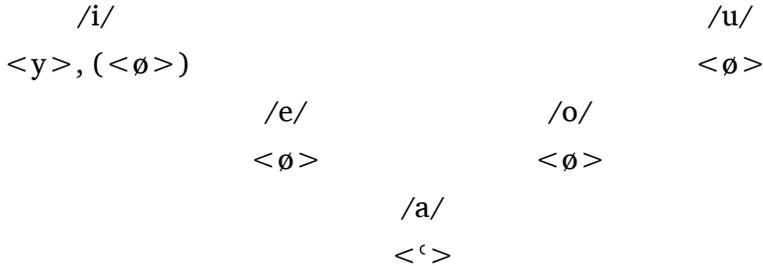
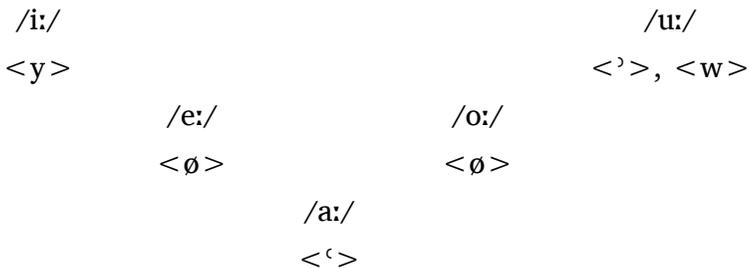


Figure 2: Long vowel triangle



The situation is superficially reminiscent of that seen, for example, in manuscripts representing the Tiberian tradition of Biblical Hebrew (BH), where long /i/ and /u/ are more likely to be represented by <y> and <w>, respectively, than their short equivalents, and where the mid vowels /e/ and /o/ are less likely to be represented than their respective higher equivalents, /i/ and /u/. The main differences between Neo-Punic and BH are, however, (a) the fact of representation of /a/, which is usually left unrepresented in BH (except word-finally), and (b) the use of <ʿ> to represent /a/, since <ʿ> is not a *mater* in BH, at least in the Masoretic tradition.⁵

2.3. Factors Affecting Zero Representation in Neo-Punic

So far we have considered the manner in which particular phonemes are represented in Neo-Punic writing. We have seen that, with the exception of /a:/, all vowel phonemes may be represented by <∅>. It is therefore important to consider what factors might affect whether or not a given vowel is represented at all.

In this section, we move on to consider what other factors, apart from vowel quality and quantity, might affect whether or not a vowel is represented. The following variables are considered:

- The position of the Latin stress;
- The position of the relevant syllable in the word.

⁵ For the possible origins of the use of <ʿ> as a *mater* in Punic, as well as examples of its use as a *mater* in Samaritan Hebrew and in the Babylonian tradition, see Kerr (2010, 42) and references there.

2.3.1. Position of the Latin Stress

A priori, apart from quality and quantity, the most obvious factor likely to affect the marking of a vowel, or the lack thereof, is the position of the stress. In Classical Latin, the stress falls on the antepenultimate syllable of the word (or the penultimate if there is no antepenultimate), unless the penultimate syllable is ‘heavy’, that is, is either closed or contains a long vowel (cf., e.g., Lindsay 1891). For this analysis, the same dataset is used as was at §2.2.2 for the investigation of vowel quality and quantity, with the exception that closed syllables were included, on the grounds that stress is unaffected by vowel length in closed syllables.

The results are given in Table 6 and Table 7. From these it is apparent that the position of the Latin stress has an effect on whether or not a vowel is marked: 71 percent of stressed syllables are marked, while only 36 percent of unstressed ones are.

Table 6: Latin accent: Observed token frequencies

	Marked V	Unmarked V	Total
Stressed	96	39	135
Unstressed	42	75	117
Total	138	114	252

Table 7: Latin accent: Observed token percentages

	Marked V	Unmarked V
Stressed	71	29
Unstressed	36	64

2.3.2. Syllable Position

It is generally assumed that Late Punic was oxytonic (cf. Kerr 2010, 100). Since it is reasonable to suppose that at least some

speakers would have pronounced Roman names with a Punic rather than a Latin stress, it is interesting to consider whether the absolute syllable position of a vowel has an effect on its zero representation. Table 8, accordingly, gives the token frequencies of vowel marking by syllable position, counting from the final syllable, for words of different syllable lengths. The dataset for this analysis was the same as that used for the analysis at §2.3.1 for the investigation of Latin stress.

Table 8: Frequency of vowel marking by syllable position (percentages in parentheses)

Number of syllables	Marked	Syllable position counting from final				
		1	2	3	4	5
2	Yes	-	46 (73)			
	No	28 (100)	17 (27)			
3	Yes	-	31 (57)	22 (50)		
	No	8 (100)	23 (43)	22 (50)		
4	Yes	-	14 (88)	10 (59)	6 (55)	
	No	2 (100)	2 (13)	7 (41)	5 (45)	
5	Yes	-	2 (100)	2 (100)	2 (100)	2 (100)
	No	-	-	-	-	-

From the table the following trends may be observed, by word length:

- In names of two and four syllables, the second syllable from the end of the word is very likely to be marked (73 percent and 88 percent, respectively). Thus /maker/ spelled *m^εqr* (Labdah N18) is typical, while *qlr* for /keler/ (Djebel Mansour N1) is less typical.

- There are no examples within the corpus of the writing of a vowel occurring in the final syllable (recall again that final vowel tokens were excluded; see §2.2.2).

2.3.3. Conclusion

We have seen that three factors may be said to contribute to the likelihood of a given Latin vowel phoneme being represented in the Neo-Punic representation of Roman names, namely:

- Vowel length: Latin long vowels are more likely to be represented than short vowels;
- Presence of the stress: stressed vowels in Latin are more likely to be represented than unstressed ones;
- Syllable position: especially in names of two and four syllables, the vowel of the penultimate syllable is very likely to be represented. The vowel of the final syllable, where the word is spelled terminating in a consonant, is almost never represented.

It is worth considering what principles of Neo-Punic phonology might underlie these observations, especially if word stress is to be linked with the likelihood of vowel marking. Kerr (2010, 100) concludes, on the basis of the Latino- and Greco-Punic inscriptions, that in the Late Punic language:

- All unstressed syllables are treated as short;
- Stressed syllables are treated as long;
- The distinction in vowel quantity was lost.

On this basis, Kerr infers that the stress in Late Punic was on the final syllable. How may this assessment be said to correspond with the evidence presented above?

It should be emphasised that the present study considers only Latin personal names as rendered into Neo-Punic characters. It is nevertheless interesting to observe that the distribution of vowel marking in Neo-Punic cannot be said to corroborate Kerr's assessment in regard to Late Punic as seen in the Latino- and Greco-Punic inscriptions. If it did, we would expect regularly to see the final vowel of a name with the vowel written, instead of other vowel positions. Furthermore, we would not expect the position of the Latin stress, or the natural length of a vowel in Latin, to have an effect on whether or not a given vowel is represented.

The evidence from the Neo-Punic rendering of Roman names points to two possible conclusions:

1. In the transcription of Roman names, Neo-Punic writers ignored Late Punic stress patterns, but rather followed Latin patterns of pronunciation;
2. Late Punic was not always oxytonic.

If the first is the case, this suggests a fairly high degree of familiarity with Latin phonology on the part of Punic speakers in Roman North Africa. To be sure about this, however, it is necessary to survey the distribution of vowel spellings in Punic words, something that we leave to future work.

2.4. Implications for the Late Punic Reading of the Latin Vowel System in North Africa

In this section we assess the implications of the representation of the Latin vowel system in Neo-Punic for the Late Punic reading of the Latin vowel system. This is of particular relevance to the development of the vowel system in Classical Latin (CL), with

distinctions of both quantity and quality, to that found in early Romance, which has only distinctions of quality.

In the Common Romance (CR) vowel system CL /i/ and /e:/ merge to /e/ on the front axis, while on the back axis /o:/ and /u/ merge to /o/. There are notable exceptions to this evolution. In our view, it is worth mentioning the development of the Sardinian varieties, which is supposedly shared by African Latin (see §2.4.5), where on the front axis CL /i:/ and /i/ merge to /i/, /e:/ and /e/ to /e/, while on the back axis /o/ and /o:/ merge to /ɔ/, and /u/ and /u:/ to /u/. These developments are summarised in Figure 3 and Figure 4 respectively.

Figure 3: Development of the vowel system from CL to CR (adapted from Loporcaro 2011, 115)

CL	/i:/	/i/	/e:/	/e/	/a/	/o/	/o:/	/u/	/u:/
CR	/i/		/e/	/ɛ/	/a/	/ɔ/		/o/	/u/

Figure 4: Development of the vowel system from CL to Sardinian (S) (adapted from Loporcaro 2011, 112)

CL	/i:/	/i/	/e:/	/e/	/a/	/o/	/o:/	/u/	/u:/
S		/i/		/e/	/a/		/ɔ/		/u/

In this context, it is interesting to ask if the Neo-Punic transcription of Latin personal names gives any indication of where North African Latin might have been situated in regard to these developments.

2.4.1. Front Axis: CL /e/, /e:/, /i/, and /i:/

Table 9 gives the transcription of the CL front-axis vowels into Neo-Punic. All four phonemes are in some cases transcribed

<ø>. Where they are positively marked, however, there is no overlap between /e, e:/, on the one hand, and /i, i:/, on the other. By contrast, there is clear overlap in the treatment of /e/ and /e:/, with both transcribed by <'> and <ø> in the corpus. Similarly, /i/ and /i:/ are both transcribed by <y> and <ø>.

On the basis of these data, therefore, we should conclude that any overlap that was perceived by Late Punic speakers in North Africa was between /e/ and /e:/, on the one hand, and /i/ and /i:/, on the other. This situates the North African treatment of these phonemes together with Sardinian and against CR.

Table 9: Neo-Punic transcription of Latin front axis vowels (reproduced from Table 5)

	<ø>	<'>	<'>	<h>	<w>	<y>
/e/	15 (75)	-	4 (20)	1 (5)	-	-
/e:/	6 (60)	-	3 (30)	1 (10)	-	-
/i/	11 (37)	-	-	-	-	19 (63)
/i:/	2 (11)	-	-	-	-	16 (89)

2.4.2. Back Axis: CL /o/, /o:/, /u/ and /u:/

The data for the Neo-Punic treatment of the back-axis vowel phonemes are given in Table 10. It is apparent from these that this case is not so clear cut. As with the front axis, all four phonemes can be zero-marked, and, as noted before, this is considerably more likely in the case of short vowels than in that of long vowels. Unlike on the front axis, however, three of the four phonemes, namely /o/, /o:/, and /u:/, may be actively marked by the same grapheme, <'>. The phonemes /u, u:/ do though differ

from /o, o:/, in that the former may be denoted by <w>, while the latter may not.

We may conclude, then, that there is overlap in the treatment of all four vowel phonemes on the back axis, but that /u/ and /u:/ are distinguished by being able to be transcribed by <w>. As with the front axis, therefore, the higher vowels /u/ and /u:/ pattern together against the lower vowels /o/ and /o:/ in an important respect.

Table 10: Neo-Punic transcription of Latin back axis vowels (reproduced from Table 5)

	<ø>	<˘>	<˙>	<h>	<w>	<y>
/o/	8 (80)	-	1 (10)	1 (10)	-	-
/o:/	6 (75)	-	2 (25)	-	-	-
/u/	23 (88)	-	-	-	2 (8)	1 (4)
/u:/	1 (11)	-	4 (44)	1 (11)	3 (33)	-

2.4.3. Diphthongs

There is little evidence for monophthongisation of diphthongs in the Neo-Punic corpus (cf. Kerr 2010, 58). Two Latin diphthongs are attested in the set of names under consideration for this paper, /au/ and /ae/. The distribution of transcriptions is given in Table 11. From this it is worth noting that:

1. /au/ shows no sign of monophthongisation;
2. /ae/ is similar, but in one case *q˘qly*, for the name *Caecilius* (Sidi Ali Belkassam N 1), is marked as a monophthong, as <˘>, suggesting /a/.

Table 11: Rendering of diphthongs into Neo-Punic

	<‘y>	<‘w>	<‘y>
/ae/	1	-	6
/au/	-	12	-

2.4.4. Distinctions in Vowel Length

The evidence provided so far is consistent with a situation closer to that seen in Sardinian Romance than in CR. The evidence against development in the direction of CR is particularly strong in the case of the front axis, although it can also be seen on the back axis insofar as /u, u:/, but not /o, o:/, may be represented by <w>. Ultimately, however, the Sardinian system loses vowel length distinctions. What evidence may there be for the North African system also losing vowel distinctions?

We saw above (§2.2.2) that short vowels are in general less likely to be actively marked than long vowels. Table 12 summarises the data from Table 5, giving the percentage of instances for each phoneme where the phoneme is marked. In general, long vowels are marked in 79 percent of the tokens, while short vowels are marked in 44 percent of the tokens, although particular behaviour is heavily dependent on vowel quality. It would seem on the face of it that Late Punic speakers were sensitive to distinctions in vowel length in Latin names. It would follow that North African Latin had not yet lost distinctions in vowel length by the second century CE.

However, it is important to establish whether vowel length is the key variable, or whether another factor might be primarily

responsible for the distribution. In particular, in view of the phenomenon of open syllable lengthening in North African Latin, that is, the phenomenon whereby vowels in stressed open syllables are lengthened (see Loporcaro 2011, 52), we should consider how vowel quantity and stress co-vary. It is to this issue that we turn in the next section.

Table 12: Marking of distinctions in vowel length by phoneme

	Zero	Marked V	Total	% marked
/a/	3	18	21	86
/e/	15	5	20	25
/i/	11	19	20	63
/o/	8	2	10	20
/u/	23	3	26	12
Subtotal	60	47	107	44
/a:/	-	26	26	100
/e:/	6	4	10	40
/i:/	2	16	18	89
/o:/	6	2	8	25
/u:/	1	8	9	89
Subtotal	15	56	71	79
Total	75	103	178	58

2.4.5. Open Syllable Lengthening

The testimony of authors from late antiquity suggests that vowel-length distinctions were lost in North African Latin (Loporcaro 2011, 55ff.). Thus Augustine (*De doctr. christ.* IV, 10, 24; for text see, e.g., Bruder 1838) reports that uneducated African speakers

could not perceive the difference between *ōs*(*sum*) ‘bone’ and *ōs* ‘mouth’; similarly, Consentius (Keil 1868, 5:392), noted that African speakers were in the habit of lengthening short vowels, such as in [ˈpi:per] for CL *pīper* [ˈpiper] ‘pepper’.⁶ These testimonies are supported by Herman (1982), where the comparison between the errors on stressed and unstressed vowels in metrical inscriptions from Africa (first–fourth centuries CE) and from Rome point to an early loss of vowel quantity in African Latin. It is, therefore, interesting to consider whether there may be said to be evidence for this development already in the Neo-Punic material.

There is localised evidence of this having happened in the transcription of Latin names in Neo-Punic, such as in the following examples:

- < s^str > for CLat. /ˈsatur/, suggesting [ˈsaːtur] (Hr. Maktar N29)
- < plyql^s > for CLat. /feˈlikula/ > [feˈli:kula] (Labdah N47)

Another inscription showing similar tendencies is El-Amruni N1, where we have *pwdnš* for the name /pudens/, perhaps suggesting a pronunciation along the lines of [ˈpu:dens]. However, other names in this inscription are spelled *plene*, e.g.,

⁶ For a more detailed discussion of the various interpretations provided for these passages, see Loporcaro (2011, 55ff.). Following Loporcaro’s interpretation, it is our opinion that Consentius referred specifically to vowel length, as shown by the choice of the technical terms *correpta* and *producta*; similarly, we hypothesise that Augustine referred to vowel lengthening in African Latin, even though expressing a negative socio-phonetic evaluation.

/se've:rus/ spelled $\check{s}^2w^? < w^? > |r^?$. Accordingly, the spelling *pwdnš* may find its explanation not so much in North African phonology, but in the *plene* spelling practices of this particular inscription.

There is, furthermore, evidence for this development on the scale of the whole corpus, as may be seen in Table 13 and Table 14. Here the same dataset was used as that for §2.2.2 for the investigation into vowel quality and quantity.

Table 13: Latin stress and length in syllables of the shape CV(C): observed token frequencies

		Marked V	Zero-marked V	Total
Stressed	Long	49	10	59
	Short	18	5	23
	Subtotal	67	15	82
Unstressed	Long	7	5	12
	Short	29	55	84
	Subtotal	36	60	96
Total		103	75	178

Table 14: Latin accent: observed token percentages

		Marked V	Zero-marked V
Stressed	Long	83	17
	Short	78	22
Unstressed	Long	58	42
	Short	35	65

We find that long stressed vowels are marked in 83 percent of token instances, while short stressed vowels are marked in 78 percent of token instances, indicating that the natural length of

the vowel in CL does not have a great effect. By contrast, the effect of the stress position is significant. In particular, short unstressed vowels are marked in only 35 percent of token instances, while short stressed vowels are marked in 78 percent of token instances.

How may this finding be said to relate to that in §2.4.4 above, where it was found that vowel quantity in CL has an important effect on whether or not a vowel is represented? It is important to recognise that the greater part of the stressed open syllables are long (59 out of 82, 72 percent), while an even greater part of the unstressed syllables are short (84 out of 96, 88 percent). If stressed vowels in open syllables are more likely to be written than unstressed ones, we should expect to find that more long vowels are written than short vowels simply because of this distribution. However, the fact that nearly the same proportion of stressed short vowels in open syllables are written as stressed long vowels points to stress being the determining variable, at least in open syllables.

This finding in turn provides evidence for early open syllable lengthening in North African Latin, as put forward by Herman (1982). Herman concludes that open syllable lengthening was established in North African Latin by at least the fourth century CE. The Neo-Punic inscriptions, as we saw earlier, are generally dated between the first century BCE and the second century CE. We, therefore, interpret the Neo-Punic evidence as indicative of open syllable lengthening occurring by at least the second century CE.

2.4.6. Conclusion

The significance of these results for the interpretation of the Latin vowel system on the basis of Neo-Punic is as follows. The evidence presented here points to a system closer to that seen in Sardinian than in CR. This is clearest on the front axis, where there is almost no overlap in the positive marking of /e, e:/ and /i, i:/, but clear overlap in the marking of /e/ and /e:/, on the one hand, and /i/ and /i:/, on the other. On the back axis this is less clear, with overlap in the marking of /o, o:/ and /u, u:/. Nevertheless, /u, u:/ are distinguished from /o, o:/ in that it can be marked by <w>. When, however, the stress and the length of the vowel were taken into account, evidence was provided that those writing inscription texts were more sensitive to Latin stress than to distinctions in vowel length, supporting the notion that the North African Latin vowel system may have begun to lose distinctions in vowel length by the second century CE.

As will be shown in the next section, these data are consistent with the results of the analysis of a corpus of Latin inscriptions from Sardinia, which point to a maintaining of the qualitative differences between /i/, /i:/ and /e, e:/ on the front axis and between /o, o:/ and /u, u:/ on the back axis.

3.0. SARDINIA

3.1. Introduction

As outlined in §2.4, the Sardinian vowel system lost distinctive vowel quantity, but the mergers of /i, e:/ and /u, o:/ typical of the CR vowel system did not occur.

Scholars have long argued about the causes of this difference. Traditionally, it is believed that the Sardinian vowel system was conservative, since Sardinia was an isolated area, and, therefore, more likely to show archaic features (see, e.g., Lausberg 1971, 203ff.). More recently, however, some scholars have suggested that this vowel system could instead be an innovation. In particular, Fanciullo (1992) suggested that the peculiar outcome of the Sardinian vowel system could be due to substratum effects, i.e., the inhabitants' inability to perceive the opposition between the long and short counterparts of the phonemes (see also Lupinu 2000, 20).

In the light of this suggestion, given the similar outcomes of the Latin vowel systems in Sardinia and Africa (§2.4), it is worth examining the possibility of interference between the Latin and the Late Punic vowel systems, establishing whether the system which emerges from the analysis of Neo-Punic inscriptions described in §2 is consistent with the data from Latin inscriptions from Sardinia.

For these reasons, we will first take into account the archaeological and historical sources that point to a strong presence of Latin and Neo-Punic bilingual speakers in Roman Sardinia. We will then examine the vowel alternations <e>, <i> / <o>, <v> in the Latin inscriptions from the island, in order to establish whether these texts foreshadow the development of the Sardinian vowel system. As shown, e.g., by Allen (1978, 49), the use of <e> for <i> (e.g., *menus* for *minus*) and <o> for <v> (e.g., *colomnas* for *columnas*) in Latin inscriptions could be due to

a qualitative similarity of Lat. /i/ and /e:/ from early times.⁷ Our hypothesis is that, if evidence of this phenomenon can be found in Sardinia, this would point to the existence of a vowel system of the CR type in Sardinia. Conversely, the lack of such evidence would point to a system closer to that found in North Africa.

3.2. Neo-Punic and Latin in Sardinia

Before the Roman conquest of the island, Sardinia had been under the hegemony of Carthage already from the late sixth century BCE (Roppa 2015, 257). As shown by several historical and archaeological sources, the cultural influence of Carthage was significant on the island: in the first treaty between Rome and Carthage (ca. 509 BCE), Sardinia is described as tightly controlled by the Punic. Later, Diodorus Siculus reports that grain supplies were sent from Sardinia to Carthaginian troops in 480 BCE and 396–395 BCE (Roppa 2015, 262). In the second treaty between the two powers (ca. 348 BCE), Sardinia was under the strict hegemony of Carthage and, indeed, commerce between Rome and the island was forbidden (Mastino 1985, 29–30). From the point of view of archaeology, the documentation points to a Sardo-Punic culture in this period, with variously organised local communities, such as the agricultural communities of Neapolis, Nora, and Monte Sirai, along with their hinterlands (Roppa 2015, 267–79).

For this reason, the label ‘Punic’ is traditionally adopted to refer to the period between the sixth century BCE and the Roman

⁷ On this subject see also, among others, Leumann (1977, 45, 51) and, more recently, Adams (2013, 43) and Loporcaro (2011, 57–59).

occupation of Sardinia in 238 BCE. The Punic influence in Sardinia, however, is not limited to this period: in fact, under the control of Rome, the relationship with the province of Africa was strong, thanks to the geographical proximity of the capital *Karales* (nowadays Cagliari) to Carthage (ca. 1500 stadia, according to Pliny the Elder; see Mastino 1985, 57).

During the Roman occupation, and even later, several deportations of Africans to Sardinia are attested, such as the four thousand freedmen sent by Sejanus in 19 CE and the Mauri sent to the island by the Vandals in the fifth century CE (Mastino 1985, 36–37). Moreover, the archaeological evidence points to a survival of the Punic traditions in Sardinia during the Roman occupation, which extended to several domains, including linguistic, religious, onomastic, juridical, and administrative (Mastino 1985, 36). Indeed, Punic influence was so deeply rooted that some words belonging to modern Sardinian varieties have a Punic origin, e.g., *tsíppiri* ‘rosemary’, *mittsa* ‘spring’, and *tsikkiría* ‘dill’ (Paulis 1990, 617; Wagner 1997, 158ff.; Pisano 2017, 399).

Evidence of Punic influence on the island comes in several forms. First, a significant number of Punic and Neo-Punic inscriptions have been found there, dating from the end of the ninth century BCE all the way to the second century CE (Adams 2003, 209; Rovai 2015, 198). Hence, it is reasonable to suppose that Punic and Neo-Punic were spoken on the island, even after the destruction of Carthage, at least until the second century CE. Moreover, the bilingualism of the inhabitants of Sardinia is attested by the presence of bi- and trilingual inscriptions featuring

Latin and Neo-Punic, such as the well-known trilingual inscription from San Nicolò Gerrei (CIL X 7856, first half of the second century BCE), featuring Latin, Greek, and Neo-Punic. As illustrated by Adams (2003, 210–11), this inscription testifies to the fact that Late Punic was still the dominant language in this area, since the Neo-Punic text is the most informative one, with the reference to the weight and the content of the offering, as well as to the date.

Secondly, as demonstrated by van Dommelen (1998, 30), the archaeological record from the first centuries of the Roman occupation in Sardinia is Punic in nature, whereas Roman material culture is almost absent. This is the case, for example, in southern Arborèa, where Roman products from the third and second centuries BCE are scarcely attested, whereas the majority of the local pottery (e.g., commercial amphorae, kitchenware) follows Punic and Neo-Punic models (van Dommelen 1998, 39). Similarly, imported Roman objects are virtually absent in the burial rites held in Bidd'e Cresia (Central Campidano) and in the ritual offerings found in the *nuraghe* of Genna Maria, which show a “clear sense of Punic cultural identity” (van Dommelen 1998, 42).

Thirdly, there is evidence from the juridical/political domain. *Sufetes* are attested in Sardinia until at least the first century BCE, such as in *Karales*, *Sulci*, *Neapolis*, *Tharros*, and even later in *Bitia*: these Punic magistrates are well attested in Africa as well, at least up to the Imperial period (Mastino 1985, 69–71). As far as religion is concerned, several Punic deities were worshipped in Sardinia, such as Tanit, Melqart, and Eshmun Merre

(Mastino 1985, 78–79). Moreover, a close examination of the inscriptions from the island reveals a large number of African names: as highlighted by Mastino (1985, 85ff.), drawing on the results of Rowland (1973), the majority of the anthroponyms found in Sardinia can be traced back to African families or Punic provinces.

Finally, it is worth noting that Punic cultural identity in Sardinia was still recognised in the first century BCE: this attitude is demonstrated well by Cicero's *Pro Scauro* (19, 45), where Sardinians were depicted as sons of Africa (*Africa ipsa parens illa Sardiniae*) in his defence of the corrupt ex-governor of Sardinia, M. Aemilius Scaurus (van Dommelen 1998, 45; see also, among others, Mastino 1985, 34–35).

In conclusion, the archaeological and historical sources at our disposal show strong Punic influence until well after the Roman conquest of the island; moreover, the analysis of the bi- and trilingual inscriptions from Sardinia illustrated above points to a strong presence of Latin and Neo-Punic bilingual speakers, at least until the second century CE. For these reasons, it is reasonable to take account of the North African Neo-Punic evidence in order to better understand the development of the Sardinian vowel system.

3.3. Vowels in Sardinian Latin: Previous Research

The possible relevance of the North African situation has not been taken into account in previous linguistic analysis of the inscriptions from Sardinia. The vowel alternations <e>, <i> / <o>, <v>, however, have been partially analysed by Herman

(1985, 2000) and Lupinu (2000). Their results show a conservative vowel system in Sardinia, with only a few vowel mergers.

First, Herman (1985) examined the vowel alternations occurring in Latin inscriptions from the island dating back to the third and fourth centuries CE. The results of the study show a conservative vowel system, especially in stressed syllables, which seems to foreshadow the Romance outcome of the Sardinian varieties. This is particularly evident through comparison with other regions of the Empire, such as Gallia Narbonensis, where the vowel alternations examined by Herman can be found in both stressed and unstressed syllables. These results are confirmed by the qualitative analysis performed by Lupinu (2000) on the Christian inscriptions, which point to a conservative vowel system.

Finally, Herman (2000) compared the number of vocalic misspellings in the Christian inscriptions from Sardinia with the number of consonantal misspellings. Again, the results point to a scarcity of vowel alternations: only 16 percent of the misspellings involve vowels, and this percentage is significantly lower than the number of vocalic misspellings found in other regions, such as *Regio IX* (76 percent) and *Regio XI* (71 percent; see Herman 2000, 129–30).

The studies summarised so far are remarkable and yield interesting results. For this reason, we have run a more complete quantitative analysis on all the dated Latin inscriptions from the island, with the aim of casting light on the Romance development of the Sardinian vowel system. As we will see in the following section, the error rate has been calculated against the corresponding correct spellings (i.e., occurrences of <i> for /i/, <e> for

/e/, etc.). In this way, it is possible to provide percentages that will enable us to verify whether the scarcity of vowel alternations from Sardinia is due to the relatively limited number of tokens with respect to other areas of the Empire. Moreover, by taking into account the dating of the inscriptions and extending the analysis to all the available dated texts from Sardinia it will be possible to trace the diachronic development of the process. Finally, the literacy level of those involved in the crafting of the inscriptions has been considered, in order to exclude the possibility that the absence of misspellings could be due to a high degree of literacy among the writers.

In order to be able to perform such an analysis, an annotated epigraphic corpus containing all the available inscriptions from Sardinia has been built, as will be shown in the following paragraph.

3.4. The Corpus

The analysis presented in this section was performed on an annotated epigraphic corpus that includes Latin inscriptions from Sardinia dating between the first century BCE and the seventh century CE. The text data have been annotated with extra- and metalinguistic information, which allows us to analyse spelling (and possibly phonetic-phonological) variants in Sardinian inscriptions and to interpret them with reference to variables, such as the dating and the provenance of the texts. It will form part of the *CLaSSES* database (Corpus for Latin Sociolinguistic Studies

on Epigraphic textS),⁸ developed at the Department of Philology, Literature and Linguistics of the University of Pisa, which gathers non-literary Latin texts (inscriptions, letters, writing tablets) of different provinces of the Roman Empire.⁹

The epigraphic texts from Sardinia have been selected through the examination of the main collections of Latin inscriptions from the island, i.e., *Corpus Inscriptionum Latinarum X* (fasc. I, section *Pars posterior inscriptiones Siciliae et Sardiniae comprehendens*); *Ephemeris Epigraphica VIII* (section *Additamenta ad Corporis vol. IX et X*); Giovanna Sotgiu's two volumes (1961; 1968), *Iscrizioni Latine della Sardegna (Supplemento al Corpus Inscriptionum Latinarum, X e all'Ephemeris Epigraphica, VIII)*, and the more recent collection by Sotgiu (1988). Among the texts available for this province, the inscriptions considered not to be relevant for linguistic analysis have been excluded, i.e., inscriptions consisting of only single letters and initials, fragmentary texts, as well as those written entirely in other languages (e.g., Greek).

The resulting corpus contains 616 inscriptions, for a total number of 9,379 tokens. The texts are found mainly along the coast, the so-called 'Romània costiera', where the main Roman cities were built (see Mastino 2002, 63).

⁸ The database is available online: <http://classes-latin-linguistics.fileli.unipi.it/>.

⁹ At the moment, the database contains more than 1200 inscriptions, mainly from Rome and Central Italy, 200 ink-written tablets from Vin dolanda, and 219 letters from the North-African and Near-East areas. For a more detailed illustration of the corpus, see Marotta (2015; 2016) and De Felice et al. (2015).

The innovative aspect of our corpus is the annotation of linguistic phenomena, which focuses on phonetic aspects of the language. Spellings that do not conform to Classical norms were manually retrieved and, following the same criteria adopted for CLASSES, were classified according to the type of variation phenomena that distinguish them from corresponding classical equivalents. Finally, each token was annotated with extralinguistic information regarding the place of provenance and the dating of each inscription. In this way, it is possible to relate these variables to the graphic variants identified.

This corpus will enable us to shed light on the vowel alternations in the inscriptions from the first century BCE to the seventh CE, as will be shown in the following paragraph.

3.5. Latin Vowels in the Inscriptions from Sardinia

The survey presented in this section focuses on the confusion between <e>/<i> and <o>/<v> in the corpus. The analysis was limited to dated inscriptions in order to trace the diachronic development of the phenomenon on the island. However, we do not exclude the possibility of extending the investigation to undated inscriptions in a future study.

3.5.1. Error Rate

In Sardinia, the number of vowel alternations is extremely low, especially if their frequency is measured against the number of the corresponding correct spellings. As shown in Table 15, only

eighteen tokens show <e> for <i>, which amount to 0.22 percent; on the back axis, there are only three tokens showing <o> for <v> (0.08 percent).

Similarly, our corpus shows a very low number of deviant spellings involving the mid-high vowels (Table 16): on the front axis, five tokens show <i> for <e> (0.11 percent); on the back axis, the number of occurrences of <v> for <o> amounts to seven tokens (0.21 percent).

Table 15: Graphic representation of /ĩ/, /ũ/ in Sardinia

<i>			<v>		
Grapheme	Tokens	%	Grapheme	Tokens	%
<e>	18	0.22	<o>	3	0.08
<i>	8178	99.78	<v>	3839	99.92
Total	8196	100	Total	3842	100

Table 16: Graphic representation of /ě/, /ǒ/ in Sardinia

<e>			<o>		
Grapheme	Tokens	%	Grapheme	Tokens	%
<i>	5	0.11	<v>	7	0.21
<e>	4608	99.89	<o>	3388	99.79
Total	4613	100	Total	3395	100

Therefore, even if the total number of Sardinian inscriptions is considerably lower than in other regions of the Empire (see §3.3), these percentages show that the vowel alternations under analysis are very rare on the island.

For this reason, the mergers between /i, e:/ and /u, o:/ seem not to have taken place in Sardinia in the broad time frame covered by our corpus: this trend seems thus to foreshadow the Romance development of the Sardinian varieties (§2.4).

3.5.2. Literacy

As shown in the previous paragraphs, the methodology of calculating the error rate as a percentage against the total number of correct spellings can be useful for the analysis of a relatively small corpus such as the Sardinian one.

This procedure, however, does not account for an important variable: the level of literacy of those involved in the crafting of the inscriptions. The literacy level is of great importance to avoid conclusions based on ‘negative evidence’. In principle, if the level of literacy of the writers was found to be high, the lack of misspellings in the inscriptions should not be taken as a reflection of their pronunciation, since the graphemes used would reflect instead their knowledge of classical norms.

In order to exclude this possibility, the percentage of inscriptions which do not show uncertainty regarding the vowels under analysis, but at the same time show other types of misspellings, has been calculated (Table 17).¹⁰

¹⁰ Examples of other types of misspellings taken into account are the following: deletion of consonants (final *-s*, *-m*, *-t*, etc.), insertion of vowels or consonants, monophthongisation, dissimilation, non-etymological gemination, degemination, confusion between voiced and voiceless stops, loss or insertion of aspiration, confusion between and <v>.

Table 17: Percentage of inscriptions showing misspellings other than vowel alternations

	Total	%
Inscriptions showing other types of misspellings	281	47
Inscriptions not showing other types of misspellings	317	53
Total	598	100

As shown in the Table, in nearly half of the inscriptions (47 percent) where the graphic representation of the vowels /i/, /e/, /o/, and /u/ follows the Classical norms, there are other types of misspellings. Thus, in at least half of the cases, the lack of vowel alternations seems to be due to something other than the writer's high educational level.

These data show therefore that those involved in the crafting of the inscriptions had uncertainties at other points of the language, but not regarding the vowel system. Thus, it is possible to hypothesise that the correct spelling of the vowels indicates at least a distinction between /i, e:/ and /u, o:/ in Sardinia until the seventh century CE.

3.5.3. Stress

Lexical stress has also been taken as a variable in this analysis, in order to verify whether the vowel qualities are better preserved under stress.

For this reason, the proportion of the vowel mergers occurring in stressed and unstressed syllables has been calculated, as shown in Table 18.

Table 18: Vowel alternations and lexical stress

Prosodic context	Tokens	%
Stressed syllable	4	12
Unstressed syllable	29	88
Total	33	100

The results of our analysis show that vowel alternations affect predominantly unstressed syllables (88 percent), whereas vowel qualities are better preserved under stress (where only 12 percent show evidence of merger). Therefore, the proportion of vowel mergers in stressed versus unstressed syllables is 1:7.3. According to Herman (1990, 23), in a given Latin text the proportion of stressed syllables to unstressed is 1:2.5. It is thus possible to state that in our corpus vowel quality is better preserved under stress: this picture is consistent with the results of the qualitative analysis of the tokens, which are discussed in the following section.

3.5.4. Qualitative Analysis

The picture illustrated so far is further confirmed by a qualitative analysis of the forms showing the alternations: as partly shown by Herman (1985) and Lupinu (2000), most of the instances may not be considered phonetic spellings. This applies, for example, to the case of the nominative *tubicin* (for *tubicen* ‘trumpeter’), which could easily be explained as a confusion with oblique cases such as the accusative *tubicinem*; similarly, the twelve alternations involving the morpheme *-et* (for *-it*) of the 3rd person singular of the present tense (third conjugation), such as in *ducet*

'he/she leads', *adducet* 'he/she leads', *quiescet* 'he/she rests', and *requiescet* 'he/she rests', could be due to the reorganisation of the verbal system (Herman 1985). As far as nominal inflection is concerned, a morphosyntactic explanation can be proposed for the form *nepus* (for *nepos* 'grandson'), which may be due to confusion between the ending of the third and second declension (Lupinu 2000, 29); similarly, the ablatives *potestati* (for *potestate* 'power', abl. sing.) and *paci* (for *pace* 'peace', abl. sing.) may be explained as confusion with the dative ending or with the ablative ending of *-i-* stems (such as the abl. *animali* from *animal*, *animalis* 'animal'; see also Lupinu 2000, 24). Finally, *anus* (for *annos* 'years' acc. plur., in CIL X 7767, fifth century CE) may be due to a confusion between the nominative and the accusative form (Herman 1985).

In conclusion, half of the cases of vocalic confusion found in the corpus (seventeen of thirty-three) have a non-phonetic explanation. If such doubtful instances are excluded, our corpus shows only sixteen vocalic misspellings out of 20,013 instances of standard spellings for the vowels examined. Therefore, the qualitative analysis reinforces the conclusions put forward in the preceding sections, pointing to preservation of the qualitative difference between /i, e:/ and /u, o:/ in Sardinia.

3.6. Transcription of Roman Names into Neo-Punic in Sardinia

The picture of qualitative difference between /i, e:/ and /u, o:/ is further supported, at least until the second century CE, by the two Neo-Punic inscriptions from Sardinia involving Roman

names in Jongeling (2008). The names given in Table 19 are those without textual problems and where the vowel quantities of the Latin name could be found:¹¹

Table 19: Roman names in Neo-Punic inscriptions from Sardinia

Roman name	Neo-Punic transcription	Inscription
/anto:ni:nus/	<i>ʔn̄tnynh</i>	Chia N1
/aure:lius/	<i>ʔwrhly</i>	Chia N1
/kaesar/	<i>qʔysr</i>	Chia N1
/fe:liks/	<i>phlys</i>	Chia N1
/pompe:ius/	<i>pʔmpʔy</i>	Chia N1
/sa:turni:nus/	<i>sʔtrnynh</i>	Chia N1
/fe:liks/	<i>plks</i>	S. Antioco N2
/pullius/	<i>phly</i> ¹²	S. Antioco N2

The two inscriptions appear to adopt different spelling practices. In particular, in Chia N1 there is a predominance of plene spellings. The spelling *phlys* for /fe:liks/ in Chia N1 is in fact the only example in the whole corpus where a disyllabic Roman name ending in a consonant has the vowel of the final syllable spelled out. By contrast, the same name is spelled without vowels as *plks* in S. Antioco N2. There are also similarities, however: in particular, the prevalent use of <h>, used at Chia N 1 to represent /e:/, but /u/ at S. Antioco.

¹¹ The quantities of /pedukeius/ spelled *phdwqʔyh* in Chia N 1 could not be found.

¹² The letter *y* in this transcription is marked as uncertain.

Of particular interest for us, however, is the treatment of the phonemes /i/, /i:/, /e/ and /e:/, where /e/ phonemes are rigidly distinguished from /i/ phonemes. What is more, Chia N 1 can be dated to the rule either of Marcus Aurelius, who reigned between 161 and 180 CE, or of Caracalla, who reigned between 198 and 217 CE (Jongeling 2008, 275; for dates see Rutherford 1996 and Birley 1996). This evidence is consistent with both the lack of merging of /e:/ and /ĩ/ in Sardinian Latin at least before these dates and the treatment of Roman names in North Africa in the Neo-Punic inscriptions.

3.7. Conclusion

On the basis of the analysis provided in the previous paragraphs, the graphemic representation of vowels in Latin and Neo-Punic inscriptions from Sardinia foreshadows the Romance outcome of the Sardinian vowel system. The vowel alternations which might point to a ‘Common Romance’ vowel system are rare on the island, even in late texts: the graphemes used to represent /i, e:/ and /u, o:/ are, therefore, kept distinct in Sardinia until the seventh century CE, a finding which is consistent with the representation of vowels occurring in Roman names in the Neo-Punic inscriptions from North Africa. This is particularly evident when calculating the error rate as a percentage against the corresponding rate of correct spellings (§3.5.1). Moreover, a more fine-grained qualitative analysis shows that the few alternations found in the corpus are not likely to represent phonetic spellings (§3.5.4) and, in general, vowel qualities are better preserved un-

der stress (§3.5.3). Finally, the absence of alternations is not always due to a high level of literacy among writers (§3.5.2): for this reason, our data may be taken as a reflection of the pronunciation of those involved in the crafting of the inscriptions. In conclusion, the correct spelling of vowels in our corpus indicates a distinction between /i, e:/ and /u, o:/ in Sardinia until at least the seventh century CE. Although the Neo-Punic data only go up (approximately) to the second century CE, the findings are consistent at least to that date.

The results of the surveys given here point to a similar system shared by Sardinian Latin (first–seventh centuries CE) and North African Latin (at least up to the second century CE). In both cases, our analysis shows overlap between the graphemes used to represent /e, e:/ and /i, i:/ and between /o, o:/ and /u, u:/, respectively, whereas vowel confusions typical of a Common Romance development are virtually absent. Therefore, our data foreshadow the Romance outcome of the Sardinian vowel system and are consistent with the alleged development of the African Latin vowel system. On the basis of this we suggested that contact between Sardinia and North Africa until well into the Roman period may be responsible for the development of the former.

In assessing the implications of the transcription of Roman names in Neo-Punic for understanding the Late Punic vowel system, we went beyond previous studies of the Neo-Punic vowel system by taking full account of zero-representation of vowel phonemes in Neo-Punic inscriptions. In this way we offered a picture of the system as presented through the transcription of Roman names in Neo-Punic that both builds upon previous studies

and presents a more nuanced analysis (§2.2.1). The differential treatment of Latin long and short vowels in Neo-Punic writing allowed us to show that Neo-Punic writers were sensitive to distinctions in Latin vowel length (§2.2.2). These findings in turn permitted us to draw vowel triangles for Late Punic, and the means by which Neo-Punic represents vowels in Roman names (§2.2.3). We pointed out that these bear at least superficial similarity to the system in Classical Hebrew in some aspects, notably in the greater propensity for /u, i:/ to be transcribed in contrast to their short variants /u, i/.

In §2.3 we considered factors beyond vowel quality and quantity that may be said to affect whether or not a vowel is represented in Neo-Punic in the transcription of Roman names. We found that such vowel representation was sensitive both to the position of the Latin stress (§2.3.1) and absolute syllable position (§2.3.2). This evidence is observed to contrast with the prevailing view on the position of the Punic stress (§2.3.3). We took this to suggest either that in the transcription of Roman names Neo-Punic writers ignored Punic stress patterns, or that the accepted picture of Late Punic stress patterns is in need of refinement.

In §2.4 we assessed the implications for the Late Punic reading of the Latin vowel system. We concluded that transcription patterns are generally consistent both with the vowel system seen in Classical Latin, and with the distinctions of quality seen later in Sardinian Romance. This is to say that the developments seen in later varieties of Common Romance had not taken place

in North Africa, at least by circa the second century CE. Furthermore, from the analysis of the marking versus non-marking of vowels in open syllables in §2.4.5, we were able to provide evidence that those composing the texts of the Neo-Punic inscriptions were more sensitive to the position of the Latin stress than to distinctions of vowel length, suggesting that open syllable lengthening may have begun in North Africa by the second century CE.

In §3 we demonstrated that the rate of confusion of /i, e:/ and /u, o:/ in Sardinia was extremely low, especially in stressed environments. In contrast to previous studies, all the available dated inscriptions from the island were analysed. Moreover, the literacy level of the writers was considered, which permitted us to avoid conclusions based on negative evidence. Furthermore, we took account of the dating of the inscriptions, which allowed us to better contextualise the phenomenon. This analysis permitted us to give evidence of the qualitative distinction between /i, e:/ and between /u, o:/ on the island until at least the seventh century CE. This was further supported by the treatment of /i, e:/ in the transcription of Roman names into Neo-Punic in Sardinia up to the second century CE.

The plausibility of contact with North African speech communities being at least partly responsible for the outcome of the Sardinian vowel system was supported by archaeological, historical, and epigraphic sources, which all point to a strong presence of Latin and Neo-Punic bilingual speakers in both areas, a situation which persisted until well after the Roman conquest of the

island. For these reasons, though further investigation is required, we believe that the common evolution of the two vowel systems in North African and Sardinian Latin should be at least partially ascribed to contact between Latin and Neo-Punic, re-evaluating the importance of the common substratum of the two areas.

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THE DEVELOPMENT OF THE HEBREW WAYYIQTOL ('WAW CONSECUTIVE') VERBAL FORM IN LIGHT OF GREEK AND LATIN TRANSCRIPTIONS OF HEBREW

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1.0. INTRODUCTION

Hebrew is counted among the few languages of the world that have a specific 'sequential' past tense verbal form. What is particularly unique about the morphology of this Hebrew verbal form, however, is that it appears to be constructed from the conjunction *waw* (ו־ /v-/ 'and.CONJ') and a verb in the *prefix conjugation* (henceforth referred to as the '*yiqtol*' form), which is elsewhere used for non-past semantics (e.g., future, jussive). What is more, the conjunction *waw* is normally connected to this 'sequential' verbal form by means of gemination, a feature occurring in no other context following the conjunction *waw*. This verbal form has come to be known as either the '*waw* consecutive', or, as a more neutral term mirroring the morphological shape of the verb, the *wayyiqtol* form (Table 1):

Table 1

<i>waw</i>	<i>yiqtol</i>	<i>waw</i> + <i>yiqtol</i>	<i>wayyiqtol</i>
וְ	יִכְתֹּב	וְיִכְתֹּב	וַיִּכְתֹּב
/v-/	/ji-χto:v/	/v-ji-χto:v/	/vaj-ji-χto:v/
[va-]	[ji-χt ^h o:ov]	[vi-ji-χt ^h o:ov]	[vaj-ji-χt ^h o:ov]
and.CONJ	3MS-write.YIQTOL	CONJ-3MS-write.YIQTOL	CONJ-3MS-write.(WAY)YIQTOL
'and'	'he will write; let him write!'	'and let him write!'	'and he wrote!'

The questions and issues surrounding the *wayyiqtol* form are primarily concerned with the form's history and morphology. From a historical perspective, the questions regarding the *wayyiqtol* form relate to its grammatical origins and development within Biblical Hebrew. From a morphological perspective, the questions regarding the *wayyiqtol* form relate to the status of the conjunction *waw* as a component of the form, the presence of a full vowel after the conjunction *waw*, and the morphological derivation of the gemination in the following consonant.¹ Though neither of these topics can be addressed without addressing the other, at least in cursory fashion, the focus of this paper will be on the latter.

In particular, this paper will analyse all attestations of the *wayyiqtol* form in ancient Greek and Latin transcriptions of Biblical Hebrew in order to determine *when*, *why*, and *how* the conjunction *waw* in the *wayyiqtol* form came to be realised distinctly from the realisation of the conjunction *waw* elsewhere, with respect to both its vocalisation with *pataḥ* (instead of *shewa*) and the doubling of the following consonant. After a brief review of

¹ For an introduction to the issues, see Smith (1991, 1–15).

scholarship (§§2.0–4.0), the relevant data from the transcriptions will be presented and analysed (§5.0). Based on the findings, a plausible diachronic reconstruction will be suggested (§6.0). The paper will conclude by outlining the implications that such a reconstruction has for understanding the development of the Biblical Hebrew reading tradition(s) in the Second Temple period more broadly.

2.0. REVIEW OF SCHOLARSHIP: GRAMMATICAL DEVELOPMENT

Though not the focus of this paper—focused, as it is, on the morphological development of the form, rather than its grammatical origins—it behoves us to briefly rehearse the generally accepted view of how this ‘sequential’ past tense form developed from a grammatical perspective before more extensively detailing the various theories regarding the form’s morphology. According to most researchers, Proto-Central Semitic had both a long **yaqtulu* verb form, essentially used for indicative non-past semantics, and a short **yaqtul* verb form, used for both indicative past (preterite) and volitive meanings (jussive). These forms eventually fell together in Hebrew (in most paradigms) and both came to be vocalised as *yiqtol*.² Syntactically, the short/preterite *yiqtol* form (< **yaqtul*) gradually came to be replaced by *qaṭal* (< **qaṭala*) as the more common regular past-tense verb. It was only following

² This identity applies only to strong roots. Note that a number of weak roots (e.g., II-*w/y*, III-*w/y*) and the *hif’il* stem still exhibit two distinct forms, one ‘long’ (< **yaqtulu*) and one ‘short’ (< **yaqtul*).

the conjunction *waw* that short/preterite *yiqṭol* (< **yaqṭul*) continued to serve regularly as a past tense verbal form.³ Its relegation to this syntactic slot has often been associated with its most common role as a narrative past tense.

3.0. REVIEW OF SCHOLARSHIP: MORPHOLOGICAL DEVELOPMENT

We must begin by providing a bit more background regarding the particular morphological features of the *wayyiqṭol* form which the various theories attempt to explain. In Tiberian Hebrew, following the conjunction *waw*, the preterite *yiqṭol* form is distinguished from the jussive *yiqṭol* form by means of two features: (1) the conjunction *waw* is vocalised with *pataḥ* instead of *shewa* and (2) the prefix consonant of the verbal form is geminated (Table 2):⁴

Table 2

<i>waw</i> + <i>yiqṭol</i>	<i>wayyiqṭol</i>
וַתִּכְתֹּב	וַיִּכְתֹּב
/v-θi-χto:v/	/vat-ti-χto:v/
[va-θi-χ ^h o:v]	[vat ^h -t ^h i-χ ^h o:v]
CONJ-3FS-write.YIQṬOL	CONJ-3FS-write.(WAY)YIQṬOL
‘and let her write!’	‘and she wrote’

³ For a comprehensive treatment, see Smith (1991).

⁴ In the 1cs form, we find a *qameṣ* and singleton consonant instead of *pataḥ* and gemination due to compensatory lengthening, e.g., וְאָנֹכִי ‘and I wrote’ (Jer. 32.10).

It should be noted, however, that because vocalic *shewa* was generally realised in the Tiberian tradition as [a], it was more the gemination of the verbal prefix than the preceding full vowel that distinguished these forms in actual pronunciation. Moreover, according to the phonotactics of Tiberian Hebrew, a geminated consonant must be preceded by a full vowel and cannot be preceded by *shewa*. Accordingly, while both the vocalisation of the conjunction *waw* with *pataḥ* and the gemination of the following consonant are characteristic morphological features of the *wayyiqtol* form, it is primarily the gemination that should be regarded as the essential marker of this form over against a non-past or jussive *yiqtol*, at least in Tiberian Hebrew.

Theories for explaining the gemination in the Hebrew *wayyiqtol* verbal form are as numerous as they are diverse. With respect to diachrony (i.e., when gemination developed in this form), the range of possible dates suggested for this innovation spans so extensively, that it is not helpful at all, with some scholars suggesting that gemination in the form is as old as Proto-Hebrew and others suggesting that it was introduced by the Masoretes in the Middle Ages. The various explanations, though numerous, are all essentially variations on one of two main theories.⁵ One group of scholars regards the gemination in the form as deriving etymologically from a distinct morpheme of its own, most of them suggesting that it results from an assimilated *nun*.

⁵ Though they discuss the morphological nature of the full vowel and gemination, I have intentionally left off synchronic interpretations of the *wayyiqtol* form, such as Hatav's (2004), due to the fact that they do not approach the problem from a historical perspective.

Another group of scholars sees the gemination in the form *not* as deriving etymologically from a distinct morpheme, but rather as a phonetic phenomenon emerging for various morphosyntactic reasons.⁶

The most well-known proponents of the first view are Young (1953) and Gordon (1957, 275–76), who understand the doubling to be the result of an assimilated *nun*, i.e., **wan-yiqtol* > *wayyiqtol*. They arrive at this conclusion by comparing the *waw* in *wayyiqtol* to the Egyptian particle *ʔiw*, both of which they argue have a common Proto-Afro-Asiatic source. According to their theory, Egyptian *ʔiw* is a sentence adverbial which can affect the time reference of a verbal form. In particular, they look to the following Egyptian verbal structure for a morphological cognate to Hebrew *wayyiqtol*: *ʔiw sdm-n-f* (*ʔiwa*.ADV hear-PAST-3MS) ‘when he has heard’. By rearranging the order of the morphemes in this structure, they can derive Hebrew *wayyiqtol* from a perfect morphological cognate to the Egyptian form: **(ʔi)wa-n-yi-qtol* ([ʔi]wa-PAST-3MS-kill.YIQTOL). The gemination, then, is the result of the Proto-Afro-Asiatic past tense marker /n/ assimilating to the following pronominal element at a very early stage of the language. This argument is taken up by Rendsburg (1981, 668–69; 1993, 204–5), who notes in further support of it that a *waw*-consecutive structure tends to crop up most in Semitic languages spoken in those areas in which Egyptian administration was strongest during the New Kingdom. Brenner (1986, 14, 21, 24, 34) also follows

⁶ For a comprehensive review, see Smith (1991, 1–15); Andrason (2011, 37–38).

Young and Gordon, but suggests that the form in Hebrew is borrowed from Egyptian rather than inherited from an earlier stage of the language. Maag (1953, 86–88) also suggests that the gemination is the result of an assimilated *nun*, but appeals to the Hebrew demonstrative particle הן ‘look!’ rather than the Egyptian form: **wəhanyiqtul* > **wanyiqtul* > *wayyiqtol*.

Hetzron (1969, 9–10) also suggests that the gemination is the result of an assimilated consonant, yet he opts for /j/ rather than /n/. This is based on the claim that the morpheme *wa-* in *wayyiqtol* does not derive from the conjunction *waw*, but rather from a shortened form of the verb **haway* was-3MS.QATAL ‘he was’, e.g., **(ha)way yāqom* (was-3MS.QATAL get.up-3MS.YIQṬOL) > *wayyāqom* (get.up-3MS.WAYYIQṬOL) ‘he got up’. Accordingly, gemination is the result of the assimilation of the third radical /j/ of the 3MS.QATAL form of the verb **haway* ‘to be’.

The most well-known proponent of the second view is Lambdin (1971, 322–25), who suggests that the gemination in the *wayyiqtol* form is an example of “junctural doubling,” a phonetic phenomenon that occurs when a short word is closely connected or bound to the following word. Though Lambdin’s theory of ‘junctural doubling’ emerged primarily to explain gemination in the definite article, he also suggested that it would apply to the *wayyiqtol* form, since the form reflects the close bonding between the conjunction **wa-* and the preterite *yiqtol* verbal form. Later scholars dealing with the *wayyiqtol* form often accept Lambdin’s morphological explanation (see, e.g., Smith 1991, 6).

A similar theory, which has not, in my opinion, received adequate attention, is that of Loprieno (1980, 10). According to

Loprieno, the conjunction *waw*, which was vocalised as **wa-* in all environments at an earlier stage of Hebrew, became a grammaticalised part of the preterite *yiqṭol* verbal form, i.e., **wa-yiqṭol* > **wayiqṭol*. Preceding the jussive **yiqṭol* form, however, the conjunction *waw* did not become grammaticalised. Accordingly, when the vowel of the conjunction *waw* reduced to *shewa*, i.e., **wa-* > **w(ə)-*, it affected jussive **wa-yiqṭol*, but not preterite **wa-yiqṭol*, i.e., preterite *yiqṭol*: **wa-yiqṭol* > **wayiqṭol*; jussive *yiqṭol*: **wa-yiqṭol* > **w(ə)-yiqṭol*. Thus, when the Tiberian Masoretes inherited the grammaticalised form **wayiqṭol*, the phonotactics of their tradition of Hebrew could preserve the initial /a/ vowel only by doubling the following consonant. In other words, rather than gemination being the principle characteristic of the *wayyiqṭol* form as in Tiberian, at an earlier stage of Hebrew it was only the vowel of the conjunction *waw* that distinguished the forms. Baranowski (2016, 12–13) accepts the proposal of Loprieno, stating that the gemination is a phonetic phenomenon utilised to preserve the “grammaticalized preposition *wa*” and thus mark the (past) meaning of the *wayyiqṭol* form. In other words, the gemination *prevents* the reduction of the /a/ vowel to *shewa*. He goes on to note, however, that “it is impossible to establish whether the doubling appeared as a phonetic development already in Proto-Hebrew or in Hebrew spoken in biblical times, or whether the Masoretes created it as an artificial device to keep the *wayyiqṭol* pattern distinct.” Joüon and Muraoka (2009, 128) also seem to agree with this claim in their statement that the *pataḥ* “must be considered primitive” and that the gemination is “a device [introduced] to preserve this primitive vowel.”

Revell (1984) makes a similar claim, but suggests that the distinct pronunciation of the conjunction *waw* in the *wayyiqtol* form arose due to stress patterns. Just as the conjunction *waw* is prone to lengthen before monosyllabic stressed nouns, e.g., וּבֹטֵן וְרָע ‘good and evil’ (Gen. 2.9), so too it lengthened before certain weak *wayyiqtol* forms with initial stress, such as וַיִּקָּם vaḵḵ:qom ‘and he got up’ and וַיִּבֶן vaḵḵi:ven ‘and he built’. This distinct pronunciation of the conjunction *waw* was then transferred to other instances of *waw* preceding preterite *yiqtol* forms as a mark of the past meaning. Because other *yiqtol* forms had final stress, it was necessary to geminate the prefix consonant as a way of maintaining the syllable’s length. He compares this phenomenon to the gemination in compounds such as בְּמָה/בְּמָה ‘in what...?’ and כְּמָה/כְּמָה ‘how much/long...?’. He suggests that such a distinction arose as a development of the reading tradition toward the end of the biblical period to distinguish the past meaning of *yiqtol*, which was no longer used in the spoken language.

A number of comments are warranted regarding the views outlined above. To begin, one should be cautious in accepting any permutation of the first view, due to lack of supporting evidence elsewhere in Hebrew. These theories all require positing an additional morpheme between the conjunction *waw* and the *yiqtol* verbal form, even though such a morpheme with a similar function is not attested, even vestigially, anywhere in Hebrew.⁷ Moreover, Revell (1984, 443–44) and Smith (1991, 3–5) have

⁷ Note that short/preterite *yiqtol* forms in poetry not following the conjunction *waw* are never preceded by any distinct morpheme, such as *-n-, *hVn-, or *haway-, in order to mark them as past.

outlined a number of problems with the hypothesis that Hebrew **wa-* ought to be connected to Egyptian *?iw*.

The second view, which regards the gemination as purely a phonetic phenomenon, is naturally more economical and persuasive. Not all permutations of this view, however, are equally convincing. With respect to Lambdin's 'junctural doubling', for example, it is difficult to explain why it would occur at the juncture of the conjunction *waw* and the preterite form, but not the jussive form. Moreover, the gemination after the definite article, which the theory was originally developed to explain, likely has another explanation altogether.⁸ If 'junctural doubling' is not even a valid explanation for the phenomenon it was primarily developed to explain, one must wonder how productive it was and if perhaps other apparent instances of 'junctural doubling' also have more satisfactory explanations. The theory of Loprieno (and Baranowski) is less problematic from a theoretical perspective, though it leaves much wanting in terms of diachrony and absolute chronology. Revell's theory is most promising, especially in terms of absolute chronology and motivating factors, though it is not without problems. These theories will be picked up and discussed further in the analysis of the transcription material below.

⁸ Pat-El (2009) has argued persuasively that the definite article is to be derived from the deictic particle **han* and that the following gemination is the result of the assimilation of the final /n/ of **han*.

4.0. REVIEW OF SCHOLARSHIP: WAYYIQTOL IN THE TRANSCRIPTIONS

Before proceeding to analyse the evidence of the transcriptions, it is worth noting how previous scholars who have worked on the transcriptions see the data from the Secunda and Jerome fitting into the various stages of development outlined above.

In the Secunda, parallels to Tiberian *wayyiqtol* forms are not represented consistently. A vowel is transcribed after the conjunction *waw* less than half the time and gemination is rarely represented. These points of data are interpreted in one of two ways (or some combination thereof). The first interpretation suggests that not all instances of *wayyiqtol* in the Tiberian tradition were identified and/or vocalised as such in the Secunda. The second interpretation suggests that though the forms are ancestors of *wayyiqtol* and do express past semantics, gemination of the prefix consonant of the *wayyiqtol* form was not (yet) a regular feature of Secunda Hebrew (Brønno 1943, 235–36; Janssens 1982, 84–85; Yuditsky 2017, 232; Kantor 2017, 244, 280, 337, 346–48).

Particularly noteworthy here is Yuditsky's (2017, 232) theory, that ancient Hebrew had no pronunciation distinction between the conjunction *waw* before a non-past/jussive *yiqtol* form and before a preterite *yiqtol* form (i.e., Tiberian *wayyiqtol*). The evidence from the Secunda reflects the initial stages of such a distinction coming into being, i.e., a transitional period during which the preterite form **w(a)-yiqtol* was gradually shifting to *wayyiqtol*. During this transitional period, a distinction would be present in some preterite *yiqtol* verbal forms and absent in others.

Ben-Ḥayyim (2000, 171), when dealing with the lack of distinction between ‘*waw* consecutive’ and ‘*waw* conjunctive’ in Samaritan Hebrew, also points to the Secunda as evidence of an earlier stage of Hebrew, in which such a distinction did not exist.

While Yuditsky’s theory is generally sound, it lacks two things. First, though he acknowledges that the gemination in *wayyiqtol* is secondary and still developing at the time of the Secunda, he offers no explanation for how or why the distinction came to be. Second, he does not avail himself of the evidence supplied by Jerome regarding *wayyiqtol*, though it supports the diachronic trajectory he outlines. In this paper, we will take Yuditsky’s theory as a starting point, but will revise and build upon it, dealing with the issues in a more comprehensive manner.

With respect to the Latin transcriptions of Hebrew in Jerome, no scholar has yet analysed or even enumerated the attestations of the *wayyiqtol* form in his writings. As far as I can see, this is mainly a result of two factors. First, there appear to be only six attestations of the *wayyiqtol* form in all of Jerome’s writings. Second, none of these attestations is found in his commentaries, which served as the main source for some of the early publications on the transcriptions of Hebrew in Jerome. Four of the six attestations are found in his letters and the other two are from his *Prologus Galeatus* (‘Helmeted Preface’), that is, the introduction to the books of Kings. To the best of my knowledge, these six *wayyiqtol* forms are first enumerated and analysed here. Though six attestations constitute a relatively small sample size, their consistency is sufficient to support the diachronic argument which will be made below.

5.0. WAYYIQTOL IN THE TRANSCRIPTIONS

Because the distinctive features of the *wayyiqtol* form are the vocalisation of the conjunction *waw* (with the full vowel *pataḥ* as opposed to *shewa*) and the presence of gemination (in the prefix consonant of the verb), there are three issues that must be understood with respect to the Greek and Latin transcriptions in order to rightly interpret the data regarding *wayyiqtol*:

- 1) The distribution, status, and representation of ‘*shewa*’
- 2) The distribution of the various representations of the conjunction *waw*
- 3) The distribution and representation of gemination

In the following sections, first these three principles will be addressed, with respect to both the Greek transcriptions of Hebrew in the Secunda (§5.1) and the Latin transcriptions of Hebrew in Jerome (§5.3). Following this, all attestations of the *wayyiqtol* form will be presented and analysed (§§5.2; 5.4).

5.1. ‘*Shewa*’, the Conjunction *Waw*, and Gemination in the Secunda

5.1.1. *Shewa*

For purposes of this paper, we must consider if the data from the Secunda are sufficient to convey whether the conjunction *waw* is vocalised with *shewa* or a full vowel. In the Secunda, the parallel to Tiberian vocalic *shewa* is in most cases left unrepresented (i.e., the transcriptions present a consonant cluster; Table 3):

Table 3

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 30.10	בְּדַמִּי	βδαμι	‘in my blood’
Ps. 46.5	פְּלִיגֵי	φλαγαυ	‘its (ms) streams’
Ps. 89.48	בְּנֵי	βνη	‘sons of (cstr.)’

At the same time, it is also frequently represented by Greek *α* or *ε*. Most instances of *α* also correspond to an etymological */a/ vowel (Table 4):

Table 4

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 18.48	נְקָמוֹת	νακαμωθ	‘vengeances’
Deut. 1.1	הַדְּבָרִים	αδδεβαρειμ	‘the words’

While not all Secunda scholars agree that it is appropriate to refer to ‘*shewa*’ in the Secunda,⁹ most see significance in the presence or lack of a vowel after the conjunction *waw* (see below).

⁹ In the twentieth century, virtually every Secunda scholar took it for granted that ‘*shewa*’ was a reality in the transcriptions, some suggesting that it was realised as [ĕ] (Brønno 1943, 327, 329, 333; Janssens 1982, 89–110), others as [æ] (Blau 1984), and still others that its quality was unstable (Margolis 1909). Only recently was it suggested that there is no ‘*shewa*’ in the Secunda at all, but only the preservation of etymological short vowels, even if they were occasionally realised with extremely short durations (Yuditsky 2005). I argued recently that inconsistencies in previous scholarship may be reconciled if we make a distinction between mid-central *shewa* (i.e., phonetic [ə]) and variable *shewa* (i.e., a qualitatively indistinct vowel that assimilates to its environment), on the one hand, and between acoustic reduction (i.e., centralisation of vowels when pronounced with short duration far from the stress) and

5.1.2. Conjunction *waw*

If we are to ascribe importance to the transcription of a vowel after the conjunction *waw* (represented by *ou*) in the Secunda, we must establish that the same does not occur elsewhere, or, if it does, that it is governed by consistent rules. It turns out that in the Secunda, the conjunction *waw* is almost always represented by the Greek digraph *ou* (= /w-/ [(?)u(:)-]) with no subsequent vowel (more than 100x) (Table 5; Yuditsky 2017, 230–31; Kantor 2017, 346):¹⁰

Table 5

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 18.38	וְלֹא־	ουλω	‘and not’
Ps. 18.47	וּבְרִיךְ	ουβαρουχ	‘and blessed’
Ps. 32.11	וְגִילֵי	ουγλου	‘and rejoice!’

lexical reduction (i.e., the quality of a reduced vowel merging with that of a phonemic vowel), on the other. I argued for three general principles regarding *shewa* in the Secunda: (1) a reduced centralised vowel (i.e., vocalic *shewa*) was generally realised as [ə] or [ɛ]; (2) assimilatory tendencies in vocalic *shewa* point towards a variable realisation in certain contexts; and (3) the preservation of historical /a/ in ‘*shewa*-vowel’ slots demonstrates that the Secunda transcriptions provide a ‘snapshot’ during the transition from acoustic reduction to lexical reduction (Kantor 2017, 315–26).

¹⁰ In light of contemporary Greek pronunciation, the digraph *ou* likely indicates that the conjunction *waw* was realised phonetically as [(?)u(:)], even though its phonemic realisation was probably consonantal /w-/. Such a phonemic and phonetic realisation has parallels in modern dialects of Arabic and Aramaic (Kantor 2017, 228–32, 346–50).

Instances in which a vowel (α or ϵ) is transcribed after the conjunction *waw* (fewer than 10x) are governed by two rules, both of which are based on syllable structure:¹¹ (1) the conjunction *waw* precedes a word-initial consonant cluster or (2) the conjunction *waw* precedes a monosyllabic stressed noun (Table 6–7; Yuditsky 2017, 230–31; Kantor 2017, 346–50):¹²

Table 6: Rule (1): Conjunction *waw* before word-initial consonant cluster

Verse	Tiberian	Secunda	Translation
Ps. 28.9	וְרָעָם	ουαρημ	‘and shepherd them!’
Ps. 35.28	וְלִשׁוֹנִי	ουαλσωνι	‘and my tongue’
Ps. 46.11	וְדָעוּ	ουαδου	‘and know!’
Ps. 49.7	וּבְרָב	ουεβροβ	‘and in the abundance of’

Table 7: Rule (2): Conjunction *waw* before stressed monosyllabic word

Verse	Tiberian	Secunda	Translation
Gen. 5.5	MT: תֵּשַׁע (read: וְתֵשַׁע)	ουαθεσα	‘and nine’
Ps. 32.9	וְרִסָּן	ουαρεסν	‘and a bridle’
Ps. 49.12	וְדָר	ουαδωρ	‘and generation’

The transcriptions categorised under rule (1) are probably best interpreted as reflecting vowel syncope ($v \rightarrow \emptyset / C\check{v}C_C\check{v}(C)$) and thus should be vocalised as *waršēm*, *walšōnī*, *wadšū*, and *wəbrob*, respectively. Parallels to such vocalisations are also

¹¹ Instances of a vowel after the conjunction *waw* when it precedes *yiqtol* verbal forms are not included.

¹² As to why *ουδαρημ* | וְאַחֲרֵיהֶם ‘and after them’ (Ps. 49.14), which should be emended to **ουααρημ*, is likely not an exception, see (Kantor 2017, 347).

found in Babylonian Hebrew, e.g., וְבַמִּשׁוֹר *wabmīšōr* ‘and with uprightness’ (Mal. 2.6); וּבַיּוֹם *wībyōm* ‘and in the day of (cstr.)’ (Isa. 49.8) (Yeivin 1985, 1152). The transcriptions categorised under rule (2) are best interpreted as reflecting pre-tonic lengthening of the conjunction *waw*, which coheres with their vocalisation with *qameṣ* in both Tiberian and Babylonian Hebrew.

It is worth noting that in both environments, Tiberian and Babylonian vocalise the conjunction *waw* with a full vowel rather than *shewa*. It seems, then, that the conjunction *waw* is written as *oua-* (less frequently *oue-*) only when the corresponding forms/environments in Tiberian and Babylonian might also have a full vowel. Aside from such cases, the conjunction *waw* is normally written as *ou-*, generally corresponding to cases in which Tiberian and Babylonian have a simple vocal *shewa*. Finally, we should also mention that just because instances with a vowel transcribed after the conjunction *waw* occur within the confines of these two rules, that does not mean that every instance of the conjunction *waw* that fits within these two rules will be transcribed with a vowel, e.g., *ουμσουδαθι* וּמְצוּדָתִי ‘and my fortress’ (Ps. 31.4); *ουοζ* וְזֶרַח ‘and strength’ (Ps. 29.1).

5.1.3. Gemination

As stated above, gemination in the prefix consonant is the most regular and significant morphological indicator of a *wayyiqṭol* form in the Tiberian tradition. If we are to rely on the Secunda for accurate information regarding this feature, we must first establish that gemination is consistently indicated therein. Though scholars differ as to the extent to which gemination is

accurately represented in the Secunda, most agree that the representation of gemination is generally reliable.¹³ There are, however, several consonants which cannot be represented as geminates due to the limitations and conventions of Greek orthography: the gutturals /ʔ/, /h/, /ħ/, /ʕ/, the consonant /z/, and the semi-vowels /w/ and /j/. In addition to this, it should be kept in mind that Hebrew /r/ cannot be geminated in most traditions of Biblical Hebrew.

We can demonstrate the relevance and reliability of the Secunda transcriptions for accurately conveying the presence or lack of gemination in the *wayyiqtol* form by examining all attestations of the definite article. Like the conjunction *waw* in the *wayyiqtol* form, the definite article is a monosyllabic morpheme made up of one consonant, the vowel [a], and gemination in the following consonant. Excluding the consonants listed above, which cannot be represented as geminates in the Secunda, the definite article is attested twenty times, in eighteen of which (90

¹³ For slightly different views, note how Yuditsky (2017, 36–44) generally accepts at face value the Secunda transcriptions' representation of gemination or lack thereof, whereas Kantor (2017, 237–48) argues that cross-linguistic speech perception may be a significant factor in inaccurate representations. Nevertheless, Kantor still acknowledges that the representation of gemination and lack thereof is generally reliable, even if not infallible.

percent) gemination is represented and in just two of which (10 percent) it is not (Tables 8–9):¹⁴

Table 8: Definite article with gemination

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 18.33	הַמֶּאֱזֶרְנִי	αμμααζερηνι	‘the one who girds me’
Ps. 18.48	הַנּוֹתֵן	αννωθην	‘the one who gives’
Ps. 29.3	הַמַּיִם	αμμαιμ	‘the water’
Ps. 29.3	הַכְּבוֹד	αχχαβωδ	‘the glory’
Ps. 31.7	הַשֹּׁמְרִים	ασσωριμ	‘those who keep’
Ps. 31.25	הַמְּיַחֲלִים	αμμιαליμ	‘those who wait’
Ps. 32.10	וְהַבּוֹטֵחַ	οσαββωτη	‘and the one who trusts’
Ps. 35.26	הַמְּגִדִּילִים	*μαγδιλιμ	‘those who exult’
Ps. 49.10	הַשְּׁחַת	ασσααθ	‘the pit’
Deut. 1.1	הַדְּבָרִים	αδδεβαρειμ	‘the words’
1 Kgs 1.1	וְהַמֶּלֶךְ	Οουαμμελχ	‘and the king’
2 Kgs 11.7	הַמֶּלֶךְ	αμμελεχ	‘the king’
2 Kgs 23.7	הַקְּדוֹשִׁים	ακκοδασίμ	‘the holy things’
Ps. 118.26	הַבָּא	αββα	‘the one who comes’
Song. 1.1	הַשִּׁירִים	ασσιρειμ	‘the songs’
Isa. 9.6	הַמְּשָׁה	αμμεσρα*	‘the government’
Jer. 38.6	הַמֶּלֶךְ	εμμελέχ	‘the king’
Mal. 2.13	הַמִּנְחָה	αμμανα	‘the offering’

¹⁴ See also Yuditsky (2017, 233). Yuditksy does not, however, include all the attestations cited here. Moreover, he includes examples that are not from the Hexapla’s second column.

Table 9: Definite article without gemination

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 8.1	הַגִּתִּית	ἀγεθθίθ	‘the Gittith’
Ps. 12.1	הַשְּׁמִינִית	ἀσμενίθ	‘the Sheminith’

This high degree of consistency with respect to the transcription of gemination after the definite article suggests that we can rely on the Secunda for the information it conveys about gemination after the conjunction *waw* in *wayyiqtol* forms as well. However, this applies only to the prefixes /t/ (2S, 3FS, 2PL, 3FPL) and /n/ (1PL), since neither /ʔ/ (1S) nor /j/ (3MS, 3MPL) can be represented as geminate in Greek.

5.2. *Wayyiqtol* in the Secunda

In order to appropriately analyse the data from the Secunda, we must survey not only all the attestations of *wayyiqtol* forms (in comparison with Tiberian Hebrew) therein, but all attestations of any *yiqtol* form following the conjunction *waw*. It is not enough to observe how the vocalisation of the conjunction *waw* before preterite *yiqtol* may differ from its vocalisation elsewhere. We must also observe how the vocalisation of the conjunction *waw* before preterite *yiqtol* differs both from its vocalisation elsewhere *and*, more specifically, from its vocalisation before other non-preterite *yiqtol* verbs. This, of course, also raises the question regarding whether or not a *waw* + *yiqtol* form was interpreted as a preterite or non-preterite form in the Second Temple period. A number of tools will be utilised to answer such a question, not least the ancient translations.

In the following sections, we will deal with the material in a three-step process. First, we will enumerate all attestations of *waw* + *yiqtol* and *wayyiqtol* in the Secunda according to the Tiberian tradition. Variations between the vocalisation traditions and ancient translations will be taken into account in order to arrive at a final count in accordance with how these forms are presented in the Secunda. Second, we will analyse each of these groups with respect to the vocalisation of the conjunction *waw*. Third, we will analyse each group with respect to the presence or lack of gemination in the prefix consonant. Finally, conclusions will be drawn regarding the nature of the *wayyiqtol* form as opposed to that of the *waw* + *yiqtol* form in the Secunda.

5.2.1. *Waw* + *yiqtol* in the Secunda

In the Secunda, thirteen forms are attested corresponding to Tiberian *waw* + *yiqtol* (Table 10):

Table 10: *Waw* + *yiqtol* in the Secunda according to the Tiberian tradition

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 18.33	וַאֲשִׁיגֶם	ουεσιγημ	‘and I overtake them’
Ps. 18.43	וַאֲשַׁחֲקֵם	ουεσοαημ	‘and I beat them’
Ps. 18.46	וַיִּחְרְגוּ	ουιερογου	‘and they come forth trembling’
Ps. 18.47	וַיִּרְם	ουιαρουμ	‘and [the God ...] will be exalted’
Ps. 31.4	וַתְּנַהֲלֵנִי	ουθνεελνι	‘and you guide me’
Ps. 31.25	וַיִּאַמֵּץ	ουιαεμας	‘and let [your heart] be courageous’
Ps. 32.8	וְאֹדְרֵךְ	ουωρεχ	‘and I will teach you’
Ps. 35.26	וַיִּחְפְּרוּ	ουιφρου	‘and let them be disappointed’
Ps. 35.27	וַיִּשְׂמְחוּ	ουειεσομου	‘and let them rejoice’

Ps. 35.27	וַיִּאמְרוּ	ουωμρου	‘and let them say’
Ps. 49.9	וַיִּקָּר	ουῖααρ	‘and [the ransom ...] will be costly’
Ps. 49.10	וַיְחִי	ουαῖ	‘that he should live’
Isa. 26.2	וַיָּבֹא	ουῖαβω	‘that [a ... nation] should come’

A survey of the ancient translations indicates that these forms were overwhelmingly interpreted as non-past *yiqṭol* forms in the Second Temple period.¹⁵ There are two exceptional forms, however, which should probably be removed from this list. First, the form *ουῖααρ* in Ps. 49.9 is universally interpreted as the noun *יקָר* ‘preciousness; price’ in the ancient translations (Greek: *τιμή* ‘price’; Latin: *pretium* ‘price’; Aramaic: *יקר* ‘honour’). Second, the form *ουαῖ* is more likely to reflect *waw* + *qaṭal*, parallel to *וַחִי*, than *waw* + *yiqṭol*, parallel to *וַיְחִי*. On the other hand, the Secunda parallel to Tiberian *וַיְעֲזְרֶהָ* ‘[God] helps it (fs)’ (Ps. 46.6), transcribed as *ουεζρα*, likely reflects a *waw* + *yiqṭol* form and thus should be included in the list even though it is without the conjunction in Tiberian. This is supported by the Hexaplaric translations, which render the form as future (Table 11):

Table 11: *וַיְעֲזְרֶהָ* (Ps. 46.6) in the Hexapla

<i>Secunda</i>	<i>Aquila</i>	<i>Symmachus</i>	<i>LXX</i>	<i>Quinta</i>
<i>ουεζρα</i>	<i>βοηθήσει αὐτῇ</i>	<i>βοηθήσει αὐτῆι</i>	<i>βοηθήσει αὐτῇ</i>	<i>βοηθήσει αὐτῇ</i>
‘ <i>uezra</i> ’	‘will help her’	‘will help her’	‘will help her’	‘will help her’

Yuditsky (2017, 184–85) interprets *ουεζρα* as reflecting *וַיְעֲזְרֶהָ* ‘and its (fs) help’, but it is perfectly consistent with the phonology and

¹⁵ Aquila never translates with a past tense, Symmachus renders only Ps. 18.38 and Ps. 18.43 as past, the LXX renders only Ps. 18.46 as past, and the Quinta renders only Ps. 18.46 as past.

orthographic conventions of the Secunda to suggest that *ουεζρα* reflects /w-jeʕzrā(h)/, parallel to וַיִּעֲזְרָהּ ‘and will help (3MS) her’ (Kantor 2017, 234–35). In addition, as will be explained below, the form *ουϊεδαββερ* וַיִּדְבֵּר ‘and he subdued’ (Ps. 18.48) is probably better interpreted as a *waw* + *yiqtol* form than as a *wayyiqtol* form in the Secunda. This results in thirteen total attestations of *waw* + *yiqtol* (non-preterite) forms in the Secunda.

5.2.2. Wayyiqtol in the Secunda

In the Secunda, nineteen forms are attested corresponding to Tiberian *wayyiqtol* (Table 12):

Table 12: wayyiqtol in the Secunda according to the Tiberian tradition

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Gen. 5.5	וַיְחִי	ουαεεει	‘and [Adam] lived’
Gen. 33.4	וַיִּשָּׁקֵהוּ	ουεσσακη	‘and he kissed him’
Gen. 34.2	וַיִּשְׁכַּב	ουεσχαβ	‘and he lay’
Lev. 1.1	וַיִּקְרָא	ουϊκρα	‘and he called’
2 Kgs 4.35	וַיִּגְהַר	ουϊεγαρ	‘and he stretched’
Isa. 9.5	וַיִּקְרָא	ουιεκρα	‘and he called’
Hos. 11.1	וַאֲהַבְהוּ	ουεαβηου	‘and I loved him’
Ps. 8.6	וַתַּחֲסִרְהוּ	ουθασρηου	‘and you made him lower’
Ps. 18.33	וַיִּתֵּן	ουϊεθθεν	‘and he set’
Ps. 18.36	וַתִּתֵּן	ουθεθθεν	‘and you gave’
Ps. 18.40	וַתֵּאֲרֵנִי	ουθεζορηγι	‘and you equipped me’
Ps. 18.48	וַיִּדְבֵּר	ουϊεδαββερ	‘and he subdued’
Ps. 28.7	וַיַּעֲלֵז	ουαϊαλεζ	‘and [my heart] trusted’
Ps. 28.7 (bis)	וַיַּעֲלֵז	ουαϊαλεζ	‘and [my heart] trusted’
Ps. 30.12	וַתֵּאֲרֵנִי	ουεθαζερηγι	‘and you clothed me’
Ps. 35.21	וַיִּרְחִיבוּ	ουεϊεριβου	‘and they opened wide’

Ps. 44.19	וַתֵּיָצֵא	ουαβετ	‘and departed (3fs)’
Ps. 49.15	וַיִּרְדּוּ	ουιαρδου	‘and [the upright] ruled’
Ps. 89.39	וַתִּמְאַס	ουαθθεμας	‘and you rejected’

While the overwhelming majority of the ancient translations interpret these forms as past tense, the following three forms exhibit mixed evidence: *ουϊεδαββετ* וַיִּרְדּוּ (Ps. 18.48); *ουιαρδου* וַיִּרְדּוּ (Ps. 49.15); *ουιεκρα* וַיִּקְרָא (Isa. 9.5) (Table 13):

Table 13: Ancient translations interpretation of *ουϊεδαββετ*, *ουιαρδου*, and *ουιεκρα* (Aq. = Aquila, Sy. = Symmachus, LXX = Septuagint, V. = Quinta, Th. = Theodotion, VL = *Vetus Latina*/Old Latin, Vul. = Vulgate, Tar. = Targum)

	<i>ουϊεδαββετ</i> (Ps. 18.48)	<i>ουιαρδου</i> (Ps. 49.15)	<i>ουιεκρα</i> (Isa. 9.5)
Aq.	(και) συνοδώσει CONJ FUT ‘and he will lead’	και επικρατήσουσ(ιν) CONJ FUT ‘and they will rule over’	και ἐκάλεσεν CONJ PAST.ACT ‘and he called’
Sy.	και ὑποτάσσω(ν) CONJ PRES.PTCP ‘and subjecting’	και ὑποτάξουσ(ιν) CONJ FUT ‘and they will subject’	και κληθήσεται CONJ FUT.PASS ‘and will be called’
LXX	και ὑποτάξας CONJ PAST.PTCP ‘and having subjected’	και κατακυριεύσωσ(ιν) CONJ SUBJ ‘and let them lord over’	και καλεῖται CONJ FUT.MED-PASS ‘and is called’
V.	(και) ὑποτάσσων CONJ PRES.PTCP ‘and subjecting’	(και) κατακυριεύσωσιν CONJ SUBJ ‘and let them lord over’	-
Th.	-	καταχθήσονται FUT.PASS ‘they will be lead down’	(και) ἐκάλεσεν CONJ PAST.ACT ‘and he called’
VL	<i>et subdidisti</i> CONJ PAST.ACT ‘and you subjected’	<i>et obtinebunt</i> CONJ FUT ‘and they will hold fast’	<i>et vocatur</i> CONJ PRES.PASS ‘and is called’
Vul.	<i>et congregas</i> CONJ PRES.ACT ‘and you gather’	<i>et subicient</i> CONJ FUT ‘and they will subject’	<i>et vocabitur</i> CONJ FUT.PASS ‘and will be called’
Tar.	ומתבר CONJ PTCP ‘and breaking’	ותברו CONJ PAST ‘and they broke’	ואתקרי CONJ PAST.PASS ‘and was called’

In the case of *οι̅εδαββερ*, only the LXX and the Vulgate render with past tense. The other translations have a present or future. In light of the fact that it also deviates from the Tiberian form in terms of verbal stem, i.e., *pi^cel* and instead of *hif^cil*, it is probably better to regard this form as regular *waw* + *yiqtol* rather than *wayyiqtol*—this is tabulated in the final count of the *waw* + *yiqtol* list above.

The form *οιαρδου* is rendered as past only in the Targum. The remaining translations render it as a future (Aquila, Symmachus, Theodotion, Old Latin, Vulgate) or a jussive (LXX [but note that other LXX MSS have a regular future form: *κατακυριεύσουσιν* ‘they will rule/lord over’], Quinta). Another problem with a Tiberian interpretation of *οιαρδου* is that the initial vowel of the verb is *α* instead of the expected *η* for the *yiqtol* form. A more likely interpretation, therefore, is *waw* + *qatal* indicating future tense, i.e., *οιαρδου* = *וירדו* (Yuditsky 2017, 117). Such an interpretation would assume some degree of root contamination between *וירד* and *ירד*, but similar root confusion is attested elsewhere in Biblical Hebrew. Therefore, this form is excluded from our analysis altogether.

Finally, the form *οι̅εαρα* presents several interpretive problems, even apart from looking at the transcriptions or the ancient translations. First, it is found in a prophetic context, which can lead to the semantic meaning (past) being different from the pragmatic meaning (future). Second, it is used in an impersonal sense, which can also lead to translations oscillating between an active verb and a passive verb. These mixed approaches are both attested in the ancient translations. While there is a strong case

for interpreting the form as a *waw* + *yiqtol*, the fact that Aquila, Theodotion, and the Targum all translate the form as past should give pause in doubting the MT here. Accordingly, this form should remain in our tabulation of *wayyiqtol* forms.

We are left with seventeen *wayyiqtol* forms in the Secunda. Having analysed and categorised the data into *waw* + *yiqtol* and *wayyiqtol* forms, then, we may now proceed to analyse the data statistically with respect to both the presence of a transcribed vowel after the conjunction and gemination of the prefix consonant.

5.2.3. Conjunction *waw* + *vowel* in the Secunda

As might be expected in light of our earlier discussion regarding the conjunction *waw* in the Secunda (§5.1.2), the *waw* + *yiqtol* forms almost never have a vowel transcribed after the conjunction *waw* (Tables 14–15):

Table 14: *Waw* + *yiqtol* in the Secunda: Conjunction *waw* + *vowel*

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 35.27	וְיִשְׂמְחוּ	ουειεσομου	‘and let them rejoice’

Table 15: *Waw* + *yiqtol* in the Secunda: Vowelless conjunction *waw*

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 18.33	וְאֶשְׂיֹגְמֵם	ουεσιγημ	‘and I overtake them’
Ps. 18.43	וְאֶשְׂחַקֵּם	ουεσοαημ	‘and I beat them’
Ps. 18.46	וְיִחַרְגֻּוּ	ουιερογου	‘and they come forth trembling’
Ps. 18.47	וְיִרְוֹם	ουιαρουμ	‘and [the God ...] will be exalted’
Ps. 18.48	וְיִדְבֹּר	ουιεδαββερ	‘and he subdued’
Ps. 31.4	וְתִנְהַלְנִי	ουθνελνι	‘and you guide me’

Ps. 31.25	וַיֵּאמֶן	ουιαεμας	‘and let [your heart] be courageous’
Ps. 32.8	וְאֶרְדָּךְ	ουωρεκ	‘and I will teach you’
Ps. 35.26	וַיִּחְפְּרוּ	ουϊφρου	‘and let them be disappointed’
Ps. 35.27	וַיֵּאמְרוּ	ουιωμρου	‘and let them say’
Ps. 46.6	יִעֲזְרֶהָ	ουεζρα	‘and he will help her’
Isa. 26.2	וַיָּבֵא	ουιαβω	‘that [a ... nation] should come’

The only instance in which the conjunction *waw* in a *waw* + *yiqṭol* form has a vowel, ουειεσομου וַיִּשְׂמְחוּ ‘and let them rejoice’ (Ps. 35.27), probably has an explanation specific to its environment. The preceding word ends in a long unstressed /ū/ (ιαροννου ουειεσομου וַיִּשְׂמְחוּ וַיִּרְצוּ) and thus the conjunction /w-/ might not have been pronounced at all if it was not consonantal (Kantor 2017, 347–48).¹⁶ In other words, if the conjunction *waw* had been pronounced with the expected vocalic realisation of [(?)u(:)] in the sequence **yāronnū* (?)*ū*-*yesomhū*, it would have been prone to elision or misperception, so that the entire sequence would have sounded more like **yāronnū yesomhū* (i.e., without a conjunction before the second verb). It may be, then, that the consonantal allophone of the conjunction *waw* was used to prevent such confusion.

The *wayyiqṭol* forms, on the other hand, are transcribed with a vowel in nearly half the attestations (Tables 16–17):

¹⁶ This has parallels in the distribution and realisation of the conjunction *waw* /w-/ as [u-] and [w-] in Syrian Arabic (Kantor 2017, 347–48).

Table 16: *Wayyiqtol* in the Secunda: Conjunction *waw* + vowel

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Gen. 5.5	וַיְחִי	ουαεεει	‘and [Adam] lived’
Ps. 28.7	וַיַּעֲלֵז	ουαϊαλεζ	‘and [my heart] trusted’
Ps. 28.7 (<i>bis</i>)	וַיַּעֲלֵז	ουαϊαλεζ	‘and [my heart] trusted’
Ps. 30.12	וַתַּאזְרֵנִי	ουεθαζεργηνι	‘and you clothed me’
Ps. 35.21	וַיִּרְחִיבוּ	ουεϊεριβου	‘and they opened wide’
Ps. 44.19	וַתָּט	ουαθετ	‘and departed (3fs)’
Ps. 89.39	וַתִּמְאַס	ουαθθεμας	‘and you rejected’

Table 17: *Wayyiqtol* in the Secunda: Vowelless conjunction *waw*

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Gen. 33.4	וַיִּשָּׁקֵהוּ	ουεσσακη	‘and he kissed him’
Gen. 34.2	וַיִּשְׁכַּב	ουεσχαβ	‘and he lay’
Lev. 1.1	וַיִּקְרָא	ουϊκρα	‘and he called’
2 Kgs 4.35	וַיִּגְהַר	ουϊεγαρ	‘and he stretched’
Isa. 9.5	וַיִּקְרָא	ουιεκρα	‘and he called’
Hos. 11.1	וְאֶהְבֵּהוּ	ουεαβηου	‘and I loved him’
Ps. 8.6	וַתַּחֲסִרְהוּ	ουθασρηου	‘and you made him lower’
Ps. 18.33	וַיִּתֵּן	ουϊεθθεν	‘and he set’
Ps. 18.36	וַתִּתֵּן	ουθεθθεν	‘and you gave’
Ps. 18.40	וַתַּאזְרֵנִי	ουθεζορηνι	‘and you equipped me’

The data with respect to the vocalisation of the conjunction *waw*, both in *waw* + *yiqtol* and *wayyiqtol* forms, may be summarised in the following chart (Table 18):

Table 18: Distribution of a vowel after the conjunction *waw* in *waw* + *yiqtol* and *wayyiqtol* forms in the Secunda

	<i>ou-</i>	<i>ouα-/oue-</i>	Total
<i>waw</i> + <i>yiqtol</i>	12 (92%)	1 (8%)	13
<i>wayyiqtol</i>	10 (59%)	7 (41%)	17
Total	22	8	30

The chart clearly indicates that there is a much greater tendency full vowel with the *waw* of a preterite *wayyiqtol* form (transcribed with α in all but one case) than with that of a non-preterite *waw* + *yiqtol* form. At the same time, however, this tendency affects fewer than half of the forms, with most forms of the conjunction *waw* exhibiting no difference when preceding a preterite *yiqtol* form as opposed to a non-preterite *yiqtol*.

5.2.4. Conjunction *waw* + *gemination* in the Secunda

Because there is no way of indicating a geminated *yod* in the transcriptions, only the 3FS and 2MS forms are given to an analysis with respect to gemination. This amounts to one form of *waw* + *yiqtol* and six forms of *wayyiqtol* (Tables 19–21):

Table 19: *Waw* + *yiqtol* in the Secunda: Singleton prefix consonant

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 31.4	וְתַנְהִלְנִי	ουθνεελνι	‘and you guide me’

Table 20: *Wayyiqtol* in the Secunda: Singleton prefix consonant

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 8.6	וְתַחַסְרָהוּ	ουθασρηου	‘and you made him lower’
Ps. 18.36	וְתַתֵּן	ουθεθθεν	‘and you gave’
Ps. 18.40	וְתַאֲזַרְנִי	ουθεζορηνι	‘and you equipped me’

Ps. 30.12	וְלָבַשׁתָּנִי	ουεθαζερηνι	‘and you clothed me’
Ps. 44.19	וַתֵּצֵא	ουαθετ	‘and departed (3fs)’

Table 21: *Wayyiqtol* in the Secunda: Geminated prefix consonant

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 89.39	וַתִּסְרַב	ουαθθεμας	‘and you rejected’

It is no surprise, of course, that the *waw* + *yiqtol* form is not transcribed with gemination. Of the 6 *wayyiqtol* forms which could possibly exhibit gemination in the Greek transcriptions, however, only 1 is transcribed with gemination: *ουαθθεμας* וַתִּסְרַב ‘and you rejected’ (Ps. 89.39). The data may be summarised in the following chart (Table 22):

Table 22: Distribution of geminated $\theta\theta$ after the conjunction *waw* in 3FS/2MS *waw* + *yiqtol*/*wayyiqtol* forms in the Secunda

	θ	$\theta\theta$	Total
<i>waw</i> + <i>yiqtol</i>	1 (100%)	0 (0%)	1
<i>wayyiqtol</i>	5 (83%)	1 (17%)	6
Total	6	1	7

This chart indicates that the gemination of the prefix consonant, though attested and present in the language, was by no means regular in the Hebrew of the Secunda.

To be fair, however, we might also note that only three of the six instances of a 3FS or 2MS form have a vowel transcribed after the conjunction *waw*. Among the attested Biblical Hebrew reading traditions, a geminated consonant must be preceded by a full vowel. Therefore, it may be more appropriate to suggest

that of those instances which could possibly reflect a double letter in the Secunda, only one in three (33 percent) exhibit gemination. The two instances without gemination may have alternative explanations (see §5.6.2).

Finally, it should be noted that although Greek script is incapable of explicitly indicating a geminated *yod*, there are certain conventions which always accompany geminated *yod*. For example, while singleton (consonantal) /j/ may be written with regular *iota* (ι) or *iota with diaeresis* (ï) in the Secunda, geminated /jj/ seems to have been written only with ï (Yuditsky 2017, 32–33). Thus, it is likely that gemination is also reflected in 3M forms, such as *ουαίααλεξ* וַיַּעֲלֶזְזֵי ‘and [my heart] trusted’ (Ps. 28.7) and *ουεϊεριβου* וַיִּרְחֶיבוּ ‘and they opened wide’ (Ps. 35.21).

5.3. ‘*Shewa*’, the Conjunction *Waw*, and Gemination in Jerome

5.3.1. *Shewa*

While the Secunda normally leaves the parallel to Tiberian *shewa* unrepresented, and less frequently transcribes it with an /a/ or /e/ vowel, Jerome tends to transcribe the parallel to *shewa* with a vocalic grapheme more often than not, most frequently with *a* and slightly less frequently with *e* (Table 23):

Table 23

<i>Verse</i>	<i>Tiberian</i>	<i>Jerome</i>	<i>Translation</i>
Nah. 1.8	מְקוֹמָהּ	<i>macoma</i>	‘her place’
Joel 3.5	וּבְשָׂרֵי־יָדַיִם	<i>saridim</i>	‘survivors’
Hos. 1.2	זְנוּנִים	<i>zanunim</i>	‘whoredom’
comm. Isa. 7.14	בְּתוּלָה	<i>bethula</i>	‘virgin’
comm. Ob. 21	פְּלֵטִים	<i>pheletim</i>	‘escaped ones’

Most examples of *a* corresponding to Tiberian vocalic *shewa* also happen to correspond to the historical vowel (e.g., *macoma*, *saridim*).¹⁷ This may indicate that *e* was the normal representation of a reduced vowel and that instances of *a* actually reflect the preservation of the historical vowel rather than a reduced ‘*shewa*’ vowel.

There are also examples, especially in the environment of sibilants and sonorants, in which the parallel to vocalic *shewa* is omitted in transcription (Table 24; Kantor 2017, 328):

Table 24

<i>Verse</i>	<i>Tiberian</i>	<i>Jerome</i>	<i>Translation</i>
Isa. 40.20	הַמְּסָכֵן	<i>amsuchan</i>	‘the poor one’
Isa. 62.12	דְּרוּשָׁה	<i>drusa</i>	‘sought out (fs)’
Ps. 20.10	בְּיוֹם-	<i>biom</i>	‘when; in the day of (cstr.)’

It might seem that because the parallel to *shewa* in Jerome is represented with a vocalic grapheme more often than not, the significance of a vocalic grapheme being transcribed after the

¹⁷ There are, however, a few examples in which *a* does not correspond to the historical vowel (e.g., *zanunim* זְנוּנִים [$< *zunūnīm/*zinūnīm$]).

conjunction *waw* before potential *wayyiqṭol* forms would be diminished. Based on the behaviour of the conjunction *waw* in Jerome's transcriptions, however, this is not the case (see below).

5.3.2. Conjunction *waw*

In Jerome's transcriptions, the conjunction *waw* is normally represented by *u* with no subsequent vowel (Table 25; Kantor 2017, 348):

Table 25

<i>Verse</i>	<i>Tiberian</i>	<i>Jerome</i>	<i>Translation</i>
Gen. 14.18	וְהוּא	<i>uhu</i>	'and he'
Gen. 14.20	וּבְרֻךְ	<i>ubaruch</i>	'and blessed (ms)'
Isa. 7.12	וְלֹא	<i>ulo</i>	'and [I] will not'
Ezek. 40.49	וְרֹחַב	<i>urob</i>	'and width'
Ps. 76.4	וּמִלְחָמָה	<i>umalama</i>	'and war'

As with the *Secunda*, instances in which the conjunction *waw* is transcribed with a subsequent vowel occur in two environments: (1) preceding a word-initial consonant cluster or (2) preceding a monosyllabic stressed noun in a natural linguistic pair (Tables 26–27; Kantor 2017, 348):

Table 26: Rule (1): Conjunction *waw* before word-initial consonant cluster

<i>Verse</i>	<i>Tiberian</i>	<i>Jerome</i>	<i>Translation</i>
Ps. 104.25	וּרְחַב	<i>uarab</i>	'and wide of'

Table 27: Rule (2): Conjunction *waw* before stressed monosyllabic word

<i>Verse</i>	<i>Tiberian</i>	<i>Jerome</i>	<i>Translation</i>
Gen. 14.18	לֶחֶם וַיַּיִן	<i>lehem uaiain</i>	'bread and wine'

In sum, a vowel is transcribed after the conjunction *waw* in Jerome's transcriptions according to the same distribution as in the Secunda. If anything, the transcriptions of Jerome exhibit even more consistency and fewer exceptions.¹⁸ Therefore, if we find a vowel transcribed after the conjunction *waw* before a *yiqtol* verbal form, it is unlikely to reflect a phonological reality parallel to vocalic *shewa* in Tiberian or Babylonian.

5.3.3. Gemination

In Jerome's transcriptions, much like the Secunda, the representation of gemination is generally reliable. Unfortunately, because all of the *wayyiqtol* forms attested in Jerome are 3MS forms, the Latin script does not explicitly indicate whether the form was read with a geminate or singleton *yod*. Nevertheless, certain principles of syllable structure may indicate gemination in at least one form (see below).

5.4. *Wayyiqtol* in Jerome

Due to the nature of the data, the present section on Jerome is significantly less detailed than the previous section on the Secunda with respect to two points. First, because there are no *waw* + *yiqtol* (non-preterite) forms in Jerome, we are unable to compare the behaviour of the conjunction *waw* in *wayyiqtol* forms to its behaviour before a regular *yiqtol* form. Second, because

¹⁸ The singular exception to these rules is *uares* וָאֵרֶץ 'and earth' (Gen. 14.19). According to rule (2), we might expect this word to be transcribed as ***uaares*. However, it is also possible that the singular *a* grapheme could represent a long vowel with elision of the guttural.

there are no verbal forms beginning with a prefix consonant other than *yod*, the section on gemination contains only a tentative suggestion based on syllable structure rather than a statistical analysis. Nevertheless, the data from Jerome's transcriptions concerning the presence of a vowel after the conjunction *waw* in the *wayyiqṭol* form are relevant and given to analysis.

5.4.1. Wayyiqṭol in Jerome

In Jerome's transcriptions, six forms are attested which correspond to *wayyiqṭol* in the Tiberian tradition (Table 28; but cf. the forms without the conjunction in §6.2.3):

Table 28: *Wayyiqṭol* in Jerome according to the Tiberian tradition

Verse	Tiberian	Jerome	Translation
Num. 1.1	וַיְדַבֵּר	<i>uaiedabber</i>	'and [the LORD] spoke'
Lev. 1.1	וַיִּקְרָא	<i>uaiecra</i>	'and he called'
Gen. 4.15	וַיֹּאמֶר	<i>uaiomer</i>	'and [the LORD] said'
Gen. 14.19	וַיְבָרְכֵהוּ	<i>uaibarcheu</i>	'and he blessed him'
Gen. 14.19	וַיֹּאמֶר	<i>uaiomer</i>	'and [the LORD] said'
Gen. 14.20	וַיִּתֵּן	<i>uaiethen</i>	'and he gave'

Because every example here is found in a clear narrative past context, there is no reason to suggest that any of these forms would be *waw* + *yiqṭol* (non-preterite).

5.4.2. Conjunction *waw* + vowel in Jerome

It is significant that all six instances (100 percent) of *wayyiqṭol* are preceded by the conjunction *waw* with the vowel *a* transcribed after it (*ua-*). While we have no *waw* + *yiqṭol* (non-preterite) forms to which we may compare the conjunction *waw* in

these forms, we may reiterate the standard rules for the vocalisation of the conjunction *waw* in Jerome's transcriptions: the conjunction *waw* (1) is generally vocalised as *u-*, (2) before an initial consonant cluster is vocalised as *ua-*, and (3) before a monosyllabic stressed noun is vocalised as *ua-*. Aside from the transcriptions *uaiedabber* and *uaibarcheu*, the verbal part of which could be interpreted as beginning with a consonant cluster (see §5.4.3 for the significance of this), there is no reason for any of the other forms to be transcribed with a vowel after the conjunction *waw*.

Accordingly, we may conclude that the conjunction *waw* in *wayyiqtol* forms in Jerome was normally pronounced with a full vowel, which is markedly distinct from its pronunciation elsewhere. The presence of this vowel probably also indicates following gemination, though this is not explicitly indicated (see §§5.4.3; 5.6).

5.4.3. Conjunction *waw* + gemination in Jerome

The only evidence regarding the potential gemination of the prefix consonant in Jerome's transcriptions is based on syllable structure. As stated above, there are two instances of *wayyiqtol* in Jerome's transcriptions in which the verbal prefix is vocalised with *shewa* in the Tiberian tradition (Table 29):

Table 29

<i>Verse</i>	<i>Tiberian</i>	<i>Jerome</i>	<i>Translation</i>
Num. 1.1	וַיְדַבֵּר	<i>uaiedabber</i>	'and [the LORD] spoke'
Gen. 14.19	וַיְבָרְכֵהוּ	<i>uaibarcheu</i>	'and he blessed him'

In the case of *uaiedabber*, Jerome actually transcribes the very same form elsewhere, but without a prefixed *waw* (Table 30):

Table 30

Verse	Tiberian	Jerome	Translation
Isa. 32.6	יְדַבֵּר	<i>idabber</i>	‘[a fool] speaks’

There is a tendency in the ancient transcriptions for the parallel to *yod* with vocalic *shewa* in Tiberian to be represented merely with Greek ι (without *diaeresis* ¨) or Latin *i* without any subsequent vowel. By comparing the representation of the prefix *yod* in *yiqṭol* forms of the *piʿel* with its representation in the *qal*, I have argued elsewhere that this representation indicates an initial cluster realised phonemically as /jC-/ and phonetically as [(?)i(:)C-] (Kantor 2017, 334–38).

Therefore, it may be possible to explain the different representations of the vocalisation of *yod* in *uaiedabber* and *idabber* on the basis of gemination. In the form *idabber*, the initial *id-* was most likely vocalised as something like /jd-/ [(?)i(:)ð-]. In the form *uaiedabber*, however, gemination may have preserved the consonantal realisation of the *yod*, i.e., /wajjed-/ [wajjið-]. The form *uaibarcheu*, on the other hand, might represent the lack of gemination (or degemination) due to the fact that *yod* is not transcribed with a following vowel. It should be noted, however, that such an argument is only speculative, since there is variation in the representation of the parallel to word-initial *yod* with *shewa* elsewhere in Jerome. Nevertheless, the contrast between *uaiedabber* and *idabber* is compelling. Also, the fact that gemination is already evidenced in the *Secunda*, though rare, would suggest that if the full vowel had become universal in Jerome’s tradition, then gemination likely had as well.

5.5. Diachrony: Comparing the Secunda and Jerome

A clear diachronic trajectory in the development of the conjunction *waw* in these forms is evident on the basis of a comparison between the transcriptions of *wayyiqṭol* in the Secunda and in Jerome. Though both operated in Palestine, nearly two centuries separates Origen from Jerome; the original text of the Secunda itself likely pre-dates Origen by a century or more.¹⁹

Due to the nature of the evidence in Jerome's transcriptions, it is not possible to compare the two traditions with respect to the presence of gemination or lack thereof in the *wayyiqṭol* form. Nevertheless, there are ample data for comparing the presence or lack of a vowel following the conjunction *waw* in these forms.

5.5.1. Conjunction *waw* + vowel in *wayyiqṭol* Forms in the Secunda and Jerome

From the transcriptions of the Secunda to those of Jerome, there is a clear increase in the frequency with which the conjunction *waw* is transcribed with a vowel (Table 31):

Table 31: Transcription of a vowel following the conjunction *waw* in *wayyiqṭol* forms in the Secunda and Jerome

	<i>Secunda</i> (ca. 1st–3rd CE)	<i>Jerome</i> (4th/5th CE)	<i>Total</i>
<i>ov- or u-</i>	10 (59%)	0 (0%)	10
<i>ovā-/ovē- or ua-</i>	7 (41%)	6 (100%)	13
<i>Total</i>	17	6	23

¹⁹ See Kantor (2017, 38–47).

Not only does the frequency with which the conjunction *waw* vocalised with a following vowel increase from the Secunda to Jerome, it seems to become universally standardised before all *wayyiqtol* forms, with 100 percent of cases transcribed as *ua-*.

While one could argue that such a discrepancy could be the result of a statistical coincidence due to the dearth of the material, a subset of the data would argue against this. It just so happens that two of the six forms in Jerome have exact (or near exact) parallels with forms found also in the Secunda, in which all are attested without a following vowel (Table 32):

Table 32

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Jerome</i>
Lev. 1.1	וַיִּקְרָא	ουῖκρα	<i>uaiecra</i>
Ps. 18.33	וַיִּתֵּן	ουῖεθθεν	
Ps. 18.36	וַתִּתְּנֵנִי	ουθεθθεν λι	
Gen. 14.20	וַיִּתְּנֵנִי		<i>uaiethen lo</i>

Though not from the Secunda, additional evidence is found in an early list of the Hebrew names of the books of the Bible transcribed into Greek. In this list, which should probably be dated to the first or second century CE, an alternative name of the Book of Numbers transcribed into Greek (taken alongside that of Jerome) also seems to exhibit the same development.²⁰

Table 33

<i>Verse</i>	<i>Tiberian</i>	<i>Name List</i>	<i>Jerome</i>
Num. 1.1	וַיְדַבֵּר	ουιδαβηρ	<i>uaiedabber</i>

²⁰ For more on this list and its various attestations, see Audet (1950); Torrey (1952); Jepsen (1959); Goodblatt (1982).

All of this evidence would seem to suggest that the vocalisation of the conjunction *waw* in the *wayyiqtol* form changed over time. While some would argue that these differences could also be ascribed to mere differences in contemporaneous but distinct traditions, there are a number of reasons for regarding such a theory as less plausible. First, Origen (and most likely the original text of the *Secunda*) and Jerome both operated in Palestine. While multiple traditions did exist within Palestine in late antiquity, the chronological difference here is far more apparent than any potential geographical or communal one. Second, aside from its behaviour in *wayyiqtol* forms, the vocalisation of the conjunction *waw* has the same distribution and is governed by the same rules in the *Secunda* and Jerome. Rule (1) is especially significant, since the behaviour of the conjunction *waw* before an initial cluster (i.e., *shewa*) is not identical between Tiberian, Babylonian, Palestinian, and Samaritan. The fact that both the *Secunda* and Jerome exhibit similarity here would suggest that the distinct behaviour of the conjunction *waw* in *wayyiqtol* forms is not likely to be attributed *solely* to Jerome representing a contemporaneous yet distinct tradition. Therefore, while we cannot entirely discount the possibility that the *Secunda* transcriptions and Jerome merely represent different Hebrew traditions existing contemporaneously, their geographic proximity, yet chronological distance, together with their close affinity in the vocalisation of the conjunction *waw* elsewhere, suggest that clear trajectories of change from Origen to Jerome (with respect to the *wayyiqtol* form) are best explained as a function of diachrony rather than contemporaneous linguistic diversity.

