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TABLE OF CONTENTS

9. SEMITIC TRIRADICALITY OR PROSODIC MINIMALITY? EVIDENCE FROM SOUND CHANGE[1]

Robert D. Hoberman

9.1. Introduction

The idea that words in Semitic languages are built on roots which predominantly consist of three consonants is a theory that was conceived about twelve hundred years ago. Students of Semitic languages find the concept of the root so convenient and useful that one finds it hard to think about Semitic morphology without it. Yet occasionally during the past century and increasingly in recent years thoughtful investigators have expressed doubt as to whether roots really function in the mental processing of Semitic languages by native speakers and even as to whether roots are theoretically appropriate entities for the description of Semitic morphology. Evidence on both sides of the question is collected in Shimron 2003. In his introduction Shimron observes that among the contributors to the volume all the psycholinguists support the validity of roots, while all or nearly all the "straight" linguists argue against roots. In this paper I examine a sound change in Aramaic that previous scholars have sought to account for in terms of root structure. I argue that prosodic structure, and not root structure, is what played the crucial role in this historical change. That is not to say that roots play no role in other historical or synchronic phenomena.

Northeastern Neo-Aramaic has a set of words that reflect the change exemplified by *šə́mma* 'name' from Earlier Aramaic *šma:*.[2] Table 9.1 lists all the words that I have been able to identify with confidence as belonging to this set.[3] We can ask what caused this change, but this really consists of two distinct questions: What changed in the sound pattern of Aramaic when *šma:* shifted to *šə́mma* (section 9.2)? And what motivated, or set off, the historical change (section 9.3)?

Table 9.1. Words Exhibiting the *šma: > šəmma* Change

Gloss	*Syriac*	*Pre-NENA**	*Turoyo*	*Aradhin*	*Urmi*	*Azerbaijan*	*Hertevin*	*ZJ-group*
'name'	šma:	—	ʔəšmo	šumma	šimma	šimma	šemma	šəmma
'blood'	dma:	—	ʔadmo	dəmma	dimma	dimma	demma	dəmma
'years'	(šnayya:)	*šne:	ʔəšne	šinne	šinni	šinne	šenne	šənne
'sky'	šmayya:	—	šma:yo	šmayya	šmajja		šmaya	
		*šme:				šimme		šimme

[1] Versions of this paper were presented at the North American Conference on Afroasiatic Linguistics, Cambridge, Massachusetts, in 1992, and the Annual Meeting of the Linguistic Society of America, Boston, 2004. I am grateful to members of those audiences and to several participants in the symposium honoring Gene Gragg for their helpful comments, to my Stony Brook colleagues Christina Bethin, Ellen Broselow, and Lori Repetti for helping me think about some of the theoretical issues, to Adam Ussishkin and Adamantios Gafos for useful suggestions, and to Yona Sabar for help with the Zakho and Nerwa data.

[2] Northeastern Neo-Aramaic is a group of languages and dialects spoken by somewhere between two-hundred thousand and two million people in Iraq, Iran, Syria, Turkey and a large diaspora. Northeastern Neo-Aramaic is one branch of Central Aramaic, the other being the Turoyo group. (The term Central Aramaic was proposed in Jastrow 1990.) By "Earlier Aramaic" I mean whatever relatively conservative Aramaic varieties of the first millennium were fairly similar both to classical Syriac and proto-Central Aramaic. Proto-Central Aramaic was a close sister of Syriac, so I generally cite classical Syriac forms to represent Earlier Aramaic, without intending to imply that Northeastern Neo-Aramaic is a daughter of Syriac.

My sources for Classical Syriac are Brockelmann 1928, 1968, and Nöldeke and Euting 1898; for the Urmi Christian dialect of Aramaic, Maclean 1895, 1901, Marogulov 1976, Oraham 1943, Polotsky 1967; for the Jewish dialects of northwestern Iraq (the "Zakho-Jewish group," including Zakho itself, Amadiya, and the Nerwa manuscripts edited by Sabar) Polotsky 1967, Sabar 1976, 1984, 2002; for Turoyo Jastrow 1985. Other sources are indicated where relevant.

[3] Transcriptions of Aramaic data obtained from published sources have been changed only as much as necessary to eliminate insignificant diversity of symbols and make cross-dialectal comparison easier. For the Urmi Christian and Azerbaijan Jewish dialects I use the symbol ° to indicate pharyngealized (or velarized, "flat") words. Stress in modern Aramaic words is penultimate unless indicated otherwise, except for the Jewish Azerbaijan dialect, in which stress is generally on the final syllable. The symbol ˣ marks forms that were ungrammatical, or non-existent, at the relevant historical stage, while * marks reconstructed forms that are presumed to have been grammatical.

