

Vowel Quantity and Stress in Jewish Literary Aramaic

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Draft Only: Comments Welcomed

0. The Problem of Quantity

In this paper I provide a metrical analysis of main stress and vowel reduction in Jewish Literary Aramaic (henceforth JLA). I argue that both phenomena are best accounted for in terms of (binary) *moraic trochees*, assigned right-to-left. If that *moraic* analysis is correct, as I argue it is, there seem to me to be implications for the problem of interpreting the nature of vowel quantity in JLA. It has often been claimed (see section 1 below for references) that vowel quantity in Northwest Semitic languages, including JLA, is a non-contrastive variable *dependent* on stress and syllable structure. On one interpretation at least, that claim fails if stress itself is assigned under a *moraic* (and therefore quantity-sensitive) analysis.

Any claim that vowel quantity is not distinctive in some language is open to at least two interpretations. Under the most straightforward interpretation, it might be a claim that there is no *phonemic* contrast in the vowel system associated with a difference between simplex and complex syllable nuclei. An example of a language for which such a claim might be made is Castilian Spanish, which has five contrastive vowels differing in height and backness. Not all vowels in Spanish are of the same average duration, however. But so far as I am aware, those differences (ignoring those correlated with vowel height) are a function of syllable structure and stress. Stressed vowels in Castilian Spanish are systematically longer than the corresponding unstressed, and the nuclei of open syllables longer than those of closed.

The second interpretation of non-contrastive quantity is less a claim about the *phonemic* status of quantity than about its *phonetic* status. In English pairs like **pain** and **pen** for example, there *is* a systematic contrast between what one might term alternatively:

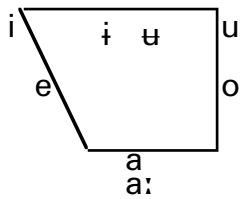
- i. heavy and light syllable nuclei, or:
- ii. tense and lax vowels, or:
- iii. long and short vowels.

In such languages, there is no question of there not being a quantity-related *phonemic* contrast. The issue is whether there is some reason for selecting a particular phonetic property as the principal or invariant physical correlate of the contrast. One might argue for English for example, that \pm tense is the invariant since duration is a complex function of stress, syllable structure, and the voicing of any following segment.

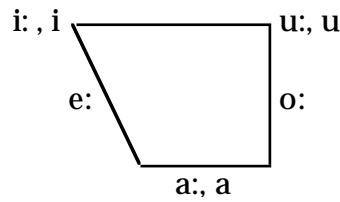
It is not always easy to determine how to interpret particular claims regarding the non-contrastiveness of quantity. Jastrow (1998:350ff) and Hoberman (1989, 1997) seem to have the second in mind in their descriptions of the vowel system of northeastern dialects of modern Aramaic. The system they describe is an asymmetrical one with 3 lax and 5 tense vowels (ignoring shwa) -- see figure A below. The lax vowels are shorter than their tense counterparts; the non-high lax vowels are also more centralised. The non-low tense vowels are phonetically short in unstressed final and closed non-final syllables, and long otherwise¹. One might then phonemicise the system in terms of quantity (as in figure B below), even though physical differences in vowel duration are largely predictable.

¹For details, see Hoberman (1997:324-330).

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Northeastern Neo-Aramaic
Vowel Positions
FIGURE A



A Quantitative Phonemicisation of
Northeastern Neo-Aramaic Vowels
FIGURE B

Claims regarding older Aramaic dialects are harder to interpret. Muraoka (1987) and Daniels (1997:134-135), following Nöldeke (1904) claim that the contrast distinguished by breves and macrons in conventional transliterations of East Syriac (c. 200 - 700 CE) is *not* in fact quantity, but quality. Lambdin and Huehnergard (1995:ix) make the same claim for JLA: "It is unlikely that phonemic distinctions in vowel length were made in the Aramaic of the Targum Onqelos. Rather, the seven vowel signs probably indicate purely qualitative distinctions."

It is not obvious, whether these are claims that Syriac and JLA are like Spanish, with height and backness, but no weight contrasts, or like English, with a phonemic weight contrast for which duration is not the invariant. By contrast, Fassberg seems to be pointing to a Spanish-type system when he asserts (1991:30, and repeated in Khan 1997:108) that the Palestinian Late Aramaic of the Cairo Genizah Targum fragments (c. 500 CE) had a five vowel system with no phonemic quantity contrast whatsoever. The analysis of JLA stress and vowel reduction I present below entails that JLA is like English and the modern northeastern Neo-Aramaic dialects described above, in having a phonemic weight/quantity contrast.

Section 1 considers the problem, for languages like JLA, of interpreting vocalisation systems in general, and quantity distinctions in particular. It also provides some comparative evidence. Section 2 introduces the prosodic structure of JLA with a consideration of syllable types and the position of main stress. Section 3 reviews a number of prosodic analyses of Tiberian Hebrew (beginning with McCarthy 1982), and shows how those analyses can be applied to JLA. Section 4 compares three analyses of the JLA main stress foot, licit under the constraints proposed in Hayes (1993). In that section, I conclude that a moraic trochee analysis is the best of these three options. Section 5 extends the analysis of section 4 to vowel reduction in JLA, and notes some outstanding problems. Section 6 is a brief summary and conclusion.

1. The Vowel System of JLA

Jewish Literary Aramaic (Kaufman 1998:116-117) is the language of Jewish Palestinian² documents from the Hellenistic and Roman periods, including that of the standard Targumim of the Torah and the Prophets, and of the Aramaic portion of the Qumran corpus. The present study is based largely on the Targum Onqelos, in Simple Babylonian vocalisation, as presented in Sperber (1992). The Simple Babylonian³ vocalisation is a

²According to Kutscher (1971:267f-268) the majority view is that the consonantal text of the canonical *targumim* was Palestinian, but that the (Babylonian) vocalisation reflects an eastern dialect of Aramaic.

³Morag (1962:30ff) distinguishes two systems of Babylonian vocalisation, a *simple* and a *complex*. The latter marks gemination and has special signs for (in the usual interpretation) some unstressed vowel

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system of seven supralineal signs, including shwa:

◌̣	◌̣
bi	bu
◌̣	◌̣
be	bə
◌̣	◌̣
bo	bo
◌̣	◌̣
ba	ba

here exemplified with the consonant *bet*. The Babylonian pointing is widely regarded as closer to the actual vowel system of JLA than is the Tiberian, though those making that claim (for example, by Segert 1997:120) do not in general justify it. I assume that the claim is based on a) manuscript consistency, and b) similarity to other Aramaic dialects, Classical Syriac for example.