If one were to disregard the data of Jerome, one could suggest that both a full vowel and gemination were original to the *wayyiqtol* form and that the Secunda reflects a tradition in which a distinct *wayyiqtol* pronunciation was fading away due to the fact that the regular use of *wayyiqtol* had faded out of the language in Late Biblical Hebrew. However, because we can discern a clear diachronic trajectory from the Secunda to Jerome, it is far more likely that there was originally no distinction in pronunciation between the conjunction *waw* before a preterite *yiqtol* form and a non-preterite *yiqtol* form in earlier stages of Hebrew. This diachronic reconstruction is further supported by the evidence from Samaritan Hebrew (see below).

5.5.2. Primacy of the Vowel or Gemination?

Finally, we must also consider the question as to whether it was primarily the full vowel or gemination that first distinguished the conjunction *waw* in the preterite **w-yiqtol* form at the time of the Secunda. After all, of the six forms which could possibly indicate gemination in the Secunda, three are transcribed with a following vowel and only one is transcribed with gemination (Table 34):

Table 34: *Wayyiqtol* in the Secunda: Forms with vowel and/or gemination in 2MS/3FS forms

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 30.12	וַתַּאֲרֵךְ לִּי	ουεθαζερηνι	‘and you clothed me’
Ps. 44.19	וַתֵּצֵא	ουαθετ	‘and departed (3FS)’
Ps. 89.39	וַתִּמְאַס	ουαθθεμας	‘and you rejected’

Because a vowel can be transcribed without gemination in *wayyiqtol* forms in the Secunda, one might argue that this distribution actually suggests that the presence of a full vowel has primacy over gemination. On the other hand, the presence of a vowel after each of the other two forms cited here (*ουεθαζερηνι*, *ουαθετ*) actually accords with the normal rules governing the presence of a vowel after the conjunction *waw* elsewhere in the Secunda (§5.1.2). In the case of *ουεθαζερηνι*, the conjunction *waw* precedes an initial cluster (assuming /ʔ/ had not elided). In the case of *ουαθετ*, the conjunction *waw* precedes a monosyllabic stressed word. These might be sporadic instantiations of such rules playing out, since they are by no means universal in the Secunda. One might also explain the omission of transcribed gemination in these forms in light of its occurrence on a morpheme boundary. Moreover, although it cannot be explicitly indicated by the script, it should be noted that gemination is also probably present in some of the 3M preterite **w-yiqtol* forms (see §5.2.4).

At the same time, the transcriptions with a vowel and no gemination may indeed point to the primacy of the full vowel in the development of these forms. On this point, however, the claims of Loprieno (1980, 10) and Joüon and Muraoka (2009, 128) that gemination was introduced to preserve the original historical short (but full) vowel **/a/* of the conjunction *waw* seem to be contradicted by the form *ουαθημας* וַאֲנִי (Ps. 89.39). Gemination would not have been necessary to preserve such a vowel according to the phonotactics of the Secunda (see §§5.2.3; 6.1). Further, the idea that the full */a/* vowel was an integral (or

grammaticalised) part of the form seems to be contradicted by the conception of the morphological elements of these forms in late antiquity (see §6.2.3).

Revell's (1984) account, on the other hand, which suggests that the distinct pronunciation of the conjunction *waw* constituted (initially) a lengthened vowel in pre-tonic position, is worth further consideration. The only *wayyiqtol* form with word-initial stress with which we could test this claim, *ουαθετ* וַתֵּן (Ps. 44.19), would seem to support his theory, in that it exhibits a vowel and no following gemination. Presumably, the gemination in *ουαθθεμας* וַתִּתֵּן (Ps. 89.39) would be explained by Revell as a way of maintaining the lengthened first syllable even though the conjunction *waw* did not precede a stressed syllable. Finally, for what it's worth, the compounds *הַבְּמָה/הַבְּמָה* and *הַבְּמָה/הַבְּמָה* both exhibit gemination in the transcriptions, e.g., *bamma* הַבְּמָה 'in what...?' (Isa. 2.22); *χामμα* הַבְּמָה 'how much/long...?' (Ps. 35.17). Revell's theory is admittedly appealing, especially because it posits a limited and isolated environment consistent with the phonotactics of the language (the conjunction in pre-tonic position) as the launchpad for the more widespread morphophonological change.²¹ Nevertheless, there are several reasons for questioning Revell's theory and for continuing to regard gemination as the primary innovation in these forms.

First, his theory is largely predicated on regarding V:C and VC: as equivalent. Some have raised questions, however, about

²¹ According to Janda and Joseph (2003), sound changes first occur in a "highly localized context" and then subsequently spread.

whether there is even such a phenomenon as ‘quantitative metathesis’ in Semitic (Huehnergard 2005, 463). In fact, the opposite often occurs in Biblical Hebrew, with just such a contrast (VC: instead of V:C) serving as a phonetic device developed in the reading tradition to distinguish the meaning of otherwise homophonous forms, known as *dagesh mavhin* ‘distinguishing *dagesh*’ (see §6.2.2). Second, there is no apparent reason why forms such as *וַיִּקְם, with a lengthened vowel due to word-initial stress, would later be revocalised with gemination as וַיִּקְמ. If the forms with gemination are to be regarded as mere extensions of the form with the long vowel, but modified according to the phonotactics of the language, it is unlikely that gemination would later be generalised across the entire paradigm. This especially in light of the fact that three of the most common six *wayyiqtol* verbs (וַיִּבְנֶה, וַיִּשַׁע, וַיִּבְנֶה) have initial stress in their most frequently attested forms. Moreover, a distinct pronunciation of the conjunction *waw* is not necessary as a distinguishing marker in such cases, since the vowel pattern is already unique to the preterite *yiqtol* form. Third, if the vowel of the conjunction *waw* regularly lengthened before *yiqtol* forms with word-initial stress, it is difficult to explain the contrast between forms like וַיִּבְנֶה [viˈji:vɛn] ‘and let him build!’ (Ezra 1.3) and וַיִּבְנֶה [vaʃˈji:vɛn] ‘and he built’ (Gen. 10.11). If the lengthening of the conjunction was originally a purely phonological development, both of these forms would presumably have undergone the same development. Fourth, and finally, positing gemination as the primary distinguishing feature is simply more economical. The complete uniformity of the Jew-

ish reading traditions (Tiberian, Babylonian, Palestinian) with respect to gemination in *wayyiqtol* is hard to reconcile with Revell's reconstruction, which must posit a stage in which thousands of forms were vocalised with a long vowel and thousands were vocalised with gemination before gemination eventually won out. One would expect at least vestigial attestations of forms such as ** וַיִּקְטֹל if Revell's theory were correct.

5.5.3. Summary

In sum, then, the claim that gemination developed as the primary distinguishing mark of the *wayyiqtol* form remains more plausible. Nevertheless, I remain open to the possibility that Revell's theory or a variation thereof may prove correct. As more data come to light, future research may indeed reveal that the origins of the full vowel [a] are bound up in a more sophisticated explanation than that of merely accompanying the gemination. Nevertheless, based on the evidence from the transcriptions, we may state the following about the realisation of the conjunction *waw* in *wayyiqtol* forms:

- 1) First Temple Period: The diachronic trajectory implied by (2)–(3) (see below) would suggest that the conjunction *waw* was **pronounced identically** before a preterite *yiqtol* and non-preterite *yiqtol* form, probably with the original etymological */a/ vowel:
 - PRETERITE: **wa-yiqtol*
 - NON-PRETERITE: **wa-yiqtol*
- 2) Late Second Temple Period: The conjunction *waw* was **usually pronounced identically** before a preterite

yiqṭol and non-preterite *yiqṭol* form, namely, with no full vowel or following gemination. Nevertheless, the conjunction *waw* was also **frequently pronounced distinctly** before a preterite *yiqṭol* form, being vocalised with a full vowel and (probably) gemination:

- PRETERITE: **w-yiqṭol*; **wa(y)-yiqṭol*
- NON-PRETERITE: **w-yiqṭol*

3) Early Byzantine Period: The conjunction *waw* was **always pronounced distinctly** before a preterite *yiqṭol* form (as opposed to before a non-preterite *yiqṭol*), being vocalised with a full vowel and (probably) gemination:

- PRETERITE: **wa(y)-yiqṭol*
- NON-PRETERITE: **w-yiqṭol*

This reconstruction suggests that up to some point in the Second Temple period, *yiqṭol* in the sequence **w-yiqṭol* was a polysemous form, indicating either past or non-past (usually jussive) semantics according to context. In the coming sections, the evidence from the transcriptions will be utilised to suggest a plausible path of development for the distinct pronunciation of the conjunction *waw* in the *wayyiqṭol* form.

6.0. RECONSTRUCTION: THE MORPHOLOGICAL DEVELOPMENT OF **WAYYIQṬOL**

In this final section, it will be argued that gemination was introduced into the preterite **w-yiqṭol* form (> *wayyiqṭol*) during the Second Temple period to distinguish preterite *yiqṭol* from non-preterite *yiqṭol* after the conjunction *waw*. After re-evaluating the

theories regarding the morphological development of *wayyiqtol* in light of the evidence from the transcriptions, we will further elaborate on this theory in full.

6.1. Review of Scholarship in Light of Evidence from Transcriptions

In an earlier section of this paper (§3.0), we suggested that theories for explaining the morphological development of the conjunction *waw* in the *wayyiqtol* form can be categorised into two main groups: those which regard the gemination as deriving from an early Hebrew or Afro-Asiatic morpheme and those which regard the gemination as a phonetic development due to morpho-syntactic factors.

Based on the evidence from the transcriptions, we can immediately dismiss almost every theory which suggests that the *dagesh* in the prefix consonant is the result of an assimilated /n/ or /j/ of an independent morpheme. This is because most of these theories require that the developments in question occurred at an early stage in Semitic (not even in Hebrew!). Moreover, even Brenner, who suggests that the form entered Hebrew via Israelite scribes as a borrowing from Egyptian, must date the development to the Second Temple period at the latest. If any of these theories were correct, it would be highly unusual that both a full vowel and gemination would be absent in the majority of forms in the *Secunda* and yet be present (at least with respect to the full vowel) in all forms in *Jerome*. After all, gemination in the definite article, which likely derives from an assimilated /n/ (from *han-) and was introduced into the language during roughly the same

period in which Brenner suggests *wayyiqtol* was adopted, is almost always represented in the Secunda.

Theories that regard the gemination as a phonetic development based on morphosyntactic factors are thus far more plausible. With respect to ‘junctural doubling’, however, the evidence of the transcriptions should caution against accepting such a proposal. In Lambdin’s original article, he suggested that the following four phenomena were all examples of junctural doubling: (1) gemination following the definite article; (2) gemination following the conjunction *waw* in the *wayyiqtol* form; (3) gemination following the relative particle $-־ִשׁ$; and (4) gemination in *dehiq* constructions. While there are no examples in the transcriptions by which we can evaluate (3), examples of (1), (2), and (4) are all attested. In the case of (1), it has been demonstrated above that the definite article was overwhelmingly realised with gemination in the Secunda (see §5.1.3). In the case of (2), on the other hand, gemination in the *wayyiqtol* form occurs in only a minority of cases (see §5.2.4). Finally, in the case of (4), the only example we have exhibits lack of gemination (Table 35):

Table 35: *Dehiq* in the Secunda

<i>Verse</i>	<i>Tiberian</i>	<i>Secunda</i>	<i>Translation</i>
Ps. 8.6	וַתַּחַסְרֵהוּ מִנְּטַט	οὐθασρησὸν μὰτ	‘and you made him lower’

Three of the four phenomena cited by Lambdin as examples of ‘junctural doubling’ all appear to be at different stages of development at the time of the Secunda. In my view, this suggests that there are serious problems with accepting that ‘junctural doubling’ may explain all that it claims to explain.

Loprieno's theory, which suggests that grammaticalised *wayiqtol was received into Tiberian as wayyiqtol due to phonotactic constraints, also deserves further comment. While there is much to commend in his theory,²² the transcriptions do not support his precise reconstruction. According to Loprieno, the conjunction *wa- was grammaticalised with the full vowel in preterite *wayiqtol before the vowel of the conjunction underwent reduction in other environments; the grammaticalisation is what prevented its reduction before the preterite yiqtol form. However, the evidence from the Secunda seems to reflect a stage in which the vowel of the conjunction waw had reduced when preceding both preterite yiqtol and non-preterite yiqtol. Moreover, neither is Loprieno's suggestion that gemination was introduced to preserve the full vowel due to phonotactic constraints supported by the evidence from the Secunda. The Secunda exhibits gemination in at least one wayyiqtol form (ουαθημας וַאֲנִי [Ps. 89.39]) while not being bound by the same phonotactic constraints as Tiberian—note that a full /a/ vowel can exist far from the stress without gemination in the Secunda, e.g., φανη וַיִּגֹּף 'the face of (cstr.)' (Ps. 18.43); νακαμωθ תוֹקֵף 'vengeances' (Ps. 18.48).

²² Though not mentioned by Loprieno, one might compare the Persian loanword וַיִּבְנֶה 'his palace' (Dan. 11.45). Though the /p/ in the original Persian word *apadâna* is singleton and *not* geminate, it seems that the only way the Tiberian tradition could accurately reflect the [p] sound after a vowel was by marking the consonant with a *dagesh*. In this case, then, gemination serves to accurately reproduce an 'inherited' form that would not otherwise conform to Tiberian Hebrew phonotactics.

With respect to Revell's theory, which is based on stress patterns, see the critique in §5.6.2.

It would seem, then, that none of the theories put forward to explain the full vowel and gemination in the *wayyiqtol* form are consistent with the earliest vocalisation evidence we have, namely, the transcriptions. In the following section, we will propose an alternative solution.

6.2. An Alternative Proposal: *Dagesh Mavḥin* 'Distinguishing *Dagesh*'²³

In this final section, we will argue that the gemination (and thus the preceding full vowel) was an innovative phonetic device which began to be added to the preterite **w-yiqtol* form during the mid- to late Second Temple period to distinguish it from the non-preterite **w-yiqtol* form. This development may be compared to what is referred to in the literature as *dagesh mavḥin* 'distinguishing *dagesh*'. The introduction of gemination was motivated by the need to preserve and distinguish the past verbal semantics of a form that was falling (or had already fallen) out of use in the spoken language. Such a desire for preservation points to the introduction of gemination in the form being a product of the reading tradition rather than of the living language.

This reconstructed scenario is built on three pieces of supporting evidence, which will form the outline of the rest of this

²³ The theory that the gemination in the *wayyiqtol* form is a *dagesh mavḥin* was originally suggested almost three decades ago by Khan (1991, 241; 2013, 43).

section: the disappearance of the sequential tenses from the living language (§6.2.1); parallels of gemination distinguishing homophonous forms attested in other traditions of Hebrew (§6.2.2); and the conception of the morphological components of the *wayyiqtol* verbal form in late antiquity (§6.2.3). Finally, conclusions and implications for understanding the historical development of the Hebrew reading traditions will be summarised (§§6.2.4–6.2.5).

6.2.1. Diachronic Considerations Regarding the Sequential Tenses

In the Second Temple period, the Hebrew verbal system had two sequential tenses, **w(a)-yiqtol* (> *wayyiqtol*) for the past and **w(a)-qaṭal* for the future. As suggested by the transcriptions, the *yiqtol* form following the conjunction *waw* during this period would have been semantically polysemous, with past and jussive meanings, the semantics of each given form being recognised and differentiated only according to context. Nevertheless, the use of the sequential tenses was stable and pervasive; they are attested and used consistently in a wide array of genres in the biblical text and are found in numerous extra-biblical inscriptions. At some point after the exile (i.e., the Second Temple period), however, the Hebrew verbal system began to reconfigure. One of the results of this reconfiguration was that the sequential tenses began to gradually fade out of common use. This is most apparent in the distribution and function of consecutive forms in Late Biblical Hebrew. However, non-biblical compositions from Qumran clearly indicate that the sequential tenses were still

known and used at a relatively late period, even if due only to the literary character of the compositions rather than to the living language.²⁴ By the first few centuries CE, as evidenced from Rabbinic Hebrew, use of the sequential tenses had disappeared entirely from the language, being absent even from the literary register. In the syntactic slot following the conjunction *waw*, the ‘non-converted’ forms came to fill the role previously filled by the sequential tenses (i.e., **w-yiqtol* for CONJ + future and **w-qatal* for CONJ + past). Nevertheless, the sequential tenses continued to be recognised and ‘used’ in the recitation of the Bible and liturgical texts.

In the *Secunda* (ca. first–third c. CE), the process by which the conjunction *waw* in preterite **w-yiqtol* forms came to be realised distinctly is attested, but incomplete. It is most probable, then, that the initial stages of this innovation began at some point during the Second Temple period or Roman period. It seems hardly coincidental that a phonetic innovation distinguishing an otherwise homophonous form came into being during precisely the same period in which the use of that form was diminishing.

Indeed, this fact brings us to a point of tension between the morphophonological developments of the *wayyiqtol* form and its syntactic status and usage in the language. On one hand, the preterite **w-yiqtol* form was becoming less and less familiar to users of the language. Simultaneously, **w-yiqtol* with a non-past meaning was becoming the more natural way to read a *yiqtol* form in

²⁴ Personal communication with Aaron Hornkohl. For more on the development of the sequential forms in Qumran Hebrew, see Eskhult (2018).

this syntactic position. On the other hand, it is precisely during this period that the preterite **w-yiqtol* form begins to be pronounced distinctly in the attested vocalisation of Biblical Hebrew, and that not by means of any identifiable morpheme attested elsewhere in the language.

Taken together, these two points suggest that the distinct pronunciation of the preterite **w-yiqtol* form by means of gemination was not a natural development of the living language, but rather a deliberate innovation of the reading tradition. While Hebrew speakers would not have had difficulty in distinguishing preterite **w(a)-yiqtol* from non-preterite **w(a)-yiqtol* in the Second Temple period, the form **w-yiqtol* was sounding less and less naturally like a preterite as the Second Temple period progressed and the sequential tenses fell out of use. It would seem, then, that the introduction of gemination was innovated in the reading tradition to preserve the distinct meaning of a past tense form that otherwise might have been perceived as non-past/future.²⁵

²⁵ The claim that phonetic features such as gemination could be introduced—apart from their being associated with any particular morpheme—solely for the purpose of distinguishing homophonous forms may seem difficult to accept. It is worth noting, however, that the advancement of the stress to the ultima in the other sequential tense likely reflects just such a phenomenon, e.g., כָּתַבְתִּי [k^h:t̪a:av^hi:] ‘I wrote’ (Exod. 24.12), but cf. וְכָתַבְתִּי [vaχ̣o:θav^ht̪i:] ‘and I will write’ (Exod. 34.1) (Revell 1984; but cf. Suchard [2019], who sees the advancement of stress in such forms as the result of sound change). The alternative, that some unidentifiable morpheme with inherent past tense semantics was introduced into the **w-yiqtol* form to indicate past tense at a late stage of development, seems far less likely.

This reconstruction is also supported by the development of the preterite **w-yiqṭol* form in Samaritan Hebrew, with respect to both absolute chronology and parallel development. Unlike the Jewish reading traditions (Tiberian, Babylonian, Palestinian), the Samaritan vocalisation exhibits no indication of an original full vowel or gemination in preterite **w-yiqṭol* forms. Indeed, in the strong verb, there is no difference between a historically preterite **w-yiqṭol* form and a historically non-preterite **w-yiqṭol* form (Table 36; Ben-Ḥayyim 2000, 108–9, 171–73):

Table 36

<i>waw</i>	<i>yiqṭol</i>	<i>*w-yiqṭol</i> (<i>non-preterite</i>)	<i>*w-yiqṭol</i> (<i>preterite</i>)
-ו	ישמר	וישמר	וישמר
w-	<i>yišmār</i>	<i>wyišmār</i>	<i>wyišmār</i>

From a diachronic perspective, it is especially instructive that the Samaritan tradition alone has preserved the homophonous realisation of preterite **w-yiqṭol* and non-preterite **w-yiqṭol*. As a distinct community, the Samaritans likely split off from the rest of Judaism at some point between the fourth and second centuries BCE.²⁶ The Samaritan Pentateuch has its origins during this time (ca. third c. BCE) and certain other linguistic innovations, shared by Jewish Hebrew, but absent in Samaritan, suggest that

²⁶ For background regarding the establishment of the Samaritan community and the origins of their version of the Pentateuch, see Kartveit (2009); Pummer (2012).

the Samaritans had their own distinct form of Hebrew by the beginning of the common era at the very latest.²⁷

Accordingly, it is almost certainly the case that at the time when the Samaritans split off from the rest of Judaism and began to develop a language tradition of their own, there was still no distinction in the pronunciation of the conjunction *waw* before preterite *yiqtol* and non-preterite *yiqtol*. In terms of absolute chronology, this suggests that the introduction of gemination into these forms in the Jewish Hebrew tradition(s) began at some point between the fourth century BCE and the first or second centuries CE. If it had occurred earlier, we would expect some remnant of a distinct pronunciation of the conjunction *waw* before a preterite *yiqtol* form to be attested, at least vestigially, in Samaritan as well.

How, then, did the Samaritans deal with a form in the biblical text (i.e., preterite **w-yiqtol*) which signified the temporal opposite of the same form in their spoken language (i.e., future

²⁷ According to Steiner (2005; 2007), the secondary fricative articulations of the *bgdkpt* consonants in Hebrew did not develop all at once. Spirantisation, which was likely due to the influence of Aramaic, first affected the labial stops /b/, /p/ and dental stops /d/, /t/. Only later, after the uvular fricatives /ǧ/ and /ħ/ had merged with the pharyngeal fricatives /ʕ/ and /ħ/, were the velar stops /g/ and /k/ also spirantised. Steiner dates the loss of /ħ/ to the first century BCE and the loss of /ǧ/ much earlier. Therefore, the fact that Samaritan Hebrew does not have fricative realisations of the velar stops, but does have fricative realisations of the labial and dental stops, probably indicates that it had already split off from Jewish Hebrew by this time. Alternatively, it could have split off much earlier.

**w-yiqtol*)? The tension between the natural impulse to interpret preterite **w-yiqtol* forms as future coupled with the awareness that preterite **w-yiqtol* was indeed part of the biblical register led the Samaritans to introduce artificial (or non-etymological) distinctions in pronunciation to mark the preterite **w-yiqtol* form as signifying past (but only in certain weak verbs). While a number of different strategies for the morphophonological restructuring of the form are discussed in the literature (such as reappropriating coexisting patterns), the most prevalent among them is superimposing the vowel pattern of the past tense (i.e., *fāqād*, *fāqādu*) over the *yiqtol* form, even unto the disruption of the root (Table 37):²⁸

Table 37

<i>Tiberian</i>	<i>Samaritan</i>	<i>Samaritan</i>	<i>Tiberian</i>
וַיִּשָׁב >	<i>wyēšob</i>	<i>wyāšāb</i>	< וַיִּשָׁב
וַיַּעֲשֵׂו >	<i>wyeššu</i>	<i>wyāššu</i>	< וַיַּעֲשֵׂו
וַתֵּלֶד >	<i>tēlād</i>	<i>wtālād</i>	< וַתֵּלֶד
וַיִּפְנוּ >	<i>tifnu</i>	<i>wyāfānu</i>	< וַיִּפְנוּ
וַיִּבְרָא >	<i>yibri</i>	<i>wyibra</i>	< וַיִּבְרָא

It would seem, then, that once the sequential tenses fell out of use in the living language, it was not unusual to introduce non-etymological features to preserve the original past meaning of preterite **w-yiqtol*. In light of the evidence examined here, such a phenomenon appears to have developed in parallel in both the

²⁸ For a full discussion of this phenomenon, see Florentin (1996, 218–21; 2016, 126–27); Ben-Ḥayyim (2000, 108–9, 170–73).

Jewish Hebrew reading traditions and the Samaritan Hebrew reading tradition, though not by means of the same device. While the Jewish Hebrew reading traditions distinguished the form by means of gemination, Samaritan Hebrew utilised variant vowel patterns.

6.2.2. *Dagesh Mavḥin*

A similar function of non-etymological gemination for distinguishing meaning is attested in other forms of Hebrew as well. Such gemination is referred to in the literature as *dagesh mavḥin* ‘distinguishing *dagesh*’. Simply put, *dagesh mavḥin* is an innovative phonetic feature (i.e., gemination) added to an existing form to distinguish it from an otherwise homophonous form.

In Tiberian Hebrew, apparent instances of *dagesh mavḥin* can essentially be divided into two categories: (1) distinguishing between two distinct lexemes that have homophonous realisations (or between the various meanings of one polysemous lexeme) and (2) distinguishing between sacred and profane referents (e.g., divine as opposed to human, the true God as opposed to idols) for one particular lexeme. Examples of the former include the distinction between the negative particle אֵל ‘not’ and the preposition אֶל ‘to’ with the 3MS suffix, i.e., אֵלָיו ‘to him’²⁹ and the

²⁹ E.g., אֵלָיוֹ אֵלָיוֹ ‘not his own’ (Prov. 26.17).

distinction between the interjection אָנָּה/אָנָּה ‘please’ and the interrogative particle אָנָּה ‘to where?’.³⁰ Other examples of the former include distinguishing between two potential meanings of the same verb, such as הִנִּיחַ ‘he placed’ and הִנִּיחַ ‘he gave rest’.³¹ Examples of the latter are found in the geminated בּ in אַבִּיר ‘powerful’ (human) as opposed to אַבִּיר ‘Mighty One’ (divine)³² and the geminated בּ in עֲצָבִים ‘idols’ (foreign gods) as opposed to עֲצָבִים ‘toils’.³³ It can also be used in a verb to signify a human referent as opposed to a divine referent, as found in the geminated רַ in הִרְעִמָּה ‘vexing her’ (human) as opposed to הִרְעִים ‘thundered (3ms)’ (divine).³⁴ In addition to such examples, Khan (2018, 337–47) has also recently argued that the *dagesh* in the word בָּתִּים

³⁰ E.g., אָנָּה שְׂא נָא פָּשַׁע אַחֵיךָ ‘please forgive your brothers’ transgression!’ (Gen. 50.17); אָנָּה הָלְכוּ הָאֲנָשִׁים ‘where did the people go?’ (Josh. 2.5).

³¹ E.g., וְלָקַח הַכַּתֵּן הַטֵּנָא מִיַּדְךָ וְהִנִּיחוֹ לִפְנֵי מִזְבֵּחַ יְהוָה אֱלֹהֶיךָ ‘and the priest shall take the basket from your hand and place it before the altar of the LORD your God’ (Deut. 26.4); עַתָּה הִנִּיחַ יְהוָה אֱלֹהֵיכֶם לְאַחֵיכֶם ‘and now, the LORD your God has given rest to your brothers’ (Josh. 22.4).

³² E.g., וְשָׁם אִישׁ... אַבִּיר הִרְעִים אֲשֶׁר לְשָׂאוֹל ‘and there was a man there... the chief of Saul’s shepherds’ (1 Sam. 21.8); אֲשֶׁר גָּשְׁבַע לַיהוָה נָדַר לְאַבִּיר יַעֲקֹב ‘which he swore to the LORD, vowed to the Mighty One of Jacob’ (Ps. 132.2).

³³ E.g., וַיַּעֲבֹדוּ אֶת־עֲצָבֵיהֶם ‘and they served their idols’ (Ps. 106.36); לֶחֶם הָעֲצָבִים ‘bread of toil’ (Ps. 127.2).

³⁴ E.g., כְּעִסְתָּהּ צָרְתָּהּ גַם־כָּעַס בְּעַבּוֹר הִרְעִמָּה ‘and her adversary angered her exceedingly in order to vex her’ (1 Sam. 1.6); אֱלֹהֵי־הַכְּבוֹד הִרְעִים ‘the God of glory thundered’ (Ps. 29.3).

‘houses’ is actually an early (pre-Hebrew) innovation to distinguish the plural noun **bātīm/*bātīn* ‘houses’ from the verbal adjective **bātīm/*bātīn* ‘spending the night (mp)’.

In Babylonian Hebrew, the use of *dagesh mavḥin* is in fact far more widespread, though its function and the contexts in which it occurs parallel that of Tiberian, e.g., אֱלֹהִים *ʔelōhīm* ‘God (of Israel)’ vs. אֱלֹהִים *ʔellōhīm* ‘(foreign) gods’ (Yeivin 1985, 355–63). It is likely that instances of *dagesh mavḥin* in Babylonian were not merely orthographic, but were actually pronounced and are best interpreted as “innovative additions to existing forms rather than morphological variants” (Khan 2018, 344). A similar phenomenon is also attested in Rabbinic Hebrew (e.g., חֲתִיבָה ‘cutting’; חֲתִיבָה ‘piece’), Samaritan Hebrew (e.g., אֲדָנִי ‘Lord’; אֲדַנְנִי ‘master’), and the Yemenite tradition of Aramaic (e.g., חַיָּב ‘living’ [referring to God]; חַיָּב ‘living’ [referring to humans]) (Khan 2018, 342–47).

Dagesh mavḥin seems primarily to be a feature of the reading tradition.³⁵ This claim is underscored by the high frequency of *dagesh mavḥin* in Babylonian as opposed to Tiberian. One might thus object to positing *dagesh mavḥin* as the reason for gemination in the *wayyiqṭol* form on the grounds that it may not yet have been a productive feature of the language in the Second Temple period. Such an objection naturally leads to the following question: Is there any evidence for *dagesh mavḥin* in the ancient transcriptions? Unfortunately, the number of forms in the transcriptions in which the presence or absence of gemination would

³⁵ But note the exceptional case of the *dagesh* in חַיָּב, which pre-dates Hebrew (Khan 2018).

be relevant for assessing the potential existence of *dagesh mavhin* are few.³⁶ They are presented below (Table 38):

Table 38: Possible instances of *dagesh mavhin* in the transcriptions

Verse	Tiberian	Secunda	Jerome	Theodotion
Ps. 118.25	אָנָּן	αννα	anna	
Jon. 4.2	הָנָּה		anna	
2 Kgs 23.7	בְּתִיִּם			βεθθειμ

If אָנָּן/אָנָּה is indeed an example of *dagesh mavhin*, the transcriptions αννα and *anna* would suggest that the phenomenon was already present in late antiquity. The form בְּתִיִּם, on the other hand, was likely geminated even in pre-Hebrew. Accordingly, its gemination (βεθθειμ) in the Secunda is of little significance.³⁷

Another relevant piece of evidence may be found in Jerome's discussion regarding the words בְּמָה/בְּמָה 'in/by what...?'

³⁶ There are a few forms with non-Tiberian gemination attested in the transcriptions which one might speculatively suggest are relevant for the discussion on *dagesh mavhin*: *σαλλα* וְעָלָיָהּ 'and upon it (fs)' (Ps. 7.8) (to distinguish from וְעָלָה 'and he will go up?'); *χαφφειρ* כְּפֹר 'frost' (Ps. 147.16) (to distinguish from כְּפִיר 'lion?'); *assurim* 'bands' אֲסוּרִים (Eccl. 7.26) (to distinguish from אֲסוּרִים 'those bound; prisoners?'). However, the lack of supplementary evidence makes such a hypothesis entirely speculative.

³⁷ Moreover, its specific referent in 2 Kgs 23.7 is to some sort of cultic 'hangings' and not the conventional 'houses'. In light of its contextual meaning, the unexpected initial vowel (ε instead of α) and the unexpected bisyllabic plural ending (-ειμ) may point to a different lexeme entirely (בְּתִיִּים?).

and בָּמָה ‘high place’ in his comments on Isa. 2.22. Although the distinction between בָּמָה/בְּמָה and בָּמָה is not typically regarded as an example of *dagesh mavhin*—nor should it be—the way in which Jerome discusses the issue seems to indicate that such a concept was not unfamiliar to him (**bolded** emphasis mine):

What we have rendered as, *HE IS REGARDED AS EXALTED*, Aquila has interpreted as <<in what is he regarded?>>. The Hebrew word BAMA means either ΥΨΩΜΑ, that is, ‘high place’, about which we read in the Books of Kings and Ezekiel, or indeed <<in what?>> and it is written with the same letters: BETH MEM HE. [The correct reading is determined] according to the nature of the passage. If we want to read <<in what?>>, we say BAMMA, but if we [want to read] <<high place>> or <<exalted one>>, we read BAMA.³⁸

It is worth noting that Jerome discusses the words בָּמָה/בְּמָה and בָּמָה not as two separate words, but as one word with two distinct meanings and pronunciations according to the context: ‘the Hebrew word BAMA means either ‘high place’... or ‘in what?’... and it is written with the same letters: BETH MEM HE’. At

³⁸ Ubi nos diximus *EXCELSUS REPUTATUS EST IPSE*, Aquila interpretatus est <<in quo reputatus est iste?>>. Verbum hebraicum BAMA uel ΥΨΩΜΑ dicitur, id est excelsum, quod et in Regnorum libris et in Hiezechihel legimus, uel certe <<in quo>>, et eisdem litteris scribitur BETH MEM HE, ac pro locorum qualitate, si uoluerimus legere <<in quo>>, dicimus BAMMA, sin autem <<excelsum>> uel <<excelsus>>, legimus BAMA (*In Isaiam*, I.66.1–2).

the same time, however, we should not read too much significance into this passage, since it is entirely possible that Jerome's comments simply reflect a conception of words based on the consonantal spelling rather than lexical identity or vocalisation.

6.2.3. Ancient Conception of *Wayyiqtol* Forms

The final piece in the puzzle for explaining the gemination in *wayyiqtol* as *dagesh mavhin* concerns the conception of the form in late antiquity: How did users of Hebrew conceive of *wayyiqtol* with respect to its morphological elements? One of the essential characteristics of *dagesh mavhin* is that it is introduced into one of two homophonous forms that would otherwise not be distinguished, whether because two distinct lexemes are pronounced identically or because one individual lexeme is polysemous. In this case, we are arguing that when preceded by the conjunction *waw*, *yiqtol* was polysemous with past and non-past meanings. The gemination is not ultimately responsible for the past tense meaning, but serves merely to mark one of the two meanings already intrinsic in the *yiqtol* form (in a particular syntactic slot). There are other scholars, however, who argue that the gemination does indeed bear an intrinsic morphemic value, which in combination with the preceding conjunction serves to convey past semantics. What is at stake here between the two views is the question of which morphological element of the form would have been regarded as being responsible for the past meaning. Is the past tense to be found in the gemination (in combination with

the conjunction) or is it to be found in the *yiqtol* form itself? Presumably, only the latter would be consistent with the explanation of *dagesh mavhin*.

Remarkably, we find relatively consistent evidence for addressing such a question in the writings of Jerome, who happens to be the figure from late antiquity about whose Hebrew learning we know the most. If we survey every instance in which Jerome mentions a *wayyiqtol* form in his writings, we find a curious and consistent pattern. When Jerome quotes a full verse or passage in which a *wayyiqtol* form appears *in context*, it is vocalised as we would expect with the preceding conjunction *ua-* (Table 39). When he quotes a *wayyiqtol* form *out of context* to address the correct translation of the word, however, the verbal element *yiqtol* is transcribed by itself without the prefixed conjunction *waw* (Table 40) (**bolded** emphasis mine):

Table 39: *Wayyiqtol* in context

Gen. 4.15: <i>uaiomer</i> וַיֹּאמֶר
Before we speak regarding the question, we should enumerate the versions of each translator alongside the Hebrew itself, which will make the sense of the scripture easier to understand: <i>uaiomer lo adonai lachen chol oreg cain sobathaim ioccamo</i> ³⁹

³⁹ antequam de quaestione dicamus, rectum uidetur, ut editiones interpretum singulorum cum ipso hebraico digeramus, quod facilius sensus scripturae possit intellegi: uaiomer lo adonai lachen chol orec cain sobathaim ioccamo (Epistula XXXVI, 54.269.19–22).

Gen. 14.18–20: *uaibarcheu* וַיְבָרְכֶהוּ; *uaiomer* וַיֹּאמֶר; *uaiethen* וַיִּתֶּן

Indeed, because you affectionately ask and all that I know should be absorbed by faithful ears, I shall set before you the view of the Hebrews, and, lest your curiosity miss out on anything, I shall add the Hebrew words themselves: *umelchisedech melech salem hosi lehem uaiain, uhu cohen lehel helion: uaibarcheu uaiomer baruch abram lehel helion cone samaim uares: ubaruch hel helion eser maggen sarach biadach uaiethen lo maaser mecchol*⁴⁰

In each instance above, the *wayyiqtol* form, which is transcribed with the prefixed conjunction *ua-*, is included within a larger context of a full biblical quotation. This reflects how the passage would have been read or recited. The situation is different when *wayyiqtol* forms are quoted as isolated transcriptions not within a larger context:

Table 40: *Wayyiqtol* out of context

Gen. 30.38 *iaamena* וַיִּחַמְנָה

But in this place, where it is written *in order that they would conceive among the rods*, in the Hebrew it has

⁴⁰ uerum quia amanter interrogas et uniuersa, quae didici, fidis auribus instillanda sunt, ponam et hebraeorum opinionem et, ne quid desit curiositati, ipsa hebraica uerba subnectam: *umelchisedech melech salem hosi lehem uaiain, uhu cohen lehel helion: uaibarcheu uaiomer baruch abram lehel helion cone samaim uares: ubaruch hel helion eser maggen sarach biadach uaiethen lo maaser mecchol* (Epistula LXXIII, 55.18.3–10).

<p>iaamena. I cannot express the significance of the Hebrew words except in circular fashion. For iaamena specifically means the utmost degree of passion in sexual intercourse, in which the entire body convulses and the final moment for achieving pleasure is near.⁴¹</p>
<p>Ezek. 8.1: <i>thepphol</i> תִּפְלוּ</p>
<p>And instead of what we have rendered as: <i>the hand of the Lord fell upon me</i>, Symmachus has translated: <i>the hand of the Lord met me</i>, which in the Hebrew is realised as 'thepphol'⁴²</p>
<p>Jonah. 1.3 <i>iered</i> יִרַד</p>
<p>'The LXX [has] <i>and he went up into it...</i> Or, alternatively, [one might read] <i>he went down into it</i>, as is specifically contained in the Hebrew—for iered means <i>he went down</i>, so that he might anxiously seek out hiding places as a runaway—, or <i>he went up</i>, as it is written in the Vulgate edition; so that he might arrive at wherever the</p>

⁴¹ in eo autem loco, ubi scriptum est *ut conciperent in uirgis*, et in hebraeo habet **iaamena**, uim uerbi hebraici nisi circuitu exprimere non possum. **iaamena** enim proprie dicitur extremus in coitu calor, quo corpus omne concutitur et patranti uoluptatem uicinus est finis (*Quaestiones Hebraicae in Libro Geneseos*, 49.22–26) (translation in consultation with Hayward 1995, 68).

⁴² et pro eo quod nos diximus: *cecidit super me manus domini*, symmachus transtulit: *incidit mihi manus domini*, quod in hebraico dicitur '**thepphol**' (*Commentarii in Ezechielem*, III.8.1).

ship was going, believing that he would have escaped if he could just leave Judaea.⁴³

In each of these three cases, the *wayyiqtol* form, transcribed without the prefixed conjunction *ua-*, is quoted as an isolated transcription apart from the wider context of the verse. Moreover, in two of the three instances in which Jerome quotes a *wayyiqtol* form by itself (Ezek. 8.1 and Jonah 1.3), the *wayyiqtol* forms are explicitly rendered into Latin with the perfect tense, which indicates past perfective action. Especially instructive on this point are Jerome's comments on Jonah, in which the individual word *iered* is explicitly translated as *descendit* 'he went down'.

The singular exception to this rule occurs when Jerome quotes the titles of the books of Leviticus and Numbers, which also happen to be *wayyiqtol* forms (Table 41):

Table 41: *Wayyiqtol* in titles

Lev. 1.1 (or 'Leviticus' [title]): <i>uaiecra</i> אִקְרָא
The first book among them is called <i>bresith</i> , which we render as Genesis; the second <i>hellesmoth</i> , which is called Exodus; the third <i>uaiecra</i> , that is, Leviticus; the

⁴³ LXX: ...*et ascendit in eam*... et uel: *descendit in eam*, ut proprie continetur in hebraico - *iered* enim *descendit* dicitur, ut fugitius sollicitate latebras quaereret -, uel *ascendit*, ut scriptum est in editione uulgata; ut quocumque naus pergeret, perueniret, euasisse se putans, si iudaeam relinqueret (*Commentarii in prophetas minores, In Jonam*, 1.106).

fourth uaiedabber , which we call Numbers; the fifth <i>ad-dabarim</i> , which is entitled Deuteronomy ⁴⁴
Num. 1.1 (or ‘Numbers’ [title]): <i>uaiedabber</i> וַיְדַבֵּר
It is written in the final part of the volume of Numbers, which among the Hebrews is called ‘ uaiedabber ’ ⁴⁵

This is hardly an exception, since titles often become frozen forms, and, much like proper names, are not given to separation into morphological elements.

All of this evidence cuts against the idea that something inherent in the conjunction *waw* or the following gemination was what conveyed past semantics in the *wayyiqtol* form. For Jerome and/or his Jewish informants, it seems that the *yiqtol* verbal element itself was regarded as a polysemous form capable of carrying past semantics by itself, apart from the conjunction *waw* and following gemination, at least when occurring in the syntactic position under discussion. This is what we would expect if the gemination was introduced as a marker of one specific meaning of a polysemous form rather than as a past-orienting morpheme in itself. The conjunction *waw* and preceding gemination were not, at least conceptually, inherently connected to the past semantics of the form as late as the early Byzantine period. Thus,

⁴⁴ primus apud eos liber uocatur bresith, quem nos genesim dicimus; secundus hellesmoth, qui exodus appellatur; tertius **uaiecra**, id est leuiticus; quartus **uaiedabber**, quem numeros uocamus; quintus addabarim, qui deuteronomium praenotatur (*Prologus in libro Regum* [Weber 2007]).

⁴⁵ scriptum est in ultima parte uoluminis numerorum, quod apud hebraeos appellatur ‘**uaiedabber**’ (Epistula LXXVIII, 55.51).

the conception of the form in late antiquity supports the theory that the gemination is the result of a *dagesh mavhin* and not the addition of an independent morpheme.

6.2.4. Conclusions: Summary of Developments

When attempting to draw solid conclusions from the evidence of the transcriptions, it must always be kept in mind that ancient Israel has been home to many different Hebrew dialects and reading traditions throughout the centuries. The Hebrew traditions reflected in the Secunda and Jerome's writings are not necessarily precursors to any of the medieval Hebrew reading traditions, but may have actually existed side-by-side with their precursors. Nevertheless, the transcriptional evidence examined in this paper is sufficient for making a number of general claims about the historical development of the *wayyiqtol* form.

In the Second Temple period, **yiqtol* in phrase-initial position immediately following the conjunction *waw* was a polysemous form, capable of indicating either past or jussive meanings. As the verbal system began to reconfigure during the Second Temple period, it gradually became less and less natural for Hebrew speakers to recognise **w-yiqtol* as a preterite form, interpreting it more naturally as a non-preterite form instead. In order to *distinguish* and *preserve* the preterite meaning of the polysemous **w-yiqtol* form, the conjunction *waw* gradually came to be pronounced distinctly, being vocalised with a full vowel and following gemination. We have suggested that the introduction of gemination into this form was a product of the reading tradition rather than the living language; it should be compared to the

phenomenon of *dagesh mavḥin* attested in both Tiberian and Babylonian Hebrew.

From a diachronic perspective, three key pieces of evidence help to triangulate the absolute chronology of these developments. First, in the Hebrew tradition of the Samaritans, who split off from the rest of Judaism between the fourth and second centuries BCE, there is no distinction in pronunciation between the conjunction *waw* in preterite **w-yiqṭol* and non-preterite **w-yiqṭol*. Second, the evidence from the Secunda (ca. first–third c. CE) indicates that the introduction of the full vowel and gemination was underway, but still not universal in the mid- to late Roman period. Third, and finally, the transcriptions of Jerome (fourth/fifth c. CE) reflect the general standardisation of a distinct pronunciation of the conjunction *waw* before a preterite *yiqṭol* form by the early Byzantine period. These developments may be summarised in the following chart (Table 42):

Table 42: Development of *waw* + preterite *yiqtol* and *waw* + jussive *yiqtol*

	<i>waw</i> + preterite <i>yiqtol</i>	<i>waw</i> + jussive <i>yiqtol</i>
First Temple	* <i>wa-yiqtol</i>	* <i>wa-yiqtol</i>
Second Temple I (6th–4th BCE)	* <i>w(a)-yiqtol</i>	* <i>w(a)-yiqtol</i>
Second Temple II (4th BCE–1st CE)	* <i>w-yiqtol</i>	* <i>w-yiqtol</i>
	↓	↓
	JEWISH TRADITIONS	SAMARITAN TRADITION
Roman (1st –4th CE)	* <i>w-yiqtol</i> ; * <i>way-yiqtol</i>	* <i>w-yiqtol</i>
Byzantine (4th–5th c. CE)	* <i>way-yiqtol</i>	* <i>w-yiqtol</i>

6.2.5. Conclusions: History and Development of the Reading Traditions

This study has a number of important ramifications for our understanding of the development of the Biblical Hebrew reading traditions in late antiquity, with respect to both the historical

depth of 'reading-tradition' features and the relationship between the diverse traditions of antiquity.

There has been a tendency in Hebrew scholarship to associate linguistic innovation of the ancient period with the living language, on the one hand, and linguistic innovation of the medieval period with the reading tradition, on the other. In reality, this is not necessarily the case. Our findings have demonstrated that a particular morphophonological innovation's development within the reading tradition should not necessarily be attributed to the medieval Masoretes. Rather, the data from the transcriptions show that certain developments of the reading tradition may be as old as the Second Temple period. Naturally, this implies that there were different communities transmitting different reading traditions already in the Second Temple period. Such transmission, of course, continued into the Middle Ages. In fact, the regularity of the *dagesh* in *wayyiqtol* forms in both Tiberian and Babylonian points to a common origin in Second Temple period Palestine. It may very well be, then, that already at the time of the *Secunda* there existed a more careful and authoritative reading tradition in which gemination had already come to be regular in the *wayyiqtol* forms.

The linguistic division between the Jewish reading traditions (Tiberian, Babylonian, Palestinian) and the Samaritan reading tradition with respect to the treatment of the *wayyiqtol* form has been evident from the medieval and modern vocalisation data. What this study has done, however, is demonstrate that this linguistic division already existed in the mid- to late Second Temple period. It is probably not the case that the development of

wayyiqtol is an isolated feature. Rather, it is most plausible that Samaritan Hebrew had split from Jewish Hebrew by this time as well. Also, because the presence of gemination in the *wayyiqtol* form was an innovation of the reading tradition and not a natural development of the living language, the uniformity of the Jewish traditions with respect to this feature might suggest that they have a common ancestor reading tradition, or, alternatively, perhaps merely a common ancestral complex of general ‘reading-tradition’ features. It may be that certain such ‘reading-tradition’ features emanated from one particular tradition regarded as authoritative and influenced the others, but this is impossible to tell. The chronological and geographical relationship of such a hypothesised ancestor Jewish reading tradition both to the Hebrew traditions reflected in the ancient transcriptions and to the precursors of the medieval traditions is an intriguing area of research with much fertile ground still to be cultivated. The present study has managed to tend to just a small corner of this field.

In sum, this study has analysed the development of only one morphophonological feature in the reading traditions of late antiquity. Nevertheless, it demonstrates that the ancient transcriptions reflect an image, albeit a faint one, of the period in which many of the ‘reading-tradition’ features that come to be relatively standardised in the medieval traditions were still developing.

7.0. REFERENCES

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THE REPRESENTATION OF GUTTURALS BY VOWELS IN THE LXX OF 2 ESDRAS

Peter Myers

1.0. INTRODUCTION

Greek transcriptions in the LXX are an important source of data for reconstructing the sounds of ancient Hebrew. Yet, given that Greek and Latin both possess a single laryngeal consonant /h/, opinions differ on the extent to which transcriptions into their scripts can provide evidence for the realisation of Hebrew gutturals, which include both laryngeals and pharyngeals. A minimalist view is that “with the exception of the quiescent Latin *h* in certain positions, the glottals are practically never represented by a transcription sign” (Murtonen 1981, 68). Rather than direct transcription, evidence for gutturals can instead be detected by their effect on nearby vowel changes, “in the Septuagint, a helping vowel can occasionally be found in the vicinity of original gutturals, e.g. $\nu\omega\epsilon\ \eta\grave{\iota}$ [no:aħ]¹ ‘Noah’. In the Hexapla, one finds helping vowels after expected gutturals, e.g. $\nu\epsilon\epsilon\mu\alpha\nu\ \eta\grave{\iota}\eta\eta\eta\grave{\iota}$ [ne:ʔemɔ:n] ‘enduring’ (89.38)” (Yuditsky 2013, 805b).

¹ This, as well as other phonetic transcriptions, represents the Tiberian pronunciation tradition, which does not necessarily correspond in all

A well discussed exception are two gutturals that are sometimes represented by consonants in the LXX. The graphemes <ⲡ> and <ϣ> were originally polyphonous, each representing two phonemes. <ⲡ> represented a voiceless velar fricative /*ħ/ [x] (corresponding to Arabic ح) and a voiceless pharyngeal fricative /ħ/ [ħ] (corresponding to Arabic ح). <ϣ> represented a voiced velar fricative /*ǧ/ [ɣ] (corresponding to Arabic ج) and a voiced pharyngeal fricative /ʕ/ [ʕ] (corresponding to Arabic ع). Blau argued that in the LXX “most proper nouns” containing <ⲡ> are transcribed “by zero/vowel mutation or by χ” (Blau 1983, 43 [147] §12) and those containing <ϣ> “by zero/vowel mutation or by γ” (Blau 1983, 5 [109] §6). <ⲡ> and <ϣ> are transcribed by <χ> and <γ> when they represent the velar fricatives /*ħ/ and /*ǧ/. These correspondences are most consistent in Genesis, then the rest of the Pentateuch (Blau 1983, 39 [143] §9.2). They are less consistent in the rest of the LXX books, which were translated later, due to the loss of the velar fricatives /*ħ/ and /*ǧ/ from “the spoken language.” He argued that there are no cases of <ⲡ> and <ϣ> reflected by <χ> or <γ> in Ezra–Nehemiah, which therefore demonstrates that these books must have been translated last (Blau 1983, 71 [175] §15.1), and that by this time the velar fricatives /*ħ/ and /*ǧ/ had also been lost from the “literary solemn language, as in the public reading of the Bible in synagogues” (Blau 1983, 39–40 [143–44] §2–3).

In contrast to the above authors, Krašovec describes gutturals as sometimes being directly represented in the LXX by Greek

details to the pronunciation tradition reflected by the Greek transcriptions.

vowel graphemes. In the case of /ħ/ he cites an example from Deut. 3.8, where קְרַמּוֹן is represented as Ἀερμών (Krašovec 2010, 24). Krašovec's monograph on Biblical Hebrew names in Greek and Latin has not caught the attention of many Semitists. Yet, from my observation of the extant textual witnesses to 2 Esdras, the Greek translation of Ezra–Nehemiah, the phenomenon occurs far more often in this corpus than Krašovec describes for the LXX as a whole.

If this observation is correct, then it is quite intriguing, because it would mean not only that the LXX provides more evidence for the pronunciation of gutturals than is often realised, but also that the direct representation of gutturals in 2 Esdras occurred much later than one might expect. Building on Blau's work by comparing transcriptions attested in inscriptions, Steiner (2005) dated 2 Esdras to the mid-late second century CE. One of the characteristic features of Hebrew in the Second Temple and Tannaitic periods is the weakening of guttural consonants, which is reflected by confusion of guttural graphemes in some sources (Mor 2013). Therefore, if the translator of 2 Esdras did attempt to render gutturals directly, his work may provide helpful data for nuancing our understanding of how the pronunciation of these consonants developed.

2.0. TEXTUAL TRANSMISSION

Transcription spellings where gutturals are apparently represented by vowels are rarely attested by all, or even most, manuscripts at any given place in 2 Esdras. Neither do these spellings tend to be attested in the modern critical editions. Such spellings

could be discounted as having arisen due to corruptions in transmission. The corruptions required to produce them, however, would be the random addition of <α> or <ε> that by chance alone happen to correlate with the distribution of gutturals in the underlying Hebrew word. A simpler explanation is that the transcription of gutturals as vowels creates spellings that are unusual in Greek. So, given that manuscripts are copies made by Greek speakers, who very likely had little to no knowledge of Hebrew, errors in transmission are more likely to remove these spellings than create them.

One justification for this claim is that transcription of gutturals by vowels creates vowel hiatus in the Greek transcription, e.g., the aforementioned example cited by Krašovec, Ἀερμῶν, where the transcription of <ן> by <α> has resulted in the hiatus <αε>. Vowel hiatus was not comfortable for a Greek speaker and, therefore, such spellings, especially in foreign and unfamiliar words, were more liable to undergo development in transmission. Such changes were probably unintentional, but unintentional does not mean entirely random. Whatever the method by which a manuscript was copied or the mechanism by which a mistake was made, the most likely output is a spelling that more closely resembles Greek phonotactic patterns.

All typical developments in transmission that reduce vowel hiatus can be illustrated from transcriptions of רֵאִיָּה 'Reiaiah', which occurs at Ezra 2.47 and Neh. 7.50. In both places all variants can be explained as developments from ρααia. This form is attested at Neh. 7.50 by A V G^L a-group (except ραδαia 370) b-

group (except *ραια* 98–[379]) 119, but not attested in any manuscript at Ezra 2.47:²

- (1) *ραβια* 55, *ραδαια* 370 (Neh. 7.50): insertion of a consonant
- (2) *αραια* G^L (Neh. 7.50): metathesis
- (3) *ραεα* B–[122] S (Neh. 7.50): phonetic substitution of a simpler grapheme, in this case *αι* : *ε*
- (4) *ραια* 98–[379] (Neh. 7.50): haplography
- (5) *ρεηα* B–55 > *ρεηδ* 122 (Ezra 2.47): graphic confusion of a vowel grapheme with a consonant grapheme, in this case *Α* : *Δ*

² The Greek manuscript sigla and notation used in this article are taken from Hanhart (1993) with minor modifications. Bibliographic information for all manuscripts is available in Rahlfs (2012). A, B, and S are the majuscule codices commonly known, respectively, as Alexandrinus, Vaticanus, and Sinaiticus. V is a tenth-century majuscule codex. 122 is a fifteenth-century minuscule based on the exemplar B. 55 is a tenth-century minuscule with a text similar to that in B. The *a*-group (71–74–106–107–[44–125–610]–120–121–130–134–236–314–370–762) and *b*-group (46–[52]–64–98–[379]–243–248–381–728–731–[68]) are comprised of minuscules from the tenth–sixteenth centuries that probably derive from two different textual recensions made sometime in the fifth–ninth centuries. Sigla connected by n-dash, –, indicate manuscripts whose texts have a likely genetic affiliation. Sigla in square brackets, [], indicate manuscripts whose scribe[s] likely used the preceding manuscript as their exemplar. G indicates my best text for the Old Greek and G^L my best text for the Lucianic recension (fourth c.?), usually witnessed by the minuscules 19–108–93, a long correction to 728 (labelled 728^L), sometimes 121, less often 44–125, and at times possibly also 248.

When evaluating the manuscript readings, I suggest the harder reading is usually the reading that involves vowel hiatus. Therefore, when reconstructing the original text of transcriptions, developments that remove vowel hiatus are more likely to have occurred than developments that create vowel hiatus. Applying this principle to the extant witnesses of 2 Esdras, there are a number of places where it suggests a vowel should be reconstructed in the original text, or a minority reading with a vowel should be accepted over a majority reading. On almost all these occasions the extra vowel corresponds to a guttural in the Hebrew-Aramaic consonantal text or to a vowel in the Tiberian reading tradition. All the examples cited below are my reconstructions of the best text for the transcription in the Old Greek (G) or the Lucianic recension (G^L) via application of this method. For the sake of caution, I have been deliberately ambivalent regarding other less-clearly attested spelling features, placing them in square brackets, []. A starred, *, spelling is my reconstruction of the text that best explains the extant readings, but is not itself attested in any manuscript. In all cases the reader can assess my decisions against the manuscript data by consulting the relevant place in the apparatus of Hanhart's (1993) edition.

3.0. GUTTURALS IN SYLLABLE ONSET

The most straightforward examples of Hebrew gutturals represented by Greek vowels are word-medial (or construct-chain-medial) gutturals in syllable onset.

3.1. 'Aleph /ʔ/

All such cases involving /ʔ/ are in the divine element לֵא. The phoneme is usually represented by <ε>, in one lexeme by <α>, and in one, possibly two, cases by <ι>:

- (6) בְּצִלְאֵל 'Bezalel' (Ezra 10.30) βεσ[σ]ελ[ε]ηλ G βεσσελεηλ G^L

The <ε> corresponding to /ʔ/ is attested only by some later G manuscripts in the *a*-group. It is probably not original to G, but due to harmonisation to the G^L tradition, where the guttural has been transcribed.

- (7) הַנַּנְאֵל 'Hananel' (Neh. 3.1) ανανεηλ G ανενεηλ G^L

- (8) טַבְּאֵל 'Tabel' (Ezra 4.7) ταβεηλ G G^L

- (9) מְהֵטַבְּאֵל 'Mehetabel' (Neh. 6.10) μεηταβεηλ G μετεβεηλ G^L

- (10) מַהֲלֵלֵאֵל 'Mahalalel' (Neh. 11.4) μαλελεηλ G G^L

- (11) מְשִׁיבְאֵל 'Mesezabeel' (Neh. 10.22) μεσωζεβεηλ G μασση ζαβηηλ G^L and מְשִׁיבְאֵל (Neh. 11.24) *μασσηζα βεηηλ G μασσιζαβεηηλ G^L

Note in the first case /ʔ/ is represented by <ι>. In the following instance of this word there is no evidence the guttural is represented: מְשִׁיבְאֵל (Neh. 3.4) μασεζεβεηλ G *μασσηζαβεηλ G^L.

- (12) נַטַּאֵל 'Natanel' (Ezra 10.22) ναθανηηλ G G^L

As in (11), /ʔ/ may also be represented by <ι> in the following example. The Greek transcription, however, reflects a different syllabification from the Tiberian tradition, so <ι> may simply represent a vowel:

- (13) אֶזְרַאֵל 'Azarel' (Ezra 10.41) εζριηλ G G^L

3.2. *Het* /ħ/

The phoneme /ħ/ is usually represented by <α>, but in two lexemes by <ε>:

- (14) אֶסְרַחְדּוֹן 'Esarhaddon' (Ezra 4.2) *ασαραδδων G
 (15) הַמִּנְחָה 'the offering' (Neh. 13.5) μαναα G
 (16) פִּלְחָה 'Pilha' (Neh. 10.25) φαλα[ε]ι G φαλλαε ι G^L
 (17) פֶּשֶׁחַר 'Pashur' (Ezra 2.38) φασ[σ]ουρ G φαδδασ G^L, פֶּשֶׁחַר (Ezra 10.22) φασουρ G φασσουρ G^L, פֶּשֶׁחַר (Neh. 7.41) φασεουρ G φαδασσουρ G^L, פֶּשֶׁחַר (Neh. 10.41) φασουρ G φασσουρ G^L, פֶּשֶׁחַר (Neh. 11.12) φασεουρ G φασσουρ G^L
 (18) צִיחָה 'Siha' (Ezra 2.43) σουαα G σουδαι G^L, צִיחָה (Neh. 7.46) σιαα G σουδαι G^L

The spellings in Ezra 2 reflect a *Vorlage* read as *אחוצ. In Neh. 7, G^L has been harmonised to Ezra 2.

- (19) תֵּל חֶרֶשָׁא 'Tel Haresa' (Ezra 2.59) θελαρησα G θελαρησ[σ]α G^L

3.3. *Ayin* /ʕ/

The phoneme /ʕ/ is evenly represented by <α> and <ε>:

- (20) בַּלְעָם 'Balaam' (Neh. 13.2) βαλααμ G G^L
 (21) גִּבְעוֹן 'Gibeon' (Neh. 3.7) γαβαων G G^L
 (22) הַגִּבְעוֹנִי 'the Gibeonite' (Neh. 3.7) γαβαωνιτης G γαβαων[ε]ιτης G^L
 (23) הַגִּלְעָדִי 'the Gileadite' (Ezra 2.61) γαλααδιτου G G^L
 (24) וּבְצַרְהָה 'and with Sarah' (Neh. 11.29) σαραα G^L
 (25) בְּפָרֹחַ 'with Paroh' (Neh. 9.10) φαραα G G^L
 (26) פָּרוֹס 'Paros' (Neh. 3.25) φορος G φορεως G^L

In the following instance of this word there is no evidence the guttural is represented: פִּרְעֹשׁ (Neh. 7.8) φορος G φαρεις G^L.

(27) אֶלְעָזָר ‘Eleazar’ (Ezra 7.5) ελεαζαρ G G^L

(28) שִׁמְעוֹן ‘Simeon’ (Ezra 10.31) σεμεων G συμεων G^L

(29) וְשִׁמְעִי ‘and Simei’ (Ezra 10.23) σαμου G σεμει G^L

(30) שִׁמְעִי ‘Simei’ (Ezra 10.33) σεμ[ε]ει G G^L

3.4. *He* /h/

There are no transcriptions of words where /h/ is attested in word-medial syllable onset. When a construct chain is transcribed with the definite article, the vowel is transcribed, but never the consonant /h/, e.g.,

(31) פִּכְרֵת הַצְּבָיִים ‘Pakeret of the Sebaim’ (Ezra 2.57) φακεραθ
ασεβωειμ G φακεραθ σαβωειμ G^L

4.0. GUTTURALS IN SYLLABLE CODA

In contrast to gutturals in syllable onset, it is harder to evaluate the data relating to gutturals in the coda. Both word-medial and word-final gutturals in the coda are often accompanied by epenthetic vowels in the Tiberian reading tradition. Therefore, the transcription of gutturals by vowels must be carefully distinguished from cases where gutturals have conditioned vowel changes.

For example, the final vowels in the following transcriptions correlate with furtive *pataḥ* in the Tiberian reading tradition, and so can be interpreted as transcriptions of this phenomenon:

(32) זָנוּחַ ‘Zanoah’ (Neh. 11.30) ζανωε G^L

(33) נְצִיחַ ‘Neziah’ (Ezra 2.54) *νασουε G

In some cases a vowel change is transcribed even though in the Tiberian tradition the guttural has weakened such that no furtive *pataḥ* is pronounced. Either the guttural is strong enough to effect the sound change in the speech of the Greek translator, or the translator is transcribing the guttural itself:

(34) זַטְוּא ‘Zattua’ (Ezra 2.8) ζαθθουα G G^L

There are a small number of cases where a word-final Greek vowel grapheme correlates with a guttural and the grapheme is harder to explain as merely representing an epenthetic vowel. In these cases the penultimate vowel is written as either <α> or <ε>. Therefore, the final vowel does not correspond to a furtive *pataḥ*, as no significant change to the quality of the vowel is necessary in order to articulate the following guttural. Therefore, the vowel grapheme probably represents the guttural itself:

(35) אֲרָחַ ‘Arah’ (Ezra 2.5) *ηραε G ωρεε G^L, אֲרָחַ (Neh. 6.18) ηραε G
ηρα G^L

In the following instance of this word there is no evidence that the guttural is represented: אֲרָחַ (Neh. 7.10) ηρα G ηρα G^L

(36) תַּמַּח ‘Tamah’ (Ezra 2.53) θεμα G θεμαα G^L, תַּמַּח (Neh. 7.55)
θημα G θεμαα G^L

(37) וּבְבֵאֵר שֶׁבַע ‘and in Beer Sheba’ (Neh. 11.27) βηρησαβεε G
βηρησαβεαι G^L, מִבְּאֵר שֶׁבַע (Neh. 11.30) βηρησαβεε G βηρησαβεαι G^L

(38) וּגְבַע ‘and Geba’ (Ezra 2.26) γαβαα G G^L, וּגְבַע (Neh. 7.30) γαβαα
G G^L, מִגְּבַע (Neh. 11.31) γαβαα G G^L, גְּבַע (Neh. 12.29) γαβαε
G^L

(39) יֹוֹדָא ‘Yoyada’ (Neh. 3.6) ιο[ε]ιδα G ιωδαε G^L

In the other four places where this lexeme occurs, Neh. 12.10, 11, 22; 13.28, the transcription is spelt ιωαδα in both traditions.

5.0. CONCLUSION

To summarise the data presented above:

In syllable onset /ʔ/ in the morpheme לָא is often represented by <ε> and in one lexeme by <α>, /ħ/ is usually represented by <α>, but in two lexemes by <ε>, while representations of /ʕ/ are evenly distributed between <α> and <ε>.

In a small number of lexemes, word-final /ħ/ and /ʕ/ are represented by <α> or <ε>.

In 2 Esdras, there are no examples of the transcription of /ħ/.

The lexemes חָא and פִּשְׁחֹר etymologically possessed the velar fricative /*ħ/, and the lexeme פִּרְעֵשׁ etymologically possessed the velar fricative /*ǵ/. These lexemes were among those identified by Blau as evidence that those consonants had been lost by the time of the translation of Ezra-Nehemiah. Our data suggests that Blau’s case is even stronger than he claimed, as these lexemes not only lack χ and γ, but the gutturals are transcribed with Greek vowel letters, which are typical ways the translator transcribes the phonemes /ħ/ and /ʕ/.

There are no transcriptions of gutturals in word-initial position, which may reflect the weakening or loss of gutturals in this position. However, in the majority of cases when /ʔ/, /ħ/, or /ʕ/ occur in a word-medial syllable coda after a consonant (and

in example (18) after a vowel) they are transcribed with a Greek vowel grapheme. Gutturals may therefore have been stronger within the word than at the beginning, though this conclusion would be typologically unusual. These findings will be better contextualised by a similar analysis of transcription spellings in other LXX books that also takes into account the specific factors that are likely to have affected the development of this particular class of word.

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BIBLICAL QUOTATIONS IN THE ARAMAIC INCANTATION BOWLS AND THEIR CONTRIBUTION TO THE STUDY OF THE BABYLONIAN READING TRADITION

Dorota Molin

1.0. INTRODUCTION

The Aramaic incantation bowls are a corpus of spells written on earthenware bowls and composed in several archaising literary dialects of Jewish Babylonian Aramaic.¹ The vast majority of these artefacts were found in the historical region of Mesopotamia. We have positive evidence that these incantations were being produced in the sixth and seventh centuries CE. It is likely, however, that the practice had started already in the fifth (or perhaps even fourth) century.²

¹ Ford (2012, 215). The most recent comprehensive study of the language of the incantations is that by Juusola (1999).

² Shaked, Ford, and Bhayro (2013, 1). An overview of the research on the dating of the bowls is available in Faraj (2010).

In order to bolster the process of asserting dominion in the spiritual realm, biblical verses were often quoted as part of the incantation. In the vast majority of cases passages were cited in the original Hebrew.

These biblical quotations in the incantation bowls (henceforth ‘quotations’) constitute a very valuable source for the study of pre-Masoretic pronunciation traditions of the Bible in Babylonia.³ The most extensive testimony to the Babylonian pronunciation tradition⁴ is found in medieval biblical manuscripts pointed with the Babylonian vocalisation system. The pronunciation types which the Babylonian system reflects are themselves ancient pronunciation traditions. In general, the medieval Babylonian and Tiberian (as well as Palestinian) pronunciation traditions are typologically close. This suggests that they all reflect the continuation of the various pronunciation traditions which existed in Palestine in the late Second Temple period. The pronunciation traditions that developed into the medieval Babylonian tradition, then, were exported to Babylonia, perhaps following the downfall of the Bar Kochba revolt.⁵

³ For an introduction to the Babylonian reading tradition, see Khan (2013c). The most comprehensive study of this type of pronunciation is that by Yeivin (1985).

⁴ The singular form ‘tradition’ is used here as the collective designation of manuscripts that use the Babylonian signs, despite the fact that these manuscripts reflect relatively diverse types of pronunciation (Khan 2013c).

⁵ Khan (2012, 50).

It is at this point that the significance of the quotations in the incantation bowls becomes apparent: they constitute the only epigraphic source of the Hebrew Bible from Late-Antique Babylonia, and are one of the few sources dated to the period following the standardisation of the text and preceding the period of Masoretic activity. Thus, they are a reliable source for the study of the pronunciation traditions that existed prior to the Masoretic period.⁶ They are suitable for that purpose because—though unvocalised—they display a partial tendency toward phonetic spelling.

In this paper, therefore, I present a few case studies that illustrate the contribution of the quotations to the study of pronunciation traditions. The corpus likewise sheds light on the character of the transmission of the biblical text at the time, highlighting the prominence of orality.⁷ In the study, my method is to

⁶ We possess only about seven biblical manuscripts that can be dated with certainty to the this period (Lange 2016, §§1.2.2.4.2–3). Biblical passages are also found in rabbinic literature. For these, however, we rely on medieval manuscripts. These, in turn, as is commonly recognised, were at a later stage subject to correction towards the increasingly more prestigious and authoritative Tiberian Hebrew (Shaked 2013, 18). For recent hypotheses on the standardisation of the biblical text, see Tov (2012) and Ulrich (2015).

⁷ Despite the apparent significance of the quotations, research thereon is still sorely lacking. For overview articles on the topic, see Abudraham (forthcoming), Mishor (2007), and a section in Elitzur (2013). For a comprehensive study of the contribution of the quotations to the study of pre-Masoretic Babylonian reading traditions see Molin (2017).

focus on orthographic features which are different from the consonantal text of the Masoretic Text (MT), as represented by the Leningrad Codex (I Firkovitch B19A), and consider their linguistic significance.⁸

Most of the orthographic features found in the corpus of the quotations reflect a distinctly ‘Babylonian’⁹ phonology or morphology of Biblical Hebrew. An example of this is discussed below. Moreover, the quotations point to some interference of contact languages on the reading tradition of the Bible. Most often, we observe the influence of Jewish Babylonian Aramaic, the main vernacular of the Jewish scribes who wrote the bowls. However, when we consider the gutturals—a class of consonants which underwent different forms of weakening in Jewish Babylonian Aramaic—there is extremely little orthographic evidence for any weakening in the corpus of texts available to me. I discuss the likely linguistic significance of such a conservative orthography. Third, a handful of spelling features may reflect a particular type of reading which is attested in the medieval Tiberian as well as, probably, Babylonian tradition. This reading is a careful one,

⁸ This methodology rests on the widely accepted assumption that at the time of the bowls’ production, the existing proto-Masoretic text had already been established as authoritative, and on the hypothesis that this text was highly similar to the consonantal text of the Leningrad Codex. In the course of my study of the topic, I have collected and analysed around 155 biblical verses available in a number of publications of transcribed bowl spells.

⁹ That is, it contains linguistic features which are parallel to those found in the medieval Babylonian manuscripts.

characterised by what is technically referred to as ‘orthoepy’. And finally, some forms, spelled as pausal, bear witness to the prominence of orality in the transmission of biblical passages.

2.0. CASE STUDIES

2.1. A Distinctively Babylonian Instance of Epenthesis in Deut. 29.19

The majority of features attested reflect a phonology or morphology which is distinctly Babylonian. This in turn indicates that at least as early as Late Antiquity, there already existed traditions which were very close to the medieval Babylonian tradition. This linguistic proximity will be illustrated with the following form (the word in question appears underlined):

- (1) כִּי אָז יַעֲשֶׂן אֶרְיָהּ (AMB, 176; B9.11) || BHS אֶרְיָהּ יַעֲשֶׂן אֶרְיָהּ
 ‘but rather the anger of the Lord (...) will smoke’ (Deut. 29.19)

In the form יַעֲשֶׂן, a *yod* appears where the Tiberian tradition has a silent *shewa*. The letter in question represents an epenthetic *i*-vowel, the expected vowel in the Babylonian reading tradition. In the Babylonian tradition, such an epenthetic *i* occurs in the *yiqṭal* forms of *qal* I-*ayin* verbs.¹⁰ For instance, the verb עש"ר is vocalised in the following ways in different Babylonian manuscripts:

¹⁰A parallel morphology is attested also in the *yiqṭol* (Yeivin 1985, 462–63).

(2) יַעֲשֶׂה [jiʔi'ʃa:r] (Old Babylonian)

(3) תַּעֲשֶׂה [tiʔi'ʃa:r] (New Babylonian)¹¹

In view of this, the pronunciation of יַעֲשֶׂה is best reconstructed as [jiʔi'ʃa:n]. Such a realisation is an example of more general phonological processes which occurred in this pronunciation tradition.

From the point of view of syllable structure, forms such as יַעֲשֶׂה [jiʔi'ʃa:n] can be described as a product of the moving of the guttural 'ayin from syllable coda (where it is in Tiberian [jɛʔi'ʃa:n]) to syllable onset. This process, in turn, has phonological causation. Namely, it most likely reflects an attempt to preserve the 'weak' consonant 'ayin. From a phonetic viewpoint, consonants in syllable-coda positions are especially susceptible to weakening.¹² Therefore, through the insertion of a vocalic segment after the 'ayin, the guttural is removed from its original syllable-coda position and is thereby strengthened. Indeed, the medieval Babylonian tradition reflects a wide susceptibility to the weakening of 'ayin and 'alef (that is, apparently, a decrease in muscular pressure in their production). Thus, for instance, these two consonants typically do not receive a *shewa* (whether silent or *hatef*), but are instead vocalised with a full short vowel.¹³

¹¹ Yeivin (1985, 464).

¹² Bybee (2015, 30–31).

¹³ Yeivin (1985, 287).

2.2. Examples of Cross-linguistic Interference in Deut. 29.22 and Isa. 44.25

While the quotations reflect a tradition which continued over centuries, they also bear witness to the interference of the synchronic vernacular. In several instances we find what is most probably matter-borrowing from, *inter alia*, Jewish Babylonian Aramaic, the language of Babylonian Jews in Late Antiquity.

A group of linguistic processes which are known to have taken place in Jewish Babylonian Aramaic are those which are normally referred to as ‘weakening of gutturals’.¹⁴ The category of gutturals includes the consonants *heh* [h], *het* [ħ], ‘*ayin* [ʕ], and ‘*alef* [ʔ]. From the perspective of articulatory phonetics ‘weakening’ is defined as a decrease in muscular pressure during a phoneme’s production.¹⁵ This is reflected in various phonetic phenomena, such as the loss of ability for the consonant to be geminated, its complete elision, or a shift in the place of its articulation.

In my corpus, however, orthographic evidence for any form of guttural weakening, and therefore, for the interference of Jewish Babylonian Aramaic, is extremely sparse. In the corpus—which comprises about 155 biblical verses—there are eight possible manifestations of different forms of guttural weakening. In addition, it should be noted that the graphic forms of the letters *heh* and *het* are usually identical in the incantation bowls. This

¹⁴ For further details of such processes in Jewish Babylonian Aramaic, see Juusola (1999), Morgenstern (2011), and Bar-Asher Siegal (2013).

¹⁵ Khan (2013a).

has been interpreted by certain scholars (e.g., Mishor 2007) as a possible sign of the weakening of *het* (that is, presumably, a shift in the place of articulation of *het* towards *heh*). However, I believe that, for reasons which are beyond the scope of this paper, this shift of *het*—at least on such a sweeping scale—is unlikely.¹⁶ I now present and comment on two possible cases of guttural weakening in my corpus. First, consider the form

- (4) ויבפו (BM 91767, 15, ln. 16) || BHS וַיִּבְפוּ
 ‘and in his anger’ (Deut. 29.22)

This form presumably constitutes a textual variant with the additional ו ‘and’, which is lacking in the MT. Also, *’alef* is missing in the orthography, presumably reflecting elision of the glottal stop. This verse occurs twice in this incantation (the second time the words are given in the inverse order). The other attested spelling is וַיִּבְפוּ, that is, without either the linguistic or the textual variant.

The *yod* in ויבפו reflects the typical Babylonian pronunciation of ו ‘and’ when it precedes a consonant with *shewa*—[wi]. However, since this form would most likely have been pronounced [wivap¹po:],¹⁷ there would have been no *shewa* after the *bet*. One way of explaining the fact that the conjunction ו was still pronounced [wi] would be to hypothesise that the glottal stop existed at an underlying level, which may be referred to as the

¹⁶ My discussion on the issue is available in Molin (2017). A summary of the existing research on the topic of *het* and *heh* in the Aramaic of the incantations is available in Juusola (1999).

¹⁷ Morgenstern (2007, 24).

‘lexical level’ according to the framework of Lexical Phonology. The vocalisation of the conjunction would have been determined at this lexical level. The elision of the glottal stop would have occurred post-lexically and, on account of this rule ordering, did not have an impact on the vocalisation of the conjunction.¹⁸

The second instance of a likely guttural weakening is the insertion of *‘ayin* in the following phrase:

- (5) מִפֵּר אֲתוֹת (BM, 74; 035A.8) || BHS מַעְפֵּר אוֹתוֹת
 ‘frustrates (m) the signs’ (Isa. 44.25)¹⁹

It appears that this additional *‘ayin* is a case of hypercorrection which, in turn, indicates a tendency for *‘ayin* to reduce towards zero in this scribe’s dialect. The scribe would have heard the form [me:’fe:r]. He then assumed that there had originally been an *‘ayin*, which was subsequently elided, and he thus spelled the word מַעְפֵּר.²⁰ This hypothesis assumes imperfect acquisition of Biblical Hebrew, and the resultant misunderstanding of the form.²¹

¹⁸ For the theory of rule ordering, see Booij and Rubach (1987, 1).

¹⁹ It should be remarked that, though this transcription appears to be correct, the rest of the quotation is highly illegible. Therefore, this reading is not absolutely certain.

²⁰ The alternative explanation, which is a textual one, is highly unlikely. This explanation would have it that the form in question is a participle derived from the root עִפֵּר, with the supposed meaning ‘casting dust’. However, there is only one attestation of a verbal form derived from this root (2 Sam. 16.23) and it is not a semantic fit for this context.

²¹ Cf. Winford (2005).

Overall, while there are a few orthographic indications of certain phenomena associated with guttural weakening, their number is rather insignificant in relation to the size of my corpus. How do we best interpret this situation? Of course, the six attested forms most probably do not reflect the entire scope of guttural weakening in the pronunciation traditions represented by the quotations. This is inferred from the fact that in the corpus of the quotations as such historical spellings are attested. We may therefore assume that the gutturals were also sometimes spelled historically, though their pronunciation may have changed somewhat. On the other hand, it should also be borne in mind that several scholars—including the author of this paper—suppose that many of the biblical verses are likely to have been quoted from memory.²² If this were indeed the case, and had weakening processes taken place on a larger scale, we would perhaps expect to find more symptoms thereof in the orthography.²³ Moreover, a similar conclusion can be reached even if we assume that the scribes had access to a biblical text, but deliberately chose to deviate from it in order to reflect synchronic pronunciation.²⁴ In this case, too, would we not expect to find phonetic spellings of the gutturals, such as their omission or interchange?

²² For a discussion of the significance of orality in the transmission of the quotations see Mishor (2007, 211), Shaked (2011; 2013, 18), Lanfer (2015), and Molin (2017, 78–87).

²³ For discussion of possible manifestations of guttural weakening in the Aramaic of the spells and an interpretation of this orthography see Juusola (1999).

²⁴ See the discussion of Bhayro (2015, 1–2) in this connection.

Thus, overall, the quotations appear to reflect pronunciation traditions in which the gutturals were largely preserved,²⁵ even though various forms of weakening had taken place in the synchronic vernacular. Indeed, a similar picture emerges from the *Secunda*, Origen's transcription of the Hebrew Bible into Greek. There also we find a tradition in which the gutturals appear to have been widely preserved, though, admittedly, the evidence for this is indirect.²⁶ A similar conservative approach to a sacred language is found, for instance, in the contemporaneous Biblical Hebrew reading traditions among the Jewish speakers of North-Eastern Neo-Aramaic. For instance, though the realisation of *het* as [ħ] and of *ʿayin* as [ʕ] is largely lost in these Aramaic dialects, the pharyngeal realisation of these two phonemes is preserved in their reading of the Bible.²⁷ This preservation of the phonemes doubtless relates to the status of Biblical Hebrew as the sacred language, and the consequent attempts to pass it on as received.

2.3. A Case of Careful Reading (Orthoepy) in Num. 10.35?

In my corpus some quotations may be taken as reflecting various degrees of carefulness in reading. Here, I shall consider a partic-

²⁵ Of course, a partial loss of muscular pressure must have occurred at some stage, leading to loss of gemination, etc. Cf. Blau (1980).

²⁶ Yuditsky (2013).

²⁷ For the phonology of North-Eastern Neo-Aramaic dialects see, e.g., Mutzafi (2002, 44–45).

ular verse which may constitute an example of a careful, deliberate reading, referred to technically as orthoepy. Orthoepy appears to be reflected in certain Babylonian manuscripts, and is characteristic of the standard Tiberian tradition.²⁸ It should be noted that my interpretation of the quotation discussed below remains conjectural. This uncertainty notwithstanding, the verse in question is unique and deserves renewed attention.

- (6) וְהִיָּה בֵּין נְסוּעַ הָאָרֶז וַיֹּמַר מֹשֶׁה קוּמָא יְהוָה יוֹפְצוֹ אֵיבָאָךְ וַיִּנְסוּ מִ[] מִפְּנֶיךָ
 (AMB, 146; 3.5) || BHS וַיְהִי בְּנִסְעַ הָאָרֶז וַיֹּאמֶר מֹשֶׁה קוּמָהּ | יְהוָה וַיִּפְצוּ אֵיבֹיֶיךָ וַיִּנְסוּ מִפְּנֶיךָ
 ‘And whenever the ark set out, Moses said, “Arise, O Lord, and let your enemies be scattered, and let those who hate you flee before you.”’

The two issues on which I wish to focus at present are: the form וְהִיָּה instead of וַיְהִי and the phrase בֵּין נְסוּעַ instead of בְּנִסְעַ (or בְּנִסְעַ). First, let us consider the form וְהִיָּה. The inserted *heh* may, of course, be a result of scribal error. For instance, it is possible that the scribe initially confused this form with the corresponding *weqatal* verb וְהִיָּה.²⁹

However, *heh* in this form may also serve as *mater lectionis* for the *a*-vowel represented by Tiberian *pataḥ*.³⁰ Though this is possible, the use of *heh* for word-internal *a* is rare—it appears to be unattested elsewhere in the incantation bowls. Therefore, an

²⁸ Khan (2018).

²⁹ This is a possibility offered by Mishor (2007, 214).

³⁰ There is one possible parallel case in the DSS: וְהִסְתַּר (1QIsa^a 47.17 || MT הִסְתַּר Isa. 57.17).

explanation for its alleged employment in this form should be sought. There are two possibilities.

Mishor supposes that the scribe may have inserted the *mater lectionis* to disambiguate this form from the jussive ויהי (Tiberian ויהי [wi:'hi:]).³¹

Alternatively, it could be hypothesised that this *mater lectionis* reflects a lengthening of the relevant *a*-vowel—a likely feature in a word at the beginning of a *parasha* section. In other words, *heh* may mark not only the quality of the vowel, but also its quantity.³² In both the Tiberian and the Babylonian traditions the corresponding *a*-vowel, i.e., *pataḥ*, has both long and short allophones.³³ In Babylonian manuscripts with ‘complex vocalisation’, long *pataḥ* is indicated by the *pataḥ* sign without a *hitfa* (*shewa*) sign beneath.³⁴ In Babylonian manuscripts with complex vocalisation where the verse in question occurs, the *pataḥ* in question is indeed marked long, even though it occurs in a closed unaccented syllable:



[wa:j'hi:]³⁵

³¹ Mishor (2007, 214).

³² The use of *ʾalef* for long, word-internal *a* parallel to Tiberian *pataḥ* is attested once in my corpus. See Molin (2017, 13–14).

³³ Khan (2013d, §9).

³⁴ Khan (2013c, §15).

³⁵ Yeivin (1973, 1:343).

A parallel lengthening of *pataḥ* is also attested in Tiberian Masoretic manuscripts,³⁶ where it may be indicated by the insertion of a phonetic *ga‘ya* next to the vowel sign.³⁷ This vowel lengthening occurs in cases where a vowel is followed by contiguous consonants of ‘weak’ articulation. It therefore serves to prevent the elision of those ‘weak’ phonemes.³⁸ A ‘weak’ consonant is a sonorous one, which is therefore prone to lenition. In this case, these weak consonants are the approximant *yod* [j] and the guttural *heh* [h]. The lengthening of *pataḥ* therefore serves to prevent the elision of those consonants.

The second form which I discuss here—בין נסוע—may also reflect a type of careful reading. In this phrase, the most striking variant is the doubling of *nun*. Mishor (2007, 214) offers us one possible explanation for this doubling—he proposes that it reflects hypercorrection. He supposes that the scribe may have thought that there had been two *nuns* next to each other across a word-boundary, but that these collapsed into a single segment [n]. The scribe therefore spelled the form בין נסוע, believing that he was thus restoring the original structure. Mishor conjectures that the scribe may have understood this form in parallel to בְּנֵי הַכּוֹזִים ‘deserving of a beating’ (Deut. 25.2), presumably meaning here ‘when [the ark] was about to set out’.

³⁶ This type of orthoepic lengthening is likely to have its roots in the (late) Second Temple Period (cf. Khan 2020, §§I.2.5.8 and I.2.10).

³⁷ Yeivin (1980, 262–63).

³⁸ Khan (2013d).

Mishor's hypothesis, however, is problematic. Firstly, the construction that the scribe was supposedly correcting the form towards (כִּי, i.e., כִּי, with an infinitive construct) is by no means a common syntagm. Would the scribe really have known it? Moreover, from orthographic features such as וְהִיָּה and from the general tendency to phonetic spellings in this quotation, it is clear that the scribe was not concerned with restoring the original meaning or form, but rather with representing (somewhat mechanically) what he had heard.

Thus, I propose that the orthography in בִּין נְסוּעַ is in fact phonetic, or at least partly so. This explanation is in line with the overall phonetic orthography of this quotation. More specifically, this spelling may reflect a vocalic pronunciation of *shewa*, or gemination of *nun*. Although in the medieval reading traditions *shewa* in this context was silent, at an earlier stage, it had been vocalic. This is demonstrated by Tiberian forms such as בְּכַתּוּב 'in writing' (Ps. 87.6). The *rafe* pronunciation of *taw* is a reflex of a vocalic *shewa* at an earlier stage in the language. A similar process accounts for the *rafe* pronunciation of *kaf* in forms such as מְלִכֵי 'kings of' (Gen. 17.16).³⁹ In the case of our form, therefore, we could hypothesise that the scribe heard the form [bina¹so:ʔ],⁴⁰ rather than [bin¹so:ʔ]. Such a *nun* followed by a vocalic element, in turn, was perceived by the scribe to be acoustically similar to a geminated *nun*, since in both there were two phonetic segments.

³⁹ Khan (2013b, §4).

⁴⁰ Note that [a], rather than [ə] is used here for vocalic *shewa*, since [a] is a more accurate representation of its quality.

The form in question might, therefore, reflect a stage of pronunciation earlier than that attested in the medieval Masoretic manuscripts—one at which the *shewa* was still vocalic. Such retention of vocalic *shewa* would also appear to hint at a slow, careful reading.

Alternatively, if we wish to assume that the orthography is fully phonetic, we can postulate that the double *nun* reflects gemination. In other words, we can assume that the scribe heard the form [binna'so:ʔ], rather than [bin(a)'so:ʔ]. One could, perhaps, compare this to the orthoepic gemination of the first of two weak consonants in contact in the Tiberian tradition in forms such as *מִקְרָה לַיְלָה* (< *מִקְרָה*) ‘accident of the night’ (Deut. 23.11), וַיִּתְקַנְהוּ (< *וַיִּתְקַנְהוּ*) ‘and we shall draw him away’ (Judg. 20.32). The purpose of this *dagesh* was to separate the two weak consonants by forcing the insertion of an epenthetic vocalic *shewa* between them.⁴¹ Some parallels to this use of gemination are attested in a few medieval Babylonian manuscripts, especially with the sonorants *lamed*, *mem*, and *nun* (as well as with *ṣade* and *qof*).⁴² It is found, for example, in the form *מַחְלִי* ‘Mahli’ (Middle Babylonian).⁴³ Therefore, it is probably not a coincidence that the phoneme in question in the phrase *בֵּין נְסוּעַ*—[n]—is also a sonorant. In non-standard Tiberian manuscripts the sonorants, especially

⁴¹ Khan (2020, §1.3.1.11.1).

⁴² Yeivin (1985, 359–61).

⁴³ Yeivin (1985, 359).

lamed, *mem*, and *nun*, are strengthened by *dagesh* even when not in contact with other consonants.⁴⁴

Thus, if the hypothesis of secondary gemination is correct, the orthography in this quotation would reflect a slow, careful reading. This type of pronunciation, though non-standard, appears to have parallels in the Babylonian as well as Tiberian traditions. The fact that two features which may be interpreted as reflecting the practice of orthoepy are attested within one quotation lends this interpretation some weight.

2.4. Evidence for the Prominence of Orality

And finally, my corpus contains four forms which bear strong witness to the prominence of orality in the transmission of the biblical passages in question, or even to quotation from (oral) memory.⁴⁵ Specifically, these forms are explicitly spelled as pausal, demonstrating that they were known to the writers from the liturgical (synagogue) readings or memorisation. Consider, for instance, the following word:

(7) שׁוּמֹרֵי (HLIB, 213; 684.14) || BHS שְׁמָרוּ
 ‘they kept’ (Num. 9.23)

In this form, we find two *waws*, each serving as *mater lectionis* parallel to Tiberian *qames*.⁴⁶ This spelling indicates therefore that

⁴⁴ Blapp (2017, 165, 210).

⁴⁵ For references to literature on this topic, see footnote 20 above.

⁴⁶ Employment of *waw* as vowel letter parallel to Tiberian *qames* is indeed attested in some incantation bowls (both in their Aramaic and Hebrew), and has been discussed at length by numerous scholars. For an

this form would have been pronounced [ʃ:kɔ:ma'ru:]. This pronunciation is expected in the pausal form; in a Babylonian manuscript, this form would be pointed שָׁמְרוּ. A corresponding contextual form in a Babylonian manuscript is vocalised שָׁמְרוּ, and pronounced [ʃ:kɔ:ma'ru:].⁴⁷

Similarly, the following form is also spelled as a pausal one:

- (8) תֹּאכְלוּ (AMB, 176; 9.9) || BHS תֹּאכְלוּ
 'you will eat' (Lev. 26.29)

Here, the *yod* indicates a vowel parallel to Tiberian *šere*, which is the expected vowel in the case of a pausal form. The form in question would be pointed תֹּאכְלוּ [to:'χe:lu:] in a Babylonian manuscript, while the corresponding contextual form would be vocalised תֹּאכְלוּ [to:χa'lu:].⁴⁸

2.0. CONCLUSION

To summarise, the Biblical Hebrew quotations in the Aramaic incantation bowls, due to their status as the only Babylonian epigraphic source from Late-Antique Babylonia and their tendency to phonetic orthography, are a unique source for the investigation of pre-Masoretic reading traditions in Babylonia. Their study illuminates the relationship between the tradition found in the

overview and evaluation of the existing research, see Juusola (1999) and Molin (2017, 17–22).

⁴⁷ Yeivin (1985, 427). Again, [a] here indicates *shewa*.

⁴⁸ Yeivin (1985, 585).

quotations and that reflected by the medieval Babylonian manuscripts. This, in turn, helps us deepen our understanding of the history of the reading tradition in Babylonia.

The aim of this paper has been to offer a few case studies which illustrate what we can infer from the quotations about the pronunciation of Biblical Hebrew. Specifically, I presented a type of epenthesis in verbs which is distinctly Babylonian. I also pointed to the fact that most features attested in the corpus are in line with the Babylonian tradition. I also studied possible orthographic evidence for guttural weakening in my corpus, which is very scarce. I submitted that this probably reflects a relative absence of guttural weakening, and thereby a degree of resistance to the influence of the phonology of the vernacular, Jewish Babylonian Aramaic. However, I pointed out that in other areas, the phonological (and morphological) interference of the vernacular Aramaic is apparent. Additionally, I discussed a verse with peculiar orthographic features which may attest the practice of orthoepy, that is, careful, deliberate reading. And finally, moving beyond language, I suggested that some of the forms in the bowls point to a particular mode of transmission of the biblical text. Specifically, spellings of pausal forms highlight the prominence of orality.

The study of these biblical quotations not only contributes to our understanding of Biblical Hebrew reading traditions, but also offers some insight into the textual history of the Bible and the transmission of the biblical text in Late Antiquity.

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PHONOLOGICAL ADAPTATION AND THE BIBLICAL ARAMAIC AND BIBLICAL HEBREW REFLEXES OF *I AND *U*

Benjamin D. Suchard

1.0. INTRODUCTION

For over a century, historical linguists have been guided by the *Ausnahmslosigkeit der Lautgesetze*, the principle that sound changes affecting a language are phonetically regular and exceptionless, as put forward by the nineteenth-century German philologists and linguists known as the Neogrammarians. Hermann Paul (1880, 69) formulates this principle as follows:

* I am very grateful to Geoffrey Khan for having invited me to come present the contents of this paper in Cambridge. I also thank the attending audience for their comments, especially Shai Heijmans, who provided me with numerous helpful suggestions. Any remaining errors are my own.

The occasional transliterations of Tiberian Hebrew words and vowel signs follow the conventions outlined in Johnson and Goerwitz (1995). Phonetic transcriptions, given in the International Phonetic Alphabet, are enclosed in [square brackets]; phonemic representations are preceded and followed by a /forward slash/.

Hence, if we speak of the consistent operation of sound laws, this can only mean that a sound change will treat every individual case in which the same phonetic conditions present themselves within the same dialect in the same fashion. Thus, where one and the same sound formerly occurred, this must either stay the same sound in the later stages of development as well, or, where a split into several different sounds has taken place, a specific cause should be indicated which explains why this sound arose in one case and that sound in the other, and this cause should be purely phonetic in nature, such as the influence of surrounding sounds, stress, syllable structure, etc.¹

Adhering to this principle has pushed linguists beyond merely identifying tendencies operating in a certain language and allowed them to discover phonetically conditioned sound changes that would otherwise have gone unnoticed. As the regularity of sound change is a universal principle, it can also be shown to apply to Biblical Hebrew (Suchard 2019). In this language, however, we are faced with a small number of phenomena

¹ *Wenn wir daher von konsequenter Wirkung der Lautgesetze reden, so kann das nur heissen, dass bei dem Lautwandel innerhalb desselben Dialektes alle einzelnen Fälle, in denen die gleichen lautlichen Bedingungen vorliegen, gleichmässig behandelt werden. Entweder muss also, wo früher einmal der gleiche Laut bestand, auch auf den späteren Entwicklungsstufen immer der gleiche Laut bleiben, oder, wo eine Spaltung in verschiedene Laute eingetreten ist, da muss eine bestimmte Ursache und zwar eine Ursache rein lautlicher Natur wie Einwirkung umgebender Laute, Akzent, Silbenstellung u. dgl. anzugeben sein, warum in dem einen Falle dieser, in dem andern jener Laut entstanden ist.*

that seem impervious to an explanation through regular sound laws. The topic of this paper is one such problem: the reflexes of Proto-Northwest-Semitic short *i and short *u in the Tiberian vocalisation of the Hebrew Bible, which vacillate between *i*, *u* and *ε*, *ɔ* in some environments in Biblical Hebrew and Aramaic and between *i*, *u* and *e*, *o* in other environments in Biblical Aramaic only.

I will suggest that the solution for this irregularity lies in a process of phonological adaptation in the reading tradition. Phonological adaptation is the process where linguistic material from one language (the source language) is adapted to fit the phonology of another language (the target language) (Hock 1991, 390–97). A common occurrence with loanwords, this usually involves the replacement of source language phonemes that do not occur in the target language with their closest approximations in the target language. Crucially, this substitution is not always regular. Speakers may even vary in their adaptation of the same foreign material from one token to the next; Cohen (2009, 93) provides the example of an Israeli basketball player variously realising the English loan *block shot* [*sic*: blocked shot] /blɒk ʃɒt/ as /blak ʃat/, /blok ʃot/, and /blak ʃot/. I will argue that this kind of irregularity lies behind the varying reflexes of *i and *u in Biblical Aramaic and Biblical Hebrew.

As phonological adaptation depends on the phonologies of the languages involved, the following section will discuss the phonemic inventories of Biblical Hebrew at different points in time. We will then first consider the variation between *i*, *u* and *e*,

o, which is limited to Biblical Aramaic, before examining the variation between *i*, *u* and *ε*, *ɔ* in both Biblical Aramaic and Biblical Hebrew. Phonological adaptation can be held responsible for both of these irregularities: adaptation of Aramaic texts to Hebrew phonology in the first case and adaptation of the biblical reading tradition to the phonology of an unidentified language, possibly Greek, in the second case.

2.0. PHONEMES AND ALLOPHONES

As the concept of the phoneme is crucial to the process of phonological adaptation, let us consider it first. A phoneme is the smallest contrastive unit in the sound system of a language, as is commonly accepted. But what exactly do we mean by *contrastive*?

If we find variation between two sounds in a language, I will assume that this variation is contrastive unless there is evidence to the contrary. If sounds are not contrastive, they are referred to as *allophones*. Evidence for allophony can be of two kinds.

First, the allophony may be phonetically conditioned, which is to say that it is completely predictable from the phonetic environment in which two sounds occur. The textbook example for this kind of allophony is the variation between aspirated and plain voiceless plosives in most varieties of English. Aspirated voiceless plosives like [p^h] occur only in syllable-initial position. Plain voiceless plosives like [p] do not occur in syllable-initial position, but do occur everywhere else. [p^h] and [p] are thus in complementary distribution: we can completely accurately predict whether a particular word has [p^h] or [p] based solely on

phonetic environment. Therefore, the two sounds are not contrastive at a deeper level and can both be represented as one and the same phoneme /p/, with the position in the syllable determining whether this phoneme is realised with or without aspiration.

The other case in which variation between two sounds is not contrastive is if it is completely unconditioned by linguistic factors. The English word *pit*, for instance, can be realised as both [p^hit^ʔ], with an unreleased alveolar stop at the end of the word, and [p^hiʔ], with a glottal stop (again, in many varieties). Both realisations are equally valid and the variation is not conditioned by phonetic, morphological, syntactic or lexical factors. Hence, the two allophones are said to be in free variation and can once again be ascribed to one and the same underlying phoneme, e.g. /t/.

Practically, then, we can say that variation between two sounds is contrastive if and only if it is conditioned at any of the non-phonetic levels mentioned above: if it is conditioned by morphological, syntactic, or lexical features. This conditioning may yield one or more minimal pairs, pairs of morphologically or lexically distinct words that differ only in the presence of one or the other sound under consideration, but these may also coincidentally not occur. Hence, minimal pairs prove a phonemic contrast, but their absence does not prove a lack of contrast.

Let us turn to some illustrations from Tiberian Biblical Hebrew. The phonemic realisations are based on the description of the Tiberian pronunciation given by Geoffrey Khan, e.g., in Khan

(1996).² For our first example, we see variation between [i:] and [e:], as in םִשָׁׁ [jɔ'ʃi:m] 'he will put' and םִשָׁׁ [jɔ'ʃe:m] 'let him put'. As the occurrence in a minimal pair shows, this variation is not phonetically conditioned: both sounds can occur in exactly the same phonetic environments. Nor are the sounds in free variation: 'he will put' would always be read with [i:] while 'let him put' would always be read with [e:] (and the same goes for all other words where these sounds occur). Thus, [i:] and [e:] are phonemically contrastive: they belong to two different phonemes.

For a second example, there are the various ways the vowel sign *shewa* is realised. In Tiberian, it is realised as a vowel if it stands between two consonants that would otherwise be syllable-initial. This vowel is [i] before *y*; a short vowel with the same quality as the next vowel before gutturals; and [a] elsewhere. In other positions, *shewa* is realised as zero, i.e., no vowel is read. These realisations are not in free variation, but we clearly see a purely phonetic conditioning. Hence, they belong to one and the same phoneme—or in this case, the lack of a phoneme, as the vocalic realisations can all be interpreted as allophones of zero.

By conducting this kind of analysis for every sound in the Tiberian pronunciation of Biblical Hebrew, we arrive at a vocalic phonemic inventory as presented in Table 1 (Suchard 2018). The analysis underlying this phonemic system is based on Tiberian Biblical Hebrew, but it also holds for Tiberian Biblical Aramaic.

² See now also Khan (2020).

Table 1. The vocalic phonemes of Tiberian Biblical Hebrew (and Tiberian Biblical Aramaic)									
	front			central			back		
	short	un- marked	long	short	un- marked	long	short	un- marked	long
close		/i/	/ī/					/u/	/ū/
close- mid			/ē/						/ō/
open- mid	/ĕ/	/ε/					/ǝ/	/ɔ/	/ɔ̄/
open				/ă/	/a/				

Based on evidence from historical phonology (Suchard 2017, 211–12) and Latin and Greek transcriptions (see, e.g., Kantor 2017), earlier stages of Hebrew appear to have had a simpler phonemic inventory, presented in Table 2. The labelling as ‘pre-Tiberian Biblical Hebrew’ is admittedly vague, but given the long period for which this system seems to have been in place, no more precise appellation suggests itself.

Table 2. The vocalic phonemes of pre-Tiberian Biblical Hebrew						
	front		central		back	
	short	long	short	long	short	long
close		/ī/				/ū/
mid	/e/	/ē/			/o/	/ō/
open			/a/	/ā/		

The main difference with the Tiberian phonology is that later /i/ and /ε/ are still one phoneme /e/, just as later /u/ and /ɔ/ are still one phoneme /o/. Tiberian /ɔ̄/ still has its older value, /ā/, and the underlyingly short *ḥatef* vowels of the Tiberian pronunciation have not yet become separate phonemes.

Bearing these phonemic inventories in mind, let us consider the irregular reflexes of **i* and **u*, starting with the Biblical Aramaic interchange between *i*, *u* and *e*, *o*.

3.0. BIBLICAL ARAMAIC *I* : *E* AND *U* : *O*

Stressed Proto-Aramaic **i* and **u* (normally deriving from Proto-Northwest-Semitic **i* and **u*, respectively) are reflected in two different ways in Biblical Aramaic. Stressed **i* surfaces either as *i*, as in **wa-baṭṭlū* > וּבָטְלוּ ‘and they stopped (m)’ (Ezra 4.23), or as *e*, as in **hawθīb* > הוֹתִיב ‘he settled’ (Ezra 4.10). Similarly, stressed **u* surfaces either as *u*, as in **wa-yisgūd* > וַיִּסְגֹּד ‘and he prostrates himself (pause)’ (Dan. 3.6), or as *o*, as in **gúddū* > גָּדְדוּ ‘cut down (mpl)’ (Dan. 4.11). These different reflexes can even occur in what would otherwise seem to be the same word: cf. **yitṣabíd* > יִתְעַבֵּד ‘it (m) will be made’ (Ezra 6.11; 7.23; Dan. 3.29) beside יִתְעַבֵּד ‘idem (pause)’ (Ezra 6.12; 7.21).

As discussed in §2.0, these different reflexes are phonemically contrastive in Tiberian Biblical Aramaic. Seemingly contradicting the principle of *Ausnahmslosigkeit der Lautgesetze*, however, no conditioning factor is apparent that can explain “why this sound arose in one case and that sound in the other.” As the examples cited above suggest, the reflexes as **i* and **u* seem to be associated with pausal position. This was already noted by Bauer and Leander (1927, 23) and confirmed by Amos Dodi (1989). The reflex in non-pausal forms, however, remains unpredictable. Vincent DeCaen (2004) tries to explain the variation in this position on prosodic grounds, too, but his account ultimately

leaves a number of forms unexplained. The irregularity thus remains.

Taking a closer look at the occurrence of each reflex, we find that the variation is limited to closed syllables. Leaving the less frequent forms with *u aside for the moment, we see short *i in closed syllables reflected as *i* in words like תִּדַּק 'it (f) will crush' (Dan. 2.40, 44), מְשִׁיב 'saves (m)' (Dan. 6.27), or יָבֵל 'able (ms)' (Dan. 3.17; 4.37) beside a reflex as *e* in words like שָׁלַט 'he had power' (Dan. 3.27), שָׁאַלְנוּ 'we asked' (Ezra 5.9, 10), or בָּהֵל 'able (ms)' (Dan. 2.26; 4.18). In open syllables, however, we find only *i* reflexes, as in סָלְקוּ 'they (m) went up' (Ezra 4.12; Dan. 2.29), שָׁלְטוּ 'they (m) had power' (Dan 6.24), וְהִלְבְּיֵשׁוּ 'and they (m) clothed' (Dan. 5.29), and הִתְרַחֲצוּ 'they (m.) trusted' (Dan. 3.28).

This distribution becomes meaningful if we consider it from the point of view of pre-Tiberian Hebrew phonology. Due to a combination of sound changes, the Hebrew non-low stressed short vowels **e* and **o* had been preserved only in closed syllables. Stressed instances of short **e* and **o* had lost the stress in open syllables and later underwent reduction (Blau 2010, §3.5.12.2.6). That the distribution of the reflexes of **i* and **u* in Biblical Aramaic matches a pattern attested in the phonology of Biblical Hebrew suggests that the irregularity we are dealing with is due to some kind of interaction between these two strata of the biblical corpus.

In fact, we may explain the Biblical Aramaic situation through a difference in phonetics between the precursors of Biblical Aramaic and Biblical Hebrew. As was mentioned above, different types of evidence suggest that Proto-Northwest-Semitic

**i* and **u* had normally shifted to **e* and **o* in pre-Tiberian Biblical Hebrew. There is no indication, however, that this sound change affected the Aramaic dialect underlying the Biblical Aramaic reading tradition. Let us assume that this variety of Aramaic preserved Proto-Aramaic **i* and **u* unchanged. Once the Biblical Aramaic texts became an integral part of the Hebrew Bible, this difference in phonology between the Aramaic and Hebrew portions would have formed an unstable situation. Since the vast majority of the biblical texts are in Hebrew, it would be natural for readers to adapt the tiny Aramaic part of the corpus to the dominant Hebrew phonology, especially considering the fluid transitions between both languages in the actual text. In doing so, Aramaic **i* and **u* could either be changed to the corresponding short vowels, **e* and **o*, or to the corresponding long vowels, **ī* and **ū*. As phonological adaptation is not bound by regularity, this then yielded the irregular outcomes we have observed. The process is illustrated in Table 3.

Table 3. Phonological adaptation of pre-Biblical Aramaic forms to Hebrew phonology			
Original Aramaic	Adapted form	Biblical Aramaic	meaning
<i>*gúddū</i>	<i>*góddū</i>	גָּדוּ	‘cut down (mpl)’
<i>*wa-yisgúd</i>	<i>*wa-yesgúd</i>	וַיִּסְגֹּד	‘and he prostrates himself (pause)’
<i>*yitʕabíd</i>	<i>*yetʕabéd</i>	יִתְעַבֵּד	‘it (m) will be made’
<i>*yitʕabíd</i>	<i>*yetʕabíd</i>	יִתְעַבֵּד	‘idem (pause)’

In pausal position, **i* and **u* were more likely to be associated with Hebrew **ī* and **ū* due to the crosslinguistic effect of

prepausal vowels being phonetically lengthened (Nooteboom 1997, 658). This explains why the Biblical Aramaic words with major disjunctive accents all occur with *i* and *u*, not with *e* or *o* (Dodi 1989). In open syllables, stressed **i* and **u* were always incorporated as long **ī* and **ū*, as stressed **e* and **o* in this position did not occur in the receiving Hebrew phonology. Thus, e.g., **salīqū* ‘they (m) went up’ was necessarily adapted to **salīqū* > סָלְקוּ.

4.0. BIBLICAL HEBREW AND BIBLICAL ARAMAIC *i* : *ε* AND *u* : *ɔ*

The interchange of stressed *i* : *e* and *u* : *o* is limited to the Aramaic part of the biblical corpus. Another alternation characterises the entire corpus. In closed, unstressed syllables, we find two short³ front vowels, written *i* and *ε*, and two short back vowels, written *u* and *ɔ*. Their distribution is largely predicted by phonetic environment. With the front vowels, *ε* normally occurs next to gutturals, e.g., חֶדְרֵי ‘his room’, while *i* occurs elsewhere, e.g., בֶּטְנוֹ ‘his belly’, דְּמַמְּכָם ‘your (mpl) blood’. With the back vowels, *u* normally occurs before geminates, e.g., כְּלֵוֹ ‘all of it (m)’, while *ɔ* occurs elsewhere, e.g., קִדְשׁוֹ ‘his sanctuary’, הִגְלוֹ ‘he was exiled’. However, we also find these vowels occurring in the ‘wrong’ environment. Unconditioned *ε* occurs in words like מְמַשְׁלָה ‘authority’ and יְדָכֶם ‘your (mpl) hand’. Similarly, unconditioned *u* occurs

³ Technically, these are unmarked for length according to the analysis put forward in Suchard (2018). In this environment, they are realised as short.

in words like שִׁלְחָן ‘table’ and מְגִלִּים ‘exiled (mpl)’. As the distribution is not completely phonetically conditioned and the different vowels are not in free variation—the same word in the same context always being read with the same vowel—the contrast between these vowels must be considered phonemic for Tiberian Biblical Hebrew and Aramaic (as argued in more detail in Suchard 2018, 204).