Table 9.1. Words Exhibiting the *šma:* > *šəmma* Change (*cont.*)

Gloss	*Syriac*	*Pre-NENA**	*Turoyo*	*Aradhin*	*Urmi*	*Azerbaijan*	*Hertevin*	*ZJ-group*
'yesterday'	(eθma:l)	*tma:l	—	tummil	timmal	timmal	ʔetmal	təmmal
'snake'	(ħewya:)	*ħwe:[4] (absolute)	—	xuwwe	xuvvi, -a	xuje	ħowwe	xuwwe, xu:we
'what-you-may-call-it'	hna:	—	hno	—	hinna	—	—	hənna
'three' (feminine)	tlaθ-	—	—	ṭəlləθ	—	—	ṭellad-	ṭəllas-
'bottom'	ešta:	—	—	šitta	(išta)	—	šetta	—
'ten' (feminine)	ʕsar	—	—	əssər	—	—	—	—
'-teen'	ʕsar	—	-ḥṣar	-əssər	-°(s)sar	-ssar	-ʔessar	-ʔsar

*If different from Syriac form.

9.2. Question 1: What changed in Aramaic phonology when Earlier Aramaic *šma:* shifted to Northeastern Neo-Aramaic *šə́mma*?

9.2.1. Some Answers that Don't Work

Before proposing an answer to this question, I survey some answers that have been offered by other scholars of Neo-Aramaic. To be fair, none seems to have given more than brief, passing attention to the question, and their proposals are more in the nature of tentative suggestions than fully thought-out analyses. Three proposals can easily be shown to fail upon closer analysis.

9.2.1.1. Epenthesis

One hypothesis leaps to the mind of any Semitist (for instance, Sabar 1976: 39 n. 25) aware that ancient Semitic languages and Proto-Semitic, as it is generally reconstructed, as well as Classical Arabic do not allow initial consonant clusters: perhaps forms like *šma:* changed to forms like *šəmma* in order to open the initial consonant clusters. The need to avoid clusters would motivate epenthesis, initiating this chain of developments: *šmá:* > *šəmá:* > *šə́ma*(*:*) > *šə́mma*. Notice that in most of the words that underwent the *šəmma* shift the second consonant is a sonorant. It might be suggested that epenthesis in Aramaic applied specifically in initial obstruent-sonorant clusters, and this proposal gains plausibility from the fact that such a conditioning of epenthesis has been observed in several languages (for Winnebago this is known as Dorsey's Law). However, as an explanation of the change from the original *šma:* the epenthesis theory runs into a serious difficulty: we have no reason, other than the very change we are trying to explain, to believe that initial clusters were problematic in Earlier Aramaic varieties like Classical Syriac and the ancestor of Central Neo-Aramaic.

The evidence regarding initial clusters in the Earlier Aramaic ancestor of Northeastern Neo-Aramaic deserves re-examination. The main reason to think that in Earlier Aramaic there was a schwa-like vowel between an initial consonant and the following one is that the second consonant, if it is one of the set susceptible to spirantization, is spirantized. However, the spirantization of the second consonant in words like Syriac *kθav* 'he wrote' does not prove that it was actually pronounced [x][kəθav] in Earlier Aramaic. There is no doubt that when spirantization first applied, during the first millennium B.C.E., there was a vowel there, and the word was something like *katab*. Subsequently, when the first vowel was lost, spirantization would naturally have been preserved. There is no reason for *kθav* to be replaced by [x]*ktav* because the sequence *kθav* is privileged over *ktav* in terms of the cross-linguistic tendency for syllables to be structured in such a way that sonority increases from the peripheries of syllables to their nuclei. Because *θ* is higher in sonority than *t*, *kθav* is to be expected, rather than [x]*ktav*. At this stage spirantization was no longer an automatic process, and in fact *t* and *θ* were separate phonemes (e.g., Syriac

[4] The Northeastern Neo-Aramaic word probably derives from the older Aramaic absolute state, as suggested by Maclean 1895: 27. The Jewish Arbel form is *xiwwa* (Khan 1999: 585).