The vowel points are usually taken to represent distinctions in vowel position/quality rather than quantity, though there appears to be a strong correlation between JLA *qameṣ* [ɑ] and *pataḥ* [a] and PSEM *ā and *a, as in:

PLA	ṣəlama	ḥmara
TH	ṣalōm	ḥamōr
CA	salāmun	ḥimārun
PSEM	*ṣalām-	*ḥamār-
	'well-being'	'donkey'

Though it is often assumed that all and only long vowels are marked in the consonantal text by a *mater lectionis*⁴, this is not in case in the JLA manuscripts I have used. In those manuscripts, so far as I am aware, all final vowels are marked by a *mater lectionis*. Unless there is evidence that all final vowels are indeed long in JLA, a point of view I do not hold, then the presence of a *mater lectionis* word-finally gives no information regarding vowel quantity or syllable weight.

In non-final position there are few if any cases of *mater lectionis alep*; when *alep* appears in such positions it is a consonantal glottal stop or a vocalised etymological glottal stop. Word-internal *mater lectionis yod* and *waw* are common, but it is by no means certain that the vowels they mark constitute all and only occurrences of non-low long vowels. Instances of etymologically short vowels with *mater lectionis* are relatively common. For example, both בכריה (bkryh) and בוכריה (bwkryh) 'his first-born' and זעירין (zʕiryryn) ~ זעירן (zʕiryryn) 'young, small, subsequent' (masculine plural absolute) all appear in the same Targum Onqelos manuscript. Comparative evidence suggests that the nucleus of the first syllable of the former, and the second syllable of the latter, were *short*:

CA	<i>bikrun</i> 'firstborn'	בִּכְרָא	<i>zaʕir</i> 'scanty'	זַעִיר
TH	<i>bəkowr</i>	בְּכּוּר	<i>zaʕiyr</i> 'small'	זַעִיר

allophones. The JLA texts considered here employ the simple Babylonian vocalisation.

⁴In the manuscripts I have used, א alep, י yod, and ו waw are used as *matres lectionis*; the first for low, the second for non-low front, and the last for non-low back vowels.

though in TH we also find the vowel in the second example *plene*⁵. Similarly, the passive participles CəCiC are to my knowledge always written *plene* in JLA, though comparative evidence (from Classical Arabic and Akkadian) and evidence from Modern Aramaic would suggest that the [i] was short. Instances of etymologically long vowels written *defectiva* in JLA are less common; a possible example is פּוּם ~ פּוּם 'mouth'.

2. Syllables and Stress

In the preceding section, I demonstrated that segmental evidence (vowel pointing and *matres lectionis*) is unlikely to be the basis of any convincing arguments regarding the status of vowel quantity in JLA. The same may not be true of prosodic evidence, in particular:

- a. evidence from syllable structure and
- b. evidence from stress

So far as I am aware, the potential relevance of prosodic arguments to the quantity-quality debate has been largely overlooked in the traditional Semiticist literature.

For JLA, information about syllable structure can be gleaned from the pointed orthography. Since the shwa in Babylonian pointing represents vocalic shwa only, the absence of pointing on a consonant, other than a *mater lectionis*, can be taken to indicate the coda of a closed syllable. (In the second example below, the coda of the final syllable is a consonant cluster.) The first of a sequence of two pointed consonants (in simple Babylonian pointing), followed optionally by a *mater lectionis*, or a final pointed consonant with *mater lectionis* can be taken to represent an open syllable (the weight of which is of course open to question).

מֶלֶךְ '(the) king' [mal.kə] vs. מַלְכּוּתָא '(the) kingdom' [ma.lə.ku.tə]
 כְּתַבְתָּ 'you (s) wrote' [kə.taβt]

Because there is no *dagesh* analog in simple Babylonian pointing, syllables closed by consonant gemination must be identified on grammatical or etymological evidence, or by reference to a text with complex Babylonian pointing.

There being no *ta'amim* or other stress marking in the simple Babylonian pointing for JLA (see ft. 2), stress is not represented directly. If the word contains any reduced syllables (see section 5), then the rightmost of these sets the left limit for the position of the main stress. Otherwise, the position of the stress can only be determined from traditional reading styles or with information from manuscripts using other pointing systems. In this paper, I use the stress assignments given in Lambdin and Huehnergard (1995).

Syllables in JLA are light CV⁶, heavy CVC, or superheavy CVCC#:

⁵The related form TH זַעֲרָא zəʕeyr 'a little', with tonic lowering of *i > e, suggests an original short /i/ in Hebrew too.

⁶I will assume that all syllables have an onset, though nothing crucial hangs on this assumption.

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kəṭā <u>b</u> u 'they wrote'	כְּתִבּוּ
malka <u>t</u> 'queen of'	מַלְכַּת
kəṭā <u>b</u> t 'you (ms) wrote'	כְּתַבְתָּ

(All CVCC superheavy syllables are word final.) If, for the sake of argument at this point, we postulate a vowel quantity contrast, then we can also recognise CV: heavy syllables and CV:C or CV:CC# superheavy syllables:

mal.kɑ: '(the) king'	מַלְכָּא
kə.ṭā <u>b</u> .tu:n 'you (mp) wrote'	כְּתַבְתוּן
tɑ:.re:k <u>t</u> 'you (ms) drove s-t off'	תְּרִיכַת

Superheavy syllables do not appear to function distinctly from any other closed syllables; I will therefore ignore the distinction between heavy and superheavy syllables in the discussion to follow.

Main stress in JLA is either on the final or the penultimate syllable. If the final syllable is closed, it is typically stressed; if the final syllable is open, then the penultimate syllable is typically stressed:

kəṭā <u>b</u> u 'they wrote'
malkā <u>t</u> 'queen of'
kəṭā <u>b</u> t 'you (ms) wrote'

There are exceptions, specifiable morphologically, to both these cases. Words with final *closed* syllables and *penultimate* stress include:

- i. 1s suffix verb forms, e.g. kəṭābit 'I wrote'
- ii. 3sf suffix verb forms, e.g. kəṭābat 'she wrote'
- iii. a few masculine singular absolute/construct "segolate" nouns, e.g. ʔālaḅ 'thousand'

Forms with final *open* syllables and *final* stress include:

- iv. nouns with the emphatic (definite) suffix -a: , e.g. malká: 'the king'
- v. feminine nouns with an absolute singular ending in /u:/, maləkú: 'kingdom'
- vi. feminine singular absolute nouns in -a: , e.g. malká: 'queen'
- vii. masculine plural construct nouns in -e:, e.g. ʔappé: 'face of'
- viii. nouns with the first singular suffix -i:, e.g. malkí: 'my king'

Table 1: Apparent Exceptions to JLA Stress

These 'exceptional' cases are considered in section 4 below.