These four short vowels derive from only two different phonemes in the pre-Tiberian Hebrew phonology: /e/ and /o/. We are therefore dealing with an unconditioned phonemic split similar to the one in Biblical Aramaic discussed in §3.0. Perhaps, then, a similar explanation based on phonological adaptation can be found.

The usual transcription in alphabetic scripts as mid vowels and the historical relatedness with long /ē/ and /ō/ support a representation of the phonemes we are dealing with as /e/ and /o/. Given the absence of other short, non-low vowels in pre-Tiberian Hebrew phonology, however, it is likely that the phonetic realisations of these phonemes covered the entire non-low part of the vowel space. That is to say that the phoneme we represent as /e/ could have realisations ranging from [i], [ɪ], or [e] to [ɛ] and the phoneme that we represent as /o/ could be realised as anything from [u], [ʊ], or [o] to [ɔ].

To readers who were well accustomed to the phonology of the biblical reading tradition, this variation would go unnoticed, as it was non-contrastive. Speakers are not typically conscious of allophony of this type. Suppose, however, that one of the readers in the chain of transmission that would eventually lead to the

Tiberian reading tradition already had a contrast between /i/ : /ε/ and /u/ : /ɔ/ in closed, unstressed syllables. This contrast could have been imported, for instance, from the reader's native language. In this case, our reader would be hypersensitive to the different allophonic realisations of /e/ and /o/. When hearing a higher realisation, he would assign it to /i/ or /u/; lower realisations would be assigned to /ε/ and /ɔ/. Thus, what were originally allophones—with phonetic factors largely determining the distribution, but ultimately in free variation—could split into different phonemes as they were mapped onto a pre-existing contrast taken from another language. This scenario is illustrated in Table 4, where *Teacher* represents the older stage of the reading tradition, where the variation is allophonic, and *Student* represents the stage where the phonemic contrast was imposed on the originally allophonic variants.

Table 4. Phonemicisation of /i/ : /ε/ in the reading tradition				
Teacher thinks...	Teacher says...	Student thinks...	Tiberian Biblical Hebrew	meaning
<i>bɛt̪nó</i> /e/	<i>bɪt̪nó</i> /e/	<i>bɪt̪nó</i> /i/	בֶּטְנוֹ	'his belly'
<i>yɛdkém</i> /e/	<i>yɛdkém</i> /e/	<i>yɛdkém</i> /ε/	יְדָכֶם	'your (mpl) hand'
<i>hɛglá</i> /e/	<i>hiḡlá</i> /e/	<i>hiḡlá</i> /i/	הִגְלָהּ	'he exiled'
<i>hɛglá</i> /e/	<i>hɛglá</i> /e/	<i>hɛglá</i> /ε/	הִגְלָהּ	'idem'

Once the contrast had become phonemic in the mind of the reader, he would consistently produce realisations very close to [i] and [u] in words with /i/ and /u/ and [ε] and [ɔ] in words

with /ε/ and /ɔ/. This distinction was then passed on in the reading tradition until it was fixed in writing by the Tiberian vocalisers.

In the case of the purely Biblical Aramaic problem discussed in §3.0, the close match with the independently reconstructed pre-Tiberian Hebrew phonology made the somewhat speculative solution more plausible. In the case of *i* : ε and *u* : ɔ, however, the suggestion of phonological adaptation holds a purely hypothetical other language responsible, whose only known characteristics are a contrast between /i/ : /ε/ and /u/ : /ɔ/ in closed, unstressed syllables. Can we identify a language that could plausibly have caused this phonological split in the biblical reading tradition?

The first suspect would be Jewish Palestinian Aramaic. As the vernacular language of the Tiberian Masoretes and their direct precursors (as attested by its use in the masoretic notes), at least, we may expect it to have influenced the reading tradition in some way. But the phonology of Jewish Palestinian Aramaic does not match the profile we are looking for. While Jewish Palestinian Aramaic distinguishes between /i/ : /e/ and /u/ : /o/ and could thus plausibly have split a mid vowel phoneme into two, it seems that only /e/, /a/, and /o/ occurred in closed, unstressed syllables (Fassberg 1991, 34–41). Thus, imposing Jewish Palestinian Aramaic phonology on the Hebrew reading tradition would have preserved /e/ and /o/ in this position, not split them.

Looking further east does not solve our problem either. While influence from Jewish Babylonian Aramaic is historically possible, its vowel inventory was apparently even poorer than

that of Jewish Palestinian Aramaic. As it probably did not distinguish between /u/ and /o/ (Morag 1961), it cannot be blamed for the split of /o/ into /u/ and /ɔ/ in the reading tradition.

Beyond Semitic, we find a final candidate in Palestinian Greek, the phonology of which has been admirably described by Benjamin Kantor (2017). According to Kantor's description and analysis (110–31), this variety of Greek featured the /i/ : /ε/ contrast that we are looking for. In the back vowels, however, we find /u/ contrasted with /o/, not with /ɔ/. This is not what the Hebrew situation would lead us to expect *a priori*, but on further reflection it may explain some curious facts of Hebrew historical phonology. As we have seen, the distribution of /i/ and /ε/ differs from that of /u/ and /ɔ/. With the front vowels, /i/ has the less restricted distribution, while with the back vowels, /ɔ/ does. Perhaps this can be attributed to the asymmetry in the Greek vowel system: Hebrew /o/ was normally mapped to Greek /o/ and to Greek /u/ only in more limited cases; this default value /o/ in the reading tradition later shifted to /ɔ/ in Tiberian. In the front vowels, on the other hand, Hebrew /e/ was more commonly adapted to Greek /i/, with /ε/ being the largely conditioned variant. There would thus seem to have been a hierarchy for the preferred vowel matching the Hebrew close-mid vowels, with a Greek close-mid vowel being the best choice when available, followed by a close vowel and then an open-mid vowel.⁴

⁴ Further evidence for the asymmetry between /e/ and /o/ in this regard comes from the pausal consecutive imperfect forms of some weak verbs. As described in Blau (1981), the forms with an *i vowel developed like

5.0. CONCLUSION

The irregular reflexes of **i* and **u* in Biblical Hebrew and Biblical Aramaic challenge the principle of regular sound change. I have argued that the solution is not to be sought in sound change at all, obviating the need for regularity. The conditioning of the Biblical Aramaic split discussed in §3.0 reflects features of pre-Tiberian Biblical Hebrew phonology. This suggests that phonological adaptation is at play, a process that could also explain the similar split discussed in §4.0. As phonological adaptation is often characterised by irregularity, this provides us with an explanation from generally accepted principles of historical linguistics.

The phonology causing the adaptation was seen to be pre-Tiberian Biblical Hebrew in the case of Biblical Aramaic stressed **i* and **u* and was suggested to be Palestinian Greek in the case of Biblical Hebrew and Aramaic unstressed **e* and **o* in closed syllables. The influence of these languages on the biblical reading tradition is compatible with what we might call the least surprising model of the oral transmission of the biblical texts. First, Biblical Hebrew and Biblical Aramaic texts came to be combined in a shared, biblical corpus, leading to the adaptation of the Aramaic material to Hebrew phonology. Based on grammatical features of the Aramaic variety underlying the Biblical Aramaic

**wayyēlek* > **wayyēlek* > **wayyēlek* > **wayyēlāk* > וַיָּלֶךְ ‘and he departed (pause)’. Forms with an **u* vowel like וַיָּמָוּת ‘and he died (pause)’ do not reflect the parallel lowering of **o*. Based on the account sketched in the main text, we may now understand the development of these forms as **wayyāmōt* (with **o* preserved in unstressed position as it matched Greek /o/?) > **wayyāmōt* > וַיָּמָוּת.

reading tradition, I have argued elsewhere (Suchard forthcoming) that this fixing of the combined reading tradition should be placed in first-century CE Palestine. The later influence of Palestinian Greek, the most likely culprit behind the split discussed in §4.0, then supports a continuing transmission in Roman Palestine; historical considerations suggest that the tradition was maintained in the centres of Jewish learning in Galilee (Geller 1998, 562–65). While the involvement of Palestinian Greek, especially, remains speculative, the account offered here provides one more example of how the results of historical linguistics and linguistic reconstruction can help to illuminate the history of the ancient world as it is known to historians from more direct sources.

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CONNECTING THE DOTS: THE SHARED PHONOLOGICAL TRADITION IN SYRIAC, ARABIC, AND HEBREW VOCALISATION

Nick Posegay

1.0. INTRODUCTION

The development of Semitic vocalisation systems spans a massive gulf of time, beginning with the first use of *matres lectionis* letters and continuing to the standardisation of the modern Arabic and Hebrew vowel pointing systems. But the portions most commonly implied by the phrase ‘vocalisation system’—that is, the vowel signs themselves—were invented in the multicultural environment of the early medieval Middle East. Between the seventh and eleventh centuries, historically Aramaic-speaking Jews and Christians faced the challenge of preserving their biblical recitation traditions in the face of the growing dominance of the Arabic language. In the same period, Arab Muslims feared the corruption of the Qurʾanic recitation tradition as a result of contact with non-native Arabic speakers.

Adherents to all three religions took steps to protect their languages. Syriac Christians first created a system of diacritic dots to record vowels in the Bible, and soon after, both the Jewish

Masorettes and Arab grammarians implemented dot-based systems for marking vowels. Scholars have debated potential relationships between these dot systems for over a century,¹ often without regard to the chronology of their sources (see below, §3.1).² And indeed, the three vocalisation traditions are linked to such a degree that it is difficult to explain the history of one without putting it in context with the other two. The connections between them, however, are not necessarily graphic, and instead relate to phonological theories and terms that medieval grammarians developed to describe their vowel systems.

This study thus aims to compare the phonological traditions of Syriac, Arabic, and Hebrew to demonstrate how they influenced each other over time. That is to say, it will look at the ways medieval linguists described their own languages, and compare the concepts that they used to discuss vowel phonology. In what follows, §2.0 will establish shared features in the Syriac and Hebrew vocalisation traditions prior to the spread of Arabic as the dominant language in the Middle East. §3.0 will examine the emergence of eighth-century Arabic phonetic terminology and its relationship with Syriac. Then §4.0 will explore some ways in which tenth- and eleventh-century Syriac and Hebrew grammarians blended Arabic phonological concepts into their own linguistic traditions.

¹ Haupt (1901); Abbott (1939); Blake (1940); Segal (1953); Revell (1975); Versteegh (1993); Dotan (2007).

² Revell (1975, 181); Versteegh (1993, 30).

2.0. THE HEBREW-SYRIAC CONNECTION

2.1. Early Syriac Relative Vowel Phonology

Some of the earliest descriptions of a Semitic vocalisation system come from Jacob of Edessa (d. 708), a Syriac Christian bishop whose grammatical writings reflect a combination of Greek influence and native Syriac concepts. Three works in particular are crucial for understanding the history of Syriac phonology: his grammatical tract ‘On Persons and Tenses,’ his ‘Letter on Orthography’ to George of Sarug (Phillips 1869), and his grammar, the *Turrōṣ Mamllō Nahrōyo* ‘The Correction of Mesopotamian Speech’ (Wright 1871), of which only six folios survive.

Jacob addresses vowel phonology in the introduction of ‘On Persons and Tenses,’ writing:

וקרא דין הלל . וכלי סגמאק סגמא : סגמא מלך וכלי
 סגמא * וסג דין כל פה כלל סג סג סג . סג סג
 וכל סג סג סג סג . וכל סג סג סג סג * סג סג
 דין סג סג סג סג * סג סג סג סג סג סג
 סג : סג
 סג סג סג סג סג סג סג סג סג סג

Then the tenses are three, past, present, and future, and sounds are thick and thin. Every saying, that is, [every] form, when it is thick or wide with sound, then it takes a point above. But when it is narrow or thin, then below. If it is intermediate, between narrow and thick, and there are two other [words] written the same as it, then it takes two points, one above and one below. This is called ‘restraining’.

(Phillips 1869, 1)

This passage shows that Jacob understood vowel phonology according to a relative classification system. Within this system, every word has a particular set of vowels that is comparatively different from the vowels of its homographs. These vowels are not absolutely defined, but rather for a given pair of homographs, Jacob would describe one as more *ḅe* ‘thick’ or *ḅte* ‘wide’, while the other would be more *nqəd* ‘pure’ or *qatṭin* ‘narrow’. Based on examples later in the text (Phillips, 1), vowels most often associated with the ‘dot above’—i.e., relatively ‘thick’ vowels—were /ɔ/, /o/, and /a/. Meanwhile, those marked with a ‘dot below’—the relatively ‘thin’ vowels—were usually /u/, /i/, /e/, and /ɛ/. However, these attributions were not absolute. It seems that while Jacob interpreted vowel phonemes in terms of relative bulk or openness, he did not use any terms or graphemes to indicate particular vowels on a one-to-one basis. A vowel that was considered ‘wide’ in the context of one homograph could be called ‘narrow’ when compared to another.

Jacob complicates this two-way relative system by the inclusion of *meṣʿyɔ* ‘intermediate’ vowels, which can only be identified in words that have at least two homographs. Such vowels are represented by ‘two points, one above and one below,’ which Jacob refers to as *mpaggdɔɔ* ‘restraining, bridling’. This term seems to describe only the physical two-dot grapheme, while the vowel phoneme itself is called *meṣʿyɔ*. This term almost always indicates the vowel /a/, but more importantly, it has no inherent descriptive qualities, and any *meṣʿyɔ* phoneme could be called *ḅte* or *qatṭin* in another context. It seems then that Jacob added

the *meṣʿayā* term to his vowel phonology to align it with his understanding of consonants, which, in his grammar, he categorises as *ʿabyāṭā* ‘thick’, *meṣʿayāṭā* ‘intermediate’, and *neqdāṭā* ‘thin, clear’ (Wright 1871, ٢٤). E. J. Revell (1972, 367) suggests that Jacob adapted these terms from Greek descriptors that meant, respectively, ‘rough’, ‘intermediate’, and ‘smooth’ with regard to voicing, modifying them to suit the Syriac language (see also Knudsen 2015, 77). As such, *meṣʿayā* was likely an addition to pre-existing Syriac vowel phonology—one based solely on relative degrees of bulk or openness—in order to fit Jacob’s wider Greek-inspired system.

From this information, we can assume that Jacob of Edessa built on an older phonological tradition that used terms like *ḥe*, *pte*, *qattin*, and *nqed* to describe vowels relative to each other, but not to name them. Since *ḥe* and *nqed* were probably calques from Greek, examining *pte* and *qattin* may provide further insight into how early Syriac phonologists perceived vowel quality. These latter two terms appear to be descriptions of the lips while articulating vowels. For example, the mouth is relatively wide (*pte*) when one says /a/, whereas it is narrow (*qattin*) when saying /e/. Similarly, the lips open wider for /e/ and /o/ than they do for /i/ and /u/. Curiously, similar descriptions occur in the earliest work of the Hebrew Masoretes.

2.2. Early Masoretic Relative Vowel Phonology

In an article on the etymology of Hebrew vowel names, Richard Steiner (2005, 379–80) argues that terms based on the roots *pth* ‘opening’ and *qms* ‘closing’ predate all other Hebrew vowel

names, and that in their original form they distinguished minimal pairs of vowels according to lip movement. His main evidence for the relative antiquity of these two vowel terms is their appearance in the *Masora magna* and *parva*, as well as the fact that modern *pataḥ* and *qamaṣ* originated as the Aramaic active participles *pōtaḥ* and *qōmeṣ* (Steiner 2005, 374; 377–78; see also Khan 2000, 24). Meanwhile, the remaining names for Hebrew vowels are not in the *Masora*, and are contrived from later Hebraisms. Both of these features indicate that terms from *pṯḥ* and *qmṣ* emerged in the eighth century, perhaps earlier, and Aron Dotan (1974) has identified rare usages of these roots to distinguish vowel pairs other than /a/ and /ɔ/ (see also Steiner 2005, 379). Both Steiner and Dotan thus conclude that the early Masoretes developed a relative system for describing vowels, as the latter writes:

It would appear that this use of the terms קמץ and פתח occurred during a most ancient period, a time when these terms were not as yet serving to denote definite vowels. The vestiges of this use, both of the terms מלרע, מלעיל and the terms קמץ, פתח indicate that in the period which preceded the invention of the vowel signs such a method of relative notation of vowels was current. It was therefore necessary to indicate the vowels which distinguish between homographs. (Dotan 1974, 32)

This relative usage disappeared by the tenth century at the latest, when Hebrew vowels were reclassified according to backness and airflow, as will be shown below. Syriac underwent a similar development around the turn of the eighth century, with phonetic backness becoming associated with ‘height’.

2.3. The Pre-Arabic Relative Context

The lack of absolute vowel notation prior to the eighth century gave rise to homograph lists in Syriac and Hebrew. In the Hebrew tradition, these lists divided homographic pairs according to stress, separating them with the Aramaic terms *mille^ʿel* ‘above’ and *millera^ʿ* ‘below’. One of the first scholars to examine these concepts was Heinrich Graetz, who attempted to connect the Tiberian Masoretic tradition to Syriac on the basis of diacritic dots. He studied the homograph lists in *Okhla we-Okhla* and found that, in addition to their normal meanings related to stress, the terms *mille^ʿel* and *millera^ʿ* were sometimes used to distinguish Hebrew homographic pairs that differed by one vowel (Dotan 2007, 622–23). By analogy with the Syriac diacritic ‘dot above’ and ‘dot below’, Graetz identified this usage as part of a relative vocalisation system. Both Steiner and Dotan also see these terms as evidence of the earlier two-way, relative perception of vowels (Steiner 2005, 379; Dotan 1974). However, Graetz took an additional step, hypothesising that *mille^ʿel* and *millera^ʿ* referred to diacritic dots that, just as in Syriac, were placed above or below a Hebrew word to indicate the relative quality of its vowels (Dotan 2007, 622–23). The problem with this idea is that a diacritic dot has been attested only once in the context of Hebrew *mille^ʿel* and *millera^ʿ* lists, and in that manuscript the dot indicates stress, not vowel quality (Steiner 2005, 379; Dotan 2007, 623). Graetz’s theory also requires that the terms themselves were borrowed from Syriac, and that they persisted after the apparent ‘disappearance’ of the hypothesised Hebrew diacritic dots.

Then, again, as for the sounds which indicate *ʿenə ʿemret* and *ʿeʿbeḏ*, and all the rest that are like them, and moreover, regarding *ʿeddun*, they have points below. Then those [sounds] which indicate *ʿomar* and *ʿokel*, and the rest, they are above. (Phillips 1869, 32, fn. i)

Phillips suspects that these instances of *men lʿal* and *men ltaḥt* should be reversed, in order to conform to the more common usage of diacritical dots that distinguish between first- and third-person verbs.⁴ However, the passage does not begin ‘as for the dots which indicate,’ but rather ‘as for the *sounds* which indicate,’ and, as such, the text should be interpreted in terms of the phonological system that Jacob has already explained. Through this lens, the syntactic placement of *men lʿal* and *men ltaḥt* makes sense: the first-person *ʿemret* (G perfect) and *ʿeʿbeḏ* (G imperfect) have ‘thinner’ vowels than their respective third-person homographs, *ʿemrat* (G perfect 3fs) and *ʿaʿbeḏ* (C perfect 3ms), so they ought to take a dot below. It seems that the copyist put dots above the first-person verbs according to the standard diacritic practice, as Phillips expected, even though, in this case, the dots that Jacob describes as *men lʿal* and *men ltaḥt* were meant to convey relative vowel quality. The following examples—the participles *ʿomar* and *ʿokel*—are thus correctly classed as *men lʿal*, as the dot above distinguishes them from their respective homographs in the perfect, *ʿemar* and *ʿekal*. So again, in a case related specifically to vowel phonology, Jacob uses the uncommon constructions *men lʿal* and *men ltaḥt* in such a way that they appear to be

⁴ First-person singular takes a diacritic dot above, and third-person feminine singular takes a dot below.

phonological terms, conceptually divorced from the dots they once described.

Recalling Dotan's stance on the potential relationship between Syriac and the terms *mille^çel* and *millera^ç*, he (2007, 623) asserted that such terms "do not exist and never did exist in the supposed source language, Syriac." But Jacob of Edessa instructs that words with thick vowels take a dot *men l^çal*, while those with thin vowels take a dot *men ltaḥt*. Those particular phrases flirt with a theoretical usage, almost describing the phonology of words affected by dots, rather than the dots themselves. While still not explicit vocalisation terms, such descriptors mirror *mille^çel* and *millera^ç*, at least on a conceptual level. It is possible that the Syriac phrases collapsed over time, with the *nūn* in *men l^çal* eliding to produce a geminated *lamed* in something like *mille^çel*. Similarly, *men ltaḥt* can be calqued as *men lra^ç*, which could collapse to *millera^ç*.⁵ Simultaneous with this etymological shift, the Syriac terms became dissociated from the physical dots, becoming adjectives expressing the relative qualities of vowels. If this is the case, then the lack of attested evidence for the Hebrew dots hypothesised in Graetz's theory is not irregular, but rather expected. That is, by the time the phrases *men l^çal* and *men ltaḥt* had a chance to become phonological terms in Syriac (c. 700–750), they had already lost their meaning related to dots. Consequently, the Masoretes could have adopted them without copying the Syriac diacritics. I know of no primary source that explicitly describes such a development, but Dotan is perhaps too quick to dismiss a Syriac connection.

⁵ I.e., *men l^çal* > *mille^çel*; *men ltaḥt* > *men lra^ç* > *millera^ç*.

These similarities between the Syriac and Hebrew linguistic traditions suggest that the early Masoretes understood vowel phonology in much the same way as their Syriac Christian contemporaries. Both traditions qualified vowel phonemes on a hierarchy according to the relative openness of the mouth during articulation. For the Syrians, this meant that vowels could be *pte* ‘wide’ or *qattin* ‘narrow’ when compared to other vowels. Some early Masoretes also applied this principle, and described those same vowels as *potaḥ* ‘opening’ or *qameṣ* ‘closing’. Moreover, there is even evidence that both traditions used Aramaic terms, i.e., *mille‘el* ‘above’ and *millera‘* ‘below’, in some form to delineate between homographs with different vowels, suggesting that the terms may have entered into masoretic usage as Syriac loans. Over time these terms likely contributed to the association of height with phonetic backness in the Syriac and masoretic traditions. This concept eventually appeared in Saadya Gaon’s *Kutub al-Lugha* (Skoss 1952; Dotan 1997), which will be discussed below.

3.0. THE DEVELOPMENT OF ARABIC VOWEL TERMINOLOGY

3.1. The Chronology of Arabic Vowel Names and Their Relationship to Syriac

The Arabic grammatical tradition emerged in this world of two-way relative descriptions, and early Arabic sources on vowel phonology reflect that context. They do not, however, indicate a wholesale borrowing of Syriac phonetic terms that became the Arabic vowel names (Versteegh 1993, 28–31; Talmon 2003, 289–91).

C. H. M. Versteegh has identified a Qurʾanic *tafsīr* by Muḥammad al-Sāʾib al-Kalbī (d. 763) as the earliest source for Arabic vowel names. In it al-Kalbī lists variant readings of the Qurʾan using unpointed Arabic, so he describes alternative vowels using words, rather than signs. In the sixty-eight variants that he records, al-Kalbī uses *kasr*, *jarr*, and *khafḍ* to describe *i*-vowels, *fath* and *naṣb* for *a*-vowels, and *ḍamm* and *rafʿ* for *u*-vowels (Versteegh 1993, 125). Versteegh (1993, 126) notes that at this stage there was no consistent distinction between what are now considered vowel names (*kasr*, *fath*, *ḍamm*) and declensional terms (*jarr*, *khafḍ*, *naṣb*, *rafʿ*), and concludes that “the later terms for the case endings were once part of a system to indicate vowels.” He takes these seven terms and compares them to the list of Syriac vowel names published by Adalbert Merx in 1889 (Versteegh 1993, 29–31), which Merx (1889, 50) collected based on what Gregory bar Hebraeus (d. 1286) wrote about what *he* claimed were the names of vowels used by Jacob of Edessa (d. 708). To say that this chain of transmission is tenuous would be generous.

Versteegh suggests that five vowel names in Bar Hebraeus’ grammar—*ptḥo*, *zqḥo*, *rbḥo*, *hbḥo*, *ʿḥo*—are the source of the Arabic terms *fath*, *naṣb*, *khafḍ*, *kasr*, and *ḍamm*. While he is correct in pointing out parallels between the two sets of terms, incorporation of the Syriac sources from before the thirteenth century reveals a more complicated picture. The most obvious connection is the pair of *ptḥo* and *fath*, cognates that mean ‘opening’. Similarly, *ʿḥo* and *ḍamm*, while not cognates, both mean ‘contracting’, and *hbḥo* and *kasr* can both (loosely) mean ‘pressure’ (Versteegh 1993, 30). The problem, then, is a chronological one.

As we have already seen, Jacob of Edessa did not name any Syriac vowels, and only thought of them as relatively open or closed. There is no evidence that he had a word like *ḥb̄ṣ̄* or *kasr* to indicate a third type of vowel, and in fact when Jacob of Edessa uses the root *ḥb̄ṣ̄* in his ‘Letter on Orthography’, it indicates an orthographic contraction rather than anything phonological (Phillips 1869, ٣, ln. 17). The earliest example of the use of the root *ḥb̄ṣ̄* in relation to a vowel seems to come from Elias of Tiran’s (d. 1049) grammar (Baethgen 1880, ٣٥; see below for the use of *ḥb̄ṣ̄* for both /u/ and /i/), and it is not clear that either he or Elias of Ṣoba (d. 1049) used *ṣ̄ṣ̄* as a vowel term at all. As such, while the dual concepts of vowel ‘opening’ (and thus *p̄th̄*) and ‘contracting’ could have entered Arabic from Syriac in the eighth century, the terms *ḥb̄ṣ̄* and *ṣ̄ṣ̄* are much later inventions, possibly calqued from *kasr* and *ḍamm* into Syriac. In any case, they cannot be the direct source of the Arabic vowel names. On the other hand, it would not be surprising if some of the earliest vowel descriptions in the Syriac, Arabic, and Hebrew traditions were all independently derived based on mouth movement. For example, *p̄te* ‘wide’ and *qatt̄in* ‘narrow’ in Syriac, *fath̄* ‘opening’ and *ḍamm* ‘contracting’ in Arabic, and *p̄th̄* ‘opening’ and *qm̄ṣ̄* ‘closing’ in Hebrew.

Versteegh’s treatment of *zq̄ṣ̄* and *rb̄ṣ̄* is more problematic. He attempts to explain their relationship to Arabic, writing:

The other phonetic concept that can be reconstructed from the terminology is that of the progressive lowering (of the tongue?) towards the front of the mouth. According to Revell (1975:181), sounds at the back of the mouth are regarded by the Syriac grammarians as high, those at the

front as low. Thus, the grammarians used the terms *zqāphā* ‘raising’ and *rbāšā* ‘lowering’ for *ā* and *ē*, respectively.⁶ These vowels were indicated by a supralinear dot (*ā*) and a sublinear dot (*ē*), corresponding to their relative height. It is obvious that the position of the vowel dot in the Abu al-Aswad story⁷ is in accordance with this Syriac practice. It is equally obvious that the Arabic terms *naṣb* and *khafḍ*, as well as *rafʿ*, may be interpreted lexically in the same sense as the Syriac terms. (Versteegh 1993, 30)

Versteegh accepts Revell’s idea that Syriac grammarians perceived sounds at the back of the mouth as ‘high’. This concept of phonetic ‘height’ is likely a natural development from the earlier Syriac context, which created terms from *men lʿal* and *men ltaḥt*. Versteegh and Revell, however, assume that the principle of ‘high’ and ‘low’ vowel sounds entered the Arabic tradition along with calques of *zqāphā* and *rbāšā*; that is, *naṣb* and *khafḍ*. This conclusion is untenable on both chronological and linguistic grounds. The root *zqp* in the context of vowel phonology is not attested in any Syriac source before a commentary written by Ḥunayn ibn Isḥāq (d. 873), a century after *naṣb* appeared in al-Kalbī’s *tafsīr* (Hoffmann 1880, 10, ln. 13; 14, lns. 21–23). The

⁶ I have left Versteegh’s spelling of *zqāphā* and *rbāšā*, as well as his use of *ā* and *ē* with macrons to transcribe the ‘long’ Syriac vowels, which is the traditional system for writing Syriac in Latin script. However, strictly speaking, the Syriac terms themselves do not indicate vowel quantity, and when the medieval sources say *zqāphā* they almost invariably mean a vowel with the quality /ɔ/ as distinct from /a/.

⁷ This refers to ‘Abu al-ʿAswad al-Duʿalī, who supposedly invented the Arabic red-dot vowel system in the late seventh century.

earliest source I know of with *rbṣ* in a similar context is Elias of Ṣoba's eleventh-century grammar, again, well after al-Kalbī (Gottheil 1887, 7–8). That said, while the Syriac terms *zqṣṣ* and *rbṣṣ* cannot be the source of Arabic *naṣb* and *khafḍ*, respectively, Arabic grammarians did incorporate some height-based principles into their explanations of vocalisation.

3.2. Early Vowel Phonology in the Arabic Tradition

After completing the list of the twenty-nine Arabic letters in his grammar (the *Kitāb*), Sibawayh (d. 793 or 796) says that there are actually thirty-five letters,⁸ some of which branch off of the others. Two of these additional letters are “the *ʿalif* which is tilted with great *ʿimāla*” and “the *ʿalif* of *tafkhīm*” (Harun 1982, IV:432: *ألف التفخيم* and *ألف التي تُمال إمالة شديدة*). Here *ʿimāla* ‘inclination, bending down’ indicates the shift of an *ʿalif* towards /i/, such that the resulting sound is not /a/, but /ɛ/ or /æ/. Its opposite is *tafkhīm* ‘magnifying, thickening’, which indicates the shift of /a/ towards /ɔ/.⁹ This term may be related to the principle that Jacob of Edessa illustrated with his classification of /ɔ/ as a *ḥe* ‘thick’ vowel.¹⁰ But beyond this similarity, Rafael Talmon points out that Sibawayh uses another term specifically to indicate an *ʿalif* that does *not* undergo *ʿimāla*: *naṣb* (Talmon 1996, 291; 2003, 239).

⁸ He ultimately concedes that there are forty-two, but this is not relevant to the present discussion.

⁹ An example of *ʿimāla* is the shift towards /i/ that happens to *tāʾ marbūṭa* in certain Arabic dialects. The first vowel in *ṭālib* is an example of *tafkhīm*.

¹⁰ *Tafkhīm* is also known as *taḡhliz* ‘thickening, becoming coarse’.

Apparently, at some very early stage, *naṣb* and *ʾimāla* were contrastive terms that distinguished the allophonic variants of *ʾalif*.

The use of *naṣb* and *ʾimāla* to describe *ʾalif* probably began well before Sībawayh wrote the *Kitāb*, perhaps even before any Arabic vowels had absolute names. The main evidence for this conclusion comes from the first chapter of the *Kitāb*, where Sībawayh presents a systematic usage for the Arabic vowel names *fath*, *kasr*, and *ḍamm* as distinct from the case names *naṣb*, *jarr*, and *rafʿ*. Prior to his time, all of these terms could indicate both vowels and cases, as seen in the work of al-Kālbi (Versteegh 1993, 125). Sībawayh was the first person to separate the two sets (Talmon 2003, 283),¹¹ relegating *fath*, *kasr*, and *ḍamm* to the status of phonological descriptors, whereas the so-called *ʾiʿrābī* ‘declensional’ terms were reserved for vowels with grammatical import. Sībawayh’s use of *naṣb* to indicate the quality of *ʾalif* is thus anomalous: according to his own instructions, it is a declensional term, and not a word for describing internal vowels. This inconsistency suggests that the duality of *ʾimāla* and *naṣb* was fixed in the Arabic tradition long before Sībawayh isolated *naṣb* as the name for the accusative case, and he is merely transmitting this early convention when he uses *naṣb* to describe an allophone of *ʾalif* (see Harun 1982, IV:125–26, 143, for this contrastive use of *ʾimāla* and *naṣb*).

Sībawayh includes one other variant of *ʾalif* in his discussion of *naṣb* and *ʾimāla*. He first states that there are seven letters

¹¹ Talmon suspects that al-Khalīl may have created the distinction near the end of his life, just before Sībawayh wrote the *Kitāb*.

which prevent *ʾimāla* when they precede *ʾalif*: *ṣād*, *dād*, *ṭāʾ*, *ẓāʾ*, *ghayn*, *qāf*, and *khāʾ*, and then explains:

وإنما منعت هذه الحروف الإمالة لأنها حروف مستعلية الى الحنك الأعلى،
والألفُ إذا خرجت من موضعها استعلت الى الحنك الأعلى، فلما كانت مع هذه
الحروف المستعلية غلبت عليها، كما غلبت الكسرة عليها في مساجد ونحوها.
فلما كانت الحروف مستعليةً وكانت الألف تستعلي، وقربت من الألف، كان
العَمَلُ من وجه واحد أخفّ عليهم...

You abstain from *ʾimāla* for these letters because they are letters which are elevated towards the top of the palate, and if the *ʾalif* is pronounced from their point of articulation, it goes up towards the top of the palate. Thus, when [the *ʾalif*] is with these elevated letters, they overpower it, just as the *kasra* overpowers it in *masājid*¹² and other variations [that have *ʾimāla*]. So when the letters are elevated, and the *ʾalif* goes upwards, and [the letters] draw near to it, then the articulation is in a single manner, which is less burdensome for them. (Harun 1982, IV:129)

This passage describes the production of a backed *a*-vowel that, like *ʾimāla*, only occurs in specific phonological contexts. In this case, that context is immediately after a velar or emphatic consonant, and the vowel itself requires shifting the articulation of /a/ back towards the soft palate, approximating /ɑ/ or /ɔ/. Given that Sībawayh highlights the parallel between this vowel and *ʾimāla*, one might expect him to call it *ʾalif al-tafkhīm*, as he does in his description of the alphabet; but he does not. In fact, the term *tafkhīm* does not appear anywhere in this or any other of the *Kitāb*'s chapters on *ʾimāla*. Instead, this backed version of

¹² Or *masājid*, as it happens.

ʾalif is included along with just one of many irregular situations that affect the normal ʾimāla rules. If Sībawayh is indeed transmitting an earlier phonological tradition that contrasted *naṣb* and ʾimāla, then perhaps that tradition did not have terminology to distinguish /a/ from /ɔ/, and instead referred to both as *naṣb*—that is, ‘not ʾimāla.’ As such, *naṣb* and ʾimāla were effectively relative vowel terms, each indicating a particular allophone as either relatively fronted (ʾimāla—/ɛ/, /æ/) or relatively backed (*naṣb*—/a/, /ɑ/, /ɔ/). This usage of *naṣb* (standing upright) and ʾimāla (bending down) thus conforms to the two-way relative descriptions of vowels in the early Syriac and Hebrew traditions, paralleling the association of ‘high’ with backness and ‘low’ with frontedness.

The term *naṣb* must have become associated with the specific quality of an unaltered ʾalif—/a/—prior to al-Kalbī’s time. Then, by analogy with *naṣb* and according to the understanding of back vowels as ‘higher’, *rafʿ* ‘rising’ and *khafḍ* ‘lowering’ were linked to /u/ and /i/, respectively. Throughout this process, *naṣb* retained its now-secondary use as the opposite of ʾimāla, as evidenced by Sībawayh’s *Kitāb*, and, by extension, it retained some function as a way to denote /a/ in certain contexts. It seems then that *naṣb* is the likely source of Syriac *zqp* ‘standing upright’ as a descriptor of /ɔ/, first seen in Ḥunayn ibn Ishāq’s commentary, mentioned above. Syriac grammarians had a concept of ‘openness’ in their vowel phonology as early as Jacob of Edessa, so when they began naming their vowels, *pɔtaḥ*—later, *pɔḥɔ*—was

the obvious term for /a/.¹³ Then when ninth-century Syrians needed a way to describe their *secondary a*-vowel, /ɔ/, they looked to their Arabic contemporaries, and calqued the second term which they used to distinguish *a*-vowels (i.e., *naṣb*). The results were *zɔqeḫ̄* and *zqiḫ̄*, which became *zqɔḫ̄* ‘standing upright’ by the eleventh century.

This process also fits Versteegh’s expected development of the vowel term *rbɔṣɔ*, which, in direct contrast to *zqɔḫ̄*, he suggests can mean ‘lowering’. As such, one could conclude that when Syriac grammarians needed a term for their secondary *i*-vowel, /e/, they calqued the second Arabic term for *i*-vowels, *khafd* ‘lowering’. The Syriac root *rbṣ*, however, does not exactly mean ‘lowering’ or ‘depressing’ as a physical motion, but rather refers to ‘compression’, and the vowel name *rbɔṣɔ* probably derives from the articulation of /e/ with relatively compressed lips in comparison to more-open vowels. Neither is it attested as a vowel descriptor in Syriac before grammars of the eleventh century, which complicates this reconstruction of the term’s origin. Furthermore, these later sources—particularly Elias of Tirhan’s grammar—may also have incorporated an Arabic tripartite division of vowels into the older Syriac relative vowel system, further distorting the picture.

¹³ The earliest explicit use of this root for a Syriac vowel is in Ḥunayn ibn Ishāq’s commentary, but a more implicit usage appears in the work of David bar Paul (d. c. 800; see Gottheil 1893, cxii, ln. 6–cxiii, ln. 3).

3.3. Reinterpretation of Vowel Phonology in the Arabic Grammatical Tradition

According to Versteegh and Revell's argument, when Arabic grammarians adapted the Syriac vowel dots for Arabic, they also calqued their vowel terms, using a Syriac theory of 'height' that was linked to phonetic backness. As discussed above, there is no terminology in the early Syriac tradition that supports the idea that the Arabic case names are calques of Syriac terms, but the Arabic vowel names are certainly related to some phonological conception that relates backness to height. Arabic grammarians, however, reinterpreted this earliest vowel phonology, and instead explained non-consonantal phonemes based on physical motion, specifically associating them with the movement of air-flow during articulation.

In contrast to the idea of height-as-backness, Ilan Eldar proposes that medieval Arabic grammarians understood vowel phonology as effects on air. Taking into account how *raf^c* 'rising' usually indicates a high position, whereas *našb* describes something which is set upright (Eldar 1983, 45), he argues that *našb*, *raf^c*, and *khaf^d* 'lowering' were interpreted in terms of the direction of airflow during vowel articulation. He focuses on the relationship between Arabic case names and Hebrew vowel phonology (see below), but for now it is sufficient to explain his theory with respect to Arabic. In short, /a/ is called *našb* because when one articulates it, the flow of air proceeds straight ahead, unimpeded; it is thus 'fixed in place' or 'standing upright'. By contrast, when articulating /u/, the airstream moves upwards; it is *raf^c*. Then for

/i/, the air tilts downwards, making it *khafḍ*.¹⁴ Eldar points out that Sībawayh (d. 796) emphasises the relationship between vowel sounds and air (Eldar 1983, 48). In his description of the alphabet in the *Kitāb*, Sībawayh writes:

ومنها الينّة وهي الواو والياء لأنّ مُخْرَجَهُمَا يَتَّسِعُ لهوَاءِ الصّوت أَشَدَّ من اتّساع
غيرهما كقولك وأيّّ والواو وان شئت أُجريت الصّوت ومددت
ومنها الهاوي وهو حرفٌ اتّسع لهوَاءِ الصّوتِ مُخْرَجُهُ أَشَدَّ من اتّساع مُخْرَجِ الياء
والواو لأنك قد تضمّ شفّتيك في الواو وترفع في الياء لسانك قبل الحنك وهي
الألف
وهذه الثلاثة أخفى الحروف لاتّساع مُخْرَجِهَا وأخفاهنّ وأوسعهنّ مُخْرَجاً الألف
ثم الياء ثم الواو

Among [the letters] are the *layyina* [‘soft, flexible’], which are *wāw* and *yā*², because their articulation is widened for the air of the sound, more than the widening of other [letters] besides them, as you say: *wa* ^ʿ*ayy*^{um} and *al-wāw*, and if you want, you can make the sound occur with lengthening.

[Also] among them is the *hāwī* [‘airy, breathy’], which is a letter whose articulation is widened for the air of the sound even more than the widening of the articulation of *yā*² and *wāw*—because you press your lips together for *wāw*, and you raise your tongue in front of the palate for *yā*²—and it is ^ʿ*alif*.

¹⁴ The easiest way to visualise this concept is to hold your palm up about an inch in front of your mouth, with your hand perpendicular to the floor. Then pronounce /u/, /a/, and /i/. You will feel the air strike your hand in progressively lower places.

These three are the subtlest of the letters due to their articulations' widening, and the subtlest and widest of them is *'alif*, then *yā'*, then *wāw*. (Harun 1982, 435–36)

Sibawayh distinguishes the three Arabic *matres lectionis* according to their effects on air during speech. *Wāw* and *yā'* are different from *'alif* specifically because their articulation requires some obstruction of airflow, either by the lips or the tongue, whereas *'alif* is a pure *hāwī* 'airy, breathy' letter. He arranges them in order of 'wideness', which seems to relate to the amount of airflow allowed by each letter, and corresponds to the relative openness of the vowels.

The introduction of *Kitāb al-ʿAyn* also stresses the effect on air when discussing the *matres lectionis*. Convention attributes this text to al-Khalīl ibn Aḥmad al-Farāhīdī (d. 786 or 791), an early scholar of prosody and one of Sibawayh's teachers. In reality, most of the text was compiled after his death, probably by another student, al-Layth ibn al-Muzāffar (d. c. 803). Despite this, the book's arrangement and parts of the introduction are probably original to al-Khalīl, and in any case the material in the introduction is quite old (Sellheim 2012a; 2012b). In its preliminary discussion on the letters of the alphabet, the text reads:

قال الليث: قال الخليل:

في العربية تسعة وعشرون حرفاً: منها خمسة وعشرون حرفاً صحاحاً لها [أحياز]¹⁵
ومدارج، وأربعة أحرف جوف، وهي الواو والياء والألف اللينة والهمزة وسمّيت

¹⁵ The Makhzūmī edition has أحياناً 'sometimes', though possibly 'occasions' here, but based on the following lines it should probably be أحياز 'spaces'.

جَوْفًا لَأَنَّهَا تَخْرُجُ مِنَ الْجَوْفِ فَلَا تَقَعُ فِي مَدْرَجَةِ مِنَ مَدَارِجِ اللِّسَانِ، وَلَا مِنْ مَدَارِجِ الْحَلْقِ، وَلَا مِنْ مَدْرَجِ اللِّهَاءِ، إِنَّمَا هِيَ هَاوِيَةٌ فِي الْهَوَاءِ فَلَمْ يَكُنْ لَهَا حَيْزٌ تُنْسَبُ إِلَيْهِ إِلَّا الْجَوْفَ. وَكَانَ يَقُولُ كَثِيرًا: الْأَلْفُ اللَّيْنَةُ وَالْوَاوُ وَالْيَاءُ هَوَائِيَةٌ أَيُّ أَنَّهَا فِي الْهَوَاءِ

Al-Layth said: Al-Khalīl said:

‘In Arabic there are twenty-nine letters. Among them are twenty-five sound letters which have spaces and steps, and four letters of the [oral] cavity, which are the soft *wāw*, *yāʾ*, and *ʾalif*, as well as the *hamza*. They are called *jawf* because they exit from the cavity, but do not occur at one of the steps of the tongue, or the steps of the throat, or the step of the palate. Instead, they are airy, in the air, for they do not have a space to attach to besides the cavity. He [al-Khalīl] frequently used to say: the soft *ʾalif*, the *wāw*, and the *yāʾ* are airy, that is, they are in the air.’ (Makhzūmī 1985, 57)

The so-called *ṣiḥāḥ* ‘strong, firm’ letters contrast with the *layyina* ‘soft, flexible’ *ʾalif*, *wāw*, and *yāʾ*. The primary difference between them is that the former letters connect to specific points within the mouth, whereas the latter exist entirely as an effect in the air. Sibawayh cites al-Khalīl in his *Kitāb* more than any other source, but notably does not use al-Khalīl’s phonetic terminology in his chapters on phonology (Versteegh 1993, 16); and yet here *Kitāb al-ʿAyn* agree. These early Arabic grammarians understood vowels differently from consonantal phonemes, associating them not with any particular ‘back’ or ‘front’ locations in the mouth, but rather describing them based on airflow during articulation. The *matres lectionis*, then, are called *layyina* because they alone among the letters incline as streams of air.

These two early sources thus support Eldar's argument that Arabic vowel terminology was created based on airflow, or at least that it was interpreted that way by later scholars. Eldar cites a key passage from Ibn Sīnā's (d. 1037) *Risāla fī 'Asbāb Hudūth al-Hurūf* (Eldar 1983, 46–47; the English translation is my own):

وأما الألف المصوّتة وأختها الفتحة فأظن أن مُخْرِجَهَا مع اطلاق الهواء سلساً غير
مزاحم
والواو المصوتة وأختها الضمة فأظن أن مخرجها مع اطلاق الهواء مع ادنى تضيق
للمَخْرَج وميل به سلس الى فوق
والياء المصوتة وأختها الكسرة فأظن أن مُخْرِجَهَا من اطلاق الهواء من ادنى تضيق
للمَخْرَج وميل به سلس الى أسفل

As for the sounding *ʿalif* and its sister, *fatha*, I believe its articulation is with the loosing of air smoothly, without obstructions.

For the sounding *wāw* and its sister, *ḍamma*, I believe its articulation is with the loosing of air and a little contracting of the articulation point,¹⁶ while inclining smoothly upwards at it.

For the sounding *yāʾ* and its sister, *kasra*, I believe its articulation is from the loosing of air and a little contracting of the articulation point, while inclining smoothly downwards at it.

It seems that Ibn Sīnā reached the same conclusion as Eldar, attributing a unique direction of airflow to each of the Arabic vowels, quite likely based on the names of case vowels (*rafʿ*, *naṣb*,

¹⁶ This point is probably the lips, though it could refer to the whole oral cavity. Likewise for *yāʾ* in the next line.

khafd; ‘rising’, ‘standing upright’, ‘lowering’, respectively). This passage fully illustrates the tripartite division of Arabic vowels according to airflow, but Eldar does not discuss the full significance of Ibn Sīnā’s word choice. The root *myl* ‘inclining’ used here is the same as that of the term *ʾimāla*, which suggests that, at least for Ibn Sīnā, even the allophonic variants of *ʾalif* could be explained as tilting streams of airflow. This conception of vowel phonology must have been current, at least in some circles of Arabic grammarians, by the early eleventh century, and it also appears in Syriac and Hebrew grammatical texts at roughly the same time.

4.0. TWO EXAMPLES OF SYNCRETISATION IN PHONOLOGICAL SYSTEMS OF THE TENTH AND ELEVENTH CENTURIES

4.1. Elias of Tirhan’s Syriac Grammar

As the Arabic language and its grammatical tradition became dominant across the Middle East, Syriac and Hebrew grammarians adapted elements of the Arabic tripartite division of vowels to fit their older relative systems. Perhaps no author is more emblematic of this development than Elias of Tirhan (d. 1049), who wrote a Syriac grammar specifically for an Arabic-speaking audience in the first half of the eleventh century. In his chapter on vowel pointing, Elias groups the vowels by association with the *matres lectionis*; three for *ʾalaḗ*: *zqṗṗṗ* /ɔ/, *ptṗḥṗ* /a/, and *rhṗṗṗ* or

sheshlb /e/;¹⁷ two for *waw*: *hb̄oṣo* /u/ and *massaqo* or *rwahto* /o/; and one simply called *yod* /i/ (Baethgen 1880, 𐤨, Ins. 15–18). Besides the terms which he presents in this chapter, Elias describes vowels a few other ways throughout the text, including: *hb̄oṣo* (Baethgen 1880, 𐤨, Ins. 16–21), *hb̄iṣto* (Baethgen 1880, 𐤨, Ins. 1–5) for /u/; and two versions of *waw*, which he calls *meth̄baṣo* ‘contracted’ and *met̄rwaḥo* ‘widened’ (Baethgen 1880, 𐤨, Ins. 19–21).

At work here is the old Syriac tradition of ‘wide-and-narrow’ vowels: /u/ requires contraction of the mouth, and is thus *meth̄baṣo*. Its ‘widened’ counterpart is then /o/, which is *met̄rwaḥo*. *Hb̄oṣo* ‘contracting’ and *rwahto* ‘widening’ are likewise Elias’s names for /u/ and /o/. All of these terms describe mouth movement and depend on the principle of two-way contrastive vowels laid out by Jacob of Edessa. This idea explains how roots like *hb̄ṣ* can refer to an *u*-vowel here, but other authors use it to mean an *i*-vowel:¹⁸ it has meaning only in comparison to other vowels.

There are also indications of Arabic influence here. Most prominent is *massaqo*¹⁹ ‘raised up’, which stands out as a C-stem

¹⁷ Elias of Tirhan apparently worked from a tradition in which an older term for /e/ (*sheshlb*) had become interchangeable with *rb̄oṣo* (see Baethgen 1880, 𐤨, In. 21–𐤨, In. 5).

¹⁸ Notably, the grammars of Elias of Ṣoba (d. 1046) and Bar Hebraeus (d. 1286), as well as the modern names used for Syriac vowels (see Segal 1953, 152–53).

¹⁹ The root is *slq*.

4.2. Saadya Gaon's Hebrew Grammar

Vowel phonology in the Hebrew tradition underwent a similar development in the post-Sībawayh era, with elements of the earlier relative system combining with an airflow theory by the eleventh century. At the centre of this process was Saadya Gaon's (d. 942) 'vowel scale', which he recorded in the fifth chapter of his grammar, *Kutub al-Lugha*. In this chapter, titled *Al-Qawl fī al-Nagham* 'Discourse on Vocal Melody', he lists the Hebrew *ʿirāb* 'vowels' from high to low: *ḥolem* /o/, *qomeš* /ɔ/, *pataḥ* (or *p/fatḥa*) /a/, *segol* /ɛ/, *šere* /e/, *ḥiriq* /i/, and *shureq* /u/ (Skoss 1952, 285).²⁰ This scale is a fully-articulated version of the *mille'el* and *millera'* comparisons of earlier masoretic homograph lists. It is also precisely what would be expected if a Syriac phonologist undertook the same exercise, ranking the vowels from high to low (perhaps *men l'al* to *men ltaḥt*?) according to backness. The one exception is /u/, which Saadya seems to remove from the scale in order to support a morphological principle for which he argues later on (see Skoss 1952, 316).

Saadya confirms that his organisation of vowels is based on backness, saying:

ואמא שרח אלבאב אלתאלת אלדי הו מערפה אמאכנהא פי אלפם
 ומראתבהא פאנא נקול אדא אכתאר אן יפצל נגמתה פי אול מוצע
 ימכנה קטעהא פיה בעד תרקיתהא מן אלחלק פאנה יטהר חנינד
 אלחלם וקותה סאלכה אמאמה גיר חאידיה אלי פוק ולא אלי אספל

²⁰The text is unpointed, so it is difficult to know the exact vowel names. I have used somewhat-modern spellings, but it is not at all clear that this is how Saadya pronounced these names.

ואן שא אן יתגאזז בהא הדא אלמוצע תם יפצלהא טהרת קוה
אלקמץ וכאנת חרכתה אלי אעלי אלחנד כאצה

As for the explanation of the third chapter, which is the knowledge of the places in the mouth, and their levels, we say: if one chose to interrupt their vocal melody at the first point where it could be cut off after its ascension from the throat; then *holem* would emerge, with [the *holem*]'s force proceeding ahead of [that point], not turning upwards or downwards. But if one wanted to take [the vocalic melody] past this point and then interrupt it, the force of *qomeš* would appear, and its movement would be specifically towards the top of the palate. (Skoss 1952, 292, lns. 7–13)

He proceeds in this manner for the rest of the vowels, saying for each one that you *tajāwaz* ‘pass’ the *mawḏi* ‘articulation point’ of the previous vowel. But beyond showing how Saadya arranges vowels according to backness, this passage reveals the degree to which he is familiar with the Arabic grammatical tradition. His explanation of /ɔ/ (i.e., *qomeš*) is the same as Sībawayh’s, and his progression through the *mawāḏi* ‘articulation points’ and *marātib* ‘levels’ of the vowels mimics the language that both Sībawayh and al-Khalīl use in their classifications of consonants (Harun 1982, IV:431–36; Makhzumi 1985, 52–57). Additionally, his explanation of the *quwwa* ‘force’ of each vowel is reminiscent of Arabic descriptions of airflow, focusing on the *ḥaraka* ‘movement’ *ilā fawq* ‘upwards’ or *ilā ’asfal* ‘downwards’. At the same time, Saadya modifies this principle, stating explicitly that /o/ is the *ghayr ḥā’ida* ‘unwavering’ vowel, in contrast to Ibn Sinā’s understanding that /a/ was the vowel that does not tilt up or down (i.e., *našb*).

Many of Saadya's vowel names seem to be novel, with only the Aramaic *qomeš* and *pataḥ* attested in the Hebrew tradition prior to this text. *Segol* 'a cluster of grapes' is likely derived from the name of the Hebrew accent sign with the same form, but the other four may be Saadya's own tenth-century Hebraisms, all based on mouth movement.²¹ However, these innovations did not immediately catch on, and until at least the eleventh century, grammarians continued referring to /o/, /u/, /e/, and /i/ by either phonetic transcription or the number of dots in each sign (Khan 2000, 24; Steiner 2005, 377–78; Dotan 2007, 633). In fact, rather than accepting Saadya's scale as fully authoritative, his successors modified it to better align it with Arabic phonology.

Sometime in the eleventh century, an anonymous Hebrew grammarian took the Arabic concept of tripartite airflow and merged it with Saadya's vowel scale in an abridged version of *Al-Qawl fī al-Naḡham* that is partially extant (Eldar 1981, 105–18). Titled *Kitāb Naḡw al-ʿIbrānī* 'The Book of Hebrew Inflection', the abridgement maintains a scale arranged by phonetic backness, but also divides the vowels into three groups: *al-rafʿ* (/o/ and /u/), *al-khafḍ* (/e/ and /i/), and *al-naṣb* (/ɔ/, /a/, and /ɛ/). Unlike in Saadya's version, the abridger does not use any of the 'modern' vowel names besides *qomeš* (/ɔ/) and *pataḥ* (/a/), albeit in the Arabicised forms *al-qamša* and *al-faṭḥa*. Instead, the author refers to /o/, /u/, /e/, and /i/ by spelling them phonetically, and also calls /i/ and /ɛ/ "the one dot" and "the three dots," respectively. It places vowels on a scale by ranking their status in the

²¹ Consider *ḥlm* 'closing firmly'; *šry* 'rift, split, tear'; *ḥrq* 'gnashing the teeth'; *šhrq* 'whistling'.

three groups: /o/ is the greater *rafʿ*, /ɔ/ the greater *naṣb*, /a/ the middle *naṣb*, /ɛ/ the lesser *naṣb*, /e/ the lesser *khafḍ*, and /i/ the greater *khafḍ*.

The author also follows the original text in removing /u/ from the scale, although the fragment breaks off before explaining the reason behind this choice. Presumably, /u/ was the ‘lesser *rafʿ*’, as that classification would correspond to the Arabic notion that /u/ emits an upward stream of air, while also following Saadya’s original scale and being phonetically ‘lower’ than /o/. As another example of the same principles: calling /e/ the ‘lesser *khafḍ*’ indicates that one should pronounce the vowel with a downward inclination of air, but not quite as inclined as the ‘greater *khafḍ*’ (/i/). Then the location—fifth from the top of the scale—designates the lesser *khafḍ* as the fifth-most-backed of the vowels. This syncretic Arabic-and-Saadyan scale thus classifies every vowel according to both its effect on airflow and relative amount of backing, combining principles from both the Arabic and Masoretic phonological traditions.

5.0. CONCLUSION

The development of Syriac, Arabic, and Hebrew phonological thought as it relates to vocalisation had significant inter-linguistic overlap during the medieval period. Early Syriac and masoretic sources show that both traditions perceived vowel phonology according to a relative system. This system distinguished homographs by the comparative ‘openness’ of their vocalisation and, at least in the Syriac tradition, it used dots above or below a word to indicate its vowels. Then, over time, terms like *milleʿel*

and *millera*^c developed out of the perceived connection between dot position and vowel quality, and phonetic backness came to be associated with ‘height’.

The Arabic grammatical tradition emerged in this relative context, and although the early uses of *naṣb* ‘standing upright’ and *ʾimāla* ‘bending down’ reflect height-based principles similar to those of the Syrians and Masoretes, later Arabic grammarians interpreted their vowel names as designations of the direction of airflow when articulating vowels. Before the late eighth century, one of these terms—*naṣb* ‘standing up’—had an extended usage that helped distinguish allophones of *ʾalif*, including a back vowel between /a/ and /ɔ/. It is likely that the Syriac name for /ɔ/, *zqɔ̄pɔ* ‘standing up’, is a calque of this term. Other Syriac vowel names may also be Arabic calques, but it is difficult to tell due to the syncretisation of phonological systems that happened in the tenth and eleventh centuries.

Elias of Tirhan’s eleventh-century Syriac grammar exhibits this syncretic phenomenon, as he incorporates some of the Arabic tripartite division of airflow with the old Syriac system of ‘wide-and-narrow’ vowels. Saadya Gaon’s tenth-century Hebrew grammar also demonstrates this phonological blending, as his vowel scale combines the masoretic hierarchy of vowels with the Arabic emphasis on airflow.

This discussion is by no means an exhaustive account of all the connections between medieval Semitic vocalisation traditions, but rather it shows that it is possible to discern such links

by comparing the phonological theories that authors used to describe their own languages. There is much more work to be done in order to connect the dots.

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DISCORD BETWEEN THE TIBERIAN WRITTEN AND READING TRADITIONS: TWO CASE STUDIES

Aaron D. Hornkohl

1.0. INTRODUCTION

Like preceding *Biblia Hebraica* editions, the forthcoming *Hebrew Bible: A Critical Edition* (formerly provisionally entitled *The Oxford Hebrew Bible*) will have as its base text the Firkovich B19 A Leningrad Codex (= L). Defending this approach, chief editor Ronald Hendel (2016, 31–32) explains:

The copy-text will be L, our oldest complete manuscript of the Hebrew Bible. Since the accidentals of vocalization and accentuation in L are the product of medieval scribes, our critical text is open to the complaint of anachronism. This complaint is technically correct.... [B]iblical scholars already know that the consonantal text is older than the medieval vocalization system.... [However,] ...the phonology of the Tiberian vocalization system is not wholly or even mostly anachronistic.... Scholars have demonstrated that most of the phonetic features of this system accurately represent a reading tradition from the Second Temple period, and many of its features stem from the First Temple period.

In biblical and Hebrew language studies, one encounters seemingly incongruous views on the historical status of the Tiberian reading tradition, i.e., the specific oral realisation of the biblical text as prescribed by the Masoretic vocalisation (and accentuation). On the one hand, in the case of a small minority of certain well-known features, the vocalisation diverges from the phonetic realisations implied by the consonantal text. In most such cases the reading tradition is correctly characterised as reflecting comparatively late, secondary phonology.¹ On the other hand, as Hendel notes, many authorities past and present have emphasised the antiquity of the testimony embodied in the medieval vocalisation.²

This article plumbs the historical depths of the Tiberian reading tradition. The ‘depth’ analogy usefully comprehends two aspects of the tradition: first, its antiquity (how far back it

¹ One of the best-known and oft-described examples is the shift from *qal* internal passive to alternative forms via reanalysis as *pu^cal* or *hof^cal* or revocalisation as *nif^cal*; for a recent discussion and up-to-date bibliography see Reymond (2016, 1135, nn. 5–8). Hughes (1994) collects a number of further phenomena, as do the studies listed below, n. 2. Incidentally, while the issue is not treated here, it bears mentioning that the so-called consonantal text is not, in fact, purely consonantal. While it is legitimate to suppose that the earlier portions of the Hebrew Bible were composed in a more purely consonantal orthography, it seems that they were later subjected to a revision involving the insertion of *matres lectionis* in line with the Second Temple orthographical conventions employed in the composition of LBH texts.

² Examples of nuanced presentations include those found of Barr (1968, 188–222; 1981, 27, 35–36; 1984, esp. 31); Morag (1974); Khan (2013a, 46–51); Joosten (2015). See also Tov (2012, 46–47).

reaches); second, its composite nature (its various constituent layers). Rarely are the two perspectives given the balanced and nuanced consideration that each deserves in exegetical, textual, literary, and even linguistic studies. All too often the Tiberian tradition's admittedly complex textual and linguistic testimony goes undervalued and oversimplified. This frequently leads to extremes that mar studies of various types. In linguistic research, for example, the combined consonantal-vocalic text is sometimes approached uncritically, as an organic unity, its degree of linguistic heterogeneity underrepresented or entirely unacknowledged. At the other extreme are scholars who wholly discount the historical testimony of the pronunciation tradition embodied in the vocalisation, despite furnishing little to no justification for their scepticism.

In focus here are two features in the Tiberian reading tradition whose vocalisation differs from that implied in the written tradition: (a) the *qal* construct infinitive and (b) the 3ms suffix that attaches to plural nouns and some prepositions. It is here argued that the Tiberian phonetic realisation, i.e., vocalisation, in the two cases both differs from that presupposed by the consonantal framework and is secondary thereto. However, far from being artificial and post-biblical, evidence is marshalled below to demonstrate that the realisations of the pronunciation tradition in both cases are organic and relatively ancient, products not of Byzantine or medieval times, but of the Second Temple Period, if not earlier.

2.0. THE QAL CONSTRUCT INFINITIVE

The ancient Hebrew construct infinitive evolved from Biblical Hebrew (BH) to Rabbinic Hebrew (RH) and within BH itself. Developments involved phonology, morphology, and syntax. The changes are especially perceptible in certain *qal* forms.

2.1. Differential Treatment of *Qal* II-*bgdkpt* Construct Infinitives with Prefixed ל־

In the Tiberian tradition, the phonetic realization of the *qal* II-*bgdkpt* construct infinitive varies depending on whether or not the form is preceded by a prefixed preposition and on the identity of the preposition. Blau (2010, 213–14) provides as clear an explanation as any:

The construct infinitive is frequently governed by prepositions, especially by ל. Originally this ל had a fully prepositional meaning, as, e.g., ‘in order to’ (e.g., וַיֵּרַד יְהוָה לְרֹאֵת, ‘and the Lord came down to see the town’ Gen 11:5); later the ל became a part of the infinitive, as happened also in French and English. This is reflected both by the form and by the syntactic usage of the preposition. Formally, the ל became integrated into the infinitive. In some forms of the *qal* infinitive, the ל appears to be in close internal juncture: the *šwa* that begins the infinitive behaves as a genuine quiescent *šwa*, and subsequent ה, פ, ב, ד, ג, כ letters are vocalized as stops, e.g., לִנְפֹל ‘to fall’, as opposed to simple נָפַל and כִּנְפֹל/בִּנְפֹל ‘when falling’. In Rabbinic Hebrew the univerbalization of the infinitive with ל is even more progressed: the ל is always attached to the infinitive, even after other prepositions, and the infinitive is totally

remodelled after the prefix-tense (as in מִלְתֵּן ‘from giving’, formed after יָתַן, in contrast to biblical מִתַּת). The special vocalization of the construct infinitive in Biblical Hebrew after לְ, corresponding to the vocalization of the prefix-tense (לְיִזְכֵּר ‘to remember’, matching יִזְכֵּר) is undoubtedly in the line of Rabbinic Hebrew (and may even reflect the impact of Rabbinic Hebrew on the Masoretes). At any rate, the quiescent *šwa* after לְ is certainly a late feature, as demonstrated by the very fact that in לְנָפַל the *n* is not assimilated to the following consonant, because, when this assimilation operated, the *šwa* was not yet quiescent.... Alternatively, we could regard the vocalization of the infinitive לְנָפַל as a late Mishnaic feature superimposed by the Masoretes on the biblical text, because the biblical text contained *n*, which had to be preserved because of the sanctity of the text.³

³ See also Blau (2010, 115):

The *qal* infinitives construct present a complex picture, since after the *lə* followed by *bgdkpt* the form has a quiescent *šwa*. Such forms as לְשָׁבַר ‘in order to break’ are due to morphological reshuffling on analogy to the prefix-tense יְשָׁבַר ‘he will break’) rather than to a genuine sound shift. The late date of this feature is indicated by forms like לְנָפַל ‘that I fall’ Ps 118:13; the *n* immediately preceding another consonant was not assimilated to it because at the time of the action of this shift the *n* was still followed by a mobile *šwa*. (Alternatively, one could suggest that this shift was still active, but that at the time of the vocalization of the biblical text its letters had already become hallowed and therefore the *n* of לְנָפַל could not be omitted...).

Recapitulating: the realisation of the second radical *p* is as the fricative allophone *f* in the bare infinitive נָפַל [na'fo:l] 'to fall' and when preceded by the prepositions -ב or -כ, e.g., בְּנָפַל [bin'fo:l] 'when falling' and כִּנְפַל [kin'fo:l] 'upon falling'. All these forms show the expected post-vocalic spirantisation of the *bgdkpt* consonant—this despite the fact that the preceding *shewa* in forms with clitic prepositions, at one time vocalic, had completely syn-copated to zero in the Tiberian tradition, as reflected in the most reliable medieval codices, such as L and Aleppo (= A).⁴ Conversely, in the case of the infinitive with prefixed -ל, the second-radical *bgdkpt* consonant usually has plosive realisation, e.g., לְנָפַל [lin'po:l] 'to fall'. The distinction illustrated here with נָפַל [na'fo:l] is the norm in Tiberian BH for *qal* II-*bgdkpt* construct infinitives, with very few exceptions.⁵

Since *bgdkpt* fricativisation is itself a secondary development in ancient Hebrew, it might be asked whether לְנָפַל [lin'po:l]

⁴ On the Tiberian realisation of *shewa* see Khan (2013b, 546; 2013c, 775; 2020, 305–20).

⁵ Exceptions with -ל and spirant II-*bgdkpt* are לָצַבַּע 'to serve' (Num. 4.23 [L]; 8.24 [L]); לָקַבַּב 'to go around' (Num. 21.4 [L]); לָפָגַע 'to harm' (1 Sam. 22.17 [L/A]); לָרַדְפָּךְ 'to pursue you' (1 Sam. 25.29 [L/A]); לְנָתוּשׁ וּלְנָתוּץ 'to uproot and demolish' (Jer. 1.10 [L/A]; 18.7 [L/A]; 31.28 [L/A missing]); לְשָׁדֵד 'to devastate' (Jer. 47.4 [L/A]); לְטָבוֹחַ 'to slaughter' (Jer. 11.19 [L/A]; 25.34 [L/A]; 51.40 [L/A]; Ps. 37.14 [L/A]); לְשָׁגוֹת 'to stray' (Prov. 19.27 [L/A]). Exceptions with -ב or -כ and plosive II-*bgdkpt* are rarer: בְּשֹׁכֵן 'while dwelling' (Gen. 35.22 [L/A missing]); כִּזְכֹּר 'upon remembering' (Jer. 17.2 [L/A]); בְּשֹׁפָךְ 'by piling up' (Ezek. 17.17 [L/A]). GKC (§45g) and Mishor (1993, 385–86) present slightly different lists.

simply preserves the original plosive *bgdkpt* consonant that spirantised in נָפַל [na'fo:l], בִּנְפַל [bin'fo:l], and כִּנְפַל [kin'fo:l]. But this explanation is problematic, because syllable-final *nun* normally assimilates in BH, especially in I-*n* forms.⁶ The expected form would thus be לִפְפוֹל* [lip'po:l], which, though absent from BH, does occur in RH. Blau's explanation is rather that the plosive *bgdkpt* realisation is due to analogy to the prefix-conjugation *yiqtol* form, whereby the prefix -לְ of the *qal* infinitive construct came to be treated like the *yiqtol* preformatives -אֶ, -תָּ, -יָ, and -נָ. However, whereas infinitival *liqtol* descends from a form with a vowel following the first radical, perhaps *IV-qutul*,⁷ *yiqtol* represents one that never had such a vowel, i.e., *yaqtul-u/-a/-∅*. Significantly, the patterning of infinitives on analogy to the *yiqtol* pattern, including the infinitive's integration of prefixed -לְ, is indeed typical of RH, especially in the case of weak verbs, though important exceptions to this tendency—notably III-*y* verbs, on the one

⁶ On the two major exceptional categories to this tendency, namely *n* preceding a guttural and forms of verbs III-*n*, see Blau (2010, 77).

⁷ Thus Fox (2003, 205). This form is not to be confused with the presumed antecedent of the *qal* absolute infinitive, **qatāl*. JM (§49a) posits underlying *qtul* with initial cluster, on which assumption a secondary epenthetic vowel is responsible for the fricativisation of the following *bgdkpt* radical.

hand,⁸ and historically stative and II/III-guttural, on the other⁹—serve as important counterexamples. See Table 1.

⁸ For example, the *bgdkpt* consonant in the second position of לָבֹוֹת [liy'bo:θ] 'to collect (payment)' may be plosive on analogy to יִקְטֹל יִקְטֹל [jiy'be:], but the ni- [-o:θ] ending was retained.

⁹ While the characteristic RH morphological similarity between prefix conjugation and construct infinitive must be considered a secondary re-patterning in the case of most weak verb classes, the situation is more complicated when it comes to historically stative and II/III-guttural verbs. It is widely held that in an early stage of Hebrew, i.e., pre-Rabbinic and pre-Tiberian, the *a* theme-vowel of stative and II/III-guttural prefix-conjugation forms also characterised the corresponding infinitive construct, i.e., (li)qVʔtal || yiqʔtal. Due to the pressure of analogical leveling, (li)qVʔtal infinitival forms came to have an *o* theme-vowel, leaving only a few Tiberian BH remnants in שָׁכַב [ʃa'xa:v] 'lie down' (Gen. 34.7 + 10x), מָוֹת [ga'va:ʕ] 'die' (Num. 20.3; but cf. pausal מָוֹת [lig'vo:aʕ; Num. 17.28]), and שָׁפַל [ʃa'fa:l] 'be low' (Prov. 16.19; Qoh. 12.4) (see Barth 1891, 106–7; Fox 2003, 216; JM, §49c). RH's marked proclivity for *liqʔtal* might be interpreted as a case of conservatism vis-à-vis Tiberian BH. However, it is instructive that the *o* theme-vowel is not at all uncommon in RH stative and II/III-guttural infinitives. Indeed, in the case of II/III-guttural verbs, the dominant orthography in RH is with *mater waw*, even if the corresponding prefix-conjugation form has *a* as theme-vowel. Given this situation, it would seem either that analogy to the RH prefix conjugation pattern led to a RH shift of *liqʔtol* to *liqʔtal*, which *coincidentally recreated* an ancient but obsolete dichotomy, or that this ancient moribund dichotomy was *sporadically preserved* thanks to casual identity with the results of the analogical repatterning described above. Cf. Kutscher's (1982, 38–39) notion of 'mirage forms'. See further n. 14.

Table 1: BH vs RH Construct Infinitives of Weak Verbs				
Verb Class (gizra)	<i>qatal</i> form	BH infinitive construct	<i>yiqtol</i> form	RH infinitive ¹⁰
I- ²	אָכַל 'eat'	לְאָכַל/לְאָכַל* (לְ)	יאַכַּל	לְאָכַל (ו)כַּל
	אָמַר 'say'	לְאָמַר/אָמַר	יאַמַּר	לְאָמַר
I-y <i>et sim.</i>	יָדַע 'know'	לְדַעַת/דַּעַת	יִדַּע	לְיִדַּע
	יָרַד 'descend'	לְרַדַּת/רַדַּת	יִרַד	לְיִרַד
	יָשַׁב 'sit, dwell'	לְשַׁבַּת/שַׁבַּת	יִשַׁב	לְיִשַׁב
	הָלַךְ 'go, walk'	לְלַכַּת/לָכַת	יִלַּךְ	לְיִלַּךְ
I-n <i>et sim.</i>	נָגַע 'touch, strike'	לְנַעַת/נַעַת/לְנַגַּע/נָגַע	יִנַּע	לְיִנַּע
	נָטַע 'plant'	לְטַעַת/נָטַעַת	יִטַּע	לְיִטַּע
	נָשָׂא 'bear, take'	לְשַׂאֵת/שַׂאֵת/נָשָׂא	יִשַׂא	לְיִשַׂא
	לָקַח 'take'	לְקַחַת/קַחַת	יִקַּח	לְיִקַּח
	נָטַל 'take, pour'	—	יִטַּל	לְיִטַּל
	נָשָׂךְ 'bite'	—	יִשַׂךְ/יִשְׂךְ	לְיִשַׂךְ
	נָגַף 'strike'	לְנָגַף	יִגַּף	לְיִגַּף
Stative & II/III-guttural	יָשַׁן 'sleep'	לְיִשְׁוֹן	יִישְׁוֹן	לְיִישְׁוֹן
	לָבַשׁ 'wear'	לְלָבַשׁ	יִלָּבַשׁ	לְיִלָּבַשׁ
	טָהַר 'be pure'	לְטַהַר*	יִטַּהַר	לְיִטַּהַר
	זָרַע 'sow'	לְזָרַעַת	יִזְרַע	לְיִזְרַע
	נָגַע 'touch, strike'	לְנַעַת/נַעַת/לְנַגַּע/נָגַע	יִנַּע	לְיִנַּע
	נָטַע 'plant'	לְטַעַת/נָטַעַת	יִטַּע	לְיִטַּע

Most of Blau's account is indisputable. At least one claim, however, is open to question: namely, that in Tiberian BH the secondary plosive realisation of the middle radical in *qal* II-*bgdkpt* construct infinitives with prefixed *לְ* might be due to RH influence on the Masoretes and does not reflect an authentic sound shift rooted in an earlier stage of Hebrew, specifically some stage of pre-rabbinic-era BH. Before adducing evidence in favour of a

¹⁰ The RH forms are from Codex Kaufmann (= K) of the Mishnah.

more nuanced view, it is worth pointing out that any approach that takes BH as an undifferentiated whole and cites RH as the sole corpus for comparison is likely to exclude useful evidence of diversity within Tiberian BH, non-Tiberian BH, and extrabiblical material, along with information on historical development that they might provide.

Even so, it is important to acknowledge the reality of the divergence between the Tiberian reading tradition and the phonological realisation that may be supposed to have accompanied the more ancient components of the consonantal text.¹¹ Clearly, according to diverging reflexes preserved in the reading tradition, the form לְנִפֹּל [lin'po:l] deviates from the expected standard preserved in such forms as נָפֹל [na'fo:l], בְּנִפֹּל [bin'po:l], and כְּנִפֹּל [kin'po:l]. For though in Tiberian Hebrew the *shewa* of לְנִפֹּל [lin'po:l], בְּנִפֹּל [bin'po:l], and כְּנִפֹּל [kin'po:l] was zero, its realisation in נָפֹל [na'fo:l], the spirant allophone in the following *bgdkpt* consonant in בְּנִפֹּל [bin'po:l] and כְּנִפֹּל [kin'po:l], and the preservation of *nun* in לְנִפֹּל [lin'po:l] are all telltale signs of its erstwhile vocal status. This implies at least some degree of phonological mismatch between the pre-Tiberian reading tradition reflected in the consonantal tradition and the comparatively more developed Tiberian reading tradition. For the former, one would expect development to Tiberian לְנִפֹּל* [lin'fo:l]; for the latter, development to Tiberian לִפֹּל* [lip'po:l]. The actual resulting לְנִפֹּל [lin'po:l] is either a hybrid form (as Blau seems to think) or transitional.

¹¹ It is assumed here that the consonantal text always had an accompanying reading tradition (or traditions). See Barr (1981, 35) and Tov (2012, 40–41).

Against the claim that the plosive *bgdkpt* realisation in *qal* II-*bgdkpt* construct infinitives prefixed with $\text{-}^{\text{ב}}$ is necessarily due to the imposition of post-biblical phonology/morphology on the BH consonantal text, the following discussion shows that integration of $\text{-}^{\text{ב}}$ within the Hebrew infinitive construct was likely well underway by the Persian Period, demonstrating the historical depth of the processes that resulted organically in the plosive realisation of the second radical in II-*bgdkpt liqtol* forms. Forms like לִּנְפוֹל [lin'po:l] are, to be sure, out of step with *some* stage of pre-rabbinic- and pre-Tiberian-era BH as represented by the consonantal text, but are not to be explained as late post-biblical deviations under the influence of RH, much less as artificial creations of innovative medieval tradents. Rather, it is entirely plausible that this feature of the Tiberian reading tradition reveals an intermediate, perhaps vernacular, realisation linking the classical phonology and morphology expected of the BH consonantal text and RH's more extreme phonological and morphological repatterning of construct infinitives on analogy to the prefix conjugation.

2.2. Transitional Forms in the Dead Sea Scrolls

Since Blau's explanation might be interpreted to suggest single-step evolution between BH and RH infinitives, it is instructive to consider forms that may represent an intermediate stage, such as occasionally appear in the Hebrew of the Dead Sea Scrolls (DSS). As noted above, Tiberian BH לִּנְפוֹל [lin'po:l] and similar (rather than RH לִּפּוֹל *lippol* and similar) suggest a vocalised first radical, i.e., one vocalism sufficient for the preservation of *nun*, which

would otherwise presumably have assimilated. But consider the form לִיגוּעַ *lingoa*^c in 4QSam^c (4Q53) f2–5i.5 || לִגְעַת [lɔ'ɣaːʕaθ] in MT 2 Sam. 14.10:

- (1) וַיֹּאמֶר הַמֶּלֶךְ (4Q53 f2–5i.4–5) וְהַבְּאִתְּהוּ אֵלַי תְּלֹאֲ/יִזְסִיפּ עוֹד] לִיגוּעַ בָּכָה
 וַיֹּאמֶר הַמֶּלֶךְ וְהַבְּאִתְּהוּ אֵלַי וְלֹא־יִסְיֶיף עוֹד לִגְעַת בָּךְ:
 ‘and the king said, “Whoever speaks to you, you should bring him
 to me, and he will not touch you anymore”’

The scroll’s scribe first wrote לִיגוּעַ, presumably **liggoa*^c, and only afterwards ‘corrected’ the form by means of a supralinear *nun*. Of most obvious relevance for the present discussion is that the presumed pre-correction realisation **liggoa*^c is phonologically and morphologically intermediate between the respective forms expected in BH and RH, i.e., Tiberian BH [lin'goːa^c] < pre-Tiberian *lin^ogoa*^c versus RH *ligga*^c. Phonologically, the assimilation of *nun* is evidence that the vowel of the first radical had quiesced, as in RH and the Tiberian reading tradition. Yet, morphologically, the *plene* spelling with as *mater waw* shows that formation of the construct infinitive was not as in RH, according to analogy to *yiqtol* יִגַּע *yigga*^c which has an *a*, rather than *o*, theme-vowel (cf. RH לִיגַע *ligga*^c [M. Tohorot 5.2; 7.2–4 in K]).¹²

¹² Alternatively, perhaps the nunation here results from dissimilation or prenasalisation (*ng* < *gg*) under Aramaic influence. While Ancient Hebrew exhibits sporadic examples of *lC* < *CC* and *rC* < *CC* (Blau 2010, 57–58), *nC* < *CC* is particularly characteristic of late Imperial Aramaic, including Qumran Aramaic (Garr 2007). My thanks to Steven Fassberg for alerting me to this line of argumentation.

Consider also the case of לשול, presumably *liššol, ‘to clear away’, from the War Scroll.¹³

- (2) אתה בקרבנו אל גדול ונורא לשול את כול / אויבינו לפ[נַיִן]י
 ‘you are in our midst, a great and awesome God, to remove
 all our enemies bef[ore u]s’ (1QM 10.1–2)

The expected BH form is לַיִןשׁל* (Tiberian *[linʹʃo:l] < pre-Tiberian *liššol). In view of the stative-type Tiberian BH imperative שַׁל [ʃa:l] (MT Exod. 3.5; MT Josh. 5.15) and *liqtol* יִשַׁל [jiʹʃa:l] (MT Deut. 28.40), one might expect RH-style לַיִשַׁל* *liššal* in the War Scroll. Again, though, the DSS form exhibits traits characteristic of two distinct linguistic strata—the assimilation of *nun* typical of RH and the *o*-vowel typical of Tiberian BH—evidently reflecting an intermediate transitional form.¹⁴

¹³ This is an allusion to ‘when Yhwh, your God, brings you into the land to which you are coming to possess, he will remove (וְנָשַׁל) many nations before you...’ (MT Deut. 7.1; see also v. 22), where the verb is clearly נָשַׁל. Alternatively, DSS לשול is a geminate biform *laššol related to שֶׁל־ ‘remove (from the sheaves)’ (MT Ruth 2.16), though שֶׁל־* in the relevant sense is a BH *hapax*.

¹⁴ In light of the discussion above in n. 9, לַיִגוּעַ and לשול likely represent relatively early orthographical evidence of secondary remodeling of the earlier (li)qVʔal pattern according to the dominant *liqtol* alternative. That the secondary *liqʔal* > *liqtol* shift is characteristic of both Qumran and the Tiberian reading tradition indicates the antiquity of the phenomenon. That the Hebrew of the DSS seems farther along in the process testifies to the conservative nature of the Tiberian tradition; cf. the spelling וְלִשְׁכֹּב *veliškōv* in 4Q51 f89–92.15 (|| MT וְלִשְׁכֹּב [valiʃʹkarv] 2 Sam. 11.11); see also 4Q160 f7.4; 4Q223–224 f2v.3.

I-*n qal* infinitives in Qumran Hebrew normally behave like their BH counterparts, i.e., the *nun* is typically preserved or an allomorph is used, e.g., לָגַעַתְּ *lagaʿat*. Rare though the foregoing examples are, they come as evidence that the phonological process of elision of the first radical's vowel could take place independently of the full morphological repatterning on the model of *yiqtol*. One may further postulate that it was only after quiescence of the *shewa* of the first radical in *li-qəṭol* forms had produced *liqtol*, thereby resulting in phonological similarity between *yiqtol* and *liqtol*, that the infinitive was more fully susceptible to recasting in the mould of *yiqtol*, which eventually resulted in RH-style infinitives. We will revisit this possibility below.

An attractive explanation for the aforementioned DSS forms with assimilated *nun* is that they represent realisations of the infinitive associated with the vernacular and/or fluent reading, in which language users pronounced no vowel following the first radical and, eventually, assimilated the *nun*. The inserted *nun* in לִיגֹאֶתְּ *lingoaʿ* in 4QSam^c (4Q53) f2–5i.5 might then be attributed to a conscious attempt at careful reading appropriate for Scripture. The typologically later RH forms, in this case לִיגַאֶתְּ *liggaʿ*, are developmentally more advanced in the direction of the vernacular, being completely under the analogical influence of *yiqtol*.

Syllable-final *nun* regularly assimilates when not word-final, but there are exceptions, even beyond II-guttural *yiqtol* forms.¹⁵ It may well be that some time after quiescence of the

¹⁵ See GKC (§66f).

vowel of the *nun* in BH לִּנְפֹל [lin'po:l] and DSS לִּנְפֹל¹⁵ *lingoa*^c, but before wholesale RH-like repatterning on the basis of *yiqtol*, language users alternated between a pronunciation preserving the syllable-final *nun* and one in which the *nun* was assimilated, perhaps reserving the realisation with *nun* for high-register Hebrew. Without suggesting absolute linearity between BH, the Hebrew of the DSS, and RH, the following course of development, using לִּנְפֹל as an example (because its BH and RH forms also differ with respect to theme vowel), might be proposed:

		Tiberian לִּנְפֹל				
Pre-Tiberian	>	[lin'go:aɤ]	>	QH לִּנְפֹל*	>	RH לִּנְפֹל
*lV-nVga ^c		DSSBH ¹⁶ לִּנְפֹל		*liggoa ^c		ligga ^c
		<i>lingoa</i> ^c				

A crucial component of this developmental scheme is that—whatever its explanation—the Tiberian form known from the authoritative medieval corpora is typologically more primitive than the QH form preserved in scrolls from the Hellenistic Period.

¹⁶ While the dichotomy between biblical and non-biblical in material from the Judaean Desert is problematic and anachronistic, there are palpable linguistic differences between the so-called biblical scrolls and non-biblical scrolls, in that the Hebrew of the former (DSSBH) is more conservative than that of the latter (QH = Qumran Hebrew). See below, n. 23.

2.3. Further Differential Treatment of BH Construct Infinitives with Prefixed ל־

The distinction between infinitives prefixed with ל־ and those prefixed with other prepositions is not limited to *qal* II-*bgdkpt* forms. In Tiberian BH both *qal* I-*y* and II-*w/y* infinitives with prefixed ל־ also differ from the respective forms with other prefixed prepositions. In both types, the prepositions ב־ and כ־ are realised with *shewa*, whereas ל־ is vocalised with *qames*: for I-*y*, consider בָּלְדָה [ba'le:ðeθ] in וַיִּצְחַק בְּזֶשְׁשִׁים שָׁנָה בְּלִדְתָהּ אֵתָם 'and Isaac was sixty years old when (she) bore them' (MT Gen. 25.26) versus לָלְדָה [lo:'le:ðeθ] in וַתִּסֹּף לְלִדְתָהּ אֶת־אָחִיו 'and she again bore, his brother' (MT Gen. 4.2);¹⁷ for II-*w/y* consider בָּבוֹא־אֵלָיו נָתַן הַנְּבִיא בָבוֹא 'when Nathan the prophet came to him' (MT Ps. 51.22) and בָּבוֹא־אֵלֶיהָ וַיָּבֹא אֵלֶיהָ כְּבֹאֵ אֶל־אִשָּׁה זֹנָה 'he came to her like coming to a prostitute' (MT Ezek. 23.44) versus לָבוֹא־אֵלַי in וְלֹא־יָכַל מֹשֶׁה לָבוֹא־אֵלַי 'and Moses could not enter into the tent of meeting' (MT Exod. 40.35). The phonological distinction reflects the degree to

¹⁷ By way of comparison, in other instances, the preposition ל־ prefixed to *qal* I-*y* infinitives was evidently still perceived as a true preposition not integral to the form and retaining semantic force, as in the case of so-called 'temporal ל־', e.g., מִקֵּץ עֶשְׂרִים שָׁנִים לְשֵׁבֶת אַבְרָם 'after Abram had lived ten years in the land' (MT Gen. 16.3) and בְּחֹדֶשׁ הַשְּׁלִישִׁי לְצֵאת בְּנֵי־יִשְׂרָאֵל מִמִּצְרַיִם 'in the third month from the time the children of Israel had left Egypt' (MT Exod. 19.1), in which no pretonic lengthening took place. However, the preposition ל־ is regularly vocalised with *qames* even where it retains the semantic force of 'in order to', e.g., וְהָאִישׁ לֹא־אָמַן מִשֶּׁתִּאָּחַז לָהּ מִחֶרֶשׁ לְדַעַת הַהִצְלִיחַ יְהוָה דְּרָכּוֹ אִם־לֹא 'And the man gazed at her, keeping silent in order to know whether Yhwh had prospered his journey or not' (MT Gen. 24.21).

which the respective preposition was integrated into the infinitive. According to the norms of pretonic vowel development, a preposition's originally short vowel normally shortens to *shewa*, as with **ב** and **כ**.¹⁸ The exceptional pretonic lengthening of the vowel following **ל** was evidently due to the perception that it no longer served as a preposition as such—it was perhaps felt to be devoid of semantic content—but had become morphologically integral to the infinitive.

The Tiberian tradition is not alone in differential treatment of **ל** vis-à-vis other prefixed prepositions when it comes to construct infinitives. The Babylonian BH tradition likewise reserves differential treatment for *qal* II-*bgdkpt*, I-*y*, and II-*w/y* infinitives with prefixed **ל**.¹⁹

In the Samaritan reading tradition (as transcribed in Ben-Hayyim 1977), no phonological distinction marking prepositions preceding *qal* I-*y* and II-*w/y* infinitives, nor does the realisation of the second radical in *qal* II-*bgdkpt* infinitives depend on the presence and identity of the preceding preposition. However, the dominant *qal* infinitive construct pattern in strong verbs with prefixed **ל** is *liqtāl*,²⁰ whereas bare infinitives and those following **ב** or **כ** consistently bear a vowel following the first radical, e.g., *לשמע* *lišma* versus *ביום שמע* *abyom šāma*, *בשמע* *afšāma*, and *כשמע* *kāšāma*.

¹⁸ Blau (2010, 131).

¹⁹ Yeivin (1985, I, 487, 607, 641).

²⁰ Exceptional forms include those with guttural root letters. Some MT *qal* construct infinitives are analysed in the Samaritan tradition as nouns, finite verbs, or infinitives in another *binyan*.

For its part, the pronunciation tradition represented in the Second Column of Origen's Hexapla, as preserved in Ambrosiano O 39 sup., has the forms λαμσω || סִצְרֹה [lim's'o:] 'to find' (MT Ps. 36.3), λαβλωμ || סִיִּלְוֹמ [liv'lo:m] 'to curb' (MT Ps. 32.9), and λφνωθ (*sic*: probably to be read λαφνωθ) || סִיִּלְוֹמ [lif'no:θ] 'at the turn of (cstr)' (MT Ps. 46.6) as against the bare κρωβ* (corrected from κρωθ) || בְּרִק [qa'ro:v] 'drawing near' (MT Ps. 32.9). Unfortunately, no forms with the prepositions -ב or -ב have been preserved.²¹

Thus, evidence across multiple biblical reading traditions demonstrates that *qal* construct infinitives with prefixed -ב were singled out phonologically among other forms of the *qal* construct infinitive. The simplest explanation for this affinity is that it resulted from a shared phonological heritage pre-dating the medieval or later manuscript evidence and extending back to the Second Temple period, before the traditions split.

Yet, what of Blau's contention that the Tiberian biblical realisation of *qal* II-*bgdkpt* construct infinitives with plosive *bgdkpt* allophones may be due to anachronistic reanalysis of BH on the basis of RH? Since RH is itself preserved in medieval manuscripts that reflect traditions rooted in the Second Temple period, the mere fact of demonstrating the pre-medieval character of the rel-

²¹ The forms are collected and discussed in Brønno (1943, 56–58); Yuditsky (2017, 131); Kantor (2017, 339, 352). I am indebted to my friend and colleague Ben Kantor for his help in comprehending the significance of the data.

evant Tiberian phonological feature does not eliminate the possibility of anachronistic superimposing of RH pronunciation on the BH infinitive.

Two further points are in order. First, while there is no doubt that the Tiberian reading tradition and orthography exhibit non-trivial affinities with Second Temple Hebrew trends that are out of line with presumed pre-exilic phonology, it must be stressed that, overall, in respect of numerous linguistic details, the Tiberian biblical tradition presents a less advanced historical stage of Hebrew than do acknowledged post-exilic sources, e.g., the DSS, the Samaritan Pentateuch, and Rabbinic literature. The possibility of RH influence on BH or of conflation between their respective reading traditions should not be prematurely excluded, but it is clear according to the best manuscript evidence that the tradents responsible for the transmission of Tiberian BH managed with remarkable consistency to distinguish between BH and more contemporary versions of Hebrew with which they were familiar, such as RH. And this should not be thought to apply only to the consonantal tradition. High degrees of linguistic conservatism are evident in the reading tradition as well.²²

²² To illustrate by means of a phenomenon already cited, while *liqtol* forms of *qal* II-*bgdkpt* construct infinitives resemble RH *yiqtol* forms, the forms of other biblical infinitives consonantally amenable to RH-style vocalisation—such as statives and III-guttural forms—largely preserve BH phonology, e.g., stative BH *לְלַבֵּשׁ* [lil'bo:ʃ] 'to wear' versus RH *לְלַבֵּשׁ* *lilbaš* and III-^c BH *לְזַרַע* [liz'ro:aʃ] 'to sow' versus RH *לְזַרַע* *lizra*^c. Note that in the case of stative BH *לְישון* [li:'ʃo:n] 'to sleep' (MT Qoh. 5.11) versus RH *לְישון* *lišan* the full spelling of the Tiberian consonantal text also bears witness to the phonological distinction between BH and RH. The *qames*

Though both the Tiberian consonantal and reading traditions exhibit hallmarks of the Second Temple period in which they coalesced, since so much of their linguistic testimony points to an earlier time, neither presents a form of Hebrew that can be comfortably situated in the Second Temple period.²³ The Tiberian reading tradition *crystallised* in the Second Temple Period. However, except where it records the pronunciation of material actually composed in the Persian Period or later, it did not *originate* in the Second Temple period.

Second, it is worth discussing in the present context an observation made by Ben-Ḥayyim regarding the Samaritan tradition. Though Samaritan *lišmār* resembles the respective prefix tense *yišmār*, Ben-Ḥayyim (2000, 208) opines, on the basis of forms like למעל *al'māl* 'to trespass' (SP Num. 5.6) as opposed to ייקטול תמעל *tē'māl*, that the prefix vowel of *lišmār* reflects the

theme vowel in the RH forms שִׁבְּלִי and יִשְׁלִי is interpreted here as reflecting an *a*-vowel similar to that represented by *pataḥ* in standard Tiberian vocalisation; K's vocalisation tradition does not consistently differentiate between *qameṣ* and *pataḥ*. See also n. 16, above.

²³ This is especially conspicuous when one contrasts Tiberian BH with material actually composed (as against that merely copied) in the late Second Temple period, especially that which is more representative of the vernacular, e.g., some material from the Judaean Desert and from rabbinic literature. It is worth noting that alternative biblical traditions, such as those represented by the Samaritan Pentateuch and biblical DSS material, also present a form of Hebrew somewhat out of line with authentic, especially colloquial, Second Temple Hebrew usage, in that they, too, regularly preserve usages no longer typical of contemporary Hebrew. Significantly, however, in comparison to Tiberian BH, both show greater incidence of linguistic contemporisation.

shewa of the preposition rather than the vowel of the *yiqtol* prefix. By contrast, Ben-Hayyim accepts the standard view that the *i*-vowel of the Tiberian infinitive developed via analogy to *yiqtol*.

Yet, as intimated above, there seems no reason to exclude the possibility that a realisation like Tiberian לְשַׁבַּר [liš'bo:R] developed independently of the *yiqtol* form יִשְׁבַּר [jiš'bo:R]—via syncope of the first radical's vowel, resolution of the preposition's vowel to *i*, and maintenance of plosivisation of the following *bgdkpt* consonant—and that it was partially on account of the resulting similarity to *yiqtol* that other construct infinitival forms, especially those of the weak verbs cited above in Table 1, were patterned after *yiqtol* forms in RH. In other words, the process whereby RH weak-verb infinitives were remodelled on the basis of *yiqtol* was likely organic. As such, the partial RH-like development of BH infinitives need not be considered an artificial, abrupt, top-down phenomenon orchestrated by vocalisers unduly influenced by RH according to which *yiqtol* phonology was sweepingly and anachronistically applied to infinitives with prefixed -ל, but rather a natural, gradual, bottom-up process, according to which, first, *li-qəṭol* simplified to *liqtol*—which, in the case of *qal* II-*bgdkpt* forms, required plosive realisation of the second radical—and only subsequently, due to *liqtol*'s similarity to *yiqtol*, contributed to the repatterning of other *qal* infinitives, as in RH. Obviously, this would be mere speculation in the absence of further evidence. Thankfully, though, such evidence is available in consonantal material from the MT and other sources.

2.4. Consonantal Evidence for the Integration of -ל in the BH Infinitive Construct²⁴

In the evolution of the BH construct infinitive to its RH form there is a further noteworthy morphological and syntactic development: that the preposition -ל , originally only an optional component of the BH construct infinitive, became an integral to the RH infinitive. This is most readily seen in cases in which the infinitive is preceded by a preposition other than -ל . In RH, constructions of the type לְקַטֹּף מְלֶכֶט , i.e., in which the infinitive with prefixed -ל is also preceded by another preposition, whether prefixed or written separately, are not just common, but the norm. Conversely, forms preceded by prepositions and no intervening -ל are rare in RH, limited chiefly to biblical citations. This shows that for RH users, the formerly prepositional -ל had become an essential part of the infinitive. In other words, the bare infinitive is a viable option in BH, whereas the -ל is virtually inseparable from the RH infinitive.

However, the dichotomy between BH and RH as just described is potentially misleading. First, though the bare infinitive construct is especially characteristic of BH when compared to RH, it must be stressed that throughout the entire biblical corpus forms with prefixed -ל are far more common than forms without. According to the Groves-Wheeler Morphological database, in L there are 6587 infinitives construct, of which 5977 (90.7%) follow some preposition: 4506 (68.4% of total; 75.4% of those with

²⁴ The present section is a revised abridgement of Hornkohl (2018, 72–79).

Cf. the more classically formulated near-parallel without ל- after
 בַּעֲבוּר in

(4) הָלוֹא בַּעֲבוּר חֶקוֹר אֶת־הָעִיר וּלְרַגְלָהּ וּלְהַפְכָּהּ שְׁלַח דָּוִד אֶת־עַבְדָּיו אֵלֶיהָ:
 ‘...is it not to reconnoitre the city and to spy it out and to
 overthrow it that David has sent his servants to you?’ (MT
 2 Sam. 10.3)

(5) בְּיָמִים הֵהֱם חָלָה יְחִזְקִיָּהוּ עַד־לְמוֹת...
 ‘in those days Hezekiah became ill to the point of death...’
 (MT 2 Chron. 32.24)

Cf. the more classically formulated near-parallel without עַד be-
 fore the infinitive construct in

(6) בְּיָמִים הֵהֱם חָלָה יְחִזְקִיָּהוּ לְמוֹת...
 ‘in those days Hezekiah became ill to the point of death...’
 (MT 2 Kgs 20.1 || MT Isa. 38.1)

The late character of such structures is further confirmed
 by the fact that in DSS biblical material ל- is sometimes inserted
 between another preposition and the infinitive when ל- is lacking
 in the parallel Masoretic version (examples 7–8).²⁷

(7) וּכְבַדְתוּ מַעֲשֵׂי[ו] תָּ דָרְכֵיךָ מִלְּמִצָּוָה] (4Q67 f1.4)
 וְכַבְּדְתוּ מַעֲשֵׂוֹת דְרָכֶיךָ מִמְּצוֹת הַפְּצָה (Isa. 58.13)
 ‘and you honour it [by refraining] from going your own
 ways and from finding your own pleasure’

(8) וְהַצַּלְתִּי צַמְרִי וּפִישְׁתִּי מִלְּכַסּוֹת אֶת [עֲרוֹתָה] (4Q166 2.9)
 וְהַצַּלְתִּי צַמְרִי וּפִשְׁתִּי לְכַסּוֹת אֶת־עֲרוֹתָה (Hos. 2.11)

²⁷ See also 4Q109 f1ii + 3–6i.18–19 || MT Qoh. 7.5.

‘and I will take away my wool and my linen from covering/to cover your nakedness’

Similarly, in non-biblical DSS material ל- can intervene between a preposition and an infinitive (examples 9–10):

(9) [--] וועד לכלה ועד למעול
 ‘to the point of extinction, to the point of rebellion’
 (4Q378 f3i.7)

(10) [ו]מהתערב בדברים האלה ומלבוא ע[מהם] לגב אלה
 ‘[and] from being party to these matters or going along
 w[ith them] in these things’ (4Q397 f14–21.8)

Finally, the inscriptional and biblical distribution of construct infinitives in the function of verbal complements is instructive. Pre-exilic epigraphy and biblical material know in this function both the bare infinitive and the infinitive prefixed with ל-. A conveniently apposite illustration of mixed usage is the two-line sequence from the Lachish Letters in which the two alternatives appear in consecutive lines (examples 11–12).

(11) וכי אמר אדני לא ידעתה לקרא ספר
 ‘And because my lord said, “You don’t know how / to read a letter!”’ (Lachish 3.8–9)

(12) חיהוה אמנסה א/יש לקרא לי ספר לנצח
 ‘As Yhwh lives, I swear, no one has ever tried to read me a letter!’ (Lachish 3.9–10)²⁸

²⁸ On the formulation of negative oaths see JM §165, especially subsections d, f and g.

For the situation in Masoretic BH consider Table 2. Forms with $\text{-}\dot{\text{v}}$ are dominant throughout the Hebrew Bible, except in some poetic material (e.g., Isaiah and Job). Significantly, however, in the core LBH books and Qohelet, the bare infinitive construct as verbal complement has fallen into disuse. See Table 2 for the biblical distribution (according to L) of construct infinitives with and without $\text{-}\dot{\text{v}}$.

Table 2: MT distribution of verbal complement infinitive construct²⁹

Book	bare	$\text{-}\dot{\text{v}}$	Book	bare	$\text{-}\dot{\text{v}}$	Book	bare	$\text{-}\dot{\text{v}}$
Gen.	8	41	Ezek.	1	6	Prov.	2	5
Exod.	8	31	Hos.	1	4	Ruth	0	4
Lev.	0	3	Amos	4	2	Song	0	8
Num.	9	13	Jon.	0	2	Qoh.	0	8
Deut.	12	31	Nah.	0	1	Lam.	1	3
Josh.	1	12	Hab.	1	0	Est.	0	8
Judg.	2	34	Zeph.	0	1	Dan.	0	1
Sam.	4	57	Zech.	0	3	Ezra	0	2
Kgs	2	24	Pss	10	15	Neh.	0	6
Isa.	21	14	Job	7	2	Chron.	0	26
Jer.	10	23	Pentateuch				37	119
			Prophets				47	183
			(Former Prophets				9	127)
			(Latter Prophets				38	19)
			Writings				20	88
			(Writings excluding LBH/Qoh.				20	37)
			(LBH/Qoh.				0	51)
			TOTAL				104	390

²⁹ These statistics reflect the approach of Malessa (2006, 150–66), with slight modifications, as detailed in Hornkohl (2018, 73–74, n. 24). See also JM (§124l, n. 9).

Table 3 compares the Tiberian biblical text to the Second Temple corpora of Biblical Aramaic, Ben Sira, the biblical and non-biblical DSS, and RH.

MT				Late cognate, non-Masoretic, and extrabiblical corpora ³⁰			
Corpus	bare	-ָ	% -ָ	Corpus	bare	-ָ	% -ָ
Pentateuch	37	119	76%	BA ³¹	0	21	100%
Fmr. Prophets	9	127	93%	Ben Sira	0	16	100%
Lat. Prophets	38	56	60%	Mishna	0	269	100%
Writings (not LBH/Qoh.)	20	37	65%	NBDSS	4	43	92%
LBH/Qoh.	0	51	100%	BDSS	29	72	71%
BH TOTAL	104	390	79%				

All material assuredly composed in the post-exilic period shows a striking preference for *liq̄tol* over *q̄ṭol* as verbal complement. Only the biblical DSS exhibit proportions comparable to those known from Classical Biblical Hebrew (CBH) sources, which is hardly surprising given the nature of the material. But even this similarity is somewhat deceptive. Substantiating the late replacement of bare infinitive verbal complements with forms bearing

³⁰ For lists of occurrences see Hornkohl (2018, 75–76, nn. 25–28).

³¹ While the strong BA penchant for verbal complement infinitives with prefixed -ָ tallies with Second Temple Hebrew practice, it should be noted that infinitives with prefixed prepositions, especially -ָ, are the rule throughout all historical phases of Aramaic; see Fassberg (2007).

prefixed -לְ, there are some eleven cases in which a Tiberian example without prefixed -לְ is paralleled by a DSS case with -לְ (examples 13–16) and no cases of the contrary:³²

- (13) ויחל עוד שבעת ימים א[הר"ם] ויוסף לשלח (4Q252 1.15–16)
 ויחל עוד שבעת ימים אחרים ויִסֶּף שֶׁלַח... (Gen. 8.10)
 ‘and he waited another seven days and he again sent...’
- (14) שלח א[ת] ה[יונה ולוא] יספה לשוב עוד (4Q252 1.18–19)
 וישלח את-היונה ולא-יספה שוב-אליו עוד (Gen. 8.12)
 ‘...(and) he sent forth the dove, but it did not return (to him) again’
- (15) לוא תוכל לכולתמה (4Q40 f5.6)
 לא תוכל כלתם (Deut. 7.22)
 ‘you will not be able to finish them off’
- (16) לא תוכל ללשתו (1Q4 f12.2)
 לא תוכל שאתו (Deut. 14.24)
 ‘you cannot carry it’

It is difficult to interpret the consistency of this direction of change as casual or insignificant. From the perspective of the relevant MT material, the biblical DSS copyists regularly succeeded

³² See also 1QIsa^a 1.14–15 || MT Isa. 1.12; 1QIsa^a 1.15 || MT Isa. 1.13; 1QIsa^a 7.22–23 || MT Isa. 8.4; 1QIsa^a 22.13–14 || MT Isa. 28.12; 1QIsa^a 24.16 || MT Isa. 30.9; 1QIsa^a 39.31 || MT Isa. 47.11; 4Q111 3.6 || MT Lam. 1.14. On apparent exceptions see Hornkohl (2018, 78–79). Also worthy of consideration are MT absolute infinitives functioning as verbal complements that are paralleled in the DSS by construct infinitives with -לְ: 1QIsa^a 36.7 || MT Isa. 42.24; 1QIsa^a 47.20 || MT Isa. 57.20.

in reproducing classical diction, but occasionally fell under the sway of contemporary language practises that, in respect of the phenomenon under investigation, led them to use *liqtol* rather than bare *qatol*.

2.5. Summary of Case on *Qal* Construct Infinitive

Against the claim that the Tiberian phonological realisation of BH *qal* II-*bgdkpt* construct infinitives is a rabbinic or later anachronism alien to older BH phonology, we have adduced phonological, morphological, and syntactic evidence to demonstrate the heretofore under-appreciated historical depth of the phonological distinction between infinitive construct forms prefixed with -^{h} , on the one hand, and bare infinitives and those prefixed with other prepositions, on the other. The multiplicity of traditions exhibiting similar instances of differentiation or apparent reflexes thereof (Babylonian, Samaritan, Secunda) points to a genuine Second Temple phenomenon inherited by each. Consonantal evidence from Second Temple and presumably earlier sources confirms both the diachronic character of the relevant difference between BH and RH as well as intermediate stages as witnessed in LBH and the DSS, including infinitival formations that combine BH and RH features, increased usage of infinitives prefixed with -^{h} following another preposition, and decreased employment of the bare infinitive as verbal complement. Of no less importance, the relative frequency of construct infinitives with -^{h} and the comparative rarity of bare infinitives throughout the biblical text, even in those works considered most representative of pre-exilic

Hebrew, come as compelling evidence of the probable early annexation of -לְ to the construct infinitive. Far from being a chronologically foreign intrusion into BH morphology, the integration of prefixed -לְ within the infinitive is very much in line with morphological and syntactic trends evident in the classical stage of BH as witnessed in consonantal material. On the basis of the extant evidence, establishing a *terminus a quo* for syncope of the vowel of the first radical would seem to be out of the question. Even so, in the light of DSS infinitival forms that reflect syncope of the first radical's vowel without full remodelling on the basis of *yiqtol* as seen in RH, it is reasonable to hypothesise that the vocalic elision that permitted plosive realisation of the second radical in *qal* II-*bgdkpt* construct infinitives in the Tiberian tradition is not a result of reanalysis under the influence of RH, but an organic feature firmly rooted in earlier Hebrew. It is likely to have occurred first in the vernacular. Given the regularity of infinitives with prefixed -לְ throughout BH (relative to the number of bare infinitives and those with other prefixed prepositions), the morphological and phonological shifts in question may well have occurred long before Second Temple Hebrew, with the expected assimilation of *nun* being avoided in literary registers, such as that preserved in the Hebrew Bible.

Though it is impossible to determine the full extent of the historical depth of phonological realisations like Tiberian לְנָפַל [lin'pɔ:l] and לְשָׁבַר, [liʃ'bo:ʀ] there is ample evidence to show that they are phonological reflexes of a relatively early morphological development with attendant syntactic ramifications. Given that both the Samaritan and Jewish reading traditions bear witness to

the phenomenon and/or to reflexes thereof, and that scholarly consensus places that schism no later than the second century BCE, such a date serves as a logical *terminus ante quem* for the integration of -^{h} into the *qal* infinitive construct, though some scholars would place this earlier. Clearly, the feature was sufficiently established in pre-schism scriptural reading practices as to be inherited by both the Jewish and Samaritan traditions before they diverged. In light of the dominant use of infinitives with -^{h} throughout the biblical text (excepting archaic poetry), supported by epigraphic evidence, it is reasonable to propose a *terminus post quem* as far back as the heyday of CBH, i.e., the monarchic/First Temple period, though with the disuse of bare infinitives construct as verbal complements, it is perhaps most reasonable to place the univerbalisation of *liqtol* in the Persian period. This corroborates the conclusions of previous studies that emphasize the antiquity of the Tiberian reading tradition and its reliability as a linguistic witness of early Second and even First Temple Hebrew.

3.0. THE 3MS SUFFIX FOR PLURALS AND SIMILAR

Once we entertain the possibility of disparity between the written and reading traditions, it opens up the possibility of alternatives to certain conventional, but dissatisfying explanations.

One of the more counterintuitive orthographic conventions that beginning students face when learning to read Hebrew is the 3ms possessive suffix added to plural nouns and to some prepositions. Written -^{h} , as in סוּסֵי , the ending was evidently realised very early on as a diphthong along the lines of *-aw*, which, in

turn, developed to, inter alia, Tiberian יָ [-ɔ:v] and Modern Israeli Hebrew [-av]. Though learners quickly equate the phonetic realisation with the spelling in question, the correspondence is decidedly anomalous from the perspective of Hebrew orthography, where, though vowel sounds are regularly left underspecified or entirely unmarked, consonants—such as the *yod* in יָ—are usually pronounced.