ħzi:θ 'I saw' versus *ħzi:t* 'you saw'). Therefore spirantization is no proof of the existence of schwa vowels in initial consonant clusters. On the contrary: we know that Earlier Aramaic tolerated initial consonant clusters in at least some words. For instance, the etymon of Earlier Aramaic *tre:n* 'two' had an initial consonant cluster in Proto-Semitic (something like **θnayn*), in the earliest Aramaic (conditioning the change from **θnayn* or **tnayn* to **trayn*), and in nearly all modern Central Aramaic dialects (*tre:*), and likewise *šta:* 'six' and *šti:* 'drink' had initial clusters in older Aramaic (Testen 1985; Hoberman 1989). The simplest explanation for the facts is that these words had initial clusters continuously from the most ancient Semitic stage until today. Furthermore, the epenthesis in Turoyo *ʔəšmo* 'name', *ʔadmo* 'blood', *ʔəšne* 'years', *ʔabro* 'son', *ʔabne* 'sons' make sense only if earlier forms were pronounced with initial consonant clusters, as *šma:*, *dma:*, *šne*, *bra:*, *bne:*, rather than **šəma:*, etc. The common ancestor of a pair of cognates like Turoyo *ʔəšmo* and Northeastern Neo-Aramaic *šəmma* can only be one with an initial cluster: *šma:*. (This is another word that we should reconstruct as having an initial cluster in Proto-Semitic, something like **šm*-V, on the basis of the Arabic form of the word.) Many modern Central Aramaic dialects allow an almost unlimited range of initial clusters both with and without sonorants: *šmá:ʔa* 'hear', *ptá:xa* 'open', *rtá:xa* 'boil' (these forms are from the Jewish dialect of Amadiya [Hoberman 1997a], but similar examples are found in most dialects [Odisho 1988; Sara 1974; Jastrow 1985: 25]).[5] If the change to *šəmma* were motivated by a structural requirement to break up initial clusters, this requirement must have come into effect later than the period of proto-Central Neo-Aramaic, the common ancestor of Turoyo and Northeastern Neo-Aramaic, and then become defunct before the stage of the modern dialects. This is less likely than the alternative, that initial consonant clusters were pronounced throughout this period. In terms of its initial cluster, then, there would have been nothing wrong with the pronunciation *šma:*, and we have no explanation for the hypothetical epenthesis that would have set off this chain of developments.

There is another fact that is not accounted for by epenthesis, and it leads us in the right direction. It is not only the words in table 9.1 that gained bulk between Earlier Aramaic and Northeastern Neo-Aramaic; *all* short words did (leaving the term "short" undefined for the moment). The standard grammars of Syriac, the best-documented of all pre-modern Aramaic languages, include a breakdown of nouns by stem shape, making it easy to search the relevant sections of Nöldeke and Euting 1898 and Brockelmann 1968 to produce a list of the short words in the language, a nearly complete list if not a complete one. Checking this list against Northeastern Neo-Aramaic dictionaries (Maclean 1901; Oraham 1943; Sabar 2002) shows the following: Some of the short words do not survive into Northeastern Neo-Aramaic (*zna:* 'kind, species' and *tða:* 'breast' are among those that have been lost), but those that did survive have *all* lengthened, and they lengthened by diverse mechanisms. Here are some examples:

(1)

Gloss	*Earlier Aramaic*	*Northeastern Neo-Aramaic*	*Mechanism*
'mill'	*rħe:	ʔárxe	epenthesis
'son'	bra:	bró:na	suffixation (*-o:n-* diminutive)
'father-in-law'	ħma:	xəmyá:na	epenthesis and suffixation (*-a:n-* agent)
'brother'	ʔaħa:	ʔá:xa, ʔaxó:na	vowel lengthening or suffixation
'hand'	yða:	ʔí:ða	glide vocalization and vowel lengthening

Earlier Aramaic *bra:* 'son' has acquired a diminutive-forming suffix, taking the form *bro:na* or the like in most Northeastern Neo-Aramaic dialects. An exception is the Hertevin form *ʔebra,* lacking the suffix but gaining length with an epenthetic initial syllable (as in Turoyo *ʔabro*). (This incidentally is further evidence that the form in proto-Central Neo-Aramaic was [bra:], not [x][bəra:].) Similarly, *ʔaħa:* 'brother' has changed in two ways in different dialects: the Amadiya Jewish dialect shows lengthening of the first vowel, *ʔa:xa*, while the very similar Zakho Jewish dialect has the diminutive suffix in *ʔaxo:na*; both types are widespread in Northeastern Neo-Aramaic. The former is similar to a change evidenced as early as classical Syriac in *ʔi:ða:* < *iða:* < *yða:* 'hand'.

[5] Speakers of modern Aramaic reciting Classical Syriac pronounce initial clusters without epenthesis (Hoberman 1997b). This is no doubt a product of their vernacular speech pattern, but it also happens to coincide with what Syriac must have originally sounded like in this respect.

Syriac has a set of words that form plurals with the older Aramaic suffix *-ayya:* rather than the *-e:* which replaced it generally, and nearly all these are short words (Nöldeke and Euting 1898: sec. 72). If *-ayya:* had been replaced by *-e:* in these plurals they would have been short. For example, Syriac has *šnayya:* 'years', not the expected [x]*šne:*, and *šma:he:* 'names', not [x]*šme:*. Three of the five short words with Syriac plurals in *-ayya:* survive in Northeastern Neo-Aramaic: 'son', 'year', and 'sky'.[6] The plural 'sons', *bnayya:* in Syriac, has acquired the diminutive suffix in most Northeastern Neo-Aramaic dialects, along with the singular, yielding forms like *bno: ne*. Northeastern Neo-Aramaic *šənne* 'years' derives not from Syriac *šnayya:* but from a form like **šne:*, just as Northeastern Neo-Aramaic *šəmme* 'sky' derives not from Syriac *šmayya:* but from **šme:*, and these two, being short, underwent the *šəmma* change. Forms of 'sky' with *-ay*(*y*)*a* exist in several Christian dialects (Aradhin, Urmi, Hertevin, as well as Turoyo), but this is evidently a borrowing from classical Syriac, as it is not found in Jewish dialects, where *šəmme* is homonymously both 'sky' < **šme:* < *šmayya:* and 'names' < **šme:* < *šma:he:*.