3. Prosodic Analyses of Stress in TH and JLA

The basic facts of **Tiberian Hebrew** main stress are identical to those of JLA. McCarthy (1982:75) describes TH main stress as follows: "Stress the ultima if it ends in a consonant,

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otherwise stress the penult". Churchyard (1999:15), following Rappaport (1984:132-134), proposes an *end-right syllabic trochee* as the stress foot in TH. A principal motivation for the syllabic trochee in TH is to account for the process of *pretonic lengthening*, by which the majority of immediately pretonic light syllables are rendered heavy by lengthening their nucleus. Later rules of *stress shift* (moving stress rightward, off a light penult) and *vowel reduction* derive the surface forms. For example:

TH	katabu:	'they wrote'
	{ka}(ta . bu)	;Main Stress Foot (syllabic trochee)
	ka:tábu:	;Pretonic Lengthening
	ka:tabú:	;Stress Shift
	ka:təbú:	;Vowel Reduction

In order to maintain this analysis for TH forms with final *closed* syllables⁷, Churchyard assumes that word-final consonants are extrametrical in a very weak sense, in that they are not underlyingly part of the coda of the word-final syllable, but rather, count as a syllable themselves:

TH	katab	'he wrote'
	{ka}(ta . b)	;Main Stress Foot
	ka:táb	;Pretonic Lengthening

This analysis is equivalent to assuming an underlying final short vowel on most consonant-final words, as the history of Northwest Semitic would suggest. (A similar analysis, from a different theoretical perspective, is presented for some Arabic dialects in Angoujard 1990:138f.)

Exceptions aside, Churchyard's analysis *could* be applied to Jewish Literary Aramaic too. Closed final syllables would have to be treated as Churchyard does those of TH, but since stress in words with final open syllables in JLA is in fact penultimate, the end-right syllabic trochee analysis accounts for the facts immediately:

JLA	katabu	'they wrote'
	{ka}(tabu)	;Main Stress Foot
	kətábu	;Vowel Reduction

As Churchyard does, one would have to assume that any word final consonant is onset to an empty-headed syllable:

katab	'he wrote'
{ka}(ta . b)	;main stress foot
kətáb	;vowel reduction

The *syllabic trochee* ($\overset{sw}{\sigma\sigma}$) employed in the above analyses is one of three universal foot types postulated in the metrical theory of stress set out in Hayes (1993). The other two

types are a *syllabic iamb* ($\overset{ws}{\sigma\sigma}$) and a *moraic trochee* ($\overset{sw}{\mu\mu}$).

⁷Rappaport (1984:134) simply stipulates that final closed syllables are stressed.

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An **end-right syllabic iamb** stress foot would be possible for TH *if* all final vowels (or final CVV syllables) were considered extrametrical:

TH	katabu:	katab	
	(ka.ta)[bu:]	(ka.ta b)	;main stress foot
	ka:tábu:	ka:táb	;pretonic lengthening
	ka:tabú:		;stress shift
	ka:təbú:		;vowel reduction

This is essentially the analysis of Prince (1985). Again ignoring exceptions, it might also be applied to JLA.

An analysis no one to my knowledge has considered for Tiberian Hebrew is one in which the main stress foot is an **end-right moraic trochee**. That analysis improves on the *syllabic* trochee in handling directly all cases of *closed* final stressed syllables, with no need to postulate 'phantom' final short vowels. But it fails to assign penultimate stress to words with final *open* syllables, as required by the accepted accounts of TH pretonic lengthening. For JLA, it incorrectly predicts final stress in those forms (like *kətábu*: 'they wrote) whose final open syllables are usually assumed to be long.

4. Comparing the Analyses

The following chart summarises the results of applying each of the three stress foot analyses permissible in Hayes (1993) to JLA. A √ in the chart specifies that the analysis handles a particular class of data directly; other chart entries outline a possible mechanism for bringing recalcitrant data into line.

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FINAL SYLLABLE	MAIN STRESS FOOT		
	iamb	syllabic trochee	moraic trochee
closed stressed kəṭáb 'he wrote'	✓	'syllabic' final C	✓
open unstressed kəṭábu 'they(m) wrote'	extrametrical final vowel or syllable	✓	extrametrical final mora or short final syllable
segolates ⁵ ʔáraʕ 'land'	underlying CVCC	underlying CVCC	underlying CVCC
open stressed malká 'the king'	✓	underlying final C or stress shift	underlying final C or final long V
closed unstressed kəṭábat 'she wrote'	extrametrical final syllable (nucleus)	'non-syllabic' final C	extrametrical final consonant

Table 2: Stress Foot Analyses Compared

For the 'regular' cases (rows 1 and 2), none of the three analyses is superficially superior to the other two. But the moraic trochee analysis is the only one of the three that *need* have no recourse to extrametricality or to 'defective' syllables, both essentially stipulative and unempirical in nature. What the moraic trochee analysis does require is that unstressed final vowels are short. As will be demonstrated below, there is some independent evidence that that is indeed the case.

All three analyses must appeal to the same underlying-surface disparity (see note 5) to account for the penultimate stress in absolute and construct singular forms of segolate nouns (row 3). Stressed final open syllables (row 4) are expected under the iambic analysis; indeed, it is *unstressed* final open syllables that pose a problem. If one chooses to employ extrametricality in an iambic account of these latter cases, then the problem remains of how to distinguish in a principled fashion between those final open syllables that *are* extrametrical and those that are not. The syllabic trochee analysis deals with final open stressed syllables in TH either:

⁸The 'standard' analysis of Northwest Semitic segolates involves underlying consonant clusters, an analysis corresponding to the reconstructed PSEM shape of such items. Where the underlying/historical cluster would otherwise surface tautosyllabically, it is broken by an epenthetic vowel. The syllabic trochee analysis of such forms requires a 'phantom' final vowel or equivalent; the iambic and the moraic trochee analyses would simply treat the forms as bimoric:

malk 'king'	malk+i: 'my king'
malek	;Epenthesis
melek	;Segolate Harmony

The segolate class is quite large in TH. While some of the corresponding items show typical segolate behaviour in Aramaic, in most the stress has shifted rightward off the penult:

TH ḥēreb 'sword'

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- a. by reducing them to closed stressed syllables (by arguing for some underlying final consonant), or:
- b. by the process of stress shift (off a light penult).