The exceptions to this norm are the *matres lectionis*, namely medial and final *waw* and *yod* and final *heh* (and *ʾalef*), each of which came to be used to signal specific vowel sounds. The *mater yod* is associated with *i*- and *e*-class vowels. Its appearance with the *a*-class vowel that developed to Tiberian [ɔ] (*qameṣ*) calls for an explanation.

3.1. Competing Accounts: Grammatical versus Phonetic *Yod*

Generally speaking, scholarly literature offers two competing explanations for the unexpected representation of *-aw* with יָ-. According to one, the *yod* in יָ- did not originally have phonetic value, but served as a *mater lectionis* of purely grammatical significance, introduced at some point for purposes of visually distinguishing the plural form of a possessed noun from its singular counterpart. On this view, only later, due to association with the realisation *-aw* in the 3ms suffix, did language users extend use of the spelling יָ- to other words with a similar final diphthong or reflex thereof.³³

³³ It seems clear that יָ- was indeed eventually taken as representative of the diphthong *-aw* (and its reflexes), since, beyond the 3ms suffix in

Andersen and Forbes (1986, 325) argue for a purely graphic genesis to the spelling וי-:

In the old orthography it was not possible to distinguish 'his son' from 'her son', both spelled בנה, unless aided by context. The new convention wrote בנו and בנה respectively. But this created a new problem. In the old orthography בנו was the regular spelling of *bānāw*, 'his sons', but now this could be read as *bānô*. Other forms of plural nouns had the *plene* spelling of the long vowel in *bānīm* or of the stem-terminal diphthongs in the suffixed forms, such as בניהם, 'their sons'. The remedy again was obvious. Spell all plural nouns (masculine or of masculine type) with וי whether it was pronounced or not. Hence the artificial בניו, *bānāw*, 'his sons', in which the וי is purely graphic.³⁴

question, several words ending in *-aw* are spelled with final וי- in ancient sources, e.g., Tiberian BH יחדיו [jaħ'do:v] 'together' (thrice in the MT *ketiv*, against 94 times יחדו; frequently in the DSS); עכשיו 'axšav 'now' (consistently in K; עכשו in 4Q225 f2ii.7); Tiberian BH סתיו [sa'θo:v] 'winter/autumn, rainy season' (MT Song 2.11 *qere*; cf. *ketiv* סתו); Tiberian BH עניו [ʔno:'v] 'humble' (MT *qere*; *ketiv* ענו; non-biblical Dead Sea Scrolls); DSS ע(י)שיו 'Esau' (cf. Tiberian BH עשו [ʔe:'so:v]) and תיו 'hook' (cf. Tiberian BH תו [to:v]). In Modern Israeli Hebrew, the correlation of the spelling וי- and the pronunciation *-av* has led to, among other things, the convention of writing the letter names of *waw* and *tav* as וי"ו and תי"ו, respectively (orthographically differentiated from the homophonous lexemes וו *vav* 'hook and תו *tav* 'musical note, mark', respectively).

³⁴ See also Orlinsky (1942–43, 288–89); Zevit (1980, 29–30); Pardee (1988, 279–80); Knauf (1990, 20); Freedman (1992, 9–10, no. 6); Golinets (forthcoming, 1–6).

According to an alternative hypothesis, the *yod* in question was phonetic. Some seek to reconcile י- with *-aw*,³⁵ while others object that the two must reflect distinct pronunciation traditions. It is this latter possibility, that י- and *-aw* reflect diverse phonetic realisations, that is examined below. If this is the case, then this is one more in a series of cases in which the dominant written form and its oral realisation in the Tiberian (and other) traditions are out of sync, i.e., represent a merger of discordant reading and written traditions.³⁶

There is equivocal evidence for the argument that the *yod* in the 3ms suffix י- began as a purely graphic morphological marker of plurality. First, a few other Hebrew suffixes appear—at least synchronically—to have a non-phonetic *yod* with the purely grammatical function of marking plurality, namely, the 1cpl ending in Tiberian סוּסֵינוּ [su:'se:nu:] ‘our horses’ versus the phonetically-identical 1cpl ending in Tiberian סוּסֵנוּ [su:'se:nu:] ‘our horse’ and the 2ms ending in Tiberian סוּסֶיךָ [su:'se:χa:] ‘your (ms) horses’ versus the homophonous Tiberian pausal סוּסֶיךָ [su:'se:χa:] ‘your (ms) horse’.

Of course, seen from a diachronic perspective, this is a non-argument. Paradigmatically, in the relevant 3ms suffix one expects a *y* glide, or reflex thereof in the form of a vowel produced via diphthong contraction. Thus, 1cs סוּסֵי *swsy* Tiberian [su:'sa:y] ‘my horses’ and 2fs סוּסֵיךָ Tiberian [su:'sa:yiχ] ‘your horses’ both

³⁵ Blau (2010, 172); Zevit (1980, 29–30).

³⁶ GKC (§91i and n. 1); Cross and Freedman (1952, 47, 54–55, 68–9); Sarfatti (1982, 65); Gogel (1998, 159–161, nn. 187–189); Barkay (2004, 53–54); JM (§94d and n. 7); Khan (2013a, 48).

preserve consonantal *yod* in a diphthong, while the *e/ε* vowels in the remaining forms are all attributable to contraction of the same *ay* diphthong. Leaving aside the 3ms suffix under discussion, then, a strong case can be made for an originally phonetic role for the *yod* in all suffixes for plurals and the relevant prepositions.

Second, the difference between pre-exilic epigraphic orthography and biblical orthography (as represented to varying degrees in all biblical manuscript traditions) indicates that the earliest biblical compositions must have undergone a spelling revision according to which *matres lectionis* were frequently, but somewhat inconsistently, inserted word-medially in line with post-exilic conventions in order to facilitate reading. On the assumption that יְ- is secondary to י- , the revision in question would provide a historical scenario in which a grammatical *mater yod* could have been inserted. The notion of the regular insertion of a morphological *mater* would, however, be exceptional against the backdrop of the broader goal of phonetic transparency as well as the inconsistent use of phonetic *matres*.

While the situation of orthographic revision arguably furnishes a convenient historical context in which the purely graphic change 3ms $\text{י-} -aw > \text{יְ-}$ could take place, recognition of numerous categories involving phonetic dissonance between the Tiberian written (consonantal) and reading (vocalic) traditions demonstrates the potential reality of diverse phonetic realities behind 3ms י- and יְ- . Consistent mismatch between the written and reading components of the Tiberian Masoretic tradition is an acknowledged phenomenon in the case of a number of features,

most famously the 2ms *qatal* verbal ending ת- and the 2ms pronominal suffix ת- versus their respective Tiberian realisations תְּ [-tɔ:] and תְּ [-χɔ:]. Though common in the MT, these are decidedly exceptional from the perspective of Tiberian (and other Hebrew) orthographical conventions, where final vowels are otherwise generally represented by a *mater*. For instance, in the vast majority of categories in which a word-final *a*-class vowel appears in manuscripts of the Masoretic tradition, it is accompanied by a *mater heh*. The lack of this *heh* in 2ms forms is glaringly exceptional. Variation in the realisation of the 2ms ת- and ת- endings is apparent in certain Tiberian pausal forms, e.g., תְּ [lɔ:χ] for contextual תְּ [la'χɔ:]. This is found also in other traditions of Hebrew and Semitic languages more generally, where one finds both consonant-final realisations of these pronominal suffixes (Iron Age inscriptions, MT *ketiv*, DSS, RH, Aramaic/Syriac, Secunda) and also vowel-final realisations (Iron Age inscriptions [verbal ending only], MT *qere*, DSS).³⁷ Given the reality of mismatch between the Tiberian written and reading traditions, as

³⁷ For inclusion of the variant 3ms endings among written-reading mismatches, see Khan (2013a, 48). Just a few of the many other notable dissonances involve the 2/3fpl verbal ending תְּ [-nɔ:]; the standard Tiberian spelling ירושלים versus the accepted realisation ירושלים [jaru:ɔ:la:jim], the latter of which is better matched by the minority spelling with *yod* to mark the triphthong *-ayi-* ירושלים (only five occurrences in the MT: Jer. 26.18; Est. 2.6; 1 Chron. 3.5; 2 Chron. 25.1; 32.9), which also occurs in the DSS, RH, and Second Temple epigraphic and numismatic sources; the *qal* internal passive, forms of which are regularly understood/vocalised as *pu^cal*, *hof^cal*, or *nif^cal* when possible; and

well as the more general variety within ancient Hebrew pronunciation traditions, one should at least consider the possibility that the majority consonantal orthography יו- actually reflects a phonetic realisation other than that which eventually developed to Tiberian [-כ:v].³⁸

Of greater probative value is epigraphic evidence. Crucially, both spellings are known from sources assigned to the Iron Age. In the pre-exilic inscriptional material from the Judahite city of Lachish (early sixth century BCE) there occurs the form אגשו 'his men' (Lachish 3.18). Further evidence is found in the prepositional אלו 'to him' from the Meşad Ḥašavyahu (Yavne Yam line 13) plea (late seventh century BCE). One might also consider the suffix of the apparently dual ירחו 'its two months' (Gezer 1.1 [2x], 2, 6; late tenth/early ninth century BCE). The surest occurrence of יו- in Iron Age epigraphy is in the form פניו 'his face' in one of the renditions of the Priestly Blessing from Num. 6.24–26 preserved in the Ketef Ḥinnom amulets (2.9; mid-seventh century BCE).³⁹ Other potentially relevant evidence includes the apparent polyphthong terminating ומצריה 'and from his enemies' (Khirbet

perhaps cases of apparent suppletion, e.g., forms of the verb גַּשׁ 'approach' which are *nif'al* in the *qatal* and participle, but pattern as *qal* in the *yiqtol*, imperative, and infinitive.

³⁸ For useful discussion see Gogel (1998, 159–61 and nn. 187–89) and Barkay et al. (2004, 53–54).

³⁹ The dating is according to Barkay et al. (2004, 41–55). The spelling יו- is an important element in arguments for later datation of the inscription; see, e.g., Berlejung (2008, 208–12); Golinets (forthcoming); but see below.

el-Qom 3.3; 750–700 BCE—this is the consensus reading, but it is uncertain; cf. Tiberian מִצְרָיִם [mis^ɕ-s^ɕ:l'k:ɔ:v] [Deut. 33.7; Jer. 46.10; Ps. 105.24]),⁴⁰ and, possibly, אַחִי 'my brothers (?)' (Moussaieff 2.7–8, though this may well represent the singular 'my brother').⁴¹

Turning to later documentary data, the spelling י- for expected י- is not uncommon in Dead Sea biblical material and is even more widespread in the non-biblical scrolls. This likely indicates the persistence of various phonetic realisations, though there are alternative interpretations of the data.⁴²

Finally, perhaps most significant as evidence for a graphic, grammatical, non-phonetic explanation for the development of י- as *-aw* is the fact that no pronunciation other than a diphthong or reflex thereof is preserved in any known Hebrew reading tradition. As already noted, the suffix came to be realised as [-k:v] in Tiberian Hebrew. Similarly, it is represented by *-aw* (eleven

⁴⁰ Lemaire (1977, 599, 601); Zevit (1984, 43); Hadley (1987, 54–55); Gogel (1998, 159–60, n. 188).

⁴¹ The authenticity of this inscription has been called into question; see Rollston (2003; 2006).

⁴² See Reymond (2014, 144–47, 159) on the relative frequency of spelling variation in the DSS, though it is to be noted that he considers the *yod* of י- to be a grammatical *mater* and assumes that the 3ms ending on plurals and relevant prepositions was realised as *-ō* < *-aw* whether spelled י- or י-; see Qimron (1986, 33–34, 59; 2018, 270).

times) in the Greek transcription in the Secunda of Origen's Hexapla⁴³ and it contracted to [-o] in Samaritan Hebrew.⁴⁴

While no extant Hebrew reading tradition evinces a pronunciation of 3ms יי- with a phonetic *yod*—conceivably, some sort of triphthong along the lines of *-ayu* or *-eyu*—the traditions may preserve indirect evidence indicative of such a realisation, as we shall see in what follows.

3.2. Positive Arguments for Phonetic *Yod* in 3ms יי-

The remainder of this article will consider affirmative arguments for an originally phonetic *yod* in the 3ms suffix יי-, in which case the relevant realisation—likely something akin to *-ayu* or *-eyu*—differed from pre-Tiberian *-aw*. First, we return to the apparent Iron Age epigraphic evidence. It should be stressed that arguments against the pre-exilic dating of Ketef H̄innom's 3ms יי- in פניו 'his face' (2.9) based on the supposed lateness of the orthography must be considered circular. If the inscription is reasonably dated on other grounds to the 7th century BCE, then the spelling יי- must be accorded as much weight as spellings without *yod* from other Iron Age epigraphs. Further, since, as a rule, medial characters in Iron Age inscriptions serve as either consonants or vowel letters, but not grammatical *matres*, it is likely that יי- here has a realisation other than *-aw*. Of course, no certainty can be had on the exact nature of the sound in question. Crucially, though, this applies to the alternative epigraphic spelling 3ms יו-

⁴³ Brønno (1943, 200–1); Yuditsky (2017, 107).

⁴⁴ Ben-Ḥayyim (2000, 229).

as well; while it *may* coincide with pre-Tiberian *-aw*, it may just as well reflect a different realisation.

Potentially illuminating in respect of the phonetic reality behind 3ms יו- is the rarer alternative יֵהוּ *-ēhū*, e.g., Tiberian גִּבּוֹרֵיהוּ [gibbo:'re:hu:] 'his warriors' (Nah. 2.4), יָדָיו [jɔ:'ðe:hu:] 'his hands' (Hab. 3.10). It is commonly thought that this suffix, regularly employed only for singular III-y forms, preserves an early form of the ending that developed from **-ayhu*. From יֵהוּ **-ayhu* development to יו- is relatively straightforward, the presumed realisation of the latter being *-ew* > Tiberian [-e:v]:

$$*-\bar{e}v < *-\bar{e}w < *-\bar{e}ū < -\bar{e}hū < *-\bar{a}yhū.$$

This involves the routine phonetic developments of contraction of the diphthong *-ay-* to *-e-*, elision of intervocalic *h*, and resolution of the falling diphthong *-eu-* via *-ew-* to *-ev-*. Cf. Tiberian מִן [ge:v] 'middle, back', כִּסְלֵו [kis'le:v] 'Kislev', שְׁלֵו [ʃl:'le:v] 'at peace'.

Significantly, the process above accounts for the rare spelling-pronunciation combination יֵהוּ *-ēhū* [-e:hu:], the minority spelling יו- *-w* as reflecting **-ēw* < **-ēū* (e.g., Lachish, Mešad Hashavyahu [Yavne Yam], Gezer, and in the MT), and the dominant spelling יו-:

$$*-\bar{e}w < *-\bar{e}yw < *-\bar{e}yū < *-\bar{e}ū < -\bar{e}hū < *-\bar{a}yhū,$$

In the spelling יו- the *yod* would, according to this reconstruction, have originally represented the glide of the diphthong **ay* and subsequently, after the contraction of the diphthong, become a *mater* for *ē*. Indeed, if, for the sake of economy, it is assumed that epigraphic יו- and יו- should have represented the same realisation,

from a purely phonetic perspective, it is more likely to have been *-ew* < *-eyu* than *-aw*. It is difficult to conceive of any single phonetic realisation underlying epigraphic יְ-, epigraphic יַ-, and pre-Tiberian *-aw*.

But as the dominant realisation in all extant reading traditions, *-aw* demands an explanation. The problem is, while it is possible to get from **-ayhū* to *-aw*, along the developmental path, there is no realisation in extant reading traditions for which the spelling יְ- can reasonably be considered to be a phonetic representation.

The simplest way to account for *-aw* is to posit the development

$$-āw < *-\bar{a}ū < *-\bar{a}hū < *-\text{ay}hū.$$

Significantly, the first step involves contraction of *ay* to *ā*, at which point a written *yod* became otiose, as in יָס [ʔɔ:n] < יָס [ʔajin] ‘where’. The next steps are routine phonetic processes: intervocalic elision of *heh*, and, in Tiberian Hebrew, the shift [ɔ:] < *ā*. Crucially, since contraction of *-ay-* evidently preceded elision of *h*, it is difficult on this view to account satisfactorily for the dominant Masoretic spelling יְ-.⁴⁵

⁴⁵ This account is based on Florentin (2016, 74). Cross and Freedman (1952, 47) note that “[o]nly in a dialect in which the diphthong *ay* was preserved, would a form *-āw* < **-ayhū* result.” Given Samaritan יַ *yn* ‘wine’, presumably realised [ye:n] (cf. Tiberian [ʔya:yin]), *-ēhu* < **-ayhu* in the north. However, with יָס *qs* ‘summer fruit’, presumably realised [qe:s⁵] (cf. Tiberian [ʔqajis⁵]), at Gezer, a mere six miles (9.6 km) north and 20.5 miles (33 km) west of Jerusalem, it seems that diphthong contraction was not limited to the dialect of the far north.

A further conjectural process may be mentioned. The evolution

$$*-\bar{a}w < *-\text{ay}w < *-\text{ayh}\bar{u}$$

has been proposed, ostensibly furnishing a rather straightforward account of both the יַ- orthography and the Tiberian [-a:ɿ] realisation.⁴⁶ It must be said, though, that this developmental sequence involves the assumption of two rather arbitrary steps—elision of *heh* after a consonant (diphthong) and contraction of the triphthong **-ayw* to **-āw*. With neither standard in ancient Hebrew, it seems improbable that both would take place.⁴⁷ An

⁴⁶ Blau (2010, 172); Zevit (1980, 29–30).

⁴⁷ In agreement with Florentin (2017, 73–74). Florentin has proposed a motivation for development of the *-āw* realisation. He assumes a base form **-ayhū* leading to the rarely preserved יְהוּ- [-e:hu:]. He then notes that the respective singular and plural forms of III-y substantives with the 3ms suffix are phonetically identical: מַעֲשָׂהוּ ‘his deed’ and מַעֲשֵׂיהוּ ‘his deeds’ both [ma:ʔaʕse:hu:]. By means of the standard contraction of the diphthong *ay* and elision of *heh* **-ēyū < *-ayhū*. But since **-ēyū* was too similar to the 3ms suffix for singulars, *-ēhū*, language users intentionally opted for a discernible alternative, namely **-āw < *-āhū < *-ayhū*, thereby rendering the distinction between singulars and plurals transparent. From the sizeable minority of III-y forms the *-āw* suffix spread to others, becoming dominant. This approach satisfies on several levels. First, it gives due weight to much of the evidence, seeking to explain both the יְהוּ- [-e:hu:] and *-aw* spellings and realisations and linking both of them back to **-ayhū*. Second, it posits motivation for what must be seen as non-standard developments in the development of *-aw*. However, concerned mainly with explaining the phonetic forms in the Tiberian tradition, it is unfortunate that Florentin does not discuss the potential for phonetic variety in the inscriptional sources, the

alternative solution involving more likely processes is preferable. Without such a solution, it is very difficult to explain both the spelling v - and phonetic realisations reflecting *-aw* as results of one and the same process.⁴⁸ The combined weight of the evidence arguably points to the plausibility of a phonetic realisation behind v - different from pre-Tiberian *-aw* and its later reflexes.

One final perspective to consider is the explanatory value of the approach, especially with regard to the distribution of the various spellings in Second Temple sources and in the MT itself. In what may have more significance than is sometimes thought, biblical and non-biblical manuscripts from late antiquity show various mixtures of forms. In the non-biblical DSS, the v - ending occurs without *yod* in nearly 12 percent of the relevant cases of nouns (56 of 473),⁴⁹ in the biblical DSS the proportion is just over

DSS, or in the MT itself, nor make explicit his view of the strange relationship between orthographical v - and phonetic [- v].

⁴⁸ Barkay et al. (2004, 54). Also worthy of consideration as an explanation for the orthography v -, but not the spelling v - or for phonetic realisations deriving from *-aw*, is the entirely conjectural possibility that triphthongal **-ayyū* < **-ayhū*, postulating assimilation of *heh* to the preceding *yod* (cf., e.g., v v v Tiberian [gam v :lattu:] < *gamalathu* [1 Sam. 1.24]).

⁴⁹ CD 10.9; 1QS 3.7–8; 6.17; 11.3; 1QSa 1.18, 22; 1QpHab 3.7; 5.5; 9.1; 1QHa 4.37; 4Q163 f4–7i.8; 4Q200 f6.3; 4Q216 5.3, 9; 4Q221 f1.2; f3.5; f5.2; 4Q228 f1i.4; 4Q255 f2.2, 6; 4Q261 f1a–b.3; 4Q262 fB.1–2; 4Q266 f2i.4; f2ii.2, 4; f5ii.2, 4; f6iii.8; 4Q270 f6iv.14, 19; 4Q299 f3c.6; 4Q365 f12biii.5; f26a–b.8; 4Q374 f2ii.8; 4Q381 f31.3; 4Q387 f2iii.1; 4Q392 f1.4–5, 9; 4Q398 f14–17ii.4, 7; 4Q403 f1i.43; 4Q404 f5.6; 4Q405 f15ii–16.4; f20ii–22.7; f23i.13; 4Q417 f29i.7; 4Q418 f16.4; 4Q434 f1i.7; 4Q468b f1.2; 4Q472 f1.4; 4Q481d f3.2; 11Q17 7.6; 10.5.

7 percent (25 of 347).⁵⁰ In the MT there are some 125 instances involving nouns,⁵¹ coming to about 5 percent of the potential 2500 cases. While various explanations could be offered for these minority spellings,⁵² it is here argued that the possibility that at least some reflect actual phonological variation in the realisation of the suffix should not be dismissed out of hand. It may well be that in some of these instances in the MT, many of which are marked as *ktiv-qere* mismatches, the disparity reflects *morphological*, rather than *phonological*, disagreement between the consonantal and pronunciation traditions. Thus, for instance, in יָשָׁא אֶל־הָעַם וַיְבָרֶכֶם (MT Lev. 9.22), the *ktiv* form יָד is ambiguous—it may represent a form parallel to Tiberian dual [jɔ:ʕɔ:v] ‘his hands’, but may just as well reflect a singular

⁵⁰ 1QIsa^a 1.28; 11.29; 23.2; 27.23; 2Q16 f5ii–6i.1; 4Q32 f2ii + 3i + 4.19; 4Q56 f3ii.15; 4Q86 2.13; 4Q93 1.9; 4Q98f f1–2.1; 4Q114 1.3; 4Q128 f1.21, 29; 4Q138 f1.2, 9, 11; 4Q140 f1.26; 11Q1 fK–Li.7; 11Q5 4.15; Mur88 8.16.

⁵¹ Exod. 27.11; 28.28; 32.19; 37.8; 39.4, 33; Lev. 9.22; 16.21; Deut. 2.33; 7.9; 8.2; 33.9; Josh. 16.3; 1 Sam. 3.2; 8.3; 10.21; 23.5; 26.7, 11, 16; 30.6; 2 Sam. 1.11; 12.9, 20; 13.34; 18.17, 18; 19.19; 22.23; 24.14, 22; 1 Kgs 5.17; 6.38; 16.19; 18.42; 2 Kgs 4.34; 5.9; 11.18; 14.12; Jer. 17.10, 11; 22.4; 32.4; Ezek. 17.21; 18.21, 24; 31.5; 33.13, 16; 37.16, 19; 40.6, 9, 21 (3x), 22 (4x), 24 (2x), 25, 26 (3x), 29 (4x), 31 (2x), 33 (4x), 34 (3x), 36 (3x), 37 (3x); 43.11, 26; 44.5; 47.11; Amos 9.6; Obad. 1.11; Hab. 3.14; Ps. 10.5; 58.8; 105.18, 28 (?); 106.45; 147.19; 148.2; Job 5.18; 14.5; 20.11; 21.20; 26.14; 27.15; 31.20; 37.12; 38.41; 39.26, 30; 40.17; Prov. 16.27; 21.29; 22.25; 26.24; 30.10; Ruth 3.14; Qoh. 4.8; 5.17; Lam. 3.32, 39; Dan. 9.12; 11.10; Ezra 4.7.

⁵² See, by way of illustration, the useful examples in Golinets (forthcoming, 1–6).

parallel to Tiberian [jɔ:'ðo:] 'his hand'; if the latter, the *qere* contradicts the *ketiv* semantically. Further, in nearly every case it is possible that the *yod* of the majority spelling was simply omitted in error, so that, for example, the *ketiv* ידו in יְדוּ אֶת־שְׂתֵי יָדָיו וְסָמַךְ אֶהָרֶן אֶת־שְׂתֵי יָדָיו [בתיב: ידו] (MT Lev. 16.21) does not necessarily serve as orthographic evidence of a diphthongal rather than triphthongal realisation. These considerations apply to the aforementioned DSS evidence as well.

Be that as it may, it seems unlikely that morphological ambiguity and simple spelling inconsistency are sufficient to account for the totality of cases in which the 3ms suffix spelling ו- occurs instead of the more customary יו-. In MT Ezekiel ו- appears instead of יו- in 46 of 176 cases (26 percent of the time) and in chapter 40 alone ו- comes without *yod* 34 times. Job also exhibits use of the suffix nearly 10 percent of the time (12 of 122 cases). When we bear in mind other discrepancies between the Tiberian written and reading traditions, e.g., the aforementioned 2ms endings ה- and ח- and Tiberian [-tɔ:] and [-xɔ:], respectively, positing a similar mismatch between consonantal יו- and Tiberian [-ɔ:v] helps to account for a degree of variation otherwise difficult to explain.

If the foregoing reading of the evidence is correct, it assumes a rather curious developmental sequence leading up to the spelling and phonetic realisation of the Tiberian Masoretic tradition:

- (1) a situation of mixed use of diphthongal and triphthongal phonological realisations and spelling, i.e., ו- *-aw* and יו- *-ayu/-eyu*;

- (2) emergence of mismatch between the dominant diphthongal phonetic realisation and the dominant triphthongal spelling—perhaps involving the preservation of a ‘historical’ spelling paralleling the diffusion of a ‘popular’ pronunciation;⁵³
- (3) an orthographical revision strongly favouring ‘historically conservative’ יָ-, reflecting either persistence of a triphthongal pronunciation or association of that spelling with the realisation *-aw*, leaving only a minority of the relevant forms ending in יָ;⁵⁴
- (4) subsequent to the fixing of the orthographical and pronunciation traditions, the fusion of the two into the Tiberian

⁵³ Albright (1943, 22, n. 27) argues that יָרָו in the Gezer Calendar ends in *-êw*, comparing to “the archaic uncontracted form *-êhu* which appears a number of times in Hebrew poetry” (see Bauer and Leander 1918–1922, §28v). Tiberian *-āw* he explains (*ibid.*) as “an obvious conformation to the parallel Aramaic suffix which appears in Bib. Aram. as *-ôhî* and in Syriac as *-auhî* (written) and *-au* (pronounced).” Cross and Freedman (1952, 47, 54–55, 68–9) view Masoretic יָ- as “reminiscent” (47) of North Israelite *-êw* and Tiberian *-āw* as Judahite. Pardee (1988, 179–80) objects, asking why this northern feature, and no other, should figure so prominently in the Tiberian reading tradition. Without denying an areal explanation, I am content with a more general view of variety in ancient Hebrew, incorporating such parameters as register, region, urban versus rural, diachrony, sociolect, and idiolect.

⁵⁴ Presumably, some of the forms left without *yod* are the results of simple inconsistency in the revision or were read as suffixes for singulars. However, if *yod* was added to reflect a triphthongal realisation, then it is possible that it was intentionally left out of forms where, according to the reading tradition, a diphthong was intended.

Masoretic textual tradition, which involved the ‘correction’, by means of explicit *ketiv-qere* notation (from ך to ך-) or via simple vocalisation (with [-ׁׂ׃ׄ]), of forms one might be inclined to read otherwise, sometimes extended, significantly, to forms that do not end in the 3ms suffix in question.

4.0. CLOSING REMARKS

Dissonance between written and reading traditions is an acknowledged feature of the Tiberian Masoretic tradition, the authenticity and antiquity of each supported by contemporary Hebrew and cognate material. The only question regards the extent of the mismatch, i.e., its applicability and explanatory value with regard to individual features. It has been argued here that such a perspective helps to explain two vocalisation phenomena as relatively early, organic developments, rather than anachronistic post-biblicisms artificially visited upon BH. These may be added to a series of over twenty instances or categories of instances involving similar written-reading dissonance within the Tiberian tradition. The ramifications go beyond the phonetic realisations of the specific features in question, encompassing such issues as the antiquity, authenticity, and reliability of the testimony of the Tiberian reading tradition. Crucially, precisely at those points where there is the most compelling reason to suspect anachronism and artificiality on the part of the vocalisation tradition, i.e., where it deviates from a consonantal tradition generally accorded greater antiquity, the reading tradition is seen to reflect

ancient and natural linguistic conventions in line with Second Temple or earlier practices.

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QERE AND KETIV IN THE EXEGESIS OF THE KARAITES AND SAADYA GAON

Joseph Habib

1.0. INTRODUCTION

During the approximate period 500–950 CE, the Tiberian Masoretes set out to commit to writing the accepted reading tradition of the Hebrew Bible.¹ In order to facilitate this preservation, they invented a number of graphic symbols to represent the reading tradition as accurately as possible. These symbols were mapped onto the letters of the received consonantal text. The consonantal text adopted by the Tiberian Masoretes was one that, from a very early period, had been transmitted within mainstream Judaism

¹ See Yeivin (1980, 1–4, 49–80). To be sure, the process of precise transmission of the Biblical Text far predates the Tiberian Masoretes. M. Avot 1.1 states that Moses transmitted (וּמְסָרָהּ) the Torah to Joshua, and Joshua to the elders, etc. Thus, from its very inception, it was necessary to pass on the text, via an oral tradition, accurately. Hence Dotan's (2007, 606) statement, "The transmission of the Bible is as old as the Bible itself." In this regard, Lea Himmelfarb (2007) concludes that the first Masoretes were, in fact, the Temple priests, who regularly engaged in the reading, teaching, and copying of the text.

with great care.² One important component of the preservation of the text was safeguarding the correct pronunciation of the consonantal text. The Tiberian Masoretes thus invented the vocalisation signs in order to ensure accurate pronunciation of the text.³ As a general rule, the consonants and the vocalisation signs are

² The need for an exemplary scroll made itself felt after the destruction of the Second Temple in 70 CE, when an authoritative text could serve as a unifying element to the Jewish community (Contreras and De Los Ríos-Zarzosa 2010, 28). The Babylonian Talmud also reflects an early concern for the transmission of an accurate text. *Mo'ed Qaṭan* 18b prohibits tampering with the “scroll of Ezra” (ספר עזרא) on particular festival days. *Ketubot* 106a mentions “proof-readers of the scrolls in Jerusalem” (מגיהי ספרים שבירושלים). According to *Qiddushin* 30a, there was also an awareness among the Babylonian sages that the authoritative text was located in Jerusalem (Khan 2013, 15–16). Qumran also reflects a situation whereby, as early as the Second Temple period, there was already an established (consonantal) text among mainstream Judaism. According to Tov’s latest estimation, 48 percent of Torah texts reflect the Masoretic Text (MT). Of the remaining portions of scripture, 44 percent reflect the MT, while 49 percent form the so-called ‘non-aligned’ group (Tov 2012, 108). Thus, even among the multiplicity of recensions at Qumran—a community not aligned with mainstream Judaism—a text-type that reflects the MT predominated. This strongly suggests that the situation was similar elsewhere in Palestine, although this cannot be verified (cf. Khan 2013, 22–24).

³ The other components of the Tiberian Masoretic tradition are the layout of the text, divisions of paragraphs, the accent signs, the notes of the text written in the margin, and Masoretic treatises, which were sometimes appended to the end of manuscripts (Khan 2013, 3).

in harmony. In a number of places within the Hebrew Bible, however, the consonantal text and the vocalisation signs reflect two different reading traditions of a particular word or phrase.⁴

During the process of supplying the consonantal text with the vocalisation signs, such differences between the received consonantal text and the orally transmitted reading tradition became apparent. One clear example was the divine name. Since uttering the form of the name reflected by the consonantal text was prohibited, the consonantal text יהוה was read אֲדֹנָי. The result was the form יְהוָה, in which the vocalisation prompted the reading [ʔaðoː'kɛ:j] instead of that reflected by the consonantal text. Another example is the word written with the consonants עפלים 'tumours (?)' (Deut. 28.27; 1 Sam. 5.6, 9, 12). In these places, the reading tradition requires the word טַחְרִים 'haemorrhoids' instead, since it was considered less crass. Superimposing the vowels of טַחְרִים on the consonants עפלים was not, however, considered to be sufficient to trigger the memory of the reader to pronounce טַחְרִים, since this conflict between the consonantal text and the

⁴ Yochanan Breuer (1991, 191), also considering the cantillation marks, remarks, והנה, אף על פי שבדרך כלל הקשר בין שלושת היסודות האלה הוא באמת הדוק, ובנוסח המקרא שבידינו הם הפכו להיות מקשה אחת, מצאנו לעתים שכל אחד מהם הולך בדרך נפרדת 'Indeed, even though the connection between these three elements is generally tight, and in our version of the Bible they became a unity, we sometimes find that each one of them goes its own separate way'. See also Hornkohl's contribution to the present volume.

oral reading only occurs four times, compared with the 6,828 occurrences of the divine name.⁵ Thus, a different method for maintaining the written tradition while indicating the oral reading tradition was necessary. In the Aleppo Codex, the consonantal form וּבְטַחֲרִים (Deut. 28.27) is pointed with the vowels of וּבְטַחֲרִים , and an accompanying marginal note instructs קרי וּבְטַחֲרִים 'קרי וּבְטַחֲרִים [wuvattʰo:ri:m] is read'. The oral reading tradition reflected by the vocalisation was known in the Masoretic tradition as *qere* '(what is) read' and the written tradition of the received consonantal text was known as *ketiv* '(what is) written'.

Modern research on the phenomenon of *qere* and *ketiv* has been concerned primarily with tracing the origins and motivation for differences between the *qere* and *ketiv* and with classifying these differences according to various criteria (e.g., morphological, syntactic, euphemistic, etc.).⁶ I adopt here the view of scholars such as Barr (1981), Breuer (1997), and Ofer (2019, 85–107), according to which the *qere* and the *ketiv* represented parallel traditions. The question arises as to whether both traditions were considered equally authoritative or whether the *qere* was regarded as more authoritative than the *ketiv*. In the Talmudic period a practice developed of interpreting Scripture on two levels, one according to the consonantal text (*ketiv*) and one according to the way it was read (*qere*). This is reflected in the Talmudic dictum $\text{יש אים למקרא ויש אים למסורת}$ 'The reading has authority and

⁵ Ofer (2019, 21).

⁶ For a helpful and concise overview of *qere/ketiv* scholarship, see Ofer (2009, 271ff.); Contreras (2013, 449–53).

the traditional text has authority' (Naeh 1992; 1993). Some medieval Karaite scholars, e.g., al-Qirqisānī (Khan 1990a), objected to this practice and recognized the authority of only the reading tradition. In the Middle Ages the Karaites also produced Arabic transcriptions of the Bible that represented only the *qere* (Khan 1992). Some medieval Karaite scholars did, however, accept the possibility of interpreting according to the *ketiv* where it conflicted with the *qere*, e.g., the lexicographer al-Fāsi in his *Kitāb Jāmi' al-'Alfāz* (ed. Skoss 1936, vol. 1, 12–13) and Hadassi (Bacher 1895, 113).

In this paper I shall explore whether and to what extent the early medieval Karaite exegetes and Saadya regarded both the *qere* and the *ketiv* as authoritative bases of their interpretation of Scripture.

2.0. PURPOSE AND METHODOLOGY

I present here my findings with regard to the extent to which the differences between the *qere* and the *ketiv* are reflected in the exegetical works of the medieval Karaites and Saadya Gaon. A search in Accordance Bible Software for every instance of the *qere/ketiv* in the Hebrew Bible yielded 1,384 hits, from among which I chose samples that were relevant for my investigation. In choosing examples of *qere/ketiv* to analyse, it was necessary that some restrictions were in place. First, I chose only examples from biblical books for which the translations and/or commentaries of Saadya and at least one or two medieval Karaite scholars are extant. The main limitation was that the extant commentaries and

translation of Saadya do not include the entire Bible.⁷ Second, I chose only examples of differences between *qere* and *ktiv* that reflected differences in meaning. Consider the following example:

- (1) כִּי־מִי אֲשֶׁר יבַחַר [יְחַבֵּר] אֵל כָּל־הַחַיִּים יֵשׁ בְּטָחוֹן...
 ‘For, whoever is joined to life has hope...’ (Eccl. 9.4a)⁸

In this example, the *qere* is from the Hebrew root חב"ר, which signifies the ‘joining’ of one person or thing to another. The *ktiv*, however, is from the root בח"ר, which signifies ‘choosing’. In my translation above, as in most English Bibles, I translated the half-verse according to the *qere*. As will be shown below, a translation of this half-verse according to the *ktiv* would also make perfect sense: ‘For, whoever chooses life has hope.’

In considering examples which make a difference in meaning, two additional caveats applied. First, *qere/ktiv* pairs that differ in agreement between subject and verb, as well as in regard to the antecedents of pronominal/object suffixes were excluded.

⁷ The extant portions include the Pentateuch, Isaiah, Psalms, Proverbs, Job, Song of Songs, Ruth, Lamentations, Ecclesiastes, Esther, Daniel, and Ezekiel (see Zewi 2015, 31 n. 30).

⁸ In this and following examples, the *ktiv* appears unvocalised, and the *qere* appears vocalised in brackets. In my translations that follow each example, I translate according to the *qere*. In Gordis’s (1971, 152) rubric ‘Unclassified KQ (= *ktiv/qere*)’, this verse appears in the list ‘Q preferable to K’. This verse does not appear in Cohen’s (2007, 7–11) recent work on *qere* and *ktiv*, the corpus of which was limited to the Pentateuch and Former Prophets.

The reason for this is that the rules governing agreement in Arabic and Biblical Hebrew differ sufficiently that it could not be said for certain whether the Arabic translations of Saadya and the Karaites reflected one of the two options. For example:

- (2) וְעָנוּ וְאָמְרוּ יָדֵינוּ לֹא שָׁפְכוּ [שָׁפְכוּ] אֶת־הַדָּם הַזֶּה:
 ‘And they will testify and say, “Our hands did not shed this blood”’ (Deut. 21.7)

Here, the *qere* indicates that the reading of this verb should be the 3mpl form, whereas the *ketiv* reflects either a 3fs form, or a remnant of the archaic 3fpl form of the perfect.⁹ Regardless, the translation of the phrase ‘X יָדֵינוּ לֹא’ (where ‘X’ represents a form of the verb שָׁפַךְ) into Arabic will not reflect which form the translator was translating. Thus, Saadya translates the above phrase

⁹ This 3fpl form would have dropped out at a later stage of the language due to its similarity to the 3fs of the perfect. Some controversy surrounds the construal of perfect verbs ending in הִ- with plural subjects (e.g., here, Num. 43.4; Josh. 15.4; 18.12, 14, 19; 2 Kgs 22.24; Jer. 2.15; 22.6; 50.6; Ps. 73.2; Job 16.16). Gordis (1971, 104–5), Kutscher (1982, 39–40), and Cohen (2007, 77–79) maintain the view that this is indeed a remnant of the archaic third person feminine plural form. Bergsträsser (1962, II.15) states that this situation is possible, but not certain, as these cases may simply be “errors or deviations (Fehler oder Abweichungen)” of congruence. Joüon (1947, 100–1), following Nöldeke (1904, 19, n. 3), maintains that these occurrences are simply the 3fs form and that the *ketiv* was a result of a misspelling due to Aramaic influence, which preserved the form ending in הִ-.

as אִי־דִינָא לֹא תִסְפֹךְ (NLRSP¹⁰ Yevr II C 1, fol. 206v, ln. 1), in which, according to Arabic grammatical norms, he uses the 3fs form. It is not clear whether this reflects the *qere* or the *ktiv*. Saadya's *Tafsīr* conforms, for the most part, to the norms of Classical Arabic grammar in order to convey to his audience the sense of the biblical text, rather than a wooden literal translation.¹¹ Classical Arabic requires a feminine singular verb when the preceding subject is a broken plural.¹² Yefet translates this verse: אִי־דִינָא מֵא סִפְכוּ (BL Or 2480, fol. 31r, lns. 4–5). Yefet's biblical translations exhibit a word-for-word, even morpheme-for-morpheme, imitation of the Hebrew source text.¹³ It would appear, then, that Yefet's translation reflects the *qere*. In his commentary, however, the verse is transcribed for comment as follows: פִּאמֵא קוֹלֵהֶם יִדְיֵנוּ לֹא פִּאמֵא 'Now, as for their expression, "יִדְיֵנוּ לֹא שִׁפְכָה" ...' (BL Or 2480, fol. 31r, lns. 8–9), thereby reflecting the *ktiv*, without an idiomatic translation following.

Second, I excluded euphemistic *qere/ktiv* pairs, such as the שִׁגְלָה (K)/שָׁכַב (Q) 'to violate' pair (Deut. 28.30; Isa. 13.16; Jer 3.2;

¹⁰ Henceforth NLRSP = National Library of Russia, St. Petersburg; BL = The British Library, London; NLF = The National Library of France, Paris; IOM = Institute of Oriental Manuscripts, the Russian Academy of Sciences.

¹¹ See Pollicak (1997, 82–90); Vollandt (2014, 69–74).

¹² Wright (1898, 2:296).

¹³ Polliack states that 'The literalism of Yefet's translations effects [*sic*] their Arabic style which often appears slavish and ungrammatical' (1997, 40). See also Vollandt (2014, 74–77); Sasson (2016, 25–30).

Zech. 14.2), and the עפלים (K)/טחורים (Q) ‘tumours/haemorrhoids’ pair (Deut. 28.27; 1 Sam. 5.6, 9, 12), since, in these instances, the *qere* “suggests the exact same meaning without saying it directly” (Ofer 2019, 99).

With these limitations in place, I analysed 48 verses among Saadya’s works and as many Karaite texts for those verses as was available to me.¹⁴ This yielded a total of 138 items of data. In what follows I offer a brief statistical overview of the extent to which Saadya and the Karaites follow the *qere* or the *ketiv* in their translations and commentaries. I then discuss these statistics in greater detail, offering relevant examples. I conclude with some final remarks and observations.

3.0. GENERAL RESULTS ACROSS THE WORKS OF SAADYA AND THE KARAITES

The works of Saadya, out of a total of 48 items of data, yield the following statistics: 35 instances reflect the *qere* (72.92 percent); nine instances reflect the *ketiv* (18.75 percent); three instances reflect both the *qere* and the *ketiv* (6.25 percent); one instance reflects neither the *qere* nor the *ketiv* (2.08 percent). Collectively, the works of the Karaites, presenting a total of ninety items of data, yield the following statistics: 72 instances reflect the *qere*

¹⁴ Gen. 30.11; Isa. 9.2; 10.32; 25.10; 30.5; 32.7; 49.5; 52.5; 65.4; Ezek. 42.9, 16; Ps. 9.13, 19; 10.10, 12; 74.11; 100.3; 139.16; Prov. 3.34; 14.21 8.17; 15.14; 16.19; 17.27; 19.7, 19; 20.20, 21; 21.29; 23.26, 31; 26.2; 31.4; Job 6.2, 21; 9.30; 13.15; 21.13; 30.22; 33.19 Song 2.13; Ruth 3.5, 12; 3.17 Eccl. 9.4; 12.6; Dan 9.24; 11.18.

(80 percent); six instances reflect the *ketiv* (6.67 percent); twelve instances reflect both the *qere* and the *ketiv* (13.33 percent).

These data suggest that Saadya and the Karaite exegetes translated and interpreted Scripture according to the tradition of the *qere* in the majority of instances. They did not, however, feel totally bound to that tradition and occasionally deviated from it, suggesting that they considered both traditions authoritative. Examination of the examples where precedence is given to the *ketiv* indicates that in almost every case this was due to an attempt to harmonise a reading with a parallel passage in the surrounding context or elsewhere in Scripture. This suggests that the primary concern of both Saadya and the Karaite exegetes was a clear exposition of each verse consistent with its context. Most of the time the meaning of the *qere* tradition yielded this satisfactory sense. Occasionally, however, this objective could be achieved only if translation and exegesis were based on the *ketiv* or on both traditions.

Saadya never mentions the phenomenon of *qere/ketiv* by name. Among the Karaites, I was able to find twelve instances in which they mention the phenomenon explicitly; I will list these instances below in the sections on the relevant scholars.

4.0. SAADYA GAON

Saadya (882–942) was born in Fayyūm, Egypt, and was known in Arabic as Saʿīd ben Yūsuf al-Fayyūmī. After spending some

years in Tiberias,¹⁵ in 928 he was appointed the head (Gaon) of the Babylonian *yeshiva*. One of his most important works is his translation of the Bible into Arabic, known as the *Tafsīr*. Saadya's *Tafsīr* is not uniform in its shape. For this reason, scholarly mention of the *Tafsīr* usually refers to one (or more) of three things: (1) an exegetical work on a part of the Pentateuch that consists of a translation of biblical verses embedded within a 'long commentary'—another name by which scholars refer to this body of work; (2) a translation of the Pentateuch without commentary, sometimes called the 'short *Tafsīr*'; (3) a translation and commentary on some of the remaining books of the Bible.¹⁶ Based on one of his introductions to the short *Tafsīr*, scholars accept the fact that he began the work after he left his home town in Egypt.¹⁷ They remain divided, however, as to when exactly he began his translation, and its subsequent development.¹⁸ The works in

¹⁵ His time in Palestine in general, and Tiberias in particular, is known from two principal sources. The first is a letter he wrote to former students. The scenario is as follows: Saadya and R. David were both in Babylon. R. David received a letter from Saadya's students, who ask about a calendrical dispute of which Saadya is a part. Puzzled as to why his students did not write to him, Saadya wrote back to them: כסבור אני כי לא כתבתם אליו מבלעדי בלתי כי דימתם כי עד עתה עודני בארץ ישראל (Brody 2013, 26; see Schechter 1901, 60 leaf 1v lns. 6–8 for the original letter fragment). The second comes from an account by the historian al-Mas'ūdī (d. 956) (de Goeje 1894, 112–13; Polliack 1997, 11–12).

¹⁶ See Brody (1998, 301).

¹⁷ Ben-Shammai (2000).

¹⁸ For opinions regarding the beginnings of the *Tafsīr*, see Vollandt (2015, 80, n. 119). For treatments regarding its development, see Brody

group (1) consist of fragments of the commentaries on Genesis (Zucker 1984), Exodus (Ratzaby 1998), and Leviticus (Leeven 1943; Zucker 1955–1956, 1957–1958).¹⁹ The main edition for the work of group (2) is that of Derenbourg (1893), although an updated critical edition is being prepared by Schlossberg (2011).²⁰ The works of group (3) consist of Isaiah (Derenbourg and Derenbourg 1895; Ratzaby 1993), Psalms (Qafih 1966), Proverbs (Derenbourg 1894; Qafih 1976), Job (Qafih 1973), the Five Scrolls (Qafih 1962), and Daniel (Qafih 1981; Alobadi 2006). Al-lony (1944) has also published fragments of Saadya’s translation of Ezekiel.

The works of Saadya primarily reflect the *qere* (72.92 percent), but to a lesser extent than the Karaites collectively (80 percent). In nine instances (18.75 percent), Saadya’s work reflects the *ketiv*, all which take place within the *ketuvim*;²¹ in three of these instances (Ps. 139.16; Job 6.21; Prov. 19.7), the *qere/ketiv* pair is לוֹ ‘to him’ (Q)/לֹא ‘no, not’ (K).²² In one of these instances (Ruth 3.5), the *qere* reflects the presence of a prepositional phrase [אֶלַי] תֵּאמְרֵי, whereas the *ketiv* reflects its absence. This instance

(1998, 303), Ben-Shammai (2000, 205–206), Steiner (2010, 76–93). More recently, see Zewi (2015, 27–29) for an overview of opinions about the *Tafsir*’s developments.

¹⁹ See also Qafih (1984) and Ratzaby (2004) for additional fragments.

²⁰ See Zewi (2015, 32–34) for a discussion of Derenbourg’s edition.

²¹ Ps. 10.10, 12; 139.16; Prov. 14.21; 15.14; 19.7; Job 6.21; Song 2.13; Ruth 3.5.

²² This specific *qere/ketiv* pair is discussed in detail below, since it receives exceptional treatment by both Saadya and the Karaite exegetes.

	Lines	
תראה	8	You see him,
יתכאצע ויתכאפץ חתי יקע	9	He lowers himself, he sinks down so that the helpless fall
אלבאיסין		
פי חאל תעטמה	10	by the might of his strength
וקולה ידכה ישוח	19	Now, the phrase יִדְכָּה יִשְׁחַ
הי צפה פי פעל אלאסד	20	is a description of the ac- tions of the lion.

It is clear that Saadya's translation reflects a single word (אלבאיסין), and therefore is a rendering of the *ketiv* (חלכאים). All of the Karaites' translations here, with the exception of Salmon ben Yeruḥam, reflect the *qere*.²⁶ The reason Saadya may have preferred to translate the *ketiv* here is most likely due to the surrounding context. As he says in his commentary, the actions of the verbs יתכאצע (= יִדְכָּה) and ויתכאפץ (= יִשְׁחַ) describe that of the lion mentioned one verse earlier (9) as a metaphor for the wicked person. Thus the metaphor extends into this verse (10). Earlier, in verse 8, the wicked person is described as targeting the 'helpless' (חלִלְכָה). This same word is used in verse 14 to describe the victim once again (חלִלְכָה). The only difference in these two instances (vv. 9, 14) is the orthography, where the word ends in *heh* instead of *'alef*. Considering this context, it appears that

²⁶ Yefet: גיש אלמנכסרין 'the army of the broken ones' (NLF Ms Hebr 290, fol. 67v, ln. 4); Al-Fāsi: יסאר אלכאמדין 'the comfort of those perishing' (Skoss 1936, II.82, ln. 15); Ibn-Nūḥ: אכתצר פיהא אליוד והי כלמתין 'The *yod* has been elided and the form is two words' (Khan 2000, 223, ln. 16).

Saadya chose to translate the *ketiv* in order to maintain consistency within the chapter.

(4) הַתְּאֵנָה חֲנֻטָּה פְּזִיחַ וְהַגְּפָנִים | סְמָדָר נִתְּנוּ רֵיחַ קוֹמֵי לְכִי [לְךָ] רַעִיטִי יִפְתֵּי
וּלְכִי-לְךָ:

‘The fig tree ripens its fruit, and as for the vines, their buds give forth fragrance. Arise, my friend and my beautiful one, go!’ (Song 2.13)

The *qere* reflects the so-called dative of interest, whereas the *ketiv* seems to reflect the feminine imperative form of the verb of the verb הִלָּךְ, viz. ‘go!’ לְכִי.²⁷ Saadya’s translation (Qafih 1962, 53) is as follows:

	Lines	
אלתינה קד עקדת גצהא, ואלגפון	10	The fig has already produced its fruit in clusters, and the <i>Smandar</i>
אלסמנדר קד אעטת אריאחהא, פקומי אמצי יא צאחבתי יא גמילתי ואנטלקי לך	11	vines have already given off their fragrance, so arise! Continue! O my friend, my beautiful one, and set off!

Saadya uses אמצי (امضي), the feminine imperative of the Arabic verb مَضَى ‘to go away’, thus reflecting one possible form of the *ketiv*. The reason seems to be that, in the Hebrew Bible, whenever

²⁷ For the dative of interest or ‘ethical dative’, see Joüon and Muraoka (2006, 458–59). The *ketiv* may also be analysed as reflecting the old Semitic 2fs -ī ending (see Joüon and Muraoka 2006, 267). Thanks to Aaron Hornkohl for bringing this to my attention.

the imperative form of the verb קום 'arise' is followed by the consonants (י)לך, the latter is vocalised as the preposition plus a pronominal suffix only once, viz. in Song 2.10 קוּמִי לְךָ. By contrast, the consonants (י)לך are realised as an imperative form of the verb קוּמִי eleven times following an imperative form of the verb קום.²⁸ Thus, here, Saadya may have preferred a *ketiv* form since it reflects a more regular construction.

A similar preference for following the more regular construction is seen in his translation of Song 2.10's קוּמִי לְךָ. Here there is no difference between *qere* and *ketiv*, but Saadya omits the dative of interest in his translation (according to Qafih 1962, 51):

(5) עֲנֵה דוֹדִי וְאָמַר לִי קוּמִי לְךָ רַעִיטָתִי יִפְתֵּי וּלְכִי-לְךָ:

	Line	
אבתדי ודידי וקאל קומי יא צאחבתי יא גמילתי ואנטלקי לך	13	My beloved began and said, 'Arise, O my friend, O my beautiful one and go forth.

Saadya's translation renders the second dative of interest intact קוּמִי לְךָ (= וּלְכִי-לְךָ), but not the first one. This is a further example, therefore, of how Saadya translated according to the normal construction with two imperative verbs, even if in this case there is no *ketiv* reading that reflects the imperative.

On three occasions, Saadya's works reflect both the *qere* and the *ketiv*:

²⁸ Gen. 28.2; Num. 22.20; Deut. 10.11; 1 Sam. 9.3; 2 Sam. 13.15; 1 Kgs 14.12; 17.9; Jer. 13.4, 6; Jon. 1.2; 3.2.

- (6) כַּצְפוֹר לָנוּד בְּדָרוֹר לְעוֹף בֵּן קָלִילַת חַנּוּם לֹא [לִז] תָּבֵא:
 ‘As a bird wandering to and fro, and as a swallow in flight,
 thus is an empty curse, it will return to him’ (Prov. 26.2)

In this example, the *qere* reflects a translation as I have given above. The *ketiv* reflects the reading ‘it will not come’. Saadya’s translation and commentary (Qafih 1976, 182) are as follows:

	Lines	
וכעצפור ינוד וכדרי	1	As a small bird sways to and fro, and as a sparrow
יטיר כדאך לען אלמגאן לא יציב...	2	flies, thus a curse without cause does not strike...
שבה איצא אללענה אלתי ילען אלנאס	13	He/it also likens the curse—with which people
בעצהם בעץ בשיין, אחדהמא אכתר חרכה מן	14	curse each other—to two things, one of them moves more than
אלאכר, לאן אלטיראן אסרע חרכה מן אלנוד,	15	the other, because flying is a faster movement than swaying.
כדאך מן ילען צאחבה בגיר אסתחקאק. אמא	16	Thus is the one who curses his neighbour without claim (i.e., for no reason). Either
אן תזול ען אלמשתום ולא תרנע אלי אלשאתם	17	it turns away from the cursed and does not return to the one who cursed,

כטיראן אלדורי אלדי יבעד רגועה, או יכון	18	just as the flight of a sparrow, which is unlikely to return. Or,
מע זואלהא ען אלמסבוב תעוד עלי אלסאב	19	when [the curse] turns away from the cursed, it returns to the one who curses,
כנוד אלעצפור ועודתה אלי מוצעה	20	just as the swaying of a small bird and its return to its place.

Saadya's translation reflects the *ketiv* (ln. 2). His commentary, however, depicts the resulting images of both the *qere* (lns. 19–20) and the *ketiv* (lns. 16–18). The reason for this does not seem to be the tendency to harmonise with the context or other places in Scripture. Rather, it is due to the exceptional treatment of this particular *qere/ketiv* pair, which I will treat below.²⁹

In one instance, Saadya's translation reflects neither the *qere* nor the *ketiv*:

²⁹ The other instances in which Saadya's translation reflects both are Ps. 100.3—for the *qere* see Qafih (1966, 221, lns. 8–9); for the *ketiv* see Qafih (1969–1970, 41, lns. 22–24) and Rosenblatt (1948, 47); and Job 9.30—for the *qere* see Qafih (1973, 59, lns. 2–14); for the *ketiv* see Qafih (1979–1980, 229, lns. 22–26) and Rosenblatt (1948, 372).

(7) כָּל הַבְּאִישׁ [הַבְּיֵשׁ] עַל-עַם לֹא-יִזְעִילוּ לָמוּ לֹא לְעֹזֵר וְלֹא לְהוֹעִיל כִּי לְבֹשֶׁת
וְגַם-לְחִרְפָּה:

‘All are put to shame because of a people who does not profit them. They are not for help nor profit, but for shame and reproach’ (Isa. 30.5)

The *qere* reflects the הוֹבִישׁ ‘to be ashamed’; the *ketiv* seems to reflect the הִבְאִישׁ ‘to stink, cause to stink’. Saadya’s translation (according to Ratzaby 1993, 61) is as follows:

	Lines	
באזא מא עצוני לחאל קום לא ינפעונהם	17	Considering the fact that they rebelled against me on account of the situation of people who would not benefit them
אד הם לא לעון ולא לנפע בל לכיבה ועאר	18	because they are not for assistance, not for benefit, instead, they are for failure as well as
איצא	19	shame

The reason for Saadya’s paraphrase is unclear. It seems he translates the portion in question in order to indicate *why* the people (in this case, Israel) would be ashamed (Q)/stink (K), viz. because they rebelled (= עצוני).

5.0. THE KARAITES

The period of medieval Karaism before the twelfth century CE may be divided into two periods. The first period runs roughly

from the middle of the eighth century until the first half of the tenth century. The primary names associated with this period are scholars from Iran and Iraq, such as ‘Anan ben David, Daniel al-Qūmūsī, and Ya‘qūb al-Qirqisāni. The second period is from about 950 until the fall of Jerusalem to the Crusaders in 1099, and is associated with scholars active in Palestine, in particular in the Karaite school (*dār al-‘ilm* ‘house of knowledge’) in Jerusalem, such as Salmon ben Yeraḥam, Yefet ben ‘Eli, David ben Abraham al-Fāsī, David ben Boaz, ‘Abū Ya‘aqūb Yūsuf ibn Nūḥ, ‘Abū al-Faraj Hārūn, and Jeshua ben Judah.³⁰

Above (§3.0), I presented the statistical results for the Karaite exegetes collectively. Although useful for comparison to Saadya, this would not be a true representation of the Karaites’ tendencies with regard to *qere* and *ktiv*. The data suggest that, even though the Karaites’ works reflect the *qere* the majority of the time, instances of deviance were not uniform, but differed according to the exegesis of each individual scholar. Thus, in what follows, I will present the data for each Karaite scholar in their rough chronological order.

5.1. Salmon ben Yeraḥam

Salmon, probably born between 910 and 920, was active in Palestine through the middle of the tenth century and is best known for his polemical work against Saadya Gaon, *Sefer Milḥamot ha-Shem* ‘Book of the Wars of the Lord’. His commentaries on Psalms,

³⁰ See Frank (2004, 1–22); Lasker (2007).

Song of Songs, Lamentations, Ecclesiastes, and a few folios of his commentary on the Pentateuch have been identified.³¹

In total, I was able to find eighteen items of data for Salmon.³² The works of Salmon reflect the *qere* twelve times, or 66.67 percent of the time. This is statistically the lowest incidence among the Karaites for which a significant number (five or more) of instances were found. His works reflect the *ketiv* twice (11.11 percent), and both the *qere* and the *ketiv* four times (22.22 percent). Statistically, his reflection of both is the highest among the Karaites. Both instances in which Salmon reflects the *ketiv* involve the *qere/ketiv* pair עניים 'poor' / עניים 'humble'.³³ These two terms are usually treated as synonyms due to the fact that in some instances עניים is the *qere* while עניים is the *ketiv* (e.g., Isa. 32.7; Ps. 9.19), and in others the reverse is the case (e.g., Ps. 9.13; 10.12). In all instances except one (shown below), regardless of which is the *qere* and which is the *ketiv*, Salmon translates עניים 'humble'.³⁴ The one instance in which he interprets according to

³¹ See Frank (2004 12–20); Zawanoska (2012, 20–21).

³² Ps. 9.13, 19; 10.10, 12; 74.11; 100.3; Prov. 3.34; 8.17; 14.21; 16.19; 17.27; 19.7, 19; 20.21; 26.2; 31.4; Eccl. 9.4; 12.6.

³³ Ps. 9.19; Prov. 14.21.

³⁴ Ps. 9.13: אלמתואצעין (*qere*; NLRSP Ms. EVR ARAB I 1345, fol. 60v, ln. 13); Ps. 9.19: אלמתואצעין (*ketiv*; NLRSP Ms. EVR ARAB I 1345, fol. 61v, ln. 15); Ps. 10.12: אלמתואצעין (*qere*; NLRSP Ms. EVR ARAB I 1345, fol. 65r, ln. 3); Prov. 3.34: אלמתואצעין (*qere*; NLRSP Ms. EVR ARAB I 1463, fol. 4r, ln. 24); Prov. 16.19: אלכאשעין (*qere*; NLRSP Ms. EVR ARAB I 1463, fol. 17r, ln. 2).

the reading עניים 'poor' is Prov. 14.21, due to the immediate context (NLRSP Ms. EVR ARAB I 1463 fol. 15v).

- (8) בְּזוֹ-לְרַעְהוּ חוֹטֵא וּמְחוֹנֵן עֲנִיִּים [עֲנָנִים] אֲשֶׁר־יָו:
 'The one who despises his neighbour is a sinner, but whoever has compassion on the poor is blessed' (Prov. 14.21)

	Lines	
למא דכר מא יקע מן אלנאס טבאעא פי בגצה	11	When it mentions how people normally act with regard to the hatred of the poor (in the previous verse), it (then) says בְּזוֹ-לְרַעְהוּ ('he who despises his neighbour') because it is not standard (i.e., it is not normal behaviour). As for if he were to despise him (his neighbour) due to a lack of
אלפקיר קאל בז לרעהו מן חית אן דלך לים מסתוי ואמא אן אזרעה לנקץ	12	sense or religion, then that is no sin. Now, the phrase
עקל או דין פלא גנאת: ומחונן ע א לאנה יפעל כלאף דאך	13	is because he does the opposite of that (i.e. the opposite of hating the poor).

Salmon interprets this verse in light of the one preceding (ln. 11). The preceding verse, Prov. 14.20, deals with the poor and the rich. This verse (Prov. 14.21) contrasts the previous one in terms

of normal versus abnormal behaviour. People normally despise the poor (Prov. 14.20); earlier in the commentary, Salmon says that people normally despise the poor not out of hostility, but due to the fact that the poor can exploit others for the sake of their own needs. Despising your neighbour for no reason, however, is abnormal (Prov. 14.21). Salmon says the one who has compassion (וּמְחַוֵּן) does the opposite of ‘that’ (דָּאָד; ln. 13). ‘That’ could refer to despising either a neighbour (Prov. 14.21) or the poor (Prov. 14:20), or even both. Due to Salmon’s treatment of both verses together, it is most likely he is reading the word ‘poor’ (עֲנִיִּים), in which case he is interpreting the *ketiv*.

Statistically more than any of the other Karaites—in four instances—Salmon’s works reflect both the *qere* and the *ketiv*. In two of these instances the pair is לוֹ (Q)/לָא (K), and in both he explicitly mentions *qere/ketiv*.³⁵ In the remaining two instances (Eccl. 9.4; 12.6), the *qere* and *ketiv* appear to be from separate roots.³⁶

³⁵ See above, n. 22. Ps. 100.3 בּוֹ וִיקְרָא בּוֹ וְלֹא מִכְתּוּב בְּאֵלֶיךָ וִיקְרָא בּוֹ וְלֹא is written with *’alef* and read with *waw*’ (NLRSP Ms. EVR I 558 fol. 36r, lns. 2–3); Prov. 26.2 וְהוּ כְּאֵתְבָה וִיתְפַסֵּר עָלֶי אֲלוֹגְהִין ‘That (form is the) written, and it may be interpreted in both ways’ (NLRSP Ms. EVR ARAB I 1463 fol. 27r, ln. 33).

³⁶ In Gordis’s lists (1971, 152, list 82), these two verses are ‘unclassified’ and appear in the list ‘Q Preferable to K’.

- (9) כִּי־מִי אֲשֶׁר יִבְחַר [וַיִּחְבֵּר] אֵל כָּל־הַחַיִּים יֵשׁ בְּטָחוֹן כִּי־לְכָלֵב חַי הוּא טוֹב מִן־
הָאֲרִיָּה הַמֵּת:

‘For, whoever is joined to all of life has hope, because a living dog is better than a dead lion’ (Eccl. 9.4)

The *qere* is a *pual* form from the root חב"ר ‘to join’, while the *ktiv* appears to be from the root בח"ר ‘to choose’. Salmon’s treatment of this verse (NLRSP Ms. EVR I 559 fols. 144r–145v) is as follows:

	Lines	
אֵן מִן אֲלֵדֵי יוֹלֵף אֵן יֵצֵאֵף	4	Whoever is joined, i.e. whoever is added,
אֵלֵי כָל אֲלֵאֲחִיא אֵיס אֲטִמְאֵנִיה אֵן לְכָלֵב חַי	5	to all of the living, there is assurance (for him). Surely a living dog
הוּ אֲכִיר מִן אֲלִסְבַע אֲלִמִּית לְמֵא קֵאל	6	is better than a dead lion. Whenever it said
וְאַחֲרָיו אֵל הַמֵּתִים וְדִמְהֵם עֵנֵד מֵא עֵאשׂוּ	7	‘And afterwards, to the dead ones’ (Eccl. 9.3), he castigated them when they lived
פִּי מֵעֵאצִּיהֵם וְצֵאֲרוּ אֵלֵי אֲלִמּוֹת גִּיר מִחִמּוּדִין	8	in their rebellion and they ended up in death unpraised.
קֵאל אֲלֵאֵן אֵן מִמֵּא יֵצֵאֵף בַּעֲץ אֵלֵי בַעֲץ הַתִּי	9	Now, he says that, a case of what is added to something else so that

<p>יערף פצילתה אצאפה אלאחיא אלי אלאמואת</p>	<p>10</p>	<p>its advantage may be known is the adding of the living to the dead.</p>
<p>פאן ללאחיא עלי אלאמואת פצלה כבירה והי</p>	<p>11</p>	<p>And, indeed, the living have a great advantage over the dead. It is that</p>
<p>אן אלאחיא קלובהם מטמאנה אנהם יקדרו</p>	<p>12</p>	<p>the heart of the living is at ease, that they are able</p>
<p>יתובו ויזדאדו פי אלאפעאל אלצאלחה ליזיד אללה</p>	<p>13</p>	<p>to repent and increase in pious works so that God adds</p>
<p>פי תואבהם</p>	<p>14</p>	<p>to their reward.</p>
<p>פקו אלן יחבר יכתב יבחר</p>	<p>4</p>	<p>So, now, the expression יבחר יחבר is written.</p>
<p>קד שרחנא מעניה ואמא קו פי באטן אלמעני</p>	<p>5</p>	<p>we have already explained its meaning. As for the ‘inner’ meaning</p>
<p>יבחר יעני אן יגב עלי אלאנסאן יכתאר אלחיאה</p>	<p>6</p>	<p>of יבחר it means that people must choose life</p>
<p>עלי אלמות לפעל אלכיר פקט לא לעשק אלדניא</p>	<p>7</p>	<p>over death in order to do only good, not to love this world.</p>

In this example, the *ketiv* is used as a source for the interpretation of the ‘inner’ (באטן, fol. 145v, ln. 5), i.e., hidden, non-literal,

meaning.³⁷ This contrasts with the meaning of the *qere* ‘is combined’ (יולף, fol. 144r, ln. 1), which is glossed as ‘is added’ (יצאף, fol. 144r, ln. 1).³⁸ The interpretation is that the advantage the living have over the dead is that they are able to serve God (fol. 144r, lns. 11–14). Salmon states that the word יחבר is ‘written’ (כתב, passive יכתב) as יבחר, thereby explicitly referring to the distinction between *qere* and *ktiv*. The ‘inner’ meaning is then that people must choose (= יבחר) life in order to do good works.

(10) עַד אֲשֶׁר לֹא יִרְחַק [יִרְחַק] חֲבֵל הַכֶּסֶף וְתַרְזֵן גְּלִית הַזָּהָב וְתִשְׁבֵּר בַּד עַל-
הַמְּבֹועַ וְנִרְזֵן הַגְּלִגֶל אֶל-הַבּוֹר:

‘(Remember your Creator while you are young) before the silver cord is no longer bound, and the golden basin is crushed, and the pitcher is shattered on the fountain, or the wheel is crushed on the cistern’ (Eccl. 12.6)

The *qere* is from the rare root רח"ק ‘to bind’. The *ktiv* appears to be from the root רח"ק ‘to be distant’. The explanation for the two readings seems to be orthographical confusion of the second radical.³⁹ Salmon’s treatment (NLRSP Ms. EVR I 559 fols. 178r–178v) is as follows:

³⁷ For a discussion of the literal (*al-zāhir*) and the inner (*al-bāṭin*) meanings of Scripture, see Ben-Shammai (2003, 43). For a discussion of these concepts in the wider Islamic world, see Velji (2016, 14–21).

³⁸ For alternative readings among the Karaites, see Polliack (1993).

³⁹ Barthélemy (2015, 877) explains the reason for this confusion as due to misreading of the phrase עַד אֲשֶׁר לֹא. He contends that לֹא has a non-negative meaning since the entire phrase is a Hebraicization of the Aramaic עַד דְּלֹא ‘but’.

	Lines	
תוב אלי אללה	9	Repent towards God
קבל אן לא יתסלסל ויתבאעד	10	before the silver cord is not
חבל אלפצה ותנרק		linked and is far away, and
גמגמה אלדהב ותנכסר אלגרה	11	the golden
עלי אלמנבע		bowl is crushed and the jar
ויחאצר אלבכר אלי אלביר	12	is broken upon the spring
ישתק ירתק		and the spools are brought
		to the well. The word ירתק
		is derived
מן ברתוקות זהב עשה הרתוק	13	from ברתוקות זהב 'the
ופסרו גלת		golden chain' (1 Kgs 6.21),
		עשה הרתוק 'Make chains!'
		(Ezek. 7.23). They ex-
		plained גלת
הזהב מן גלגלתו גלגלת קו עד	14	גלת 'the jar of gold' from
אשר לא ירתק		גלגלתו 'his skull' (Judg.
		9.53; 1 Chron. 10.10), גלגלת
		'skull'. The phrase עד אשר
		לא ירתק
חבל הכסף יעני תוב וארגע קבל	1	תכל הכסף meaning 'Repent
אן יתסלסל		and return before the silver
חבל אלפצה ישיר אלי כרו	2	cord is (not) linked', refers
אלצלב וקד אסמתהא		to the spinal vertebrae. The
		ancients
אלאואיל שלשלת של שררה	3	called it the 'chain of
ולדלך קאל פיה		power', for that reason he
		also said

איצא ירחק יעני תבאעד בעצהא מן בעץ	4	concerning it, ירחק, meaning they would separate one from the other (the vertebrae).
ולדלך יטול אלמות אכתר ממא כאן והו חי	5	For that reason, death lengthens (it) more than when it was alive,
לאן אלמפאצל איצא תמתד וסמא אלסלסלה	6	because the joints also stretch out. Now, he named the spine
חבל הכסף לאנהא שדאד אלגסם ורבאטה	7	a silver cord, because it is the strengthener of the body and a band
בהא	8	within it

Both the *qere* (= יתסלסל) and the *ketiv* (= ויתבאעד) are translated (fol. 178r, ln. 9). In order to accommodate both meanings, the ‘silver cord’ is interpreted as a metaphor for the spinal cord (fol. 178v, ln. 2). Signs of ageing include that the vertebrae of the spinal cord are ‘no longer linked’ (ירחק, *qere*; fol. 178v, ln. 2) and ‘are distancing themselves from each other’ (ירחק, *ketiv*; fol. 178v, ln. 4) due to the weakening of the joints. Salmon does not introduce the *ketiv* by stating in any way that it is ‘written’. Rather, he refers to it by קאל ‘it/he said’.

5.2. Yefet ben ‘Elī

Yefet, known in Arabic as ‘Abū ‘Alī Ḥasan ibn ‘Alī al-Lāwī al-Baṣrī, most likely immigrated from Baṣra, ‘Irāq, to Jerusalem,

where he was active during the second half of the tenth century.⁴⁰ Few other details of his life are known. Yefet produced a translation and commentary of the whole Bible. This is extant in hundreds of manuscripts, which were copied between the eleventh and nineteenth centuries.⁴¹ Consequently, Yefet’s treatment of every verse used in this study was available to me.

Out of 48 instances, 38 (79.17 percent) reflect the *qere*; statistically, this is the highest among the Karaites. Two instances (4.17 percent) reflect the *ketiv*; statistically, this is the lowest among the Karaites. Eight instances (16.67 percent) reflect both.

Both instances of Yefet’s reflection of the *ketiv* stem from harmonisation with either the immediate context or other places in Scripture.

Consider Job 6.21:

(11) כִּי־עָתָה הִיִּיתֶם לֹא [לֹ] תִרְאוּ חֲתֹת וּתִירְאוּ:

It is not entirely clear how to translate this verse according to the *qere*: the preposition לְ plus the 3ms suffix. The *ketiv* is לֹא ‘no, not’. This example (as per Hussain’s [1987, 93] edition) is particularly illustrative of Yefet’s tendency to deviate from the *qere* according to the context:

	Lines	
פֶּאן אֵלֶאן צִרְתֶּם לֹא שִׁי תִנְצֹרוּ אֵלְדֶעֶר וּפּוֹעֵתֶם	2	So, now you have become nothing. You saw the terror and you became afraid

⁴⁰ Mann (1935, 20–23); Sasson (2016, 5). Also see Ben-Shammai, (2007).

⁴¹ Sasson (2016, 5).

<p>קאל איזב אנתם יא אצחאבי צרתם לא שי אי ליס פיכם מן ישפק וירחם</p>	3	<p>Job said, “You, O my friends, have become nothing.” That is, “There is no one among you who would take sympathy and pity and console my heart. Instead, all of you are against me.”</p>
<p>ויעזי קלבי בל כלכם עליי וקו' תראו חתת יעני יגב עליכם אן תנטרו</p>	4	<p>Now the phrase תִּרְאוּ ‘You see my calamity’ means that ‘If you see what has befallen me, you would inevitably be afraid that what happened to me would happen to you, and you would not be able to save yourselves</p>
<p>מא נזל בי [פתכונון]⁴² קד פזעתם אן ילחקכם כמא לחקני פליס תתקו אן תכלצו</p>	5	<p>from afflictions of this world. The word תִּרְאוּ has <i>ga'ya</i> and is in place of <i>ga'ya</i> and is in place of תראו with short vowel (i.e., the <i>hireq</i>).</p>
<p>מן אלבלא בתאע אלדניא תראו הו געיה פהו מקאם תראו חטף.</p>	6	

Yefet’s translation clearly reflects the *ktiv* (לא שי ‘nothing’; ln. 2). This interpretation is appropriate in the context. ‘Nothing’ refers to the fact that, among Job’s friends, there is no one left to pity him (lns. 3–4). The reason they leave him is because they see

⁴² Reading taken from NLRSP Ms. EVR ARAB I 247 fol. 75r ln. 11. Hussain’s edition has פתכוני.

(= תְּרֵאוּ) his calamity and do not want the same to befall them (Ins. 4–5).⁴³

Of the eight instances in which Yefet’s translation and/or commentary reflect both the *qere* and the *ketiv*, four instances involve the pair לוֹ (Q)/לֵא (K). Other cases include the following:

(12) ומתחתה לשכות [ומתחת הלשכות] האלה המבוא [המביא] מהקדמים
בבואו להנה מהחצר החצנה:

‘Below these chambers, (there shall be) a passage from the east for one’s entering them from the outer courts’ (Ezek. 42.9)

This example contains three pairs of *qere/ketiv*; the third instance is the one in question. The *qere* has the *hifil* participle מביא ‘to bring’, perhaps nominalised to mean ‘passage’. The *ketiv* has the noun ‘entrance’ plus the definite article. Yefet’s treatment (BL Or. 5062, fols. 176r–176v) is as follows:

	Lines	
מן אספל הדה אלחגר אלמדכל אלי אל	15	And below these chambers (lies) the entrance for
[מ]גיב מן גהה אלשרק מן דכולה אליהן מן	16	the one who brings in from the east side, whose entrance into them is from
[אל]צחן אלבראניה. וקולה המביא	17 3	the outer court. The term המביא

⁴³ The other instance of Yefet’s translation reflecting the *ketiv* is Prov. 20.20 בְּאִשׁוֹן (Q)/בְּאִשׁוֹן (K) (Sasson 2016, 380 ln. 12, 381 lns. 1–2)—most likely a harmonisation with Prov. 7.9, where the *ketiv* form of 20.20 is the only reading (Sasson 2016, 233, lns. 10–11).

מְהַקְדִּים ישיר בה אלי כהנים [הלויים]	4	מְהַקְדִּים refers to the Levitical priests
אלדי הם משרתי הבית ומשרתי ה[עם]	5	who are ministers (at) the house (of God) and on be- half of the people
יעני אדא יגיבו אלחטאת ואלאשם ואלמנחה	6	So, when they bring the sin offerings, the guilt offer- ings, and offerings of thanksgiving
התי יטבכונהא ענד הדה אללשכות פאנהם	7	in order to cook them at these לשכות, then they
יגיבוהא מן נאחיה [ק]דיים וידכלון אליהא	8	should bring them from the east side and should enter it
מן חצר חיצוֹנָה והו אלצחן אלוסטאניה	9	from the חיצוֹנָה, which is the middle chamber.

Yefet's translation reflects both the *qere* (= [מ]גיב, fol. 176r, ln. 16) and the *ketiv* (= אלמדכל; fol. 176r, ln. 15). He links the two with the preposition *אלי*, which here means 'for'.⁴⁴ There is nothing in the immediate context that provides a definitive answer as to why both words are represented in the translation. Yefet identifies the participle of the *qere* with the Levitical priests. The context, however, is mostly concerned with the architecture of the temple in Ezekiel's vision. It is possible that the retention of the *ketiv*, which represents an architectural feature, allows for continuity in spite of the shift to refer to the activities of the priests.⁴⁵

⁴⁴ See Blau (2006, 19).

⁴⁵ The other three instances which are not לו (Q)/לא (K) are Gen. 30.11 (NLF Ms. Hebr 278, fol. 87r lns. 10–11, fol. 87v, lns. 6–7), Ps. 10.12

Within the four instances of the לִי (Q)/לְאִי (K) pair, Yefet explicitly mentions the phenomenon of *qere/ketiv*. One of the four instances in Yefet’s works (Prov. 26.2) has already been identified by Sasson (2013, 18), in which she also draws attention to the way in which Yefet designates *qere/ketiv*: “Yefet’s description of *kativ* as ‘that which is written inside’ and *qare* as ‘that which is written outside’ testifies to the page arrangement of the codices that were at his disposal.”⁴⁶ The two terms are *maktūb dāhil/yuktabu min dāhil* ‘written inside’, and *maktūb barran/yuktabu min barra* ‘written outside’. Yefet refers to *qere/ketiv* in this manner in Prov. 19.7 (Sassoon 2016, 360, lns. 1–13), and Job 13.15 (BL Or 2510 fol. 69r, lns. 6–8). But consider Ps. 139.16:

(13) גַּלְמִי | רָאוּ עֵינַיִךְ וְעַל־סִפְרְךָ כֻּלָּם יִכְתְּבוּ יָמִים יֵצְרוּ וְלֹא [וְלֹא] אֶחָד בָּהֶם:
 ‘Your eyes have seen me when I was incomplete, the days formed for me are all written in your book; in it is one of them’ (Ps. 139.16)

In Yefet’s treatment (according to NLF Ms Hebr 291, fols. 147v–148v) he mentions only that which is ‘written’ and does not specify ‘outside’ or ‘inside’:

	Lines	
גסמי נטרו עיניך ועל דיואנד כלהם יכתבון	5	Your eyes have seen my body, and upon your records all of the days

(NLF Ms. Hebr 290, fol. 68v, lns. 6–13), and Isa. 52.5 (NLRSP Ms. EVR I 596 fol. 221r lns. 8–10, fol. 222v lns. 8–12).

⁴⁶ See further Sasson (2013, 18–20). For this verse see Sasson (2016, 447, lns. 9–15).

אלאיאם אלדי צורו ולא כל ואחד מנהם.	6	are written which were formed—not any one from them.
וקו ולא אחד בהם יעני וללכאלק	15	Now the phrase וְלוֹ אֶחָד בְּהֵם means ‘and to (as for) the creator’—
כל ואחד מן הדה אלאעצא יחדת פיהא	16	In all these limbs, He brings about
נמו אלאעצא ויתגה איצא אן יפסר ולא אחד	17	the growth of the limbs (i.e., the translation would be ‘each of them’). Now it is also possible to interpret וְלוֹ אֶחָד
עלי [אלמכתוב] ⁴⁷ והו אנה יריד בה ולא ואחד	18	according to that which is written. In this way, it indi- cates, ‘not one
מן הדה אלאיאם אלדי צורת אעטאיי פיהא	19	of these days in which my limbs were formed
כפייה ענדך בל אנת עארף מא יכון פי כל	1	are hidden from you. Ra- ther, You know what will happen from
יום ויום	2	day to day.

5.3. Yūsuf ibn Nūḥ

Abū Ya‘aqūb Yūsuf ben Nūḥ, a native of Iraq, lived and worked in Palestine in the second half of the tenth century and beginning

⁴⁷ Reading taken from IOM Ms. A 215 fol. 75r ln. 8; IOM Ms. A 66 fol. 173v ln. 3. The reading in NLF Ms. Hebr. 291 contains the form אלכתבא.

of the eleventh century. He founded a college in Jerusalem called *dār li-l-‘ilm* ‘house of learning’ at the beginning of the eleventh century, a compound for biblical study and worship.⁴⁸ Ibn Nūḥ was well known as a grammarian and commentator (see §5.0 above).

I found a total of six instances from the published portions of ibn Nūḥ’s grammatical commentary known as the *Diqduq* (ed. Khan 2000). In all instances, his work reflects the *qere*, even where another scholar’s work may have reflected the *ketiv*. For example, in Ps. 10.10 Saadya’s translation and commentary indicate the *ketiv*.⁴⁹ Ibn Nūḥ’s treatment of this verse (as found in Khan 2000, 222–23) is as follows:

	Lines (Arabic)	
תפסיר לְחַלְכָּהּ לְגִישָׁךְ וְקֹד אֲכַתְצֶר	15	The meaning of לְחַלְכָּהּ is ‘for your army’. The <i>yod</i> in it has been elided. Analogous to it is חֲלַפְאִים (Ps. 10.10), in which the <i>yod</i> has been elided and which consists of two words.
פִּיהַּ אֱלִיּוֹד וּמִתְלֵה חֲלַפְאִים אֲכַתְצֶר פִּיהַּ אֱלִיּוֹד וְהִי כְלִמְתִּין	16	

Ibn Nūḥ refers to the *qere* of the form in Ps. 10.10, which consists of two words.

⁴⁸ See Margoliouth (1897, 438–439); Khan (2000, 5–7).

⁴⁹ See example 3.

ידעד נרו באשון חשך פי גפון אלטלמה. וקד	88	יִדְעֵד נְרוֹ (It says in the <i>qere</i>) בְּאַשׁוֹן חֹשֶׁךְ, (this also means) 'in the eyelids of darkness'. I have already explained all that is re- quired regarding the word בְּאַשׁוֹן in the section 'alef- yod.
אוצחת כל מא יקתצי לפטה אשון פי באב אי	89	

Al-Fāsi's reference to the 'eyelids of darkness' (גפון אלטלמה) appears to mean the darkness when one's eyelids cover their eyes. This mention of a part of the eye appears to refer to the lexeme אִישׁוֹן (= *ketiv*). In the section of the dictionary where the lexeme בְּאַשׁוֹן would have appeared, al-Fāsi, refers the reader back to the entry for אִישׁוֹן, indicating that he regarded the two words as synonymous. In his interpretation of Prov. 20.20, therefore, al-Fāsi uses the more familiar form of the *ketiv* as the basis of the interpretation of the hapax legomenon of the *qere*.

5.5. 'Alī ibn Sulaymān

'Alī ibn Sulaymān lived during the end of the eleventh and beginning of the twelfth centuries and probably lived in Jerusalem for some time.⁵¹ He is best known for his dictionary, which was based on an abridgement of al-Fāsi's.⁵²

I was able to find only one example for 'Alī which reflects the *qere*:

⁵¹ Skoss (1928, 30–31).

⁵² Skoss (1928, 31).

- (15) וַתֹּאמֶר לְאֵהָ בְגַד [בַּא גַּד] וַתִּקְרָא אֶת־שְׁמוֹ גַּד:
 ‘Leah said, “Fortune has come!” So, she called his name
 Gad’ (Gen. 30.11)

The *qere* reflects two words—a verb plus a noun. The *ketiv* either reflects the same thing, but with graphic elision of quiescent *’alef*,⁵³ or, a preposition plus a noun. In his dictionary (edition of Pinsker 1860, 181; translation by Skoss 1928, 60), ‘Ali states that:

	Lines (Arabic)	
וקיל אן בבל מבניה מן כלמתין המא בא בל מתל בא גד	7	And it is said that בבל is constructed of two words: בא בל, similar to בא גד (Gen. 30.11), which are written as one word, but they are two words.
אלתי כתב כלמה והי כלמתין	8	

‘Alī here follows al-Fāsi in recognising that this is two words, and therefore reads according to the *qere*.⁵⁴ He is unlike Yefet, whose translation reflects the *qere*, but whose commentary reflects both the *qere* and the *ketiv*.⁵⁵

6.0. THE QERE/KETIV PAIR לו/לא

The *qere/ketiv* pair לו (Q)/לא (K) often results in deviation from the *qere* in the works of Saadya and the Karaites. Out of nineteen total relevant instances cited in their works, there are deviations

⁵³ Díaz Esteban (1975, 135).

⁵⁴ For al-Fāsi, see Skoss (1936, I:298, lns. 14–16).

⁵⁵ See n. 45.

from the *qere* eleven times (57.9 percent). In some cases—Exod. 21.8; Lev. 11.21; 25.30—the surrounding context made the *ketiv* highly implausible, so I left these out of my investigation. Indeed, Lieberman (1988, 82) argues that, in these three cases, the *qere/ketiv* distinction is actually a false one, and that they constitute “an outgrowth of midrashic inference.” Thus, I limited myself to instances where an obvious exegetical difference was observable.⁵⁶

The reason for the frequent divergence seems to be related to the long and complicated history of the transmission of the verses containing these alternatives. In his study of this *qere/ketiv* pair Ognibeni (1989, 131–33) concluded, from the textual witnesses of the versions, that the reading tradition of the *qere* (יָל) is indeed ancient. The Dead Sea scrolls shed new light on the development of the *ketiv*. According to Lieberman (1988, 84), in about 80 percent of the instances of the verses that are attested in Masoretic lists, the *plene* spelling יָל is attested. Within K. A. Matthew’s orthographical typology, the spelling יָל belongs to the Hasmonian type (Freedman and Matthews 1985, 56–57). Ognibeni (1989, 136) concludes that “scribes copying from manuscripts of [the Hasmonean] type but writing according to other orthographic conventions may have occasionally fallen into error in the interpretation of this homograph.” Lieberman (1988, 83–84) has shown that this *qere/ketiv* pair evolved from multiple sources and that all instances have manuscript variants which support either reading. Based on his study of some Genizah fragments of Job 6.21, he states that ‘it becomes quite evident that

⁵⁶ I analysed Isa. 49.5; Job 6.21; Ps. 100.3; 139.16; Prov. 19.7; 26.2.

until very late... we have a text in a state of flux' (Lieberman 1988, 84). It is therefore plausible to suppose that, even though some of the Karaites' comments indicate the typical codicological arrangement of *qere/ketiv*, the situation described above with this particular pair still rendered both readings authoritative.

7.0. CONCLUSION

In this paper I have tried to determine to what extent the phenomenon of *qere/ketiv* is reflected in the works of Saadya Gaon and the medieval Karaite exegetes. In order to accomplish this, I analysed 48 instances in which the exegetical effect of the *qere/ketiv* pair was very apparent. The works of both Saadya and the Karaites generally reflect the *qere*. Nevertheless, not all of the scholars shared the same conviction as the Karaite al-Qirqisānī, that the *qere* was to be preferred as exclusively authoritative. Almost every divergence from this tendency may be shown to be due to the desire to harmonise a particular reading with the immediate context or parallel verses. This suggests that consistency of exposition is what propelled exegetical decisions between the *qere* and the *ketiv*. The pair וָ (Q)/סָ (K) appears to have constituted a special case, since there is evidence that both readings retained authority among the exegetes and so they felt particularly free to base their interpretation on the *ketiv* when the context allowed for it.

8.0. REFERENCES

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PAUSAL FORMS AND PROSODIC STRUCTURE IN TIBERIAN HEBREW*

Vincent DeCaen & B. Elan Dresher

Unless this question of the use of conjunctives with pausal forms can be resolved in agreement with Dresher's basic premises, there seems no reason to doubt that accents and vowels reflect distinct (though related) reading traditions.

Revell (2015, 15)

1.0. INTRODUCTION

Tiberian Hebrew (TH), the canonical dialect employed in the reading of the received biblical text, is characterized by the occurrence of PAUSAL FORMS, words that are marked by variations in vowel quality and/or word stress. These pausal forms occur at the ends of constructions that are typically associated cross-linguistically with prosodic units called INTONATIONAL PHRASES (Dresher 1994; DeCaen 2005).

To the biblical *textus receptus* the Tiberian scholars also added musical phrasing by means of complex systems of conjunctive and ranked disjunctive ACCENTS, which, among other

* An earlier version of this paper was presented jointly at SBL 2018 in Denver. We thank the participants in the section 'Masoretic Studies: Vocalization and Accentuation' for their comments and questions.

things, reflect the prosodic structure of each verse, indicating prosodic words (including clitic groups) and nested phonological phrases. We would therefore expect pausal forms to align with the phrasing indicated by the accents; in particular, we might expect pausal forms to occur systematically on particular disjunctive accents that mark the ends of intonational phrases.

As Revell has convincingly shown in many important publications on this topic (among others, Revell 1980; 1981; 2015), this is not what we find. In the words of Revell (2015, 11): “lack of consistency between the vowels and the accents is endemic, at a low level, throughout the text.” Not only do we occasionally find pausal forms even on the most minor disjunctive accents, in roughly ten glaring cases we unexpectedly find the “bizarre combination” of pausal forms apparently *in the middle* of a phonological phrase (Revell 2015, 6). How are we to explain these contradictions, which point to a mismatch between the distribution of pausal forms and the phrasing indicated by the accentuation?

First, we agree with the thesis stated by Revell (1980, 170):

It is clear, then, that the pausal forms were already fixed in the reading tradition when its received form was established by the masorettes. Consequently, their position in the text, and so the system of text division which they represent, must date from some earlier period.

This must be the case, because the occurrence of pausal forms cannot be predicted from the accents. As Revell (2015, 1) puts it, “The Masoretic Text, then, evidently includes features, sometimes mutually contradictory, deriving from different stages of the reading tradition.”

This much appears to be irrefutable. Revell's explanation for *how* this state of affairs came to be, however, is not as convincing to us. According to Revell (2015, 6), the apparent contradictions between prosodic phrasing and accentual phrasing in certain examples, and more generally, the unsystematic appearance of pausal forms with all sorts of accents, must reflect different "understandings" of the text, even though the "difference in meaning between the two interpretations is slight." Since there are instances where the accents seem to run roughshod over the pausal forms, it must be the case that the pausal forms were no longer recognized or appreciated for what they (originally) were: at the time that the accents were finalized, the pausal forms "must have been regarded simply as indeterminate variants of contextual forms" (Revell 2015, 6); they were "superseded and their function forgotten" (Revell 2015, 9).¹

Dresher (1994, 14) expresses a somewhat different view:

Put in traditional terms, pausal forms follow neither the syntax nor the accents; but it is not necessary to suppose on this account that they derive from a distinct reading tradition. The reason for the inconsistent matching of

¹ Implicit is the assumption of the superiority [or primacy?] of the vowel and stress patterns versus the accentuation. It is puzzling that the modern scholarly tradition discounts the accentuation as inferior, even though seminal Jewish commentators follow the accentuation (see Strauss Sherebrin 2013). After all, the practice of chanting poetry must be at least as old as Iron Age prophecy and Temple liturgy.

pausal forms with accents is that the Tiberian representation has no means of consistently marking this level [i.e., the intonational phrase] of the prosodic hierarchy.

In the comment quoted at the top of this article, Revell (2015, 15) takes issue with the denial of a “distinct reading tradition.” Of course, there are different ways of understanding ‘distinct’. In this article, we elaborate on Dresher’s (1994) account and advance a theory of how pausal forms came to co-exist with a musico-prosodic structure that does not entirely suit them. We agree with Revell (2015) that pausal forms do not depend on the accents and must have originated at a stage of the reading tradition prior to the fixing of the accents. In this sense, pausal forms and the accents can be said to arise from ‘distinct’ stages.

We do not think, however, that it follows that the pausal forms derive from a tradition that is *different* from the one that produced the accents, in the sense that there were two schools with different understandings of the text. This is because, as we will show, mismatches between pausal forms and accentual phrasing are *inevitable*, and, *crucially*, are due to the way the TH system of accents is designed. In other words, the mismatches are not necessarily due to different reading traditions with different understandings of the text or to ignorance concerning the nature of pausal forms, but rather to a basic flaw in the TH concept of prosodic structure. That is, while we cannot exclude the scenario put forward by Revell, we will argue that the vast majority of the mismatches between pausal forms and accents would have arisen *even if* the accentuators had been fully aware of the

function of pausal forms, because the TH system of accents gave them no alternative way to handle them.

In §2 we present a brief introduction to the theory of the prosodic hierarchy and show how it compares with the Tiberian accentual representation. In §3 we argue that pausal forms occur at the ends of intonational phrases, and in §4 we show why pausal forms *cannot* systematically align with the Tiberian system of accents. In §4.1 we discuss why pausal forms occur with lower disjunctives, with a focus on variation in Lev. 8–9. In §4.2 we take up the thorny issue of pausal forms with conjunctive accents; our argumentation concentrates on the example of Deut. 5.14,12 in contrast to the parallel of Exod. 20.10,14, a major crux treated by Revell (2015, 4ff, 13). §5 is a brief conclusion.

2.0. PROSODIC REPRESENTATION: PROSODIC LEVELS IN THE TIBERIAN TRANSCRIPTION

Theories of prosodic structure in the tradition of Selkirk (1981; 1984; 1986; 2011), Hayes (1989), Truckenbrodt (1999), and Nespor and Vogel (2007) posit that prosodic representation mediates the relationship between phonology and syntax. On this view, a PROSODIC HIERARCHY organizes the domains in which phonological rules operate. From the word level up, the units of the prosodic hierarchy are commonly supposed to have at least the levels shown in (1a):

(1) Prosodic hierarchies

a. Modern prosodic hierarchy b. Tiberian prosodic hierarchy

Utterance	U	Verse	V
Intonational phrase	I	Hierarchy of disjunctive	Di, i =
Phonological phrase	P	phrases	{0–3}
Prosodic word + clitics	W	Prosodic word + clitics	W

The Tiberian transcription also encodes a prosodic hierarchy, shown in (1b). It marks the bottom and top of the hierarchy very systematically (Dresher 1994; 2013). At the top, the biblical verse plays the role of the utterance. Like an utterance, a verse may consist of a single complete sentence, but may also be less than a sentence (a sentence fragment or a list, for example) or more than a sentence. For purposes of this study, we will take the verse divisions as given.²

Prosodic words are set off by blank spaces. A *maqṣef* ‘hyphen’ is used to join one or more grammatical words into a single prosodic word (called by some a ‘clitic group’). The principles governing cliticization are complex and intricately tied in with accentual division (Breuer 1982; Dresher 2009; Holmstedt and Dresher 2013). Whether a form is an independent prosodic word or a prosodically dependent clitic has implications for its phonology. For example, the accusative particle has the form $\eta\aleph \text{ } \text{?}\acute{\epsilon}:\theta$

² That is, we assume that the verse divisions were fixed before the internal parsing of verses indicated by the accents. However, the evidence is not conclusive; see Dotan (2007) for discussion.

and receives an accent when it is an independent prosodic word, and appears as $\text{ˈ} \text{ˀ} \text{ˁ} \text{ˀ}$ $\text{ʔ} \text{ɛ} \theta$ - when it is cliticized to a following word.³

2.1. The TH Hierarchy of Disjunctive Accents

Between the utterance (U) and the word (W), the TH transcription departs from the prosodic hierarchy in (1a). Rather than two distinct types of phrase—an intonational phrase and a phonological phrase—the Tiberian transcription parses each verse into a hierarchy of phrases. The Tiberian notation distinguishes two types of accents: a ranked series of disjunctives and the conjunctives that serve them. A CONJUNCTIVE ACCENT (C) on a word indicates that the word is part of the same phonological phrase as the word that follows it. A DISJUNCTIVE ACCENT (Di) indicates that a word is final in its phrase.

A phrase that ends in a disjunctive accent and which contains no other disjunctive accents is a MINIMAL PHRASE (MP; Strauss 2009). We identify the Tiberian MP with the phonological phrase P in the prosodic hierarchy. In the example in (2), the word וַיִּלְחָמוּ *vajhillu:ħamú:* ‘and they fought’ has a conjunctive accent and forms a minimal phrase with the hyphenated בְּנֵי־יְהוּדָה *vanè:juhu:ðó:* ‘men of Judah’. The third word, בִּירוּשָׁלַם *bìrù:ʃalá:jim* ‘against Jerusalem’, makes up a second minimal phrase by itself.

³ Our phonetic transcriptions of TH forms follows Khan (1987; 2013).

(2) Conjunctive and disjunctive accents

וַיִּלָּחֲמֻּ בְּגִי'יהוּדָה בִּירוּשָׁלַם

‘The Judahites attacked Jerusalem’ (Judg. 1.8)⁴

C

D2

D1

(vaʃjill:ħamú: vanè:juhuðó:) (bi:rù:ʃ:lá:jim)

and.they.fought men.of-Judah against.Jerusalem

The MP forms the domain for three phonological rules: spirantization, external gemination (*deħiq*), and *nesiga* (rhythmic stress retraction). We will illustrate one of these rules, spirantization, which applies as indicated in (3).

(3) Spirantization

A non-emphatic non-geminate plosive consonant—one of /b, g, d, k, p, t/—is spirantized to [v, ʃ, ð, x, f, θ], respectively, following a vowel, within words, as well as across words that are in the same minimal phrase (Kautzsch 1910, 75–76; Joüon and Muraoka 2006, 76–77).

In the first phrase in (2), the initial consonant of the second prosodic word *vanè:juhuðó:* is spirantized to [v] from underlying /b/ because it follows a vowel that ends the preceding word in the same MP. By contrast, the initial /b/ of *bi:rù:ʃ:lá:jim* is not spirantized, though it also follows a word-final vowel, because the preceding word is not in the same MP.

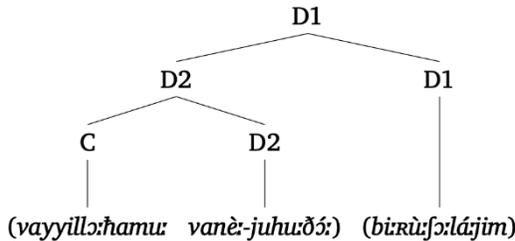
The disjunctive accents form a hierarchy with four levels, from the strongest, D0, all the way down to the weakest, D3. TH phonological phrases are nested, so that a phrase with an accent

⁴ English translations are from *Tanakh* (Jewish Publication Society 1988), except where a more literal translation is more informative.

of level D_i is divided by a phrase ending in accent $D(i + 1)$.⁵ In the example in (2) the second disjunctive, D1, terminates a non-MP comprising all three words. This non-MP is divided by accent D2.

The TH prosodic structure can be represented as a tree, where a phrase ending in a disjunctive D_i is itself labelled D_i . Here, the inner phrase is labelled D2 and the entire phrase is labelled D1, as shown in (4).

(4) Disjunctive accents in the form of a tree



Why does this phrase end in D1? Recall that the top of the hierarchy is labelled D0. The three prosodic words in (2) and (4) form just the beginning of a verse (5a); the phrasing of the complete verse is shown in (5b).

⁵ As there is no level below D3, if a phrase terminating in a D3 accent must be divided, it is divided by another D3 accent.

(5) Judg. 1.8

a. The verse

וַיִּלָּחֲמוּ בְנֵי־יְהוּדָה בִּירוּשָׁלַם וַיִּלְכְּדוּ אוֹתָהּ וַיָּבִיאוּ לָפֶיֶתְחָרָב וְאֶת־הָעִיר שָׂלְחוּ
בָאֵשׁ:

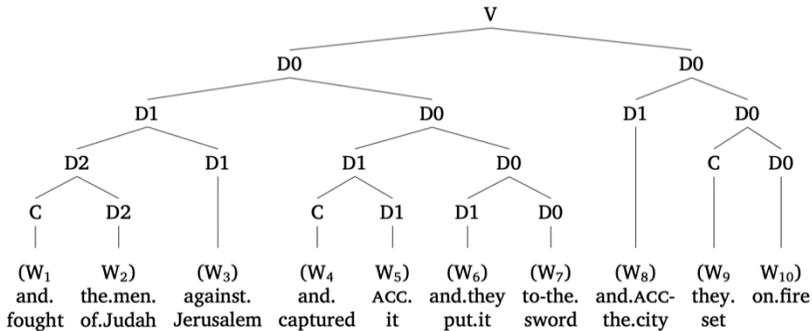
‘The Judahites attacked Jerusalem and captured it; they put it to the sword and set the city on fire.’

vayhillu:ḥamú: vanè-juhu:ḏó: birú:f:lá:jim
and.fought the.men-of.Judah against.Jerusalem

vayhilkadú: ?o:θó: vayhakkú:hó: lafi-ḥó:rev
and.captured.it and.they.put.it to-the.sword

ve?eθ-hó:ʕúR fillahú: vo:ʔé:f
and.ACC-the.city they.set on.fire

b. Phrasing of Judg. 1.8



The verse has ten prosodic words, labelled W_1 – W_{10} . There are seven MPs, indicated by parentheses. Again, these MPs can be equated with the phonological phrase P, and serve as the domain of the three phonological rules mentioned above.

This verse is divided into two parts by D0 accents. The most significant break comes after W_7 , which ends the first half-verse.

There is a maximum of two D0 accents in a verse. Every verse ends in a D0 accent; short verses may lack a second D0.⁶

The first half-verse, from W_1 to W_7 , consists of five MPs. These phrases have an internal organization whereby the first two MPs—($W_1 W_2$) and (W_3)—are grouped together, and the next three MPs—($W_4 W_5$), (W_6), and (W_7)—are grouped together. Thus, the main division in this half-verse comes after the second MP (W_3). Since the whole half-verse ends in D0, it must be divided by a D1 accent, which falls here on W_3 . This D1 phrase is, in turn, divided by the D2 accent on W_2 . This is the three-word phrase in (4).

2.2. Prosodic Transformations in TH

Unlike the MP, the higher-level phrases are not associated with phonological rules; rather, they indicate how the MPs are organized. This hierarchical organization is important in determining the accentual phrasing. In the realization of the logogenic liturgical chant, various transformations were applied for prosodic and musical reasons (Wickes 1887; Cohen 1969; Breuer 1982; Price 1990).⁷ These transformations are sensitive to prosodic conditions that depend on the hierarchical organization of a verse.

⁶ Verses lacking an internal D0 are apt to occur in poetry; for example, every verse in Lam. 5 has only a final D0. Short verses also occur in prose; see Ben-David (1984) for a study of pausal forms in verses with only one D0 in the twenty-one prose books.

⁷ For a generative syntax of the two TH accent systems (the poetic system of the three poetic books Job, Proverbs, and Psalms, and the prose system of the other twenty-one books) see Price (1990).

There are two kinds of transformation: division and simplification. In division, words that would ordinarily form a single MP are divided into two MPs (Breuer 1982, 108–27; Dresher 1994, 34–36). Division occurs at the higher levels of the prosodic hierarchy, and most commonly in the domain of D0. It corresponds to a slowing down of the reading in prominent prosodic positions (Janis 1987).

The converse of division is simplification (Cohen 1969; Breuer 1982, 50–82; Price 1990; Dresher 1994, 36–37, 44–47): words that would ordinarily form two or more separate MPs are combined into a single MP. When simplification occurs, a disjunctive accent is transformed into a conjunctive.⁸ Simplification amounts to a speeding up of the reading in prosodically subordinate parts of a verse.

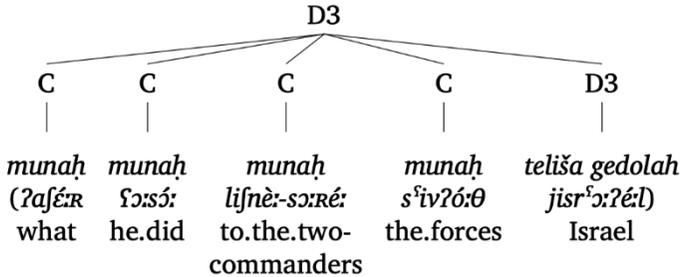
In the accent system of the twenty-one prose books, simplification occurs more freely as one moves down the hierarchy: D0 and D1 accents are only rarely transformed; D2 accents are transformed in particular limited contexts; and D3 accents are frequently transformed. For example, the D3 accents *gereš* and *legarmeh* often become conjunctives when they are close to a following D2 (Breuer 1982, 50). Simplification also frequently affects subordinate D3 accents, that is, D3 accents that divide other D3 accents.

⁸ Price (1990, 36, 170) refers to such conjunctive accents as ‘virtual disjunctives’; though realized by a conjunctive accent, they retain structurally disjunctive status. Thus, the phrase in the domain of such a transformed disjunctive continues to be divided as if the accent were still a disjunctive.

- b. After transformation (actual phrasing)

אֲשֶׁר עָשָׂה לְשְׁנֵי־שָׂרֵי צְבָאוֹת יִשְׂרָאֵל

‘what he did to the two commanders of the forces of Israel’
(1 Kgs 2.5)

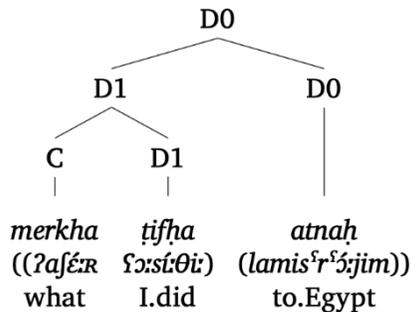


The second D3 phrase in (6a), the one ending in *teliša gedolah*, has already undergone a round of simplification (as well as cliticization of ‘to the two’); compare the more expansive phrasing in the domain of D2 shown in (7b).

- (7) Phrasing in the domain of higher disjunctives

- a. Object of the verb ʔasú:θi: ‘I did’ in a separate phrase

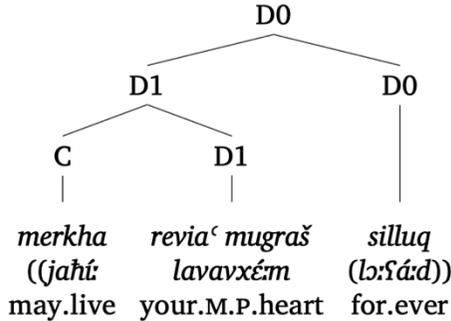
אֲשֶׁר עָשִׂיתִי לְמִצְרַיִם



‘What I did to the Egyptians’ (Exod. 19.4)

(8) Transformation of D1 *revia^c mugraš* before D0 *silluq*

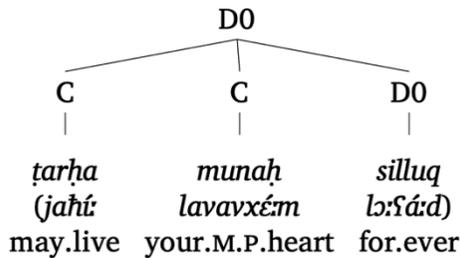
- a. Ps. 22.27 before transformation of *revia^c mugraš* (Breuer 1982, 224)



- b. After transformation (actual phrasing)

יְחִי לְבַבְכֶם לְעֶד:

‘Always be of good cheer!’ lit. ‘May your heart live forever.’



The various transformations reflect a prosodic reality: that phrases tend to get smaller in prosodically prominent positions, corresponding to a slowing of the tempo of speech; conversely, in prosodically subordinate positions phrases can accommodate more words by cancelling phrase boundaries that would otherwise be expected, corresponding to a speeding up of the tempo. Simplification in (8) has the effect of making the reading

more fluid, by avoiding disjunctive accents on successive words.⁹ Thus, the Tiberian system of accents is capable of reflecting subtle nuances of phrasing that may have their origins in the actual speech patterns that lie behind the formalized recitation of the biblical text.

3.0. PAUSAL FORMS AND THE INTONATIONAL PHRASE

Unlike the Tiberian system, the modern prosodic hierarchy (1) includes an INTONATIONAL PHRASE, I, which is different from the phonological phrase, P. The I is commonly defined as the domain of an INTONATION CONTOUR (Gussenhoven 2004; Ladd 2008). In TH, the intonation contours of natural speech have been replaced by the accentual cantillation; therefore, this diagnostic is not available to us. It has been observed, however, that the ends of Is coincide with positions in which pauses may occur (Bierwisch 1966; Bing 1979; Nespov and Vogel 2007, Ch. 7). Therefore, we might expect pausal forms to be associated with the ends of Is.