Other short words in Syriac were lengthened in different ways. For 'father-in-law' Syriac had both the short *ħma:* and the long *ħemya:na:*, but only the long form has survived into Northeastern Neo-Aramaic. *ʔava:* 'father' has been replaced by loanwords. In some dialects the short numerals 'one' and 'two' were lengthened when they serve as nouns.

Another older Aramaic short word that survives in Northeastern Neo-Aramaic is 'mill', Hertevin *ʔerħe*, Aradhin *arxe*, Zakho Jewish *ʔərxe*, Urmi *irxi*, which derives not from the determinate state, Syriac *raħya:* 'mill(stone)' (whence Turoyo *rəħyo*), but from the old absolute state **rħe:*, not attested in classical Syriac (Maclean 1895: 26), which, as Krotkoff (1985: 128) suggested, may have survived "due to the association of the *-e* with the plural because … the mill is an assembly of two millstones."[7] In **rħe:* > Hertevin *ʔerħe,* Aradhin *arxe*, epenthesis took place, probably because of the high sonority of *r,* precluding the *šəmma* change (Maclean 1895: 26).[8]

I have been able to identify only four other short nouns or adjectives in Syriac, *zna:* 'kind', *qwe:* 'woven fabric', *tða:* 'breast', and *teða:* (<**teðʔa:*) 'grass', none of which has survived into Northeastern Neo-Aramaic. Thus all short Aramaic words that survive in Northeastern Neo-Aramaic have been lengthened in one way or another. An adequate explanation for the *šəmma* shift should at the same time explain why no short words survive as such. Three have been proposed.

9.2.1.2. Penultimate Stress

Werner Arnold (personal communication) has suggested that "When in the Neoaramaic dialects stress shifted from the ultima to the penultima, monosyllabic words need an additional syllable." That is, if stress is to be on the penultimate syllable, a word clearly must have at least two syllables. But the fact that the penultimate syllable is the normal position for stress in a language does not necessarily mean that all words must have at least two syllables. Polish is a language with penultimate stress, much more uniformly so than modern Aramaic, but Polish has many monosyllables; this means that the Aramaic penultimate stress pattern is no explanation for the change in syllable structure we are concerned with.

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[6] In addition to these, there is *ʔi:ða* 'hand', which is not short in Syriac although the still earlier Aramaic form *yða:* is, and consequently in Syriac there are two plural forms, *ʔi:ðayya:* and *ʔi:ðe:*, neither of which is short. In Northeastern Neo-Aramaic the plural is generally a reflex of *ʔi:ða:θa*, never of **ʔi:ðayya*.

[7] Jastrow's suggestion (1988: 84) that rather than seeing this as an old absolute state "kann man *ʔerḥe* als ursprünglichen Plural erklären" pushes Krotkoff's idea a bit too far, in view of the fact that the Earlier Aramaic plural form (Syriac *rħawwa:θa:*) was not replaced by **rħe* but survives as the Northeastern Neo-Aramaic plural: Urmi *irxavati*, Hertevin *ʔerħa:ta*, Aradhin *arxa:θa*, Zakho Jewish *ʔərxa:θa*.

[8] There is support for a reconstructed form **rħe:* in the Azerbaijan and Arbel Jewish forms, respectively *irxel*, *ʔirxel* (presumably [ʔrxé:l], with phonetics deduced from Garbell 1965: 25, 36; Khan 1999: 49–53, 70–71), which suggest that the word was stressed on its final vowel — its only vowel if the reconstruction as **rħe:* is correct — even before the general shift of stress to the final syllable in Azerbaijan and Arbel. A similar development is reflected in Syriac *ħarya:* / *ħerya:* 'excrement', Arbel *xre*, Urmi *ixri*, Aradhin *axri*; the final *-i* in Urmi is identical to the plural ending (< *-e:*) but the final *-i* in Aradhin is puzzling.