There is no motivation for the latter in JLA, though arguments can be made for the former in some (but crucially not all) cases. Final stressed open syllables are no problem for the moraic trochee analysis, *if* there is evidence that the final vowel in such cases is *long*.

Final closed unstressed syllables (row 5 of Table 2) are a problem for all three analyses. They would be straightforward in a syllabic trochee analysis of JLA if one could motivate a contrast between 'syllabic' and 'non-syllabic' final consonants. The iambic and moraic trochee analyses must employ extrametricality. There is, however, some independent evidence for this extrametricality under the moraic trochee analysis.

Overall, the *moraic trochee* analysis of the main stress foot in JLA fares best, since it has the least recourse to extrametrical or 'defective' syllables. In the following sections, I consider evidence for:

- i. short final vowels in JLA final unstressed open syllables
- ii. underlying final consonants or long final vowels in JLA stressed open syllables, and
- iii. extrametrical final consonants in JLA final unstressed closed syllables.

4.1 Stressed Final Open Syllables

Consider first those forms (Table 1 iv-viii, repeated here for convenience as Table 3) with stressed final open syllables in JLA:

- iv. nouns with the emphatic (definite) suffix -a: , e.g. malká: 'the king'
- v. feminine nouns with an absolute singular ending in /u:/, maləkú: 'kingdom'
- vi. feminine singular absolute nouns in -a: , e.g. malká: 'queen'
- vii. masculine plural construct nouns in -e:, e.g. ʔap:e: 'face of'
- viii. nouns with the first singular suffix -i:, malkí: 'my king'

Table 3: Stressed Final Open Syllables in JLA

Under the **syllabic trochee** analysis similar forms in TH can either be dealt with through stress shift (off a penultimate light syllable), or by postulating an underlying final consonant. Stress shift is irrelevant for the JLA forms for two reasons. First, stress does not in fact shift off a penultimate light syllable in JLA, as evidenced in forms like ketábu: 'they wrote' and, second, as most of the examples chosen above suggest, not all forms with stressed final open syllables have a penultimate light syllable.

There is synchronic justification in JLA for an underlying final consonant in at least some of the recalcitrant cases. Witness alternations like the following:

- maləkú: 'kingdom' (< malak+u:t)
maləku:tá: '(the) kingdom'

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ʔap:é:	'face of'	(< ʔap:+ay)
ʔap:ay:á:	'(the) face'	
malkí:	'my king'	(< malk+i+y)
maləkáy	'my kings'	
malká:	'queen'	(< malkat)
malkəṭá:	'(the) queen'	

For the first singular possessive on singular noun stems, and for the plural construct, evidence from plural noun stem forms (parallel to that usually noted for TH, in the former case) and from plural emphatic forms in the latter suggest that the first singular possessive suffix has an underlying/historical /y/.⁹ In ú:- and á:-final feminine nouns, evidence from the emphatic (and the construct) singular suggests an underlying /t/.

Only in the case of *emphatic* noun forms in +á: is there no evidence of a historical (or underlying) final consonant. In the absence of such evidence, some other account must be provided for the emphatic forms. There is no obvious account under the **syllabic trochee** analysis. If an account of these forms can be provided under one of the other analyses, then (all other things being equal) that analysis is to be preferred.

Under the **iambic** analysis of course, none of the forms of Table 3 are in any way exceptional, since final stress is expected. Under the **moraic trochee** analysis, these forms are unexceptional *if the final syllable is bimoric*, either by virtue of there being an underlying final consonant (as suggested above), or by virtue of the stressed final vowel being *long*.

4.2 Unstressed Final Open Syllables

In the absence of a process shifting stress off a light syllable, under Churchyard's **syllabic trochee** main stress foot, we expect (underlying) vowel-final forms in JLA to have penultimate stress, so these forms are not exceptional. But with an **iambic** main stress foot, forms like:

kətábu:	'they (m.) wrote'
bənénə	'we built'
qəṭála	'they (f.) killed'

are aberrant *unless* the final syllable is extrametrical. Mutatis mutandis, the same would be true under with a **moraic trochee** main stress foot, *if* the final vowel is assumed to be long (bimoric). In that case, one must assume that the final mora is extrametrical. But it is not clear why a final syllable (for the *iamb*) or mora (for the *moraic trochee*) should be extrametrical in just these cases.

This last observation is perhaps a devastating one for the iambic analysis, but not for the moraic trochee. Observe that the strongest sense in which the final mora can be extrametrical is if it is not present at all; that is, if the vowels of unstressed final open syllables are in fact *short* (in contrast to their usual interpretation as long, as suggested in

JLA ḥarbá'	'(the) sword'
ḥəréb	'sword'

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the above transliterations). If the forms of the 1st plural suffix and the 3rd person plural verb suffixes were in fact: *-u '3pm', *-a '3pf', and *-na¹⁰ '1p' then the *moraic trochee* analysis accounts for them directly.

There are at least two pieces of evidence favouring the view that these vowels were short, over and above the fact that (together with a moraic trochee stress foot) this hypothesis accounts for the difference in stress between pairs like:

miṭərá:	'(the) rain'
məláka	'they (f) ruled'
maləkú:	'kingdom'
kəṭábu	'they (m.) wrote'

whether or not one postulates an underlying final /t/ in forms like maləkú:

First, the /a/ final suffixes -na '1p' and -a '3pf' are in most cases pointed *pataḥ* (i.e. short) when an object suffix is added:

qaṭəl+á+ni	'they (f.) killed me'	קָטַלְנִי
qaṭəl+ná+hi	'we killed him'	קָטַלְנָהּ

In the absence of any general shortening process, the obvious conclusion is that the vowels in these suffixes *were* short.