The most obvious position where a pause can occur is, of course, at the end of an utterance. Within utterances it has been noted that certain syntactic constructions usually form their own I-phrase. These include parenthetical expressions, non-restrictive relative clauses, certain adjunct clauses, vocatives, lists, and other such expressions (see Selkirk 1981; 1984; Nespov and Vogel 2007, 187–220). This set of constructions aligns nicely with the constructions in which pausal forms have been observed to occur.

⁹ See Strauss (2009) for evidence that the accentuators employed strategies to minimize sequences of adjacent disjunctives in the twenty-one books and thereby avoid ‘choppy’ readings.

Thus, Revell (1980, 166) observes that about 75 percent of the pausal forms in Deuteronomy occur at the ends of clauses. Within clauses, pausal forms are used in lists; TH characteristically groups items in lists by twos or threes, with a pausal form at the end of each such grouping. Elsewhere, pausal forms “seem generally to occur at the end of the most significant part or ‘core’ of the clause, and to divide it from less important phrases, often explanatory modifiers, which follow.” Clauses in Deuteronomy that end in a contextual form “are usually closely related to the following clause, and they are usually short” (Revell 1980, 167). Revell (1980, 171–75) also observes that pausal forms within a clause occur in the same places as the interjection *nuʔim yhw* ‘declares the LORD’.

We have observed that a verb that precedes an object clause headed by the complementizer *ki* ‘that’ tends to be in contextual form, as in (9a), whereas a verb preceding an adjunct clause headed by *ki* ‘because, for, but’, etc., tends to be in pausal form, underlined in (9b).

(9) Two kinds of *ki* phrase

a. Direct object clause headed by *ki* ‘that’

כִּי שָׁמְעוּ בִּי-שָׁם יֵאָכְלוּ לֶחֶם:

‘for they heard *that* they should eat bread there’ (Gen. 43.25)

((*ki*: fʔmʕim)D1 ((*ki*-fʔm)D1 (jʔ:xlw lʔ:hɛm)))D0
 for they.heard *that*-there they.should.eat bread

b. Adjunct clause headed by *ki*: ‘but’

וְגַם אֶל־שֹׁפְטֵיהֶם לֹא שָׁמְעוּ כִּי זָנוּ אַחֲרַי אֱלֹהִים אַחֲרֵים וַיִּשְׁתַּחֲווּ לָהֶם
 ‘And yet they would not hearken unto their judges, *but* they went a whoring after other gods, and bowed themselves unto them’ (Judg. 2.17)

((vayá:m ?el-fò:ft’e:hém) D2 (ló: ʕ:mé:su:)D1 ((kí: zo:nú:)D2
 and.yet to-their.judges not they.heard but they.whored

In (9a) the second instance of *ki*, glossed as ‘that’, heads a clause that is the direct object of the verb ‘they heard’. An I-phrase boundary does not typically intervene between a verb and its direct object, and therefore the verb *ʕ:mé:su:* is in its contextual form. In (9b) the clause headed by *kí:* is much less closely linked to the verb semantically, and presumably syntactically as well. We expect this kind of *ki* to begin a new I-phrase, causing the verb *ʕ:mé:su:* to end the preceding I-phrase, and indeed it is in pausal form. Note that despite this crucial difference in the phrasing, both verbs ‘hear’ are assigned the same D1 accent (*zaqef*).

I-phrases, hence pausal forms, are not entirely determined by syntax. The length of a phrase, as well as factors such as speech tempo, rhetorical pause, and emphasis play a role (Nespor and Vogel 2007, 193–205). The position of a phrase within the utterance (or biblical verse), as well as semantic factors, might lead to variation in whether or not a particular construction ends in an I or in a P.

The phonology of pausal forms is also consistent with what we expect to find at the ends of I-phrases. We commonly find that words at the end of an I tend to be pronounced with some combination of higher stress and longer articulation. It appears that

these factors were important in the creation of the special phonology of pausal forms. In (10) we list some typical differences between contextual and pausal forms.¹⁰

(10) Some contextual forms and their pausal counterparts

	Contextual	Pausal	Gloss
a.	אַתָּם אָמַרְתֶּם <i>ʔamár:rt:</i>	אַתָּם אָמַרְתֶּם <i>ʔamó:rt:</i>	‘you.ms.said’
b.	שֶׁמֶשׁ <i>ʃé:mɛʃ</i>	שֶׁמֶשׁ <i>ʃó:mɛʃ</i>	‘sun’
c.	יָלַד <i>j:lá:ð</i>	יָלַד <i>j:ló:ð</i>	‘he.begot’
d.	יִשְׁמְרוּ <i>jɪʃmarú:</i>	יִשְׁמְרוּ <i>jɪʃmó:ru:</i>	‘they.m.will.observe’
e.	יָדְךָ <i>j:ðxó:</i>	יָדְךָ <i>j:ðé:x:</i>	‘your.ms.hand’
f.	אֲנִי <i>ʔno:xí:</i>	אֲנִי <i>ʔnó:xí:</i>	‘I’
g.	וַיֹּאמֶר <i>vajjómɛr</i>	וַיֹּאמֶר <i>vajjómá:r</i>	‘and.he.said’

In (10a, b, c) a stressed vowel *á:* or *é:* in the contextual form corresponds to pausal *ó:*. In (10d), the contextual form has a *shewa* (here transcribed *a*) followed by a stressed final syllable; in the pausal form the stress is on the penultimate syllable, in which the vowel *ɛ* corresponds to the contextual *shewa*. The alternation in (10e) is similar, except that pausal stressed *é:* in the penult corresponds to the lack of a vowel (quiescent *shewa*) in the contextual form. In (10f), the contextual form has stress on

¹⁰ For various classifications of pausal forms, see Goerwitz (1993), Ben-David (1990; 1995), and Revell (2015). Some forms, such as the second person masculine singular pronoun, display a three-way alternation: contextual *אַתָּם ʔattó:*, ‘minor’ pause *אַתָּם ʔáttó:*, and major pause *אַתָּם ʔóttó:*. We do not consider minor pause here (see DeCaen 2005; Revell 2015, 28–30).

the final syllable with no change in the vocalism. The stress alternation is reversed in (10g): here, the contextual form has penultimate stress and the pausal form has final stress, with a different vowel in the final syllable.

Though the motivation for these contextual/pausal alternations is obscured in the medieval Tiberian pronunciation, the general consensus is that the differences originated in the longer vowel length and heightened stress of forms in pause compared with contextual forms (see, for example, Blau 1981; 2010). Thus, the alternations in (10a, b, c) historically derive from stressed short /a/ or /i/ being lengthened in pause to /a:/, which subsequently became /ɔ:/.

The form in (10d) originates from /ja + ʃmór + u/ with word stress on the penultimate vowel. In context (non-pausal positions), the word stress was not strong enough to preserve the penultimate vowel from reduction, with concomitant shift of the stress to the final syllable. In pause, the word stress was reinforced by the main phrase stress, and the penultimate vowel was lengthened, preserving it from reduction (Blau 2010, 154). A similar derivation accounts for (10e). In (10f), the stress shifted from the penultimate to the final syllable with reduction of the penultimate vowel. In these forms, according to Blau, the pausal forms maintain the older stress pattern and preserve a syllable that is reduced or deleted in context. The pausal form does not always preserve the original stress; in (10g) it is the contextual form that maintains the older stress on the penult, and in pause the stress shifts from the penult to a closed final syllable (Blau 2010, 155).

Though pausal forms show a variety of manifestations, it can be said in sum that the characteristic phonological processes that gave rise to pausal forms are heightened stress and vowel lengthening or resistance to reduction, that is, processes that might be expected to occur at the edges of I-phrases.

It is clear, then, from both the positions in which pausal forms occur and the nature of the phonological processes that created them, that pausal forms occur at the ends of I-phrases. But where is the I-phrase in the TH transcription?

4.0. WHY PAUSAL FORMS CANNOT ALIGN WITH THE TIBERIAN SYSTEM OF ACCENTS

The answer is that *there is no I* in the TH accent system, and this is the crux of the matter. Rather than the two types of phrase distinguished in the modern prosodic hierarchy, I and P, the TH accent system employs what Wickes (1887) calls the CONTINUOUS DICHOTOMY, that is, the hierarchy of disjunctive accents. We might try to equate the D0 disjunctives with I; in fact, most pausal forms (~ 80 percent) do fall on a D0 accent. We would expect a D0 accent to mark the end of an I-phrase: the end of a verse, marked by the D0 *silluq*, almost by definition ends an I-phrase; and the main verse division, marked by the D0 *atnah*, is very often associated with a major pause, for either grammatical or prosodic reasons.¹¹ The problem is that there is a maximum of two

¹¹ We refer here to the twenty-one prose books; *atnah* in the accent system of the three poetic books has a different status. The regular association of the D0 accents with pausal forms may have contributed to the view that pausal positions are systematically marked by the

D0 accents for each verse. I-phrases, however, are not limited in this way: in a complex verse, for example, or a verse with a list, there can be multiple Is. We can try to include lower-level disjunctive accents as also representing I; but this would fail to account for the fact that these accents are more commonly associated with non-pausal forms.

We have argued above that the various prosodic transformations—the division and simplification of phrases, and the associated change of conjunctives to disjunctives and disjunctives to conjunctives—must have originated in actual prosodic patterns in the living language that gave rise to the TH phrasing. It is these transformations that make the TH accents a flexible system capable of reflecting subtle aspects of phrasing. Our hypothesis, however, is that the prosody of the living language, like other languages, distinguished I-phrases from P-phrases. The biggest difference that we expect to find between the two is in the domain of simplification: a simple P-phrase boundary is weaker than an I-phrase boundary. There would be contexts in which a P boundary, but not an I boundary, would be cancelled as part of simplification.

Since the TH system does not distinguish I from P, we might expect it to treat Is as if they were Ps. The system is not capable of representing Is in whatever part of the prosodic tree they may occur due to the vagaries of the syntactic, semantic, and prosodic

accents, contrary to what has been demonstrated by Revell (1980; 1981; 2015). Indeed, Ben-David (1984) demonstrates that when *atnaḥ* is lacking and the major division in a verse is marked by the D1 *zaqef*, then pausal forms occur with this *zaqef* as if it were a D0 accent.

factors that are associated with Is. In §4.1 we will show why pausal forms cannot be consistently associated with particular disjunctive accents (except the D0 accents), and in §4.2 we will consider the more extreme cases of a pausal form on a conjunctive accent.

Before proceeding, we would like to briefly mention two possible sources of pause-accent mismatches that we will not consider here. First, we set aside possible scribal lapses. For example, we find the pausal hypercorrection מִמַּעַל *mimmá:ʕal* ‘above’ at Job 3.4,8 in the Leningrad Codex. In this case, the superior Aleppo Codex has the correct non-pausal form מֵעַל *mimmá:ʕal*.

Second, we do not deny that there may be genuine examples of clashing readings in the text. Breuer (1992) has collected a number of such cases (see Strauss Sherebrin 2013 for discussion), and Revell (2015, 21–22) mentions a number of verses in which the distribution of pausal forms might suggest a different verse division than the one suggested by the accents. A key element of this type of mismatch is the existence of an *alternative* phrasing that would resolve the mismatch; that is, the accents give one way of phrasing the verse, and the pausal forms suggest a different, but *equally possible*, phrasing that the accentuators could have chosen.

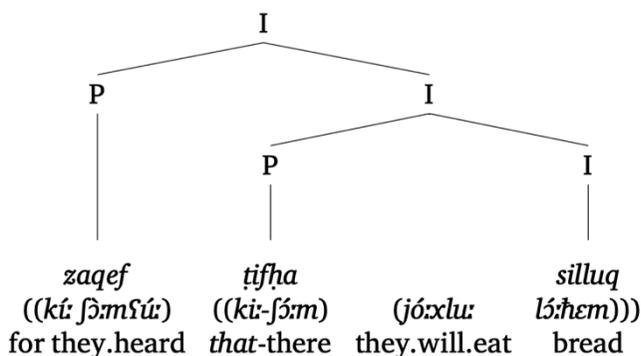
As we will see, the cases we will consider, which account for the majority of cases of pausal forms on lower disjunctives and conjunctives, are not resolvable in this way, and are indeed ‘endemic’ to the TH system itself.

4.1. Pausal Forms on Lower Disjunctive Accents

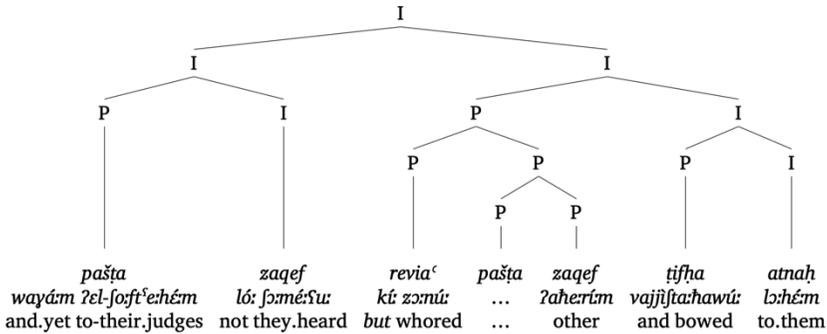
Consider again the two examples above in (9): in (9a), there is a small break after the verb ‘heard’ (a P-boundary) and the verb has the contextual form $\text{יִשְׁמְעוּ} \text{ } \dot{\text{š}}\text{:m}\dot{\text{š}}\text{ú}$; in (9b), a more significant break follows this verb (an I-boundary in natural speech), which has the pausal form $\text{יִשְׁמְעוּ} \text{ } \dot{\text{š}}\text{:m}\acute{\text{é}}\text{:š}\text{u}$. In (11) we give the phrasing of these verse portions indicated by the accents (only disjunctive accents shown) in tree form, indicating the hypothesized P and I phrases. Despite this crucial difference in phrasing, both verbs ‘heard’ are assigned the same D1 accent (*zaqef*). This is because both verbs stand at the main division of a D0 phrase, and a D0 phrase must be divided by a D1 accent. These structures clearly show the RELATIVE value of the accents emphasized by commentators going back to Wickes (1887). In this system, the difference between a P-phrase and an I-phrase cannot be indicated.

(11) I-phrase and P-phrase both marked with D1 *zaqef*

a. Gen. 43.25



b. Judg. 2.17



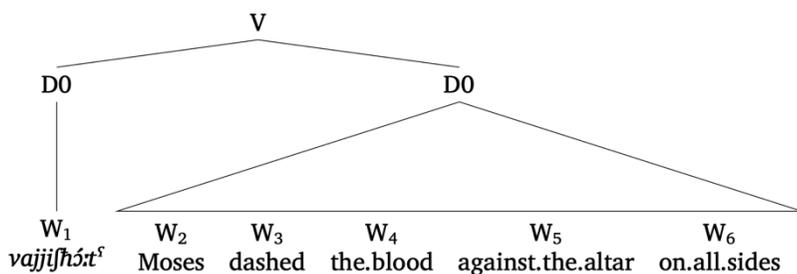
Consider next the Levitical expression $\text{וַיִּשְׁחַט} \text{ vajjišḥát}$ 'and he slaughtered [it]' in pause with stressed [ó:]. This occurs three times, all in Lev. 8, in verses 15,1, 19,1, and 23,1; compare the non-pausal form $\text{וַיִּשְׁחַט} \text{ vajjišḥát}$ with stressed [á:], which occurs elsewhere (three times in Lev. 9, in 8,5, 12,1, and 18,1; also twice in Jeremiah, in 39.6,1 and 52.10,1). The three pausal forms are sentences in their own right, word-sentences, as it were, and so we expect the pausal form terminating its own I-phrase. In contrast, the non-pausal forms are not sentences. Rather, the verb takes an overt object, and does not coincide with the right edge of an I-phrase.

If the word-sentence $\text{וַיִּשְׁחַט} \text{ vajjišḥát}$ terminated a verse, it would be assigned the D0 *silluq*, as befits a word that is final in an I. It does not, however, appear verse-finally in our text. In the three occurrences in Lev. 8, it appears verse-initially. We are thus confronted by the unusual phenomenon of a major break right at the beginning of a verse.

In Lev. 8.19, the word-sentence terminates the first half-verse, as shown in (12). As such, it receives the D0 *atnaḥ*. In this verse, then, the end of the I-phrase coincides felicitously with a D0 accent.

(12) Phrasing of Lev. 8.19

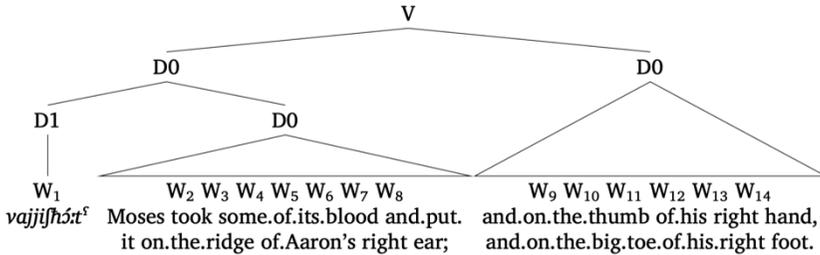
וַיִּשְׁחַט וַיִּזְרֹק מֹשֶׁה אֶת־הַדָּם עַל־הַמִּזְבֵּחַ סָבִיב:



Now consider Lev. 8.23 (13). This verse starts similarly to 8.19, but it has another six prosodic words to the right, which create a new half-verse. Therefore, what was previously the entire verse now becomes the first half of the verse governed by D0 *atnaḥ*. But now the accent on *vayyifhótʰ* is no longer at the end of a half-verse; it cannot remain a D0. Rather, due to the law of continuous dichotomy, it must be demoted to D1 (in this case *šalšelet*, the lawful substitution for expected *s^egolta*). The result is that the I-phrase is now assigned a D1.

(13) Phrasing of Lev. 8.23

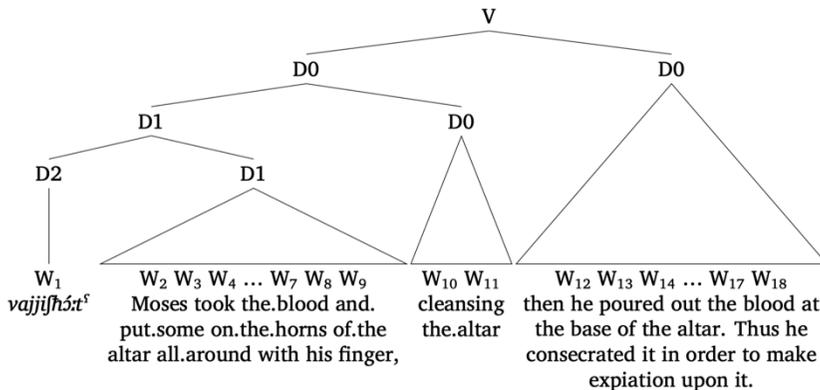
וַיִּשְׁחֹט | וַיִּקַּח מִשָּׁה מִדָּמָו וַיִּתֵּן עַל־תְּנוּדָא אֶזְרוֹ-אֶהָרָן הַיְמָנִית וְעַל־בֶּהֱן יָדוֹ
 הַיְמָנִית וְעַל־בֶּהֱן רִגְלוֹ הַיְמָנִית:



Lev. 8.15 is even longer. The addition of a seven-word clause creates a new half-verse. As before, the new D0 forces the demotion of the previous D0 to D1; thus, the D1 marking the word-sentence in Lev. 8.23 is now demoted further to D2 *revia*ʿ.

(14) Phrasing of Lev. 8.15

וַיִּשְׁחֹט וַיִּקַּח מִשָּׁה אֶת־הַדָּם וַיִּתֵּן עַל־קַרְנוֹת הַמִּזְבֵּחַ סָבִיב בְּאַצְבָּעוֹ וַיַּחֲטֵא אֶת־
 הַמִּזְבֵּחַ וְאֶת־הַדָּם יִצַק אֶל־יְסוּד הַמִּזְבֵּחַ וַיִּקְדָּשֵׁהוּ לְכַפֵּר עָלָיו:



In summary, the three verses are shown together in (15). The intuition embodied by contemporary prosodic theory is that the initial word is *equally* an I-phrase in all these verses, irrespective of how much material follows. The continuous dichotomy,

which is otherwise correct in its assumption that phrasing is based on dependencies that involve the entire verse, cannot assign I-phrases to a consistent set of accents.

(15) Three verses with an initial pausal form

a. Lev. 8.19

(And it was slaughtered.)_I **D0** (Moses dashed the blood against all sides of the altar.) **D0**

b. Lev. 8.23

((And it was slaughtered.)_I **D1** (Moses took some of its blood and put it on the ridge of Aaron's right ear,)) **D0** (and on the thumb of his right hand, and on the big toe of his right foot.) **D0**

c. Lev. 8.15

((And it was slaughtered.)_I **D2** (Moses took the blood and with his finger put some on each of the horns of the altar,)) **D1** (cleansing the altar;) **D0** (then he poured out the blood at the base of the altar. Thus he consecrated it in order to make expiation upon it.) **D0**

4.2. Pausal Forms with Conjunctive Accents

In a small number of extreme cases, a pausal form, which indicates that a word is at the end of its I-phrase, is assigned a *conjunctive* accent, which indicates that a word is medial in its phrase. Revell (2015, 4 n.5) lists twenty-seven such tokens. Of these, he marks nine as questionable. For example, $\text{קָמִיִּפְּוֹתֶ֑עָוֹ}$ *lamifpō:t'Éxō:* (Ps. 119.43,9) and $\text{קָמִיִּפְּוֹתֶ֑עָוֹ}$ *kamifpō:t'Éxō:* (Ps. 119.149,5) look like pausal forms in the singular; however, in

both cases, the forms are understood as ‘judgements’ in the *plural*, and are thus not subject to pausal variation.¹²

We find an additional five tokens to be questionable on the grounds that it is unlikely that the pausal form marks the end of an I-phrase. For example, 1 Sam. 7.17 has pausal $\text{טַפַּטְטַּיִם} \text{ } \text{יִשְׂרָאֵל}$ ‘judged’ immediately preceding a short direct object, a very unlikely environment for an I-phrase boundary (16a); indeed, the preceding verse has the non-pausal form of the same word in a very similar context (16b).¹³

(16) Verb in pausal form before direct object

a. Unexpected pausal form

וְשָׁם שִׁפְטָה אֶת־יִשְׂרָאֵל

‘and there too he would judge Israel’ (1 Sam. 7.17)

((*vafʔ:m*)D1 (*ʔɛθ-jisrɔ:ʔél*))D0

and.there he.judged ACC.Israel

¹² This interpretation is reflected in the Masoretic list Mm 2028: ‘five times written defectively’.

¹³ Fixity of pausal idiom appears to be the explanation for the conspicuous exception $\text{וְאָרֶץ} \text{ } \text{וְכֹכָבִים}$ ‘and earth’, a pausal form that appears in Isa. 65.17,6 and Prov. 25.3,3, both times in close connection to a following word that would appear to rule out an I-phrase boundary. It is the subject of Masoretic note Mm 3640: ‘three times exceptionally [*vɔ*], else all in the [fixed] idiom ‘heavens and earth’ [in pause] (the third exceptional token with [*vɔ*] is found in Isa. 26.19,13 on disjunctive D1 *tifha*).

b. Expected non-pausal form

וְשָׁפַט אֶת־יִשְׂרָאֵל

‘and acted as judge over Israel’ (1 Sam. 7.16)

(vaʃɔ:fá:tʰ)D2 (ʔεθ-jisrʰɔ:ʔé:l)D1

and.he.judged ACC-Israel

Leaving aside questionable cases, we are left with eleven tokens of pausal forms in plausible pausal contexts (that is, where we would expect an I-phrase boundary), of which Revell (2015) treats five directly: Deut. 5.14,12; Isa. 65.1,8; Mal. 1.6,8, 6,13; Ezek. 17.15,11.¹⁴ Though they are very few, they nevertheless cannot be dismissed as errors, and require some explanation. It is cases such as these that we will be concerned with here.

Though a pausal form with a conjunctive accent amounts to a contradiction, it does not necessarily stem from different reading traditions, or from a lack of understanding on the part of the accentuators of the function of pausal forms, as Revell (2015) concludes. Rather, we propose that such contradictions are *by-products* of the continuous dichotomy and the rules of simplification discussed in §4.2 that transform disjunctive accents into conjunctive ones.

Consider the portion of Deut. 5.14 in (17), a long verse which contains a long list.¹⁵ The pausal forms are underlined.

¹⁴ In addition to the verses mentioned above these include Isa. 32.11,5; 49.18,10; Mic. 3.11,12; Ps. 3.9,5; 47.5,9; 119.125,2.

¹⁵ There is no relevant distinction between the ‘lower’ and ‘upper’ cantillation in our example. The only difference is in the D0: in the lower cantillation, it is *silluq* (the verse ends here); in the upper cantillation, it is *atnah* (the verse goes on).

- (17) Portion of Deut. 5.14: A pausal form with a conjunctive accent

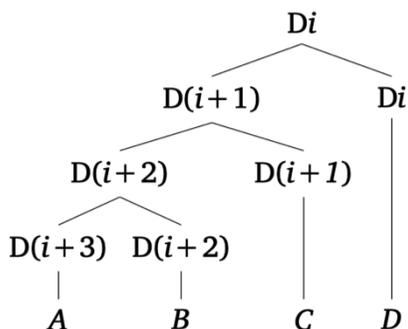
לֹא תַעֲשֶׂה כָּל־מְלָאכָה אֲתָהּ וּבִנְךָ־וּבִתֶּךָ וְעַבְדְּךָ־וְאִמְתֶּךָ וְשׂוֹרְךָ וְחִמְרֶךָ וְכָל־
בְּהֵמָתֶךָ וְגֵרְךָ אֲשֶׁר בְּשַׁעְרֶיךָ לְמַעַן יָנוּחַ עַבְדְּךָ וְאִמְתֶּךָ כְּמִוְךָ:

	<i>List</i>	<i>Accent</i>
you shall not do any work—		D3 <i>pazer</i>
you, your son or <u>your daughter</u> ,	(A)	C <i>munah</i>
your male or <u>female slave</u> ,	(B)	D3 <i>телиша</i> <i>gedolah</i>
your ox or your ass, or any of <u>your</u> <u>cattle</u>	(C)	D2 <i>revia</i> ^{cc}
or the stranger in your settlements,	(D)	D1 <i>zaqef</i>
so that your male and female slave may rest as you do.		D0 <i>silluq</i>

The main division of the verse portion in (17) is after ‘your settlements’; as this accent divides a D0 phrase, it is assigned the D1 *zaqef*. Accordingly, all the rest of the verse is now in the domain of this D1. Moreover, everything after ‘work’ is part of a list. In TH, lists are typically grouped into twos and threes, and the final item in each group receives a pausal form (‘your settlements’ has no special pausal form). The list in (17) has four main members: the first item, labelled *A*, itself contains three items (‘you’, ‘your son’, ‘your daughter’); the second member, *B*, has two (‘your male slave’, ‘your female slave’); the third, *C*, has three (‘your ox’, ‘your ass’, ‘any of your cattle’); and *D* has one item that comprises three words (lit. ‘and your stranger that is in your settlements’).

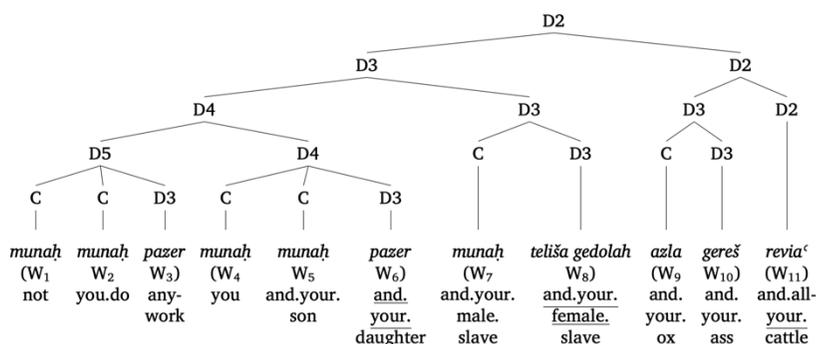
Lists are typically parsed as left-branching structures, as shown in (18). In a left-branching structure, disjunctives get progressively weaker proceeding from right to left; that is, an item earlier in the list occurs on a lower disjunctive (with a higher index) than a later item.

(18) Phrasing of lists in Tiberian Hebrew



The last item in the list in Deut. 5.14, item *D* in (17), ends on D1; therefore, plugging in the other items predicts, correctly, a D2 accent on item *C*, and a D3 accent on item *B*. According to the formula, the accent on item *A* should be $D(3+1) = D4$. Recall, however, that the disjunctive hierarchy runs only to D3. When required, a D3 phrase is divided by another D3, resulting in a ‘flattening’ of the prosody. Recall also that phrase simplification, that is, the merger of two minimal phrases into one, applies most readily in the D3 domain, with the result that a D3 accent is transformed into a conjunctive. Evidently, this occurs in Deut. 5.14: the first D3, with its pausal form $\text{וַיְבָרֶךְ} \textit{uvittéx}$: is replaced by transformation by a conjunctive accent, *C*, and we obtain the tree in (19).

(24) Phrasing of (20) before transformation of D3 to C



In the transformed structure in (20), ‘and your male slave’ is cliticized to ‘and your female slave’, forming one prosodic word. If this cliticization takes place independently of the transformation of *pazzer*, then the transformation is obligatory, because the *pazzer* is adjacent to the following *teliša gedolah*. In (24) we have made the more conservative assumption that ‘and your male slave’ is not joined to ‘and your female slave’ with *maqgef*, causing the *pazzer* to be separated from the following disjunctive by one word. Thus, we cannot say that the same list structure that yields the upper and lower cantillation in Exod. 20.10 will inevitably result in a conjunctive *munah* on the pausal form ‘and.your.daughter’; but it is very likely.

It remains to explain why ‘your female slave’ is pausal $\text{v}a\text{:}?\text{a}m\text{:}\theta\acute{\epsilon}\text{:}\chi\acute{\omega}$: at Deut. 5.14,14, but non-pausal $\text{v}a\text{:}?\text{a}m\text{:}\theta\chi\acute{\omega}$: at Exod. 20.10,14. The difference is correlated with a change in the way the list elements are grouped: in Deut. 5.14, the servants are grouped with the family (presumably after being grouped by themselves in the untransformed structure), whereas in Exod. 20.10 they are grouped with the cattle. Revell (2015, 5) comments that the difference possibly reflects “a change in the

position of servants in the society, which took place between the fixing of the vowels in the reading-tradition and the fixing of the accents.” That is, the grouping in Exod. 20.10, where the servants are with the cattle and pausal ‘your daughter’ is final in its group, reflects the older grouping; in Deut. 5.14, the servants were promoted to join the family members, stranding ‘your daughter’ with a pausal form in a non-pausal position in the middle of grouping. “The two traditions were separate, each meaningful on its own” (Revell 2015, 13).

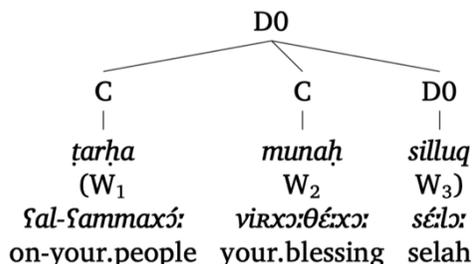
This proposal seems to us to be unnecessary. The key difference between the two lists is that in Exod. 20.10 the animals are represented by one item (‘your cattle’), whereas in Deut. 5.14 there are three (‘your ox’, ‘your ass’, and ‘all your cattle’). Certainly, the choice of detailing the types of livestock (Deut.) or not (Exod.) is extralinguistic, and this choice may or may not be meaningful. But *once that decision is made*, the formal TH constraint of grouping items by twos and threes suffices to account for the changed position of the servants. In Exod. 20.10, as shown in (21), group *A* and *B* each have three items. By contrast, in Deut. 5.14 (17), the family group (*A*) has three items, and the animal group (*C*) has three items. Thus, the servants must form a group of two by themselves (*B*); then the continuous dichotomy and the rules of simplification require groups *A* and *B* to be combined in this verse.

As a final example we will consider Ps. 3.9,5, which is an example of a pausal form on a conjunctive accent in the poetic books.

(25) Phrasing of a portion of Ps. 3.9

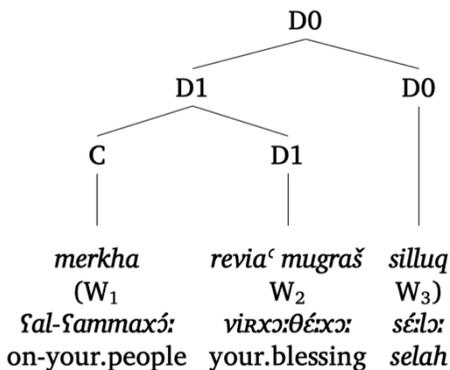
עַל-עַמּוֹדְךָ בְּרִכְתּוֹךָ סֵלָה:

‘Your blessing be upon your people! *Selah*.’



In (25) we find pausal בְּרִכְתּוֹךָ *virxox:θé:xox:* on the conjunctive *munah*. We have seen the accent sequence *tarḥa munah silluq* in (8b), where *munah* is the transformation of *revia^c mugraš* when it stands next to *silluq*. That is, this *munah* is a ‘virtual disjunctive’ standing in place of the D1 *revia^c mugraš* (26), whose transformation is obligatory in this context.

(26) Phrasing of a portion of Ps. 3.9 before the transformation of *revia^c mugraš*



We observed above that this transformation has the effect of avoiding a sequence of adjacent disjunctives, resulting in a more fluid reading. This works well in Ps. 22.27 (8), where an

internal P boundary before the last word ‘forever’ is not necessary. It does not work so well in Ps. 3.9, where there is a strong I-boundary, marked by a pausal form, before the last word, *selah*, which is not a part of the preceding sentence at all.¹⁶ The transformation of *revia*^c *mugraš*, however, is not sensitive to the difference between P and I, and therefore proceeds in this example, also, with the result that the pausal form ends up with a conjunctive accent.

It follows that the appearance of a pausal form with a conjunctive accent, though seemingly contradictory, is nevertheless the logical result of applying the iron rule of the continuous dichotomy and the attendant rules of simplification that transform disjunctive accents into conjunctive ones. We leave the reader to consider whether this mode of explanation also extends to the other verses with pausal forms on conjunctive accents, listed above and in note 14, as we would argue.

¹⁶ Pausal forms do not always precede *selah*; for example, Ps. 32.4,10 has contextual קָיִץ *qájis*^f ‘summer’ before *selah*. This may indicate that an I boundary did not always have to occur before *selah*. Another possibility is that the crucial difference between Ps. 3.9,5 and Ps. 32.4,10 is the type of word before *selah*. Ben-David (1984; 1995) observes that words of type (10e), like $\text{νῖρ\text{χ}\text{:}\theta\acute{\epsilon}\text{χ}\text{:}}$, in which the stressed vowel of the pausal form corresponds to a reduced or deleted vowel in the contextual form, appear in pausal form more readily than words of type (10a–c), like *qájis*^f (pausal קָיִץ *qájis*^d).

5.0. CONCLUSION

We agree with Revell's (2015, 6) conclusion that "the vocalization (including the stress patterns of the words) was fixed in the reading tradition first, and the melody marked by the accents came into use later." This is necessarily the case, because the distribution of pausal forms cannot be derived from the placement of the accents. It does not follow, however, that the vocalization, including the pausal forms, derives from a different reading tradition from the one that created the accents. Nor does it necessarily follow that the lack of coordination between the pausal forms and the accents indicates that the function of the latter was no longer apparent to the Tiberian scholars.

Of course, we have not excluded these scenarios. It is an empirical question to what extent the accentuators appreciated the significance of the contextual/pausal alternants. Our claim here is that the mismatches we have discussed between the pausal forms and the accents are not *in themselves* sufficient grounds to draw conclusions about this issue, because they have another explanation.

As Aronoff (1985, 28) writes in connection with the Tiberian accentual transcription, "any orthography must... involve a linguistic theory." In other words, the Tiberian transcription is not a pure record of recitation *per se*, but is filtered through a theory, in this case, the continuous dichotomy, the hierarchy of disjunctive accents, and the transformation rules involved in the division and simplification of phrases. The Tiberian theory of prosody is capable of reflecting subtle prosodic distinctions and

in general provides one of the most detailed prosodic representations of an extended text ever devised. Crucially, however, this theory of prosody does not have a way of systematically marking I-phrases.

We have argued that the Tiberian system of accents, because it does not distinguish between P-phrases and I-phrases, simply does not have the means of ensuring that pausal forms will be systematically assigned to certain accents in a predictable way. To preserve the pausal forms from prosodic subordination (that is, from appearing on lower disjunctives and conjunctives), the Tiberian scribes would have had to develop a dedicated set of accents that could be assigned to phrases ending in pausal forms, thus mimicking our contemporary division of phrases into P-phrases and I-phrases. It may not have been a trivial task to incorporate such accents into the Tiberian system; be that as it may, they did not do it.

The fact that the Tiberian scribes nevertheless recorded pausal forms even when they did not fit well with the accents is evidence that their over-riding goal was to faithfully and precisely represent the recitation tradition as they received it, and that “the distribution of pausal forms is, in fact, due to the generally accurate preservation of an ancient tradition” (Revell 1980, 179).

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SAMUEL BEN JACOB'S TREATMENT OF EXCEPTIONAL VOCALIC SHEWAS

Kim Phillips

1.0. INTRODUCTION: THE PRONUNCIATION OF *SHEWA*¹

Various masoretic treatises discuss the pronunciation of *shewa*—in particular the significant question of when a *shewa* is to be considered silent, and when it is sounded.² The rules laid out in these treatises do not in all respects conform to the rules found in modern grammars (which have been influenced by later medieval grammatical works in which the earlier Tiberian pronunciation had already been largely forgotten).

In crude summary, these early masoretic treatises state that the *shewa* is vocal:

- At the beginning of a word
- Beneath a geminated consonant

¹ I am grateful to Dr Ben Outhwaite and Prof. Geoffrey Khan for their patient discussion with me of many of the rules and details contained in this study.

² Treatises of particular significance in this regard include the *Sefer Diquḏe haṭ-Ṭe'amim* (ed. Dotan 1967), the anonymous *Treatise on the Shewa* (Levy 1936), and the *Hidāyat al-Qāri* (Eldar 1994; Khan 2020).

- If it is the second of two consecutive, word-internal *shewas*

Elsewhere, the *shewa* is silent. In particular, an isolated, word-internal *shewa* is generally silent—even when preceded by an inherently long vowel (e.g., פְּתֻבוּ).³

Nonetheless, the early masoretic treatises discuss many different phonetic contexts in which an isolated, word-internal *shewa* not under a geminated consonant is pronounced as vocal, in contrast to the general rule. These include the *shewa* under the ם of the word-initial cluster הַק־ (under certain conditions); a *shewa* under the first of a pair of identical consonants (always when preceded by a long vowel, and often when preceded by a short vowel); the *shewa* in certain forms of the verbs בָּרַד/הִתְבָּרַד, גָּרַשׁ, אָבַל, יָרַד, הִלָּד; the *shewa* beneath a sibilant following conjunctive *waw* (under certain conditions); various other smaller classes of phonetic contexts (Yeivin 1968, 22–49).

This paper surveys how Samuel ben Jacob, the scribe responsible for producing the Leningrad Codex, treats these exceptional vocalic *shewas*. In addition to the Leningrad Codex itself, data will be gathered from codices L17 and Gott 27—manuscripts of the Former Prophets also produced by Samuel ben Jacob, as well as L^m and RNL EVR II B 60, Torah manuscripts by the same

³ For accessible overviews of the issue, see Yeivin (2003, 230–238); Khan (2012, 86–92). This paper relies heavily on Yeivin (1968 and 2003).

scribe.⁴ It is to be hoped that consulting multiple Samuel ben Jacob manuscripts will facilitate distinguishing between the intentional and the accidental in his work, and thereby reveal a more accurate and trustworthy picture of his practice. Data from the Aleppo Codex will also be presented to serve as background to Samuel ben Jacob's approach.

2.0. REPRESENTING THE EXCEPTIONAL VOCALIC SHEWAS

Taking the early masoretic codices *en masse*, the most common means of indicating an exceptional vocal *shewa* is by means of the *ga'ya*. The *ga'ya* is placed on the vowel immediately preceding the *shewa* and serves to indicate the vocalic nature of the following *shewa*. Yeivin refers to this type of *ga'ya* as 'phonetic', rather than 'musical' (Yeivin 2003, 221–26).⁵

⁴ For L^m, see Breuer (1992); for Gott 27, see Gottheil (1905), and Yeivin (1993, 188–89). These MSS have, or had, colophons explicitly naming Samuel ben Jacob as their scribe. For a detailed description of MS L17, and a demonstration that it is indeed the work of Samuel ben Jacob, see Phillips (2017). After I had completed a first draft of this paper, Joseph Ofer (2018) announced, in a lecture in Krakow, his discovery of yet another manuscript by the same scribe: RNL EVR II B 60. I have not been able to examine this manuscript thoroughly, but initial soundings have already yielded data useful for this study. Images of L^m and Gott 27 are not currently available to scholars, so I have been able to glean information germane to this study only as it appears, *ad hoc*, in the available scholarship.

⁵ Though the Masoretes themselves do not make this distinction explicit, it seems that they were aware of it. The early masoretic codices themselves (or rather the Masoretes and scribes behind these codices) were

Often, the phonetic context in which this class of phonetic *ga'ya* is used would not be a suitable context for a musical *ga'ya*. Hence, there is frequently no formal ambiguity as to whether a particular *ga'ya* is musical or phonetic—provided one has a reasonable grasp of the various different classes of *ga'yas* and their usual environments. Nonetheless, certain manuscripts—notably the Aleppo Codex, and to a lesser extent British Museum Or. 4445—have a propensity to mark the presence of an exceptional vocalic *shewa* by using a composite *shewa* (Yeivin 1968, 24; 2003, §429). Samuel ben Jacob also uses the composite *shewa* for this purpose, though to a far lesser degree. The composite *shewa* can either be combined with, or replace, the use of phonetic *ga'ya* in any given instance.

Formally, then, the early masoretic codices either mark these exceptional vocalic *shewas* in one of three ways—phonetic *ga'ya* only; composite *shewa* only; both phonetic *ga'ya* and composite *shewa*—or leave them unmarked.⁶

The ensuing data present Samuel ben Jacob's practice in representing the exceptional, vocalic nature of the *shewas* in

clearly aware that these classes of *ga'yas* (phonetic versus musical) were distinct to a greater degree than, say, the various different sub-classes of musical *ga'ya*. This is demonstrated by the fact that while the early codices only rarely put two musical *ga'yas* on the same word (Yeivin 2003, §391), there is no such hesitation about placing both a musical and a phonetic *ga'ya* on the same word (Yeivin 2003, §408).

⁶ In this category, the *shewa* is known to be vocalic either because it is unambiguously presented as such in other early masoretic codices, or because it is mentioned as being vocalic by the various masoretic sources that discuss this issue.

three contexts: the *shewa* under the מ of the word-initial cluster: -הֶמְ (under certain conditions); a *shewa* under the first of a pair of identical consonants (always when preceded by a long vowel, and often when preceded by a short vowel); the *shewa* in certain forms of the verbs: הַתְּבַרֵּךְ / בְּרַךְ , הִלֵּךְ , יָרַד , אָבַל .⁷ These three classes cover the great majority of occurrences of exceptional, vocalic *shewas*. MS L17 determined the text range from which comparative data were gathered. That is, if a relevant form appeared in the extant text of L17, the equivalent data were also gathered from L and A. Where possible, I have also included additional data from L^m, Gott 27, and RNL EVR II B 60.

3.0. DATA

3.1. *Shewa* Following מ of Word-initial -הֶמְ

This class of exceptional vocalic *shewas* concern the word-initial structure -הֶמְ .⁸ Usually, though not always, the initial ה is the definite article. Hence, what is said here also applies to -בְּמֶ , -כְּמֶ , and -לְמֶ , where the definite article is discernible in the *pataḥ* beneath the prefixed preposition. These prefixed forms were included in the search.

The basic rule here can be stated thus: if the -ה is the second syllable before the stressed syllable, and the word is not suitable for minor *gaʿya*, then the *shewa* under the *mem* will normally be

⁷ The verb יָרַשׁ is not included in the following discussion, as no suitable examples occur in the text-range from which data were gathered.

⁸ 'Word-initial' is not intended to preclude the possibility of the presence of ן .

vocal, apart from all instances of the word לְמִנְצֵחַ, and a few other isolated exceptions.⁹

In gathering the data for this set, every instance of word-initial -הַה/-הָה, with or without an inseparable preposition, was noted from the entire range of text contained in L17, regardless of word structure or number of syllables before the stressed syllable. All twenty-two examples, in all three of the manuscripts examined, show a *ga'ya* under the first letter. In twenty instances the combination -הַה/-הָה itself is present, and a further two instances concern the combination -בְּה/-בָה, wherein the ה of the definite article has been elided in favour of the prefixed -ב. In twenty-one of the examples the -ה (or equivalent) does indeed constitute the second syllable before the stressed syllable. In הַמְצַרְעִים (2 Kgs 7.8), the -הַה constitutes the third syllable before the accented syllable. Nonetheless, א vocalises the מ with a *hatef patah* in this instance, too. In twenty of the examples the word structure is not suitable for minor *ga'ya* (and hence the *ga'ya* present must be phonetic). In the remaining two cases—הַמְלִיקִים (Judg. 7.6) and הַמְלָקִים (Judg. 7.7)—if a simple *shewa* were written beneath the *mem*, the forms would be suitable for not-fully-regular minor *ga'ya*, and thus the *ga'ya* could, theoretically, be either phonetic or musical. This is particularly the case in Judg. 7.7, where the primary accent on the word is disjunctive.

From RNL EVR II B 60 I was able to gather seven relevant examples. In each example the -ה constituted the second syllable from the accent. None of the forms was suitable for minor *ga'ya*.

⁹ For an exhaustive discussion, see Yeivin (1968, 24–30).

	הַמְּ-	הַמְּ-
A	4	18
L	20	2 הַמְּלֶקֶתִים (Judg. 7.6) הַמְּלֶקֶתִים (Judg. 7.7)
L17	20	2 הַמְּלֶקֶתִים (Judg. 7.6) הַמְּלֶקֶתִים (Judg. 7.7)
RNL EVR II B 60 (Torah)	7	0

Various aspects of these data are worthy of comment, or require explanation:

- The results nicely illustrate Yeivin's (1968, 24) claim that A's propensity to mark vocalic *shewa* in this context with a *ḥatef* is one of the most striking characteristics of its vocalisation compared with the other early masoretic codices.
- Of the four cases in the sample where A does not mark a *ḥatef* vowel, three concern the word הַמְּנִשָּׁה occurring once in each of the three verses Josh. 22.9–11.¹⁰ Yeivin (1968, 25) discusses these instances and concludes that, most likely, the vocaliser of A simply overlooked them. The

¹⁰ In fact, there is an additional instance of the same phenomenon in v. 7. L17, however, is not extant at this point, so this instance has not been included.

fourth case where A does not mark a *ḥatef* vowel concerns *הַמְלִיקָיִם* (Judg. 7.6), which will be considered below.

- Samuel ben Jacob is consistent across all three MSS, both in preferring the simple *gaʿya* over the *gaʿya* + *ḥatef* combination, and in his exceptional marking of *הַמְלִיקָיִם* with a *ḥatef* in Judg. 7.6, 7 in both L and L17.

The two occurrences of *הַמְלִיקָיִם* in Judg. 7.6, 7 are puzzling. They are the only two words in our sample where Samuel ben Jacob (consistently in both L and L17) vocalises the first *ṣ* with a *ḥatef pataḥ*.¹¹ Conversely, the occurrence in v. 6 is the fourth and final example in the whole data set where the vocaliser of A *fails* to point the *ṣ* with a *ḥatef*.¹²

¹¹ It is, of course, possible that these *ḥatef* vowels were later emendations not carried out by Samuel ben Jacob. In neither manuscript, however, is this obviously so.

¹² It can be stated with relative confidence that Samuel ben Jacob is not out-of-step with masoretic stipulation in pointing Judg. 7.6 with a *ḥatef*, despite A's simple *shewa*. Various masoretic sources either state or imply that in both instances of *הַמְלִיקָיִם* the *shewa* under the *ṣ* is vocalic. *Diqduqe haṭ-Te'amim* §14 (ed. Dotan 1967, 131, 228–32), states that the *shewa* under the first *ṣ* in *הַמְלִיקָיִם* should be pronounced as *pataḥ*, but does not specify whether this pertains to both occurrences, or only to one of them. Since, however, the word does not appear in the list of eighteen exceptions forming the latter part of §14, Yeivin (1968, 28) is of the opinion that this implies that both occurrences of the word are referred to. Yeivin (1968, 27) also mentions the reading of CUL Or. 1080, 13, 3², which specifies *הַמְלִיקָיִם בִּידֵם וְחִבְרוּ*.

Given that the pointing of these two words across both L and L17 is consistent, it seems plausible to see these as intentional choices, and to seek a rationale behind them. It is tempting to find such a rationale in the fact that these two words alone in the sample above have a structure suitable for minor *ga'ya*. That is to say, the form $\eta\text{מְלֻקְקִים}$ is ambiguous. Does the *ga'ya* represent minor *ga'ya* (i.e., a musical *ga'ya*)—in which case the *shewa* under the מ is silent—or a phonetic *ga'ya*—in which case the *shewa* under the מ is vocal? Thus, had Samuel ben Jacob employed his standard practice at Judg. 7.7 (where the accent on the word is disjunctive), relying exclusively on the inclusion of a *ga'ya* on the η to indicate the vocalic nature of the following *shewa*, this would have led to ambiguity. At least in the case in Judg. 7.7, then, it is tempting to think that Ben Jacob may have written the *ḥatef pataḥ* beneath the מ in order to disambiguate.¹³

¹³ The same argument can be made, scarcely, for the instance in Judg. 7.6, in that minor *ga'ya* can sometimes even occur on words with conjunctive accents. Yeivin (1993, 188–89) mentions that Gott 27 employs some *ḥatef* vowels under non-guttural letters, and gives the two instances of $\eta\text{מְלֻקְקִים}$ in Judg. 7.6, 7 as examples. This evidence is extraordinary, given the data above. Contrary to his practice in L and L17, Ben Jacob apparently marks the *shewa* under the ק with a *ḥatef*, but fails to mark either a *ga'ya* beneath the η or a *ḥatef* beneath the מ . It is difficult to interpret these data, however, without the context of his regular practice regarding phonetic *ga'ya* in Gott 27.

3.2. Doubled Consonants¹⁴

3.2.1. Preceded by Long Vowel¹⁵ (sixteen instances), e.g.,
עלֹוֹת

	<i>Ḥatef</i>	<i>Ga'ya</i>	<i>Munah-Zaqef</i>
A	13	2	5
L	0	3	5
L17	1 (לְקוֹי)	2	5

3.2.2. Preceded by Short Vowel¹⁶ (thirty-one instances: seventeen cases of הַנְּי and fourteen others), e.g., מְקֹלִים

	<i>Ḥatef</i>	<i>Ga'ya</i>
A	10	6
L	0	10 (NOT used on: וַיְהִלּוּ, וַיִּקְלָם, הַמְּלַקְקִים, הַמְּלַקְקִים; A has <i>ḥatef</i> in each case extant)
L17	1 (וּפְלֹי)	10 (NOT used on: וַהֲתַפְּלֹי, וַהֲתַפְּלֹי, הַמְּלַקְקִים, הַמְּלַקְקִים; A has <i>ḥatef</i> in each case)

¹⁴ For an up-to-date discussion of this issue, see Heijmans (2018, 98–110).

¹⁵ That is, a vowel that shows inherent length, rather than a vowel that is read as long due to syllable structure or stress.

¹⁶ That is, a vowel that is not inherently long, which would therefore be read as short in this context, unless a *ga'ya* accompanies it, and/or the simple *shewa* following it is replaced by a *ḥatef* vowel.

Diqduqe haṭ-Te'amim (§5) contains a clear rule concerning the pronunciation of a *shewa* under the first of two contiguous identical consonants:

סימן שתי אותיות אשר בתיבה אחת צבוחות זו לעומת זו חרותות... אם
 געיא לאות ראשון תקדום בנעימת לחשון, יפתח פיו באות הראשון... ואם
 אין געיא אצלם, לא יפתחו לעולם...

According to Dotan's interpretation:

"When two [identical] letters are contiguously written... if a *ga'ya* precedes the first letter in pronunciation, [the reader] pronounces the first of the [identical] letters with a vocal *shewa*... but if there is no *ga'ya*, the *shewa* is silent" (Dotan 1967, 115–16, 189–92).

According to Yeivin (2003, §423), this rule is not reflected in A or the other early masoretic codices. Rather, if the first identical letter is preceded by a long vowel, the *shewa* is always sounded, regardless of whether a *ga'ya* is written. If the first identical letter is preceded by a short vowel, the *shewa* is silent, unless it is preceded by a *ga'ya*, or the *shewa* is explicitly marked as a *ḥatef* (with or without *ga'ya*).

The first table above is consistent with Yeivin's description. Excluding the five cases of *munaḥ-zaqef*¹⁷ leaves eleven instances of two identical consonants preceded by a long vowel. A's extensive use of *ḥatef* vowels points to the *shewa* under the first identical consonant being vocalic in these cases. Yet L and L17 show a strong tendency *not* to mark a *ga'ya* on the long vowel. It is unlikely, given Samuel ben Jacob's proximity to the Ben Asher

¹⁷ In these cases, the *munaḥ* takes precedence over the *ga'ya*, occupying the same position that the *ga'ya* could otherwise fill.

pronunciation tradition elsewhere, that his tendency here not to mark the *ga'ya* is due to his reading the following *shewa* as silent. More likely, he is working with the assumption that the *shewa* under the first of two identical consonants is always vocal when preceded by a long vowel, and therefore does not feel the obligation to mark the *ga'ya*—a *ga'ya* which would be indistinguishable from a musical *ga'ya* in any case.

In the case of the pair of identical consonants preceded by a short vowel all the sources agree that in the particular form הַנְּי, there ought to be no *ga'ya*, and the *shewa* is silent. This is reflected in L and L17, in all seventeen occurrences in the sample.

With the fourteen remaining forms, the table above demonstrates Samuel's clear tendency to mark the vocalic nature of the *shewa* with a *ga'ya*. The contrast between this, and his strong tendency *not* to mark the *ga'ya* after a long vowel preceding a pair of identical consonants, is striking. Nonetheless, there is no contradiction in his practice here. In syllables of the structure C_1VC_2 , where the vowel is not inherently long (long *qameṣ*, *holem*, *ṣere*) and the syllable does not have the primary stress, the vowel is read as short, and the syllable closed. Thus, in the structure $C_1VC_2C_2$ under consideration, the addition of a *ga'ya* with the first vowel is formally necessary in order to render the following *shewa* vocal. This is quite unlike the situation in the preceding paragraph, where the inherently long vowel meant that, written or unwritten, the secondary stress was a phonological necessity.

This, then raises the question of why Samuel ben Jacob would omit this phonetic *ga'ya* in contexts where it was required. Excluding, for now, the perplexing הַמְּלִקִּים cases, there are four

further cases in the data above (two in L and two in L17) where Samuel ben Jacob fails to include a phonetic *ga'ya*, despite the fact that A marks a *ḥatef* vowel under the first of the doubled letters in each case. *Prima facie*, these either look like mistakes on Samuel's part, or indicate a different pronunciation to that of A. Further consideration, however, reveals a third alternative—for three of the cases.

In the cases of וְיִהְיֶה לְלוֹ and וְיִקְלָלֶם in L, and וְהִתְפַּלֵּל in L17, the words lack the expected phonetic *ga'ya*, but are marked with a minor *ga'ya*. Significantly, this type of musical *ga'ya* requires a very particular syllabic pattern of the word on which it occurs—a *syllabic pattern that is attained only if the shewa under the first doubled letter is read as vocalic*. That is to say, the marking of the minor *ga'ya* on these three words requires, and therefore implies, the vocalic nature of the *shewa* under the first doubled letter. Thus, it appears that, in these three cases, Samuel's pronunciation was identical to that of A; it is simply that his means of denoting that pronunciation differed. It is worth noting, further, that Samuel's is the most concise way of marking the required information.¹⁸

3.3. אָבֵל, יָרַד, הֵלֵךְ, בָּרַךְ/הִתְבָּרַךְ

Various masoretic and post-masoretic treatises, including *Diqduqe haṭ-Ṭe'amim* and the *Kitāb al-Khilaf*, discuss aspects of the vocalisation of these verbs. In each case, the discussion pertains to the *shewa* beneath the middle radical in certain morphological

¹⁸ This phenomenon will be examined in greater depth in a forthcoming study.

forms of the verb. The various rules all note that under certain phonetic circumstances the *shewa* is to be realised as vocal rather than silent.

3.3.1. בָּרָךְ/הִתְבָּרַךְ

The rule in *Diqduqe haṭ-Ṭe'amim* states that when the accent falls on the כ of the root, the *shewa* under the ר is to be pronounced as vocal, whereas if the accent is on the ב (i.e., has been retracted), the *shewa* under the ר is silent (§21, ed. Dotan 1967, 140, 262–68).

As expected, A's regular practice is to mark this vocalic *shewa* graphically, by using a *ḥatef pataḥ*. Perhaps more surprising, given the data above, is that Samuel ben Jacob's practice in L is frequently—though not uniformly—to mark the vocalic nature of the *shewa* using a *ḥatef pataḥ*, though many of these appear to be secondary emendations.¹⁹ Moreover, the evidence currently available suggests that Samuel ben Jacob was even more

¹⁹ There are sixteen occurrences of the verbs בָּרָךְ/הִתְבָּרַךְ suitable for vocalic *shewa* in the first twenty-seven chapters of Genesis. In the final form of L, three of these have a simple *shewa* (14.19; 26.3; 27.23). Interestingly, one notes that in two of these cases, 14.19 and 27.23, the presence of a preceding minor *ga'ya* implies that the simple *shewa* is vocalic (see §3.2.2. above). The remaining thirteen occurrences all have a *ḥatef pataḥ*. In only four of these cases, however, is the *ḥatef pataḥ* positioned naturally, and hence is likely to be original to the first layer of vocalisation (27.29, 34, 38, 41). In the remaining nine cases the *pataḥ*

assiduous in marking this *ḥatef pataḥ* in his other biblical manuscripts. In L17 there are ten occurrences of these verbs suitable for a *ḥatef* vowel. All ten are marked with a *ḥatef pataḥ* in L17, whereas only seven of these are marked with a *ḥatef pataḥ* in L. The great majority of these ten appear original.²⁰ Likewise, in Gott 27 the *ḥatef pataḥ* is marked in all pertinent occurrences. In L^m, the *ḥatef pataḥ* is marked in all occurrences save two (Gen. 27.19, 31).²¹ Due to lacunae in RNL EVR II B 60—and in particular the fact that the manuscript begins part way through Exodus—I was able to find only one instance of the verb בָּרַךְ suitable for a *ḥatef* vowel: Deut. 24.13. In this case, the *ḥatef* vowel was written, with no evidence of its being secondary.

3.3.2. יָרַד, הִקְלִיף

According to *Diqduqe haṭ-Te'amim*, in any form of these two verbs immediately preceding a letter with *dagesh*, a word-internal *shewa* is pronounced as vocal. In practice, this amounts to ten

is squeezed above a simple *shewa*, and appears to be the result of secondary correction, by Samuel himself or a later hand (12.3; 22.18; 24.60; 26.4, 12; 27.19, 27, 31, 33).

²⁰ The ten occurrences are: Josh. 22.33; Judg. 5.2, 9; 1 Sam. 13.10; 2 Sam. 8.10; 19.40; 21.3; 1 Kgs 8.66; 2 Kgs 4.29; 10.15. None of the *ḥatefs* here are obviously secondary, but those at Josh. 22.33; 2 Sam. 8.10; 1 Kgs 8.66 show some irregularity of form, which might indicate their secondary nature.

²¹ This information is derived from Breuer (1992, 1, 8). Breuer examines both the Torah MS L^m and the MS of the Former Prophets Gott 27, but refers to them both with the single label L^m.

occurrences of the 1cs or 1cpl lengthened *qal* imperfect of the verb הָלַךְ , e.g., אָנֹכִי גֹלְכָהּ (Exod. 5.3), and one 1cs lengthened *qal* imperfect of the verb יָרַד (§25, ed. Dotan 1967, 146, 275–77).

Dotan notes that all eleven cases in L are marked with a *ḥatef pataḥ*, but claims that most of the eleven are the result of secondary emendation (Dotan 1967, 276).²² L17 contains three of the relevant cases, all of which, likewise, are marked with *ḥatef pataḥ* (1 Sam. 9.6; 2 Sam. 15.7; 2 Kgs 6.2). Of these, however, only the vocalisation in 1 Sam. 9.6 might possibly be a later correction.

3.3.3. אָכַל

The rule according to *Diqduqe haṭ-Te‘amim* states that in forms of the verb with an object suffix where the ל is marked with a *segol* (with the sole exception of Eccl. 5.10), the *shewa* beneath the כ is vocalic, e.g., הָאָכַלְתָּהּ (L Gen. 3.17). Elsewhere, the *shewa* is silent (§22, ed. Dotan 1967, 141, 269–71). According to the *Kitāb al-Khilaf* (Lipschütz 1965, 17), this rule was practised by Ben Asher, whereas Ben Naftali did not mark the *ḥatef pataḥ*.

There are twenty-four specific instances that meet Ben Asher’s criteria. In the nine extant occurrences in A, the כ is marked with a *ḥatef* vowel. Cohen (1992, 70*) extrapolates from

²² In my estimation, only two of the occurrences of *ḥatef pataḥ* might be original (Exod. 5.3; Jer. 5.5). The remaining nine occurrences are cramped and malaligned, and likely constitute later emendations (Gen. 18.21; Exod. 3.18; 4.18; 1 Sam. 9.6; 26.11; 2 Sam. 15.7; 2 Kgs 6.2; Jer. 40.15; Ruth 2.2).

these to claim that the remaining fifteen instances ought also to be reconstructed in the same manner.

Samuel ben Jacob's practice in L is mixed: in fourteen cases he marks a *ḥatef pataḥ*; in the remaining ten cases he marks a simple *shewa*.²³ In many of the fourteen cases the *ḥatef pataḥ* appears to be secondary, as can be discerned by the cramping caused by the secondary interpolation of a *pataḥ* adjacent to the extant simple *shewa*.²⁴

Most of the twenty-four cases occur in the Pentateuch and Ezekiel. L17, accordingly, has only two relevant cases, both of which are marked with a simple *shewa* (2 Kgs 6.28, 29). Both these occurrences in L are also marked with a simple *shewa*.

In RNL EVR II B 60 I found twelve occurrences of the verb in forms suitable for a *ḥatef* vowel, according to the Ben Asher tradition. All twelve occurrences were marked with a *simple shewa*—following Ben Naftali. These concur with the evidence from L17 above.

3.3.4. Discussion

Several questions immediately arise from the data above. First, given Samuel ben Jacob's clear preference for phonetic *ga'ya* over *ḥatef* vowels in the first two contexts described in this article,

²³ The following have a simple *shewa*: Lev. 7.6; Deut. 12.15, 18, 22 (2x), 24, 25; 28.39; 2 Kgs 6.28, 29.

²⁴ Of the fourteen instances of *ḥatef pataḥ* in this context in L, the following six might be original: Gen. 3.17; Isa. 31.8; Ezek. 4.10a, 10b, 12; Eccl. 6.2. The remaining eight are almost certainly secondary: Lev. 6.11, 19; Num. 18.10, 13; Deut. 15.20, 22; Ezek. 4.9; 7.15.

why does he multiply his use of *ḥatef* vowels in this third context? This is explicable by the fact that there is no unambiguous way to use a *gaʿya* with the verbs בָּרַךְ/הִתְבָּרַךְ, הֵלֵךְ, יָרַד, אָכַל to mark the vocalic nature of the word-internal *shewa*. For example, in forms such as בָּרַכְנִי ‘bless me’ (L Gen. 27.34) and בָּרַכְנִי ‘(the Lord) blessed me’ (L Josh. 17.14), a *gaʿya* beneath the ב would attend either a *qameṣ* or a *šere*, and in either case could be interpreted as a major *gaʿya* in a closed syllable before the accent. Thus, the only unambiguous way to mark the sounded nature of the *shewa* in this case is to use a *ḥatef* vowel.

This raises a subsequent question. In the case of עֲלִלוֹת (i.e., two identical consonants preceded by an inherently long vowel), the use of a *gaʿya* to indicate the vocalic nature of the *shewa* would be ambiguous, just as is the case with בָּרַךְ/הִתְבָּרַךְ, הֵלֵךְ, יָרַד. Yet Samuel chose to leave the vocalic nature of the *shewa* in עֲלִלוֹת unmarked, but to mark the vocalic *shewa* in בָּרַךְ/הִתְבָּרַךְ, הֵלֵךְ, יָרַד explicitly, with a *ḥatef pataḥ*. Possibly, the explanation for this apparent inconsistency lies in the asymmetry between these two contexts regarding their scope of applicability. In the עֲלִלוֹת class the *shewa* is vocalic whenever a long vowel precedes the pair of identical consonants, with no further conditions, and few exceptions. By contrast, in the case of בָּרַךְ/הִתְבָּרַךְ, הֵלֵךְ, יָרַד, the sounded nature of the *shewa* is dependent on multiple criteria and conditions. It is possible, therefore, that Samuel ben Jacob chose to explicitly mark the vocal *shewa* in this latter class to ease the burden on the reader.

The most puzzling issue arising from the data concerning בָּרַךְ/הִתְבָּרַךְ, הֵלֵךְ, יָרַד, אָכַל concerns Samuel’s practice regarding the

vocalisation of אָכַל. Our current lack of direct access to L^m and Gott 27 renders all explanations provisional. If, however, the pattern outlined above is borne out by thorough examination of these manuscripts, two questions arise therefrom. Why, given Samuel's overall consistency in marking the *ḥatef* with the verbs בָּרַד/הִתְבָּרַד, הִלֵּךְ, יָרַד—particularly in L^m, L17, and Gott 27—does he avoid marking the *ḥatef* on the appropriate forms of אָכַל, and what—if anything—does he intend to indicate thereby? Regarding the latter question, the contrast between the treatment of אָכַל and בָּרַד/הִתְבָּרַד, הִלֵּךְ, יָרַד may be interpreted as having phonetic significance. That is to say, Samuel follows Ben Asher in pronouncing the vocalic *shewa* under the relevant circumstances with the verbs בָּרַד/הִתְבָּרַד, הִלֵּךְ, יָרַד, and notes this by using *ḥatef pataḥ*. His decision to avoid the *ḥatef pataḥ* in the case of אָכַל may therefore signal his belief that these *shewas* should be parsed as silent (or at least not pronounced identically to the pronunciation of *ḥatef pataḥ*). It is not clear why this should be the case, but it is noteworthy that it is precisely in the treatment of the verb אָכַל that one difference between Ben Asher and Ben Naftali arises. Samuel is not necessarily aligning himself with Ben Naftali on this issue (though this is a possibility), but it is possible that similar factors underlie both Samuel's and Ben Naftali's deviation from Ben Asher on this point.

4.0. SUMMARY AND CONCLUSIONS

The survey above examines Samuel ben Jacob's treatment of the exceptional vocalic *shewa* in three phonetic contexts, across several of his manuscripts, and can be summarised as follows. In the

case of the word-initial structure -הָקְ , Samuel's consistent preference is to indicate the sounded nature of the *shewa* using *ga'ya* only. Likewise, with cases of *shewa* under the first of two identical consonants, if the preceding vowel is historically short, Samuel indicates the sounded nature of the *shewa* using *ga'ya* only. If a preceding minor *ga'ya* already requires the *shewa* to be understood as vocalic, Samuel shows a tendency to omit the phonetic *ga'ya*. If the preceding vowel is inherently long, Samuel apparently assumes the sounded nature of the *shewa*, but does not mark it. By contrast, in the case of the vocalic *shewa* in certain forms of the verbs הִתְבַּרַּךְ / בִּרַּךְ , הִלְךְ , יָרַד Samuel's tendency is to indicate the vocalic nature of the *shewa* using a *ḥatef* vowel. In the case of אָכַל , however, he seems to prefer the simple *shewa*.

In his treatment of these classes of exceptional vocalic *shewas*, Samuel shows a tendency towards graphic economy. He omits the *ga'ya* before the first of two identical consonants when the attendant vowel is inherently long—perhaps because he expects his readers to be aware of the correct pronunciation without aid. He rarely marks both phonetic *ga'ya* and a *ḥatef* vowel (unlike in A). In both L and L17 we noted occasions where Samuel omits a necessary phonetic *ga'ya* because an earlier minor *ga'ya* requires, and therefore implies, the vocalic nature of the *shewa* in question.

The main point of interest arising from the comparison between multiple Samuel ben Jacob manuscripts has been his consistency across the manuscripts, and the nature of that consistency, which includes major trends (e.g., preference for phonetic *ga'ya* over *ḥatef* vowels), minor trends (e.g., his occasional

omission of phonetic *ga'ya* when a preceding minor *ga'ya* renders it pleonastic), and specific readings (e.g., his exceptional pointing of *הַמְלִיקִים* in Judg. 7.6, 7). Such consistency could plausibly be the result of a shared *Vorlage*. Other tentative evidence, however, suggests that L and L17 were not copied from a shared *Vorlage* (Phillips 2017, 27). Likewise, one notes that his minor tendency to omit phonetic *ga'yas* when musical *ga'yas* render them superfluous is not identically expressed between L and L17. The type of consistency observed here is best explained as a result of Samuel's intelligent grasp of the finer details of the vocalisation and accentuation, worked out in a set of consistent practices or tendencies, rather than as a result of mindless copying of an exemplar.²⁵

Comparison between the various manuscripts also sheds light on the corrections found in L itself. As is well known, the vocalisation and accentuation of L are very close to the practice of Ben Asher, as measured by comparison with the *Kitāb al-Khilaf* and MS A itself (Yeivin 1980, §30). Much of this proximity, however, has been obtained via correction (additions as well as erasures) of the first hand in L (Loewinger 1960, 82, and the bibliography cited there; Scanlin 1995, 105–25). An outstanding question in the study of L is whether Samuel ben Jacob himself performed these emendations, or whether they are the work of a

²⁵ For further evidence of Samuel's high level of educational attainment, see Outhwaite (2018). This stands in contrast to a widely held opinion that Samuel's skill as a *naqdan* and masorete (lower-case m!) were not pronounced. Even Cohen (1996, 9*), who holds MS L in high regard, claims that Samuel is merely an "average copyist."

different hand (Cohen 1992, 69*–70*). A third-person colophon in L (fol. 479r), in the hand (and with the siglum) of Samuel ben Jacob, claims that the codex has been carefully corrected (מוגה) (באר היטב) according to carefully corrected manuscripts of Ben Asher. It is uncertain, however, whether the ‘correction’ described by the term מוגה refers precisely to the later layer of corrections visible in the manuscript.

The data above feed directly into this question. Regarding בְּרִדָּה/הִתְבָּרָדָה, at least, it can no longer be claimed that Samuel ben Jacob was unaware of Ben Asher’s stipulations (despite having written out the relevant rule in the masoretic material at the end of L!). At least by the time he wrote L^m, RNL EVR II B 60, L17, and Gott 27 he had internalised this part of the *Diqduqe haṭ-Te’amim*. Does this imply that these latter manuscripts were all written after the initial copying of L?²⁶ This is beyond the power of these data to determine. At the very least, the comparative data rule out one option: it can no longer be categorically denied that Samuel ben Jacob could himself have performed the corrections on בְּרִדָּה/הִתְבָּרָדָה in L.

²⁶ This is possible, though so are other interpretations. For example, the rather imperfect rendering of the rule of Ben Asher in L could simply be the product of haste. Equally, even if L were written first, the data do not require that Samuel was, at that time, ill-versed in Ben Asher’s rules. As Dotan remarks frequently in his edition, it may be that ben Asher’s rules concerned the *pronunciation* of the *shewa*, rather than the graphic representation thereof. Or, at the very least, Samuel may have interpreted the rules in this way when working on MS L.

Finally, comparison between the various manuscripts of Samuel ben Jacob continues to hint at the possibility of Samuel preserving details of a tradition occasionally distinct from that of Ben Asher, despite his claims of having followed the latter in the aforementioned colophon. This has previously been noted in the curious case of the pointing of הִירָחֵם אֱלִי (1 Sam. 27.10) (Breuer 1992, xvii; Phillips 2017, 16). In the data above, his tendency not to mark the relevant forms of אָכַל with a *ḥatef* vowel stood out starkly against the backdrop of his practice of including the *ḥatef* vowel with the verbs בָּרַךְ/הִתְבָּרַךְ, יָרַד, הִלֵּךְ, בָּרַךְ.

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THE TIBERIAN TRADITION IN COMMON BIBLES FROM THE CAIRO GENIZAH

Benjamin Outhwaite

1.0. INTRODUCTION

This study takes a close look at five fragments of ‘Common Bibles’ from the Cairo Genizah, a category of biblical text that encompasses probably the majority of Hebrew Bible fragments found there. The texts are analysed on a textual and linguistic basis to see what they reveal about the phonetics of the Tiberian reading tradition in the Classical Genizah Period (the end of the tenth to the mid-thirteenth centuries CE) and the fidelity with which they follow that tradition. Common Bibles, I argue, provide a further glimpse into the phonetics of Tiberian Hebrew in this period, as their producers did not always adhere to the strict letter of the written Tiberian tradition, either through choice or ignorance, and the results reveal more about how the users of the text were pronouncing their Hebrew than the correct application of Tiberian graphemes would ordinarily allow. For instance, the substitution of vocalic *shewa* by a different vowel sign will reveal how the *shewa* was being pronounced, something normally hidden behind the inscrutable two dots of the sign itself.

2.0. THE CORPUS

‘Common Bible’ is the term proposed by Colette Sirat in her *Hebrew Manuscripts of the Middle Ages* (2002) as one category of a fourfold division of the extant Hebrew Bible manuscript codices from the Muslim lands of the Middle Ages (Sirat 2002, 42–50). The full list is as follows: (a) Great Bibles, fully vocalised and cantillated, with Masoretic notes; (b) Common Bibles, ‘more modest’, usually without *masora magna*, but “they always have the vowel and cantillation signs”; (c) Bibles with translations; (d) the Bible with Arabic translation and translator’s commentary (e.g., Sa’adya’s *Tafsīr* or, for Karaites, the commentary by Yefet ben ‘Eli). The recent book by David Stern, *The Jewish Bible: A Material History* (2017), talks about three “distinct generic types of Hebrew Bible” in the Middle Ages, “the Masoretic Bible, the liturgical Pentateuch, and the study Bible,” which categories overlap, but not in contradictory fashion, with Sirat’s (Stern 2017, 88–90). Of relevance too is an earlier study by Goshen-Gottstein (1962) of the range of extant Hebrew Bibles found in the United States, one of the first to attempt to classify the types of biblical manuscript in the Genizah. He distinguishes ‘study codices’ from ‘listener’s codices’ (Goshen-Gottstein 1962, 36–44). His former category is differentiated from Great (Masoretic) Codices by an absence of Masoretic notes, indicating they are “not meant for ‘professional’ usage or to serve as an exact model,” while his latter, the ‘listener’s codices’ (which he estimates form about a half of the Elkan Nathan Adler Collection at the Jewish Theological Seminary, on which he bases his analysis) were meant for “everyday use” and were “not written in order to

please future hunters of variant readings and do not represent in any way... any hidden stream of tradition” (Goshen-Gottstein 1962, 38–40). He chose the term ‘listener’s codex’, because these texts in his view supported the congregation in its listening, not its reading, and were “little more than ‘hearing aids’” (Goshen-Gottstein 1962, 40–41). Despite having been written more than half a century ago, Goshen-Gottstein’s assertive impressions are still some of the more insightful on the subject, and the whole article, despite its parochial-sounding title (‘Biblical Manuscripts in the United States’), is a useful one.

In his survey, Stern (2017, 88) asserts that “the surviving codices are only a fraction of the Hebrew Bibles that once existed, and we do not know how representative they truly are.” While this is arguably true when looking at the Jewish world at large and over time, such is the scale of the biblical manuscript inventory in the Genizah Collection (more than twenty-five thousand pieces in the Taylor-Schechter and Lewis-Gibson Collections in Cambridge alone) that we can be quite confident we have a sense of the biblical landscape at least as it relates to the Eastern Mediterranean in the High Middle Ages (equivalent to the Classical Genizah Period).

Given all this, particularly that we can see the extent of the inventory and how the different types of biblical manuscript sit in it, I see no harm in adapting these categories to suit the differing kinds of analysis that should be done on them. For my current purposes, I am most interested in fragments with Tiberian vowels that are prone to deviation from the standard orthography and vocalisation of the text. These are going to be found mostly

among Goshen-Gottstein's 'listener's codices', but can also sit among his 'study codices'. I think it most effective therefore to take Sirat's broad definition of Common Bibles, i.e., excluding those with translations, commentaries, etc., but further exclude all with Masoretic notes, since these are, by definition, going to be less fruitful in significant deviations from the written tradition (which is what the *masora* is there to guard against!). This gives us a clear and handily unambiguous distinction between what we can call Masoretic Bibles and a broad category of Common Bibles: those that have Masoretic notes and those that do not.¹ For current purposes, therefore, a Common Bible preserves some or all of the biblical text in an extended form (i.e., not including collections of biblical verses for liturgical or homiletical purposes, but including collections of *haftarot* readings); it should not have the *masora*, in the form of Masoretic notes (*masora parva* and *magna*), but may have varying amounts of the rest of the panoply of the Tiberian Masoretic apparatus: vocalisation, cantillation signs, *parasha* and *seder* markers, demarcated *parashiyyot*, and *qere/ketiv* notations. It happens that Bibles of this type are often

¹ It is a useful division because it is unambiguous, but it also helps to focus our examination on Bibles of a shared type. Small-format, single-column Bible codices would, for instance, fall into Sirat's 'Common Bible' category even if they have full Masoretic notes, whereas I feel that they would be better served by being treated as 'scholarly editions' and analysed alongside the Great Masoretic Bibles, from which they may have been copied and with which they undoubtedly have a closer relationship. The majority of Common Bibles probably do not have the same pedigrees.

of a smaller format, and may be written on parchment or on paper, but the current study is not concerned with the codicological categorisation of Common Bibles, only with their value in the analysis of the Tiberian tradition that they transmit.²

The Common Bible, under any form of categorisation, has not been the focus of much research. Palestinian and Babylonian-

² Format is not a reliable guide to the quality of a biblical text, if we define quality, as far as Tiberian text-types go, in terms of proximity to the Masoretic Text. Some large format Great Bibles are quite second-rate, with significant numbers of errors and a frequent disparity between their text and their own *masora*, whereas T-S Misc. 24.137.3, a small (15 cm × 22 cm) parchment bifolium containing the end of the book of Numbers has a colophon that reads ל[...]
ל עלי מצחף אלחאג דבכנסת ירושלמיין דבמצרים וב"ה. M. C. Davis (1978, 306) understands this as meaning “that this Pentateuch belonged to the ‘Jerusalemite’ congregation in Foṣṭaṭ,” but in fact it probably refers to how it was copied. Therefore the missing word is perhaps נקל ‘it was copied’ (Arabic *nuqila*; thanks to Geoffrey Khan for this suggestion), and it means that this small format Bible was copied from the greatest of the Ben Asher texts, the *Tāj*: ‘...copied from the codex of the *Tāj*, which is in the Synagogue of the Jerusalemites in Fuṣṭāṭ, and with the help of God’. The *Tāj*, the Aleppo Codex, was kept in the Synagogue of the Palestinians in Fuṣṭāṭ in the twelfth century, after its redemption from the Crusaders following the fall of Jerusalem. If the reading of the colophon is correct, then it is a witness to a part of the text that is now lost. With thanks to Estara Arant, over whose shoulder I spotted this fragment while she was collecting data for her PhD. I would also like to take this opportunity to thank my colleague in Cambridge, Kim Phillips, for his assiduous comments on an earlier draft of this paper.

vocalised manuscripts from the Cairo Genizah have been investigated at length, and those with Extended Tiberian too, though to a lesser extent.³ Those, on the other hand, with ‘ordinary’ Tiberian vocalisation have probably been viewed as insufficiently interesting to be worthy of close analysis: the Tiberian is either seen as poorly executed, and therefore too debased a form to be relevant to the study of the tradition itself (hence the appellation ‘vulgar’ sometimes applied to them), or the manuscripts are viewed as too far removed in time from the Masoretic era, from the core Ben Asher tradition. Israel Yeivin, in his *Introduction to the Tiberian Masorah* (translated by E. J. Revell, 1980) discusses the Bibles of the Cairo Genizah and touches on these points: “Most are fragments of ‘vulgar’ texts, some without Masorah, without accents, with many extra vowel letters, and so on.... MSS written after 1100 contain, as a rule, little of interest to the study of the standard tradition and its development.... They do, however, contain much of value to the study of the development of the tradition up to the time of printing, and also for the study of the pronunciation of Hebrew in different periods and localities” (Yeivin 1980, 30–31). I agree wholeheartedly with his last point, that these manuscripts—though without limiting it to those writ-

³ Goshen-Gottstein (1962, 35) is forthright in his explanation of the history: “When the Cairo Genizah started to become the pet subject of scholars, they were naturally interested in material up to then unknown.... It was only the fragments with non-TBT [= non-Tiberian Bible Text] vocalization that aroused the curiosity of scholars. Working on biblical Geniza fragments meant: looking for non-TBT vocalization.”

ten after 1100—can be of great interest for the study of the pronunciation of Hebrew, and, in particular, of the pronunciation of the Tiberian tradition as practised by the disparate congregations who made up the Jewish community of Fuṣṭāṭ, or from further afield, whose discarded manuscripts ended up in the Genizah Collection. In support, I enlist a further assertion from Moshe Goshen-Gottstein (1962, 41) about his ‘listener’s codices’: “This freedom in copying out these texts is of vital importance for our understanding of Hebrew reading traditions and linguistic habits.”

3.0. SCOPE OF THE ANALYSIS

Classification of Tiberian Hebrew Bibles generally relies on a text’s degree of adherence to the standard Masoretic Text, as exemplified in Codex Leningrad (Russian National Library Ebp. I B19a) or the Aleppo Codex (Ben Zvi Institute). This is not a new idea, and indeed can be traced at least as far back as Maimonides, who belittled the copies of the Bible in circulation in his day, comparing them unfavourably to the *Tāj*, which he described as corrected by Ben Asher himself (*Mishne Tora, Hilkhhot Tefillin, Mezuza ve-Sefer Tora* 8.4). We now identify this manuscript with the Aleppo Codex, the production of which was “the great event in the history of the Tiberian Bible text” (Goshen-Gottstein 1963, 86). Such textual perfection is not, however, a useful yardstick to employ when examining the Common Bible on its own terms. While some may have been copied by practised hands from reliable precursor texts, many, as will be shown below, have no such aspirations of rigid adherence to Tiberian norms, let alone Ben-

Asherian perfection. Some were used to practise or learn the copying of the text, others to practise or learn Hebrew itself; some were used for recitation, or for learning the text of a *haftara* or festival reading; others perhaps served as ‘lap’ Bibles, books to be held to follow the readings in the service, either for utility alone or as signs of status.

There is more to be written about the production, ownership and use of Common Bibles, but this is not the focus of the current study. For the moment, I suggest just that as a category it encompasses both user-produced codices (i.e., owned and used by those who originally wrote them), which are probably the majority of the fragments, as well as those created by third parties—relatives, friends, professional or semi-professional scribes. As will be seen, some of these Common Bible fragments are of the highest quality in terms of their production, whereas others are definitely at the ‘barely good enough’ end of things.⁴

Given that Common Bibles are so numerous, their value should be self-evident: they form a large body of evidence for ordinary Jewish engagement with the text of the Hebrew Bible in the Middle Ages. But beyond their interest as a cultural artefact of popular religion, their textual value, too, is considerable. That is not to say that they have great importance for textual criticism

⁴ The great legal authority of the Genizah world, Maimonides, explains in his *Mishne Tora* (*Hilkhot Tefillin, Mezuza ve-Sefer Tora* 7.1), basing himself on Deut. 31.19, that it is a requirement for every Jewish man (כל איש ואיש מישראל) to write a Torah, or, if he is not capable of it, to get someone else to write it for him. The huge number of Common Bibles in the Genizah perhaps reflects this halakhic opinion in practice.

of the biblical text in its traditional sense. Their frequent departures from the consonantal Masoretic Text can usually be explained by error or analogy, and it is less likely that they somehow preserve ancient or alternate streams of textual transmission.⁵ They do, though, have a real and unique value for the history of the Hebrew language. Our sources for the pronunciation of Tiberian Biblical Hebrew in this period are few: Masoretic treatises (and the successor works of the medieval grammarians and the more linguistically conscious commentators) and the Karaite transcriptions of the Hebrew Bible into Arabic script. There are not many more sources than those that point to the linguistic reality of Tiberian Hebrew at the end of the first millennium. Among the huge variety of Common Bibles, however, particularly those at the more home-made, budget end of the scale, are those which do not follow the accepted norms of spelling and vocalisation. They provide rare glimpses of how Hebrew was pronounced in the home and synagogue of the High Middle Ages.

To demonstrate this value, and to present some of the range of Common Bibles preserved in the Genizah, I have selected five different manuscripts from the Additional Series of the Taylor-Schechter Collection. No small selection from the huge Additional Series, which contains around fifteen thousand pieces of

⁵ It is instructive, and entertaining, to quote Goshen-Gottstein (1962, 40) again: “They were not written in order to please future hunters of variant readings and do not represent in any way—as far as our analysis indicates—any hidden stream of tradition which remained, so to speak, outside the domain of TBT [= Tiberian Bible Text]’ (Goshen-Gottstein.

biblical manuscript, can be completely representative of the inventory at large, but the aim is to give a sense of the different types of Common Bible, as well as show their potential interest for the transmission of the Tiberian tradition. To that end, all the manuscripts selected have Tiberian vocalisation and some have cantillation too. Below, I analyse each from a textual and linguistic standpoint, focusing the analysis on the phonetics behind the orthography and vocalisation. There is no detailed palaeographic or codicological description. In general, the majority of manuscripts in the Taylor-Schechter Collection come from the High Middle Ages, and most were probably produced in Egypt for and by the congregation who used the Synagogue of the Palestinians in Fustāṭ. A substantial number of Genizah manuscripts fall outside those temporal and geographical limits, but I have not chosen any that are clearly late (fourteenth century onwards) or obviously ‘foreign’ (such as in Spanish or Yemeni hands, frequent interlopers in the Genizah). The manuscripts featured here are more likely to be from the period between the end of the tenth and the middle of the thirteenth centuries, and are likely to have been produced in Egypt, Syria-Palestine, or eastern North Africa.

The fragments under analysis are all from Cambridge University Library’s Taylor-Schechter Collection of Genizah fragments. All were catalogued (in very terse fashion) in Davis and Outhwaite’s (2003) catalogue of the Additional Series, but have otherwise not been published.

T-S AS 44.35, a bifolium of Lamentations

T-S AS 68.100, a leaf of Psalms

T-S AS 53.90, a leaf of Kings and Ezekiel

T-S AS 5.144, a leaf of Leviticus

T-S AS 59.215, a bifolium of Proverbs

4.0. CODEX OF LAMENTATIONS, T-S AS 44.35

4.1. Description

The Cairo Genizah manuscript Cambridge University Library T-S AS 44.35 is a small-format paper bifolium containing continuous text from Lam. 2.13–18; 3.51–4.2. As the gap between the content of the two folios suggests, it was probably from a copy of the whole book, rather than just an excerpt. Lamentations is read in the evening service of *Tish'a be'Av* 'the ninth of Av' (Elbogen 1993, 108), and individual copies of the book or of all the *Megillot* together can be found in the Genizah. T-S AS 44.35 is fully furnished with Tiberian vowels, but there are no cantillation signs, and no *masora*.⁶ The divine name, in the form of the Tetragrammaton, is written in full. Consonants and vowels are in the same ink and, most likely, the same hand.⁷ The text does not seem to

⁶ A space of approximately ten letters' width has been left after the end of Lam. 3.66 and before 4.1. This could be construed as a *parasha setuma* 'a closed paragraph', but in fact Codex Leningrad has a *petuḥa* 'an open paragraph' here. None of the many closed paragraphs that occur in this section of text in Codex Leningrad (e.g., Lam. 3.63 or 4.1) are reflected in the manuscript.

⁷ It is clear that vowels and consonants were written at the same time, because there is more space between some lines than others, depending on the number and type of vowel signs written. Further evidence is in

have been ruled, and the left-hand margin is quite ragged, though there are some line fillers and elongated letters. Perhaps these are more for effect than actual utility. The writing fills most of the page, with minimal space left for margins. The execution of certain letter shapes and vowel signs is unusual: most notably *qibbuṣ* is often reversed, with the three dots sloping up from left-to-right.

The system of Tiberian vocalisation used in T-S AS 44.35 is idiosyncratic, but appears to behave consistently within its own rules, as far as these can be discerned. The most obvious feature of the vocalisation is that silent *shewa* is usually not marked unless it falls under one of the *bgdkpt* consonants, where it probably serves to mark that the consonant has spirant, i.e., fricative, pronunciation. Vocalic *shewa* is frequently replaced by *pataḥ*. Full vowels occur in place of *ḥatefs*. *Dagesh (lene or forte)* is absent, as is *rafe*.⁸ No dot distinguishes the consonants *śin* and *shin*. *Sof pasuq* (:), as part of the consonantal text, occurs at the end of verses; *maqṣef*, as part of the accentuation system, is not used.⁹ The vowel *u*, regardless of length, is usually marked with a digraph וּ, וֹ, or וּ.

Lam. 4.2, where the scribe corrected his spelling of הַיְקָרִים by writing a *yod* above the line, but in so doing forgot to vocalise the word itself.

⁸ *Rafe* may appear once in T-S AS 44.35, on *dalet* in קְדָמַי 'ancient times' (Lam. 2.17).

⁹ *Sof pasuq* is lacking at the end of Lam. 3.55.

4.2. Consonantal Text of T-S AS 44.35

T-S AS 44.35 does not slavishly follow the Masoretic Text, although there are sufficient defective forms to show some awareness of and fidelity to the basic consonantal form of the text. For instance, אֹיְבִי ‘my enemy’ (Lam. 3.52) is defective in the fragment and the MT.¹⁰ Where the form is *plene* in the MT, at Lam. 2.17, the fragment is too: אֹיְבִי ‘enemy’. However, there are numerous differences, with the following *plene* spellings all defective in the MT:

עוֹבְרֵי (MT עֹבְרֵי) ‘passers-by’ (Lam. 2.15); אֲמַרְתָּה (MT אָמַרְתָּ) ‘you said’ (Lam. 3.57); גָּאֲלִיתָהּ (MT גָּאֲלִיתָ) ‘you have redeemed’ (Lam. 3.58); וַיִּנְעוּ (MT וַיִּנְעוּ) ‘and shake’ (Lam. 2.15);¹¹ יוֹפִי (MT יֹפִי) ‘beauty’ (Lam. 2.15), etc.

The reverse occurs rarely in T-S AS 44.35; only the following defective forms are *plene* in the MT:

אֹיְבֵיךָ (MT אֹיְבֵיֶיךָ) ‘your enemies’ (Lam. 2.16); אַחָהּ (MT אֵיכָהּ) ‘How?’ (Lam. 4.1)

There is obviously a greater tendency towards the use of *matres lectionis*, but not a complete departure from the consonantal tradition behind the MT.

¹⁰ Where comparison is made to the Masoretic Text (hereafter MT), unless otherwise specified, this refers to the Leningrad Codex (Russian National Library БР. I B19a).

¹¹ However, in the Leningrad Codex וַיִּנְעוּ (Lam. 2.15) shows an erasure indicating that it was originally written with *plene yod*.

The precedence of the oral tradition over the consonantal can be seen in the frequent ellipsis or replacement of quiescent *ʾalef*, where the text presents a more phonetic, rather than historical, spelling, e.g.,

יִרְפֶּה (MT יִרְפָּא) ‘he will heal’ (Lam. 2.13); רֹשָׁם (MT רֹשָׁם) ‘their head’ (Lam. 2.15); וְלוֹ (MT וְלֹא) ‘and not’ (Lam. 2.17); רוּשִׁי (MT רֹשִׁי) ‘my head’ (Lam. 3.54); קָרָאתִי (MT קָרָאתִי) ‘I called’ (Lam. 3.55) with *ʾalef* added above the line; אַל תִּירָא (MT אַל תִּירָא) ‘do not fear’ (Lam. 3.57); בְּרוֹשׁ (MT בְּרֹשׁ) ‘at the head of’ (Lam. 4.1)

The spelling of the MT’s שֹׁן (Lam. 2.14) as שָׁב, corrected above the line with וּ and written correctly as שֹׁן on its second occurrence in the verse, also reflects the more phonetic impulses of the scribe, confusing the two homophonous consonants.¹² Similarly מַחְשָׁבֹת ‘their thoughts’ (Lam. 3.60), where the ב was inserted only as an afterthought, is probably symptomatic of the same confusion.

The substitution of the Tetragrammaton twice, in Lam. 2.18 and 3.58 (written the second time יְהוָה), where the MT on both occasions has אֲדֹנָי, similarly underlines the oral nature of this

¹² The confusion of ב and ו, pronounced identically as labio-dental [v] under most circumstances in Tiberian Hebrew, is pervasive in the texts of the Genizah. It can be found in a draft of a letter by the head of the Jerusalemite community in eleventh-century Fustāṭ, Efrayim ben Shemarya, נפלאותו ‘his wonders’ (for נפלאותיו), T-S 12.273, as well as in a very young child’s (or very backward student’s) biblical writing exercise, אֱלֹהֵי יְיָ ‘the LORD his God’ (for אֱלֹהֵי יְיָ), T-S NS 159.209.

transcription, suggesting that it was not copied from a written exemplar, but taken down from memory or from dictation.

Beyond the interchange of vowel letters, T-S AS 44.35 shows two minor consonantal differences from the MT:

כָּל הָאָרֶץ (MT לְכֹל-הָאָרֶץ) ‘the whole earth’ (Lam. 2.15);
 וְלִשְׁוֹתִי (MT לְשִׁוְתִי) ‘from my cry’ (Lam. 3.56)

The text follows the MT *qere* with שְׁבוּתְךָ (MT שְׁבוּתְךָ) ‘your captivity’ (Lam. 2.14). There is an obvious dittography in הַטּוֹב הַטּוֹב ‘the best’ (Lam. 4.1), where the scribe recognised their error and did not vocalise the repeated word.

The evidence of the consonantal text of T-S AS 44.35 is that the scribe who produced it, though possessing familiarity with the general spelling conventions of the MT, certainly did not meticulously following a Masoretic *Vorlage*. The more phonetic elements, in particular the ellipsis of quiescent *alef*, show the pervasive influence of the reading tradition, that is, of the oral recitation, which tends often in the fragment to override the spelling conventions of standard Biblical Hebrew.

4.3. *Shewa* in T-S AS 44.35

Further evidence of the influence of the oral component in the text’s composition can be seen in its approach to marking the *shewa* sign, sparsely used in the text. Where *shewa* occurs on non-*bgdkpt* consonants and is silent in the MT, no sign is written, e.g.,

בִּלְעָנוּ (MT בִּלְעָנוּ) ‘we have swallowed’ (Lam. 2.16);
 נִגְזַרְתִּי (pausal, MT נִגְזַרְתִּי) ‘I am cut off’ (Lam. 3.54);
 מַחֲשֵׁב(ב)וֹתָם

(MT *מִהֶשְׁבֵּתָם*) ‘their thoughts’, with *pataḥ* in place of the MT’s vocalic *shewa* (Lam. 3.60)

While no standard Masoretic codex of the Bible follows this practice, the occasional elision of silent *shewa* can be found even in the best manuscripts. The Aleppo Codex, for example, exhibits at least three words where the *naqdan*, possibly Aharon ben Moshe ben Asher himself, has forgotten to write silent *shewa*, for instance on *בְּקִרְבּוֹ* ‘inside him’ (Job 20.14; Yeivin 1968, 16). However inadvertent it was in that meticulously vocalised manuscript, the elision of silent *shewa* in T-S AS 44.35 can nevertheless be seen as the natural culmination of an understandable tendency to ignore or forget a \emptyset vowel.

In contrast, silent *shewa* is often marked in the fragment on vowelless *bgdkpt* consonants, where possibly its primary purpose was not to indicate the \emptyset vowel, but to mark the fricative pronunciation of the consonant, e.g.,

עוֹבְרֵי ‘passers-by’ (Lam. 2.15); *לְנַפְשִׁי* (MT *לְנַפְשִׁי*) ‘to my soul’ (Lam. 3.51) with *pataḥ* for vocalic *shewa*; *רִבֵּתְךָ* ‘you have pleaded’ (Lam. 3.58); *שִׁפְטֶךָ* ‘judge!’ (Lam. 3.59); *שִׁפְתֵי*, ‘the lips of’ (Lam. 3.61)

This extended use of *shewa* is perhaps most evident when it occurs on the final consonant of a word:

הַזֹּאת (MT *הַזֹּאת*) ‘this’ (Lam. 2.15); *כְּלִילֶתְךָ* (MT *כְּלִילֶתְךָ*) ‘the perfection of’ (Lam. 2.15); *מִשְׁאוֹתַי* (MT *מִשְׁאוֹתַי*) ‘burdens’ (Lam. 2.14); *הַטּוֹב* (MT *הַטּוֹב*) ‘the best’ (Lam. 4.1)

Though contrary to standard Tiberian practice in the marking of the sign, this still accords with Tiberian pronunciation, where word-final *shewa* is usually silent (Khan 2013a, 100).¹³

There are a number of exceptions in the application of these apparent rules by the scribe of T-S AS 44.35. Silent *shewa* is not always marked on vowelless fricatives:

סָפְקוּ (MT סָפְקוּ) ‘they clap’ (Lam. 2.15); קָרַבְתָּ (MT קָרַבְתָּ) ‘you came near’ (Lam. 3.57); תִּשְׁתַּפְּכֵנָה (MT תִּשְׁתַּפְּכֵנָה) ‘they are poured out’ (Lam. 4.1); חוּצוֹת (MT חוּצוֹת) ‘streets’ (Lam. 4.1); לְנִבְלֵי (MT לְנִבְלֵי) ‘as jars’ (Lam. 4.2)

But given that this is an informal reworking of their system, we should not expect the same rigour as that exhibited by the Masoretes.

Shewa also occurs occasionally on vowelless non-*bgdkpt* consonants, for instance שָׁוְא ‘vain’ (Lam. 2.14), a rare case of complete fidelity to the historical MT spelling, but more unexpectedly on מְשׁוֹשׁ ‘the joy’ (Lam. 2.15),¹⁴ הַיּוֹם ‘the day’ (Lam. 2.16)

¹³ While ostensibly it resembles the use of *shewa* in the Extended Tiberian system, where final *waw* or the gutturals may take simple *shewa* (Heijmans 2013a, §2d, g), I do not think there is an organic link, as the purpose is quite different and no further characteristic features of Extended Tiberian vocalisation or phonology are present in this fragment.

¹⁴ There is damage under the *mem* of מְשׁוֹשׁ (MT מְשׁוֹשׁ) ‘the joy’ (Lam. 2.15), so this could possibly be read as a *pataḥ* rather than a *qameṣ*. If the former, then it is *pataḥ* in place of vocalic *shewa*, indicating that the writer has taken מְשׁוֹשׁ כֹּל הָאָרֶץ as a construct phrase (which would make sense, given the loss of the MT’s ל, i.e., מְשׁוֹשׁ לְכֹל הָאָרֶץ), perhaps under the influence of Ps. 48.3.

and מְבוֹר ‘from a pit’ (Lam. 3.55). These are all, as above, on a final vowelless consonant. Medially, the text shows variance in regard to *mem*, however, with אָמְרוּ ‘they said’ (Lam. 2.16), showing *shewa*, but צָמְחוּ ‘they have made an end’ (Lam. 3.53) and שְׁמֶךָ ‘your name’ (Lam. 3.55) both eschewing it.

Shewa on אֶל תִּתְעַלֵּם (MT אֶל-תִּתְעַלֵּם) ‘do not hide’ (Lam. 3.56) similarly marks what is a silent *shewa* in the MT. Given the text’s general approach to *shewa*, the use here probably serves to underline that the ‘ayin is vowelless [ʔal taʔle:m]. No *shewa* occurs on vowelless ‘ayin in שָׁמַעְתָּ (MT שָׁמַעְתָּ) ‘you have heard’ (Lam. 3.61), however.

4.4. *Pataḥ* for *Shewa* in T-S AS 44.35

T-S AS 44.35 usually puts *pataḥ* where we find a simple vocalic *shewa* in the MT. This is in accordance with the Tiberian pronunciation tradition’s rendering of vocalic *shewa* as a short [a], equivalent in quality to a *pataḥ* (Khan 2013a, 98). The scribe does not use *ḥatef pataḥ* for this purpose as no *ḥatefs* occur in the fragment at all:

יְרוּשָׁלַיִם (MT יְרוּשָׁלַם) ‘Jerusalem’ (Lam. 2.13) not pausal in the MT, the fragment has *qameṣ* for MT’s *pataḥ*; וְאַנְחַמֶיךָ (MT וְאַנְחַמְךָ) ‘that I may comfort you’ (Lam. 2.13); בְּתוֹלֶת (MT בְּתוֹלֶת) ‘virgin of’ (Lam. 2.13); נְבִיאֶיךָ (MT נְבִיאֶיךָ) ‘your prophets’ (Lam. 2.14); וְלוֹ (MT וְלֹא) ‘and not’ (Lam. 2.14); שְׁבוּתְךָ (MT שְׁבוּתְךָ) ‘your captivity’ (Lam. 2.14); יְרוּשָׁלַיִם (MT יְרוּשָׁלַם) ‘Jerusalem’ (Lam. 2.15), showing *pataḥ* for the MT’s pausal *qameṣ*; כְּלִילֶתָ (MT כְּלִילֶתָ) ‘the perfection of’ (Lam. 2.15); וְלוֹ (MT וְלֹא) ‘and not’ (Lam. 2.17); בְּנוֹתָ (MT בְּנוֹתָ) ‘the

daughters of' (Lam. 3.51); אָזְנֶךָ לְרִוְחָתִי (MT אָזְנֶךָ לְרִוְחָתִי) 'your ear for my relief' (Lam. 3.56); מַחְשַׁבְתָּם (MT מַחְשַׁבְתָּם) 'their thoughts' (Lam. 3.60); וְקִמָּתָם (MT וְקִמָּתָם) 'their rising up' (Lam. 3.63); יָדֵיהֶם (MT יָדֵיהֶם) 'their hands' (Lam. 3.64); בְּאַף (MT בְּאַף) 'in anger' (Lam. 3.66); שָׁמַי (MT שָׁמַי) 'the heavens of' (Lam. 3.66); בְּנֵי (MT בְּנֵי) 'children of' (Lam. 4.2); יָדֵי (MT יָדֵי) 'the hands of' (Lam. 4.2)

In every case in the fragment where the standard Tiberian pronunciation of *shewa* is equivalent to a short [a], the scribe uses a *pataḥ* rather than a *shewa*. In a text that is not emulating the MT to a great degree, it should not be a surprise, given that the chief distinction between *shewa* and *pataḥ* is morphophonological and not phonetic (*shewa* cannot, under most circumstances, form a syllable in Tiberian Hebrew). This distinction was evidently of little significance to the writer of this manuscript.

4.5. *Shewa* before *Yod* or *Guttural* in T-S AS 44.35

Where *shewa* occurs before *yod* in the MT, T-S AS 44.35 has a *hireq*: בְּיוֹם (MT בְּיוֹם) 'on the day' (Lam. 3.57), [bi'jo:m]. This reflects the standard Tiberian pronunciation of *shewa* before *yod* as a short [i] (Khan 2013a, 98). It is also a feature that is found, although with great inconsistency, in Palestinian-vocalised manuscripts (Revell 1970a, 90; Heijmans 2013a, §3f).

Before a guttural, *shewa* is pronounced with the quality of the vowel following the guttural (Khan 2013a, 98). This is reflected in the fragment in לְהִשָּׁיב (MT לְהִשָּׁיב) 'to turn away' (Lam. 2.14), which ignores the technicalities of syllable structure and prefers *qameṣ* to *shewa*, [lɔhɔ:'ʃi:v].

4.6. *Shewa* on the First of Two Identical Consonants in T-S AS 44.35

Unless adjacent to another *shewa* or under a geminated consonant, *shewa* in the middle of a word is usually silent in the standard Tiberian reading tradition (Yeivin 1980, 277; Khan 2013a, 99–100). Masoretic treatises, including Aharon ben Moshe ben Asher's *Diqduqe haṭ-Ṭe'amim*, present a number of exceptions to this rule, one of which is when the *shewa* occurs on the first of two identical consonants after a long vowel (Dotan 1967, I:115–16 [§5]; Yeivin 1980, 280–81). In many cases these are marked with *ḥatef pataḥ* in the Aleppo Codex and occasionally in Lenin-grad.¹⁵ In similar fashion T-S AS 44.35 reflects the vocalic nature of this *shewa*, but as we might expect by now, a full *pataḥ* is used in preference to a *ḥatef*, עוללה (MT עוללה) 'affects' (Lam. 3.51), [ʔo:lɑ'lɔ:].

4.7. *Ḥatef* in T-S AS 44.35

There are no *ḥatef* signs in T-S AS 44.35. A full vowel is used in place of *ḥatef* wherever it occurs in the MT, e.g.,

ואנחמך (MT ואנחמך) 'that I may comfort you' (Lam. 2.13);

כמעשה (MT כמעשה) 'according to the work' (Lam. 3.64);

תאלתך (MT תאלתך) 'your curse' (Lam. 3.65)

4.8. Differences in Vowel Quality in T-S AS 44.35

In Lam. 2.14 ויחזו (MT ויחזו) 'and they have seen', the fragment replaces both the MT's *ḥatef segol* and *segol* with *ṣere*, apparently

¹⁵ See Phillips' contribution in the present volume, pp. 380-81, 384-87.

giving [vay(y)e:ħe:^lzu:]. This can be seen more widely throughout the text: it frequently replaces Tiberian *segol* with *šere*, particularly in the nominal הֶ- ending and especially in segolate forms, e.g.,

אֲדַמָּה (MT אֲדַמָּה) ‘I shall compare’ (Lam. 2.13); אֲשׁוּהָ (MT אֲשׁוּהָ) ‘I shall make equal’ (Lam. 2.13); דֶּרֶךְ (MT דֶּרֶךְ) ‘way’ (Lam. 2.15); הָאָרֶץ (MT הָאָרֶץ) ‘the land’ (Lam. 2.15); שְׁקוּיִנְהוּ (MT שְׁקוּיִנְהוּ) ‘that we hoped for’ (Lam. 2.16); אִמְרָתוֹ (MT אִמְרָתוֹ) ‘his word’ (Lam. 2.17); אֲשֶׁר (MT אֲשֶׁר) ‘which’ (Lam. 2.17); קֶדֶם (MT קֶדֶם) ‘old’ (Lam. 2.17); קֶרֶן (MT קֶרֶן) ‘horn’ (Lam. 2.17); אֶבֶן (MT אֶבֶן) ‘a stone’ (Lam. 3.53); אֶקְרָאֲךָ (MT אֶקְרָאֲךָ) ‘I call you’ (Lam. 3.57); חֲרַפְתֶּם (MT חֲרַפְתֶּם) ‘their reproach’ (Lam. 3.61); הַכֶּתֶם (MT הַכֶּתֶם) ‘fine gold’ (Lam. 4.1); נִחְשְׁבוּ (MT נִחְשְׁבוּ) ‘they are considered’ (Lam. 4.2); חֵרֶשׁ (MT חֵרֶשׁ) ‘earthen vessel’ (Lam. 4.2)

Segol is replaced by *šere* in both stressed and unstressed syllables. However, *segol* is not avoided altogether in T-S AS 44.35: פִּיהֶם ‘their mouth’ (Lam. 2.16) and זֶה ‘this’ (Lam. 2.16) both retain *segol*. Furthermore, it is found in place of the MT’s *šere* on two occasions: הָרִים (MT הָרִים) ‘he has raised’ (Lam. 2.17); and אַל תִּתְעַלֵּם (MT אַל-תִּתְעַלֵּם) ‘do not hide’ (Lam. 3.56). In both cases the vowel exchange is on a guttural (ה, ע) in a verbal form, once each on an unstressed and a stressed syllable. The construct noun מַעֲשֵׂה ‘the work of’ (Lam. 4.2) preserves the MT’s *šere*. In general, the frequent interchanges and evident confusion are suggestive of the influence of the Palestinian pronunciation of Hebrew, i.e., the Sefardi-Palestinian reading tradition, where the two vowels *e* and *ɛ*

have merged (Henshke 2013b). If this is the case, then we should also expect to see evidence of a merging of the vowels *a* and *ɔ*.