9.2.1.3. Absorption into the Pattern CeCCa

Otto Jastrow (1988: 9) points out in his grammar of the Hertevin dialect that the change from *šma:* to *šəmma* has the result of assimilating this word to the class of nouns of the form *CeCCa* (pronounced [CəCCa]), such as *lebba* 'heart' and *qenna* 'nest'. True enough, and we might add that the *lebba* set has gained other members, such as *pemma* 'mouth'. However, this fact cannot be the motivation for the *šəmma* change because in modern Aramaic there are numerous words, mainly borrowings but also some native items, that do not fit any inherited Aramaic canonical shape. In fact, the general trend in modern Aramaic seems to be not toward *reduction* of the number of stem shapes in the vocabulary as a whole but toward an *increase* in variety. So we still lack an explanation of why words like *šma:* changed their form while words of other shapes did not.

9.2.2. Canonical Stem Shape

An explanation of an entirely different sort was proposed by Nöldeke (1868: 86), who said that the words *dəmma* and *šəmma* "sind in die Categorie der dreiradicaligen übergegangen" ("have gone over into the category of triradicals"). Sachau (1895: 19) states this theory in more detail, listing the word *šəmma* among examples demonstrating the "strenuous efforts" which the language has made to satisfy the demands of a "law of triradicality": "Um nun den Anforderungen dieses Gesetzes [scil. "die Triradicalität"] zu genügen, machen jene zweiconsonantigen Wörter gewaltsame Anstrengungen, indem sie durch Anfügung eines Alef, Je, Wau, oder He oder auch durch Verdoppelung des zweiten Consonanten es auf die erforderliche Dreizahl zu bringen suchen: Bildungsweisen, die sich als Nothbehelfe, als nicht organisch erwachsen, als einer jüngeren Periode angehörig unschwer zu erkennen geben" ("In order to satisfy the demands of this law, such biconsonantal words make strenuous efforts to meet the requisite number of three, by adding an alef, ya, waw, or ha [that is, respectively *ʔ* or *a:*, *y* or *i:*, *w* or *u:*, or *h* or *a:*] or by doubling the second consonant, developments which are easy to recognize as expedients, as having grown inorganically, as belonging to a more recent period").

I believe that Nöldeke and Sachau were on the right track in suggesting that there is some minimal structure or bulk that every word in this language must have. Conventional linguistic terminology calls such a requirement "minimality." The changes that produced Northeastern Neo-Aramaic *bro:na*, *bno:ne*, *ʔa:xa*, *ʔaxo:na*, *xəmya:na*, *treʔe*, *ʔərxe*, and Hertevin *ʔebra*, in addition to the *šəmma* set would be isolated, idiosyncratic, inexplicable changes if they are not seen as part of the general movement toward meeting a requirement of word-length. These changes seen together prove that the Northeastern Neo-Aramaic minimality requirement was operative in the historical development of this language. The purpose of this paper is to determine more precisely the nature of the minimality requirement that was met by the change from *šma:* to *šəmma*.

9.2.2.1. The Root-based Approach to Semitic Morphology

Words in Semitic languages strikingly conform to a relatively small set of canonical forms. There are two main approaches to delineating these forms, and each approach would provide a different answer to Question 1. One approach traditionally defines patterns in terms of roots consisting typically of three consonants.[9] For example, Arabic *maktab* 'office' is said to be composed of a root *k-t-b* meaning 'write' and a pattern *maCCaC* meaning 'place'. On this approach, the answer to question 1 would be that *šma:* shifted to *šémma* to match the canonical triconsonantal root structure, in this case *š-m-m*. This is the answer offered by Nöldeke and Sachau.

9.2.2.2. The Prosodic Approach to Semitic Morphology

The second approach defines Semitic canonical stem shapes in terms of prosodic templates. Research on the phonologies of many languages has shown that the prosodic structure of words, including accentual patterns

[9] It makes more sense to view stem shapes as being defined in terms of templates (patterns), each of which has three slots, where each slot can be occupied by one or more segment (Goldenberg 1994). For our purposes this is not different from the triconsonantal-root approach.

and templatic morphology, is best understood not in terms of consonant and vowel segments but in terms of metrical units like foot, syllable, and mora. A mora is a measure of syllable weight which can be defined for our purposes as follows: a short vowel is one mora, a long vowel is two moras, a syllable-final consonant is one mora. Syllable-initial consonants in most languages do not constitute moras because they are usually irrelevant in such phenomena as stress assignment and poetic meter.[10] On this approach Arabic *maktab* might be said to be one foot consisting of two syllables, each syllable with two moras. The form [maktab] is the simplest way to pronounce the combination of consonants and vowels consisting of a prefix *ma-* (or *m-*) which forms nouns, a vocalism *a* (or *a-a*), and the lexical material from a more basic word, perhaps *uktub* 'write', or *kitaab* 'book', or *kaatib* 'clerk'. (The indeterminacy of the base for this derivational process, as for many other derivational processes in analyses of this type, is an important weakness of this approach, but we will ignore that here.) On this approach, the answer to Question 1 is that *šma:* shifted to *šə́mma* in order to meet minimal-word requirements defined in terms of the prosodic elements mora, syllable, and foot.