Second, and rather more compelling I think, is the fact that in many Late and Modern Aramaic languages/dialects, these suffixes have apocopated forms. In Classical Syriac, the apocopated suffixes include:

- i. the 3rd plural masculine verb suffix Pre-Syriac *-u:

ktab 'they [m] wrote' כַּבְּ¹¹

- ii. the 3rd plural feminine verb suffix Pre-Syriac *-a:

ktab 'they [f] wrote' כַּבְּ¹²׀כַּבְּ

- iii. the 1st plural nominal and verbal suffix Pre-Syriac *-na:

ktabn 'we wrote' כַּבְּנֵ

bra:n 'our son' בְּרֵנֵ

malek ;Epenthesis

melek ;Segolate Harmony

The segolate class is quite large in TH. While some of the corresponding items show typical segolate behaviour in Aramaic, in most the stress has shifted rightward off the penult:

TH ḥēreb 'sword'

JLA ḥarba' (the) sword'

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hayklan 'our temple' ܗܝܟܠܐ

iv. the 1st singular nominal suffix Pre-Syriac *-i:

me:mar 'my word' ܡܝܡܪܐ

I analyse all but the last of these as short in JLA. (Like the final *matres lectionis* of the 3rd plural verb suffixes, the final ܐ (y) of the 1s nominal suffix has no phonetic realisation in Classical Syriac.)

Although accounts of the history of Classical Syriac frequently speak of final long vowels being lost, that view seems to me contentious at best. I would be more satisfied with a proposal in which the vowels in question *shortened* in some pre-Syriac period (as I argue here for JLA). It was then those *short* vowels that were subsequently lost in word final position, but not when followed by an object suffix:

q̄tal 'they killed'	ܩܬܠܐ
q̄aṭlun 'they killed us'	ܩܬܠܢܐ
rdap 'they (f) pursued'	ܪܕܦܝܢ
radpa:k 'they (f) pursued you (ms)'	ܪܕܦܝܢܐ
rdapko:n ¹³ 'they (f) pursued you (mp)'	ܪܕܦܝܢܐܝܢ

or in the nunated forms:

kt̄abun 'they (m) wrote'	ܟܬܒܘܢܐ
kt̄abe:n ¹⁴ 'they (f) wrote'	ܟܬܒܘܢܐܝܢ
kt̄abnan 'we wrote'	ܟܬܒܢܐ

(In Classical Mandaic, the 3rd singular and plural masculine verb forms are identical, *modulo* a nunated form in the plural: n̄paq 'he/they departed', n̄paq̄un 'they departed'. The 1p nominal suffix is -an, as in Syriac; for example, CM bran 'our son'. The verbal suffix 1p suffix is -nin.)

Analogous forms can be found in Modern Aramaic. Here I cite examples from Western Modern Aramaic, to balance the Syriac (Eastern Late Aramaic) examples given above.

¹³In this last case, the vowel of the subject agreement suffix is reduced, but triggers spirantisation of the following consonant: [r̄d̄af̄x̄o:n]. One would not expect reduction if the vowel were etymologically long. The fact that the Syriac 3pf suffix is long before object suffixes of the form -C is, of course, problematic. I would suggest that in most such cases it can be argued that the length is a function of the object suffix, and not the subject agreement. I will not detail those arguments here.

¹⁴Boyarin (1981:623ff) suggests that the [e:] of this form has its origin in an *-i: 'fp' that moved into Syriac from western Aramaic dialects.

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The Ma'lula forms for 3rd singular masculine and the 3rd plural past tense verb forms are identical, as in Syriac and Classical Mandaic, but the older -u and -a of the plural are restored under affixation:

Ma'lula	ifθaḥ	'he, they (c) opened'
	faθḥunne	'they (m) opened it'
	faθḥanne	'they (f) opened it'

The 1st plural suffix in the past appears to involve a reduced form of the independent pronoun anaḥ 'we': faθḥinnaḥ 'we opened' (cf. Syriac pṭaḥnan 'we opened'). The first half of the geminate /n/ may reflect the earlier *-n '1p' suffix.

On balance, then, there is a correspondence between JLA forms with an unstressed final vowel and forms in other Aramaic dialects in which the JLA final vowel is reflected as Ø. These facts suggest to me that the unstressed final vowel in JLA in these cases was *short*.¹⁵ Note, however, that I am definitely not arguing that these vowels were short in Proto-Semitic or in any other pre-Aramaic stage. That is a separate issue entirely. My only claim is that they were short in JLA and, in all likelihood, in contemporaneous Aramaic dialects.

4.3 Unstressed Final Closed Syllables

The resolution of forms with unstressed final closed syllables in JLA has no particular bearing on the issue of vowel quantity. For the sake of comprehensiveness, and because these forms raise other interesting issues for Aramaic morphophonology, I make some tentative suggestions regarding these forms in the remainder of this section.

The forms in question are 1s and 3sf verb forms like:

JLA	kəṭāḇit	'I wrote'
	kəṭāḇat	'she wrote'

which superficially resemble unsuffixed segolate noun forms in having a closed unstressed final syllable.

4.3.1 Object Suffixes in JLA

Since many of the arguments relevant to the status of these forms refer to JLA object suffixes, we detour briefly to introduce those items:

	sing	plur
1	-ni	-na
2m	-(a[:])k	*-ko:n
2f	-i[:]k	*-ke:n
3m	-hi, -eh	-(i[:])nnu[:]n
3f	-ha, -ah	-(i[:])nni[:]n

¹⁵An exception is the singular first singular possessive suffix JLA -i: 'my', which is Ø in Classical Syriac, but -i (alternating with Ø in some cases) in reflexes in all modern Aramaic dialects of which I am aware.

Table 4: JLA Object Suffixes

The object suffix data in JLA I have examined are limited in at least two respects. First, they contain no occurrences of 2nd plural object suffixes. On the basis of other Aramaic dialects, I would expect the asterisked forms given above. Second, the 2nd singular feminine was attested only in a single token, דְּבַרְתִּיךְ [dəb̥arti:k] 'I took you (fs)'.¹⁶

The representation of vowel length for non-final vowels in the above forms is based on a conventional interpretation of vowel pointing and *matres lectionis*. In those cases where I have some reason to doubt that the vowel is long, I represent length as [:]. Other object suffix alternations are discussed below.