Confusion between *a* and *ɔ* in T-S AS 44.35 is mostly found in pausal forms, where the text substitutes *pataḥ* for the MT's pausal *qameṣ*:¹⁶

יְרוּשָׁלַיִם (MT יְרוּשָׁלַם) 'Jerusalem' (Lam. 2.15); זָמַם (MT זָמַם)
 'he devised' (Lam. 2.17); הָמַל (MT הָמַל) 'he pitied' (Lam.
 2.17)

Rather than a general merging of the vowels, this may instead reflect a loss of distinct pausal forms in the recitation that sits behind this fragment, although we do find pausal *qameṣ* in accordance with the MT at Lam. 3.54 נִגְזַרְתִּי (MT נִגְזַרְתִּי) 'I am cut off'. This is a major, verse-final, pause, though, whereas the previous examples were all mid-verse (i.e., at *atnaḥ*) or minor pause (at *revia*), and perhaps therefore elided through lax recitation. The *qameṣ* in non-pausal יְרוּשָׁלַיִם 'Jerusalem' (Lam. 2.13), however, points at a greater degree of confusion in the scribe's pronunciation. Similarly, the *ō* vowel in [jaro:ʃɔ:l'ɔ:yim] might suggest some phonetic overlap between *u* and *o*, such as can also be found in Palestinian Aramaic pronunciation (Yahalom 1997, 18). However, the *ū* vowel is retained in all other cases, even in the same word when it occurs two verses later (יְרוּשָׁלַיִם, Lam. 2.15),

¹⁶ וַיִּשְׂמַח 'and he was happy' (Lam. 2.17) for the MT's וַיִּשְׂמַח is probably a morphological exchange, the *qal* for the *pi'el*, rather than phonological. Though if the lack of the *dagesh* sign denotes a loss of gemination, a phonological exchange is a possibility: [vaysam'maḥ] > [vayis'ma:h].

and therefore a scribal lapse, due to the casual nature of the work, is more likely.

4.9. T-S AS 44.35 in Conclusion

Consonantly, the Lamentations manuscript deviates from the MT in its *plene* orthography and particularly in its frequent ellipsis of quiescent *ʾalef*. The substitution of the Tetragrammaton for the MT's אדני on two occasions suggests that it may not have been copied from a *Vorlage* at all, but produced from dictation. Its vocalisation diverges greatly from that of the MT, but in a consistent, logical manner. Indeed, for a fragment that looks very casual in its execution—the work of an individual for their own purposes—the text is very consistent in its vocalisation. The *shewa* is sparsely used and serves a secondary purpose of marking the fricative pronunciation of *bgdkpt* consonants. Vocalic *shewa* is replaced with *pataḥ* in most circumstances, with *hireq* when preceding *yod*, and with a full vowel before a guttural. The *ḥatef* is ignored entirely as an irrelevance. A more significant divergence from standard Tiberian is found in vowel quality, with a slight blurring of the distinction between, respectively, the *u* and *o*, *a* and *ɔ*, and, to a much greater degree, *e* and *ɛ* vowels. It could be ascribed to the influence of a background Palestinian reading tradition, an example of Palestino-Tiberian vocalisation, but is only consistently apparent in the *e/ɛ* vowels.

In other respects, the pronunciation reflected in the vocalisation accords with that of the standard Tiberian reading tradition. This includes even the more potentially problematic renderings, such as the correct pronunciation of the first of two identical

consonants after a long vowel. The absence of cantillation signs might suggest that either the correct cantillation was well known to the user of the book or else it was irrelevant to its intended use. The absence of *dagesh* calls for an explanation. The use of silent *shewa* apparently to mark the fricative pronunciation of the *bgdkpt* consonants means that *dagesh* would serve a purpose only of indicating consonantal length. That it is not used at all suggests that the length of consonants, like the length of vowels, was not of primary interest to the creator of this fragment and may not have been discernible in their reading of it.

5.0. CODEX OF PSALMS, T-S AS 68.100

Cambridge University Library T-S AS 68.100 is a fragment on parchment containing Ps. 119.72–92, with stichometric spacing of the text, *sof pasuq* at the end of verses, and the Tetragrammaton written in full. It is vocalised and cantillated, though the *silluq* accent is not marked. There is no evidence of additional Masoretic paratext. *Rafe* is used on the *bgdkpt* letters and there are some (musical) *ga'yot*. The vowels and accents are written in a different ink and with a different pen from those of the consonants. It has the appearance of a leaf from a good quality codex, the work of at least two hands, a scribe (responsible for consonants and *sof pasuq*) and a vocaliser (vowels and accents), though not a full Masoretic Bible.¹⁷

¹⁷ It is possible that we have hit just the one fragment of this manuscript where no *masora* is visible (neither marginal, nor Masoretic circles marking notes in the text) and that the parent manuscript did possess

Vocalisation aside, the most noticeable difference from the MT is in the use of accents: *silluq* is absent, and the prepositive disjunctive *deḥi* occurs regularly for *revia*^c *mugrash* and once for conjunctive *merkha*. While the ellipsis of *silluq* is a feature shared by Extended Tiberian manuscripts, the swapping of *revia*^c *mugrash* for *deḥi* is not (Díez-Macho 1963, 22–24). The lack of *silluq* may therefore be seen as a general feature of non-Masoretic manuscripts, a symptom of a tendency towards the loss of inessential elements (after all, *sof pasuq* is already present to mark the last word of the verse), rather than a specific pointer of this text's affinity with the Extended Tiberian family of manuscripts.¹⁸

5.1. Consonantal Text of T-S AS 68.100

Consonantly, the text of T-S AS 68.100 is in accordance with the MT, e.g., it shares the defective forms יבאוני (MT יבִּאוּנִי) 'let them come to me' (Ps. 119.77) and יבשו (MT יִבְשׁוּ) 'let them be ashamed' (Ps. 119.78). The only exception is ישבו (MT יִשְׁבוּ) 'may

some *masora*. For present purposes this does not matter, as the distinction I offer between those with and those without is purely descriptive, intended to assist in building a corpus to examine for signs of deviation from Standard Tiberian practice.

¹⁸ Revell (1977, 174) points out that since *silluq* is regularly preceded by *tifḥa*, and followed by *sof pasuq*, its writing is superfluous for knowledgeable readers, and consequently it is often not found in Tiberian and Palestinian manuscripts. Conversely, the Aleppo Codex's tendency only rarely to write the two dots of *sof pasuq* (Yeivin 1980, 176–77) can be seen in the same light, since *silluq* already serves to mark the end of the verse.

they return' (Ps. 119.79), where both Aleppo and Leningrad have the *plene* spelling.

5.2. *Pataḥ* for *Shewa* in T-S AS 68.100

Like the Lamentations manuscript, T-S AS 68.100 does not use *ḥatef* vowels. It also prefers *pataḥ* to the MT's simple *shewa*, suggesting an uncoloured pronunciation of vocalic *shewa* as [a], e.g.,

חַסְדֶּיךָ (MT חֶסְדֶּיךָ) 'your kindness' (Ps. 119.76); יְבֹאוּנִי (MT עֲוֹתוּנִי) 'let them come to me' (Ps. 119.77); עֲוֹתוּנִי (MT עֲוֹתוּנִי) 'they subverted me' (Ps. 119.78), without *dagesh forte*; בְּרִדְפֵי (MT בְּרִדְפֵי) 'against those who pursue me' (Ps. 119.84); וְאֶשְׁמְרָה (MT וְאֶשְׁמְרָה) 'and I will keep' (Ps. 119.88); דְּבַרְךָ (MT דְּבַרְךָ) 'your word' (Ps. 119.88)

As several of the examples above show, silent *shewa* is usually not represented in T-S AS 68.100, e.g.,

חַסְדֶּיךָ (MT חֶסְדֶּיךָ) 'your kindness' (Ps. 119.76); לְתִשׁוּעָתְךָ (MT לְתִשׁוּעָתְךָ) 'for your deliverance' (Ps. 119.81); דְּבַרְךָ (MT דְּבַרְךָ) 'your word' (Ps. 119.88); וְאֶשְׁמְרָה (MT וְאֶשְׁמְרָה) 'and I will keep' (Ps. 119.88); בְּעַנְיִי (MT בְּעַנְיִי) 'in my affliction' (Ps. 119.92)

The *shewa* sign is used in T-S AS 68.100 for a vocalic *shewa* occasionally, e.g., under an initial consonant:

יִרְאַיִךְ (MT יִרְאַיִךְ) 'those who fear you' (Ps. 119.79); בְּחֻקֶיךָ (MT בְּחֻקֶיךָ) 'in your laws' (Ps. 119.80)

In לְנַחֲמֵנִי (MT לְנַחֲמֵנִי) ‘for my comfort’ (Ps. 119.76), רַחֲמֵיךָ (MT רַחֲמֵיךָ) ‘your mercies’ (Ps. 119.77), and תַּעֲשֶׂה (MT תַּעֲשֶׂה) ‘you will act’ (Ps. 119.84), its occurrence on the guttural could be ambiguous, since in the standard Tiberian system simple *shewa* under אהח"ע is silent, never vocalic (Levy 1936, 21* and כג ll. 12–14). Given, however, that the *shewa* sign is not used for silent *shewa* elsewhere in T-S AS 68.100, we should on balance consider it vocalic here too, marked in contravention or ignorance of the standard Tiberian practice. Compare וְאֶחְיֶה (MT וְאֶחְיֶה) ‘that I may live’ (Ps. 119.77), where the \emptyset vowel of *het* is not marked.

Given this, the *shewa* under *nun* in וַיַּבְּרִינֵנִי (for MT וַיַּבְּרִינֵנִי) ‘and they made me’ (Ps. 119.73) is probably intended to be vocalic. This is in keeping with the Tiberian rule that *shewa* under the first of two identical consonants following a long vowel is vocalic. The *shewa ga‘ya* under *waw*, for the MT’s *pataḥ ga‘ya*, is reflective of the interchangeability of the two *a* vowels, *shewa* and *pataḥ*, in this fragment (a further example is noted below). It represents only graphic divergence from the MT’s practice. The *pataḥ* under the *yod*, however, shows a clear difference from the MT, as it reflects a pronunciation of the MT’s silent *shewa* as vocalic here [va:yko:na'nu:ni:] > [va:yaʔo:na'nu:ni:] (the *ga‘ya* is a minor *ga‘ya*, i.e., lengthening a closed syllable). This, in a complex multi-syllable word, however, is the only example in the fragment of a clear divergence in pronunciation from the standard Tiberian tradition.

5.3. *Ḥatef* in T-S AS 68.100

Where the MT would use *ḥatef pataḥ*, e.g., for vocalic *shewa* under gutturals, T-S AS 68.100 can use a *pataḥ*, e.g.,

הַבִּינֵנִי (MT הִבִּינֵנִי) ‘give me understanding’ (Ps. 119.73); אֲשֶׁר (MT אֲשֶׁר) ‘that’ (Ps. 119.85); וְאֲנִי (MT וְאֲנִי) ‘but I’ (Ps. 119.87); עַבְדֶּיךָ (MT עַבְדֶּיךָ) ‘your servants’ (Ps. 119.91)

Or the fragment uses a simple *shewa*, e.g.,

לְנַחֲמֵנִי (MT לְנַחֲמֵנִי) ‘for my comfort’ (Ps. 119.76); רַחֲמֶיךָ (MT רַחֲמֶיךָ) ‘your mercies’ (Ps. 119.77); תַּעֲשֶׂה (MT תַּעֲשֶׂה) ‘you will act’ (Ps. 119.84)

Further evidence for the vocalic pronunciation of the *shewa* sign in general in T-S AS 68.100 can be found in וַתֵּעַמַּד (MT וַתֵּעַמַּד) ‘and it stands’ (Ps. 119.90), where simple *shewa* not only stands for a vocalic *shewa* under the ‘*ayin*, but also substitutes, in the form of *shewa ga‘ya*, for the MT’s *pataḥ ga‘ya* under the conjunction—another minor *ga‘ya*.

5.4. *Shewa* before Guttural in T-S AS 68.100

Where vocalic *shewa* immediately precedes a אהה"ע consonant, T-S AS 68.100 substitutes a full vowel, e.g.,

כְּאַמְרֶתְךָ (MT כְּאַמְרֶתְךָ) ‘according to your promise’ (Ps. 119.76); יִהְיֶה לִבִּי (MT יִהְיֶה לִבִּי) ‘let my heart be’ (Ps. 119.80); וְאֶשְׁמְרָה (MT וְאֶשְׁמְרָה) ‘and I will keep’ (Ps. 119.88), with silent *shewa* unmarked and a *pataḥ* for MT vocalic *shewa*; בְּעָנְיִי (MT בְּעָנְיִי) ‘in my affliction’ (Ps. 119.92)

The pronunciation represented by this combination of vowels accords with the realisation of *shewa* before a guttural in the Tiberian tradition, which matches the quality of the vocalic *shewa* to that of the guttural following it, unless the *shewa* itself sits under a guttural (Yeivin 1980, 281–82; Khan 2013a, 98–99).

5.5. T-S AS 68.100 in Conclusion

Altogether a different kind of manuscript from the first example, the Psalms fragment has been carefully produced, probably by two different hands. Consonantly, it is very close to the MT of Leningrad and Aleppo, with only one minor divergence. In accents, it diverges slightly, with a greater use of *dehi* and the absence of *silluq*. Vocally, it preserves the standard Tiberian phonology, with only one minor syllabic difference in the word יִכּוּנְגְנִי (Ps. 119.73). This is revealed particularly through the apparent free substitution of simple vocalic *shewa* with *pataḥ* as well as through the substitution of various contextually conditioned *shewa* vowels (e.g., before gutturals) with the corresponding full vowel sign. The *naqdan* of this fragment was wholly familiar with the Tiberian reading tradition.

6.0. HAFTARA LECTONARY, T-S AS 53.90

Cambridge University Library T-S AS 53.90 preserves the text of 1 Kgs 3.25–28 and Ezek. 37.18–21. A torn paper manuscript, it shows no ruling, and the left-hand margin is kept only irregularly, with no elongation of letters or line-fillers. It is partially vocalised: on recto, 1 Kings has only a few words with Tiberian vowel signs; on verso, Ezekiel is almost completely vocalised.

There is no cantillation. The vocalisation is in the same ink as the consonantal text, most likely the work of the same hand. *Dagesh*, and the *šin* and *shin* dots are not marked, though there is an occasional *rafe*. *Sof pasuq* is used at the end of a verse. The Tetragrammaton is written in full.

The fragment contains two *haftarot* according to the annual reading cycle of the Torah, for the *parashot* *Miq-qeṣ* (מקץ, no. 10, Gen. 41.1–44.17), with its *haftara* from 1 Kgs 3.15–4.1, and *Way-yiggaš* (ויגש, no. 11, Gen. 44.18–47.27), with its reading from Ezek. 37.15–28. On recto there is a partially preserved rubric before the start of the *haftara*: קאל[ביחזו...] מפטיר [ויגש] אליו ‘[“And he approached] him” one concludes [with the reading in Eze]kiel’. The rubric confirms that the fragment is a lectionary of prophetic readings, although its original extent—whether it covered just a small number of texts, or was part of a more comprehensive work—cannot now be determined. The casual nature of its construction suggests the former.

6.1. Consonantal Text of T-S AS 53.90

There are a few corrections in the fragment. The whole top line on recto (1 Kgs 3.25 from ואת החצי to 3.26 אל המלך כי) appears to be an addition, perhaps in a different hand, and נבמרו ‘they yearned’ (1 Kgs 3.26) is represented only by נב in the right-hand margin. On verso, the scribe spotted the error לך and crossed it through before writing the correct form אליך ‘to you’ (Ezek. 37.18).

The text exhibits a tendency towards more *matres lectionis* than are found in the MT:

אֲדוֹנַי (MT אֲדוֹנַי) ‘my lord’ (1 Kgs 3.26); וַעֲשִׂיתֶם (MT וַעֲשִׂיתֶם) ‘and make them’ (Ezek. 37.19)—both are defective in the Aleppo and Leningrad codices

But some MT defective forms are retained, e.g., תַּכְתֹּב (MT תַּכְתֹּב) ‘you will write’ (Ezek. 37.20). The interrogative הֲלֹא ‘will you not?’ (Ezek. 37.18) is defective in the fragment, but *plene* in the MT (הֲלֹא).

חֲבֵרָיו ‘his fellows’ (Ezek. 37.19) follows the MT’s *qere*. At 1 Kgs 3.27 the fragment has אַל תִּמְיֹתוֹ ‘do not kill him’ for the MT’s לֹא תִמְיֹתוֹ. This reading is probably influenced by the phrase earlier in 1 Kgs 3.26.¹⁹

6.2. Vocalisation of T-S AS 53.90

Most of 1 Kings is unvocalised, perhaps because it was a familiar text that posed little difficulty in its reading. The addition of a *qibbuṣ* to אַל תִּמְיֹתוֹ (MT אַל תִּמְיֹתוֹ) ‘do not kill him’ (1 Kgs 3.26) is understandable, since the 2mpl verb is written defectively, as in the MT. But the vowels on מִפְּנֵי הַמֶּלֶךְ ‘in front of the king’ (1 Kgs 3.28) appear superfluous, given the commonplace nature of the words. From this point on, however, the text is mostly vocalised.

No *dagesh*, *forte* or *lene*, is written, even in the fully vocalised portion of the text, e.g.,

עַמְּךָ (MT עַמְּךָ) ‘your people’ (Ezek. 37.18); דַּבֵּר (MT דַּבֵּר) ‘speak’ (Ezek. 37.19)

¹⁹ And this fragment is not alone: the critical apparatus in BHS also notes ‘mlt Mss אַל’ for the reading at 1 Kgs 3.27.

Rafe, however, is occasionally used to mark the spirant pronunciation of *bgdkpt* consonants, e.g.,

לַעֲשׂוֹת (MT לַעֲשׂוֹת) ‘to do’ (1 Kgs 3.28)

6.3. *Ḥatef* in T-S AS 53.90

The fragment eschews *ḥatef* signs completely, preferring *pataḥ* in every case where we would expect *ḥatef-pataḥ*:

הֲלוֹא (MT הֲלוֹא) ‘is it not?’ (Ezek. 37.18); אֲנִי (MT אֲנִי) ‘I’ (Ezek. 37.19); אֲשֶׁר (MT אֲשֶׁר) ‘which’ (Ezek. 37.19); וַעֲשִׂיתֶם (MT וַעֲשִׂיתֶם) ‘and make them’ (Ezek. 37.19); עֲלֵיהֶם (MT עֲלֵיהֶם) ‘on them’ (Ezek. 37.20)

6.4. *Shewa* before *Yod* in T-S AS 53.90

Although *shewa*, both vocalic and silent, is used in the fragment, e.g., וְשִׁבְטֵי ‘and the tribes of’ (Ezek. 37.19), on the three occasions in the text that it directly precedes *yod*, a more phonetic transcription with *hireq* occurs:

בְּיַד (MT בְּיַד) ‘in the hand of’ (Ezek. 37.19); בְּיָדִי (MT בְּיָדִי) ‘in my hand’ (Ezek. 37.19); בְּיָדְךָ (MT בְּיָדְךָ) ‘in your hand’ (Ezek. 37.20)

This pronunciation of *shewa* before *yod* as an *i* vowel is reflective of Tiberian pronunciation (Khan 2013a, 98), if not the practice of standard Tiberian vocalisers. It is quite frequent in non-Masoretic Bible texts from the Genizah, as can be seen from its use in T-S AS 44.35 above. Manuscripts with Palestinian vowel signs, too, can place a Palestinian *i* vowel before *yod*, where

standard Tiberian would have a *shewa*, though inconsistently (Revell 1970a, 90; Heijmans 2013a, §3f).

6.5. Differences in Vowel Quality in T-S AS 53.90

The vocalisation exhibits a small number of qualitative differences from standard Tiberian pronunciation, with *pataḥ* occasionally replacing *segol* in the environment of the gutturals:

אֶפְרַיִם (MT אֶפְרַיִם) ‘Ephraim’ (Ezek. 37.19); אֶחָד (MT אֶחָד) ‘one’ (Ezek. 37.19)

However, אֶת עֵץ ‘the wood’ (Ezek. 37.19) shows that a distinction between *segol* and *ṣere* is maintained. הִנֵּה (MT הִנֵּה) ‘behold’ (Ezek. 37.19) has *e* in place of *i* in a closed, unstressed syllable, a pronunciation found in the Palestinian vocalisation tradition (Heijmans 2013a, §3d), but possibly also reflecting the common realisation of closed, unstressed /i/ as a central vowel [e] in various Sefardi reading traditions, such as Baghdad, under the influence of the Arabic vernacular (Ya‘aqov 2013; Shatil 2013).

6.6. T-S AS 53.90 in Conclusion

The fragment is a small paper *haftara* lectionary, only partially vocalised and with no cantillation, a more casual piece of work than the preceding examples. *Dagesh* is entirely ignored, perhaps indicating a disinterest in consonantal length, but the use of *rafe* shows the fricative versus plosive distinction is probably maintained. *Ḥatef* vowels are generally avoided, and *hireq* is used for *shewa* before *yod*. The interchange of some vowels could be in-

dicative of a different background pronunciation from the Tiberian, but they mostly reflect the lowering of the ϵ vowel in the guttural environment.

7.0. WRITING EXERCISE, T-S AS 5.144

Cambridge University Library T-S AS 5.144 contains the text of Lev. 18.11–23 and 18.25–19.3, written on both sides of a parchment leaf. There is no evidence of ruling. The text includes Tiberian vowels and cantillation signs, and verse endings are marked with *sof pasuq*. There are no further Masoretic signs. The Tetragrammaton is abbreviated. Given the divine abbreviation, the lack of *masora* and the fact that the text of Leviticus is the most frequently used book of the Bible for learning to write Hebrew (Olszowy-Schlanger 2003, 65), the fragment is probably a writing exercise.

Dagesh is not used, either *forte* or *lene*, nor does *mappiq* occur where it is expected (which is frequently in this part of Leviticus), e.g.,

אִמְךָ (MT אִמְךָ) ‘your mother’ (Lev. 18.13); אִשְׁתּוֹ (MT אִשְׁתּוֹ)
 ‘his wife’ (Lev. 18.14); עֶרְוֹתָהּ (MT עֶרְוֹתָהּ) ‘her nakedness’
 (Lev. 18.15); בְּתוּלָהּ (MT בְּתוּלָהּ) ‘her daughter’ (Lev. 18.17)

An erroneous *mappiq* appears in אִשָּׁהּ (MT אִשָּׁהּ) ‘a woman’ (Lev. 18.19).

7.1. Consonantal Text of T-S AS 5.144

There are only a small number of differences from the MT in the consonantal text of the fragment, two *plene* forms for the MT’s defective, and one defective for the MT’s *plene*:

אחותה (MT אַחֻתָּה) ‘her sister’ (Lev. 18.18); בַּחַיָּיהָ (MT בְּחַיֶּיהָ) ‘in her life’ (Lev. 18.18); עִמֵּיתְךָ (MT עִמֵּיתְךָ) ‘your neighbour’ (Lev. 18.20)

Elsewhere the text remains close to the MT in the use of *matres lectionis*, e.g., הַתּוֹעֵבוֹת (MT הַתּוֹעֵבוֹת) ‘abominations’ (Lev. 18.20).

There is one uncorrected error, an ellipsis of אלהיכם in Lev. 18.30 after the divine name. The construct אשה is corrected to אשה in Lev. 18.17.

The text of Leviticus included in the fragment contains a number of *parashiyot*, i.e., paragraph breaks, of which only one is marked in the fragment: there is a space after the end of Lev. 18.30, which is a *parasha petuḥa* in the MT (Leningrad) and in Maimonides’ list in the *Mishne Tora (Tefillin, Mezuzah ve-Sefer Tora 8)*. Although the fragment is torn, causing the loss of the rest of the line, an open paragraph should start on the next line. The next line, however, begins with the final word of Lev. 19.1. Therefore the fragment does not follow the usual method of noting an open paragraph, and either treats it as a closed paragraph (*parasha setuma*), which would leave a space within a line, or just leaves an indeterminate amount of space without strict adherence to the usual medieval format of the open paragraph. No space is left for the closed paragraphs (*setumot*) at Lev. 18.15, 16, and 17. Similarity to the layout of the MT is therefore more superficial than rigorous.

7.2. *Ḥatef* and *Shewa* in T-S AS 5.144

The text of Leviticus in T-S AS 5.144 uses only full vowels and *shewa*, with no *ḥatefs*. *Pataḥ* and *segol* always substitute for their *ḥatef* equivalents, e.g.,

אחותה (MT אַחֻתָּה) ‘her sister’ (Lev. 18.18); עמיתך (MT עִמִּיתְךָ) ‘your neighbour’ (Lev. 18.20); אלהיך אני (MT אֱלֹהֶיךָ אֲנִי) ‘your God I am’ (Lev. 18.21); [ו]תעשו (MT תַּעֲשׂוּ) ‘you will do’ (Lev. 18.26); אשר (MT אֲשֶׁר) ‘who’ (Lev. 18.27)

Full vowels also sometimes occur in place of simple (vocalic) *shewa*:

בגדת (MT בְּגִדְתָּ) ‘in impurity of’ (Lev. 18.19); ונקרתו (MT וְנִקְרְתּוּ) ‘and they will be cut off’ (Lev. 18.29)

This includes the use of a *pataḥ* for vocalic *shewa* under the first of two identical letters following a long vowel:

בתוככם (MT בְּתוֹכְכֶם) ‘in your midst’ (Lev 18.26)

Conversely, *shewa* twice occurs in place of *pataḥ*, again demonstrating the pronunciation of *shewa* as an *a* vowel:

בטמאכם (MT בְּטַמְאֲכֶם) ‘when you defile’ (Lev. 18.27); [ר]דבר (MT דַּבֵּר) ‘speak’ (Lev. 19.2)

Unexpectedly, *shewa* and *hireq* interchange in אָחִיךָ (for MT אַחֻיךָ) ‘your brother’ (Lev. 18.16), though the repetition of the same form later in the verse preserves a *hireq*, אָחִיךָ.

7.3. Differences in Vowel Quality in T-S AS 5.144

T-S AS 5.144 exhibits some variation from the MT in the interchange of ε and a vowels. Forms of עָרוֹה 'nakedness' regularly have *pataḥ* in place of *segol* under the 'ayin, e.g.,

עָרוֹה (MT עָרוֹה) 'nakedness' (Lev. 18.15); עָרוֹתָהּ (MT עָרוֹתָהּ) 'her nakedness' (Lev. 18.15)

Pataḥ occurs similarly under 'alef in הָאֲזָרָה (MT הָאֲזָרָה) 'the native' (Lev. 18.26). All of these presumably reflect the lowering of ε under אהח"ע. An oddity, perhaps reflecting an uncertainty over ε and a , is found in תִּגְלֶה (MT תִּגְלֶה) 'you will reveal' (Lev. 18.14). Occurrences of similar forms show *pataḥ* in each case, however: תִּגְלֶה (Lev. 18.13); תִּגְלֶה (Lev. 18.15). In הִגְלֶה (Lev. 18.15), damage obscures the vowel under the preformative, so it is unclear whether this is a morphological variant, תִּגְלֶה, or whether the *shewa* substitutes for *pataḥ* in a closed syllable. A further case of ε for a in a non-guttural environment occurs in בְּנִדָּת (for MT בְּנִדָּת) 'in impurity of' (Lev. 18.19).

There is variation in the vocalisation of conjunctive *waw* before the labial ב"ף consonants:

וּבְתָהּ (MT וּבְתָהּ) 'and her daughter' (Lev. 18.17); but וּמִזְרַעְךָ (MT וּמִזְרַעְךָ) 'and from among your offspring' (Lev. 18.21)

Conjunctive *waw* before *shewa* has no vowel:

וּשְׁמַרְתֶּם (MT וּשְׁמַרְתֶּם) 'and you shall keep' (Lev. 18.30)

Perhaps the student was flummoxed at this point.

7.4. T-S AS 5.144 in Conclusion

We can question the competence behind the production of this fragment: it is probably a writing exercise, rather than a Bible proper. There are indeed a number of errors. But it does display also, to varying degrees, some of the trends found in the other fragments described above: the redundancy of *dagesh*, the replacement of *ḥatef* with the equivalent full vowel, and *pataḥ* in place of simple *shewa*. Where it differs from the others is in a more frequent interchange of *ε* and *a* vowels, mostly in the environment of gutturals. This may be best ascribed to the writer's status as a language learner and is possibly influenced by their Arabic vernacular, with the *imāla*, i.e., the raising of *a* to *ε*, attested in vocalised Judaeo-Arabic texts from the Genizah (Wagner 2010, 63), being a possible culprit.

8.0. STUDY BIBLE, T-S AS 59.215

T-S AS 59.215 is a paper bifolium containing Prov. 27.27–28.21 and 30.7–24 from a small-format codex. It is fully vocalised, with cantillation and (phonetic) *ga'ya*, and it contains a number of paratextual Masoretic features, including a *sefer* sign and spaces marking the *parashiyot*. The script is square, the paper was ruled, and there are line fillers consisting of the first letter, or letters, of the following word. The vocalisation and cantillation are in the same ink as the consonantal text, however, suggesting that one hand produced the whole work. It can be classified as a good-quality small-format Bible, intended for private study or as a 'lap Bible'.

The margin contains a decorated *seder* marker (at Prov. 28.16) as well as four *qere* readings (some of which are in different ink and perhaps in different hands). They are marked with the masoretic circle in the body of the text and by ק̇ in the margin. They fall at Prov. 28.10 (בשחותו), 30.10 (אדניו), 30.15 (וארבע), and 30.18 (עה for ווארבעה). The instances of *qere* at Prov. 28.10 and 30.15 are not noted in Codex Leningrad or the Aleppo Codex, and ווארבע at 30.15 reflects a consonantal difference from the text of both of these codices (which have ארבע). There is perhaps sufficient variation in the script and ink to suggest that these two instances of *qere* might be the work of a subsequent corrector of the fragment, who used the device to correct the text, rather than to record *ketiv* and *qere* in the standard sense.

The *parashiyyot petuhot* at Prov. 28.16, 30.9, 30.14, 30.17, and 30.20 are all marked in accordance with the MT, leaving a large space and starting the following verse on a new line. Only at Prov. 28.4 does it appear that no extra space was left at the end of the verse (the manuscript is damaged at this point, but not so much that we cannot be reasonably sure), where both the Aleppo Codex and Codex Leningrad have a *petuḥa* section.

Despite the apparent quality of the work, the copyist erred in omitting a whole verse, Prov. 30.11, probably through haplography on the initial word דור. A further error in the divine name in Prov. 30.10 was fixed by the scribe in the course of writing: a Tetragrammaton was deleted with supralinear dots and the correct form, אדני (with the *qere* אדניו given in the margin), written immediately after it. Yet another error missed out a quiescent

ʾalef, but was again immediately corrected by deletion and re-writing: וַיֹּכְלוּהָ וַיֹּאכְלוּהָ ‘and they will eat it’ (Prov. 30.17).

Dagesh and *rafe* (including *rafe* on final *mater lectionis* ה-) are used throughout, though with some variance from the MT. We find *b* for an expected *b* in:

וְאֶבְיוֹנִים (MT וְאֶבְיוֹנִים) ‘and the needy’ (Prov. 30.14); בְּנֵי (MT-
Leningrad בְּנֵי) ‘children of’ (Prov. 30.17); בְּלִבְיָם (MT-Len-
ingrad בְּלִבְיָם) ‘in the middle of the sea’ (Prov. 30.19)

And *b* for *b* in:

אֶשְׂבֵּעַ (MT אֶשְׂבֵּעַ) ‘I will be full’ (Prov. 30.9)

Dagesh forte is frequently omitted, e.g.,

מְכַסֶּה (MT מְכַסֶּה) ‘he who covers up’ (Prov. 28.13); שֵׁנָיו ‘his
teeth’ (Prov. 30.14); הֵנָּה ‘they’ (Prov. 30.15); לְקַהֵת (MT
לְקַהֵת) ‘to obey’ (Prov. 30.17); יִקְרוֹהָ (MT יִקְרוֹהָ) ‘he will pick
it out’ (Prov. 30.17)

In contrast, *dagesh lene* is more consistently applied. Not only is *mappiq* omitted in Prov. 30.23 גְּבִרְתָּהּ (MT גְּבִרְתָּהּ) ‘her mistress’, but the final *he* is given *rafe*, as if a *mater lectionis*.

8.1. Consonantal Text of T-S AS 59.215

The consonantal text of the fragment differs from the MT when it comes to the representation of the *o* vowel, without showing a strong tendency towards *plene* or defective forms overall:

בְּעִלּוֹן (MT בְּעִלּוֹן) ‘when rejoicing’ (Prov. 28.12); שְׁלֹשׁ (MT
שְׁלֹשׁ) ‘three’ (Prov. 30.15); עוֹרְבֵי (MT עוֹרְבֵי) ‘ravens of’
(Prov. 30.17); שְׁלֹשׁ (MT שְׁלֹשׁ) ‘three’ (Prov. 30.21)

The *u* vowel is written *plene* in the fragment:

יְרוּחָם; (MT יְרוּחָם) ‘will be searched for’ (Prov. 28.12); יְרוּחָם; (MT יְרוּחָם) ‘they will have mercy’ (Prov. 28.13); עָשׂוּק (MT עָשׂוּק) ‘oppressed’ (Prov. 28.17); רוּחָץ; (MT רוּחָץ) ‘not washed’ (Prov. 30.12)

The text has *plene e* in contradiction to the MT in יְרִיקָם (MT יְרִיקָם) ‘vanities’ (Prov. 28.19) and a defective *i* in לְקַהֲתָ (MT לְקַהֲתָ) ‘to obey’ (Prov. 30.17). Furthermore, *yod* has been added above the line a number of times, probably by the original hand, where it is present in the MT:

עָשִׂיר; (MT עָשִׂיר) ‘rich’ (Prov. 28.6); בְּעֵינָיו (MT בְּעֵינָיו) ‘in his eyes’ (Prov. 30.12); including גְּרָשׁ (MT גְּרָשׁ) ‘poverty’ (Prov. 30.8), where the quiescent *alef* is replaced by *yod*

Further corrections are evident, e.g., מַעֲשֵׂקֶיךָ (MT מַעֲשֵׂקֶיךָ) ‘oppressor’ (Prov. 28.16). The sheer number shows the care taken to produce an accurate consonantal text, but one uncorrected difference remains at וּבְמָקוֹם ‘and in the place of’ (Prov. 28.12), where the MT reads וּבְקוּמָם ‘when they rise’. The fragment’s reading is possibly under the influence of the earlier phrase at Prov. 25.6 (וּבְמָקוֹם גְּדִלִים).

8.2. *Ḥaṭef* and *Shewa* in T-S AS 59.215

Ink transfer and staining leave some of the vocalisation signs in the fragment ambiguous or unreadable. There is evidence, however, of some systematic editing of the vocalisation, correcting

the more phonetic elements towards a standard Tiberian rendering. For instance, *pataḥ* has been erased (faint traces remain) and replaced with *shewa* in:

מְכַסֵּה (originally מְכַסֵּה; MT מְכַסֵּה) ‘he covers’ (Prov. 28.13);

בְּדָם (originally בְּדָם; MT בְּדָם) ‘to the blood of’ (Prov. 28.17)

Other variations in vocalisation from the standard MT, mostly involving *shewa* and *ḥatef*, remain uncorrected, however. In Prov. 30.14 מְתִלְעוּתָיו (MT מְתִלְעוּתָיו) ‘his teeth’, an apparent *ḥatef pataḥ ga‘ya* stands in place of the MT’s *shewa ga‘ya*. This is a graphic difference only, as the two are pronounced identically, and reflects the more phonetically transparent approach attributed to the school of Aharon ben Moshe ben Asher, which tends to extend the use of *ḥatef pataḥ* across the full consonantal range of Hebrew (Yeivin 1968, 24–25). There are ink spots, bleeding of ink, and mirrored text down this side of the page, however, so whether this is a correction from an original -מְת- or -מֵת-, or was always so, is unclear.

Pataḥ is found in place of *ḥatef pataḥ* in עֲנִיִּים (MT עֲנִיִּים) ‘the poor’ (Prov. 30.14), with omission of *dagesh* too. *Pataḥ* is similarly preferred to vocalic *shewa* in אֲלֵי־יָתֵם־כּוֹבְדוֹ (MT אֲלֵי־יָתֵם־כּוֹבְדוֹ) ‘let no one hold him back’ (Prov. 28.17), which, unlike מְכַסֵּה and בְּדָם, noted above, was not subsequently corrected to *shewa*.

8.3. Differences in Vowel Quality in T-S AS 59.215

T-S AS 59.215 exhibits a small number of variations in vowel quality. *Segol* substitutes for *pataḥ* under ‘ayin in:

בַּפְּשָׁע (MT בַּפְּשָׁע) ‘in the transgression of’ (Prov. 28.1); בְּצַעַף
(MT בְּצַעַף) ‘unjust gain’ (Prov. 28.16)

The use of two *segols* in segolates with a *het* or ‘*ayin*’ as the third radical is characteristic of the Palestinian vocalisation system (Yahalom 1997, 25). Although the spelling of the divine name יהוה (MT יהוה, [ʔado:ʕnɔ:y]) ‘the LORD’ (Prov. 30.9) has a shift of $a > \varepsilon$ unconditioned by gutturals. There is a shift of $\bar{e} > \bar{a}$ under a *he* in:

אַרְי־נָהָם (MT אַרְי־נָהָם) ‘a growling lion’ (Prov. 28.13)

Two other changes in vowel quality from the MT can be noted:

$\bar{u} > \bar{o}$, וְתִבְזֶז (MT וְתִבְזֶז) ‘and that despises’ (Prov. 30.17); $\varepsilon > e$,
בְּלִב־יָם (MT בְּלִב־יָם, marked with *rafe* in MT-Leningrad, בְּלִב) ‘in the middle of the sea’ (Prov. 30.19)

The interchange of ε and e is typical of the Sefardi reading tradition (Henshke 2013b). Similarly, $\bar{u} > \bar{o}$ in a closed stressed syllable is also characteristic of the Palestinian vocalisation tradition (Yahalom 1997, 17–18; Heijmans 2013a, §3c). However, the attendant Palestinian shift of $\bar{o} > \bar{u}$ in an open syllable is not attested in אַרְי־נָהָם (Prov. 28.13).

8.4. T-S AS 59.215 in Conclusion

This is the best quality Bible manuscript of the fragments assembled here. In most respects it is similar to the MT; it is fully vocalised and cantillated, and it employs almost the full range of paratextual features, such as the marking of *qere* and the graphic

representation of the *parashiyyot*. It also appears to have undergone some later correction towards the MT, in both the consonantal and vocalic layer; it may have passed through the hands of more than one owner, as a valued object.

Where it does deviate from the MT, it does so in similar fashion to the other texts assembled here, though to a lesser extent. There is a tendency for *pataḥ* to replace *ḥatef* and *shewa*, but, unlike most of the other texts, also for *ḥatef* to replace *shewa*. None of these reflect phonetic changes from the standard Tiberian pronunciation. The variations in vowel quality that do occur, though comparatively isolated, might reflect the influence of Palestinian pronunciation. The prominent and decorated *seder* marker at Prov. 28.16 suggests that the triennial pericope was particularly meaningful to the intended user of this text. Probably this was a Bible manuscript produced for a member of the Palestinian congregation of Fustāt and perhaps therefore we might expect artefacts of the Palestinian pronunciation to turn up in its vocalisation.

9.0. CONCLUSIONS

The fragments under inspection here are a mixed bunch, which is deliberate, as they have been chosen to display something of the range of Common Bibles found in the Cairo Genizah, with a necessary emphasis on those with Tiberian vocalisation. Despite sharing commonalities of form, in function they might have been quite different: to prepare for liturgical reading, for writing practice, as a study Bible, or as a lap Bible. The principal feature that they all share, however, is a lack of *masora* proper, and, for the

purposes of classification, this provides a clear point of demarcation between ‘Common’ and ‘Masoretic’ Bibles.

The Genizah is undoubtedly an important source of Masoretic Bibles too. Leaves from dozens of Great Bibles are scattered through the different Genizah collections, reflecting the vitality of the Jewish communities who were able to produce such weighty and expensive codices. Recent research has revealed the presence in the Cairo Genizah of leaves from Masoretic Bibles produced by some of the greatest scribes of their day, such as Samuel ben Jacob, who also copied the Leningrad Codex (Phillips 2016). The documentary evidence they left behind reveals how much the Egyptian Jewish elite were prepared to pay for such prestige works of biblical art and how specific they were in the details of their commissions, regarding the consonantal text, the vocalisation, the *masora*, and other features (Outhwaite 2018, 330–33). The ownership, commissioning, and production of Bibles was at the heart of Jewish culture in the Genizah world, with a highly skilled scribal community and knowledgeable consumers.

From the same world come the thousands of leaves of Common Bibles that saturate the Genizah Collection. The appetite for Bible ownership extended beyond the topmost level of society, but the capacity for commissioning expert scribes to fill this need did not; hence the widescale production of Common Bibles, penned by less-expert hands. Many words have been used to describe them—‘popular’, ‘vulgar’, ‘sub-standard’—but ‘common’ suits them best, if only because they are indeed the most common form of the Bible among all the manuscript fragments found in

the Genizah Collection. As a medium that, in many cases, may never have left the ownership of its original producer, they can be quite unregulated, perhaps the closest we might come to witnessing the reading of the Bible by the Jewish community of the Middle Ages. It is this unofficial nature, this potential lack of mediation, that makes them such a valuable group of manuscripts.

Of course, no two Common Bibles are alike. Those that most closely mimic the MT are liable to give us the least evidence of the realia of the reading tradition of the medieval congregations. They do, however, point at the expertise available in the community generally, which was able to produce small-format, relatively cheap Bibles to this quality. The Proverbs fragment, T-S AS 59.215, is a case in point. It was carefully produced, and it has even undergone later correction towards the MT to remove some of its idiosyncrasies. Even so, it has preserved a number of examples that allow us a glimpse into how the creator of this manuscript pronounced their Hebrew, in this case that the *shewa* was pronounced as an *a* vowel, in line with Tiberian phonology. Entirely at the other end of the scale are the more rustic manuscripts, of which T-S AS 44.53 is a good example. Here, the scribe has reimplemented the Tiberian graphemic system according to rules of their own devising, and has used unorthodox spellings such as שׁב (for שׁוּא) and רוּשׁם (for רִאשׁם). As a consequence, we can see exactly which elements of the reading tradition were of more importance to the owner of the manuscript, and the phonetics of much of it are revealed.

Given these two extremes, and the wealth of material that sits between them, it is hard to generalise about the Common

Bible in the Cairo Genizah, especially given the potential geographical and temporal spread of the manuscripts that found their way into the collection. However, drawing on the analysis above, we can point to a number of features that can be found across different manuscripts, and draw some broad conclusions concerning the reading traditions associated with them.

9.1. The Consonantal Text

We ought to begin with the question of the consonantal text. I have already said that I do not believe these manuscripts are particularly useful for textual criticism in the traditional sense of establishing the reading of the consonantal text of the Hebrew Bible. Goshen-Gottstein shares this view, though he states it more baldly: “There is perhaps one chance in a thousand that any ‘deviation’ might turn out to be something else than either the outcome of non-TBT [= non-Tiberian Bible Text] reading habits (‘Sefardi’, ‘Yemenite’, *etc.*) or simple bowdlerization because of lack of care or ignorance” (Goshen-Gottstein 1963, 40). What facts can we derive from the analysis of the five Common Bibles here that back up his and my assertions? There are only a few consonantal differences that reflect different readings (other than some obvious errors of omission). Two minor differences occur in the text that departs most frequently from the MT, and gives the impression of not having been copied from a *Vorlage* at all, T-S AS 44.35, and can probably be ignored as errors. Two more occur in ‘better’ texts, at 1 Kgs 3.27 in the *haftara* lection T-S AS 53.90 and at Prov. 28.12 in the study Bible T-S AS 59.215. In both cases, we can find similar readings elsewhere (1 Kgs 3.26 and Prov.

25.6) that probably influenced these, and they too should therefore be regarded as simple errors. The former, however, is a reading shared by a number of other manuscripts, so, if an error, it is one frequently made, and this in itself is worth noting. The latter is in a high-quality manuscript, though not one without errors (it has missed out, for example, the whole of Prov. 30.11), and its careful presentation of the *parashiyyot* and *qere* readings deserves attention (and, indeed, should dispel calumnies of ‘ignorance’). In particular, it preserves several instances of *qere* that are not found in the MT (Aleppo and Leningrad), one of which also has a minor consonantal difference, וִאֲרַבֵּעַ at Prov. 30.15 instead of אֲרַבֵּעַ. Its orthography is interesting too, as it frequently does not match the MT’s, in both *plene* and defective forms, yet it shows signs of careful correction. As a copy of the Bible, even without a *masora* to safeguard it, it appears to conform to some kind of textual tradition, just one not identical to the mainstream MT.

Across all the fragments, there is not a prevalence of *matres lectionis*, as perhaps might be expected, or a plethora of respellings. There are exceptions: T-S AS 44.35 has more the character of a text produced by dictation, or from memory, than by copying. But the other fragments have a mix of *plene* and defective forms that show a general adherence to the norms of MT spelling. We do not know how these texts were produced, and it is likely that they have a variety of different origins: copied from codices preserved as public property in the synagogues (which numbered in the dozens, according to the booklists), copied from other Common Bibles begged or borrowed off friends or family, pro-

duced by dictation or, perhaps even, by prodigious feats of recollection. It is fair, then, to slightly moderate the earlier assertions, and suggest that while most will not provide useful evidence for textual criticism (beyond assisting us with further knowledge of the kinds of errors that Bible copyists are capable of), that is not to say that none of them will. The careful text and paratext of T-S AS 59.215 give all appearance of having been copied from, or at least collated with, a reliable *Vorlage*, and should therefore be given due consideration for their textual value.²⁰

Beyond the variable value of the consonantal text, the phonetic value of the manuscripts is unquestionable, as I hope I have displayed above. Far from the mixed results of the consonantal survey, the analysis of these Bibles' vocalisation clusters around a number of interesting features, speaking to the vitality of the Tiberian pronunciation tradition in the post-Masoretic period, and the conservatism of the Genizah world's Bible reading.

9.2. Lack of the *Ḥatef* Vowel

The commonest feature, found in four out of the five Common Bibles analysed here (only T-S AS 59.215, the finest of the bunch differs), is a reluctance to use the *ḥatef* sign. Three of the fragments have no occurrences of it (T-S AS 44.35; T-S AS 53.90; T-S AS 5.144), and even the closest manuscript to the MT, T-S AS 53.215, occasionally replaces *ḥatef* with *pataḥ*. Of morphophono-

²⁰ And indeed, as the colophon of T-S Misc. 24.137.3 shows (see footnote 2 above), some of these modest-looking Bibles may well have had very illustrious predecessors.

logical significance in the Tiberian system, the sign is phonetically superfluous if the intended user of the text is familiar enough with the pronunciation tradition. One of the hallmarks of Aharon ben Moshe ben Asher's approach to marking vowels was a preference for *ḥatef* signs, providing greater clarity to the presence and timbre of the vocalic *shewa* (Yeivin 1968, 24–25). It was a sign intended to remove doubt and ambiguity. In our fragments we find a similar dislike of ambiguity, of simple *shewa* in particular, but the solution is different. These fragments tend to employ a full vowel, usually *pataḥ*, in place of the missing *ḥatef*. We can only speculate whether the full vowel is deliberate, a consequence of their education, or a lapse; it may well be different for the various fragments, as might be guessed from their varying qualities.

In some cases, there is a different approach: *ḥatef* is replaced with simple *shewa*, e.g., as a vocalic *shewa* under gutturals, against standard Tiberian practice. T-S AS 68.100 does this on a number of occasions. There is no resulting ambiguity, however, because a vowelless guttural, where the MT would have a simple (silent) *shewa*, in that fragment is unmarked. Thus, the simple *shewa* sign is always vocalic in that fragment, and *ḥatef* is not required to avoid ambiguity.

9.3. *Pataḥ* for Vocalic *Shewa*

A related feature to the avoidance of *ḥatef*, common to four out of the five fragments, is the use of *pataḥ* for *shewa* in some or all cases when it is to be pronounced vocally. This accords with

the standard Tiberian pronunciation of *shewa* as [a] when unconditioned by a following guttural or *yod* (Khan 2013b), a feature preserved also in the Yemeni reading tradition of Biblical Hebrew (Ya‘aqov 2013). This contrasts with the Sefardi pronunciation tradition, such as the reading traditions of Tunisia, Aleppo, and Baghdad, where unconditioned *shewa* is pronounced as an [e] of varying lengths (Henshke 2013b).²¹ This realisation of *shewa* as a front vowel ultimately derives from the Palestinian pronunciation tradition (Khan 2013b), where *e* vowels commonly occur in place of Tiberian *shewa* (Heijmans 2013a).²² All the fragments discussed here retain the original Tiberian realisation of *shewa*, even T-S AS 53.219, which appears closer to the Palestinian reading tradition in other ways. Israel Yeivin’s analysis of Tiberian vocalised *piyyut* manuscripts from the Cairo Genizah reveals that they similarly often use *pataḥ* in place of *shewa*, e.g., בְּנִי ‘son’ (Cambridge University Library Add.3367.8). He reaches the same conclusion, that the [a] pronunciation of unconditioned *shewa* is pervasive (Yeivin 1990, 176–77). The reading traditions evidenced in all these sources point to the retention of the Tiberian

²¹ With rare exceptions, where problematic cases in the Tiberian tradition, such as the *shewa* under forms of אכל, retain the Tiberian pronunciation as an *a* vowel, e.g., in the tradition of Djerba (Henshke 2013, §6). This was most likely due to the use of *ḥatef pataḥ* signs (instead of simple *shewa*) in those particular cases, which consequently caused the retention of the original Tiberian quality.

²² However, *a* vowels also occur for Tiberian *shewa*, suggesting a mid-central realisation (Heijmans 2013a, §3e), or a shift in its realisation from a short low vowel [a] to a short central vowel [e] (Yahalom 2016, 164).

pronunciation of *shewa*, and show very little evidence for the influence of the Sefardi-Palestinian reading tradition on the vocalisation.

The use of a *pataḥ* sign for the *shewa* vowel avoids the ambiguity inherent in the *shewa* sign itself. In some of the texts *pataḥ* only substitutes in particular circumstances, such as when *shewa* occurs under the first of two identical consonants following a long vowel. This was a problematic linguistic circumstance discussed widely in the medieval literature, e.g., by Aharon ben Moshe ben Asher in his *Diqduqe haṭ-Ṭe'amim* and by Abū al-Faraj Hārūn in his treatise, *Hidāyat al-Qāri'* (Heijmans 2018, 98–100). It must have been a pronunciation considered prone to error. Such cases put a great reliance on either the reader's expert knowledge of the Tiberian system or the presence of additional linguistic signage, such as the secondary *ga'ya* accent. Neither of these is a given with the fragments here: *ga'ya* rarely occurs in any but the highest-quality Common Bibles, since it is an advanced component of the cantillation system, and, indeed, its occurrence varies greatly even in Masoretic Bibles. Nor were the users of these fragments necessarily likely to have been masters of the Masoretic arts. Uncertainty is avoided, therefore, through the use of *pataḥ*. The outlier in its approach is again the Lamentations fragment, T-S AS 44.35, which is not content just to replace *shewa* in difficult circumstances, but, showing no fidelity to the accepted system, replaces vocalic *shewa* universally with a *pataḥ* sign: אָזְנֶךָ לְרִוְחָתִי 'your ear for my relief' (Lam. 3.56).

9.4. Other Vowel Signs for Vocalic *Shewa*

It is less frequently that we find a vowel other than *pataḥ* substituting for *shewa*. Two out of the five fragments show examples, where MT *shewa* occurs before a guttural or *yod*. In each of the cases, the alternation is phonetically in accord with Tiberian pronunciation, replicating the vowel under the guttural or, when before *yod*, giving *hireq*. Sporadic occurrences of such vocalisations can be found across the Common Bible corpus of the Genizah—a few other examples:

בְּחִירֵי (MT בְּחִירֵי) ‘my chosen ones’ (Isa. 65.22, T-S AS 48.187); רְאִיתֶם (MT רְאִיתֶם) ‘you saw’ (Deut. 4.15, T-S AS 49.125); הַיִּשְׂרָאֵלִי (MT הַיִּשְׂרָאֵלִי) ‘the Israelite’ (Lev. 24.10, T-S AS 53.45); שְׁאֵת (MT שְׁאֵת) ‘a swelling’ (Lev. 13.28, T-S AS 57.167); בְּיָדוֹ (MT בְּיָדוֹ) ‘in his hand’ (Isa. 53.10, T-S AS 65.47); וְהִיִּתֶם (MT וְהִיִּתֶם) ‘and be’ (Lev. 11.44, T-S AS 48.141)

Similar vocalisations can be found among liturgical poetry manuscripts from the Genizah, with *hireq* in place of *shewa* before a guttural (itself with *hireq*) or before *yod* relatively common (Yeivin 1990, 161, 166, 168–69, 177), e.g., בְּיָד ‘into the hand of’ (Cambridge University Library Add.3367.8). Other vowels though are less frequently found, and Yeivin believes that the levelling of these conditioned *shewas* to that of the uncoloured vocalic *shewa* [a] is ongoing in this period (i.e., the tenth–twelfth centuries CE, the assumed period of the *piyyuṭ* manuscripts’ production). This levelling is complete in Sefardi-Palestinian pronunciations (e.g., בְּחִירֵי [viḥi:ʿrɔ:y] > [veḥi:ʿra:y]), such as the

reading traditions of North Africa (Henshke 2013a, §6). The evidence of these Common Bible fragments strongly differs and shows that the traditional Tiberian pronunciation of *shewa* was followed in most linguistic circumstances. We do not see the same levelling to the uncoloured pronunciation of *shewa* at all. That this is also different from the evidence of roughly contemporary *piyyuṭ* manuscripts is not a contradiction. The biblical reading traditions generally display a more conservative pronunciation than those of the non-biblical—the Mishna, prayers, and liturgical poetry.

9.5. Variation in Vowel Quality

Among the five Common Bible fragments there are few divergences from standard Tiberian vowel quality. Most occur in the Lamentations manuscript, T-S AS 44.35, the most transparently phonetic in its vocalisation. It shows evidence of an almost complete shift of $\epsilon > e$, suggesting the influence of Palestinian pronunciation, as happened in the Sefardi pronunciation, with its neutralisation of *segol/šere* and *pataḥ/qameš* (Henshke 2013b). The concomitant shift of $\text{ɔ} > a$ also occasionally occurs in T-S AS 44.35, but is not consistent and may in fact be a morphological variant (loss of pausal forms).

Slightly more frequent in the fragments is variation between *a* and ϵ . T-S AS 59.215 shows segolate nouns such as *בצע* with two *segols* [ˈbɛːʂɛʔ], suggestive of Palestinian pronunciation. Whereas the *haftara* lectionary T-S AS 53.90 and the writing exercise T-S AS 5.144, both at the more basic end of the Common Bible scale, show a shift of $\epsilon > a$ around the guttural consonants.

A few other interchanges ($i > e$, $a > \varepsilon$, $e > a$, $u > o$) occur in such small numbers, that they can probably only be considered the sort of isolated occurrences that are liable to occur in any manuscript. What is probably most significant therefore is the extent to which, T-S AS 44.35 aside (and even that not wholly), the fragments tend to reproduce the original quality of Tiberian vowels without much variation. Certainly, there is not the evidence of a wholesale neutralisation of e/ε and o/a as in the Sefardi pronunciation.

9.6. Variation in Consonantal Quality

The only fragment to show more than minor variation in the pronunciation of the consonants is T-S AS 59.215, which has \beth [b] for the MT's \bet [v] three times and [v] for [b] once. This is surprising given the otherwise polished nature of this fragment, yet it does show considerable difference from the MT in regard to orthography as well. Perhaps this shows a lack of distinction in pronunciation between the plosive and fricative allophones, such as is found in some Yemeni pronunciations (Ya'aqov 2013), or perhaps a free variation, such as is found in the pronunciation of Baghdad's Jews (Shatil 2013, §2). However, sufficient regard is shown to maintaining the distinction graphically across most of the fragments presented here, suggesting, on balance, that this is not likely. Even T-S AS 44.35, which uses neither *dagesh* nor *rafe* signs, still maintains the fricative pronunciation of *bet*, [v], as shown by its spelling of שׁוּא as שב at Lam. 2.14 as well as its singular use of *shewa* as an apparent marker of the fricative pronunciation, e.g., הַטֹּב [ha'to:v] 'the best' (Lam. 4.1). In the other

fragments the *rafe* sign occurs to mark fricatives (with the exception of the writing exercise, T-S AS 5.144).

9.7. The Absence of *Dagesh*

The use of *rafe* or, in T-S AS 44.35's case, *shewa*, shows that the plosive versus fricative pronunciation of the *bgdkpt* consonants is still operative. *Dagesh*, however, occurs quite infrequently in these fragments; this contrasts with its greatly increased presence in the Extended Tiberian system. On the contrary, the Common Bible fragments given here largely manage without *dagesh* even to distinguish the allophones of the *bgdkpt*. The further lack of *dagesh forte* to mark the gemination of consonants is striking. The two most complete fragments in their vocalisation, T-S AS 68.100 and T-S AS 59.215, both mark *dagesh forte*, but the other three fragments do not. This suggests that consonantal length may not have been a significant feature in their pronunciation of the text, at least in the informal environment in which these texts figured, or that it was sufficiently familiar not to require explicit marking.²³ In formal reading of the Bible, the pronunciation traditions of Tunisia (Henshke 2013a, §4), Aleppo (Henshke 2013b), and Baghdad (Shatil 2013, §3) all retain the gemination of most consonants, as does the Yemeni pronunciation (Ya'aqov 2013). While the absence of *dagesh* in these Common Bibles should not be taken alone as evidence for the absence of gemination, we can perhaps conclude that gemination was of less importance to the reading tradition in the eyes of these fragments' users than the

²³ The vocalised autograph fragments of the tenth-century poet Joseph ibn Abitur tend not to mark *dagesh* either (Yeivin 1990, 161).

correct pronunciation of the plosive and fricative allophones of the *bgdkpt* consonants, since these are marked far more frequently (mainly through the presence or absence of *rafe*) than the geminated consonants.

9.8. Overall Conclusion

This analysis has looked at only five fragments from the Taylor-Schechter Additional Series. This is but a drop in the Common Bible ocean, and generalisation should therefore be avoided. Indeed, there a number of significant differences between the fragments—from their presentation of the biblical text and its paratext to their quite varied approaches towards the marking of vowels. The degree of casualness and of competence can be wholly different between any two Common Bible manuscripts. But, overall, and allowing for both lapses in competence and more casual approaches to reproducing the text, we should note the clear knowledge of the Tiberian reading tradition displayed by all the fragments. A couple do suggest some influence of the Sefardi-Palestinian pronunciation in aspects only of their reading; others show occasional laxity, but nevertheless aspire to the prestige Tiberian pronunciation. There is a tendency to drop signs that are of less immediate importance to the readers, either because they have no effect on phonetic quality, since their role is performed by other signs, or because they facilitate aspects of the reading tradition that may not have been significant or even discernible to these average users: all *ḥaṭeḥ* vowels, *shewa* when it denotes \emptyset vowel, *dagesh*, some or all cantillation signs and particularly *ga‘ya*. It was *ḥaṭeḥ* (for Ben Asher), *ga‘ya* (for the difference

between Ben Naftali and Ben Asher), and *dagesh* (for the innovation of Extended Tiberian) that so occupied the Masoretic experts, but it is evident from these texts that the level of phonological detail these signs provided was irrelevant to most users. To this we could also add the *parashiyot*, which were such a marker of quality in Maimonides' eyes, but which are rarely represented in Common Bibles. It does not necessarily imply ignorance or lack of competence in the reading tradition, only a lack of interest or necessity. Although some of the peculiarities of the vocalisation tradition (e.g., that a simple *shewa* under a guttural should always be \emptyset) might have been less than perfectly understood.

One feature is phonetically in accordance with the Tiberian reading tradition again and again in the fragments: the pronunciation of *shewa*—its quality under normal circumstances, before guttural consonants, before *yod*, and on the first of two identical letters. No matter what other phonetic changes they display and despite the idiosyncrasies of marking the vocalisation, they all assiduously maintain this aspect of the Tiberian reading tradition. This testifies to the conservatism of the biblical reading tradition and the continued and pervasive influence of the prestige reading tradition, the Tiberian reading tradition, in the Genizah world of the High Middle Ages.

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AN EXPLORATORY TYPOLOGY OF NEAR-MODEL AND NON-STANDARD TIBERIAN TORAH MANUSCRIPTS FROM THE CAIRO GENIZAH

Estara Arrant

1.0. INTRODUCTION¹

The present study is a codicological and linguistic classification of 296 Torah codices in the Genizah collections of Cambridge University Library that have nearly all of the characteristics of ‘model’ codices² and that have standard and non-standard Tiberian vocalisation patterns. Such a study is warranted due to multiple gaps in modern scholarship on the codicology and vocalisation of the Hebrew Bible.

In previous scholarship in the field, attention has been focused on the most codicologically-sophisticated manuscripts.

¹ I wish to thank Prof. Geoffrey Khan for his support and comments; Nick Posegay for proofreading; Dr David Wright and Prof. Andrew Lang for their guidance and support with the statistical analysis; and Prof. Judith Olszowy-Schlanger for her assistance with the palaeography.

² These have been termed in scholarship ‘complete’ Bibles (Yeivin 1980, 11–12) or ‘great’ Bibles (Sirat 2002, 42–43).

There has not been sufficient differentiation and study of Bibles that are sophisticated, but lack the full range of the features associated with exemplar manuscripts, such as Codex Leningradensis.³ In previous scholarship, descriptions of ‘model’ codices generalised specific feature groupings that, in fact, appear to be distinct from each other, hiding important differentiation in manuscript features. For example, Yeivin states:

The majority of older texts and Geniza fragments are beautifully written and “complete” (that is, masoretic notes and vowel and accent signs were systematically added). They were written on parchment, with great care taken over the forms of the letters and over corrections, and they contain the Mm, Mp, and vowel and accent signs. They were written with two or three columns to a page.⁴

In this article I introduce a new category of Torah codex: the ‘near-model’ codex, and I show how the different feature patterns in this type of codex fall into statistically-verifiable subtypes. Near-model codices have nearly all, but not the complete range, of the codicological and textual features that exemplar Tiberian Bibles have. Because none of these exemplar codices have fewer than three columns, I question Yeivin’s grouping two-column manuscripts with the most complete, model Bibles, and I consider two-column codices with masoretic notes, vocalisation, and cantillation to be near-model. Moreover, there are many three-

³ By exemplar, I mean specifically specimens such as Codex Leningradensis, the Aleppo Codex and the Cairo Codex of the Prophets.

⁴ Yeivin (1980, 11).

column manuscripts that fall just shy of the ‘complete’ criteria that Yeivin lists above. These I also consider near-model and show to be statistically distinct from their two-column peers.

Within all of the Torah manuscripts that have Tiberian vocalisation there is a substantial group of manuscripts that use Tiberian vowels in non-standard ways. There have been some studies of this type of Tiberian vocalisation, which is referred to by a variety of terms, the most common being ‘Palestino-Tiberian’ vocalisation.⁵ In such studies, however, there has not been sufficient attention on the diversity of non-standard vocalisation patterns that exist in Genizah manuscripts. In this article I show that there were many non-standard Tiberian (hereafter, NST)⁶ patterns, and I delineate an exploratory typology of these patterns in Genizah Torah manuscripts using statistical methods.

⁵ The best literature reviews of this subject are found in Fassberg (1991, 55); Saenz-Badillos (2008, 92–94); Blapp (2017, 8–32); Khan (2017, 265–266). This kind of vocalisation is generally characterised in scholarship by an ‘extended’ use of *dagesh* and *rafe*, the vowel interchanges of *pataḥ/qameṣ* and *segol/šere*, and the non-standard placement of *shewa* and *ḥatef* vowels.

⁶ Blapp (2017) was the first to introduce the term ‘non-standard Tiberian’ (or NST) outside of the Davis-Outhwaite catalogues. I follow Blapp here in using this term to delineate any pattern of deviation from the standard Tiberian (ST) of Codex Leningradensis that uses Tiberian vowel signs.

Another gap in scholarship on the Hebrew Bible that this study addresses is the lack of communication between codicological and textual studies on manuscripts.⁷ In preliminary case-studies of the corpus I observed that not only do there appear to be sub-types of NST, but that various codicological features present in near-model codices also appear to be arranged into definite subtypal patterns. Moreover, it seemed that NST subtypes tended to correlate with these codicological subtypes. The aim of this study is to map NST diversity onto near-model Torah codicology in order to demonstrate (statistically) that the correspondence is not completely random.

1.1. Terminology, Structure, and Hypotheses

The key descriptors of codices that I am using in this paper are as follows:

- ‘Model Codex’: these codices look identical in style to exemplar Tiberian Bible codices such as Codex Leningradensis. They have the following combination of features: (1) a parchment base; (2) three columns; (3) a standard Tiberian (hereafter, ST) text; (4) full Masoretic notes—both Masorah Parva and Masorah Magna.

⁷ Yeivin (1980, 11–12) mentions codicology briefly in his exploration of the development of the Tiberian Masorah and Diez-Macho (1971, 91–92) attempts a codicological typology of paper Bibles. These attempts to synthesise codicology and textual features are, however, limited in scope.

- ‘Near-Model’ Codex: these codices nearly attain the status of ‘model’, as defined above, except that the full four-part pattern is not present. For example, an otherwise model manuscript may lack full Masoretic notes, or may only have two columns instead of three. Manuscripts with NST automatically are considered ‘near-model’ for purposes of this study, but there are a substantial number of NST Torah codices that have all of the other features of a model codex.⁸

This fuller study of 296 fragments is built upon observations from preliminary case studies on 150 of these Genizah fragments. These specific observations have determined the structure of the study. Because none of the exemplar Bibles have two columns, it seemed appropriate to label two-column parchment Torah copies with full Masorah and vocalisation as near-model. It is not assumed, however, that these are homogeneous with three-column near-model Bibles present in the corpus, and so the study tests them separately to see if there is a statistically-verifiable difference.

Another critical factor indicated by preliminary observations regards Masoretic notes. For near-model Bibles, two-column parchment manuscripts without Masorah tend to vary widely and contain many poorly-made specimens. However, three-column

⁸ Many of them are visually indistinguishable in style from exemplar manuscripts, and are set apart only by deviations in their vocalisation patterns. This seems to suggest that NST was part and parcel of sophisticated Bible codex production in the main Genizah period (ninth–twelfth centuries CE).

parchment manuscripts without Masoretic notes still retained a high degree of careful execution. It seems, therefore, that greater column numbers can be associated with a higher level of codicological sophistication, but this is not the case with the lack of Masoretic notes. Lack of Masoretic notes is not a sophisticating factor for three-column Torahs. It is, however, a major de-sophisticating factor for two-column Torahs.⁹

The present research is guided by two hypotheses that are tested through statistical, codicological, and linguistic analysis:

1. Near-model Torah parchment manuscripts with two or three columns in the Genizah have distinguishable patterns in their codicological features that indicate the presence of sub-groups in the manuscript corpus. Moreover, column number is a major factor in distinguishing these sub-groups, because nearly-model manuscripts with two columns are codicologically distinct from nearly-model manuscripts with three columns.
2. There are statistically distinguishable patterns in the NST vocalisation of these manuscripts, indicating sub-groups of NST vocalisation. These patterns can be linguistically validated. Moreover, these patterns tend to correlate with the codicological patterns of hypothesis 1.

The findings can be summarised as follows: first, a tentative, yet statistically-sound, typology of near-model manuscripts

⁹ There is not space here to analyse the large population of two-column parchment codices without Masoretic notes; they are addressed in my PhD thesis.

can be established and subtypes within this typology can be identified. Second, NST is not a monolithic phenomenon, but contains significant subtypes. These subtypes reflect regional patterns of scribal activity comprising various streams of diversity in pronunciation traditions and in the application of Tiberian vowel signs to represent the pronunciation. Finally, subtypes of NST map onto codicological features in a broad sense. This indicates that there is a linkage between the codicology of a manuscript and the features of the written text that it contains.

1.2. The Evidence Threshold

As a general rule, predictive statistical tests are considered significant if they have a probability value (p-value) of at least 0.1. This indicates that there is less than a 10 percent probability that the particular statistical relationship tested for happened by chance. However, p-values are not meant in this study to be used as a definitive marker of typology: a p-value which approaches significance, but which fails the full test, is still treated as meaningful and placed on a spectrum alongside the significant results.¹⁰

¹⁰ The current attitude of researchers towards p-values is that they should be interpreted on a continuum indicating weakness or strength in the results, not treated as categorical, black-and-white measures of the subject being studied (Amrhein, Greenland, and McShane, 2019). This is the approach that I embrace in the present research.

2.0. METHODOLOGY

2.1. Sampling Strategy

The data in this study consist of fragments of two- or three-column parchment codices of the Torah with complete dimensions from the extant Taylor-Schechter and Lewis-Gibson Genizah collections in the Cambridge University Library. Wherever possible, the data were collected via first-hand assessment of the manuscripts, with the support of the metadata and photographs from the Davis-Outhwaite catalogues, the Cambridge University Digital Library's Lewis-Gibson entries, and the Friedberg Genizah Project. In order to limit the study to a reasonable size, the corpus is split into two groups based on number of columns, with different criteria for inclusion in each group:

Three-column group criteria:

- A parchment base.
- Any combination of Masoretic notes: no notes, full Masoretic notes (Masorah Parva and Masorah Magna), or partial Masoretic notes (either Masorah Parva or Masorah Magna).
- Either unvocalised or have NST vocalisation. Also included are fragments with ST vocalisation which lack full Masoretic notes.

I found 142 three-column manuscripts in Cambridge that meet these criteria.

Two-column group criteria:

- A parchment base.

- Either full or partial Masoretic notes. Two-column parchment manuscripts without any Masorah are excluded because they vary so widely in their features (see Section 1.1).
- Any vocalisation type: none, ST, or NST.

I found 154 Torah fragments meeting these specifications in the Genizah collections in Cambridge.

In total, 296 two- and three-column fully dimensioned fragments meet the aforementioned conditions for the study. This is an estimated 98–99 percent of manuscripts with these codicological features in Cambridge (as always, it is possible that some manuscripts may have been overlooked, so I do not assume complete comprehensiveness). The research is therefore representative for the Genizah collections in Cambridge.

2.2. Palaeography

A cautious approach was taken regarding palaeographic assessment. Each of the manuscripts in the corpus which had NST vocalisation was assigned a general palaeographic identification, with a focus on determining the provenance rather than on pinpointing an exact date. The assessments involved establishing the palaeographic type of script on the basis of comparative samples and estimating a date spanning two centuries.¹¹ Below are the categories used as general palaeographic descriptors for region:

¹¹ It is fully expected that further research may (and should) correct and clarify some of the palaeographic assertions made in this study. The palaeographic estimations were based on comparative sources and used the methods developed in the following scholarly resources: Birnbaum

- ‘Oriental’: manuscripts with a ‘Northeastern’ or ‘Southwestern’¹² Oriental script style.
- ‘Palestinian-Byzantine’: manuscripts with a script style that is characteristic of manuscripts produced in a region ranging from the Levant to Asia Minor.
- ‘Italian-Byzantine’: manuscripts with a script style that is characteristic of manuscripts produced in a region ranging from Italy to Asia Minor.
- ‘Sephardi’: manuscripts with a clear Sephardi style of script.

The regional labels I attach to specific scripts should be seen as approximations rather than fixed assessments. The mobility of scribes and the variability of script styles in the Genizah often makes the exact pinpointing of regions and dates problematic. For purposes of this typology, the regional labels should be taken as wide estimations rather than exact diagnoses.

(1971); Beit-Arie, Engel and Yardeni (1987); David (1990); and Yardeni (2002). Judith Olszowy-Schlanger also assisted in the assessment of a number of the manuscripts and provided me with methodological insight and feedback.

¹² Olszowy-Schlanger (2015) introduces these terms and describes the differences between Southwestern Oriental and Northeastern Oriental scripts. It is important to note that palaeographic typological features appear on a spectrum and that overlap between regions is likely. Most notably, Olszowy-Schlanger explains here that the ‘Northeastern Oriental’ Hebrew script spread from Mesopotamia to the rest of the Islamic world rapidly, and so many Egyptian manuscripts are written in what we call a ‘Northeastern’ script style.

2.3. Statistical Procedures

The statistical approach taken in this study was non-experimental and relied mainly (but not exclusively) on non-parametric statistical tests (meaning that no statistical prediction/probability was involved). Data were stored in an SQL database which I created especially for the research. In collecting linguistic data, only one page (single or conjoined) was read per manuscript in order to avoid assigning multiple-page manuscripts greater weight than single leaves (multiple pages of a manuscript generate more linguistic data and this could bias the statistics against single-leaf manuscripts).

The general descriptive statistics (basic distributions of features) are reported first. Then three kinds of clustering algorithms are performed on the data (k-means, k-modes, and mean-shift clustering), because their different mechanisms elucidate different aspects of the data. The computer ran each algorithm up to ten times: the data are clustered and re-clustered by the computer until the numerical distance between each group is optimal.¹³

Codicological and linguistic features were assessed separately. The results of the codicological clustering are given in section 4, and the results of the linguistic clustering are given in section 5. In the conclusion of the study, the results of the codicological and linguistic clusters are compared: the major finding is that manuscripts that cluster together in the codicology also tend to cluster together in the linguistic groups.

¹³ See section 4.2 for a more in-depth explanation of clustering algorithms and relevant literature.

2.4. Textual and Linguistic Analysis

The textual data of the manuscripts were compared with photographs of Codex Leningradensis¹⁴ and the BHS. Due to the size of the corpus, I did not find it helpful to generate a ratio comparing the number of occurrences of an NST feature against the size of the manuscript or passage involved.¹⁵ Any deviation from Leningradensis/BHS was noted. I did not, however, record *rafe*, due to the fact that it varies greatly even across standard Tiberian manuscripts.¹⁶ Cantillation was likewise not assessed. After the clustering was performed and the patterns established, their linguistic characteristics were assessed in-depth, and the patterns and resulting examples are shown in Section 5.

3.0. COMPREHENSIVE DESCRIPTIVE STATISTICAL ANALYSIS: CODICOLOGY AND LINGUISTIC FEATURES

The following report on the feature distributions of codicology concerns all 296 manuscript fragments which are the subject of this study. The report on linguistic feature distributions concerns the 55 NST manuscript fragments which were found in the corpus of the whole 296.

¹⁴ National Library of Russia, I Firkovitch Evr. I B 19a.

¹⁵ Blapp (2017) uses such a ratio very successfully, because his corpus of manuscripts is small. I have found that with a large corpus, such a ratio provides only diminishing returns.

¹⁶ Thanks to Ben Outhwaite for his advice regarding this decision.

3.1. Descriptive Statistics: Codicology¹⁷

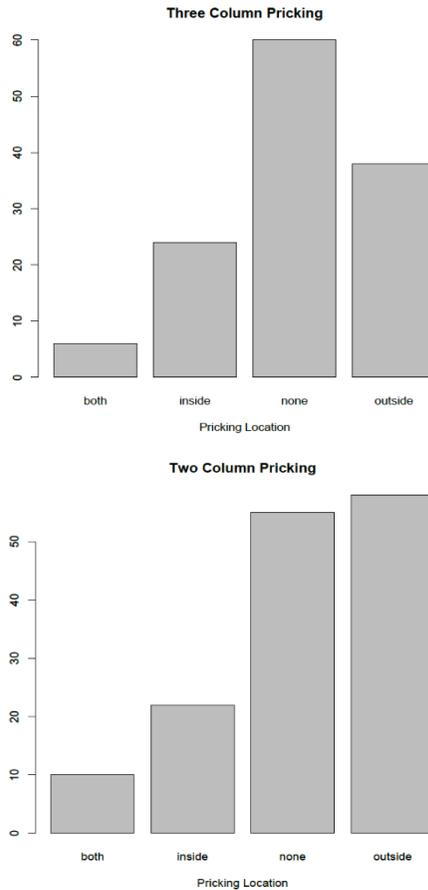
3.1.1. Format (Ratio of Width x Length)

The two groups (two-column and three-column) have roughly equal distributions of formatting proportions: with 'portrait' format (ms length > ms width by more than 1cm) being the most common, and 'square' (width and length within 1 cm of each other) the second-most common. 'Landscape' (ms width > ms length by more than 1 cm) is the rarest.

3.1.2. Pricking (Holes in the Margins to Aid in Ruling a Page)

The majority of both groups has no visible pricking. The two-column group has significantly more manuscripts with pricking in the outside margin (58; 37.6 percent) than the three-column group (38; 26.7 percent):

¹⁷ The following manuscript features are not reported here due to their homogeneity between the two manuscript groups: ruling (99 percent were ruled); regular parchment shape (~93 percent had regularly-shaped, high quality parchment); *petuḥa* and *setuma*: 99 percent had regular line breaks; Masorah (see section 1.1); graphical line-fillers to keep the margins even (the majority favoured a couple of line-fillers per page); correction extent (the majority of manuscripts had minimal corrections).



3.1.3. Margins

Manuscripts were visually assessed for their margin width in relation to the text and not measured numerically. 'Regular' margins = the margin width is average all around the text and not overly large or small. 'All-wide' margins = all margins are disproportionately wide in relation to the space the text takes on the page. There were other more unusual variations in the relation of margin width to the text, such as 'bottom-wide', where the

bottom margin was disproportionately wide while the other margins were regular. Both groups favoured 'regular' margins. Differential results: two-column group: more 'all-wide' manuscripts. (45 manuscripts total had this feature = 29 percent) than the three-column group (26; 18.3 percent). As a group, the two-column manuscripts tended to have more variation in margin width than the three-column group, which was more homogeneous.

3.1.4. Illumination and Decoration

Extra-textual decoration was rare for both groups. Differential results:

- Two-column group: much variation: *parashot* decorations (23.3 percent; micrography 2.59 percent; 1 manuscript with extensive decoration; 1 manuscript with professional illumination).
- Three-column group: minimal variation: only small decoration surrounding *parashot* markers were found (30 manuscripts; 21.1 percent).

3.1.5. Script Type, Level of Sophistication, and Script Size

All manuscripts were assessed on the type of script (square or semi-cursive), the sophistication (scribal, average, or unprofessional), and size (small, average, medium, large) of the letters of the handwriting in proportion to the dimensions of the page. Differential results:

- Script type: 100 percent of manuscripts used a square script.

- Sophistication: 100 percent of three-column manuscripts had a professional script;¹⁸ 5, or 3.24 percent, of the two-column manuscripts had an ‘average’ script which was either professional but overwritten (and less legible) or which was written in a less sophisticated hand.
- Script size: an ‘average’ size script (not overly large or small in proportion to the page) predominated in both groups. ‘Small’ was a significant minority in both (two-column: 57; 37 percent; three-column: 50; 35.2 percent). Outlier: T-S A3.15: a three-column fragment with a ‘large’ script.¹⁹

3.1.6. *Parashot/Sedarim*

Both groups favour no marking of a *parasha* (probably because the passages on the fragments did not begin a *parasha*). Differential results:

- Three-column preferred *parasha* markers over *sedarim* markers (17; 11.9 percent marked the *seder*);
- Two-column had a greater number with *sedarim* markers (35; 22.7 percent).
- A small minority of both groups marked both *parashot* and *sedarim*.

¹⁸ T-S AS 1.249 has been crudely re-written on the verso.

¹⁹ This manuscript was categorised as post-twelfth c. Oriental. Thanks to Judith Olszowy-Schlanger for her assistance.

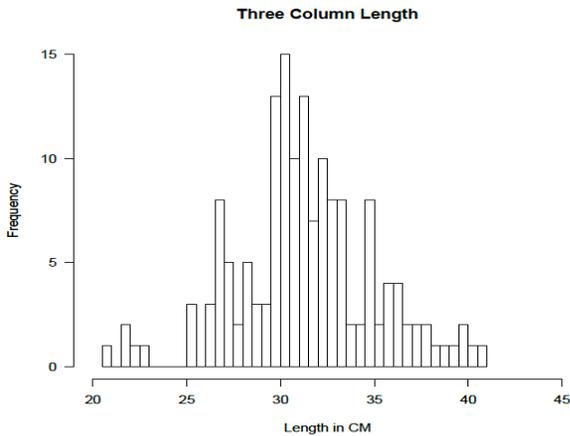
3.1.7. Vocalisation

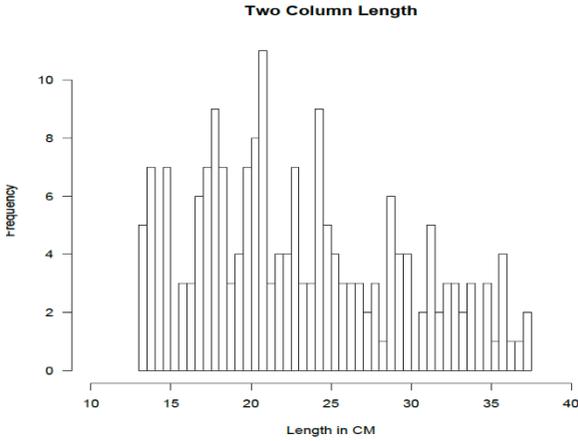
Both groups had a majority of manuscripts with ST vocalisation. Differential results: three-column manuscripts had proportionally more NST manuscripts (33; 23.2 percent) than the two-column manuscripts (22; 14.2 percent). This proportion no doubt would change if two-column manuscripts without Masorah were included.

3.1.8. Dimensions

The distribution of leaf length and width differ for the two groups:

Length:





The three-column group has a distribution that somewhat resembled a normal²⁰ distribution:

- Range: 20.6–40.9 cm
- Mean:²¹ 31.3 cm
- Standard Deviation (a rating of variance in the lengths of manuscripts): 3.70.
- Quartiles: median: 31.1 cm, interquartile range (measure of dispersion): 29.6–33.1 cm
- Test of normality (Shapiro-Wilk test): p-value = 0.05

²⁰ ‘Normal’ here means that the shape of the distribution bars peaks at the median and tapers down symmetrically on both sides. This means that most three-column manuscripts have a typical length of approximately 31 cm, and those that differ from that size become rarer the more their length deviates from this value.

²¹ This is the average length of a three-column parchment leaf.

The three-column group is quite uniform, and the average length of 31.3 cm is representative—meaning that the general three-column parchment ‘near-model’ Genizah Torah codex is likely to have a page length of around 31 cm. This is because the distribution is essentially normal and the standard deviation is low.²² An outlier group of small three-column codices clearly occurs between 21 and 24 cm. The interquartile range is small, indicating homogeneity (not much variation in the majority of manuscripts). The Shapiro-Wilk result indicates that the distribution is for all intents and purposes normal.²³

The two-column group varies considerably and does not resemble a bell curve.

- Range: 13.0–37.3 cm
- Mean: 23.2 cm
- Standard Deviation: 6.33 cm
- Quartiles: median: 22.2 cm, interquartile range: 18.1–27.9 cm
- Shapiro-Wilk: p-value = 0.00002

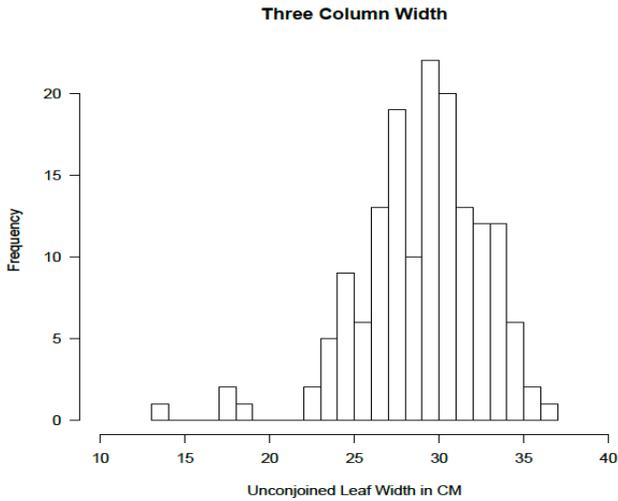
The standard deviation is double that of the three-column group, and so the average length of 23.2 cm is less representative

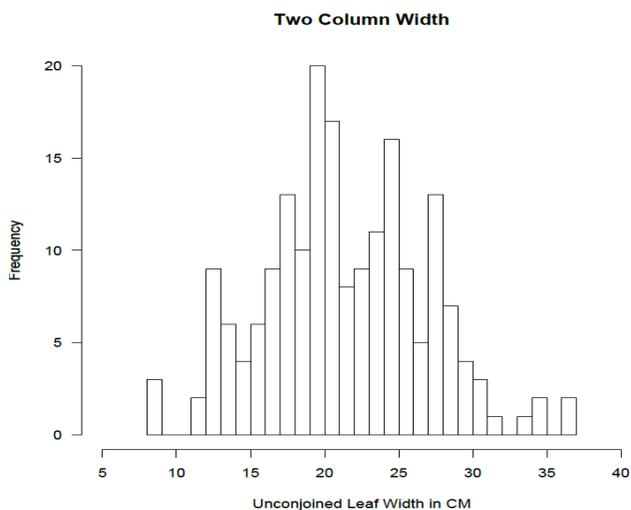
²² A high standard deviation would indicate that many manuscripts differ from the average dimensions of the entire group. For three-column manuscripts, the low standard deviation means that many are close in size to the average.

²³ If $p > 0.05$ on a Shapiro-Wilk test result, the data are considered normally distributed and predictions can be more confidently made about the average and non-average features of the manuscript population.

of the whole group. The interquartile range is triple that of the three-column group, meaning more manuscripts vary in their length from the average. The extremely low result of the Shapiro-Wilk test indicates that the data are far from normally distributed. These results indicate that there are smaller sub-groups of similarly-sized manuscripts within this heterogenous data set.

Width:





The difference in distribution of widths between groups is noteworthy.

Three-column:

- Range: 13.8–36.7
- Mean: 29.0
- Standard deviation: 3.63
- Quartiles: median: 29.5 cm, interquartile range: 27.0–31.5 cm
- Shapiro-Wilk: p-value = 0.00007

Two-column:

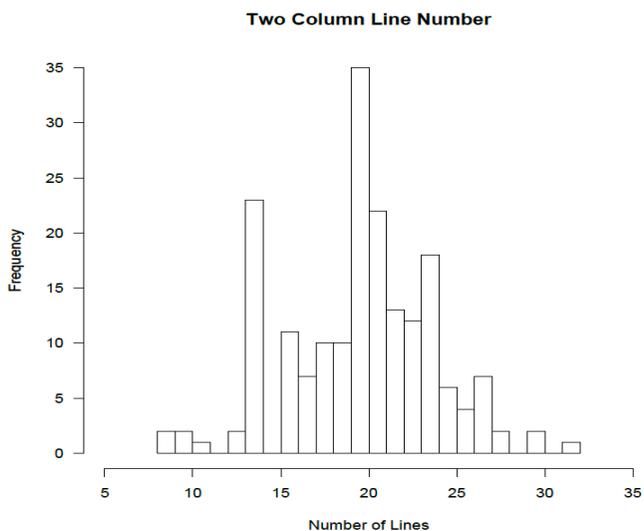
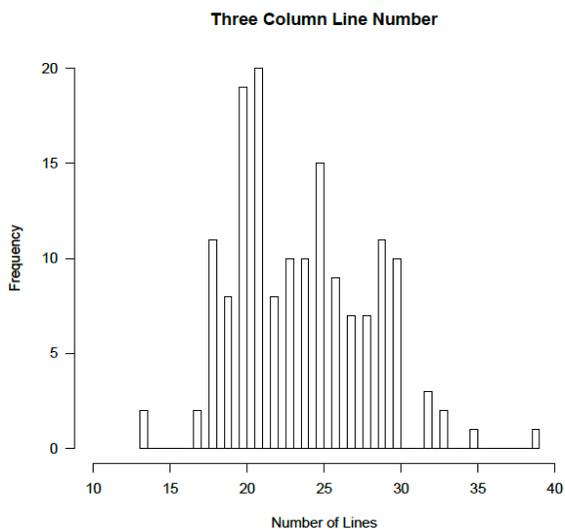
- Range: 8.85–36.9
- Mean: 21.3
- Standard deviation: 5.45
- Quartiles: median: 20.6 cm, interquartile range: 17.5–24.8 cm

- Shapiro-Wilk: p-value = 0.4456

The average width of a manuscript in the three-column group is 29 cm, and the small standard deviation indicates that 29 cm is likely the true average width for the entire group. The median, or middle, width (29.5 cm) is close to the mean, or average width (29.0 cm), which further confirms that the average width is representative for the group. The Shapiro-Wilk result, however, indicates that the data are far from normally distributed, no doubt because of the outlying group of small manuscripts (between 13–19 cm).

Though the two-column manuscript group has a higher standard deviation, and the mean and median are farther apart, it is safe to say that the average width of 21.3 cm is generally representative of the group. The Shapiro-Wilk test for this group is positive ($p > 0.05$), indicating that the data are likely distributed normally.

3.1.9. Line Number



Three-column:

- Range: 13–39 lines
- Mean: 23.7

- Standard deviation: 4.40
- Quartiles: median: 23 lines, interquartile range: 20–27 lines
- Shapiro-Wilk: p-value = 0.001

Two-column:

- Range: 8–32 lines
- Mean: 20.0 lines
- Standard deviation: 4.21
- Quartiles: median: 20, interquartile range: 17.2–23 lines
- Shapiro-Wilk: p-value = 0.004

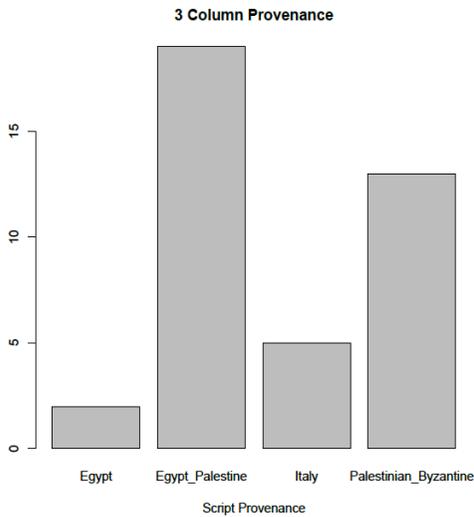
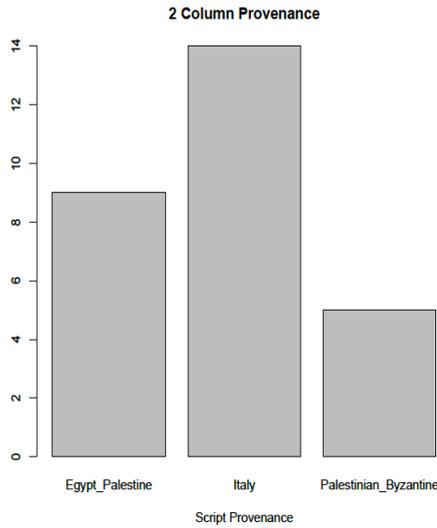
The average line number for both groups is generally representative. The Shapiro-Wilk tests, however, indicate that neither group is normally distributed regarding line number ($p < 0.05$ in both sets), and this indicates the possibility of sub-groups of similar manuscripts within this heterogeneous corpus.

3.1.10. Palaeography, Provenance, and Date

While manuscripts were assigned a typological category based on their palaeography, only the NST manuscripts were carefully assessed for their provenance and date. The data shown below reflects only manuscripts with NST vocalisation (55 manuscripts total).

Differential results: There are many more Italian-Byzantine NST manuscripts in the two-column group (9; 40.9 percent). The three-column group has significantly fewer Italian-Byzantine specimens (4; 12.1 percent). Oriental manuscripts (both North-eastern and Southwestern) predominate in the three-column

group (29; 87.8 percent) and are large minorities in the two-column group (13; 59 percent). In the charts below, ‘Egyptian-Palestinian’ indicates scripts with a ‘Northeastern’ Oriental script style (which had spread to the Levant and to Egypt: see footnote 12).



3.1.11. Discussion of Descriptive Codicological Statistics

The descriptive statistical findings indicate three levels of codicological feature distribution, viz. common, less common, and infrequent features (but not necessarily all in the same manuscript in all three levels of occurrence).

Common features in both groups include a portrait format, no evident pricking holes, regular/even margins, minimal decoration, Masoretic line breaks, a square and professional script that is balanced in size and with an 'Oriental' (either Northeastern or Southwestern) palaeography, an ST vocalisation, 23–33 cm long x 20–30 cm wide, and 20–23 lines.

Less common features include square manuscripts, wider margins, a greater amount of decoration, a small and professional script that is Byzantine or Italian, NST vocalisation, more variation in size and number of lines. It is likely that there are multiple sub-groups of Bible types indicated by these data that can be uncovered through correlational statistics and clustering.

Finally, infrequent features include a landscape format, pricking on both margins, narrow or unbalanced margins, very late Oriental or Italian scripts, complex illumination, no line breaks, no vocalisation, and extremes in size and number of lines.

The most important finding of these descriptive statistics is that they clarify the differences and similarities between Torahs with two and three columns. The two groups of manuscripts had at least one significant difference in the distribution of features for each feature presented above. For example, there are many more Italian-Byzantine near-model Bibles with two columns,

while more Oriental near-model Bibles tend towards three columns (§3.1.10). Ultimately, the data show that the two- and three-column manuscripts are related on many points, but distinct in a significant number of ways.

The most noteworthy trend regards dimensions. Two-column Bibles are more heterogenous in terms of dimensions and line number, which indicates that multiple sub-groups may be more clearly defined in the corpus. Three-column manuscripts, on the other hand, are much more homogeneous, which means that while sub-groups exist, they may be less distinct.

Ultimately, while two- and three-column ‘near-model’ Torah codices can be grouped together in terms of average shared features, it is clear that we should not conflate them based on their commonalities; they are better characterised as close sisters within the same family.

3.2. Descriptive Statistics: Linguistic Features

Within the corpus, the three-column group contains 33 manuscripts with NST vocalisation, and the two-column group contains 22 manuscripts with NST vocalisation (55 total NST manuscripts). By comparing these manuscripts with Codex Leningradensis (hereafter, L), I identified 103 distinct types of variation in all of the manuscripts. Of the total of 103 types of variation, 76 are relevant to the present study.²⁴

²⁴ Features such as *plene* and defective spellings, *qere* in place of *ktiv*, and textual differences were not incorporated into the statistics presented here. *Rafe* was also not a factor in the statistics due to the unpredictability of its usage. As Blapp (2017) points out, all the exemplar

The two-column group had fewer distinct vocalisation or diacritical features (60) than the three-column group (92). The general distributional trends of these features are presented below.

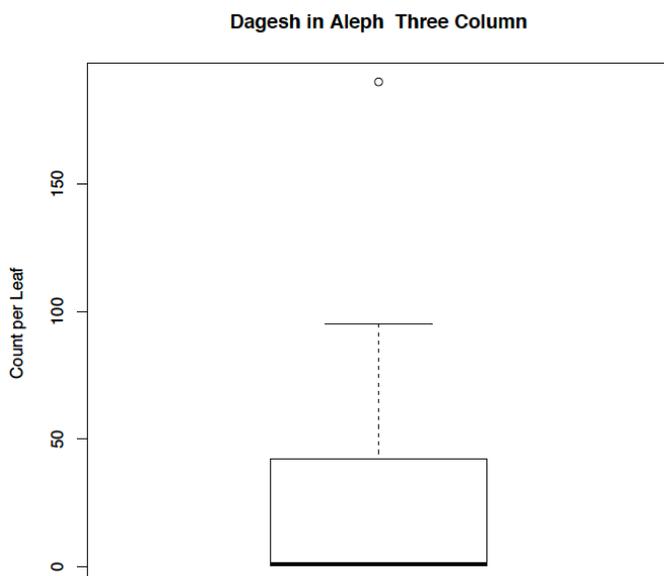
3.2.1. Feature Frequency Distributions

There are three kinds of distributions of NST features in the corpus of manuscripts:

- A. Infrequent occurrences: There are a significant number of features in both groups that occur once or at most twice in a manuscript. Either the feature is the only deviation from L present in the manuscript, or the feature is the result of a larger pattern of more complex phonological changes in the pronunciation of the vowels in the text.
- B. Even distributions: some features occur evenly through a spread of multiple manuscripts. For example, the feature ‘*dagesh* in an ‘*alef*’ occurs at regularly increasing intervals between one and fifty times in two-column manuscripts. These kinds of distributions are rare, making up at most 10 percent of the data. They indicate that the feature is generally common for that group.
- C. Uneven distributions: These are distributions in which a particular feature occurs infrequently in many manuscripts,

codices use *rafe* in a different way, and “this observation suggests that *rafe* has not been standardised, which makes it necessary to study *rafe* in each manuscript” (223).

alongside extreme outliers where the same feature occurs more than two-hundred times in a single manuscript:



This boxplot shows us that for three-column manuscripts, the majority of the data are concentrated in manuscripts that have *dagesh* in *’alef* fifty or fewer times. Then, at the very top of the plot, we see one manuscript which has the feature over two-hundred times. While this distribution pattern occurs in both groups, it is more typical in the three-column group. Many three-column manuscripts have large quantities of one NST feature (alongside more moderate counts of other NST features), while the two-column group’s manuscripts typically have a more balanced distribution of NST features.

3.2.2. Systematic Understanding of Feature Types

It is clear that not every NST feature is equal in its frequency of occurrence in the corpus, or in its role in the larger pattern(s) of features within a given manuscript. Some features predominate and seem to set the trend for less-common features. The features that occur the most frequently across the corpus, and that seem to set the trend for patterns observed, are listed below alongside the highest attested count of occurrence in a manuscript.

- Missing *dagesh* (209 times)
- *Dagesh* in *ʾalef* (190 times)
- Unexpected *dagesh* (116 times)²⁵
- *Pataḥ* for *qameṣ* (90 times)
- *Pataḥ* for *ḥatef pataḥ* (54 times)
- *Pataḥ* for *shewa* (40 times)
- Word-Final *shewa* (37 times)
- *Ṣere* for *segol* (35 times)
- *Pataḥ* for *segol* (32 times)
- *Shewa* for *ḥatef pataḥ* (30 times)
- Unexpected *shewa* (25 times)²⁶
- *Segol* for *ḥatef segol* (23 times)
- Missing *shewa* (20 times)
- *Shewa* for *pataḥ* (12 times)
- *Segol* for *ṣere* (12 times)

²⁵ This category simply describes an instance where a manuscript has *dagesh* and L does not; differentiated types of unexpected *dagesh* were analysed after the statistical clustering and are described in section 5.

²⁶ See the above footnote; the same applies for ‘unexpected *shewa*’.

- Missing *mappiq* (10 times)

The above list indicates the NST features that predominate in the corpus and that seem to play the most critical roles in the patterns of NST vocalisation. There are, however, many other deviations from L that occur at lower frequencies, but that are still important for shaping differences in sub-groups of vocalisation.

3.3. Discussion

These data complement findings stated in previous scholarship on NST vocalisation. Blapp is indeed correct when he states “we have to be aware that the degree of non-standardness of all the manuscripts [in his thesis] varies”.²⁷ This applies also to the present corpus. Blapp noted, furthermore, that some manuscripts in his corpus, for example, T-S A13.18, contain very few NST features.²⁸ Likewise, in the present study, there are specific groups of features that occur once or twice in an otherwise fully ST manuscript.

Most notably, the predominating features in Blapp’s study were the following interchanges:

- *Qameṣ* with *pataḥ*
- *Ṣere* with *segol*
- *Ḥireq* with *shewa*
- *Holem* with *qameṣ*
- *Ḥatef* vowels with *shewa*
- *Shewa* for furtive *pataḥ*

²⁷ Blapp (2017, 199).

²⁸ Ibid.

He noted, in addition, extensive non-standard use of *dagesh*. Apart from the interchanges of *ḥolem/qameṣ* and *ḥireq/shewa*, all of these features predominate to a high degree in my larger corpus of 55 manuscripts.

4.0. PATTERNS OF CODICOLOGY AND TEXT: CLUSTER ANALYSES OF CODICOLOGICAL AND LINGUISTIC DATA

4.1. Methodology Review

The statistical methodology was chosen with the aim of exploring meaningful patterns within the dataset and was therefore non-experimental. The main focus was upon finding patterns using appropriate clustering algorithms and then verifying their linguistic and codicological meaningfulness. The general methodology took three steps:

1. Three clustering algorithms, k-means, k-modes, and mean-shift (defined in section 4.2), were run on the data in order to establish the initial boundaries of large patterns in codicological and linguistic data. The clustering algorithms assessed all of the manuscripts and grouped them based on which features (codicological and linguistic, respectively) certain manuscripts share, and how often those features occur per manuscript in the group. The results of the algorithms are lists of manuscripts that share features.
2. These patterns were analysed in order to identify the most critical factors and to refine the clustering process by identifying and removing distracting variables.

3. Where applicable, traditional tests of significance (ANOVA, Chi-Squared, etc.) were run to clarify the strength of correlations between specific codicological or linguistic features that were unearthed by the clustering results.

4.2 Cluster Analyses

Statistical clustering is a branch of unsupervised machine learning that is targeted towards data mining and towards establishing the shape of patterns in large-scale data.²⁹ It is, therefore, an appropriate strategy for identifying patterns in Torah manuscripts in the Genizah.³⁰ Different clustering algorithms group the data together based on similarities, which, when compared in person by the researcher, allow for cross-validation and a more complete picture of patterns within the dataset.

K-means is the most commonly used algorithm, because it works with the mean (average) of numeric data of a manuscript

²⁹ An explanation of the statistical processes used in this research can be found in the following introductory volume: James, Witten, Hastie, Tibshirani (2015). More technical papers are cited in the footnotes below.

³⁰ In one instance, the computer found separate leaves of the same manuscript and placed them together in the same cluster. This was confirmed by Zina Cohen, who kindly performed her microscopic reflectography method on some of the manuscripts in this corpus (Cohen, Olszowy-Schlanger, Hahn and Rabin 2017). The results of the reflectography showed that the manuscripts shared the same kind of ink. Many thanks to Zina Cohen for conducting the reflectography analysis for the present research.

feature (for example, codicology: number of lines; linguistics: counts of a vowel interchange per manuscript), in order to determine clusters based on how similar each manuscript is to the others (using Euclidean distance measures).³¹ K-means requires the researcher to anticipate the number of clusters in the dataset in advance. As this was not known, I ran calibration by increasing the number of clusters until the Euclidean distance between clusters stopped dropping dramatically between tests (meaning the features of all the manuscripts in a given cluster were relatively homogeneous).³²

K-modes, on the other hand, works with the mode, not the mean, to establish clusters in both numerical (quantitative) and non-numerical (qualitative) data.³³ Since it works with the central point of a group of data, which is less affected by outliers

³¹ For codicology, I used this algorithm on the dimensions and line number counts; for linguistics, each feature within a manuscript was counted on the basis of its occurrences per word, and thus could be analysed by this algorithm. A respected paper on k-means clustering is MacQueen and James (1967).

³² Euclidean distance here means a rating of variance between manuscript features in a cluster; the more clusters in a dataset, the smaller the distance between manuscripts within one cluster (i.e., the more codicologically or linguistically similar the manuscripts in a particular cluster are). The cited work in footnote 31 deals more with Euclidean distance. A paper on optimising the number of clusters using the method as described above (known as the ‘elbow method’) is Kodinariya and Makwana (2013).

³³ Quantitative data are only numeric (number of lines = 15, 16, 17); qualitative data are non-numeric (script size = small, medium, large,

(e.g., very rare features, or manuscripts with very high counts of an NST feature), k-modes is appropriate when manuscripts have extremely large or small amounts of features, because it is less affected by the outliers and produces more reliable clusters.

Mean shift clustering is another numerical algorithm that was performed to act as a supplement to k-means/k-modes. Mean shift clustering does not require the researcher to anticipate how many clusters may be in the data in advance; it finds the number of clusters automatically. It can, however, be thrown off by large or small outliers in the data.³⁴ Nonetheless, because of its ability to find clusters without advance prediction, it was used to help validate the number of clusters found by k-means and k-modes. With all three clustering algorithms performed together, I was able to arrive at the optimal number of clusters in the manuscript data and therefore all of the sub-groups of the manuscripts are statistically reliable and visually apparent and distinct.

It is tempting to test every single codicological or linguistic variable, no matter how infrequently it appears in the data. The present study found, however, that this does not produce useful results, because clustering algorithms are sensitive to outliers and can be distracted by numerous variables. This can result in the creation of false groups, separating similar manuscripts and grouping together dissimilar manuscripts. For example, when the

average). A resource for k-modes clustering is Chaturvedi, Green and Caroll (2001, 35–55).

³⁴ A paper on mean shift clustering: Cheng (1995, 790–99).

computer considered too many outlying variables, two manuscripts which shared many codicological features would be artificially separated on the basis of an inconsequential difference.

On the whole, it is better to test on fewer, more critical features, rather than many. Controlling the number of variables produces the best results and can sometimes find the most critical features in the typology. Whilst this method may be susceptible to bias, I was careful to avoid bias by investigating outliers and outlier clusters separately. It, therefore, does not increase the risk of missing out on rare features, because manuscripts which lack the more common, tested features are placed by the computer in an 'outlier' group. This allows the researcher to further investigate and find the rare features that set them apart.

Therefore, avoiding the inclusion of rare features and reducing the number of different factors for the computer to analyse results in clearer groups. Most notably, features that are not included in the clustering, if they truly are part of a pattern, will self-organise around the features that are tested, and the researcher will catch important details.

4.3. Codicological Cluster Analysis and Results

After the cluster analyses, the next step was to identify the major factors that distinguished the clusters. As some features were identified as biasing the clustering results, they were removed and the clustering was re-performed. The critical features that were included in the final round of codicological clustering were: format, pricking location, margin width, illumination, script size,

presence or absence of Masorah, *parashot* or *sedarim* markers, extent of line fillers, dimensions, and number of lines.

The most crucial variables for establishing meaningful clusters were dimensions and line number. These features established themselves as independent variables: when performing clustering on **only** dimensions and number of lines, *every other codicological feature self-organised into the pattern without being tested*. For example, I did not include palaeography in the clustering, yet the groups established by differences in dimensions and line number also each had their own unique palaeographic tendencies.

This is a find of crucial importance. It appears that typological variation in codicology can be solidly established solely on the basis of dimensions and number of lines of manuscripts in a dataset. Manuscripts with similar sizes and numbers of lines are likely to share the same palaeography (and other codicological features). This may indicate that regional scribal practices are distinguishable mainly on the basis of size and line number.

4.3.1. General Characteristics of the Codicological Clusters

The clustering of all 296 manuscripts (including ST and NST manuscripts) resulted in thirty distinct subtypes across both the two- and three-column groups. While there is not space to give the details for each group, there are distinct, general trends that are meaningful for assessing the correlation between linguistic and codicological features. The following typology is organised by dimensions, and then by observations of the general level of sophis-

tication of each subgroup. Individual features are tested with significance tests where necessary to determine the strength of feature correlations within the subgroup.

4.4. Codicological Manuscript Sub-Groups³⁵

The following subtypes are selected representatives of the full thirty subtypes found across the 296 manuscripts that were clustered.

Small Italian-Byzantine Codex³⁶ (Two-column)

This was the smallest and most homogeneous group in the typology.

- 13.1–14.7 cm in length x 11.4–13.1 cm in width.
- 20–21 lines
- Italian or late Byzantine script style
- Portrait format (two are square)
- The square manuscripts have wide-bottom margins and a small script
- Unpricked, average script size
- All mark the Palestinian triennial reading cycle
- Full Masorah (one has only Masorah Parva)

³⁵ The manuscripts within these subgroups were either Sephardi (late: fourteenth c.), Italian-Byzantine, or Palestinian-Byzantine (i.e., Southwestern Oriental to Byzantine) in their palaeography.

³⁶ Members: T-S Misc 3.49 (Southwestern Oriental script type); T-S Misc 9.8; T-S NS 24.36; T-S NS 9.31; T-S NS 8.8; T-S NS 14.35; T-S NS 173.92; T-S AS 64.206; Or 1080.A1.2.

- Generally sophisticated in formatting (rare use of line-fillers to keep an even margin)
- 50 percent had NST vocalisation, and all of these had all-wide margins

Large Monumental Levantine Codex³⁷ (Three-column)

- 35–38.2 cm long x 32–35 cm wide
- 25–30 lines
- Portrait (one square manuscript included)
- Pricking on the outside, or absent
- Wide margins (bottom widest)
- Sparse decoration
- Small-average script size
- Full Masorah favoured
- *Parashot* marked most often.
- NST predominates, and the majority have full Masorah (Fisher's Exact = 0.0238, $\chi^2 = 0.0611$).

³⁷ The manuscripts within this group are either Northwestern Oriental or Southwestern Oriental in their palaeography and are likely to come from the Levant: T-S NS 77.3; T-S NS 77.2 (join with T-S NS 77.3); T-S NS 12.22; T-S NS 248.2; T-S NS 248.3 (join with T-S NS 248.2); T-S A 4.30; T-S A2.1; T-S NS 20.14; T-S NS 12.2.

Monumental Bare Wide-Ranging (Oriental to Italian;³⁸ Three-column)

These manuscripts are smaller than those of the aforementioned groups, and all lack Masoretic notes.

- 27–30.5 cm long x 24.4–29.5 cm wide
- 32–39 lines
- Mainly square format
- Majority not pricked
- Wide margins predominate
- Decoration only on one manuscript
- All scripts are small
- Reading cycles generally unmarked, but, where occurring, mark the *sedarim*
- Majority have NST vocalisation

Small Oriental Codex³⁹ (Two-column)

This group is a relatively homogeneous group of manuscripts, which, like the small Italian-Byzantine manuscripts above, are

³⁸ The majority of the manuscripts in this group are Egyptian (late) or Southwestern Oriental–Italian-Byzantine. Members: T-S A 2.30 (Egyptian, post-eleventh c.); T-S NS 51.22 (Southwestern Oriental or Italian-Byzantine); T-S NS 282.69 (may be a join with T-S NS 51.22) T-S AS 64.242 (Southwestern Oriental or Italian-Byzantine); T-S AS 66.52 (Egypt, post-eleventh c.).