Which of the two approaches to Semitic morphology is more enlightening for our problem? I assume that there was a synchronic minimality constraint at the time that forms like *šə́mma* originated and that its synchronic analog in the modern language will be very similar. Sachau proposes that the requirement is "Triradicalität": the stem must contain at least three "Radicale oder Consonanten." (I say "stem" because Sachau does not begin using the word "Wurzel" until the next section, "Nomina von dreiradicaligen Wurzeln"; the section with which we are concerned is called "Zweiradicalige Nomina.") However, the requirement cannot in fact be specifically three *consonants* because many of Sachau's own examples do not have three consonants, even counting *y*, *w*, and *ʔ* as consonants: *a:wa* 'father', *ħa:θa* 'sister', *i:da* 'hand', *ka:ka* 'tooth', *pa:θa* 'face', *ša:qa* 'leg', *ma:ya* 'water', *še:ta* 'year', *ya:ma* 'sea', *ka:we* 'window', *ma:θa* 'village'. Of course it would be possible to analyze these words as containing additional abstract root consonants in their underlying representations, so that, for instance, *i:da* might be said to contain a root *ʔ-y-d* (and proto-Northeastern Neo-Aramaic *ʔi:ða* contained a root *ʔ-y-ð*). But there is no reason to treat *ʔi:ða* 'hand' as if it contained a root *ʔ-y-ð* because the language has no words other than *ʔi:ða* itself that would contain the same root. A root is an abstraction, an element in a theory (though a very valuable theory). If the only motivation for such an analysis is to save the theory that words must contain three consonants, the analysis can carry no weight; it begs the question. Furthermore, in many Northeastern Neo-Aramaic dialects, for instance, Aradhin (Krotkoff 1982), the general direction of change is the loss of *ʔ*, *ʕ*, *y*, and *w*, so that many words that historically had roots of three segments now appear without them, as *xa:la* 'eat' (historically *ʔxa:la*), *θe:(-le)* 'he came' (< *ʔθe:-*), *ur* 'enter' (imperative; < *ʕvor*), *ara* 'earth' (< *ʔarʕa:*). It is hard to see how one could formulate the idea that a different, contrary change (*šma:* > *šəmma*) is motivated by some need to have roots of three consonants or segments.

9.2.3. A Prosodic Approach to Word Minimality in Northeastern Neo-Aramaic

9.2.3.1. Some Data

So what is the minimal legitimate word in modern Northeastern Neo-Aramaic? In order to determine this I examined all the attested nouns, adjectives, and verbs in two Northeastern Neo-Aramaic dialects, Hertevin (Jastrow 1988) and Aradhin (Krotkoff 1982), collecting all the "short" items.[11] Words of the shapes CVCCV(C) and CV:CV(C), and longer words that end in those sequences, are plentiful, so I defined "short" words as shorter than those shapes: short words are those which are either monosyllables or disyllables of which the first syllable is light (an open syllable with a short vowel), that is CVCV(:)(C). I examined only nouns, adjectives, and verbs

[10] For surveys of the reasoning and evidence behind this approach, see the articles in Goldsmith 1995 by Broselow, Perlmutter, and McCarthy and Prince.

[11] These two glossaries were chosen because of their size: they are not too large to be examined completely yet large enough to be statistically representative of the vocabulary as a whole and to be likely to include all the most frequent words. They also have the advantages of being documented with phonetic precision, including explicit marking of vowel quantity, which is essential to our topic, and of being based on colloquial, vernacular speech, rather than literary texts which contain numerous borrowings from Classical Syriac. Sabar's dictionary (2002) is much larger than Krotkoff's and Jastrow's glossaries and would be most appropriate for this investigation. I did not search it comprehensively because of its size, but a relatively brief examination shows that Sabar's vocabulary does not differ from Krotkoff's and Jastrow's in ways that relate to our topic.

because in Aramaic, as in many languages, function words such as prepositions, pronouns, adverbs, etc., are often shorter than the minimum length of the major lexical categories and have atypical sound patterns in other respects as well.[12]

9.2.3.1.a. Theme I Monosyllabic Imperatives and Perfects

Hertevin and Aradhin, as well as other dialects including Zakho/Amadiya Jewish, have productive categories of short words. In all three the (singular) imperative of verbs of Theme I (pʕal) is a monosyllable: Hertevin *ploṭ* 'go out', Aradhin *pḷoṭ*, Zakho Jewish/Amadiya *pḷo:ṭ*. In Hertevin and Zakho/Amadiya, Theme I verbs have another monosyllabic form, which functions in Hertevin as a perfect and in Zakho as a preterite: Hertevin *pleṭ* 'gone out', Zakho *šqi:l* 'took'. I postpone discussion of these productive types and first take up short words of non-productive categories.