With suffix conjugation verb forms¹⁶, the object suffixes in general follow a stem which reflects a historical short vowel lost in word final position. Thus, the pre-object stem for 3sm suffix verb forms reflects a final short *a; for 2sm forms, the 2sm suffix *-ta; for 2sf forms, *-ti. As already noted above (section 4.2) it is not clear that historically long vowel-final forms like the 3pm *-u: and 3pf *-a: are in fact long before object suffixes in JLA. This re-emergence of short final vowels can be observed most clearly before -CV object suffixes like those for the 1st person singular and plural.

	'killed'		killed me	killed him	killed them
3sm	qəṭál	(< *qaTala)	qatə́láni	qatə́ləh	qəṭalinnún
3pm	qəṭálu	(< *qaTalu[:])	qatə́lúni	qatə́lúhi	qəṭalunnún
2sm	qəṭált	(< *qaTalta[:])	qəṭaltáni	qəṭaltáhi	qəṭaltinnún
2sf	qəṭált	(< *qaTalti)	qəṭaltíni	qəṭaltíhi	qəṭaltinnún
1s	qəṭálit	(< *qaTalti[:])	qəṭaltáni	qəṭaltéh	qəṭaltinnún
3sf	qəṭálat	(< *qaTalat)	qəṭalátni	qəṭalətéh	qəṭalatnún

Table 5: Some Representative Suffix Conjugation Object Forms

The historical final vowel is not reflected before *3rd plural* pronoun objects. This fact follows if the 3rd plural object 'suffix' and the verb form it follows are viewed as distinct phonological words, rather than as stem and affix. That analysis receives support from the patterns of vowel reduction in 3rd plural object forms (see section 5) and from the close correspondence between the Aramaic 3rd plural objects and the corresponding absolute pronouns (in JLA, ʔinnun, ʔinnin 'they' for masculine and feminine, respectively)¹⁷. The /i/-initial variants appear with surface consonant-final verb forms (except for the 3sf, to be considered below); the /n/-initial variants elsewhere.

Nor is the historical final stem vowel always reflected before the 2nd and 3rd singular object (and possessive) suffixes JLA -a[:]k '2sm' and -ik '2sf', and -eh '3sm' and -ah '3sf'. These forms appear to be metathesised from earlier *-ka, *-ki, *-hi, and *-ha, respectively. For the 2s forms, compare TH -ka:, -k AK, CA -ka, -ki. For the 3s, compare TH -hu[:], -ha[:]

¹⁶With prefix verb forms, the object suffixes are in general preceded by a formative -inn-. I will not consider those forms further here.

¹⁷There is a closer correspondence between 3rd plural object 'suffixes' and independent pronouns than for most other persons/numbers in most Semitic languages. I have not investigated the place of 3rd plural forms in the prosodic hierarchy for other languages, however.

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CA -hu[:], -ha. The unmetathesised allomorphs JLA -ohi 'his' and -ahā 'her', appear as possessives on plural nouns stems; the unmetathesised -hi 'him' and -ha 'her', as objects following surface vowel final and imperative forms.

The 2sm appears as -k after surface vowel-final verb forms like the 3pm; for example, JLA yəhəbúk 'they (m) gave you (2sm)'. That is, the vowel of the suffix is lost. Whether this loss occurred before or after metathesis is unclear, however. For most other verb forms for which evidence is available, the identity of the surviving vowel is ambiguous. So, in a form like JLA yəhəbtá[:]k 'you (ms) gave yourself', the vowel of the final syllable may originate in the subject agreement suffix, in the object suffix, or both (if the vowel is indeed long).

3s object forms of 3sm verbs are also perhaps ambiguous. The /e/ of a form like qəṭal+éh 'he killed him' could have arisen from the diphthong /ai/ in an earlier *qəṭala+ih, or as a result of tonic lowering of high vowels in closed syllables from an earlier *qəṭal+ih. But when one considers forms like qəṭaltí+hi 'she slew him', it is not clear why the metathesised form should appear at all, if the 3sm suffix verb form was vowel final when metathesis occurred. For that reason, I favour a derivation like the following:

qəṭala+hi	
qəṭal+hi	;Stem Vowel Syncope
qəṭal+ih	;Metathesis
qəṭal+íh	;Main Stress
qəṭal+éh	;Tonic Lowering in closed syllables
qəṭəl+éh	;Reduction

for the 3sm forms in question. The process of Stem Vowel Syncope is problematic. Why the historical final vowel should be lost in these, but not in forms like the 2sf, is unclear.

4.3.2 1s Suffix Verb Forms

Before object suffixes, the unstressed suffix +it of 1s suffix verb forms like JLA kəṭábit 'I wrote' becomes +t(a). The fact that the /t/ of the suffix is not spirantised is evidence that the preceding vowel has not just been reduced (see section 5) before object suffixes, but is simply absent. That is, the object suffix stem in the strong *peal* is CəCaC+t(a)-. Thus, for yəhəbit 'I gave', one finds:

yəhəb <u>t</u> +á[:]k 'I gave you (2sm)'
yəhəb <u>t</u> +é:h 'I gave him'
yəhəb <u>tá</u> +na 'I gave us'
...

A first hypothesis regarding the /i/ of the 1s suffix +it in forms like kəṭábit 'I wrote' is that it is epenthetic. I reject that hypothesis¹⁸ for two reasons. First, epenthetic /i/ is expected in JLA (as in TH) only after /y/: BA ḥáyil 'power (absolute singular)' and, second, there is no general constraint barring Ct# clusters in JLA: kəṭabt 'you (ms) wrote'.

¹⁸pace Lambdin, as noted in Huehnergard 2000:46

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Comparative evidence suggests that the Semitic 1s verb suffix was of the form *-CV rather than *-VC:

TH	ka:ṭabti:	'I wrote'
CA	katabtu	

For Proto-NW Semitic one might reconstruct *-ti(:). (I will not take a position on the length of the vowel in this form.) That reconstruction suggests that it is not *epenthesis* but *metathesis* that gives rise to the word-final form of the 1s verb suffix in Aramaic:

JLA	katab+ti	
	katáb+ti	Main Stress
	katáb+it	Metathesis
	kəṭáb+it	Reduction

I generalise this reduction claim beyond JLA to Aramaic in general because 1s suffix verb forms in other Aramaic dialects are similar in relevant respects to those of JLA; for example, BA *kṭəb ét* 'I wrote', Syriac *kəṭb eṭ* 'I wrote'. In Syriac, the syncopated penult with stress on the original antepenult is, so far as I am aware, an expected outcome. Before object suffixes (except the 2nd and 3rd plural), the Syriac 1s suffix *peal* stem becomes CCaC+t-, without spirantisation of the /t/ (Muraoka 1987:38). CV metathesis is not a general process in JLA or other Aramaic dialects, even for suffixes, since at least some +CV suffixes are found (for example, in JLA, the 1p +nq). But, as observed in section 4.3.1, neither is it restricted to 1s suffix verb forms alone.