³⁹ Members: Or 1080.A4.10 (Northwestern Oriental, probably Egypt); T-S AS 28.259 (Southwestern Oriental); T-S Misc 9.80 (Egyptian, post-eleventh c.); T-S Misc 1.46 (Egyptian, post-eleventh c.); T-S A 1.2 (probably Southwestern Oriental); T-S NS 19.16 (probably Egyptian).

small. It can be seen as a counterpart to the Small Italian-Byzantine Codex.

- 14.6–17 cm long x 12.5–14.6 cm wide
- 19–25 lines which are set together and very compact
- Portrait format (with one square manuscript)
- Pricking on the inside margin (except for a square manuscript which pricks the outside, $\chi^2 = 0.0820$, Fishers' Exact = insignificant)
- Decoration is rare, and associated with manuscripts marking the *parasha* (manuscripts marking the *seder* do not have decoration)
- No manuscripts have full Masorah
- Margins are average, except for the one NST manuscript, which has narrow vertical margins
- Inverse relation between the size of the script and the number of lines; manuscripts with a 'small' script size could have more than 20 lines, but manuscripts with an 'average' script size did not have more than 20 lines

Oriental Bare Square Group⁴⁰ (Three-column)

This is the only three-column group to have manuscripts with an Oriental (Egypt-Palestine) script style and to include scripts from no other regions.

- 30.6–32.8 cm long x 31.5–36.7 cm wide
- 28–32 lines
- Square-landscape format
- Inside pricking

⁴⁰ Members: T-S NS 19.29; T-S NS 56.5; T-S NS 65.34; T-S NS 67.6.

- Narrow-regular margins
- Small script size
- Masorah is rare (hence the ‘bare’ label)
- *Sedarim* marked twice, the *parasha* marked once
- No NST vocalisation occurs in the group

Large Monumental Egyptian⁴¹ (Two-column)

These manuscripts are very homogeneous as a group, and they have one feature which connects them to the Small Italian group in the section above: the tendency to mark the Palestinian Triennial *Seder*.

- 31.4–37.2 cm long x 25.2–31 cm wide
- 23–25 lines
- All have portrait format
- Outside pricking (except for the NST manuscripts, Fisher’s Exact = 0.09524).
- The majority have wide bottom margin
- Sparse decoration
- Average script
- Most of the manuscripts have full Masorah
- Mainly mark the *sedarim*
- The only manuscript with a small script size is also the only manuscript to mark both the *parashot* and the *sedarim*

⁴¹ Members: T-S A 4.4; T-S A5.3; T-S A 4.8; T-S A 4.9; T-S NS 68.22; T-S NS 74.43; T-S A 2.5; T-S NS 78.31.

Average Monumental Oriental⁴² (Two-column)

This group is the most informal of all the groups represented in the two-column corpus. This is due mainly to the fact that most of them are either re-written in a very clumsy hand, or the hand is not very sophisticated. Regardless, these manuscripts still contain sophisticated codicological features.

- 18.3–23 cm long x 15.1–18.13 cm wide
- 16–18 lines
- Portrait format
- Regular-wide margins
- Decoration occurs in only one manuscript
- Average-medium script (on account of overwriting or lack of sophistication)
- Most have full Masorah
- Most do not mark any reading cycle
- Palaeography difficult to identify due to overwriting, but they appear mainly Oriental

Square Egyptian-Palestinian⁴³ (Two-column)

This is a group of Oriental manuscripts which all have a square format and most of them typically have full Masorah. They are

⁴² Members: T-S NS 12.4; T-S NS 17.30; T-S NS 51.31; T-S NS 57.22; T-S NS 73.4; T-S NS 161.270; T-S NS 279.74; T-S NS 282.59; Or 1080.A4.16.

⁴³ Members: Or 1080.A3.9; Or 1080.A1.18; T-S NS 65.32; T-S NS 24.38; T-S NS 23.25; T-S NS 22.22; T-S NS 20.25; T-S NS 57.20; Lewis-Gibson Bible 3.25; T-S NS 72.4; T-S NS 77.25; T-S NS 78.44; T-S NS 20.20; T-S NS 65.29; T-S NS 73.13; T-S NS 8.42; T-S Misc 2.74.

typically smaller than the Monumental group, but still have many sophisticated features.

- 19.1–24.3 cm long x 19.3–24.5 cm wide
- 14–17 lines
- Tend to have outside pricking
- Margins typically all wide, or bottom-wide
- Sparse decoration
- Wide range of script size
- Full Masorah
- Half mark the *sedarim*, half mark the *parashot*

Monumental Bare Oriental (Egyptian-Palestinian)⁴⁴ (Three-column)

- 25.1–30.9 cm long x 22.6–28.6 cm wide
- 20–24 lines
- Divided between portrait and square format
- Inside, outside, and no pricking present
- Majority do not mark reading cycles; those that do are square
- Wide-regular margins predominate
- Small-average script
- Masorah is rare, and only Masorah Parva present
- Majority are ST; NST manuscripts have a small script ($\chi^2 = 0.0764$, Fisher's Exact = 0.0833)

⁴⁴ Members: T-S A 5.8; T-S NS 18.5; T-S NS 65.26; T-S NS 65.39; T-S NS 65.46; T-S NS 76.48; T-S NS 180.54; T-S NS 319.101; T-S A 2.45; T-S NS 7.24; T-S NS 23.14; T-S NS 66.12; T-S NS 75.12; T-S NS 75.25; T-S NS 77.25; T-S NS 77.5; T-S AS 8.123; Lewis-Gibson Bible 2.37.

Monumental Oriental⁴⁵ (Three-column)

- 27.1–35 cm long x 27.9–33.9 cm wide
- 17–22 lines
- Majority portrait
- Pricking mainly on outside or not visible
- Wide-bottom or all-wide margins predominate
- Sparse decoration
- Average script size
- Full Masorah is uncommon (those with full Masorah have NST: $\chi^2 = 0.0154$, Fisher's Exact = 0.0119).

Oriental-Byzantine Landscape⁴⁶ (Two-column)

This is the smallest group identified by the algorithms, containing only a few manuscripts. These manuscripts, however, are distinct from any other group in that they have a landscape format (width longer than the length). No correlational statistics could be run to test the strength of their features since they all are so alike.

- 14.8–19.1 cm long x 18.8–26.2 cm wide

⁴⁵ Members: T-S A 2.42; T-S A 2.41; T-S A 2.29; T-S A 1.25; T-S Misc 1.122; T-S NS 8.6; T-S NS 24.31; T-S NS 72.18; T-S NS 73.31; T-S NS 75.20; T-S NS 76.24; Lewis-Gibson Bible 1.56; T-S AS 27.75; T-S NS 21.40; T-S A 2.51; T-S A 4.20; T-S NS 24.25; T-S NS 23.1; T-S A 4.28; T-S A 5.12; T-S NS 13.37; T-S NS 21.29; T-S AS 1.249; Lewis Gibson Bible 3.42; T-S A 1.23; T-S NS 19.23; T-S NS 23.6; T-S A 3.14; T-S A 3.23; T-S A 1.11.

⁴⁶ Members: T-S A1.56; Lewis-Gibson Bible 1.12; Lewis-Gibson Bible 1.14; T-S A41.18; T-S NS 65.24; Lewis-Gibson Bible 1.12 and Lewis-Gibson Bible 1.14 are joins.

- 8–18 lines
- Favour pricking on the outside margin
- Regular to all-wide margins
- Medium-average script size
- All have full Masorah

Large Monumental Egypt-Palestine Codex⁴⁷ (Three-column)

- 32.8–36.3 cm long x 28.2–31.8 cm wide
- 29–30 lines
- All have portrait format
- All have outside pricking
- All have wide-bottom margins
- Decoration is sparse
- Half have an average script size, half have a small script size
- Only one manuscript has full Masorah
- NST vocalisation predominates

4.5. Discussion of Clustering Results

Though only a few of the thirty total groups found in the research are presented here, the results indicate two main findings.

Firstly, the most important variables for codicological clustering tend to be dimensions and number of lines.

Secondly, the codicological groups exist on a spectrum: on one side are the groups containing mainly (or only) Italian-Byzantine manuscripts; in the middle are groups containing wide-ranging manuscripts, from Sephardi to Italian-Palestinian to

⁴⁷ Members: T-S NS 77.1; T-S NS 78.34; T-S NS 173.81; T-S AS 67.131.

Egyptian; at the other end are groups containing mainly (or only) Egyptian manuscripts. This indicates that some codicological formats were perhaps regional, while others were more widespread. Most importantly, the manuscripts are also visually similar to the others within their respective groups.

5.0. A LINGUISTIC TYPOLOGY OF NON-STANDARD TIBERIAN VOCALISATION: THE PRESENTATION OF THE CLUSTERING RESULTS

The linguistic findings presented below were clustered using the three clustering algorithms discussed above. Then the clusters were assessed by a thorough linguistic analysis. The results of the clustering generally fit into the schema that appears below, which was developed independently from the statistical analysis, through rigorous linguistic analysis of the data.⁴⁸ Due to limited space, I have chosen to prioritise the presentation of the linguistic results of the clustering analysis over the specific statistical details behind the results.

The findings are organised first by presenting the manuscripts of the main groups established by the clustering and linguistic analysis. Then, manuscripts which are connected to the main groups, but which are outliers in some way, are presented separately and the reason for their uniqueness is described. Furthermore, the two-column group had a small subgroup of individual outliers which did not connect clearly with any main group; these are summarised in footnote 49.

⁴⁸ Thanks to Geoffrey Khan for his assistance in developing this schema.

In the schema below, there are two hierarchies of vowel interchange. Patterns X and Y are notational, while the numbered patterns 1 and 2 (and the subtypes) may reflect phonetic changes induced by language contact.

<u>Phonological Background</u>	<u>Vowel Interchange Patterns</u>	
Notational interchanges of the <i>shewa</i> sign for other signs with the same sound	Pattern X: <i>Shewa-pataḥ</i> interchange (reflecting traditions where <i>shewa</i> was pronounced [a])	Pattern Y: <i>Shewa-ḥireq-şere</i> interchange (reflecting traditions where <i>shewa</i> was pronounced as a high vowel)
Reflecting a ‘Palestinian’ pronunciation with five vowels (one /a/ and one /e/) and/or phonetic Aramaic language contact	Pattern 1: <i>Pataḥ-qameş</i> and <i>Şere-segol</i> interchange	Pattern 1a: <i>Şere-segol</i> interchange <i>Pataḥ</i> and <i>qameş</i> do not interchange
Different patterns reflecting a reduced vowel inventory to three vowels, indicative of phonetic Arabic language contact	Pattern 2: <i>Pataḥ-segol</i> interchange	
	Pattern 2a: <i>Pataḥ-segol-qameş</i> interchange	
	Pattern 2b: <i>Pataḥ-segol-şere</i> interchange	
	Pattern 2c: <i>Şere-ḥireq</i> interchange; <i>Pataḥ</i> and <i>segol</i> do not interchange	
	Pattern 2d: <i>Pataḥ-segol-şere-qameş</i> interchange	
	Pattern 2e: <i>Pataḥ-segol-şere-qameş-ḥireq</i> interchange	

5.1. Two-column manuscripts: NST Linguistic Typology

The results below describe the language features of selected manuscripts within all of the clustering groups found (alongside their

corresponding schema patterns). Not all manuscripts within the groups are presented here. The full lists of manuscripts are in the corresponding footnotes for each group. Note that specific vowel interchanges are reported with the vowel that appears in the manuscript first, and the vowel which appears in L second, after a hyphen. For example, a *pataḥ* for *segol* interchange is written: *pataḥ-segol*.

There were a few main groups established by the clustering: (1) the Byzantine trio: Italian-Byzantine manuscripts which all had a specific pattern of NST use of diacritics; (2) the Orthoepic group, which contained manuscripts that used NST features to reinforce an ST pronunciation; (3) Lexically-Specific NST manuscripts: those which had only NST features on specific words; (4) a group of manuscripts exhibiting a three-way interchange between *šere*, *segol*, and *pataḥ*.⁴⁹

⁴⁹ There also were four manuscripts which were found by the computer to be unique individual outliers unconnected to these four main groups. These are: T-S NS 248.5, which has the Byzantine trio with a more extensive profile of vowel interchange than expected, viz. Schema 2a; Or 1080.A1.2, which has partial features of the Byzantine trio with a different profile of vowel interchange, viz. Schema 2; T-S AS 65.125, which has sign interchange, and fits the closest to the 2e schema, but lacks any interchange involving *qameš*; T-S NS 17.30, which both has sign interchanges and appears to fit schema 2e, although it is very damaged and the readings are tentative.

5.1.1. The Byzantine Trio of Features (Schema Patterns X, Y, 1, 1a)⁵⁰

The following collection of two-column manuscripts contains a clear pattern which I have called the ‘Byzantine trio of features’. This pattern was found solely by the computer clustering. The Byzantine trio is as follows:

- *Dagesh/Mappiq*⁵¹ occurs in consonantal *ʾalef*, contrasting with *rafe* on *mater lectionis* *ʾalef* and on historical spellings of *ʾalef* that have no consonantal pronunciation. Its function is to differentiate consonantal and non-consonantal *ʾalefs*, thereby ensuring that consonantal pronunciation is preserved. *Mappiq* is typically also extended from word-final *heh* to word-initial and word-medial *heh* and has the same function of marking the *heh* as consonantal.

⁵⁰ Other members: T-S NS 248.16; T-S NS 248.9 (no word-final *shewa* occurs because the passage does not have a word-final *ʿayin* or *het*); T-S NS 248.17;

⁵¹ There is controversy around whether this dot should be identified as *mappiq* or *dagesh*. It can be seen to function as *mappiq* in that it differentiates consonantal from non-consonantal *ʾalef*. It also, however, ensures the pronunciation of consonantal *ʾalef*. The Karaite grammarian Ibn Nūḥ treated this feature as gemination of *ʾalef*, and Karaite Arabic transcriptions of the Bible place a *shadda* (the Arabic gemination sign) on consonantal *ʾalef* (Khan 2020, §I.1.1) This allows for the possibility that the scribes using this sign considered it a *dagesh* rather than *mappiq*.

- Extended use of *dagesh* to certain ‘weak’ consonants after a vowelless consonant: mainly *lamed*, *mem*, and *nun*, but occasionally on sibilants such as *sin*, *shin*, and *samekh*, and the emphatics *ṭet*, *ṣade*, and *qof*. In some manuscripts in the group, these consonants without the *dagesh* take *rafe*.
- The presence of a silent *shewa* on word-final ‘*ayin* and *het*. This has the function of ensuring a word-final guttural is pronounced by explicitly marking that the consonant closes the syllable.

While these features can independently appear in manuscripts from other groups, they occur together in this trio only in manuscripts with Italian/Byzantine or distinct Palestinian scripts. The most noteworthy manuscripts with the trio are as follows:

T-S NS 21.6 places *dagesh/mappiq* in consonantal ‘*alef* consistently. It places *rafe* over the ‘*alefs* in *יִשְׂרָאֵל* ‘Israel’, and in *וַיֹּאמֶר* ‘and he said’.⁵² It puts *dagesh* in ‘weak’ consonants after a vowelless consonant: mainly in *lamed*, *mem*, and *nun*, but also three times in *samekh* (*לְ-סִיחֹן* ‘to Sihon’ Num. 21.21, etc.), once in *ṣade* (*בְּאַרְצְךָ* ‘in your land’ Num. 21.22), and once in *qof* (*וַיִּשְׁקֹפֵה* ‘and overlooking’ Num. 21.20). It puts word-final *shewa* on ‘*ayin* and *het* to close a syllable (*וַיִּשְׁמָעַ* ‘and he heard’ Num. 21.3).

⁵² The pronunciation of this word in this scribe’s tradition apparently elided the glottal stop and combined the two vowels together in a diphthong: [yisrael] instead of [yisraʔel].

T-S NS 248.11 is in keeping with the patterns of the manuscripts above. It also places *rafe* on *mater lectionis* *ʾalef* (לֵּאזָזֵל ‘to ‘Azazel’ Lev. 16.26). It has extended use of *dagesh* on ‘weak’ consonants after vowelless consonants and places *rafe* on consonants without *dagesh* (including *yod* and *šade*: וַיֵּצֵא ‘and he will come out’ Lev. 16.24).

Or 1080.A4.18 regularly places *dagesh* in consonantal *ʾalef* (though it is sometimes omitted). It also places *dagesh* on word-internal and word-initial *heh* with a vocalisation sign (for example, וְהָיָה ‘they shall be’ Num. 28.19, instead of וְהָיָה). *Rafe* occurs on *mater lectionis* *ʾalef* consistently. Similarly, ‘extended’ *dagesh* on weak consonants after vowelless consonants occurs. Word-final *shewa* occurs twice on *het* to indicate the closing of a syllable; it also occurs twice to replace furtive *pataḥ* with *shewa* (for example, נְיָחָה ‘pleasant’ Num. 28.24, instead of נְיָחָה).

The general patterns of vowel interchanges within this group are all consistently similar and minimal (interchanges do not occur more than a few times per manuscript). The manuscripts generally fit into the schema patterns X, Y, 1, and 1a. This possibly indicates an underlying ‘Palestinian’ vowel system with one /a/ and one /e/ vowel. Noteworthy examples:

All but two manuscripts⁵³ in the group interchange *šere-segol* at least once (T-S NS 21.6: נָשָׂה for נִשָּׂה ‘spread out’

⁵³ T-S NS 248.16 and T-S NS 248.17 do not have a *segol-šere* interchange. They do, however, have a slight profile of raised vowels. For example, T-S NS 248.16 has *hireq* for vocalic *shewa* once: לְגִלְעָד for לְגִלְעָד ‘to Gil‘ad’

Num. 21.22; Or 1080.A4.18: לְהִבֵּהּ for לְהִבֵּהּ ‘flame’ Num. 21.28).

All but one (T-S NS 248.9) have *pataḥ/qameṣ* interchange (T-S NS 248.16: גָּד for גֹּד ‘Gad’ [Num. 26.15]; Or 1080.A4.18: וַיִּירֶשׁ for וַיִּירֶשׁ ‘and he seized’ Num. 21.24, and בַּשֶּׁמֶן for בַּשֶּׁמֶן ‘of oil’ Num. 28.28).

There is a slight tendency to interchange *hireq* with *shewa* and *hireq* with *ṣere* (Or 1080.A4.18: וְנִשְׁעָן for וְנִשְׁעָן ‘leaning’ Num. 21.15).

5.1.2. Byzantine Trio Outlier: T-S Misc 2.75 (Schema Patterns X, Y, 1a)

This manuscript was separated by the clustering algorithm from the aforementioned manuscripts because of its extremely high count of *dagesh* in *’alef* (66 times) and unexpected *dagesh* in ‘weak’ consonants (95 times). The manuscript, however, contains the full ‘Byzantine trio of features’ as well as two additional vowel interchanges. These are: *shewa* for *qameṣ* (וְלֹאֲרֹאֲתִי for וְלֹאֲרֹאֲתִי, ‘I [do not] want’ Deut. 25.8) and *ṣere* for *segol* (וְאֶבֶן for וְאֶבֶן ‘stone’ Deut. 25.13).

Num. 26.29, T-S NS 248.17 has (clearly) a *hireq* for a *pataḥ*: מְלִאֲךָ for מְלִאֲךָ ‘angel of’ (Num. 22.35). Thus they fit within schema patterns X and Y.

5.1.3. Orthoepy: NST use of Tiberian Vowel Graphemes for Orthoepic Purposes (No Schema Pattern)

These manuscripts use the non-standard placement of Tiberian *dagesh* and *mappiq* as orthoepic measures to ensure that weak consonants are correctly pronounced. Apart from a few sporadic vowel interchanges, the vocalisation of the manuscripts is otherwise ST and the pronunciation is ST with some orthoepic enhancements in the form of geminated weak consonants. The vowel interchanges are, for the most part, sign interchanges that do not represent a phonetic deviation from ST pronunciation.

- T-S A3.8: all /bgdkft/ letters in this manuscript without *dagesh* have *rafe*. Quiescent *ʾalef* takes *rafe* (for example, וַיֹּאמֶר ‘and he said’ Lev. 10.3, etc.), but consonantal *ʾalef* does not have *dagesh*. Three times the scribe reinforces ‘weak’ consonants (sibilants and sonorants) after a vowel with *dagesh* (קִדְּשִׁים for קִדְּשִׁים ‘holies’ Lev. 10.12; בְּמִקּוֹם for בְּמִקּוֹם ‘in [the] place’ Lev. 10.13; רִאשֵׁיכֶם for רִאשֵׁיכֶם ‘your heads’ Lev. 10.6). *Mappiq* is marked in non-final consonantal *heh* (הָוּא for הָוּא ‘she’ Lev. 11.6). The only vowel interchange is *ḥatef qames* for *qames* once (הַעֲדָה for הַעֲדָה ‘the community’ Lev. 10.17).
- T-S AS 66.179: this is an Italian-Byzantine manuscript that exhibits extended use of *dagesh* in only a few instances: once in *lamed*, and twice in *ʾayin* (הַצְעִירָה ‘the younger’ Gen. 19.31), and once in *qof* (נְשַׁקְּנוּ ‘let us drink’ Gen. 19.32). *Dagesh* also occurs on a ‘weak’ consonant at the end of the word after a vowel (אֲנִי-אֵל ‘I am God’ Gen.

17.1) and also in word-final *mater lectionis yod* in רָאָי ‘seeing’ Gen. 16.13). The first *heh* of the Tetragrammaton takes *mappiq* in two cases. Word-final *shewa* occurs twice in *‘ayin*.⁵⁴ This manuscript has sporadic sign interchanges: once *pataḥ* is substituted for *ḥaṭef pataḥ* (חֶשֶׁבָה for חֶשֶׁבָה ‘darkness’ Gen. 15.12), and twice *pataḥ* is used in place of *ṣere* (תִּקְבְּרָה for תִּקְבְּרָה ‘you will be buried’ Gen. 15.15 and קֹדֶשׁ for קֹדֶשׁ ‘holy’ Gen. 16.14). Despite the minor vowel interchange, the holistic picture indicates a basic ST pronunciation with orthoepic features.

5.1.4. Orthoepic Group Outlier: T-S AS 64.206 (No Schema Pattern)

This Italian-Byzantine manuscript has features inherently connected to the orthoepic group. Its features, however, are not sporadic, but rather systematic. The comprehensive details of this manuscript are published elsewhere.⁵⁵

⁵⁴ The manuscript does not have *dagesh* in *‘alef*, and so it does not belong in the ‘Byzantine Trio’ group.

⁵⁵ I give a comprehensive overview of this manuscript in my Genizah Fragment of the Month article, April 2019: <http://www.lib.cam.ac.uk/collections/departments/taylor-schechter-genizah-research-unit/fragment-month/fotm-2019/fragment-2>

5.1.5. Orthoepic Group Outlier: T-S NS 248.23 (Schema Pattern 1—minimal)

This Italian-Byzantine manuscript is associated with the orthoepic group because it has one orthoepic NST feature: the placement of *dagesh* in every consonantal *'alef* (and *rafe* placed over every quiescent *'alef*). It is unique because the NST features are otherwise minimal. Examples: אֱלֹהֶיךָ 'your god' (six times), בְּאֶשֶׁר 'as' (twice), תְּנוּ object marker (ten times). An example of *rafe* over quiescent *'alef*: הֵיךְ 'him' (verso, col. 1, line 8). Three times *dagesh* is placed in *lamed* in word-initial position after a vowelless consonant to strengthen it (לֵן 'no'). There are only two vowel interchanges: one instance of *hireq* for *holem* (לְשַׁמֵּר for לְשַׁמֵּר 'to keep' Deut. 13.19) and one of *qames* for *patah* (מִעֲשֶׂה for מִעֲשֶׂה 'tithe' Deut. 14.28). It is 'orthoepic' in nature and placed with this particular group because it marks consonantal versus quiescent *'alef*.

5.1.6. ST Codices with Lexically-Specific NST features (No Schema Pattern)

This group is the most standard of the two-column manuscripts. It consists of those manuscripts which contain a few one-off NST features that do not form a particular pattern, alongside one NST feature that occurs in a lexically-specific pattern on only one word throughout. This feature is the placement of *shewa* for *hatef segol* on the word אֱלֹהִים 'God, gods'. This probably does not represent a difference in pronunciation, particularly as all the other vowels are all represented with ST orthography. These manuscripts are both Oriental (Egypt-Palestine) in their palaeography. The manuscripts in this group are:

- T-S NS 68.22 (אֱלֹהֶיךָ ‘your god’ three times),⁵⁶
- T-S NS 78.47 (אֱלֹהִים ‘God, gods’ three times).

5.1.7. Three-Way Interchange: *šere-segol-pataḥ* (Pattern 2b, X)⁵⁷

These manuscripts all present this three-way interchange and lack interchanges with *qameṣ*. They also have *ḥatef* vowel sign interchanges which are not phonetic, but only notational. They exhibit Palestinian and Byzantine palaeography. The most noteworthy member of this group is:

T-S AS 67.133: Vowel interchanges: *pataḥ-segol* (once: יֵרָאֵה for יֵרָאֵה ‘he will appear’ Deut. 16.16); *segol-pataḥ* (once: וּבִשְׁלֹתָ for וּבִשְׁלֹתָ ‘you cook’ Deut. 16.7), *segol-šere* (מַעֲשֵׂה for מַעֲשֵׂה, ‘deed’ Deut. 14.29); *šere-segol* (יְהִי־הוּא for יְהִי־הוּא ‘he will be’ three times); *šere-pataḥ* (בְּבִקְרָה for בְּבִקְרָה ‘for cattle’ Deut. 14.25). Sign interchanges: *pataḥ-shewa* (גְּבִלְךָ for גְּבִלְךָ ‘your border’ Deut. 16.4) and vice versa (בְּשָׁנָה for בְּשָׁנָה ‘in the year’ Deut. 14.28) *segol ḥatef-segol* (lexically-specific: אֱלֹהֶיךָ ‘your God’ 23 times); *pataḥ ḥatef-pataḥ* (consistent); *ḥatef pataḥ-shewa* (בְּאַסְפְּךָ for בְּאַסְפְּךָ, ‘when you gather’ Deut. 16.13); *ḥatef pataḥ-pataḥ* (once).

⁵⁶ This manuscript also has an unexpected *mappiq* in מַעֲשֵׂה ‘work of’ Deut. 28.12.

⁵⁷ Other members: T-S Misc 1.46 (very Oriental script); T-S A4.3.

5.1.8. The outlier: Lewis Gibson Bible 1.75 (Schema Pattern 2, X)

This manuscript is connected to the above three-way interchange group in that it has *pataḥ* and *segol* interchanges, but is an outlier because it lacks any interchange with *šere*, making it unique. Like the previous group, it lacks *qameṣ* interchange and has a high level of non-phonetic sign interchange. Vowel interchanges: *pataḥ-segol* (חֶלֶקֶת for חֶלְקֶת ‘portion’ Gen. 27.16); *segol-pataḥ* (once: נַפְתָּלִי for נַפְתָּלִי ‘Naftali’ Gen. 30.8); *shewa-segol* (once: תְּבַרְכֶּךָ for תְּבַרְכֶּךָ ‘my soul may bless you’ Gen. 27.25); *pataḥ-ḥatef segol* (הָהָה for הָהָה ‘be’ Gen. 27.29). Sign interchanges: *pataḥ-ḥatef pataḥ* (25 times); *pataḥ-shewa* and *shewa-pataḥ* (once each); *segol-ḥatef segol* (lexically specific: אֱלֹהֶיךָ ‘your God’ five times).

5.2. Three-column Manuscripts: Non-Standard Linguistic Typology

The main difference between the two-column manuscript data and the three-column data is that manuscripts in the two-column corpus tend to have small, discrete counts of features with a moderate number of vowel interchange. The three-column corpus has a few manuscripts with extremely high counts of one or two types of vowel interchange. It also has manuscripts with complex patterns of vowel interchange, while the two-column corpus tends to have simpler interchange patterns. Because of these outliers and complexity, I relied only on the k-modes algorithm, as it is less affected by high or low feature counts.

The main groups found were: (1) the Minimal Application group: one group of one manuscript with very minimal, lexically

specific NST; (2) The Orthoepic group: manuscripts which mainly used NST features to reinforce ST pronunciation (alongside some vowel interchange possibly indicative of a Palestinian Hebrew substrate); (3) the two-way interchange group fitting with Schema 2; (4) the three-way interchange group fitting Schema 2b; (5) the three-way interchange group fitting Schema 2c; (6) the five-way interchange group fitting Schema 2e; (7) the largest outlier, which fit Schema 2d.

5.2.1. Minimal Application of NST

Unlike the two-column group, there is only one manuscript in the three-column group that has a minimal application of NST: T-S NS 76.32 (Italian-Byzantine). It only has the lexically-specific application of *shewa* for the *ḥatef segol* in אֱלֹהִים for אֱלֹהִים ‘God, gods’ eight times).

5.2.2. Orthoepic Features with Interference from a Palestinian Substrate⁵⁸

The manuscripts in this group tend to have some orthoepic use of *dagesh*, alongside vowel interchanges reflecting a Palestinian type of pronunciation, as well as sign interchanges involving *shewa* and *ḥatef* vowels.

Noteworthy manuscripts in this group include:

⁵⁸ Other members: T-S NS 248.20; T-S NS 248.12; T-S NS 248.2 (regularly places *dagesh* in word-final *’alef*; T-S NS 75.8 (occasionally places *dagesh* in *qof* and *’ayin* (for example, עָמֹוּ for עִמּוֹ ‘with him’ Gen. 32.7, קָטַנְתִּי for קָטַנְתִּי ‘I am unworthy’ Gen. 32.11); T-S A2.30; Or 1080.A3.21 (Patterns X, 1); T-S NS 283.23; T-S A5.12.

T-S NS 248.18 (Schema Patterns Y, 1):

Dagesh occurs in ‘weak’ consonants after vowelless consonants and in consonantal *’alef*. *Pataḥ* for *qameṣ* occurs twice (for example, מִסְפָּר for מִסְפֵּר ‘number’ Num. 9.20). *Hireq* for *shewa* occurs once (יְהִיָּה for יְהִיָּה ‘he will be’ Num. 9.21). It is not, however, a perfect fit with Pattern 1: it lacks a *segol-ṣere* interchange.

T-S NS 78.34 (Schema Patterns X, 1a):

This manuscript would belong to group 1a according to the schema presented above. It is a fragment with a Palestinian-Byzantine script that has occasional use of *dagesh* to fortify weak consonants (but does not have *dagesh* in *’alef*). It exhibits the vowel interchange *segol* for *ṣere* (twice) and the sign interchange *shewa* for *ḥatef pataḥ* (twice).

T-S AS 67.131 (Schema Patterns X, 1a):

Pataḥ for *ḥatef pataḥ* (seventeen times), *pataḥ* for *shewa* (בְּעֵרְבֹתַי for בְּעֵרְבֹתַי ‘in the steppes [of Moab]’ Num. 26.3, reflecting the pronunciation of vocalic *shewa*; and וּמַעְלָהּ for וּמַעְלָהּ ‘and higher’ Num. 26.4, where ST has a silent *shewa*). *Shewa* for *ṣere* occurs once. *Ṣere* and *segol* interchange in both directions occurs three times.

Lewis-Gibson Bible 3.34 (Schema Patterns X, Y, 1a)

Occasional patterns of *dagesh/rafe* on *’alef* occur. Vowel interchange: *ṣere-segol*, regularly (אֵלְעֵלָא for אֵלְעֵלָא ‘El’ale’ Num. 32.37; וַיִּזְרַשׁ for וַיִּזְרַשׁ ‘and he dispossessed’ Num. 32.39). The following can be identified as sign interchanges: *pataḥ* with *ḥatef pataḥ*; *shewa* with *hireq* (סִיחֹן for סִיחֹן ‘Sihon’ Num. 32.33).

T-S NS 77.1 (Schema Group 1):

On one occasion it shows use of *dagesh* in a weak letter after a vowelless consonant, i.e., in consonantal *ʾalef*, and multiple times on word-final consonantal *waw* (עַוּ for עָוּ ‘Esau’ three times). Vowel interchange: *ṣere-segol* (35 times) and *segol-ṣere* (twelve times); *pataḥ-qameṣ* (ninety times); *qameṣ-pataḥ* (twice). There are also sign interchanges involving *ḥatef* vowels.

5.2.3. Two-Way Interchange: Schema Group 2⁵⁹

The manuscripts here all have a very simple pattern of vowel interchange that fits into Schema Group 2, have very few orthoepic features, and often fail to put *dagesh* where expected. All of the manuscripts in this group have an Oriental (Egypt-Palestine) palaeography. Noteworthy members:

T-S A1.25:

This is an Oriental manuscript that interchanges *pataḥ* for *segol* (three times) and interchanges *segol* for *pataḥ* (once). The *naqdan* also places *shewa* with quiescent *ʾalef* (for example, לְאָמַר ‘saying’ twice). Once the *qere* is written rather than the *ketiv* (גִּיּוֹם for גִּוּיּוֹם ‘nations’ Gen. 25.23).

T-S A2.1:

Pataḥ-ṣere occurs once (הַעֲדַתָּהּ for הַעֲדַתָּה ‘you warned’ Exod. 19.23), but this is not consistent in the text and so does not form

⁵⁹ Other members: T-S NS 20.14; T-S NS 78.41.

a pattern. Instead, *pataḥ-segol* (including *ḥatef* vowels) interchanges much more regularly (six times). There is also the sign interchange *pataḥ-ḥatef pataḥ*.

5.2.4. Three-Way Interchange: Schema Group 2b⁶⁰

These Oriental manuscripts are similar to the group above in that they have slight orthoepic features and many instances of missing *dagesh*, but they differ in that *qameṣ* is included in their vocalic interchange pattern.

T-S NS 24.16:

This has some orthoepic features, such as *dagesh* in weak letters after a vowel (e.g. *mem*: עָזִים ‘goats’ Num. 29.25, *lamed*, אַיִן); also *dagesh/mappiq* in consonantal *yod* (כְּאַרְיִי ‘as lions’ Num. 24.9) and consonantal *’alef* (אַיִלִּים ‘rams’ Num. 29.13). Normal use of *dagesh lene* and *forte* is mainly missing (absent 131 times). Vowel interchanges: *pataḥ-qameṣ*; *qameṣ-pataḥ*; *pataḥ-segol*. The following can be identified as sign interchanges: *shewa-ḥatef pataḥ*; *shewa-hireq* (שְׁנַיִם for שְׁנַיִם ‘two’ Num. 29.26).

T-S NS 18.5:

This Egyptian manuscript⁶¹ has sporadic orthoepic features involving *dagesh* alongside an extensive pattern of vowel interchange. Vowel interchanges: *Qameṣ-segol* (וַיֹּאמֶר וַיֹּאמֶר ‘and he said’ Num. 14.41; תִּגְּפוּ for תִּגְּפוּ ‘you stumble’ Num. 14.42).

⁶⁰ Other members: T-S NS 23.31; T-S AS 8.123; T-S NS 284.85

⁶¹ I arrived at this conclusion upon consultation with Judith Olszowy-Schlanger.

Segol-pataḥ (אָתָּם for אַתָּם ‘you’ [pl.] Num. 14.41) and *pataḥ-ḥireq* (לְאִילִּ for לְאִילִּׁ ‘for a ram’ Num. 15.6). There are also *ḥatef* vowel sign interchanges. Finally, the scribe places *shewa* on *ʾalef* to close a syllable (הָטָאנוּ for הָטָאנוּׁ ‘we have sinned’ Num. 14.40).

5.2.5. Three-Way Interchange Outlier (Schema Pattern 2a, X):

Lewis Gibson Bible 3.12:

This manuscript is an outlier which is connected to the Group 2 interchange manuscripts in that it exhibits pattern 2a, but is separate because it places *shewa* at the end of the word to close the syllable 37 times on many letters: *lamed*, *taw*, *mem*, *resh*, *heh*, *dalet*, *ʾayin* (notable examples: נָשִׂיאָ for נָשִׂיא ‘chief’ (Num. 7.42); פָּר for פָּר ‘bull’; שֶׁקֶלְ for שֶׁקֶל ‘shekel’; syllable-initial *ʾayin* בְּיָדְעוּאֵל for בְּיָדְעוּאֵל ‘son of Deuel’). Vowel interchange: *Qameṣ-pataḥ* once each (וּלְזָבַח for וּלְזָבַח ‘and for a sacrifice’ Num. 7:59 and הַשְּׁלָמִים for הַשְּׁלָמִים ‘the peace offerings’ Num. 7.58). *Pataḥ-qameṣ* twice. *Pataḥ-segol* once (בְּיָדְבָקָר for בְּיָדְבָקָר ‘of the herd’ Num. 7.51). Frequent sign interchange involving *ḥatef* signs, *pataḥ* and *shewa*.

5.2.6. Three-Way Interchange (Schema Pattern 2c)

T-S AS 66.52:

Egypt, post-eleventh c. Vowel interchanges: *segol-ṣere*, *shewa*, and *pataḥ* (one each); *qameṣ-shewa* (וּמָכְרוּ for וּמָכְרוּ ‘or selling him’ Deut. 24.7), and *ḥatef* vowel sign interchanges.

T-S A3.15:

Egypt, post-twelfth c. This manuscript has sporadic orthoepic features: *dagesh* in *ʾalef* and *mappiq* in non-final consonantal *heh* (once each). Vowel interchanges: *Hireq-segol*, *hireq-šere*, *pataḥ-segol* (five times), *segol-pataḥ* (once), *pataḥ-šere* (once: [ח]הַמִּזְבֵּחַ for הַמִּזְבֵּחַ ‘the altar’ Lev. 4.30).

5.2.7. Five-Way Interchange (Schema Pattern 2e)⁶²

T-S A5.7:

An Egyptian manuscript. *Dagesh* in *ʾayin* occurs twice (זָעַר ‘Zoar’ Deut. 34.3; בְּעֵינֶיךָ ‘in your eyes’ (Deut. 34.4). Vowel interchanges: *hireq-pataḥ* (נַפְתָּלִי for נַפְתָּלִי ‘Naftali’ Deut. 34.2), *hireq-segol* twice (אֶתְנַנֶּה for אֶתְנַנֶּה ‘I will give it’ Deut. 34.4); *pataḥ-qameš* (יָדַע for יָדַע ‘he [does not] know’ Deut. 33.9; also *qameš ḥatuf* קִדְקֹד for קִדְקֹד ‘scalp’ Deut. 33.20); *qameš-pataḥ* (וּבְגָאֵם [בְּ]הוֹ for וּבְגָאֵםוֹ ‘and in his majesty’ Deut. 33.26⁶³); *pataḥ-segol*; *segol-šere*; *šere-segol* occurs twice (בְּרִזָּל for בְּרִזָּל ‘iron’ Deut. 33.25).

⁶² Other members: T-S NS 67.20; Lewis-Gibson Bible 1.56.

⁶³ The *bet* was placed above the word as a substitute for the consonantal *waw* (see the verso, col. 3, line 18). This indicates that fricative *bet* had the same phonetic realisation as consonantal *waw*. This phenomenon is also seen in a Genizah manuscript of the Torah written by an unprofessional writer, i.e., a child or layman (determined by the unsophisticated nature of the handwriting): T-S A21.125, where the manuscript has הַחֲבִילָה for הַחֲוִילָה ‘Havilah’ (Gen. 2.11).

T-S NS 282.69:

This Italian-Byzantine manuscript has a few orthoepic features: *dagesh* occurs once in *mem* after a vowel and once in *ayin* after a vowel (בַּעֲרֹב for בְּעֲרֹב ‘in the evening’ Deut. 16.6). *Dagesh* in consonantal *alef* occurs once (וְכַאֲלִי ‘and as the deer’ Deut. 15.22). Vowel interchanges: *šere-segol* (פִּסַּח for פִּסַּח ‘Passover’ twice,); *shewa-segol* occurs once, as well as for *hatef* vowels; *qameš-silent shewa* occurs once (לְבַבְּךָ for לְבַבְּךָ ‘your heart’ Deut. 15.7, thereby adding a syllable to the word). *Qameš-pataḥ*, and *qameš-ḥolem* once (עָנִי for עָנִי ‘affliction’ Deut. 16.3). *Hireq-pataḥ* (אַתָּה for אַתָּה ‘you’ Deut. 16.11). *Shewa* occurs on the first *heh* of the Tetragrammaton.

5.2.8. The Major Outlier T-S NS 72.1 (Schema Pattern 2d)

This Egyptian manuscript (twelfth c.) was consistently placed alone in the clustering. It has the highest concentration of NST features of all the manuscripts. In twelve columns of text (with 30 lines per column), 454 words had NST features. The manuscript has seventeen different vowel interchanges (of varying distributions), but the main features are *pataḥ-šere-segol-qameš* all interchanging as allophones of /a/:

- *Pataḥ-shewa* (בָּעָד for בָּעָד ‘through’ Gen. 26.8)
- *Pataḥ-šere* (once: וַיֵּלֶךְ for וַיֵּלֶךְ ‘and he went’ Gen. 26.17)
- *Pataḥ-hireq* (once: פְּלִשְׁתִּים for פְּלִשְׁתִּים ‘Philistines’ Gen. 26.8)
- *Pataḥ-segol* (וַיִּשֶׂם for וַיִּשֶׂם ‘and was set’ Gen. 24.33 *ketiv*)
- *Segol-šere* (זְרַעְךָ for זְרַעְךָ ‘your offspring’ Gen. 24.60)
- *Šere-segol* (עַבְדֶּךָ for עַבְדֶּךָ ‘servant’ multiple times)

- *Segol-qameš* (once, בְּאֶרֶץ for בְּאֶרֶץ ‘in the land’ Gen. 26.22)
- *Qameš-segol* (once, אֶל for אֶל ‘to’ Gen. 26.18)
- *Qameš-ḥatef qameš* (once, אֶהְלוֹ for אֶהְלוֹ ‘his tent’ Gen. 26.25)
- *Qameš-pataḥ* (אֲבְרָהָם for אֲבְרָהָם ‘Abraham’ Gen. 24.59)
- *Qameš-shewa* (וַיִּצְחָק for וַיִּצְחָק ‘and Isaac’ Gen. 24.62)
- *Sere-ḥireq* (once, כִּי for כִּי ‘for’ Gen. 26.16)

5.3. Concluding Discussion: Linguistic Typology

The above typology for two- and three-column NST near-model Torah codex fragments from the Genizah collections in Cambridge University Library is virtually comprehensive. All of the subtypes established by the clustering, which assessed every near-model NST fragment with full dimensions in Cambridge which I found (a total of 55 fragments), are reported above, with descriptions of selected examples. A general schema of vocalic interchange patterns was constructed independently of the statistics, and it was generally found that the clustering complemented this general schema. The results indicate that certain patterns of vowel interchange may be indicative of a few separate phenomena:

- A striving to reproduce the pronunciation of ST, but doing so by using Tiberian vowel graphemes in a non-standard way (orthoepy).
- Lexically-specific NST features that occur in otherwise ST manuscripts, which are probably learned spellings particular to the scribe or to the community that produced the text.

- Sign interchange (specifically, *shewa* and *ḥatef* vowels, or vocalic *shewa* and *pataḥ*), which is only notational and does not represent a phonetic shift in vowels.
- Vocalic interchange patterns of varying degrees of complexity, often occurring alongside the non-standard use of diacritics such as *dagesh* or silent *shewa*, and which are likely to reflect pronunciations influenced by Aramaic or Arabic.

The most crucial finding uncovered by the clustering algorithms was that the feature frequencies differ between the two- and three-column manuscripts. This affected not only which clustering algorithm was most appropriate for the specific group, but the typology. Two-column manuscripts had the following general features:

- They exhibited on average a moderate amount of vocalic interchange, and the outlier manuscripts could usually be clearly tied to a specific group (or more than one specific group).
- Many of the manuscripts were either from the Southwestern Oriental (Palestinian-Byzantine) or Italian-Byzantine group.
- The pronunciation behind the vocalic interchange seemed to be associated with influence due to Aramaic language contact, as seen in the schema patterns.
- Orthoepic features that reinforced ST pronunciation in a non-standard way are associated with the two-column group.

The three-column group had the following different general features:

- Within this group were manuscripts with extreme counts of NST features, or extremely complex patterns of vocalic interchange, including the manuscript with the most NST features (T-S NS 72.1).
- The extremity of the outlying features indicated that only the k-modes algorithm was appropriate to assess the group statistically, because other clustering algorithms would be biased by the outliers.
- Patterns with extended use of *dagesh* were associated with the three-column group.
- The majority of the manuscripts in this group were clearly Oriental (Egypt and Palestine, especially twelfth c. Egypt). Moreover, the various patterns of vowel interchange seemed to be associated with the levelling of vowel phonemes, reflecting convergence with the Arabic vowel system.

The results indicate that two- and three-column manuscripts are distinct in their patterns of NST features. There are clear regional and language contact differences, which can be seen when comprehensive data are taken into account. Moreover, clustering, validated by rigorous linguistic assessment, is useful for the analysis of large amounts of NST features, especially when the researcher is careful not to perform the clustering on a large number of features at once. The coherency of the clustering re-

sults and the linguistic validation by means of the schemas supports the hypothesis that there are statistically and linguistically valid subtypes of NST vocalisation.

6.0. CONCLUSIONS: THE CORRELATION BETWEEN CODICOLOGY AND LINGUISTIC FEATURES

At the beginning of the study it was hypothesised that both the codicological and linguistic features of the near-model manuscripts in the Cambridge Genizah collections have clear subtypes that can be validated through statistical analysis, and this has been shown to be the case. It was, however, also hypothesised that linguistic patterns would generally correlate with codicological subtypes. This concluding section presents the data in support of the latter hypothesis and brings the study to a close with some final assessments concerning how to carry the analysis forward in future research.

6.1. The Correlation between Codicological and Linguistic Subtypes

In general, the linguistic patterns found above were distinct not only regarding differences between two- and three-column manuscripts, but also regarding the fact that manuscripts with similar linguistic patterns tended to group together in either the same codicological subgroup, or in related codicological subgroups:

6.1.1. Two-column Manuscripts

- Byzantine Trio pattern (Section 5.1.1). These manuscripts all came from various groups that exhibit a broad palaeographical relationship, which included Sephardi, Italian-Byzantine, and Palestinian-Byzantine manuscripts.
- Orthoepic, Nearly Standard (5.1.3, including outliers: 5.1.4 and 5.1.5). These manuscripts came from groups with the most diverse palaeographic regions, from groups with Sephardi manuscripts, to Oriental (Egypt-Palestine), and Byzantine groups. This may indicate that every region produced some nearly-standard, orthoepic manuscripts.
- Lexically-specific (5.1.6): These two manuscripts came from Monumental Oriental (Egypt-Palestine) groups: specifically, T-S NS 68.22 came from the 'Large Monumental Egyptian' group described in section 4, and T-S NS came from another Egyptian group which was not described as an example group in this study.
- Three-way Interchange: *šere-segol-pataḥ* (5.1.7). All of the manuscripts in this group came from Arabic-speaking regions, as their palaeography indicates areas ranging from Egypt to Palestine-Byzantine (Southwestern Oriental) areas. Specifically, T-S Misc 1.46 is a late Egyptian manuscript from the subgroup Small Oriental Codex.
- Two-column Outliers (5.1.8 and 5.1.9): as these manuscripts were all outliers, they all came from different regional groups.

6.1.2. Three-column Manuscripts

- Minimal Application of NST (5.2.1). This manuscript with a Southwestern Oriental (Palestinian) script type came from a group with other Italian-Byzantine and Palestinian-Byzantine manuscripts.
- Orthoepic Features (5.2.2). All of these manuscripts were from Monumental groups, mainly from Egypt. Those represented in the sample codicological subgroups above are: T-S NS 78.34, T-S AS 67.131, T-S NS 77.1 (Large Monumental Egypt-Palestine Group); T-S NS 248.2 (Monumental Levantine Codex Group); T-S A2.30 (a late Egyptian manuscript from the Monumental Bare Wide-Ranging [Oriental to Italian] Group); T-S A5.12 (the Monumental Oriental Group).
- Two-way Interchange: Schema Group 2 (5.2.3). All of the manuscripts in this group came from either the Monumental Oriental Group (T-S A1.25) or the Large Monumental Levantine Codex Group (T-S A2.1, T-S NS 20.14), or other closely-related Egyptian Monumental groups not exhibited above.
- Three-way Interchange: Schema Group 2b (5.2.4 and 5.2.5). The manuscripts all came from Arabic-speaking regions. They involve the Egypt-Palestine Monumental groups, one of which is represented in the examples above: Monumental Bare Oriental Codex (T-S NS 18.5, T-S AS 8.123). The outlier Lewis Gibson Bible 3.12 comes from the Square Monumental Egyptian-Palestinian codex (not reported in section 4).

- Three-way Interchange, Schema Pattern 2c (5.2.6). Also from Arabic-speaking regions. Both manuscripts, are in different, but related, Oriental groups and are both late Egyptian in their palaeography (T-S AS 66.52: post-eleventh c.) and T-S A3.15 (post-twelfth c.).
- Five-way Interchange: Schema Pattern 2e (5.2.7). The manuscripts from this group belong to wide-ranging regions, mainly from Arabic-speaking areas. T-S A5.7 and T-S NS 67.20 belong to the Square Monumental Oriental Group (not reported as example); the Lewis-Gibson Bible 1.56 is an Egyptian-Palestinian (Northwestern Oriental) manuscript from the Monumental Oriental Group; T-S NS 282.69 is in the Monumental Bare Wide-Ranging Group.
- Finally, the major outlier, T-S NS 72.1, is in the same group as T-S A5.7, T-S NS 67.20, and Lewis Gibson Bible 3.12, which are all Egypt-Palestinian in their palaeography.

The results of these general correlations show that, while linguistic features do co-occur in patterns alongside codicological subtypes, these co-occurrences are in wider regional swaths of similarity. It is also to be noted that the specific date of the scripts was not a major factor in this study. Apart from a few late manuscripts that grouped together, further analysis may refine these correlational findings by clarifying the palaeographic date of the manuscripts. It can safely be said, however, that subtypes of NST can be regionally defined and generally correlate with regional patterns of codicology.

6.2. Final Conclusions

The analysis in this paper is, to date, the most comprehensive assessment of a large number of manuscripts on many grounds: both codicological and linguistic. It has introduced a new methodology that allows the researcher to analyse effectively thousands of individual data points and 296 manuscript fragments. The results clarify our understanding of near-model and NST vocalisation phenomena in the Genizah.

Firstly, it can be affirmed that near-model manuscripts exist as a conceptual category of codex type within the Genizah, and that, when considered as parts of larger groups, those with two columns are distinct, both codicologically and linguistically, from those with three columns. These kinds of manuscripts represent the threshold of the standard, exquisite Bibles, which have been the focus of scholarship, and show that rich diversity lies just below the surface of what has been analysed in the past.

Secondly, it has been demonstrated that codicology can be regionally defined and that styles of book-making practices and scribal habits differed slightly (and in a statistically verifiable way) from region to region in the Genizah. Most importantly, dimensions and line number are the most reliable measures for distinguishing differences in codicological styles across regions.

Thirdly, NST can be considered a hypernym for what is in fact an internally diverse phenomenon with distinct subtypes. These subtypes can represent many things, ranging from an adherence to the pronunciation of the ST text (but non-adherence in notation), to a completely different phonological profile,

which is most likely due to language contact and regional pronunciations of Biblical Hebrew in Egypt, the Levant, Asia Minor, and Italy.

Finally, this study has shown that language and codicological features complement each other and, when studied together, can aid the researcher in understanding the larger picture of the background of the manuscript. Since codicological styles varied by region, and since NST language features also varied by region, codicology and language can indeed be used to help clarify each other. This demonstrates that medieval Hebrew manuscripts are holistic entities, which, in order to be studied properly, must have both their physicality and their language features taken into account

This study is a first, exploratory step in using the methodology that I have developed here. The methodology should be applied to other groups of manuscripts in order to refine it properly, to find pitfalls, and to calibrate it for further improvements of analysis. It has great potential to allow scholars to look at the wider picture of a corpus of manuscripts without sacrificing detail. Furthermore, statistical clustering puts the researcher above the data and allows for the prioritisation of the most critical data and details.

Avenues for future research include applying this same analysis to other groups of non-standard Hebrew Bible codices (which is the topic of my current PhD research⁶⁴), as well as re-

⁶⁴ Working title: "A Codicological and Linguistic Typology of Non-standard Torah Codices from the Cairo Genizah.

fining the typology presented above by means of further investigation into specific aspects. These include patterns of Masorah, cantillation, or, especially, the extreme outliers identified in this paper. In any case, it is hoped that the present study has not only opened conceptual doors to further bolster our study of medieval Jewish manuscripts, but has also introduced a new methodology and set of tools by which to do so.

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Cambridge University Library T-S Misc 3.49

Small Italian-Byzantine Codex



Cambridge University Library T-S A3.14
Monumental Oriental Codex



Cambridge University Library T-S A5.12

Monumental Oriental Codex

SOME FEATURES OF THE IMPERFECT ORAL PERFORMANCE OF THE TIBERIAN READING TRADITION OF BIBLICAL HEBREW IN THE MIDDLE AGES

Geoffrey Khan

1.0. PRELIMINARY REMARKS

The Tiberian pronunciation tradition of Biblical Hebrew was regarded as prestigious and authoritative in the medieval Middle East. It is likely that the authoritativeness of the Tiberian tradition had its roots primarily in its association with the Palestinian *Yeshiva* ‘Academy’, the central body of Jewish communal authority in Palestine, which was based in Tiberias from late antiquity until the Middle Ages. The Masoretes were closely associated with the Palestinian *Yeshiva*. One of the known Masoretes was, indeed, the ‘head of the Academy’, namely Pinḥas Rosh ha-Yeshiva (‘head of the Academy’), who lived in the ninth century.¹

¹ See the *Treatise on the Shewa* edited by Levy (1936, 9), the document published by Mann (1969, 2:43–44) and Gil (1992, 179).

The medieval sources describe how teachers from Tiberias would travel to various communities of the diaspora to give instruction in the Tiberian reading and how people from the diaspora communities would travel to Tiberias (Khan 2020, 87–88).

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

One indicator of the prestigious nature of the Tiberian reading tradition is the fact that the early traditions of Hebrew grammar that emerged in the tenth century, i.e., those of Saadya Gaon and the Karaite grammarians, were based on the Tiberian reading.² The grammarian Ibn Janāḥ (eleventh-century Spain) states that the Tiberians were “the most eloquent of the Hebrews in language and the most lucid.”³

A further indicator is the fact that many manuscripts with Babylonian vocalisation exhibit convergence with the Tiberian tradition of reading, eliminating thereby distinctly Babylonian features. In some manuscripts with Babylonian signs, there is almost total convergence with the Tiberian pronunciation tradition and additional signs were even created to ensure a maximally close correspondence.⁴ The same applied to biblical manuscripts with Palestinian vocalisation. Many of these represent a reading

² Dotan (1997), Khan (2000a; 2000b). Some features of Babylonian pronunciation sporadically appear in the works of the eastern grammarians, such as Saadya (Dotan 1997, 39) and the Karaites (Vidro 2011, 131–36).

³ *Kitāb al-Lumaʿ* (ed. Derenbourg 1886, 29): הם אפצח אלעבראניין לסאנא ואכתרהם ביאנא.

⁴ Yeivin (1985, 77–87).

tradition that is very close to the Tiberian one. This is almost certainly due to convergence, which involved the creation of signs to express vowel-quality distinctions that did not occur in the Palestinian pronunciation.⁵

These convergences in manuscripts with Babylonian and Palestinian vocalisation show that the Tiberian pronunciation was the ideal target in the oral reading of the Bible in communities where other traditions of pronunciation were current. In such situations, outside the inner circles of the Masoretic masters of Tiberias, there was always a risk that the ideal target would have been missed. In this paper, I shall adduce evidence of features in reading that appear to have arisen on account of such imperfect performances and propose explanatory models for how such features arose.

Most of the evidence will be drawn from the Karaite Arabic transcriptions of the Hebrew Bible. The majority of these reflect the Standard Tiberian pronunciation.⁶ A number of the transcriptions, however, exhibit deviations from the Standard Tiberian tradition. In most manuscripts of this nature, the deviations are not simply a reflection of the pronunciation of Hebrew with a non-Tiberian tradition, but rather are the result of striving to perform the Tiberian reading, but not producing exactly the Stand-

⁵ Some scholars, however, have taken the view that the Tiberian type of vowel distinctions that appear in some varieties of the Palestinian vocalisation are native to the Palestinian tradition; cf. Revell (1970, 52), Yahalom (1997, 9).

⁶ For this corpus of texts see Khan (2013; 2016).

ard Tiberian tradition. I shall examine three factors that were operative, viz. (i) the interference from a lower prestige substrate, (ii) the application of hypercorrect orthoepic measures, and (iii) varying degrees of correct acquisition of the Tiberian reading.

2.0. INTERFERENCE FROM A SUBSTRATE

2.1. Pronunciation of Interdental Consonants

Some of the Karaite transcriptions reflect the interference of a substrate in the achievement of the target of pronouncing the Tiberian interdental consonants.

In most of the Sefardi reading traditions of the Levant and North Africa that have continued down to modern times, the letters *tav* and *dalet* are pronounced as stops in all contexts. They are not pronounced as interdentals where the Tiberian tradition had fricative *tav* [θ] or fricative *dalet* [ð],⁷ e.g.,

Aleppo

ˈkəvrat ˈʔeṛøʂ (Katz 1981, 9 | BHS: כְּבִרְת־אֶרֶץ Gen. 49.19
‘some distance’)

ˈɡad geˈdud (Katz 1981, 8 | BHS: גָּד גִּדּוּד Gen. 49.19 ‘Gad, a
troop ... ’)

Jerba

weˌhəθalˈleˌx (Katz 1977, 17 | BHS: וְהִתְהַלֵּךְ Exod. 21.19
‘and he walks about’)

⁷ For this phenomenon see Garbell (1954, 232), Katz (1977, 16–18, 1981, 4–5), Akun (2010, 35–37, 46–47), Henshke (2013).

jaʃaʻbod (Katz 1977, 18 | BHS: יַעֲבֹד Exod. 21.2 ‘he will work’)

Morocco

tihuʻmut (Akun 2010, 46 | BHS: תְּהִמּוֹת Exod. 15.8 ‘depths’)

miʻlyad (Akun 2010, 36 | BHS: מִיָּד Exod. 14.30 ‘from the hand of [cstr.]’)

The Sefardi reading traditions had their origin in the Palestinian reading tradition of Hebrew. This phenomenon, however, was not an original feature of the Palestinian reading tradition, but appears rather to be the result of interference from the Arabic dialects spoken by the Jews of the regions in question, in which stops have replaced the interdental consonants.⁸ In regions where the Arabic dialects of the Jews preserved the interdentals, these consonants were generally preserved also in the local Sefardi reading traditions of Hebrew.⁹

In some medieval Karaite transcriptions, there is evidence that readers sometimes pronounced *tav* and *dalet* as stops where interdental realisations would be expected. This is seen particularly clearly in the case of the transcription of *tav*, since the stop and fricative realisations are distinguished by different Arabic diacritics (i.e., ت versus ث), whereas the occurrence of an Arabic ڤ without a diacritic in a manuscript containing a transcription

⁸ See, for example, Nevo (1991, 3–4: Aleppo), David Cohen (1975, 19: Tunis), Marcel Cohen (1912, 21: Algiers).

⁹ This is seen, for example, in the reading traditions of the Jews of Yemen (Morag 1963, 41–42) and of the Jews of Baghdad (Morag 1977, 5).

could, in principle, be the result of the scribal omission of the diacritic from the letter *dhāl* and need not necessarily be interpreted as a *dāl*.

One manuscript of interest in this respect is BL Or 2551, fols. 31–101, which is an Arabic transcription of Psalms accompanied by an Arabic commentary. Where fricative *tav* occurs in the Tiberian tradition, this manuscript generally has the Arabic letter interdental *thā'* in the transcription of the biblical text, e.g.,

مِشْلَاحِث (BL Or 2551 fol. 31r, 3 | BHS: מִשְׁלַחַת Ps. 78.49
'sending of')

مِمَاوِث (BL Or 2551 fol. 31v, 10 | BHS: מִמּוֹת Ps. 78.50 'from
death')

رَاشِيت (BL Or 2551 fol. 32r, 6 | BHS: רֵאשִׁית Ps. 78.51 'be-
ginning')

On several occasions, however, it has Arabic *tā'* where the Tiberian pronunciation has a fricative *tav*, reflecting the pronunciation of the consonant as a stop, e.g.,

هَتَعِبَار (BL Or 2551 fol. 34v, 3 | BHS: הִתְעַבֵּר Ps. 78.62 'he
was angry')

اِث (BL Or 2551 fol. 37r, 14 | BHS: אֶת Ps. 79.1 object
marker)

The fact that in many places the manuscript has *thā'* where fricative *tav* is expected in the Tiberian tradition shows that the

reading that it represents is not a type of Sefardi reading without any interdental consonants such as those discussed above. It appears to be an attempt at reading with a Tiberian pronunciation. The reader was successful in achieving the correct pronunciation of fricative *tav* in many places, but in several cases interference from a substrate resulted in this being read incorrectly as a stop.

It is significant to note that in this manuscript transcriptions of Tiberian fricative *tav* with the Arabic stop *tā'* are much more common in the Hebrew words that are embedded within the Arabic commentary, e.g.,

משלחת (BL Or 2551 fol. 31v, 7 | BHS: מְשַׁלְחָתָה commentary on Ps. 78.49 'sending of')

נתיב (BL Or 2551 fol. 31v, 12 | BHS: נְתִיב commentary on Ps. 78.50 'a path')

לא תאסור (BL Or 2551 fol. 31r, 13 | BHS: לֹא תִסְוֹר Deut. 17.11 'you shall not decline' in the commentary on Ps. 78.50)

The Hebrew words within the commentary evidently reflect a less learned type of pronunciation than the pronunciation of the biblical text itself. Less effort was made to achieve the prestigious Tiberian target. They were not an oral performance of the biblical text, but rather non-performative citations embedded within the Arabic commentary text.

The ultimate origin of this elimination of interdentals in the the pronunciation of the Hebrew is likely to have been the lack of interdentals in the vernacular Arabic speech of the reader, as

is the case with the modern Sefardi traditions without interdental. There is, indeed, evidence from inscriptions and papyri that interdental consonants were lost in some Arabic dialects as early as the beginning of the eighth century CE (first century AH).¹⁰

A possible way of explaining the suboptimal distribution of stops and interdentals in the manuscript is the model proposed by Blevins (2017) for phonological processes that take place in language contact situations. In the spoken vernacular of the reader, there was no unvoiced interdental phoneme /θ/, but only a stop phoneme /t/ or, more likely, /t^h/, i.e., an aspirated unvoiced stop. This had only stops as its phonetic realisation, i.e., [t^h] and most likely also environmentally conditioned deaspirated [t]. When the reader heard in the Tiberian pronunciation the interdental phonetic tokens [θ], these were perceptually matched to the stop /t^h/ prototype phoneme of the writer's vernacular. This matching brought about a 'perceptual magnet effect', to use Blevins' metaphor, whereby the interdental tokens of Tiberian were perceived as being like the stop tokens of the prototype in the native vernacular. As a result of this lack of perception, or at least difficulties in perception, of phonetic difference, the two tokens were confused.

It is significant that the distinction between Arabic *tā*' and *thā*' is maintained perfectly throughout the Arabic text of the commentary. The interdental *thā*' is regularly marked with three

¹⁰ See Hopkins (1984, 33–36). To the material cited by Hopkins can be added inscription no. 15 in Combe, Sauvaget, and Wiet eds. (1931–1991). The main evidence in these sources is the occurrence of the pointing of Arabic *tā*' where *thā*' is expected.

diacritical dots, e.g., ثالث 'third' (fol. 31r, ln. 11), من حيث 'because' (31r, 12), مبعوثة 'sent' (31v, 8). This must reflect the fact that the writer's grammatical competence in literary Arabic had the two distinct phonemes /θ/ and /t^h/, whose morpholexical distribution had been learnt perfectly. This contrasts with the writer's pronunciation of Biblical Hebrew, in which the distribution of the stop and interdental was confused, reflecting imperfect learning.

According to the model described above, the imperfect learning of the Tiberian reading resulted from the perceptual matching of the interdental phone [θ] in the Tiberian Hebrew reading to the stop /t^h/ prototype phoneme of the writer's vernacular. It should be taken into account, however, that vernacular Arabic dialects spoken by Jews in the Middle Ages would almost certainly have contained a Hebrew component, i.e., Hebrew words and phrases. Such a Hebrew component is found in medieval written Judaeo-Arabic (Blau 1999, 133–66) and is likely to have been an integral part of the living Arabic vernacular of Jews in the Middle Ages, as is the case with modern spoken Judaeo-Arabic dialects. The question arises, therefore, as to whether the direct substrate of the imperfectly performed Tiberian reading was the Arabic dialect in general or specifically the Hebrew component in the Arabic dialect. The phonology of the Hebrew component in the modern Jewish Arabic dialects has, in principle, assimilated to that of the host language. In Arabic dialects without interdentals, these are lacking also in the Hebrew words of

the Hebrew component.¹¹ The situation reflected in our medieval text, therefore, may have arisen due to the matching of the phones [θ] and [t^h] with a single prototype phoneme /t^h/ specifically in the Hebrew component of the writer's dialect. Another possibility is that the two phones were matched with a single prototype phoneme /t^h/ in a less learned pronunciation of Biblical Hebrew. Such a less learned pronunciation, however, would be likely to have had its roots in the phonology of the Hebrew component. In this particular case it cannot be proved whether the direct substrate was the phonological system of the Arabic dialect or that of the Hebrew component. In the discussion of the imperfect performance of the vowel system below (§2.2), however, I shall present evidence that the immediate substrate is the phonological system specifically of the Hebrew component or of a less learned pronunciation of Hebrew deriving from that of the Hebrew component.

In the meantime, I would like to draw attention to another manuscript of a Karaite transcription, BL Or 2552 fols. 90–141, which, in most cases, has an Arabic *tā'* where a fricative *tav* occurs in the Tiberian tradition, e.g.,

כי-מֹות נִמְוֹת (BL Or 2552 fol. 90v, 2 | BHS: כִּי-מֹות נִמְוֹת)

2 Sam. 14.14 'because we have to die')

¹¹ E.g., Algeria (Bar-Asher 1992, 40–42), Tunisia (Henshke 2007, 32–33), Syria (Arnold 2013), Egypt (Rosenbaum 2013).

قوهالت (BL Or 2552 fol. 90v, 3 | BHS: קוהַלְת Eccl. 1.1
'preacher')

יתרון (BL Or 2552 fol. 92v, 2 | BHS: יְתִירוֹן Eccl. 1.3 'profit')

A Tiberian fricative *tav* is represented by Arabic *thā'* only in a few cases, e.g.,

ראיתי (BL Or 2552 fol. 106v, 3 | BHS: רָאִיתִי Eccl. 4.15 'I saw')

נחלתנו (BL Or 2552 fol. 133v, 1 | BHS: נַחֲלָתֵנוּ Lam. 5.2
'our inheritance')

יתומים (BL Or 2552 fol. 133v, 11 | BHS: יְתוּמִים Lam. 5.3 'or-
phans')

This indicates that the reader was making some attempt at the prestigious Tiberian pronunciation. The process of levelling of vernacular and Tiberian phonetic tokens had, however, progressed further than in BL Or 2551, fols. 31–101. This would have involved, presumably, a lesser degree of ability to perceive differences between the tokens and a lesser degree of knowledge of the correct distribution of tokens in the Tiberian pronunciation. A further reflection of this in the manuscript is the occurrence of an Arabic *thā'* where there was a stop in the correct Tiberian reading:

אל תרשע (BL Or 2552 fol. 113v, 2 | BHS: אַל-תִּרְשָׁע Eccl.
7.17 'do not be wicked!')

This can be regarded as a hypercorrection, whereby the reader strives to achieve the prestigious Tiberian reading by using an interdental token, but this is used incorrectly where the stop token should have occurred, resulting in a distribution of tokens that corresponds to that of neither Tiberian pronunciation nor the vernacular substrate.

2.2. Pronunciation of Vowels

The Karaite transcription BL Or 2555 offers evidence for the pronunciation of vowels in an imperfect performance of the Tiberian reading tradition.

2.2.1. Interchange of *Ṣere* and *Segol*

This manuscript exhibits interchange of *ṣere* and *segol* signs in syllables where the vowel is long. In the transcription such vowels are represented sometimes by Arabic 'alif and sometimes by Arabic *yā*'. This can be interpreted as reflecting the fact that the scribe read each of the two vowel signs with two different qualities. These may be reconstructed as [ɛ:], which was represented by 'alif, and [e:], which was represented by *yā*'. Some examples are as follows.

Where Standard Tiberian has *segol*

(i) *Segol* sign corresponding to Tiberian *segol* is represented by 'alif:

יָאֵדָא [jɔ:'ðɛ:χɔ:] (BL Or 2555 fol. 71v, 5 | BHS: יָאֵדָא Eccl.

7.18 'your hand')

(ii) *Şere* sign corresponding to Tiberian *segol* is represented by *ʿalif*:

هاپل [ʰe:ʋel] (BL Or 2555 fol. 26r, 12 | BHS: הַבֵּל Eccl. 4.8
'vanity')

(iii) *Segol* sign corresponding to Tiberian *segol* is represented by *yāʿ*:

يافي [jɔ:'fe:] (BL Or 2555 fol. 10r, 5 | BHS: יַפֵּה Eccl. 3.11
'beautiful')

(iv) *Şere* sign corresponding to Tiberian *segol* is represented by *yāʿ*:

ييلد [ʰje:lɛð] (BL Or 2555 fol. 31v, 1 | BHS: יֵלֵד Eccl. 4.13
'child')

Where Standard Tiberian has *şere*

(i) *Şere* sign corresponding to Tiberian *şere* is represented by *yāʿ*:

ييداع [je:'ða:aʃ] (BL Or 2555 fol. 81r, 2 | BHS: יֵדַע Eccl. 8.5
'he will know')

(ii) *Segol* sign corresponding to Tiberian *şere* is represented by *yāʿ*:

הבֵּהימָה [habbehe:'mɔ:] (BL Or 2555 fol. 18r, 1 | BHS: הַבֵּהִימָה
Eccl. 3.21 'the beast')

(iii) *Şere* sign corresponding to Tiberian *şere* is represented by *ʿalif*:

הָמָּא [ˈhɛːɛmmɔː] (BL Or 2555 fol. 14v, 2 | BHS: הָמָּא Eccl.

3.18 ‘they’)

(iv) *Segol* sign corresponding to Tiberian *šere* is represented by *ʿalif*:

כָּאן [ˈkʰɛːɛn] (BL Or 2555 fol. 14v, 5 | BHS: כָּאן Eccl. 3.19

‘thus’)

This shows that interchanges of vowel signs can reflect a pronunciation with interchanges of vowel qualities that is independent of the interchange of the signs.

2.2.2. *Pataḥ* Sign in Place of Standard Tiberian *Segol*

In the transcription BL Or 2555, the *pataḥ* sign is sometimes marked where Standard Tiberian has *segol*. This is found predominantly in the following contexts.

(i) In the environment of guttural consonants, especially *ḥet* and *ʿayin*, e.g.,

זָרְעָאִיךָ (BL Or 2555 fol. 124v, 10 || BHS: זָרְעָאִיךָ Eccl. 11.6

‘your seed’)

וְלָעָרֵב (BL Or 2555 fol. 124v, 10 || BHS: וְלָעָרֵב Eccl. 11.6

‘and for the evening’)

הָעָבִיִּים (BL Or 2555 fol. 129v, 10 || BHS: הָעָבִיִּים Eccl. 12.2

‘the clouds’)

احكاما (BL Or 2555 fol. 73r, 15 || BHS: אֶחָזְקָמָה Eccl. 7.23 ‘I shall be wise’)

هاحاحام (BL Or 2555 fol. 89r, 6 || BHS: הַחֲכָמִים Eccl. 8.17 ‘the wise’)

(ii) On the subordinating particle *š*, e.g.,

بشال (BL Or 2555 fol. 89r, 5 || BHS: בְּשַׁלְּ Eccl. 8.17 ‘because’)

شياموتوا (BL Or 2555 fol. 94v, 7 || BHS: שִׁיָּמֹתוּ Eccl. 9.5 ‘that they will die’)

كشيفول (BL Or 2555 fol. 102r, 2 || BHS: כִּשִׁיפֹל Eccl. 9.12 ‘when it will fall’)

شلو (BL Or 2555 fol. 68v, 8 || BHS: שְׁלֹ Eccl. 7.14 ‘that not’)

شيخال (BL Or 2555 fol. 11r, 9 || BHS: שִׂיֵּאֲכַל Eccl. 3.13 ‘he will eat’)

شاياعمول (BL Or 2555 fol. 46v, 2 || BHS: שִׁיַּעֲמֹל Eccl. 5.15 ‘that he will labour’)

In a few cases, however, the particle has *segol*, e.g.,

ماشاهایا (BL Or 2555 fol. 73v, 13 || BHS: מה־שֶׁהָיָה Eccl. 7.24

‘that, which was’)

شاهایامیم (BL Or 2555 fol. 58v, 8 || BHS: שְׁהָיָה יָמִים Eccl. 7.10

‘that the days’)

In one case long *segol* in the particle is transcribed by *yā*’:

ما شیهایا (BL Or 2555 fol. 57v, 1 || BHS: מה־שֶׁהָיָה Eccl. 6.10

‘that which was’)

(iii) Occasionally the *pataḥ* sign is written in place of Standard Tiberian *pataḥ* in other contexts, e.g.,

عذآن (BL Or 2555 fol. 22r, 5 || BHS: עֵדָן Eccl. 4.3 ‘yet’)

هتافل (BL Or 2555 fol. 53v, 6 || BHS: הַנְּפֹלָה Eccl. 6.3 ‘the miscarriage’)

2.2.3. *Segol* for Standard Tiberian *Pataḥ*

There are sporadic cases of *segol* being marked where Standard Tiberian has *pataḥ*:

اشر نائین لو (BL Or 2555 fol. 48v, 7 || BHS: אֲשֶׁר־נָתַן־לוֹ Eccl.

5.17 ‘which he gave to him’)

2.2.4. Standard Tiberian *Pataḥ* Transcribed by *Yā*’

In a few isolated cases a *yā*’ is written in the transcription where Standard Tiberian has a stressed *pataḥ*:

مَتِيث (BL Or 2555 fol. 50r, 5 || BHS: מִתָּת Eccl. 5.18 ‘a gift of’)

مَتِيث (BL Or 2555 fol. 11r, 10 || BHS: מִתָּת Eccl. 3.13 ‘a gift of’)

مِأَيْت (BL Or 2555 fol. 85r, 12 || BHS: מֵאָת Eccl. 8.12 ‘hundred’)

2.2.5. *Pataḥ* for *Qameṣ*

The Standard Tiberian distribution of *qameṣ* is generally maintained in the vocalisation:

هَالُوْهِم (BL Or 2555 fol. 12r, 9 || BHS: הָאֱלֹהִים Eccl. 3.14 ‘the god’)

وَالْأَبَاد (BL Or 2555 fol. 46r, 7 || BHS: וְאָבָד Eccl. 5.13 ‘and it perished’)

هَذَاام (BL Or 2555 fol. 55v, 4 || BHS: הָאָדָם Eccl. 6.7 ‘the man’)

هَمَّأَوْت (BL Or 2555 fol. 59v, 13 || BHS: הַמָּוֶת Eccl. 7.1 ‘death’)

In some isolated cases *pataḥ* is marked where Standard Tiberian has *qameṣ*. This is attested in the environment of *yāʾ* and the guttural ‘*ayin*:

הַעֲנִיָּאן (BL Or 2555 fol. 9v, 6 || BHS: הַעֲנִיָּאן Eccl. 3.10 ‘the task’)

עֲנִיָּאן (BL Or 2555 fol. 37r, 2 || BHS: עֲנִיָּאן Eccl. 5.2 ‘business’)

אֵילָאֵי (BL Or 2555 fol. 103r, 10 || BHS: אֵילָאֵי Eccl. 9.13 ‘to me’)

רַעָא (BL Or 2555 fol. 102r, 1 || BHS: רַעָא Eccl. 9.12 ‘evil’).

2.2.3. Interpretation of the Data

These various phenomena reflect an imperfect performance of the Tiberian vowel contrasts by a speaker of Arabic. As with the imperfect realisation of Tiberian *tav*, these vowel distributions can be explained as being the result of the matching of phonetic vowel tokens heard in the Tiberian tradition with non-Tiberian phonemes. It is difficult, however, to explain satisfactorily the distribution of the *matres lectionis* and vowel signs in the manuscript if it is assumed that this matching was directly between Tiberian phonetic tokens and Arabic phonemes. A more satisfactory model is one in which the Tiberian phonetic tokens are matched with a Palestinian type of Hebrew vowel system and this, in turn, is matched with an Arabic vowel system. The Palestinian reading tradition had only one *e*-vowel phoneme and only one *a*-vowel phoneme. This corresponded to the sound system of Jewish Palestinian Aramaic, which, in turn, is likely to have

arisen by convergence with the sound system of Greek in Byzantine Palestine.¹² It can be assumed that it was this pronunciation tradition of Hebrew in which the writer was most competent. It is, moreover, likely that the Hebrew component in his Arabic dialect had the same Palestinian type of vowel system.

I shall first address the interchange of *šere* and *segol* signs and the *matres lectionis* 'alif and yā' that represent them. We may assume that the reader had only one long *e*-vowel prototype phoneme in the pronunciation tradition in which he was most competent and in the Hebrew component in his Arabic dialect.

This one *e*-vowel prototype phoneme can be represented as /e/ and we may assume that it had the phonetic token [e:] when pronounced long. When the reader heard in the target Tiberian pronunciation the phonetic tokens of *šere* [e:] and long *segol* [ɛ:], both of these were perceptually matched with the prototype /e/. This matching brought about a 'perceptual magnet effect', whereby the [e:] and [ɛ:] tokens of Tiberian were perceived as being like the [e:] tokens of the prototype in the substrate pronunciation. The reader attempted to pronounce the tokens of the Tiberian target pronunciation, but had difficulty in distinguishing between them and, moreover, could not match the signs with the phonetic tokens that he pronounced.

The fact that the writer was able to maintain by and large the standard Tiberian distribution of the *qameš* and make the correct morpholexical contrasts with *pataḥ* could be explained by the assumption that the *qameš* phonetic token [ɔ:] that was heard in the Tiberian reading was not matched with the *a*-vowel of the

¹² See Kantor and Khan (forthcoming).

Palestinian pronunciation, which we may represent as /a/. This is likely to have been due to its being sufficiently distinct in quality from the phonetic tokens of Palestinian /a/ for it to be kept apart. It is a recognised phenomenon in the research of second language acquisition that learners can more easily acquire a phoneme that is not similar to one in the native language than a phoneme that has phonetic tokens that are similar to those of a phoneme in the native language. When there is a high degree of resemblance between distinct sounds in the target and native languages, they are more liable to be wrongly matched.¹³ The few occurrences of *pataḥ* in place of Standard Tiberian *qameṣ* attested in our manuscript were induced by the phonetic environment, namely the palatal *yā'* and pharyngeals.

Tiberian *pataḥ*, on the other hand, was easily matched with Palestinian /a/. How can we explain the interchange of *pataḥ* and *segol*? This interchange is far more frequent than the replacement of *qameṣ* by *pataḥ*. A possible explanation is that Palestinian /a/ was itself matched with the similar sounding Arabic /a/ and /a:/. Arabic /a/ and /a:/ would have had a range of allophones, as in the modern Arabic dialects, that included not only the qualities [a], [a:], but also the higher quality [ɛ], [ɛ:], by the process of raising (*'imāla*), and the back quality [ɑ] by the process of supra-segmental pharyngealisation (*tafkhīm*) (Barkat-Defradas 2011a; 2011b; Levin 2011). This would have facilitated the interchange of the qualities of Tiberian *pataḥ* [a], [a:] and Tiberian *segol* [ɛ], [ɛ:]. It is relevant to note that *'imāla* is blocked in some modern

¹³ See, for example, Eckman and Iverson (2003) and the literature cited there.

Arabic dialects in the environment of back consonants, including the pharyngeals (Levin 2011).

The frequent vocalisation of the subordinate particle ψ in the manuscript could have a different explanation. In his study of the vocalisation in Genizah manuscripts of the Mishna, Birnbaum (2008, 324) noted that some manuscripts that do not otherwise interchange *segol* and *pataḥ* frequently have *pataḥ* in place of *segol* with the particle. The occurrence of *pataḥ* in our manuscript, therefore, could have arisen by the influence of such a tradition of Mishnaic Hebrew.

In some modern Arabic dialects, the realisation of /a/, /a:/ is sometimes raised higher to [e], [e:] and this can be reconstructed for earlier periods (de Jong 2011). This is reflected by some medieval Judaeo-Arabic texts with Tiberian vocalisation signs, which represent such raised /a/ and /ā/ vowels by *šere* (Khan 2010, 204), e.g.,

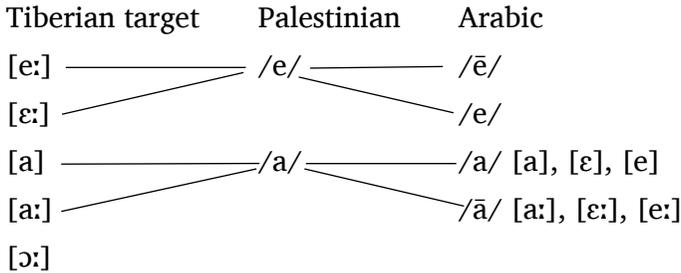
עָלֶי עַבְדֶּיךָ [ʕale: ʕibe:dak] = Classical Arabic *‘alā ‘ibādak* ‘on your servants’ (T-S Ar.8.3, fol. 16v)

וְלֹא [walem] = Classical Arabic *wa-lam* ‘and not’ (T-S Ar.8.3, fol. 22v)

This may explain the occasional transcription of long stressed *pataḥ* in our manuscript with *mater lectionis yā*?, e.g.,

מִתִּיבָה (BL Or 2555 fol. 50r, 5 || BHS: מִתִּיבָה Eccl. 5.18 ‘a gift of’)

The various phonological matchings that have been proposed above may be represented as follows:



In this proposed system the vowels of the Palestinian ‘interlanguage’ were themselves matched with phonemes of the same quality in the Arabic vernacular.

We need to posit the presence of the Palestinian Hebrew interlanguage in order to explain the various realisations of the vowels. If it were not there, the Tiberian phones [e:], [ɛ:], and [a:] would have been expected to be matched in an undifferentiated manner with Arabic /ā/ or /ē/, which would have resulted in their free interchange. Instead, the [e:] and [ɛ:] tokens clearly group together in the vast majority of their distribution. This arose since they were matched with /e/ in the morpholexical environments in which this vowel occurred in the Palestinian Hebrew interlanguage. The less frequent interchange of [e:], [ɛ:], and [a:] can, as discussed, be explained by positing a further layer of phonological matching with Arabic.

As remarked, the distinctive Palestinian Hebrew vowel system appears to have developed by assimilation to the vowel system of Jewish Palestinian Aramaic and Palestinian Greek, which were the native languages of the Jews of Palestine until the early Islamic period. This levelling with the vowel system of the vernacular would be expected to have taken place most easily in

Hebrew words and phrases that were embedded in the spoken form of Jewish Palestinian Aramaic, and this is likely to have been the main source of the change.

It is relevant to note that Aramaic inflectional morphology occurs in various non-Tiberian traditions of Hebrew texts of Palestinian background. This applies, for example, to the Greek transcription in Origen's Hexapla (the middle of the third century CE), which exhibits Aramaic pronominal suffixes, such as the 2ms suffix *-akh*, e.g., *σεμαχ* 'your name' (Tiberian שְׁמַחְךָ Ps. 31.4).¹⁴ This is also a feature of the Samaritan tradition, e.g., *yēdāk* 'your hand' (Tiberian: יְדְךָ).¹⁵ Some of these Aramaic forms of suffixes appear in medieval non-biblical texts with Palestinian vocalization. In the second half of the first millennium, however, it appears that popular biblical reading converged to a greater extent with the prestigious Tiberian tradition. As a result, the Aramaic type of suffixes were eliminated in biblical reading.¹⁶ It is problematic to regard the occurrence of Aramaic inflectional morphology in Palestinian traditions of Hebrew as having the status of loanwords. Inflectional morphology is extremely rarely loaned in a language contact situation. A more satisfactory model of explanation is that of codeswitching. In such a situation of codeswitching between two languages, one language is generally regarded as the

¹⁴ Brønno (1943, 110, 196–200).

¹⁵ Ben-Ḥayyim (2000, 228).

¹⁶ Yahalom (1997, Introduction).

dominant ‘matrix’ language and the other language as the ‘embedded’ language.¹⁷ In the language situation in which the aforementioned Palestinian texts were produced we may posit that there was codeswitching between Hebrew and Aramaic, in which Hebrew had the status of the embedded language and Aramaic the status of the matrix language. It is a feature of such codeswitching that the most tenacious component of the dominant matrix language is grammatical morphology, even where all else is from the embedded language.¹⁸ This would explain, therefore, why Aramaic inflectional morphology occurs in the aforementioned Palestinian traditions of Hebrew. We could assume that they are a product of a language situation in which there was frequent codeswitching between Aramaic and Hebrew, at least in learned discourse.¹⁹ This is clearly reflected in Jewish Palestinian Aramaic sources such as the Palestinian Talmud. The form of this embedded Hebrew, with the phonology and elements of the inflectional morphology of the matrix language, was then transferred to independent performances of Hebrew texts. The ‘Hebrew component’ that is embedded in Jewish vernacular languages has a status analogous to that of the status of Hebrew as an embedded language in a codeswitching situation such as the one just described, and indeed may be regarded as a historical development of such a situation.

¹⁷ Myers-Scotton (1993).

¹⁸ Myers-Scotton (1993, 83).

¹⁹ I am grateful to Ivri Bunis for our discussions together about this subject.

The role of the Hebrew component of a Jewish language as the vehicle of sound change and assimilation of the Hebrew phonological system to that of a vernacular can be identified in the documented history of the Ashkenazi tradition of Hebrew pronunciation.

The distribution of vowel signs in manuscripts from medieval Ashkenaz dating to the twelfth and thirteenth centuries reflects a five-vowel system, in which no distinction is made between *qameṣ* and *pataḥ*, nor between *ṣere* and *segol*.²⁰ This indicates that at that period the pronunciation of the Ashkenazi communities still had the original Palestinian five-vowel system. By the middle of the fourteenth century a new vowel system had evolved in the Ashkenazi tradition of Hebrew, in which there was a distinction in pronunciation between *qameṣ* and *pataḥ* and between *ṣere* and *segol*. The cause of this change in the vowel system was the occurrence of vowel shifts in the dialects of German that were spoken by the Jews. In the twelfth century a number of German dialects, including Yiddish, developed a labio-velar pronunciation (in some [o] and in others [u]) of Middle High German [a:] as well as of [a] in an open syllable. This shift was applied also to the Hebrew component of Yiddish. Since, however, words of Hebrew origin were assimilated into Yiddish at an earlier period, in which there were no quantitative distinctions (between long and short *a*), this shift only affected cases of [a] in an open syllable. In Hebrew words that met the criteria for the shift to [o] or [u], a lengthened [a] in most cases corresponds to historical *qameṣ*, e.g., [poter] (= פֹּטֵר), [boro] (= בֹּרָא), [dvorim]

²⁰ Eldar (1978).

(= דְּבָרִים), and in a few cases also to historical *pataḥ*, as in [noxem] (= נַחוּם), [kadoxes] (= קְדוֹת). In the thirteenth and fourteenth centuries Yiddish began to develop a diphthongised articulation of long [e:] in an open syllable. The shift [e:] > [ei] or [ai] entered the Hebrew component of Yiddish as a reflection of *šere* (in an open syllable), as in [eyme] (= אַיִמָּה), [breyšis] (= בְּרֵאשִׁית) and also as a reflection of *segol* (in an open syllable) in a small group of words that were pronounced in Yiddish as if they were vocalised with *šere*, e.g., [meylex] (= מַלְךְ), [keyver] (= קֵבֶר), etc. The variations between [o] and [u], on the one hand, and [ei] and [ai], on the other, in Ashkenazi Hebrew were reflections of the local dialects of Yiddish. This shift in the pronunciation of the Hebrew component subsequently spread to the liturgical reading of Hebrew.²¹

When the vernacular of the Jews in the medieval Middle East changed from Aramaic to Arabic, the vowel system of the Palestinian pronunciation of the Hebrew component and of popular Hebrew reading would have been retained as a linguistic heritage, resulting in the three phonological layers discussed above, viz. (i) prestigious Tiberian Hebrew, (ii) Palestinian heritage Hebrew and (iii) the Arabic vernacular. When the Tiberian pronunciation fell into oblivion in the later Middle Ages, only two layers remained, viz. the Palestinian heritage and the Arabic vernacular. There was also, of course, the layer of written Classical Arabic, or an approximation to this. This is found in the commentaries accompanying the transcription texts, but did not play

²¹ See Weinreich (1965) and Eldar (2013) for further details.

a direct role in conditioning the imperfect performance of the Tiberian pronunciation that is reflected by the manuscripts.

An important feature of the model proposed above to explain the distribution of the vowels in our manuscript is the assumption of the existence of an /e/ vowel in the Hebrew component, which, in turn, would be matched with a phoneme or phonemes of the same quality in the host Arabic dialect. Phonemes with an *e* quality still exist in Arabic dialects of the Levant region and Egypt today.²² They are found in Jewish Arabic dialects of the region and their Hebrew components, as well as in the Hebrew reading traditions of these communities.²³ As far as can be established, the Arabic transcriptions were produced by Karaites in Palestine or in Egypt, after the occupation of Palestine by the Crusaders (Khan 1992).

A few extant manuscripts from the Genizah with Non-Standard Tiberian vocalisation exhibit the kind of multiple interchanges that, as remarked above, would have been expected if Tiberian phones were matched only with Arabic without a heritage Palestinian interlanguage. A number of these have been discovered by Estara Arrant, who refers to them in her article in this volume (Arrant 2020, 530-531) as manuscripts exhibiting the

²² E.g., Damascus (Rosenhouse 2011), Jerusalem (Rosenhouse 2011), Cairo (Woidich 2011).

²³ E.g., Jewish Arabic of Aleppo (Nevo 1991, 13, 15), Jewish Arabic of Damascus (Matsa 2018, 34, 57), the Hebrew component in Jewish Arabic of Syria (Arnold 2013), the Hebrew component in Jewish Arabic of Cairo (Rosenbaum 2013). For *e*-vowels in Hebrew reading tradition of the Jews of Aleppo, see Katz (1981, 42–45).

five-way interchange *pataḥ–segol–qameṣ–ṣere–hireq*. The Genizah manuscript Lewis-Gibson Bible 1.56 (henceforth LG B1.56), for example, exhibits such a multiple interchange, e.g.,

וַיַּעַן (LG B1.56, Arrant 2020 | BHS: וַיַּעַן Gen. 23.10 ‘and he answered’)

שַׁעַר (LG B1.56, Arrant 2020 | BHS: שַׁעַר Gen. 23.10 ‘gate’)

זָקֵן (LG B1.56, Arrant 2020 | BHS: זָקֵן Gen. 24.1 ‘old’)

סָבִיב (LG B1.56, Arrant 2020 | BHS: סָבִיב Gen. 23.17 ‘around’)

עַבְדּוֹ (LG B1.56, Arrant 2020 | BHS: עַבְדּוֹ Gen. 24.2 ‘his slave’)

לְעֵת (LG B1.56, Arrant 2020 | BHS: לְעֵת Gen. 24.11 ‘at the time of’)

מְרֹאֵה (LG B1.56, Arrant 2020 | BHS: מְרֹאֵה Gen. 24.16 ‘appearance’)

שָׁתֵּה (LG B1.56, Arrant 2020 | BHS: שָׁתֵּה Gen. 24.14 ‘drink!’)

Such a complex configuration of interchanges could be explained as follows.

A distinction should be made between the interchange of the vowels *pataḥ–segol–qameṣ–ṣere*, on the one hand, and the occurrence of *hireq* in place of another vowel, on the other.

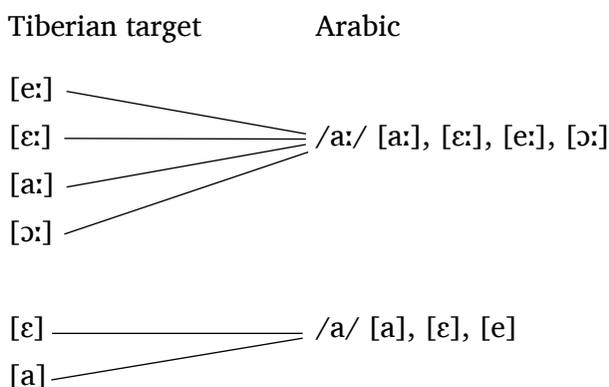
The interchange of the vowels *pataḥ–segol–qameṣ–ṣere* could reflect a scenario in which the Arabic prototype phonemes /a/ and /ā/ are matched with the phonetic tokens of not only Tiberian *pataḥ* and *segol*, but also with those of *ṣere* and long

qameṣ, i.e., [e:] and [ɔ:]. As remarked, Arabic /a/ and /ā/ could be realised with the high allophones [e], [e:] by the process of vowel raising (*ʿimāla*), evidence for this being found in vocalisations of medieval Judaeo-Arabic texts. In such medieval vocalised Judaeo-Arabic manuscripts, the Tiberian *qameṣ* sign is generally restricted to the representation of the /a/ vowel in the diphthong /aw/, reflecting, it seems, the partial phonetic assimilation of the vowel to /w/, which resulted in a back open-mid quality close to that of Tiberian *qameṣ*, i.e., [ɔw] (Khan 2010, 210), e.g.,

נִבְּחָה [nɔwba] = Classical Arabic *nawba* ‘accident’ (T-S Ar.8.3 fol. 17r)

This suggests that the range of phonetic allophones of Arabic /a/ and /ā/ included also [ɔ] and [ɔ:], respectively.

The phonological matching reflected by the *pataḥ–segol–qameṣ–šere* interchange of the manuscript LG B1.56 could be represented as follows:



This, therefore, seems to reflect a situation in which there was no Palestinian type of Hebrew interlanguage containing an /e/ phoneme to which the Tiberian phones [e], [ɛ], and [ɛ:] could be matched.

It is unlikely, however, that the writer's Arabic dialect did not contain a Hebrew component. The explanation may be, therefore, that there was a Hebrew component, but this did not contain a phoneme with an /e/ quality corresponding to Tiberian *šere* and *segol*. Hebrew components with such a profile are, indeed, found in North African Jewish Arabic dialects in modern times, from Libya westwards. In such dialects the /e/ vowel of the Palestinian tradition has shifted to an /i/ vowel. This has taken place due to the assimilation of the vowel system of the Hebrew component with that of the host Arabic dialects, which also do not contain phonemes with the *e* quality.²⁴

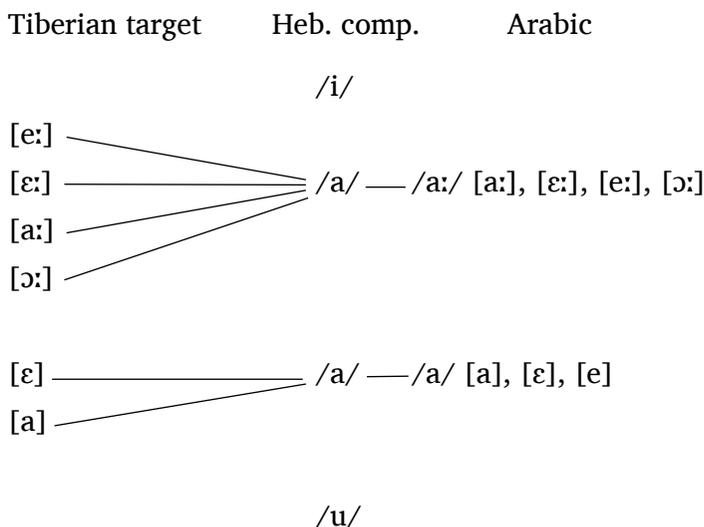
The Hebrew component of the Jewish Arabic dialect of Libya, for example, has, according to Yoda (2013), [i:] or centralised [ə] where Tiberian has *šere* or *segol*. According to Bar-Asher (1992, 53–54), a vowel with the high quality [i], [i:] is the normal realisation of *šere* and *segol* in the Hebrew component in Algeria, with an [e], [e:] quality occurring as a conditioned variant

²⁴ For the vowel system of North African Judaeo-Arabic vernaculars, see, for example, Tripoli (Libya) (Yoda 2005, 31–93), Tunis (D. Cohen 1975, 46–71), Algiers (M. Cohen 1912, 103–39). A historical diphthong **ay* in these dialects shifts to the high vowel *ī*, e.g., Algiers *bīt* < **bayt* 'house'. This contrasts with **ay* > *ē* in Egypt and the Levant, e.g., Aleppo (Nevo 1991, 88), Damascus (Matsa 2018, 30).

in the environment of emphatic and guttural consonants. A similar situation in the Hebrew component in the dialects of Tunisia is described by Henshke (2007, 53–54).

According to Akun (2010, 41–44), the default realisation of *šere* and *segol* in the Hebrew reading traditions in Morocco is an [i], [i:] quality, with [e], [e:] occurring as a conditioned variant. According to Katz (1977, 67–69) and Henshke (2013), in the Hebrew reading traditions of Tunisia, vowels of the reflexes of *šere* and *segol* have the qualities [i], [e], and [ɪ] in free variation.

The Tiberian phones [ɛ], [ɛ:], and [e:] would not have been easily matched perceptually with /i/ in such a North African type of vowel system. The phones of Tiberian *segol* ([ɛ], [ɛ:]) and *šere* ([e:]), therefore, could not be linked to the morpholexical distribution of the vowel corresponding to Tiberian *šere* and *segol* in the Hebrew component, i.e., /i/. An easier perceptual match of these Tiberian phones was with the allophones of the prototype phoneme /a/. The matching of this can be represented as follows:



The interchange of the vowels *pataḥ*–*segol*–*qameṣ*–*ṣere* in a manuscript such as LG B1.56, therefore, may reflect the North African origin of the scribe.

As for the occurrence of *hireq* in place of another vowel, as in הִתְּשֵׁ (= הִתְּשֵׁ Gen. 24.14 ‘drink!’), this could be explained as being the direct interference of a North African type of pronunciation, in which an /e/ vowel shifted to an /i/ vowel, rather than an imperfect performance of a Tiberian target. The occurrence of *hireq* in place of another vowel in other manuscripts classified by Arrant as exhibiting five-way interchanges could, likewise, be due to such a direct interference. In the manuscript T-S A5.7, for example, Arrant (2020, 531) notes that *hireq* occurs in place of *segol*, e.g. אֶתְּנֶנּוּ for אֶתְּנֶנּוּ (‘I will give it’ Deut. 34.4) and in place of *pataḥ* in the unstressed closed syllable of נַפְתָּלִי for נַפְתָּלִי (‘Naftali’ Deut. 34.2). The former, as remarked, would be the North African type of pronunciation of an /e/ vowel. The latter can also be identified as reflecting a feature of North African pronunciation, namely the attenuation of an /a/ vowel in a closed unstressed syllable, e.g. Jerba xəspɔ: (חֶסֶף ‘his money’ Exod. 21.21) (Katz 1997, 84).

Furthermore, the fact that the morpholexical distribution of the Tiberian *qameṣ* phone [ɔ:] was completely confused in manuscripts with these multiple-way interchanges, unlike in the manuscript BL Or. 2555 discussed above, reflects a lower level of acquisition of the Tiberian reading by the scribes than by the scribe of BL Or. 2555. The existence of varying degrees of correct learning of the Tiberian tradition is reflected in diversity of Non-Standard Tiberian vocalisation described by Arrant in her paper

in this volume. Arrant shows that such vocalisation exhibits varying degrees of deviation from Standard Tiberian across Genizah manuscripts. Pattern 1b in her classification, for example, has *segol-šere* interchange, but not *pataḥ-qameš* interchange. This would correspond to a level of learning of Tiberian pronunciation in which the reader distinguished the *qameš* and had acquired its correct morpholexical distribution, as in BL Or. 2555. Patterns of vocalisation with greater degrees of interchange of signs reflect lower levels of learning.²⁵ We have seen in §2.1. that Karaite transcriptions reflect different degrees of elimination of Tiberian interdental fricatives from the reading, which likewise reflects varying levels of correct acquisition of the Tiberian target.

3.0. HYPERCORRECT LENGTHENING OF VOWELS

In the Masoretic literature it is reported that a long vowel in word-final position is shortened by the phenomenon known as *deḥiq* (Aramaic: ‘compressed’). The long vowel in question is usually *qameš* [ɔ:] or *segol* [ɛ:], which are lax, rather than the tense

²⁵ It is relevant to note that in a study of the patterns of distribution of Palestinian vowel signs in the various manuscripts, Revell has shown that many manuscripts maintain a distinction between two ‘a’ vowel signs that corresponds to the distinction between Tiberian *qameš* and *pataḥ* but exhibit a confusion of ‘e’ vowel signs, whereas other manuscripts confuse both ‘a’ vowels and ‘e’ vowels (see Table 1 in Revell 1970, 53). This, likewise, would reflect different levels of learning of the Tiberian target.

long vowels *shureq* [u:], *holem* [o:], and *hireq* [i:].²⁶ The compression takes place typically when (i) the final lax vowels *qameš* and *segol* occur in a word that has the stress on the penultimate syllable and is read with a conjunctive accent or when the word has *maqfef* and (ii) the following word has stress on its initial syllable, or at least on a full vowel after an initial *shewa*. When a vowel is in *dehiq*, the consonant at the beginning of the following word has *dagesh*,²⁷ e.g. (citations from BHS),

וְאֶעֱיֶדְהָם 'I shall cause to witness against them' (Deut. 31.28)

עָלִידָהּ פָּרַץ '(you breached) for yourself a breach' (Gen. 38.29)

מִי־אַלֶּה לָּךְ 'who are these to you?' (Gen. 33.5)

בְּמִרְעֵה-טוֹב 'in good pasture' (Ezek. 34.14)

²⁶ Phonetic studies of other languages have shown that, all other things being equal, unstressed lax vowels are shorter than unstressed tense vowels; cf., for example, Delattre and Hohenberg (2009).

²⁷ For further details concerning *dehiq* see Yeivin (1980, 292–93).

According to the Masoretic treatise *Hidāyat al-Qārī*, the final vowel here “is not dwelt upon or prolonged in pronunciation,”²⁸ “it does not have an exhalation of breath, but is very compressed.”²⁹ In an anonymous Masoretic treatise, the syllable containing a vowel in *deḥiq* is described as “shortened” (*makḥṭūf*).³⁰ The vowel can be represented, therefore, as half-long, e.g., וְאָעִידָהּ [vɔʔɔ:ʿi:ðɔʿ bbɔ:ɔm].³¹

The Karaite Arabic transcriptions, most of which indicate long vowels by Arabic *matres lectionis*, represent the final *qameṣ* and *segol* in *deḥiq* constructions, with a *mater lectionis*, e.g.,

ואעידא באַח (BL Or 2551 fol. 41r, 8 | BHS: וְאָעִידָהּ בַּח Ps. 81.9
 ‘I shall testify for you’)

וְשִׁים־עֲלֶיהָ וּסְנִים עֲלֶיהָ (BL Or 2549 fol. 145r, 1 | BHS: וְשִׁים־עֲלֶיהָ
 וּסְנִים עֲלֶיהָ Ezek. 4.2 ‘and set up against it the battering rams’)

וּנְדָמָה־שָׁם (BL Or 2549 fol. 64r, 1 | L BHS: וּנְדָמָה־שָׁם Jer.
 8.14 ‘and let us be silent there’)

²⁸ לא יתאנא ולא יטול פי אלנטק בדלך אלמלך, Long version, edition in Khan (2020, 2:§II.L.1.7.4).

²⁹ לים פיה תנפס בל הו מציק גדא, Long version, edition in Khan (2020, 2:§II.L.1.7.4.).

³⁰ Bod. Heb. d 33, fol. 16: כאן אלחרף אלדי תחתה אלחלתה נקט מכטוף ‘the letter under which the *segol* occurs is shortened’.

³¹ See Khan (2020, 443–53) for more details.

These show that in the Tiberian reading tradition, which is what most of the transcriptions reflect, the final vowel was not fully reduced to a short vowel. This is likely to have been an orthoepic measure to prevent complete shortening.

The Babylonian tradition exhibits a lesser tendency than the Tiberian tradition for such an orthoepic measure. In many manuscripts with compound Babylonian vocalisation, the vowel at the end of the first word in a *deḥiq* construction is marked with a *ḥitfa* sign, which indicates that it was pronounced as a short vowel (Yeivin 1985, 338), e.g.,³²

לִּי הִשְׁבַּעְתָּ לִּי [hiʃʃvʔvʔ lli:] ‘swear to me’ (Gen. 21.23 | BHS:
(הִשְׁבַּעְתָּ לִּי)

בְּהָאֶרֶץ אֲשֶׁר אָנֹכִי בָא לְהִשְׁבּוֹעַ [gaʔrtʰʰ bbʔ:] ‘[the land] where you have sojourned’
(Gen. 21.23 | BHS: בְּהָאֶרֶץ אֲשֶׁר אָנֹכִי בָא לְהִשְׁבּוֹעַ)

Due to imperfect learning of the Tiberian tradition, the orthoepic measure of sustaining the duration of the word-final vowels *qameṣ* and *segol* in *deḥiq* was sometimes extended hypercorrectly to historically short *qameṣ* and *segol*. This is reflected in the Karaite transcription BL Or 2539 MS B (= fols. 115–32), which represents historically short *qameṣ* and *segol* in unstressed closed syllables with *mater lectionis* *ʿalif*. The fact that other historically short vowel qualities in these conditions are not represented by *matres lectionis* suggests that this phenomenon is related to the orthoepic lengthening of *qameṣ* and *segol* in *deḥiq*, e.g.,

³² Data supplied by Shai Heijmans.

قاذشي (BL Or 2539 MS B, fol. 125r, 15 | BHS: קָדְשֵׁי Num.

18.8 ‘the holy gifts of’)

לماشחא (BL Or 2539 MS B, fol. 125r, 16 | BHS: לְמִשְׁחָה Num.

18.8 ‘a priestly portion’)

לحاق (BL Or 2539 MS B, fol. 125r, 16 | BHS: לְחַקֵּה Num.

18.8 ‘as a due’)

עאغلوت (BL Or 2539 MS B, fol. 115v, 6 | BHS: עֲגֻלוֹת Num.

7.3 ‘covered wagons’)

This manuscript reflects the hypercorrect lengthening also of *ḥatef qameṣ*, e.g.,

אהאליהם (BL Or 2539 MS B, fol. 122v, 13 | BHS: אֶהָלֵיהֶם Num.

16.27 ‘their tents’)

4.0. CONCLUDING REMARKS

The various phenomena described in this paper arose when the Tiberian pronunciation was still a living tradition. It was familiar to the scribes of the manuscripts, even if imperfectly, and it was regarded as a prestigious target. In the later Middle Ages, after the Tiberian pronunciation had fallen into oblivion, the prestige and authority of the oral Tiberian reading shifted to the written sign system (Khan 2020, 105–15). The Tiberian vocalisation of manuscripts was then largely disconnected from the pronuncia-

tion of readers. Since there was no longer any attempt at achieving a pronunciation that differed from the local traditions, the Hebrew Bibles came to be read with the pronunciation of these local traditions.

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ON SOME VARIANTS IN ASHKENAZIC BIBLICAL MANUSCRIPTS FROM THE TWELFTH AND THIRTEENTH CENTURIES

*Élodie Attia**

À Philippe Cassuto, trop tôt disparu.

1.0. COMPARATIVE STUDY BETWEEN ORIENTAL, SEPHARDIC AND ASHKENAZIC MANUSCRIPTS

In 1977, Frederico Pérez Castro published a detailed article entitled “Códices bíblicos hebreos. Evaluación comparativa de varios manuscritos toledanos, askenazíes y orientales,” which focused on variants in medieval biblical manuscripts. The article aimed to “determine in a systematic way the quality of Sephardic manuscripts produced in the scriptoria of Toledo” (Pérez Castro 1977,

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107). It sought to determine how close the late medieval Sephardic tradition was to the so-called ‘Ben Asher tradition’ or ‘Tiberian Masoretic tradition’.¹

Pérez Castro’s study compared Sephardic manuscripts with early Tiberian manuscripts following the Ben Asher tradition and Ashkenazic manuscripts in order to identify differences between them. For that purpose, seven manuscripts were collated. First of all, a group of oriental Ben Asher (standard Tiberian Masoretic tradition) manuscripts, including:

- a) the Leningrad Codex (MS St. Petersburg, National Library of Russia, I Firkovitch Evr. I B 19a, henceforth L) as the central comparative source,² dated 1008/1009, the most complete early Masoretic manuscript of the Hebrew Bible;³
- b) the manuscript London, British Library, Or. 4445 (henceforth O), a Pentateuch the dating of which is still debated—the script has been attributed to ninth–tenth-century Persia;⁴ some scholars agree with C. D. Ginsburg that the consonantal text could predate the tenth century, while its Masorah could have been made at the time of Aharon ben

¹ See Dotan (1977); Golinets (2012, 589); Khan (2013).