9.2.3.1.b. Hertevin

The Hertevin glossary contains about 1,300 lexical items. Looking first at native Aramaic words, only a small handful are short as defined above: *ma:* 'hundred', *mare* 'possessor of', *ṭo:* 'better', a few relic absolute state forms appearing in *yo:m b-yo:m* 'day by day', *koš-šet* 'every year', and *koy-yom* 'every day', and the shortened first part of *palg-ú:-palga:* 'half-and-half'. Each of these is in one way or another outside of the canonical vocabulary in terms of meaning or function.

As for borrowed words (mostly from Kurdish, or from Arabic or Turkish borrowed via Kurdish), there are three monosyllables with short vowels and single final consonants (*ber* 'awareness', *čaṭ* [name of a village], *ħas* 'command') and forty-three monosyllables with long vowels or final consonant clusters (e.g., *te:r* 'sufficient quantity', *ʔahl* 'people'); none have the shapes CV: or CV. There are fifteen disyllables with light penultimates, such as *pare:* 'money', *kadi:* 'tame', *xari:b* 'foreign' (intriguingly, the first vowel is *a* in all but one, *geleh* 'complaint'). There are also a few trisyllabic words with light penultimate syllables, such as *ʔo:dawe:* 'whey' and *ṭarbela:* 'perplexed'.

The borrowed vocabulary is marked by several other departures from the normal phonological structure of the dialect, such as stress on a final or antepenultimate syllable, short vowels in open syllables, and long vowels in closed syllables, so borrowed words are not representative of the sound patterns of the inherited Aramaic component. We conclude that native words of the major lexical classes may not be short as defined above.

9.2.3.1.c. Aradhin

Krotkoff's glossary of the Aradhin dialect contains about 1,700 lexical items, including just fifty-three short words, of which only ten are native Aramaic. As in Hertevin, the borrowed portion of the vocabulary includes a significant number (forty-three) of short lexical items, and they are not limited in function or type. Of these, nine are monosyllables with a long vowel (e.g., *čo:l* 'wilderness'), ten are monosyllables with a final consonant cluster (e.g., *drist* 'straight', *zerq* 'small, white grapes'), and twenty-one are disyllables in which the first syllable is light (*giṛa* 'hill', *paqo* 'whole grain wheat', *saʕa* 'hour'). There are no monosyllables with the shapes CVC, CV:, or CV. In addition there are seven trisyllabic words with light penultimate syllables, all of them borrowed (e.g., *kalapuš* 'the dried greens of a plant', *másʔala* 'matter, problem', *saračа* 'furuncle', *sílsila* 'descendants'). As for the native items, in four an original *ʔ* had been deleted, producing a short open syllable where a closed syllable existed previously: *ara* 'earth' < **arʔa* (< Earlier Aramaic *ʔarʕa:*), *kibe* or *gəbe* 'he wants' < **k-bʔe* (< **k-bʕe:)*, *mara* 'illness' < **marʔa* (< Earlier Aramaic *marʕa:*), *nara* 'ax' < **narʔa* (< Earlier Aramaic *na:rɣa:)*. Another

[12] Thus in Aradhin the numerals 'one' (masculine and feminine) and 'two' are *xa, ða, tre* (< Earlier Aramaic *ħað, ħða:, tre:n*) when they occur before a noun, that is, when they are dependent, but are extended to *xaʔa, ðaʔa, treʔe* when they stand alone as the independent head of a noun phrase (Krotkoff 1982: 46). A similar extension occurs in the dialect of Tisqopa (Rubba 1993: 21) and in the Zakho and Amadiya Jewish dialects.

three are bound forms, which from the historical point of view are relics of older Aramaic construct state forms and in the modern language occur only as components of personal names and are probably not to be considered full words at all: *bi:* 'house of', *bar* 'son of', and *mar* 'honorific title before the name of a bishop' (Krotkoff 1982: 134). Two are "allegro forms" of the "emphatic copula" (37): *hon* < *howin* 'I am', *hule* 'he is'. The remaining item is *yaʔr* or *yaʔar* 'May'.

All these are either relatively recently formed (some Northeastern Neo-Aramaic dialects, among them Jewish Zakho and Amadiya, do not have the regular deletion of *ʔ* that Aradhin does) or outside the system of the major, open lexical classes of nouns, adjectives, and verbs. Furthermore, underlying long vowels are shortened before *ʔ*, producing many superficially short words, most of them infinitives like *plaʔa* 'divide'; otherwise infinitives have long *a* (*dma:xa* 'sleep'), so a word like *plaʔa* is underlyingly /pla:ʔa/. We may say, then, that in a relatively recent ancestor of the Aradhin dialect short words do not exist within the native Aramaic vocabulary.