For 1s suffix verb forms, the metathesis analysis would be better supported were it the case that the historical *-ti was reflected before object suffixes. As observed in Table 5, this does not seem to be the case, however. The 1s suffix pre-object stems are for the most part identical to those of the 2sm. I have no particularly interesting suggestions to offer regarding this problem.

4.3.3 3sf Suffix Verb Forms

The **3sf suffix verb form** in West Semitic is unusual; it is, to my knowledge, the only West Semitic suffix verb form reconstructible as *consonant-final*¹⁹. Because there is no reason to suspect a 3sf suffixed verb form like JLA *kəṭáb at* 'she wrote' to reflect anything other than an earlier **katabat*, under iambic or moraic trochee analyses there is no reason to expect anything other than final stress. And indeed, in Biblical Aramaic cognates, the stress is apparently final: BA *kṭəb át* 'she wrote'. (Under most analyses, the final stress of the TH cognate *ka:ṭəb ó:* is a result of stress shift off a light penult, as noted above. The Classical Syriac cognate *kəṭbaṭ* 'she wrote' has the syncopated penultimate syllable and (ante)penultimate stress noted above for Syriac 1s suffix verb forms.)

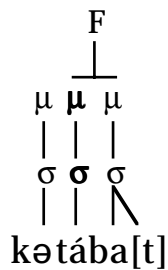
A facile approach to the exceptional stress of its JLA reflex would be to regard the final /t/ of the 3sf suffix -a(t) as extrametrical. I would ordinarily shy away from such proposals as *ad hoc*, or at the very least adopt them only as a last resort. In this case, though, there is independent evidence for extrametricality of the /t/, from the selection of 3p object

¹⁹Churchyard (1999:716, ft.4.22) makes similar observations regarding pre-Hebrew *-at.

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forms. As observed above, Aramaic 3p object 'suffixes' are independent phonological words, related transparently to 3p independent pronouns. In JLA, there are two allomorphs of these object pronouns, conditioned by the class of the final segment of the verb. JLA 3sf suffix verb forms select the *post-vocalic* allomorph $[-\eta]n\text{un}$, and not the post-consonantal (see Table 5).

Assuming final-consonant extrametricality,²⁰ under the moraic trochee analysis the main stress foot of 3sf suffix verb forms is assigned as follows:



I will refine this analysis somewhat in the following section, in the light of evidence from vowel reduction.

5. Vowel Reduction in JLA

In this section, I demonstrate that the moraic trochee analysis used in the preceding sections to account for main stress also serves as an account of vowel reduction in JLA. The reduction of unstressed short open syllables is a feature of both Hebrew and Aramaic. In some cases, the nucleus of such syllables becomes shwa; in others it is lost completely.²¹ The facts of vowel reduction in both JLA and TH are essentially the same, *modulo* special cases and language specific rules like TH pretonic lengthening:

All pretonic light syllables are reduced, but in a sequence of light syllables, alternate syllables are reduced right-to-left.

In TH, the assignment of reduction feet must follow, and be independent of the assignment of the main stress foot. The strong component of the TH main stress foot may in fact surface as a reduced vowel, as in the following example: under the analysis in Churchyard 1999):

TH	katabuu	
	ka(ta.buu)	;Syllabic Trochee Stress Foot
	kaa.tá.buu	;Pretonic Lengthening
	(kaa).{tə}.(búu)	;Reduction Structure Assignment and Stress Shift

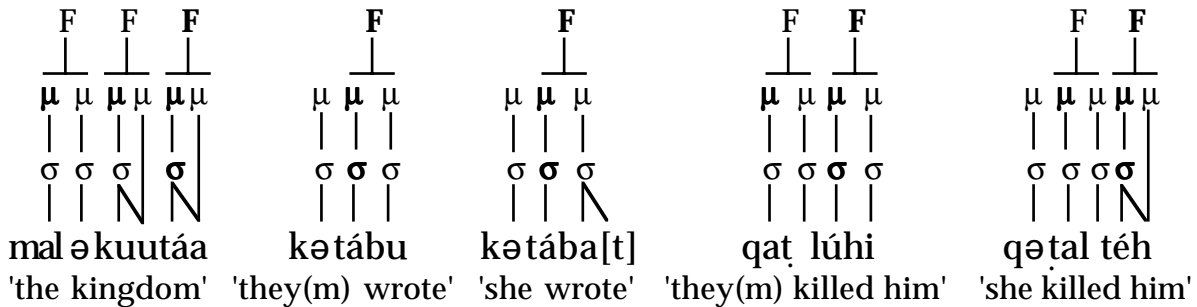
²⁰Whether the frequent loss of the /t/ is the feminine singular in Hebrew lends further support for its extrametricality is perhaps questionable, since the mora associated with the /t/ is *not* lost: TH *katəba*: 'she wrote'. In many modern Arabic dialects the 3sf suffixed verb form also behaves idiosyncratically (Angoujard 1999:119ff), but there it attracts rather than eschews stress.

²¹Even when reduced to zero, these vowels will typically leave a trace in the spirantisation of a following 'unemphatic' oral stop. But such evidence can be equivocal; one might expect C₂ in the 1s and 3sf peal suffix forms in Syriac to be spirantised, but they are not: ܩܝܕܥܝܬܝܢ 'I made'; compare, TH ܩܝܕܥܝܬܝܢ 'I served'. For a discussion of the history of vowel reduction in Aramaic, see Kaufman (1984).

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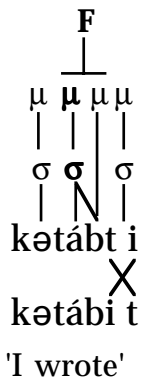
This example illustrates Churchyard's (1999) analysis of TH main stress and reduction. Under that analysis, TH reduction feet are bimoric trochees, like the main stress foot of the present analysis of JLA. Each heavy syllable is a reduction foot, as is each pair of light syllables. The rightmost syllable in a disyllabic reduction foot, along with any unfooted (light) syllable, is reduced.