² On the manuscript, see Beit-Arié, Sirat, and Glatzer (1997, 114–31). Some editions, such as the Hebrew University Bible Project, take the Aleppo Codex as referent for the Standard Tiberian tradition. On the HUBP see Segal (2013) and on editions of the Hebrew Bible, see Lange and Tov (2016, 113, n. 4).

³ Beit-Arié, Sirat and Glatzer (1997, i).

⁴ Dotan (1993).

Asher (who is mentioned as still living in some Masoretic annotations);

- c) the Cairo Codex of the Prophets, dated to 894/895 (henceforth C).⁵

As far as the non-oriental manuscripts analysed are concerned, the Sephardic manuscripts included in the case study are:

- d) the M1 Complutensian of Madrid, with the estimated date 1280, from the Toledo school,⁶ the basis of the Complutensian Bible of 1520;⁷
- e) the JTS 44a Hilleli Codex (a Spanish codex supposed to have been copied from a lost codex of the seventh century called Codex Hilleli), dated 1241.⁸

The Ashkenazic area is represented by:

- f) MSS Paris, BnF, hébreu 1–3, dated 1289–end of the thirteenth century, Germano-Ashkenazic script;⁹ and
- g) G-I-1 from the Escorial, dated 1306, probably not copied in Chersin, according to Pérez Castro, but in Flavignac, which is geographically near the present day *lieu-dit* Les Cars, in

⁵ Beit-Arié, Sirat, and Glatzer (1997, MS 1, 25–39).

⁶ See Del Barco (2003, MS 1). Its origin from Castilla may be doubtful according to Javier del Barco (private correspondence, 15 January 2014).

⁷ Fernández Tejero (1976).

⁸ Ortega Monasterio and Fernández Tejero (2005).

⁹ Del Barco (2011, 20–27).

Western France. This is corroborated by the Franco-Ashkenazic type of square script used by the scribe.¹⁰

Although the reasons for Pérez Castro's choice of Oriental and Sephardic manuscripts are clear (famous standard Tiberian codices or codices used for sixteenth-century editions), in the case of the Ashkenazic sources chosen there are regrettably no easy explanations: dating from the end of the thirteenth century and the beginning of the fourteenth century, the two items were not the earliest, but may have simply been available for research as microfilms.

¹⁰ An alphabetical Masorah written in fols. 380v–387r gives the Colophon of the MS Escorial G-I-1 and mentions the name of place. The Sfordata Database (Description Key OS014) mentions “פלאוינק היושבת <ת> קיארצין [Flavignac?]” Flavignac is indeed located near Limoges in Haute-Vienne (Aquitaine, France). In support of this interpretation, the parish of Flavignac includes a smaller *lieu-dit* called ‘Les Cars’ three km from the village of Flavignac. I personally read במדינת קיארצין as ‘in Carsins’ village’ (i.e., the inhabitants of the place nowadays called ‘Les Cars’, a name in a plural form that justifies the plural in Hebrew). Javier del Barco, in his catalogue (Del Barco del Barco 2003, 140), suggests a reading which fails to persuade us (בילאוינק קיארצין). Pérez Castro (1975, 109) suggested “escrito en Pilawoinaq, de la provincia de Chersin,” which would lead us to think of a Ukrainian region (Cherson) proposed by our colleague Viktor Golinets. But the French type of script visible from the samples available in Sfordata does not confirm Pérez Castro's hypothesis. A verification will be made and the result set up in an on-line description of this manuscripts on the MBH Project Database, see <https://www.mbhproject.org/>.

Pérez Castro's article gathered 826 lemmas by comparing ten verses from each biblical book in L with the other manuscripts. The results of this investigation showed, in the case of the Sephardic items, "a greater closeness to the Ben Asher tradition, [whilst] the Ashkenazic manuscripts *are far removed* ('se alejan muchissimo') from the Ben Asher model (here represented by L, O and C)" (Pérez Castro 1977, 160).

The conclusion of the article leads to the idea that Sephardic manuscripts are very close to the Ben Asher standard tradition, a point commonly shared nowadays, as it was already claimed in the thirteenth century by some Ashkenazic grammarians, such as Yequti'el ha-Naqdan in his *En ha-Qore*.¹¹ Although the method employed in the article (comparing variants) is beyond reproach, the question of the treatment of the Ashkenazic manuscripts must be reassessed by taking into account the following facts:

- a) Tiberian codices already vary among themselves—the best example is that, according to Pérez Castro's data, the Cairo Codex of the Prophets itself varies to almost the same extent as G-I-1 (one of the two selected Ashkenazic manuscripts) when both sets are compared to L (Pérez Castro, 1977, 159).
- b) The unexplained choice of Ashkenazic manuscripts implies (without explicitly saying so) that MSS Paris 1–3 reflect the

¹¹ See Yarkoni's (1965) PhD dissertation and Yarkoni (1993). I thank Samuel Blapp for having brought these references to my attention.

Palestino-Tiberian vocalization system or the so-called ‘extended Tiberian’ vocalization system.¹² This system, described by Dotan as a nonconventional Tiberian system, requires further study, as it seems to exist in many variations across Ashkenazic Bible manuscripts. MSS Paris 1–3 and G-I-I should not be taken as standard models for this cultural area and for general conclusions, but only as samples for preliminary conclusions.¹³

- c) Other systematically analysed Ashkenazic manuscripts may lead to a reappraisal according to which non-Sephardic manuscripts are seen not just as philologically deviant from the standard tradition or as products of ignorance, as claimed by certain grammarians,¹⁴ but rather as being what they are: historical artefacts that reflect a different chain of post-Masoretic transmission of the Hebrew biblical text in Europe. Historically, these manuscripts have been used by Jews in European communities, copied with care from the exemplars on hand.¹⁵

¹² Golinets (2012, 596); for the background see Khan (2017).

¹³ As there were no systematic studies of the Ashkenazic Bibles, Pérez Castro, of course, had no choice but to take samples. The ANR MBH project (2016–2020) will provide new data on this corpus of Ashkenazic biblical manuscripts.

¹⁴ Yequṭiʿel ha-Naqdan refers to this according to Yarkoni (1965, II:x).

¹⁵ See, for instance, fol. 256r in MS Vat. Ebr. 14 (on which, see below), where Elijah ha-Naqdan mentions the reading found *במסורת ישן נושן מוגה* ‘in an old *masoret*, old corrected exemplar (?)’; cf. Attia (2015, 109–111, 125).

2.0. COMPARING TIBERIAN STANDARD MANUSCRIPTS WITH ASHKENAZIC MANUSCRIPTS

Between 2011 and 2014, within the framework of a project at Heidelberg University,¹⁶ I prepared an edition of micrographic Masoretic notes appearing in MS Vatican, Biblioteca Apostolica Vaticana, Vat. Ebr. 14.¹⁷ This manuscript is a Norman-Ashkenazic Bible that contains only the Pentateuch, the Five *Megillot* and the *Haftarot* (extracts of the Prophets). This codex was produced in Normandy in 1239 by a scribe named Elijah ha-Naqdan.¹⁸ I will not discuss here the point of editing figurative Masorah—an enterprise considered non-philological *per se* by many scholars—but rather focus on a new question: *How do the earliest Ashkenazic manuscripts correspond to the Tiberian Masoretic text?*

The present analysis is not structured in exactly the same way as that of Pérez Castro, but some parallels can be drawn. The basis of this new analysis is the Ashkenazic Bible MS Vat. Ebr. 14 mentioned above. This manuscript preserves 63 folios of figurative Masorah, namely, drawings and figures made up of text (see illustration below). In this case study I have chosen to focus on thirteen folios from Exodus. In each folio (which do not always

¹⁶ SFB 933 Materialien Text-Kulturen, Subproject B4, with Prof. H. Liss (HFJS), Kay Petzold, Sebastian Seeman.

¹⁷ See Attia (2015).

¹⁸ See Attia (2015, Appendix 2, Codicological and Palaeographical Description of MS Vat. Ebr. 14, 119–30) and also in the MBH Database.

present continuous text), the lemmas of words that are the subject of a *masora parva* (MP) or a *masora magna* (MM) are edited. For each lemma, MP variants and MM variants are recorded.

The lemmas of MS Vat. Ebr. 14 have been compared with those of seven other manuscripts divided into two groups: a group of four standard Tiberian manuscripts and a group of three of the earliest Ashkenazic manuscripts. The standard Tiberian group of Hebrew biblical manuscripts include here:

- (i) The so called ‘Leningrad Codex’, i.e., the MS Saint Petersburg, National Library of Russia, I Firkovitch, B19a (henceforth L).
- (ii) The MS London, British Library, Or. 4445 (henceforth O)
- (iii) The so called ‘M1’, i.e. the MS Madrid, Complutense University Library 118-Z-42 [M1], (henceforth M), a thirteenth-century Sefardic Bible.
- (iv) The so called ‘Damascus Pentateuch’, i.e., the MS Jerusalem, National Library of Israel, 24°5702, (henceforth D). This is a Pentateuch dated to the tenth century, with some notes vocalized and accented according to the Babylonian system.

The ‘Aleppo Codex’ has not been chosen, because it does not include Exodus.¹⁹

The corpus of Ashkenazic manuscripts is composed of some of the earliest dated Ashkenazic Bibles (unlike the corpus of Pérez Castro), namely:

¹⁹ <http://www.aleppocodex.org/newsite/index.html>

- (i) MS London, Valmadonna Trust 1 (henceforth V). This is the earliest dated Ashkenazic Bible, 1189, only 180 years older than L.
- (ii) MS Berlin, Statsbibliothek zu Berlin, Or. Qu. 9, 1233 (henceforth B). This was written by Elijah ha-Naqdan in a very small format, with Masoretic notes in a MM presented in an abbreviated manner. It appears to be a miniaturization of Vat. Ebr. 14.²⁰
- (iii) MS Vatican, Biblioteca Apostolica Vaticana, Vat. Ebr. 482 (henceforth R). This is one of the famous ‘La Rochelle Bibles’, copied in La Rochelle on the Atlantic coast, probably in 1216. The Prophets and the Hagiographs were copied by the same scribe who wrote the MS Vatican, Vat. Ebr. 468 (La Rochelle, 1215). It is a complete Bible, with Targum in the margins of the Pentateuch.²¹

Due to the large number of variations in the use of *rafe* between the manuscripts considered here, as well as some practical and technical editorial problems, it has been decided to mark *rafe* in the lemma when it appears in the lemma, but not to record variant uses of the *rafe*.

²⁰ See Attia (2015, Appendix 3, Codicological and Palaeographical Description of MS Berlin Or. Qu. 9, 131–37).

²¹ A new paleographical analysis of Vat. Ebr. 482 is in preparation, based on the software *Graphoskop*, examining the possibility that this manuscript is the product of two different scribes.

Following this procedure, in the thirteen folios studied in my monograph *The Masorah of Elijah ha Naqdan* (2015), 162 lemmas were found having a MP and/or MM. These present seventy variants. In the table below, I have applied the classification devised by Pérez Castro to my own list of variants.

Folio in Attia (2015)	No. of lemmas with MP and/or MM	Variants in lemma, MP, and/or MM	Variants in consonantal form, <i>plene</i> vs. defective spellings, <i>ketiv-qere</i>
1	14	8	1
2	17	10	1
3	7	2	0
4	12	6	3
5	14	8	2
6	17	4	1
7	11	6	0
8	5	2	0
9	13	5	0
10	17	5	0
11	17	6	0
12	10	6	0
13	8	2	0
TOTAL	162	70	8

Based on this procedure, the distribution of variants is similar to the one in Pérez Castro's study (see table below). These include:

- (i) a few variants in terms of consonantal form, *plene* versus defective spelling, and *ketiv-qere*;

- (ii) some vowel interchanges, including, as in Pérez Castro's study, the replacement of *shureq* with *qibbuṣ* and *pataḥ* with *qameṣ*;
- (iii) many variants concerning accents;
- (iv) variations in the marking of *ga'ya*.

Folio in Attia (2015)	Variants in vocalisation	Variants in accents, <i>dagesh, rafe</i>	Variants in <i>ga'ya</i>
1	2	4	2
2	2	6	2
3	0	2	0
4	2	3	0
5	2	3	1
6	0	3	0
7	0	4	2
8	1	0	2
9	0	3	2
10	0	5	0
11	1	4	1
12	1	4	1
13	2	0	0
TOTAL (67*)	13	41	13

* Three variants cannot be classified according to these categories.

3.0. SELECT EXAMPLES

Key to table

- | Separator between variants
 = This case in Vat14 is the same in X
 ~ This case in Vat14 appears as variant in X

- < This case in Vat14 is not found in X
 // ‘corresponding to’

3.1. Variants in Consonantal Form, *Plene* versus Defective Spelling, and *Ketiv-Qere*

	MS Vat. Ebr. 14	Apparatus reproduced from Attia (2015)
1	<p>וַיִּשָׂם Gen. 50.26</p> <p>Different spelling and a <i>ketiv-qere</i> MP וַיִּשָׂם ק shared only by Vat14, V and B,²² matching Tiberian codices וַיִּשָׂם.</p>	<p>וַיִּשָׂם] = V (but without <i>dagesh</i>) B ~ O D L R M וַיִּשָׂם MP וַיִּשָׂם] = V B ~ L וַמֵּל D M R ל < O</p>
2	<p>עֲלֵהֶם Exod. 5.14</p> <p>Defective spelling only in Vat14; <i>plene</i> spelling in Ashk. mss V and B but B does not have a disjunctive accent.</p>	<p>עֲלֵהֶם] = O D L M R ~ V B (without <i>zaqef qatan</i>) עֲלֵהֶם</p>
3	<p>וְעַל־הַמִּשְׁקָן Exod. 12.7</p> <p>Defective spelling in B (unique)</p>	<p>וְעַל־הַמִּשְׁקָן] = O D L V R ~ B וְעַל־הַמִּשְׁקָן</p>

²² Additional research on this form in other manuscripts shows that in the MS St John’s College, Cambridge, MS A1, the reading in this precise passage follows Vat14, B and V.

4	<p>הַשְּׁבִיעִי Exod. 12.15</p> <p><i>Plene</i> spelling in B (unique)</p>	<p>הַשְּׁבִיעִי] = O D L R V (with graphic sign in the waw) ~ B</p> <p>הַשְּׁבִיעִי</p>
5	<p>בְּיָוִם הָרִאשׁוֹן Exod. 12.16</p> <p>Specific accents in Vat14; V displays a defective spelling.</p>	<p>בְּיָוִם הָרִאשׁוֹן] ~ O D L R B וּבְיָוִם הָרִאשׁוֹן ~ V וּבְיָוִם הָרִאשׁוֹן</p>
6	<p>הוֹצִיאָהּ Exod. 13.09</p> <p><i>Plene</i> spelling unique to Vat14, not relevant to Ashk. MSS.</p>	<p>הוֹצִיאָהּ] ~ B הוֹצִיאָהּ O D L V R הוֹצִיאָהּ</p>
7	<p>וּבְיָוִם Exod. 13.11</p> <p>Different spelling and a <i>ketiv-qere</i>, with <i>waw</i> instead of <i>yod</i> (both lemma and Masoretic notes shared by V/B).</p>	<p>וּבְיָוִם] = V B ~ O D L R וּבְיָוִם</p>
8	<p>וּתְחַלְלֶיהָ Exod. 20.25</p> <p><i>Plene</i> spelling with <i>yod</i> with <i>dagesh</i> in Vat14/B. The MP of this lemma in Vat14 notes ל' וחס' (a <i>casus lêt</i> and defective spelling), and this Masoretic note follows the Tiberian codices.</p>	<p>וּתְחַלְלֶיהָ] = B ~ O D L V R וּתְחַלְלֶיהָ</p>

3.2. Vowels

3.2.1. *Shureq/qibbuš* Interchange

9	<p>חֲגָרִים Exod. 12.11</p> <p>In B <i>qibbuš</i> (short) replaced by a <i>shureq</i> (long).</p>	<p>חֲגָרִים] = V ~ O D L R חֲגָרִים ~ B חֲגָרִים</p>
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10	<p>עמוֹדֵיהֶם Exod. 38.12</p> <p>In B, from the same scribe, <i>qibbus</i> in B against <i>shureq</i> in Vat14.</p>	<p>עמוֹדֵיהֶם] = O L M D ~ V</p> <p>עמוֹדֵיהֶם ~ B עמֵדֵיהֶם</p>
11	<p>וְשִׁבּוֹ Exod. 32.27</p> <p><i>Qibbus</i> only in Vat14, otherwise <i>shuruq</i></p>	<p>וְשִׁבּוֹ] ~ O D L M V R B</p> <p>וְשׁוּבוֹ</p>

3.2.2. *Pataḥ/qameṣ* Interchange

12	<p>לָמָּה תַעֲשֶׂה Exod. 5.15</p> <p>In V <i>pataḥ</i> is omitted in error.</p>	<p>לָמָּה תַעֲשֶׂה] =</p> <p>O D L M R B</p> <p>< V לָמָּה</p> <p>תַעֲשֶׂה-</p>
13	<p>נִתְּן Exod. 5.16</p> <p><i>Qameṣ</i> in a closed accented syllable; in B <i>pataḥ</i> instead of <i>qameṣ</i></p>	<p>¹נִתְּן] = O D L</p> <p>M V R ~ B נִתְּן</p>
14	<p>נִחַם Exod. 13.17</p> <p>Distinctive feature of B (<i>pataḥ</i> instead of <i>qameṣ</i>), <i>munaḥ</i> replaced by <i>merkha</i>.</p>	<p>נִחַם] = O D L</p> <p>V R ~ B נִחַם</p>
15	<p>עֲנִן Exod. 40.38</p> <p><i>Pataḥ</i> in the lemma (this form is indicated in an additional MP note in Vat14 as one of four exceptions in the Pentateuch); replaced in B by <i>qameṣ</i> without an accent sign.</p>	<p>עֲנִן] = O D L</p> <p>M V R ~ B עֲנִן</p>

19	קָרָנוּ Lev. 1.2 <i>Qameš qatan</i> instead of <i>ḥaṭef qameš</i> (both are short <i>qameš</i> vowels), followed only by V. The <i>masorah</i> in V alone refers to <i>qameš qatan</i> .	[קָרָנוּ] = V ~ O D L M R B קָרָנוּ
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3.3. Accents and Diacritical Signs

In this category B is the manuscript that generally exhibits differences.

3.3.1. Erroneously Omitted or Differently-placed *Dagesh*

20	בְּרָבִי Gen. 50.23 Absence of <i>dagesh</i> in B.	[בְּרָבִי] = O D L M V R ~ B בְּרָבִי
21	וְתַמְלָא Exod. 1.7 <i>Dagesh</i> different in B (in the <i>la-med</i>) (mistake?).	[וְתַמְלָא] = O D L M V R ~ B וְתַמְלָא
22	בְּלוֹ Exod. 5.13 <i>Dagesh</i> omitted in B (same scribe).	[בְּלוֹ] = O D L M V R ~ B בְּלוֹ
23	יִנְחֵם Exod. 13.17 Absence of <i>dagesh</i> in B.	[יִנְחֵם] O D L V ~ B יִנְחֵם
24	קְטַרְתַּ סְּמִים Exod. 30.7 Absence of <i>dagesh</i> in B.	[קְטַרְתַּ סְּמִים] = O L D M V ~ B קְטַרְתַּ סְּמִים

3.3.2. Isolated Variants in the Accents

25	וְאֶל־הַזְּקִנִּים Exod. 24.14 Accent changed in B.	[וְאֶל־הַזְּקִנִּים] = O D L M V ~ B וְאֶל־ הַזְּקִנִּים
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26	וַיִּשְׁכֵּן Exod. 24.16 Accent changed in B.	וַיִּשְׁכֵּן ~ O D L M B [V?]
27	וּמְרֵאָה Exod. 24.17 Absence of accent in B.	וּמְרֵאָה = O D L M V ~ B
28	וַיִּקְחוּ Exod. 25.2 Accent changed in B.	וַיִּקְחוּ = O D L M [[V]] ~ B

3.3.3. Word-final *Shewa*

Valmadonna 1 includes the isolated feature of *shewa* on word-final *yod* and *waw*.

29	וּבְאֶתְיוּ Exod. 32.29 V with <i>shewa</i> on final <i>waw</i> .	וּבְאֶתְיוּ = O D L M R B ~ V
30	וְאֶת־קִרְשֵׁיו Exod. 35.11 V with <i>shewa</i> on final <i>waw</i> .	וְאֶת־קִרְשֵׁיו = O D L M R B ~ V וְאֶת־קִרְשֵׁיו
31	בְּרִיחֹוּ Exod. 35.11 V with <i>shewa</i> on final <i>waw</i> .	בְּרִיחֹוּ = O D L M R ~ V ~ B בְּרִיחֹוּ
32	וְאֶת־בְּדִיּוֹ Exod. 35.12 V with <i>shewa</i> on final <i>waw</i> .	וְאֶת־בְּדִיּוֹ = O D L M R B ~ V

3.3.4. Variants Shared by Ashkenazic Manuscripts

Four variants are shared by at least two manuscripts of the Ashkenazic Group Vat14/B/V (R generally follows L, O and D).

33	וְכַבֵּהּ Exod. 12.11 Accent variants (<i>darga</i>) only in Vat14 and V.	וְכַבֵּהּ] = V O D L B R
34	וְהָרִים Exod. 12.11 <i>Revia</i> in Ashkenazic MSS corresponds to <i>zaqef qatan</i> in Tiberian MSS and B.	וְהָרִים] = V ~ O D L R וְהָרִים ~ B
35	לְמוֹעֲדָהּ Exod. 13.10 Ashkenazic MSS have <i>mappiq</i> below the <i>he</i> and not inside.	[לְמוֹעֲדָהּ] = V B ~ O? D L R לְמוֹעֲדָהּ
36	שְׂאֵרֶה כְּסוּתָהּ וְעִנְתָּהּ Exod. 21.10 The <i>mappiqs</i> are placed belows the letter <i>he</i> in Vat14, V, and B	שְׂאֵרֶה כְּסוּתָהּ וְעִנְתָּהּ] = O L ~ D וְעִנְתָּהּ ~ V B שְׂאֵרֶה כְּסוּתָהּ וְעִנְתָּהּ

3.3.5. *Ga'ya*

Many variants involve the absence of *ga'ya* in B.

37	נִתְחַכְמָהּ Exod. 1.10 <i>Ga'ya</i> is absent in B; this example is also in Pérez Castro's study. Paris 1-3 does not have <i>ga'ya</i> here.	נִתְחַכְמָהּ] = O D L M V R ~ B נִתְחַכְמָהּ
38	צִעֲקִים Exod. 5.8 Absence of <i>ga'ya</i> ; present only in D, L, and V.	צִעֲקִים] = O L M R B ~ D L V

4.0. CONCLUDING REMARKS

These new data show that when Tiberian sources, such as the Damascus Pentateuch and earlier Ashkenazic Bible manuscripts,

are added to the comparative corpus, the question of the relationship of the Ashkenazic manuscripts to the Ben Asher tradition becomes more complicated than previously believed by scholars. The Tiberian Ben Asher vocalisation tradition cannot be reduced to L. Irregularity in the variants shows that more than one model was followed and that even among the oriental Tiberian codices variants already existed. For instance, with regard to *ga'ya*, the *ga'ya* is absent from O, but present in V. Hence, it may be concluded that the principles of the Tiberian Masoretic tradition were followed with varying degrees of faithfulness, as can only be expected in a manuscript culture.

The adjustments or disagreements between the Masoretic notes and the consonantal text remind us that a post-Masoretic medieval biblical manuscript is the result of a complex process involving sources and different people. The *sofer* was responsible for the consonants and may have used a different exemplar from that used by the *naqdan* or the *masran*. This is the case in Valmadonna 1, where many Masoretic annotations contradict the consonantal text.²⁴ Moreover, some grammatical explanations offered by the grammarian Yequti'el ha-Naqdan in his *En ha-Qore* correspond to the variants I have described.²⁵ It is highly likely, however, that, despite Yequti'el ha-Naqdan's opinion, the Ashke-

²⁴ See also Beit-Arié, Sirat, and Glatzer (2006, 82–87, especially 83).

²⁵ The second part of the work (a grammatical treatise) propounds rules for word-stress, *methigot* (i.e., *ga'yas*), *maqqufs*, and warnings against errors in the reading of a *Sefer Torah* (Yarkoni 1965, II:i-ii). Further research is required.

nazic Bibles remain fundamentally Tiberian and should be considered a medieval development of that tradition. This forces us to abandon the idea of a monolithic ‘standard’ Tiberian tradition (or a family of manuscripts made up of L, O, and D) opposing a ‘non-standard’ or ‘non-conventional’ one. We should rather conceive of post-medieval Tiberian texts, including some groups of variants inspired by local pronunciations, customs, and scribal practices.

In addition, the study of the variants shows both specificities of each manuscript as well as families of manuscripts or scribal traditions. For instance, compared to Vat. Ebr. 14, La Rochelle shares fewer variants with Ashkenazic manuscripts (for instance, in the case of $\overset{\circ}{\text{פ}}\text{ט}\text{א}\text{ל}$, it does not correspond to the group). It is possible that this manuscript was copied from a Spanish exemplar in La Rochelle and not from an Ashkenazic one.²⁶ Also, MS B is an odd case. This is a manuscript that appears to have been produced by the same scribe as wrote MS Vat. Ebr. 14. The codicological and palaeographical features reflect the same hand. MS B, however, follows different rules of vocalization from what are found in MS Vat. Ebr. 14, viz. the interchanges *qameṣ/pataḥ* and *shureq/qibbuṣ*; omission of *dagesh*; *ga‘ya* generally different from MS Vat. Ebr. 14. Why is this? The local pronunciation of Hebrew may have influenced early medieval Ashkenazic Bibles

²⁶ This manuscript seems to have been transported to Spain after 1294 (when the Jews were expelled from the town). See Richler and Beit-Arié (2008, 406–7).

and prayer books.²⁷ It is possible that MS B was copied from a different exemplar. Moreover, its very small format suggests that it may have been intended for use as a prayer book.

One interesting hypothesis, supported by case 18 (תִּשְׁבֹּעַ Exod. 35.9), is that manuscripts that exhibit the strongest Anglo-Norman variants, i.e., cases where MSS Vat. Ebr. 14, V, and B share similar variants, furnish evidence for the existence of a uniform scribal tradition as a subgroup within the Ashkenazic area. A group of Anglo-Norman variants emerged from this corpus, specifically in cases 1, 2, 4, 7, 17, 18, 19, 33, 35 and 36. In my opinion, this group could constitute a basis for further study on Ashkenazic Bibles from England or Northern France.

The *Manuscripta Bibliae Hebraicae* Project (MBH Project) seeks to study Ashkenazic biblical manuscripts in depth, linking textual features, such as the specific variants noted in the above group of Ashkenazic manuscripts, to extensive material features, such as codicological and palaeographical parameters. This should help us locate and reconstruct families of manuscripts and scribal traditions within western medieval Europe, as well as construct a new typology of medieval Hebrew biblical manuscripts in this geocultural area.

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²⁷ See Eldar (1978, 16) on *qameš/pataḥ* interchanges; Olszowy-Schlanger (2003, 129).

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THE PROSODIC MODELS OF ANDALUSI HEBREW METRICS*

José Martínez Delgado

1.0. INTRODUCTION

Throughout the long history of Hebrew poetry of Andalusí origin, the methodological foci and analytical proposals found in manuals have changed and evolved, always adapting to the new realities of who was producing and consuming these types of compositions. Today, it is understood that Andalusí Hebrew metrics is based on a set succession and combination of long and short syllables, with the different sequences producing different metres.¹ It is also widely accepted that metrical adaptation was carried

* This study was carried out under the auspices of ERDF/Ministry of Science, Innovation and Universities–State Research Agency, Project: The Judeo-Arabic Legacy of al-Andalus: The Linguistic Heritage PGC2018-094407-B-I00. In this paper I will use the following abbreviations in a conventional way: C for consonant; V for vowel; S for *sabab kafif*; L for *sabab taqil*; W for *watid majmūʿ*; V for *watid mafrūq*; LS for *fāšila šuġrā*; LW for *fāšila kubrā*; T for *tenuʿa*; Y for *yated*; – for long vowel; and ˘ for short vowel.

¹ This, for instance, was the approach used in the classic work by Schirrmann (1995, 119–22, especially n. 105).

out by Dunash ben Labraṭ in tenth-century Cordoba.² However, arguments continue even today about whether this system is based on an opposition of long and short syllables (traditional quantitative pattern) or open and closed syllables with phonic accents giving the composition its rhythm (accentuated pattern).³

The traditional conception seems to have its origin in the introductions to Hebrew metrics written by Abraham ibn ʿEzra in his *Sefer Ṣaḥot*⁴ and Moshe Qimḥi in *Mahalaḳ shevile ha-daʿat*.⁵ As both authors, Ibn ʿEzra and Qimḥi, were ‘distributors’ of the Andalusí legacy in Europe, it is not surprising that they found a simplified formula to transmit and adapt the complex classical ʿarūd to an Arabic-speaking and Romance-speaking public who had either lost quantitative rhythm or never known it. According to this model, metres originated in the alternation of the medieval metrical units known in Hebrew as *yated* (a sequence correlated with CVCVC) and *tenuʿa* (a sequence correlated with CVC), producing what both men considered the Hebrew metres and, to some extent, this is still used today to scan any verse that employs this metrical system, whether the poet was Arabic-speaking or not. Both authors seem to have echoed the vowel theory of Moshe’s

² Although medieval sources had already attributed this adaptation to Dunash ben Labraṭ, the first modern academic to defend it was Brody (1937) in response to questions from Pinsker, Shamhuni, and Harkabi.

³ For a summary of the different theories on Andalusí metrics in general, see Corriente (1986; 1991; 1998, 90–121 and 31–37).

⁴ Lippmann (1827, x–xi) edition, and Del Valle (1977, 145–58).

⁵ See folios 45–50 of the Venice edition (1546).

metrics, an idea that can be found even today in manuals on classical Arabic metrics written in Europe. Much more interesting is the mixed system to study Andalusí Hebrew metrics devised by David Yellin,⁹ who, after recognizing the Kālilian metrical system in medieval Hebrew metrics, used the *paʿal* paradigm to scan and catalogue the metres.

Thus, up to four different basic prosodic models of Andalusí Hebrew metrics can be identified:

(i) the original or indigenous model used between the tenth and twelfth centuries, faithfully conveyed in an anonymous manual,¹⁰ to a lesser extent in the first texts on metrics and even in later pieces such as Yaʿaqov ben Elʿazar ha-Bavli's thirteenth-century work;¹¹

(ii) the Romance model, devised by Andalusí authors exiled in southern Europe after the arrival of the Almohads;

(iii) the classical or European model, inspired by the methods of classical Greek poetry;

(iv) the mixed or Israeli model codified by David Yellin, a hybrid of all the earlier models and the one used today.

2.0. THE INDIGENOUS MODEL

This is the original model on which the Arabic metrical science (*ʿilm al-ʿarūḍ*) used by medieval poets in arabophone settings was

⁹ Yellin (1939) and Yellin (1940, 44–53).

¹⁰ Edition by Martínez Delgado (2017).

¹¹ Yahalom (2001).

based.¹² The classical Arabic metrical system is composed of sixteen metres, fifteen of which, considered classical, are attributed to Al-Ḳalīl ibn Aḥmad al-Farāhīdī (718–791), with the last (*mutadāarak*) attributed to his disciple ʿAbū al-Ḥasan Saʿīd ibn Masʿada al-Mujāšīʿī (d. 830), known as Akfash al-ʿAwsaṭ.

The units or metrical syllables are formed by joining two or more vocalised letters followed by a quiescent letter.¹³ The union of two letters is called *sabab* ‘rope’ (the type used to tie down a tent), that of three letters in two syllables (CVCVC or CVCV̄) is called *watid* ‘peg’ (the kind used to fix a tent rope), while the sequence of four or more letters (CVCVCVC or CVCVCV̄) is known as *fāšila* ‘fastener’.¹⁴

Two types of *sabab* are recognised:¹⁵

¹² For the description of the metrics in this work, I have followed, firstly, classic medieval treatises like the work by Ibn ʿAbd Rabbihi, *Kitāb al-ʿIqd al-Farīd* (ed. Amin et al. 1948), the annotated edition of *La Khazradjyah* (ed. Basset 1902), the *Kitāb al-ʿArūḍ* by Ibn Jinnī (ed. al-Hayb 1989²), and that by al-Rabaʿī (ed. Badrān 2000) in addition to *al-Kāfi* by al-Tabrīzī (ed. Shamseddīn 2008²) and, secondly, modern classical manuals like those by Álvarez Sanz y Tubau (n.d.); ʿAtīq (1987); Sobh (2011); and Hāšimī (n.d.).

¹³ For the concept of *ḥarf* as letter, as syllable, and as *mora*, and for how it is used to compose feet and metres, see Frolov (2000, 68–93). For its definition in Hebrew, see Jastrow (1897, 4).

¹⁴ The metaphor consists of understanding the verse as a tent (*bayit*) held in place with a *sabab* ‘rope’, which is, in turn, fixed with a *watid* ‘peg’ assisted by a *fāšila* ‘fastener’.

¹⁵ To catalogue the syllables and feet, I will use the Hebrew alphabet and reproduce the original Arabic vocalisation with the Hebrew vowels

1. *Sabab kafif* ‘light rope’ (henceforth abbreviated as S): a succession of two letters, the first vocalised and the second quiescent, i.e., one closed syllable (CVC, represented as פֿ) or its equivalent, the open syllable with a long vowel (C \bar{V} , represented as פֿ), since lengthened letters are considered quiescent consonants. To vocalise the first letter, any of the vowels (א , א , א , א , א , י , and א) can be used. Therefore, for metrical purposes, בא , פֿה , and תפֿ are identical.

2. *Sabab taqil* ‘heavy rope’ (henceforth abbreviated as L): a succession of two vocalised letters, i.e., two short open syllables (CVCV, represented as פֿ). These occur rarely and, in fact, are always followed by a *sabab kafif*, producing the sequence known as *fāšila šuġrā* (see below). To create a *sabab taqil*, a compound *shewa* or a *ḥatef* vowel (א , א , and א) is used and this implies that the vowel that precedes it is also a vocalised letter, for example, the *mem* and the ‘*ayin* in מַעֲשֵׂה , which is equivalent to פֿעֿלֵן (henceforth abbreviated as LS). Licence to use this is reserved only and exclusively for feet that require the presence of this metrical syllable. The sequence seems to have been established on the basis of sequences involving a vowel and a following *ḥatef* as in וְאֵי and בְּאֵשׁ , in which the vowel before the *ḥatef* was parsed as short. There is no consensus among grammarians, however, about the existence of the *saba taqil*, since it depends on whether the mobile *shewa* and *ḥatefim* were considered vowels. According

qibbuṣ (*ḍamma*), *pataḥ* (*fatha*) and *hireq* (*kasra*). Bear in mind that in a case like פֿעֿלֵן , *shureq* can never be used with the *waw*, since for metrical purposes in this foot, it is a quiescent letter like final *nun*, meaning that it cannot receive any vowels.

to Ḥayyūj, the sequence is impossible.¹⁶ Ibn Janāḥ¹⁷ and Yosef Qimḥi,¹⁸ however, accept it. According to the anonymous manual,¹⁹ it is not possible in Hebrew in isolation, although in practice it is used.²⁰

Two types of *watid* are also recognised:

1. *Watid majmūʿ* ‘joined peg’ (henceforth abbreviated as w): a succession of three letters, where the first and second are vocalised and the third is quiescent, i.e., a CVCVC sequence (represented as פִּעֵל or CVCV̄ (represented as פִּעֻ). Examples of this type are כָּבֵר, בָּנָה, and וּפָה. As in the case of the *sabab k̄afif*, an open syllable with a long vowel is considered to contain a final quiescent letter.

2. *Watid mafrūq* ‘separated peg’ (henceforth abbreviated as v): a succession of three letters, where the first is vocalised, the second quiescent, and the third vocalised, i.e., CVCCV (represented as פִּעֵל or פִּאֵע). This only appears in two circumstances and there is no consensus among the grammarians concerning it. The first case is apocopated imperatives and imperfects of verbs whose first radical is *yod*, in either *binyan qal*, such as יָבֵן, or *hifʿil*, such as הִשָּׁק. However, acclaimed authors such as Ḥayyūj argue

¹⁶ Jastrow (1897, 7).

¹⁷ Derenbourg (1880, 277–90) and Alahmad Alkhakaf and Martínez Delgado (2018, 39–49 and 99–106).

¹⁸ Bacher (1888, 17–18).

¹⁹ Martínez Delgado (2017, 35).

²⁰ Martínez Delgado (2017, 51 and 84).

that this type of sequence is equivalent to CVCC,²¹ while the author of the anonymous manual claims to perceive a *pataḥ* /a/ sound after the last quiescent consonant²² and thus considers this a CVCCV sequence. The other case occurs in segolate nouns whose third radical is weak, such as בְּכָהּ, in which, according to the phonological theory of the period, the accent on the first radical creates a weak letter and the final *heh* does not count for metrical purposes. It would scan, therefore, as בְּאֶךְ, i.e., פְּעֵלְ or CVCCV.

There are also two types of *fāṣila*:

1. *Fāṣila ṣuḡrā* ‘small fastener’ (henceforth abbreviated as LS, i.e., *sabab taqīl* + *sabab kafīf*): a succession of four letters, the first three of which are vocalised and the last quiescent (CVCVCVC, represented as פְּעֵלְ). This commonly occurs where there is a vowel followed by a *ḥaṭef*, as in יַעֲמֹד, or in cases where in the scansion of the verse a *shewa* is read as vocalic after a short vowel, as in בְּדִבֵּר.

2. *Fāṣila kubrā* ‘large fastener’ (henceforth abbreviated as LW, i.e. *sabab taqīl* + *watid majmūʿ*): a succession of five letters, the first four of which are vocalised and the last quiescent (CVCVCVCVC, represented as פְּעֵלְתֵן). The only author who defends its existence is Ibn Janāḥ who argues that it occurs in the

²¹ Jastrow (1897, 7).

²² Martínez Delgado (2017, 52 and 83).

words *לְשַׁחֲתָהּ*, *יִמְשְׁשׁוּ*, and *בְּתִימְרוֹת*, which for metrical purposes would be *לְשַׁחֲתָהּ*, *יִמְשְׁשׁוּ*, and *בְּתִימְרָת*, respectively.²³

The feet result from the succession of two or three of these prosodic units or syllables. The combination of metric syllables produces up to ten feet. Two of them are composed of five letters: *פְּעוּלֵן* WS and *פְּאֵעֵלֵן* SW; and the other eight are composed of seven: *מְפִאֵעֵלֵן* WSS, *מְסַתְפְּעֵלֵן* SSW, *מְפִאֵעֵלֵתֵן* WLS, *מְתִפְּאֵעֵלֵן* LSW, *מְפְּעוּלֵתֵן* SSV, *פְּאֵעֵלֵתֵן* VSS, *מְסַתְפְּעֵלֵן* SVS and *פְּאֵעֵלֵתֵן* SWS.

Once inside the poem, these feet usually undergo a series of modifications that alter their original appearance, which are known as *ziḥāfāt* or *‘ilal*, depending on their position and constancy in the composition. The metres are formed by a succession of feet, sometimes eight (four in each hemistich) and other times six (three in each hemistich). In classical theory, these sequences serve to develop and organise the five metrical circles displayed by Al-Ḳalīl ibn Aḥmad al-Farāhīd in his now lost *Treatise on Metrics*. These five metrical circles are arranged as follows

1. *Muḳtalaḥ*: two asymmetrical feet that are repeated twice per hemistich. It includes the classical metres *ṭawīl* (*פְּעוּלֵן מְפִאֵעֵלֵן*) WS WSS 2x in each hemistich), *madīd* (*פְּאֵעֵלֵתֵן פְּאֵעֵלֵתֵן* SWS SW 2x in each hemistich), and *basīṭ* (*מְסַתְפְּעֵלֵן פְּאֵעֵלֵן* SSW SW 2x in each hemistich).²⁴

²³ Derenbourg (1880, 277–90) and Alahmad Alkhakaf and Martínez Delgado (2018, 39–49 and 99–106).

²⁴ Theory would later include derived or modern *muṣtaṭīl* (*מְפִאֵעֵלֵן פְּעוּלֵן*) WSS WS 2x in each hemistich) and *mumtadd* (*פְּאֵעֵלֵן פְּאֵעֵלֵתֵן*) SW SWS 2x in each hemistich) metres in this circle.

2. *Mu'talaf*: two symmetrical hemistichs that repeat the same foot three times. It includes the classical metres *wāfir* (מפאעלן WLS 3x per hemistich) and *kāmīl* (מתפאעלן LSW 3x per hemistich).²⁵

3. *Muštabah*: two symmetrical hemistichs that repeat the same foot three times. It includes the classical metres *hazaj* (מפאעלן WSS 3x per hemistich), *rajaz* (מסתפּעלן SSW 3x per hemistich), and *ramal* (פּאעלאַתן SWS 3x per hemistich).

4. *Mujtabab*: three feet (two of them always the same) are repeated in each hemistich. It includes the classical metres *sarīʿ* (מסתפּעלן מסתפּעלן מסתפּעלן מפּעולאָן SSW SSW SSV 1x in each hemistich), *mun-sariḥ* (מסתפּעלן מסתפּעלן מסתפּעלן מפּעולאָן SSW SSV SSW 1x in each hemistich), *kafīf* (פּאעלאַתן מסתפּעלן מסתפּעלן פּאעלאַתן SWS SWS SSW 1x in each hemistich), *mudāriʿ* (מפּאעלן מפּאעלן מפּאעלן WSS WSS SWS 1x in each hemistich), *muqtadab* (מסתפּעלן מסתפּעלן מסתפּעלן מפּעולאָן SSV SSW SSW 1x in each hemistich), and *mujtatt* (מסתפּעלן פּאעלאַתן מסתפּעלן SSW SWS SSW 1x in each hemistich).

5. *Muttafaq*: the same foot repeated eight times. It only includes the classical metre *mutaqārib* (פּעולן WS 4x in each hemistich). Some manuals add the *mutadārak* metre when it is included with the *Ḳalīlian* circles (פּאעלן SW 4x in each hemistich) along with its variant (פּעלן SS 4x in each hemistich).

²⁵ The theory would later include the derived metre *mutawaffir* or *mustawfir* (פּאעלאַתן SWL 3x per hemistich) in this circle.

The succession of these feet produces the verse or *bayt*.²⁶ The verse is made up of two hemistichs; the first hemistich is known as the *ṣadr* (in Hebrew *delet*) and the second as *ʿajz* (in Hebrew *soger*). The term for the first two or three feet (depending of the length of the hemistich) is *ḥašw* ‘stuffing’, while the last feet in each hemistich have their own name, *ʿarūd* for the last foot of the first hemistich and *ḍarb* for the last foot of the second hemistich.²⁷

The verse can be complete (*tāmm*), if all its feet are used;²⁸ in the case of *ṭawīl* its complete form is:

ʿajz		ṣadr	
מפאעילן	פעולן מפאעילן פעולן	מפאעילן	פעולן מפאעילן פעולן
ḍarb	ḥašw	ʿarūd	ḥašw

The verse can be partial (*majzūʿ*), if it has suppressed a foot in each hemistich. In *ṭawīl* this would be:

פעולן מפאעילן מפאעילן פעולן מפאעילן מפאעילן

²⁶ Unlike the Romance model, which understood that the verse is produced by the succession and alternation of *yated* and *tenuʿa*; this conception distorts the metrical nature of these compositions.

²⁷ In the medieval Hebrew tradition (Romance or later), there are no known names for these basic components on which part of the rhythm is based, perhaps because they had already lost their original function in a non-arabophone context, as suggested by the words of Moshe Qimḥi. Nevertheless, it is possible that the terms *delet* and *soger* originally referred to these two feet and not to the hemistichs.

²⁸ This form is used in the metres *ṭawīl*, *basīt*, *wāfir*, *kāmīl*, *rajaz*, *ramal*, *sarīʿ*, *munsariḥ*, *khafīf*, and *mutaqārib*.

It can be weak (*manhūk*) if two-thirds of the metre is suppressed.
In *ṭawīl* this would be:

פֵּעוּלֹן מִפֵּאעִילֹן פֵּעוּלֹן מִפֵּאעִילֹן

It can be divided (*mašṭūr*) if a complete hemistich is eliminated
In *ṭawīl* this would be:

פֵּעוּלֹן מִפֵּאעִילֹן פֵּעוּלֹן מִפֵּאעִילֹן

Moreover, if the poet rhymes *‘arūd* and *ḏarb* in both hemistichs at the beginning of the poem, i.e., both feet share the rhyme and foot, this rhythm is called *taṣrī‘*.

Finally, according to this model, Hebrew verse scans in the following way:

- (1) לְבָבִי בְּקֶרְבִי חָם וְעֵינַי מִדְּמָעַת לְמַעַן אֲנִי נִכְסָף לְחַמַּת וּמִפֵּאעַת
My heart burns in my bowels and my eyes spill tears be-
cause I am homesick for Hammot and Mefa‘at (Shemuel
ha-Nagid)²⁹

לְבָאבִי בְּקֶרְבִיחָם וְעֵינַי מִדְּמָמָעַת לְמַאעַן אֲנִינִכְסָף לְחַמַּמַת וּמִפֵּאעַת
פֵּעוּלֹן מִפֵּאעִילֹן פֵּעוּלֹן מִפֵּאעִילֹן פֵּעוּלֹן מִפֵּאעִילֹן

The scansion would be the same as in an Arabic verse such as:³⁰

فَأَمَّا تَمِيمٌ تَمِيمٌ بِنُ مَرٌّ فَالْفَاهُمُ الْقَوْمُ رَوَى نِيَامًا

²⁹ Sáenz-Badillos and Targarona Borrás (1988, 42*).

³⁰ I took the following example from *Kitāb al-‘arūd* by Al-Raba‘ī (Badrān 2000, 61). The same example is used by El‘azar ben Ya‘aqob (Yahalom 2001, 111). This is not the only case where they coincide, which is why it is quite possible that one of the sources of Arabic verse that this Iraqi author had was the treatise by al-Raba‘ī (eleventh century).

As for the tribe of Tamīm, Tamīm ben Mur, the people found them sleeping soundly.

This scans as follows:

فَأَمَّا تَمِيمُنْ تَمِيمِبْ نُمْرُنْ فَأَلْفَا هُمْلَقُو مُرَوَيْ نِيَامَا
 فَعُولُنْ فَعُولُنْ فَعُولُنْ فَعُولُنْ فَعُولُنْ فَعُولُنْ فَعُولُنْ فَعُولُنْ

Additionally, all of these feet can be modified. If the *sabab* in the stuffing (*ḥašw*) feet is affected, the modification is known as *zihāfāt* (these may be isolated), and if both the *sabab* and the *watid* of the *‘arūḍ* and *ḍarb* are affected, it is called *‘ilal* (once applied, it must be maintained throughout the poem). The *zihāf* is always an elision or modification that affects the second letter of the *sabab*. Its use is not necessary and it never alters the metre. Although theoretically it should be avoided, it is reflected quite commonly in poetic lines. It affects only the *sabab* and is found especially in the *ṭawīl*, *basīt*, and *hazaj* metres.

The modification or *zihāf* can be simple:

talm: the first letter of the *watid majmū‘* is eliminated. פֻּעוּלִין
 > פֻּעֵלִין = פֻּעוּלִין.

‘idmār: the vowel of the second letter is eliminated. מִתְּפֻּאֵעִלִין
 > מִסְתְּפֻּעֵלִין = מִתְּפֻּאֵעִלִין.

kabn: the second letter of the foot is eliminated when it is quiescent. פֻּעֵלֵאֲתִין > פֻּעֵלֵאֲתִין.

waqṣ: the second vocalised letter of the foot is eliminated. מִתְּפֻּאֵעִלִין
 > מִתְּפֻּאֵעִלִין.

ṭayy: the fourth letter is eliminated when it is quiescent. מִתְּפֻּעֵלֵאֲתִין
 > מִתְּפֻּעֵלֵאֲתִין.

‘*aṣb*: the fifth letter is made quiescent when it is vocalised.

מפאעלן > מפאעלן = מפאעלן.

qabd: the fifth letter of the foot is eliminated when it is quiescent.

מפאעלן > מפאעלן.

‘*aql*: the fifth vocalised letter is eliminated. מפאעלן >

מפאעלן = מפאעלן.

kaff: the seventh quiescent letter is eliminated. פאעלן >

פאעלן or מפאעלן > מפאעלן.

ḥadf: the last *sabab kafiḥ* of the foot is suppressed. מפאעלן >

פאעלן = מפאעלן.

However, it can also be compound, i.e., two modifications can apply in the same foot. This can only occur in the second, fourth, fifth, and seventh letter.³¹ There are four types:

kabl: *kabn* + *tayy*. מסתפעלן > מתעלן = פעלן.

kazl: *ʿidmār* + *tayy*. מתפעלן > מתפעלן = מפתעלן.

ṣakl: *kaff* + *kabn*. פאעלן > פעלן.

naqs: *kaff* + ‘*aṣb*. מפאעלן > מפאעלן > מפאעלן.

In turn, ‘*ilal* is an alteration that affects both the *sabab* and the *watid* of ‘*arūd* and *ḍarb* and once applied, it must be maintained throughout the poem. It can consist of an addition or suppression.

The following are additions:

³¹ Not all the metres accept these double modifications; an incompatibility occurs and solutions like *mu‘āqaba*, *murāqaba*, and *mukānafa* are used, depending on the types of metres.

tarfil: a *sabab kafif* is added to the *watid majmūʿ* at the end of the foot. $\text{מסתפּעלָן} + \text{פּע} = \text{מסתפּעלָאָן}$.

tadyil: a quiescent letter is added to the *watid majmūʿ* at the end of the foot. $\text{מסתפּעלָן} + \text{פּ} = \text{מסתפּעלָאָן}$.

tasbiḡ: a quiescent letter is added to the *sabab kafif* at the end of the foot. $\text{מפּאעלָתָן} + \text{פּ} = \text{מפּאעלָתָאָן}$ or $\text{פּאעלָאָתָן} + \text{פּ} = \text{פּאעלָאָתָאָן}$.

Along with these three, another addition exists that can be applied to any foot, known as *kazm*. It consists of adding one or several letters to the beginning of the stich or hemistich and is used in the *ṭawīl*, *madīd*, *basīt*, *kāmīl*, and *ramal* metres.

The following are suppressions:

ḥadf: the last *sabab kafif* in the foot is suppressed. $\text{מפּאעלָן} > \text{פּעלָן} = \text{מפּאעלָ}$.

qatf: a *sabab kafif* in the foot is suppressed and the preceding vowel disappears. $\text{מפּאעלָתָן} > \text{מפּאעלָ} = \text{פּעלָן}$.

qaṣr: the second letter in the *sabab kafif* is suppressed and the vowel of the first letter is eliminated. $\text{מפּאעלָן} > \text{מפּאעלָ}$.

qatʿ: the last letter of the *watid majmūʿ* is suppressed and the vowel of the second letter is eliminated. $\text{פּאעלָן} > \text{פּאעלָ} = \text{פּעלָן}$.³² When this phenomenon occurs in *mustatīl*, it is called *tašʿīt*, i.e., to shorten one foot in a syllable.

³² Some theorists believe that *qaṣr* and *qatʿ* are the same; however, *qaṣr* applies to *sabab kafif* and *qatʿ* to *watid majmūʿ*.

ḥadd: the *watid majmūʿ* at the end of the foot is suppressed.

מְסַתְּפֵלֵן > מְסַתְּפֵן = פְּעֵלֵן.³³

ṣalm: the *watid mafrūq* at the end of the foot is suppressed.

מְפַעֵלֵאָת > מְפַעֵן = פְּעֵלֵן (only in the *sarīʿ* metre).

waqf: the vowel of the last letter of the *watid mafrūq* is eliminated.

מְפַעֵלֵאָת > מְפַעֵלֵאָת = מְפַעֵלֵאָן (specifically in the *sarīʿ* and *munsariḥ* metres).

kašf: the last letter of the *watid mafrūq* is suppressed.

מְפַעֵלֵאָת > מְפַעֵלֵאָת = מְפַעֵלֵן (specifically in the *sarīʿ* and *munsariḥ* metres).

Just as there can be double additions, likewise double suppression can occur:

batr: *ḥadf* + *qaṭʿ*, the quiescent letter of the *watid majmūʿ* is

suppressed and eliminated, leaving what precedes it quiescent.

פֶּעַעֵלֵאָת > פֶּעַעֵלֵאָת > פֶּעַעֵלֵאָת = פְּעֵלֵן (*madīd*). פְּעֵלֵן > פְּעֵן > פֶּעַעֵלֵאָת (*mutaqārib*).

Additionally, other suppressions exist that can be applied to any foot. These are:

kharm: the first letter of the *watid majmūʿ* of the first foot at the beginning of the verse is suppressed in the *ṭawīl*, *ḥazaj*,

muḍāriʿ, *muqtaḍab*, and *mutaqārib* metres. פְּעֵלֵן > פְּעֵלֵן = פְּעֵלֵן.

When this occurs in the foot מְפַעֵלֵאָת > מְפַעֵלֵאָת, it is called

‘*adb*.

³³ Some theorists argue that this can only occur in the foot מְסַתְּפֵלֵן > מְסַתְּפֵן.

tarm: *talm* + *qabd*. פֶּעֶל > טוֹל > פֶּעֶל. When this occurs in the foot מִפֶּעֶל > מִפֶּעֶל it is called *šatr*.

karb: *talm* + *kaff*. מִפֶּעֶל > פֶּעֶל = מִפֶּעֶל.

qašm: *talm* + *‘ašb*. מִפֶּעֶל > פֶּעֶל > מִפֶּעֶל. This should not be confused with *‘adb*, which occurs only at the beginning.

jamm: *talm* + *kašf*. מִפֶּעֶל > פֶּעֶל > פֶּעֶל = פֶּעֶל.

‘aqd: *talm* + *naqš*. מִפֶּעֶל > פֶּעֶל > פֶּעֶל = מִפֶּעֶל.

With this model, it is possible to affirm that the metre used in the first known compositions by Dunash ben Labraṭ (ca. 958) is a modified version of *mustaṭīl* (wssss).³⁴ This was established as a classical formula and was reproduced and used exclusively in the *musammaṭ* genre (both *muṭallaṭ* and *murabba‘*) by the four great Hebrew poets of the Golden Age (mid-eleventh to mid-twelfth century), namely Samuel ben Nagrela, Shelomo ibn Gabirol, Moshe ibn ‘Ezra, and Yehuda ha-Levi. An example of this scansion is as follows:³⁵

- (2) דַּעָה לְבִי חֲכָמָה וּבִינָה וּמִזְמָה נִצַּר דְּרָכֵי עֲרָמָה שְׁמַע הַמוֹסְרִים
 Know, my heart, wisdom, science and reflection. Follow the
 paths of intelligence, listen to the disciplined ones
 דַּעָה לְבִי חֲכָמָה וּבִינָה וּמִזְמָה נִצַּר דְּרָכֵי עֲרָמָה שְׁמַע הַמוֹסְרִים
 מִפֶּעֶל מִפֶּעֶל מִפֶּעֶל מִפֶּעֶל מִפֶּעֶל מִפֶּעֶל מִפֶּעֶל מִפֶּעֶל מִפֶּעֶל מִפֶּעֶל

³⁴ Traditionally catalogued as *tawīl*. Ya‘aqob ben El‘azar catalogues it as a variant of *hazaj* (Yahalom 2001, 88), although metrical theory does not permit such a sequence in this metre.

³⁵ Sáenz-Badillos (1980, 1*; vocalisation mine).

The second foot, פִּאֲעֵלָן, has been modified by *qatf* (*taš'it* because it occurs in *mustatīl*), producing פִּעֵלָן.

In the following composition, likewise, Ibn Gabirol has not created a hybrid metre,³⁶ but rather has applied a *talm* modification to the *ṭawīl* metre with a *tašrī'* rhythm, as confirmed by the second verse:

- (3) תֵּאֵיר כְּאוֹר חֲמָה בָּרָה מְאֹד יִפָּה וְנִשְׁקָפָה מִי זֹאת כְּמוֹ שֶׁחָר עוֹלָה
 רִיחָה כְּרִיחַ מֵר מִקְטָר וְכִשְׂרִיפָה מְלֻדְ עֲדִינָה מְעֻנָּה כְּבוֹדָה כְּבֵת מְלֻדְ עֲדִינָה מְעֻנָּה

Who is this who rises like the dawn and comes into sight,
 shines like a radiant sun, so beautiful

Like a daughter of kings, noble and elegant; her aroma is
 like the aroma of burnt myrrh and a thurible

- מִיזֹת כְּמוֹשֶׁחַר עוֹלָה וְנִשְׁקָאפָה תֵּאֵאֵר כְּאוֹר חֲמָמָה בָּרָה מְאֹד יִפָּה
 פִּעֵלָן מִפִּאֲעֵילָן פִּעֵלָן מִפִּאֲעֵילָן פִּעֵלָן מִפִּאֲעֵילָן פִּעֵלָן מִפִּאֲעֵילָן
 כְּבוֹדָה כְּבֵת מְלֻדְ עֲדִינָה מְעֻנָּה רִיחָה כְּרִיחַ חֲמָר מִקְטָר וְכִשְׂרִיפָה
 פִּעֵלָן מִפִּאֲעֵילָן פִּעֵלָן מִפִּאֲעֵילָן פִּעֵלָן מִפִּאֲעֵילָן פִּעֵלָן מִפִּאֲעֵילָן

The same can be said about the funeral epitaph of Shemuel ben Shoshan of Toledo dated 1257 (lines 2 and 4):³⁷ the metre is *wāfir* (with *arūd* and *ḍarb* affected by *qatf*) with frequent modification of the original foot מִפִּאֲעֵלָן with *ašb*, producing מִפִּאֲעֵילָן in all its feet except the second, without any need to eliminate the *ḥatef* vowel beneath the guttural consonant during the scansion:

³⁶ Brody and Schirmann (1974, 98).

³⁷ Millás-Cantera (1956, 77–78).

- (4) אָדוֹן מְשֻׁרָה כָּלִיל מַעֲשֵׂה אֲשֶׁר הוּא וְחֻכְמָה נוֹלְדוּ יַחַד תְּאוּמִים
 Lord of might, of absolute supremacy, he and wisdom born
 at the same time, twins

אֲדֹנֵי מְשֻׁרָה כָּלִיל מַעֲשֵׂה אֲשֶׁר הוּא וְחֻכְמָה נוֹלְדוּ יַחַד תְּאוּמִים
 מִפְּאֵעֵילָן מִפְּאֵעֵלְתָן פִּעוּלָן מִפְּאֵעֵילָן מִפְּאֵעֵלְתָן פִּעוּלָן

At times, editors argue that the compositions lack metre (־ ־ ־ ־ / ־ ־ ־ ־). However, this model makes it possible to identify the metre by taking into account the modifications. For example, the following composition by Yehuda ha-Levi³⁸ is clearly a *mutaqārib* affected by *talm*:

- (5) יוֹעֵץ וּמִקִּים בְּמָרוֹם שְׁחָקִים וְעַל יָם רְחוֹקִים צִדְקוֹ סָרַח
 Who decides and executes this in the high Heavens, and
 over the far-off seas, his justice shines

יוֹעֵץ וּמִקִּים בְּמָרוֹם שְׁחָקִים וְעַל יָם רְחוֹקִים צִדְקוֹ סָרַח
 פִּעוּלָן פִּעוּלָן פִּעוּלָן פִּעוּלָן פִּעוּלָן פִּעוּלָן פִּעוּלָן פִּעוּלָן

3.0. THE ROMANCE MODEL

The first allusions to this model are found in the writings of the Andalusī Jews who settled in Provence after the Almohad conquest of 1146. The oldest treatise that uses this model to explain Andalusī Hebrew metrics is *Sefer Şahot* by Abraham ibn ʿEzra, written in Mantua in the mid-twelfth century.³⁹ This is an adaptation of the original Andalusī metrical system of feet appropriate for a non-arabophone context and is a much smaller, simplified

³⁸ I am following the edition by Sáenz-Badillos and Targarona (1994, 476–83).

³⁹ See note 4.

version of the original model with a mixture of elements that were in vogue in Andalusī Hebrew poetry, such as the repeated use of *musammaṭ*.⁴⁰

Unlike the complexity of the original Andalusī model, the only rule specified by Abraham ben ʿEzra is שמרו רק מספר התנועות 'the number of vowels simply must be maintained; mobile *shewa* followed by a vowel is called *yated*'. After this brief clarification, he distinguishes seventeen forms that constitute eleven metres, of which only ten are classical. At no time does he speak of feet, only of an alternation of *yated* (henceforth abbreviated as Y) and *tenuʿa* (henceforth abbreviated as T). Ibn ʿEzra distinguishes the metres without naming them. The first three cases are Hebrew *musammaṭ*:

1. YTTTT:⁴¹ Ibn ʿEzra shows that this sequence can repeat in a line three (*muṭallaṭ* or ternary) or four (*merubbaʿ* or quaternary) times.

⁴⁰ In fact, the first poems attributed to Dunash ben Labraṭ were scanned using this Eastern form that resulted from the appearance of internal rhymes (*sammaṭa*) in the monorhyme lines of *qaṣīdas* (for the relationship between *musammaṭ* and *muwašṣah*, see Corriente [1998, 24–25], and for Hebrew poetry, see Martínez Delgado [2016, 39–58]). These compositions are formed by dividing the verse into sections with rhyme that is identical, but different from the end of the last foot, i.e., *bbba*, *ccca*, *ddda*, etc. These divisions of the verse can become *murabbaʿ* (quaternary) or *mukammas* (quinary).

⁴¹ This is the derived or modern *mustaṭīl* form מפאעילן פעולן, but applying *tašʿīl*, producing מפאעילן פעולן.

2. TTTT:⁴² the line must be a *musammaṭ merubba*‘ (quaternary: *bbba*, *ccca*, etc.), it has no *yated*, according to Ibn ‘Ezra, it is לך ‘light’ and may even dispense with the internal rhymes of the *musammaṭ*.

3. YTYT: the line must be a *musammaṭ merubba*‘ (quaternary: *bbba*, *ccca*, etc.) where a *shewa* has been added to each foot (YT). This is the classical *mutaqārib* metre in its complete form.

4. TTYTT:⁴³ this metre continues to have a *merubba*‘ (quaternary) line, but it is ‘greater’ than the previous one. The internal rhyme alternates between the different feet that form the hemistichs of the verses (*abab*, *abab*, etc.). According to Ibn ‘Ezra, a *shewa* can be added at the beginning of each sequence (YTYTT) and then the original, complete form of the *ṭawīl* reappears.

⁴² Although known as *mišqal ha-tenu‘ot* in Hebrew, this is the Arabic metre *mutadārak* modified according to Arabic norms, as Yellin (1939, 192) suspected. This foot does not have to repeat throughout the entire verse; it can alternate with פּעֵלָן, which is common in Arabic since its complete use is rare, even in that language. This metre accepts the *qaṭ*‘ modification in all its feet. Because of this, once the modifications are applied, the metre changes its name.

⁴³ This is a complete form of the Arabic *ṭawīl* metre modified with *ḵarm* at the beginning of each hemistich פּעֵלָן מְפֹאֵעֵלָן.

5. YTTYTT:⁴⁴ this is one of the most common metres in Hebrew and corresponds to the Arabic *hazaj*. Ibn ‘Ezra asserts that some add YT to the end of this sequence, producing YTT YTT YT, which is in point of fact the *wāfir* metre.

6. TTYTTYTT:⁴⁵ this metre is, according to Ibn ‘Ezra, the richest, because it has up to three types of variants. The first is obtained by adding a *shewa* to the beginning of the YTYTTYTT line;⁴⁶ the second adds a vowel to the end, producing TTYTTYTTT;⁴⁷ the third is the only one that preserves *ḍarb* and ‘*arūḍ*, producing a complete classical sequence TTYTTYTTY TTYTTYTTT.⁴⁸

⁴⁴ In the Del Valle edition (1977, 150) *yated* + *tenu‘a* + *yated* + two *tenu‘ot*, but the scansion of the poem itself confirms the error.

⁴⁵ This is the *kāmil* metre with an ‘*iḍmar* modification in the stuffing (*ḥašw*) feet and *ḥaḍḍ* in the *ḍarb*, without any sign of its ‘*arūḍ*. In Hebrew, the version of this metre known as *kāmil muḍmar* is the most commonly used one. See Martínez Delgado (2012, 277–80).

⁴⁶ This is really a recourse used by the Jewish poets to reconcile it with its original foot; in other words, in the first foot of the hemistich, the second vowel of the *fāšila šuḡrā* is replaced by a *sabab kaḫif*, since there is no consensus about this sequence in Hebrew. According to Arabic theory, if the last two feet undergo an ‘*iḍmār* modification, the primitive form must appear in the poem so that it is not confused with *rajaz*; thus, the first foot is different and has a form that does not exist in Arabic.

⁴⁷ This is a *kāmil muḍmar* where *ḍarb* and ‘*arūḍ* are first affected by *qaṭ‘* (מַתְּפַעֵל > פִּעֵלְתוּ) and then by ‘*iḍmār* (פִּעֵלְתוּ > פִּעֵלְתוּ = מִפְּעֵלְוּ).

⁴⁸ This is really a *rajaz*. This confusion is very common in Hebrew metrics. On the *šalem* and *ha-šalem we-ha-so‘er* metres see below §5.0.

7. TTYTYT: this is the classical *mujtatt* metre in partial form (*majzū*⁴⁹) with complete ‘*arūd* (פּאַאַלְאַן) and identical *ḍarb*.

8. TYTTYT:⁴⁹ this verse actually reproduces an incomplete TYTT sequence, but this is the *ramal* metre as it is most commonly used.⁵⁰

9. TTYTTY: in principle, it is not clear in the text if this is a variant of the previous case or a new metre. Given that it is clearly a *rajaz* in the *majzū*⁴⁹, or partial, form with complete ‘*arūd* (מְסִתְפֵּלֵן) and identical *ḍarb*, it should be identified as a different metre. According to Ibn ‘Ezra, it is used with a *merubba*⁴⁹ verse (quaternary *musammaṭ*).

10. TTYTY: according to Ibn ‘Ezra, in this sequence that repeats four times, the Y at the end must be replaced by T. The complete sequence would be TTYTY TTYTY TTYTY TTYTT.⁵¹ According to the author, this is a difficult metre to use (*kaḥed*) in Hebrew.

⁴⁹ In the Del Valle edition (1977, 153), the final YT is omitted according to the scansion of the verse; as this sequence makes no sense; I am following Lippmann (1827, xi).

⁵⁰ This is a *majzū*⁴⁹, or partial, verse with complete ‘*arūd* (פּאַאַלְאַן) and identical *ḍarb*.

⁵¹ This is the *basīt* metre with ‘*arūd* in complete form (*tāmm*) and *ḍarb* modified by *qaṭ*⁴⁹ (פּאַאַלְאַן > פּאַאַלְ = פּאַאַלְ)

11. TYTY.⁵² Ibn ‘Ezra asserts that this is the most difficult of all. According to the example, it is used with a *merubba‘* line (quaternary *musamma‘*).

Moshe Qimḥi presents something similar in his work *Mahalaḳ Shevile ha-Da‘at*. As above, the prosodic units are Y and T. Qimḥi distinguishes the following metres:

1. TTTTTTTT (*mutadārak*, 2 in Ibn ‘Ezra’s classification);
2. YTTTT (*mustaṭīl*, 1 in Ibn ‘Ezra’s classification);
3. YTTTTYTT (*kāmil*, 6 in Ibn ‘Ezra’s classification);⁵³
4. YTTYTTYT (*wāfir*, 5 in Ibn ‘Ezra’s classification);
5. YTTYTT (*hazaj*, 5 in Ibn ‘Ezra’s classification);
6. YTYTTYTYTTT (*ṭawīl*, 4 in Ibn ‘Ezra’s classification);
7. YTYTYTYT (*mutaqārib*, 3 in Ibn ‘Ezra’s classification);
8. TYTTYT (*ramal*, 8 in Ibn ‘Ezra’s classification);
9. TTYTTTTYTT (*basīṭ*, 10 in Ibn ‘Ezra’s classification);
10. TTYTTTTYT (*sarī‘*, not found in Ibn ‘Ezra’s classification);
11. TTYTTYTTT (*rajaz*, 6 in Ibn ‘Ezra’s classification);

⁵² This is the *mutadārak* metre; its modified variant known as *mišqal ha-tenu‘ot* is much more common in Hebrew, see 2. TTTT.

⁵³ This is a modified version. The first stuffing (*ḥašw*) foot has been modified with *qaṣr* and the second with *‘idmār*. The verse must be *majzū‘*, or partial, with *‘arūd* modified with *ḥadd* and *‘idmār*, according to the classical norm.

12. TTYTYT (*mujtatt*, 7 in Ibn ‘Ezra’s classification);
13. TTYTTYTT (*kāmīl*, 6 in Ibn ‘Ezra’s classification);⁵⁴
14. TTYTTY (*rajaz*, 9 in Ibn ‘Ezra’s classification);
15. TTYTTTT (*munsariḥ*, not found in Ibn ‘Ezra’s classification);
16. TTYTY (*basīt*, 10 in Ibn ‘Ezra’s classification);
17. TTYTTYTTT (*rajaz*, 6 in Ibn ‘Ezra’s classification);
18. TYTY (*mutadārak*, 11 in Ibn ‘Ezra’s classification).

This model was highly successful and is frequently found in other manuals on metrics written between the fourteenth and fifteenth centuries in the Iberian Peninsula. It appears, for example, in the work of David ben Yom Ṭob ben Bilya from Portugal, who divides the vowels into kings (*qameṣ*, *pataḥ*, *šere*, *segol*, *ḥolem*, and *ḥireq*) and servants (*shewa* and *qibbuṣ šefatayim* or *shureq*) and, as Qimḥi did, includes up to eighteen variants of what are today considered nine metres.⁵⁵ In the last years of Nasrid Granada, Sa‘adya ibn Danān wrote an introduction to his dictionary that included the tripartite conception of Hebrew vowels (Masoretic, grammatical, and metric). He dedicated an entire chapter to the art of

⁵⁴ This is a modified version. A syllable is added to *kāmīl muḍmar* at the end (*tarfīl*) so that it is not confused with *rajaz*. TT TTY TT in the edition, the scansion of the verses used as an example is followed.

⁵⁵ Allony (1966).

writing poetry,⁵⁶ following this model in broad terms and deviating in many respects from the indigenous model when he tried to merge them. Beginning in the fifteenth century, this was the model that was transmitted among the different Jewish communities dispersed around Europe in works by distinguished teachers such as Avshalom ben Moshe Mizrahi, Abravanel, and David ben Yahya from Portugal, and in the sixteenth and seventeenth centuries in the works of the Italians Emmanuel ben Yequti'el, Azaría de Rossi, Samuel Archivolti, and Emmanuel Fransis, and the Dutchman Salomón de Oliveyra.⁵⁷

4.0. THE CLASSICAL OR EUROPEAN MODEL

The inspiration for this model is classical Greek poetry and to some extent it is the heir to the thesis set forth by William Jones (1746–1794) for Arabic metrics in his *Poeseos Asiaticae Commentariorum Libri Sex* (Lipsiae, 1777²) and continued, first by Heinrich Ewald (1803–1875) in his *De Metris Carminum Arabicorum Libri Duo* (Brunsvigae, 1825–1854), and then by William Wright (1830–1889) in his renowned *A Grammar of the Arabic Language* (Cambridge, 1969³).⁵⁸ With regard to Andalusí Hebrew poetry, the most complete and exact description of this model comes

⁵⁶ See Cohen (2000, 66–76) for the Arabic version and *ibid.* (155–67) for the Hebrew version.

⁵⁷ A review of all these authors can be found in Del Valle (1988, 349–459).

⁵⁸ On the history of the study of *‘arūd* in Europe, see Frolov (2000, 1–22).

from María José Cano, who used this method to codify and scan the entire *dīwān* of the Andalusī poet Shelomo ibn Gabirol.⁵⁹

In this model, metre is understood to be quantitative and based on alternating long and short syllables. As with the Romance model, only two basic prosodic syntagms are recognised:

yated: the succession of short and long syllables (*iambo* in Greek and *watid majmūʿ* in Arabic), represented below by | - ˘ |.

tenuʿa: a long syllable (*sabab kafif* in Arabic), represented below by | - |.

The vowel in the long syllables can be any of the seven Tiberian vowels, while the vowels in the short syllables can only be the simple *shewa*, its three compounds and the *waw* conjunction vocalised with *shureq* (וְ).

The feet are composed of three or four syllables and, therefore, can, from a prosodic point of view, be binary or ternary.

Binary (reading from right to left)

Arabic	Classical	Romance
פְּעֻלָּוּ	- - ˘	TY
פִּאֲעֻלָּוּ	- ˘ -	YT
פְּעֻלָּוּ	- -	TT

⁵⁹ Cano (1987, 31–38).

Ternary (reading from right to left)

Arabic	Classical	Romance
מפאעילן	- - - ~	TTY
פאעלאַתן	- - ~ -	TYT
מסתפּעלן	- ~ - -	YTT

According to this model, the metres can be symmetrical (the first two feet are identical), asymmetrical (the first two feet are different), or free (*muwaššah* or *šir ha-ʿezor*).

The line (*bayit*) is divided into two hemistichs. The first is known as *delet* and is responsible for determining the metre in this model. The second, known as *soger*, is usually a repetition of the first, carries the rhyme, and also usually takes most of the modifications (the addition or suppression of syllables, the suppression of a letter, or even the whole hemistich).

The symmetrical or simple metres can be binary or ternary:

Binary feet (reading from right to left):

<i>mutaqārib</i>								
TY	TY	TY	TY		TY	TY	TY	TY
--- ~	--- ~	--- ~	--- ~		--- ~	--- ~	--- ~	--- ~

<i>mutadārak</i>								
TT	TT	TT	TT		TT	TT	TT	TT
--	--	--	--		--	--	--	--

Ternary feet (reading from right to left)

<i>wāfir</i>								
TY	TTY	TTY	TTY		TY	TTY	TTY	TTY
--˘	---˘	---˘	---˘		--˘	---˘	---˘	---˘

<i>hazaj</i>				
TTY	TTY		TTY	TTY
---˘	---˘		---˘	---˘

<i>ramal</i>						
TY	TYT	TYT		TY	TYT	TYT
--˘	--˘-	--˘-		--˘	--˘-	--˘-

<i>kāmil</i>						
YTT	YTT	YTT		YTT	YTT	YTT
-˘---	-˘---	-˘---		-˘---	-˘---	-˘---

<i>sarī</i> ^c						
YT	YTT	YTT		YT	YTT	YTT
- ˘ -	- ˘ - -	- ˘ - -		- ˘ -	- ˘ - -	- ˘ - -

The asymmetrical or compound metres alternate binary and ternary feet (reading from right to left):

<i>ṭawīl</i>								
TTY	TY	TTY	TY		TTY	TY	TTY	TY
- - - ˘	- - ˘	- - - ˘	- - ˘		- - - ˘	- - ˘	- - - ˘	- - ˘

<i>basīṭ</i>								
YT	YTT	YT	YTT		YT	YTT	YT	YTT
- ˘ -	- ˘ - -	- ˘ -	- ˘ - -		- ˘ -	- ˘ - -	- ˘ -	- ˘ - -

<i>mujtatt</i>				
TYT	YTT		TYT	YTT
- - ˘ -	- ˘ - -		- - ˘ -	- ˘ - -

<i>munsariḥ</i>				
TTT	YTT		TTT	YTT
---	- ˘ ---		---	- ˘ ---

5.0. THE ISRAELI METHOD

This is a mixed system devised by David Yellin to study Andalusī Hebrew metrics⁶⁰ based on the first codifications of Yehuda ha-Levi's metrics by Heinrich Brody.⁶¹ It is, in short, a hybrid of the indigenous and classical forms, but with some confusion produced by the Romance model.

Brody's initial conclusions about Andalusī Hebrew metrics were harshly criticised by Halper (1913). He said that Brody did not correctly identify many metres and manipulated the vocalisation because he paid more attention to theory than to practice, basing his analysis on Freytag and blindly following Ibn Danān. Brody concluded that some feet are impossible in Hebrew: two short vowels cannot follow each other (they are replaced by a long vowel in Arabic), and there can be no *watid mafrūq* (no Arabic verses end in a short vowel, since they are always scanned as long). According to Halper, viewed from the Arabic, all metres fit, but Arabic can use long and short syllables, while Hebrew prefers to use long ones. This, then, led Brody to assert that there are some impossible metres in Hebrew. Halper questioned the extent to which Arabic metres can be used to analyse Hebrew

⁶⁰ Yellin (1939; 1940, 44–53).

⁶¹ Brody (1895).

metres.⁶² He argued that the equation of Hebrew mobile *shewa* with an Arabic short vowel is an artificial equivalence used by Hebrew poets that should not affect the recitation of the poem. It would appear that Halper was describing Arabic metrics using Greek categories and understood that all syllables are long in Hebrew, including accentuated ones. He argued that the arabophone Jews were aware that *shewa* often corresponded to short Arabic vowels and made the change. Halper rightly suspected that a vowel followed by *shewa* could be two short vowels.

In these circumstances, David Yellin saw no other choice but to catalogue all the Arabic metres used by Shemuel ha-Nagid following the indigenous model. This resulted in the new system that recognises the five *Kalilian* circles in Hebrew metrics and uses the root *pa'al* to represent schematically the scansion and to catalogue the metres.⁶³ However, the current use of the *pa'al* scheme to scan these compositions from the classical period (tenth–twelfth centuries) is unsatisfactory since it distorts the reality of the modifications applied. In Yellin's system the metrical patterns are reduced to seven basic feet:

פְּעוּלִים (WS)	מְתַפְעָלִים (SSW)
מְפַעְלִים (WSS)	נִפְעָל (SS)
פְּעֻלּוּלִים (SWS)	נִפְעָלִים (SSS)
פּוּעְלִים (SW)	

The last two feet are actually forms that result from modifications (*zihāfāt*) in the indigenous model: נִפְעָל (SS) and נִפְעָלִים

⁶² See my list in Martínez Delgado (2017, 123–37).

⁶³ For the Hebrew adaptation of these circles, see Yellin (1940, 47–52).

(SSS), and in no case form part of the original metre. In fact, it is these modified forms that confirm that the Jewish poets were respecting the Arabic feet and did not Hebraise them as Yellin claims. If they had done so, the foot פֶּעוּלָן (never פֶּעוּלָן) would have resulted in an impossible פֶּע after a double *batr*-type modification.

Nonetheless, the exhaustive cataloguing of metres carried out by Yellin is one of the most important contributions to the study of Hebrew metrics in modern times. This system, however, creates some confusion when attempting to identify metres, such as mixed metres and bimetric compositions and, of course, when attempting to identify metres in the first Hebrew poetry written in the mid-tenth century. By way of example, Yellin correctly identified the *šalem* metre. He spoke, however, of another mixed metre devised by the Hebrew poets that he called *ha-šalem we-ha-so'er*.⁶⁴ The application of classical metre to these compositions shows that the poets were really using two different Arabic metres, *kāmil* and *rajaz*, on each occasion.

Finally, the greatest contribution of this model has been in the area of nomenclature for the study of Andalusī Hebrew poetry. These are the Hebrew translations of the names of Arabic metres that are used today in any study in this field.

⁶⁴ Yellin (1939, 189 n.1 and especially 195).

Arabic	Hebrew (20th cent.)	Ibn Danān (15th cent.)
<i>Ṭawīl</i>	<i>ʿArok</i>	<i>ʿArok</i>
<i>Madīd</i>	<i>Mitmoded</i>	<i>Mašuk</i>
<i>Basīt</i>	<i>Mitpaššet</i>	<i>Pašut</i>
<i>Wāfir</i>	<i>Merubbe</i>	<i>ʿOdef</i>
<i>Kāmil</i>	<i>Šalem/Šalem we-Soʿer</i>	<i>Tamim</i>
<i>Hazaj</i>	<i>Marnin</i>	<i>Megil</i>
<i>Rajaz</i>	<i>Šalem/Šalem we-Soʿer</i>	<i>Ḥaruz</i>
<i>Ramal</i>	<i>Qaluaʿ</i>	<i>Ḥol</i>
<i>Sarīʿ</i>	<i>Mahir</i>	<i>Memaher</i>
<i>Munsariḥ</i>	<i>Dohar</i>	<i>Myuttar</i>
<i>Ḳaḫf</i>	<i>Qal</i>	<i>Qal</i>
<i>Muḍāriʿ</i>	<i>Dome</i>	<i>Medamme</i>
<i>Mujtaṭṭ</i>	<i>Qaṭuaʿ</i>	<i>Pasuq</i>
<i>Muqtaḍab</i>	—	<i>Meʿussaf</i>
<i>Mutaqārib</i>	<i>Mitqareḅ</i>	<i>Mitqareḅ</i>
<i>Mutadārak</i>	<i>Mašlim/Mišqal ha-Tenuʿot</i>	<i>Teʿuni</i>

All the important studies of Hebrew Andalusī metrics have been based on this system, including N. Allony's work (1951) on the metrics of Dunash ben Labraṭ and other poets from the Golden Age, A. Mirsky (1961, 25–35) on the *dīwān* of the wandering poet Yišḥaq ben Ḳalfun, and Y. Yahalom (2001) in his study of Yaʿaqob ben Elʿazar. This is also the model used in the important anthology of Schirmann (1954–1959) and the main

modern editions of the *dīwāns* composed by the four great Hebrew poets of the Golden Age, Samuel ibn Nagrela,⁶⁵ Shelomo ibn Gabirol,⁶⁶ Moshe ibn ‘Ezra,⁶⁷ and Yehuda ha-Levi.⁶⁸

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⁶⁵ For *Ben Tehillim*, see the edition by Sáenz-Badillos and Targarona Borrás (1997), and for the rest, Jarden (1966–1992).

⁶⁶ For example, his secular poetry, ed. by Brody and Schirmann (1974). See also Jarden (1971–1972); and Jarden (1975).

⁶⁷ This is the case for his secular poetry edited by Brody (1934); Brody (1942); Pagis (1977); and his liturgical poetry, Levin and Rosen (2012).

⁶⁸ See the classic edition by Brody (1894); and the anthology of Yehudah ha-Levi by Sáenz-Badillos and Targarona Borrás (1994).

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MARGINALIA TO THE QILLIRIAN RHYME SYSTEM

*Michael Rand**

1.0. GENERAL CONSIDERATIONS

In his path-breaking article ‘*Ha-Shiṭot ha-rashiyot shel he-ḥaruz ha-ivri min ha-piyyuṭ ‘ad yamenu’*’, Benjamin Harshav established the two chief rhyme-norms that are in use in classical *piyyuṭ*.¹ As is well known, the first of these is the norm that demands identity of sound from the consonant before the last vowel in the poetic line onwards. The second, which is termed ‘Qillirian’ in honour

* The present article is my own translation, with occasional additions, of Rand (2007), to which I have added an Appendix. The first note in the original article reads: “I would like herewith to express my gratitude to my teacher, Prof. Raymond Scheindlin, the Director of the Shalom Spiegel Institute for Research in Medieval Hebrew Poetry. The Institute’s financial assistance has made possible my participation in the Conference in honour of Zulay, the fruits of which are now presented to the reader.” Professor Scheindlin is now retired from his position at the Jewish Theological Seminary, as well as from that of Director of the Shalom Spiegel Institute. My gratitude and personal attachment to him have greatly waxed with the years.

¹ Harshav (1971). His findings have been published in English in Harshav (1972). See also Harshav (2008).

of the great poet who invented and introduced it into Hebrew *piyyuṭ*, is the discontinuous rhyme norm, which demands the participation of two root consonants in the *rhymeme* (i.e., the formally defined sound unit whose repetition at the ends of the poetic lines constitutes the presence of rhyme) in addition to identity of sound from the consonant preceding the last vowel onwards.

These two norms (along with any conceivable rhyme norm in general) are rooted in the concrete language material of which the poet avails himself in the composition of his *piyyuṭ*. In other words, the poet orders the words in the poetic lines in a certain way in order to create the required acoustic impression in the ears of the audience of his listeners. This impression is created by means of the presence of sound parallelism in the expected places in the poetic lines, and if the audience is familiar with the rhyme system being employed in the poem that is being recited, this parallelism is anticipated and perceived as an integral part of the poetics of the poem.

From the philological perspective, it is accepted that the linguistic material simultaneously consists of several layers—the phonetic, the phonological, the morphological, etc. Not all rhyme norms are equal in their relation to these layers. In the case under discussion at present, the norm of the consonant preceding the last vowel operates on the phonetic layer, since the parallelism that it entails is purely that of sounds. On the other hand, the Qillirian norm activates both the phonetic as well as the morphological layers, since the demand for the participation of two root consonants in the *rhymeme* is predicated on the existence of a

root, which is a morphological unit. This important distinction notwithstanding, the common denominator of both norms is the equivalence of actual linguistic entities—phonetic or morphological. *Ab initio*, the notion of equivalence is concrete. However, as the consciousness of the rhyme norm spreads in the poetic culture, the notion of equivalence may be altered—it may be gradually liberated from the concreteness of the sounds on the basis of which it first came into being and become abstracted, i.e., formalised, to a certain degree. In other words, both the poet as well as the audience are prepared to process as equivalents linguistic (phonetic) units that are not in fact equivalent, but are nevertheless placed within the poetic line at points that are known to be points of equivalence.

2.0. RHYME AND PHILOLOGY

By itself, the fact that the notion of equivalence may become increasingly abstracted has no bearing on our understanding of *piyyut* as a literary phenomenon. One may simply characterise it as belonging to the category of poetic license, and content oneself with listing poetic equivalents as an aid to the editing of *piyyuṭim*. For example, we find the following string of rhymes in the Qillirian *seder 'olam* קנני ראשית דרכו for Shavuot: / לְאָדָּד / יַחַד / אָדָּד / אָדָּד / וַיַּחַת / אָדָּד / יַחַד / בְּאָדָּד / יַחַד / אָדָּת (Ins. 246–54).² From here, we may conclude that the sounds /t/ and /d/ are treated as being equivalent, if only in a small number of instances, for the purposes of the rhyme norm employed by Qillir. This is not surprising from the phonetic point of view, since *tav* is a voiceless dental

² Elizur (2000, 108–9).

plosive and *dalet* a voiced dental plosive, so that the degree of phonetic similarity is sufficiently great as to render possible the use of these two sounds as equivalents for the purpose of rhyme.³

On the one hand, this example is clear-cut, since there is no doubt that despite the equivalence between *tav* and *dalet* within the abstract rhyme norm, the two sounds involved were kept distinct on the concrete phonological level of the linguistic material on which Qillir drew in composing his *piyyuṭim*. On the other hand, in creating sound-equivalents at the ends of poetic lines (which are loci that are relatively protected from spelling errors and scribal corrections, since every locus constitutes a link in the rhyme-chain, whose integrity guarantees the stability of every one of its links), the rhyme norm serves as an important philological tool, which enables researchers to uncover changes in pronunciation in the poet's time and place. In such cases, however, great caution must be exercised, and it is incumbent upon the researcher to prove that a certain sound equivalence that seems to bear witness to a phonetic phenomenon is indeed a concrete one, rooted in the linguistic material itself rather than merely in

³ We ought also to take into consideration the possibility of word-final voicing neutralisation, so that the case above would not be a matter of a high degree of similarity, but perhaps rather one of phonetic identity. However, the fact that the distinction between the letters *dalet* and *tav* in word-final position is stable throughout the history of Hebrew writing (as opposed to the distinction between *mem* and *nun* in Rabbinic Hebrew, for example) seems to militate against the possibility of speaking of actual, complete neutralisation.

שארית), רויה (= ראויה).⁸ And in manuscripts of Rabbinic Hebrew we find: כילו (= כאילו), תילים (= תהלים), כיב (= כאב), etc.⁹

From this string of examples, it is clear that the phenomenon as it is found in Qillir's poetry is the result of a historical phonetic development, and that there is consequently no reason to see it as stemming merely from rhyme pressure and, therefore, as a purely formal phenomenon. It is possible to highlight the phonetic status of the phenomenon under discussion as it is found in the Qillirian corpus by comparing it to an apparently similar phenomenon in the *piyyuṭim* of Pinḥas ha-Kohen, who postdates Qillir.¹⁰ In a new edition of his *piyyuṭim* Shulamit Elizur points out the rhyme שופֶר / מַעֲפָר / יוֹשֶׁפֶר / הַמְפּוֹאֵר (*piyyuṭ* קי, lns. 1–4).¹¹ In this case, a root consonant ^ʾ*alef* is elided between two full vowels—i.e., מְפּוֹאֵר becomes מַפֶּר** as it were, apparently for purposes of rhyme. On the one hand, in light of the examples that I have cited above from the Qillirian corpus and the dialects of Hebrew that preceded his, it appears that the roots of the phenomenon that is attested in the poetry of Pinḥas—i.e., the elision of ^ʾ*alef*—are indeed phonetic. On the other hand, I have not found any support from the history of Hebrew for the phenomenon in the

⁸ See Kutscher (1974, 498–500); Qimron (1986, 25).

⁹ See Sokoloff (1969, 34).

¹⁰ Elizur (2004, 9) fixes his time “after the middle of the eighth century.”

¹¹ Elizur (2004, 652). The anonymous reader of my article has suggested that “one might imagine that the text ought to be emended, and that perhaps הַמְפּוֹאֵר, i.e., a *Hofʿal*, should be read.” If we accept this emendation, the example before us belongs to the group of examples discussed in the previous paragraph.

form in which it is attested there.¹² It is therefore reasonable to conclude that in the present case we see in Pinḥas an emancipation from the concrete realm of phonetics and entry into the formal realm of poetics.

This impression is strengthened by an additional example cited by Elizur: תנא / המוצף / מא (poem 23, lns. 28–30).¹³ She notes that, for purposes of rhyme, there are two pairs here, the element תנא being shared by both of them: תנא / מא and תנא / המוצף. In the first pair the *ʾalef* is reckoned as an actual consonant, the rhyme being מא-. In the second pair, however, the *ʾalef* is elided, as the rhyme is נ-. It is entirely clear that from a phonetic point of view a bivalent consonant, which simultaneously exists and does not exist, is an impossibility. Therefore, the conclusion presents itself that we are not here dealing with the glottal stop /ʔ/ as it remains or is elided in various linguistic con-

¹² Cf., however יפי התור (= יפי התאר; 11QPs^a, col. 28, ln. 9), which appears to be relevant to the case under investigation here (see Qimron 2018, 322–24, §E 2.1.3). It is attested also in the Ben Sira Scroll from Masada: תור שמים (= תואר שמים; col. 6, ln. 2), תור לבנו (= תואר לבנו; col. 6, ln. 12). Blau (2010, 88, §3.3.4.2.4) suggests that the elision of *ʾalef* between two full vowels stands behind the Biblical Hebrew form נמץאים (1 Sam. 13.15 *et passim*), as opposed to the expected נמץאים: “It seems that in vulgar speech נמץאים, through the analogy to verbs III-y, became **nimṣim*. The hypercorrect effort to use more ‘refined’ forms led, by analogy to חטאים and to נמץאים. Thus *ḥotim* : *ḥotāʾim* = *nimṣim* : *x*, where the hypercorrect *x* is נמץאים.”

¹³ Elizur (2004, 353–54).

texts, but rather with a rhyme-unit that may or may not be reckoned, in accordance with the needs of the formal rhyming system. At the same time, it is nevertheless important to underscore the fact that Pinḥas' treatment of the 'alef is rooted in phonetic developments.

3.0. THE RHYMING OF /A/ AND /E/ IN QILLIRIAN *PIYYUṬ*

In the Qillirian *qedushta* for Shemini Ašeret אולזו לז ללז there appears to be attested a rare and unusual phenomenon. In a number of instances in this composition, it seems that the vowels /a/ (*pataḥ*, *qames*) and /e/ (*segol*, *šere*) are paired in the same rhymeme, which is contrary to expectation in the case of a vowel system of the Palestinian/Sephardi type, in which the distinction between these two vowel qualities is maintained. The examples are indeed few, but the phenomenon nevertheless appears to be real: עֲצֵרַת / נִצְהָרַת / מְפָרְפֵרַת / נְפָרַת (lns. 9–12); שׁוֹאֲבֵת / שְׁנִשְׂאֲבֵת / בֵּת / נִסְבֵּת (lns. 112–15); in *piyyuṭ* 4, whose lines mostly rhyme in -צָר or -צֵר, the following rhyme-words are found: עוֹצֵר (ln. 63), הַנְּצֵר (ln. 66), הַיּוֹצֵר (ln. 73), קֹצֵר (ln. 76).¹⁴ Aside from these examples, I am aware of three more cases of rhyming of this type in the Qillirian corpus. In the *qerova* for 14 benedictions זכור איכה for the Ninth of Av we find the following: רַחֵם / לְוַחֵם / זַהֵם / פָּחֵם (lns. 36–39).¹⁵ In three places, it might be possible to disagree with the vocalisation given in Goldschmidt's

¹⁴ Rand (2008, 38–66).

¹⁵ Goldschmidt (2002, קג).

edition—perhaps one ought to vocalise יחם, רחם,¹⁶ נוהם—but I see no way of casting doubt on the vocalisation of the last word, לָחֵם, which is based on the language of Scripture in Lam. 5.6. Here are two examples from another source, the *shiv'ata* צפּע איבי זורו for Shabbat Zakhōr: שָׁכַר / נָעֵבֵר / לָסֵבֵר / זָכַר (lns. 7–10); שְׁמָעָה / הִרְשָׁעָה / שְׁמוּעָה / לְרוּעָה / (lns. 67–70).¹⁷ We are, therefore, in possession of additional examples from the Qillirian corpus of the rhyming of /a/ and /e/.

Another example of such rhyming is cited by Elizur from the *piyyuṭim* of Pinḥas: לָבֵן / הַמְלִוְבֵן / יִיבֵן / לִוְבֵן (*piyyuṭ* קלו, lines 61–64).¹⁸ Elizur (2004, 175 n. 69).expresses doubt in this case, indicating that “it is possible that here R. Pinḥas has divided the strophe into two rhyme pairs sharing a similar rhyme.” It seems, however, that it, too, is to be reckoned. Up to this point, I have attempted to demonstrate that even in cases of rhyme based on the formal poetic system, rather than phonetics, it is nevertheless possible to discover the influence of the phonetic level in the background, constituting the basis of the formal system. In the cases under discussion here, on the other hand, it is very difficult to discover the phonetic background of this odd alternation. As

¹⁶ The line that ends with this word has not been properly interpreted by Goldschmidt. The phrase מעשרי בששי יחם refers to Israel, who set aside a tithe of their flocks (i.e., the fruits of their יחום ‘heat, oestrus’) in the sixth month, which is Elul (see Mishna, *Rosh ha-Shana* 1.1). I would like to thank the anonymous reader of the original Hebrew paper for having pointed out the proper interpretation.

¹⁷ Elizur (1991, 62–67).

¹⁸ Elizur (2004, 747).

is well known, in the Genizah fragments alternations between *segol* and *šere* as well as between *pataḥ* and *qameš* are found in abundance.¹⁹ But as far as I am aware, there is no evidence of alternation between these two pairs.

Perhaps it is possible to seek the background to this phenomenon in the phonetics of the Tiberian vocalisation system. In it, we do in fact encounter an alternation between *pataḥ* and *šere*, which may be defined in terms of morphology. In the suffixed verbal forms of the *pi'el* stem, as well as in the suffixed, prefixed and imperative forms of the *hitpa'el* there are many instances attested in which the final syllable bears *pataḥ* rather than *šere*—e.g., גָּדַל alternating with גִּדְּל, מָלַט with מִלַּט, וַיִּתְחַזֵּק with וַיִּתְחַזֶּק, etc.²⁰ It is important to stress that in these cases the vocalic alternation is located in the ultima of the forms under consideration—i.e., in the syllable that functions as the locus of rhyme within the poetic line. In this context, it is instructive to compare the vocalisations offered by two different editors in a place of potential /a/ ~ /e/ rhyme. In his edition of the Qillirian *shiv'ata* ובני ציון אהם for Shabbat ha-Hodesh Spiegel vocalises וְלִשְׁעָבֵר / לְגַבֵּר / וְלִעְבֵּר / אהם (Ins. 11–14), thereby apparently acknowledging the existence of the alternation in the Qillirian rhyme system.²¹ Elizur, on the other hand, who doubts the existence of this alternation in the Qillirian corpus, vocalises in her edition / לְגַבֵּר / וְלִעְבֵּר

¹⁹ See Yeivin (1991, 160). The origin of these alternations is the Palestinian pronunciation of Hebrew.

²⁰ See Bergstrasser (1986, II:§§17d, 18e).

²¹ Spiegel (1939, רעח–רעט).

וּלְשַׁעֲבַר / יתְגַבֵּר (Ins. 17–20).²² Examining the two first rhyme words (without taking into account the fourth, with regard to whose reading the editors differ), we must admit, on the one hand, that in Biblical Hebrew there is no *pi'el* infinitive of the form לְקַטַּל (**), a fact that seems to vindicate Spiegel's vocalisation. On the other hand, it is perhaps possible to claim that Qillir changed the quality of the expected vowel on the basis of an analogy to the forms of the prefixed verb and the imperative in the *hitpa'el*, thereby justifying Elizur's approach. In the final analysis, however, both Spiegel's and Elizur's vocalisations take into account the possibility of the alternation /a/ ~ /e/, the difference being that, while in Spiegel's version the alternation is realised on the phonetic level—i.e. the vowels /a/ and /e/ participate in the rhymeme and are heard by the ear—in Elizur's it is incorporated into the morphological level—i.e., she assumes the possibility of the existence of an infinitival form לְקַטַּל (***) instead of the expected לְקַטַּל (**). Thus also in the vocalisation given by Goldschmidt in the Qillirian *qina* אֵלֶּהּ אֵזֶנְךָ הִטָּה / לְשַׁתַּק / עָתָּק (Ins. 3–4).²³

The alternation attested in Biblical Hebrew obviously occurs only in certain verbal forms, and this morphological specificity prevents us from pointing to the Biblical Hebrew phenomenon in order to explain those other occurrences of the

²² Elizur (1991, 111).

²³ Goldschmidt (2002, פא). It is also possible to imagine a *hif'il* form לְשַׁתַּק, with elision of the *he*, but such a vocalisation would not obviate the problem, since if we accept it, we must explain the appearance of a stem-vowel /a/ in place of the /i/ expected in a *hif'il* infinitive.

/a/ ~ /e/ alternation in the Qillirian rhyme system that are not based on such verbal forms. Nevertheless, if we accept that the alternation does exist in Qillir's *piyyuṭim*, it is perhaps possible to see in the Biblical Hebrew phenomenon at least a part of the phonetic background of the phenomenon that is attested in the formal Qillirian rhyme system. In other words, the instance that I have cited above makes it plausible that Qillir was indeed aware of the possibility of an /a/ ~ /e/ alternation within his rhyme system, if only on rare occasions, and if only under specific morphological conditions. From such a locus, in which the alternation is, so to speak, legitimate from the point of view of the morphophonology of Biblical Hebrew according to the Tiberian tradition, it spread to other points within the rhyme system, which are found outside of the original morphological context.

In the final analysis, whether or not the specific considerations offered above provide a full explanation for the alternation /a/ ~ /e/ within the Qillirian rhyme system is not so important. The methodological point made here is more significant: when setting about to explain an unusual phenomenon in the rhyme system, we must attempt to seek its roots in the phonetics and morphophonology of the speech form (or forms) of which the poet makes use in composing his poetry.

**APPENDIX—THE RHYMING OF /A/ AND /E/ IN HEBREW
MAQĀMAS IN THIRTEENTH-CENTURY EGYPT**

The rhyming of /a/ and /e/ in Hebrew is also encountered in an entirely different linguistic and cultural context. In the course of editing a number of Hebrew *maqāmas* in the style of the *Taḥkemoni* of Yehuda al-Ḥarizi that were probably composed thirteenth-century Egypt,²⁴ I have encountered the following cases:

- (1) לְכֵן הַבֵּית הַזֶּה אֲשֶׁר אֲנֹכִי בֹנֶה / יְסוּדוֹתָיו תְּלוּיִים עַל קו הָאֲמוּנָה (Introduction, ln. 4)

‘As for this edifice that I am building (cf. 1 Kgs 6.12), / its foundations are suspended from (i.e., built upon) a true outline’.²⁵

- (2) הִבֵּט אֶל מַת תּוֹד הָאָרוֹן / עַל אֶרֶץ וּבִיד כֹּל נִמְצָא // עַת נִקְבֵּר [ו]לְתוֹפֵת
יֵצֵא יְחִיָּה יִשְׁבֹּר אֶרֶון יֵצֵא / יֵלֵד (*maqāma* 7, lns. 30–31)

‘Behold a corpse in a coffin, / found upon the ground and in everyone’s hands. // When it is buried and goes down to

²⁴ I intend to publish a critical edition of the *maqāmas* in the near future. In the meantime, the most up-to-date information may be obtained in Schirmann (1965, 408–13). The narrator of the *maqāmas* is Etan ha-ʿEzrahi, and the hero is Ḥovav ha-Midyani. For the latter’s name, see Rand (2018, 45 n. 7). For the *Taḥkemoni* see al-Ḥarizi (2010).

²⁵ The text is published in Davidson (1928, 224).

hellfire, / it rises to life—breaks the coffin’s bonds and comes forth’.²⁶

- (3) וַיַּעַן עוֹד בְּחֹזֶק לֹא יָחַת / וַיִּדְבֵּר בְּאוֹת הַחַת (*maqāma* 10, ln. 2)

‘And he furthermore replied with unflagging strength / and composed in the letter *het*’.²⁷

In all of these cases, an /a/-vowel (always *qameṣ*) rhymes with an /e/-vowel (*ṣere* or *segol*). Alongside them we probably ought to consider the following case, encountered in a homonym poem (*ṣimmud*):

- (4) מִי יִתְּנָה חֶלְקִי יְדִידִי יִתְּנוּ / מִכֵּל וְאַעֲזוּב לְזִמְן הַבָּלוּ // לוֹ יִדְרְשָׁה רוּחִי
לְקַחְתָּהּ יֵאמְרָה / לְבִי הֲלוֹא הוּא הַיְדִיד הַבּ לוֹ
(*maqāma* 8, lns. 49–50)

‘Would that my friend gave my due portion / of all [his love] and abandon Time and its vanities. // Were he to seek to take my spirit, my heart’s / response would be “He’s the friend, yield to him”’.²⁸

²⁶ In this riddle-epigram the ‘corpse in a coffin’ is apparently the seed in its husk, which may be held in the hand or sown in the ground. When it is ‘buried’, i.e., sown, the seed bursts out of the husk and comes alive as a plant. The text is found in ms. Oxford, Bodleian Heb. d. 64 fol. 78 (cat. 2822/19). The hollow letter indicates a doubtful reading in the manuscript.

²⁷ The text is found in ms. St Petersburg, Russian National Library, Fir-kovitch IIA 87.1 fol. 9.

²⁸ The text is found in ms. Oxford, Bodleian Heb. d. 63 fol. 77 (cat. 2826/38).

Here, the fact that the terminal elements הַבְּלוּ ‘its vanities’ and לוֹ הֵב ‘yield to him’ are supposed to be homonymic implies that *segol* and *pataḥ* are being treated as equivalents.

The cases of /a/ and /e/ rhyming under examination here occur in a composition by an author whose native language we can safely assume to have been Arabic. With this background in mind, we ought to examine a related phenomenon, encountered in bilingual Hebrew-Arabic poetry: the treatment of Hebrew /a/ and /e/ vowels together as being the equivalents of Arabic etymological *ā*. Garbell has collected numerous examples from Spanish Hebrew poets.²⁹ For the present purposes, it is sufficient to illustrate this point from the trilingual, Hebrew-Arabic-Aramaic poem דְּבַר אֵל יִאֲמֵן by al-Ḥarizi, found in *maqāma* 20 of the *Taḥkemoni*.³⁰ The poem is written in tristichs, the first stich of every line being in Hebrew, the second in Arabic and the third in Aramaic. In every line, the Hebrew and Arabic stichs rhyme with one another, whereas the Aramaic stich bears a rhyme that embraces the whole poem. The following Hebrew-Arabic pairs are relevant to our purpose:

(5) דְּבַר אֵל יִאֲמֵן / וְטֹאעָאֵת אֶלְרַחֲמָאן (ln. 31)

²⁹ See Garbell (1954–1956, 1:686) for /a/, and (ibid., 1:688) for /e/.

³⁰ Al-Ḥarizi (2010, 294–95). Al-Ḥarizi was born in Spain in 1165 and died in Aleppo in 1225. Approximately the last ten years of his life were spent on a journey through the Islamic East that began in Egypt. See Rand (2018, 4–5).

‘God’s word is sure / as is obedience to the Merciful’.³¹

- (6) שְׁמוֹ לְעַד נִעְלָה / הוּ אֵלֶרֶב אֱלֹאֲעֵלִי (ln. 33)

‘His name is exalted forever, / He is the sublime Lord’.

- (7) בְּתֵבֵל שָׁם מִשְׁטָר / חוּי כֹל אֱלֹאֲקִטָּאָר (ln. 37)

‘He imposes his rule on the world, / which takes in all its quarters’.

- (8) וַיִּשְׁעֵי יִגְלָה / פִּיעֵלִי מִדְּלוּלָא (ln. 42)

‘And my Salvation becomes manifest / and He raises the lowly’.

More examples could be cited from this source, but these suffice to establish the point. In these cases, we may say that, for purposes of rhyme, the opposition between Hebrew /a/ and /e/ is neutralised in the Arabic phoneme /ā/.

It would appear that both sets of cases are best explained in terms of the vocalic shift known in the Arabic grammatical tradition as *ʿimāla*, the fronting and raising of /ā/ (as well /a/).³² In the case of the bilingual rhymes, this could simply mean that as a result of *ʿimāla* Arabic /ā/ had become the closest possible rhyme-equivalent to a Hebrew /e/-type vowel.³³ Furthermore,

³¹ Ed. Yahalom-Katsumata unnecessarily (or perhaps mistakenly) vocalises יֶאֱמֵן. Also, for purposes of illustration I have employed the *plene* spelling אֱלֹרְחִמָּאָן instead of the defective spelling אֱלֹרְחִמָּאָן found there.

³² See Levin (2013, II:311–15).

³³ The use of Arabic /ā/ as an equivalent for /a/ and /e/ in the bilingual rhymes finds an analogue in Karaite Bible manuscripts written in Arabic characters. In these, *ʿalif* represents long *qameṣ*, *pataḥ*, and *segol*,

the /a/ ~ /e/ rhymes in the Hebrew *maqāma* would seem to indicate that the process of *ʿimāla* had come to affect the /a/ vowel in the Hebrew pronunciation of Arabic-speaking Jews, with the result that /a/ and /e/ became sufficiently close to serve as equivalents for purposes of rhyme. The rarity of the phenomenon is presumably to be explained by the fact that Hebrew poets and authors of rhymed prose tended to maintain the historical distinction between /a/ (*pataḥ*, *qameṣ*) and /e/ (*segol*, *ṣere*), with the result that the shift in vowel quality is masked. In fact, the *maqāmas* in which the rhyming of /a/ and /e/ is encountered employ a decidedly lower register than those of al-Ḥarizi. In plain words, they are more ‘folksy’. It is, therefore, not surprising that in them the ‘Hebrew *ʿimāla*’ that I am positing occasionally breaks through.

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whereas *ṣere* may be represented by *ʿalif* or *yā*. The variable representation of *ṣere* is interpreted by Khan (1987, 30) as follows: “Whereas... *ʿalif* is sometimes used for *ṣere*, *yā* is never used for *segol*. This suggests that a qualitative coalescence of the two vowels had not taken place in the pronunciation of the scribes. The use of *ʿalif* to represent the two *e* vowels was facilitated by the fact that the Arabic *ʿalif mumāla* could be realised with two degrees of *ʿimāla*, viz. *ʿimāla mutawassīta* (ϵ = *segol*) or *ʿimāla šadīda* (e = *ṣere*).”

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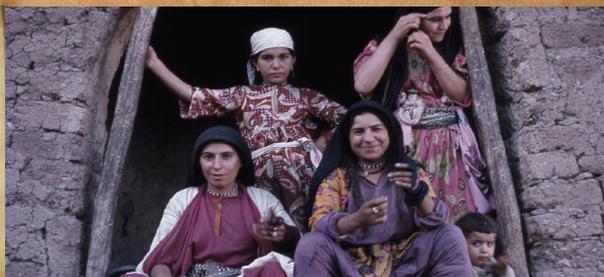
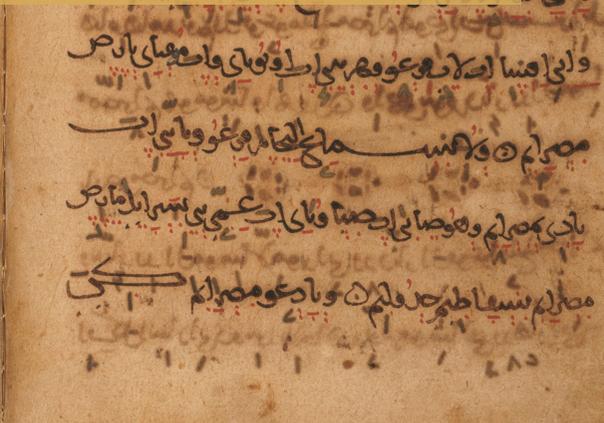
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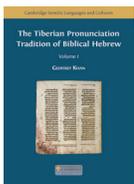
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