By contrast, there appears to be no need to distinguish reduction feet from stress feet in JLA, provided that one bears in mind that reduction occurs only to the left of the main stress foot²². Some examples of reduction in JLA are:



In the last of these forms above, note that the addition of metathesised object suffix -eh 'him' effectively renders the final /t/ of the 3sf form extrametrical even though it is not word-final, since it becomes a syllable onset. The total mora count of the word is not affected, however.

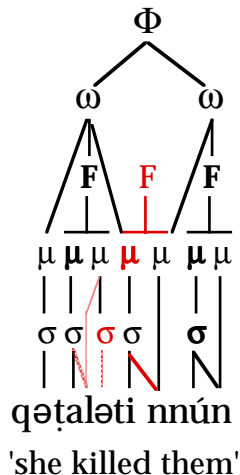
The metrical structure of the 1s suffix verb form is somewhat opaque because of the metathesis of the underlying suffix *-ti:



For forms with 3p object pronouns, each phonological word is footed separately, as evidenced by the reduced first syllable in a form like the following

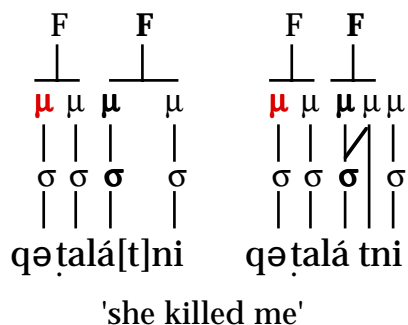
²²For a case of post-stress reduction in TH, involving the TH allative suffix -a:, see Churchyard (1999, ft. 1.60).

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It is not clear how (or whether) the two prosodic words in this form are integrated into a prosodic phrase. That integration might be expected to modify syllable structure and give rise to a new foot. (Pointing suggests that the resulting form retains the mora count of its two components, but has one syllable less.) These changes are indicated above in red. It is also unclear whether the two words remain independently stressed, or whether a phrasal stress foot is created.

So far as I am aware²³, the only set of forms not correctly parsed under the moraic trochee account of main stress and reduction in JLA are 3sf suffix verb forms with an unmetathesised +CV object suffix; for example, qəṭalátni 'she killed me'. It is not the position of stress that is the problem; main stress is assigned appropriately in these forms whether or not the final /t/ of the 3sf suffix is extrametrical:



Whether the stress foot is associated with the final two syllables (where the penultimate coda is extrametrical) or with the penultimate heavy syllable, main stress falls on the penult. In either case, the initial pair of light syllables forms a foot the rightmost mora of which should be reduced. But the weak mora is in fact the leftmost one (shown above in red).

I have only two solutions to offer to this problem, neither of which I find satisfactory.

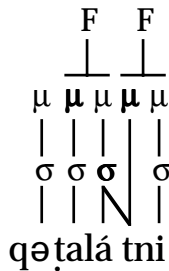
²³I have found one example of a Semitic CaCaC noun form that is exceptional under a moraic trochee analysis of vowel reduction

malka ḥədatə 'a new king' (Exodus 1:8)

where one would expect ḥadətə 'new (ms emphatic)'. If that form is not just an error, I have no account of it to offer at present.

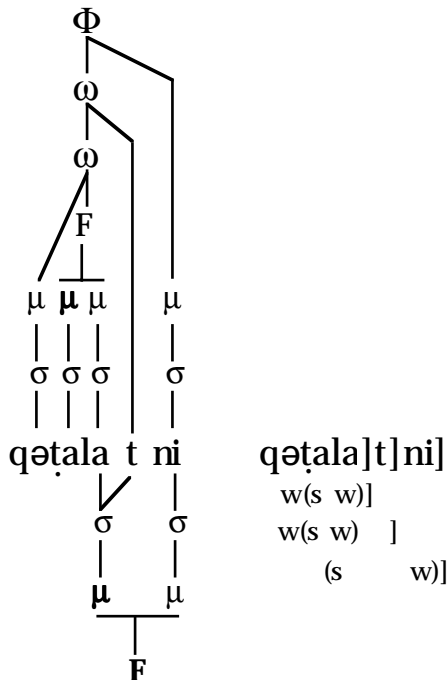
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This first, and perhaps least palatable, is to introduce a violation of the *strict hierarchy constraint* (Nespor and Vogel 1986, following Selkirk 1984) by allowing the stress foot to cross syllable boundaries:



In this analysis, the moraic status of the 3fs /t/ is restored in non-final position, and that mora becomes the strong mora in the trochaic stress foot. The stress is then thrown back to the syllable containing that mora.

The second solution appeals to the cyclicity of foot formation²⁴. Let us assume that in 3sf suffix verb forms like qəṭalát 'she killed', the feminine suffix -t is added to the 3sm (with its historical final vowel) to form the 3sf. An object suffix like -ni 'me' might then be used to form qəṭalátni (= [[qəṭala]t]ni) 'she killed me'. The extrametricality of the suffix -t is manifest in its blocking of any cyclic refooting *within a domain bounded by that suffix*. Thus, on the second cycle, the foot structure does not change. On the final cycle, however, a foot can be formed straddling the suffix, and becomes the main stress foot. But no change is made in the +t-bounded domain, resulting in an otherwise impossible pair of adjacent strong morae:



6. Conclusion

In the preceding sections, I compared three analyses of main stress placement in JLA,

²⁴I thank John Henderson for discussion and advice that led to this proposal.

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involving a stress foot that is either i) an iamb, ii) a syllabic trochee, or iii) a moraic trochee. None of these analyses accounts for all the facts of main stress in JLA immediately, but I conclude that the last of these alternatives, the **moraic trochee**, is the superior to the other two. And it is precisely the analysis that is quantity sensitive. I conclude, then, that the vowel system of JLA was probably much like that of the modern Eastern Aramaic dialect described, for example, in Hoberman (1989) and elsewhere: a system with five long vowels and three short vowels, where length is neutralised for mid vowels, and where the long vowels were indeed phonetically long. I note that the moraic trochee analysis also serves as an account of vowel reduction in JLA.

Most problematic for the analysis are two sets of verb forms in which final closed syllables are unstressed; the 1s and 3sf. The first of this I resolve by an appeal to CV metathesis and the second, perhaps less convincingly, by an appeal to extrametricality of the -t feminine suffix on verbs.

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