To summarize, in Hertevin, Aradhin, and Zakho/Amadiya, native Aramaic words of the productive, major lexical classes (still postponing discussion of the short imperatives and perfects/preterites) are minimally of the shapes CVCCV(C) or CV:CV(C), that is, disyllables with heavy penults. Borrowed words may in addition be heavy monosyllables (CV:C or CVCC), disyllables with light penults (CVCV, CVCVC, CVCVCC, or CVCV:C), or trisyllables with light penults. How should these observations be formalized?

9.2.3.2. Binarity

It has been observed cross-linguistically that minimal words must be prosodically binary, having either two moras or two syllables. In languages with phonemic vowel length ("quantity-sensitive" languages), the binarity is usually moraic (words must contain two moras), while in "quantity-insensitive" languages the binarity is usually syllabic (words must contain two syllables; McCarthy and Prince 1995). Northeastern Neo-Aramaic has phonemic vowel quantity, so we should expect binarity to be moraic. However, vowel quantity in Northeastern Neo-Aramaic has little functional load, as vowel length is predictable in most cases (Jastrow 1988: 10, 14–15; Hoberman 1997a). Furthermore, unlike the pattern in typical quantity-sensitive languages like Latin and Arabic, stress placement in Northeastern Neo-Aramaic does not depend on syllable weight. Thus Northeastern Neo-Aramaic behaves mainly as a quantity-insensitive language, which would lead us to expect that the minimal word would be disyllabic. In fact the language vacillates between the two: in the native vocabulary words must be disyllabic, while the borrowed vocabulary contains bimoraic monosyllables.

(2) Syllabic binarity: A word must be at least disyllabic.
(3) Moraic binarity: A word must be at least bimoraic.

Syllabic binarity motivates the shifts *šm-a:* > *šə́*(*m*)*ma*, *rħ-e:* > *ʔə́rħ-e*, and *br-a:* > *br-o:n-a*. It is violated, however, by numerous loanwords (e.g., *zerk* 'small, white grapes', *čo:l* 'wilderness', and *gə́ra* 'hill' (from Kurdish *gir*), which has acquired the Aramaic word-marking suffix *-a*. In nearly all loanwords, including *zerq*, *čo:l*, and *gəra*, however, moraic binarity holds.

9.2.3.3. Stress-to-Weight

In most Northeastern Neo-Aramaic dialects, including the phonologically conservative dialects, word stress is penultimate. Furthermore, there is a strong tendency for stressed syllables to be heavy, either CVC or CV:, a fact which was first observed by Rubba (1989, 1993: 17–25). Synchronic effects of this are evident in many Northeastern Neo-Aramaic dialects. Short vowels are often lengthened when they fall in the penultimate, and therefore stressed, syllables. Thus in Hertevin there are alternations like *k**a:**la*, plural *k**a**la:ta* 'bride', *d**a:**da,* plural *d**a**dawa:ta* 'mother', *g**a:**re,* plural *g**a**rawa:ta* 'roof'; these stems have underlying short vowels, /kal-a, dad-a, gar-e/, which lengthen when stressed. Similar facts exist in most other Northeastern Neo-Aramaic dialects. The short vowels in words like *kala:ta* and nominal patterns like *CaCa:Ca*, *CaCi:Ca*, *CaCo:Ca*, and *CaCu:Ca* have been seen by most scholars of modern Aramaic as *exceptions* to a putative generalization that vowels in open syllables are long (Jastrow 1988, 14–15, 91). However, this generalization, though statistically true (Hoberman

1997a), misses the point. The correct principle, as Rubba has argued, is that *vowels in open syllables are long if the syllable is stressed*. Vowels in unstressed syllables, like the first vowel in *kala:ta* and the many words with the patterns CaCa:Ca, CaCi:Ca, CaCo:Ca, CaCu:Ca, and others, are in general short. The exceptions — long vowels in unstressed syllables — always have some separate, specific raison d'être. This is accounted for by another type of constraint:

(4) Stress-to-weight. If a syllable is stressed, it must be heavy (CV: or CVC; cf. Kager 1999: 268).

In view of the fact that the default position for stress is on the penultimate syllable (in words of more than one syllable), the minimal word is determined by the interaction of two constraints, both of them widely known cross-linguistically. Together with the stress-to-weight constraint, the minimality restrictions specified above will give the correct results. If a word consists of two or more syllables, as (2) stipulates, stress will be on the penultimate syllable, which will therefore be heavy to satisfy (4) as well. Constraint (3) is not superfluous, however, but necessary to explain why there are many loanwords of the shapes CV:C and CVCC but few if any of the bimoraic or monomoraic shapes CVC, CV:, or CV in Northeastern Neo-Aramaic dialects, though in Kurdish and Turkish, the chief sources of loanwords in Northeastern Neo-Aramaic.

This analysis accounts for *ʔaħa:* > *ʔá:xa* 'brother'. Still *ʔa:xa* has an short vowel in its underlying form, /ʔax-a/, as we can see from the alternative singular *ʔaxó:na* and the plural *ʔaxawá:θa*. It would account for hypothetical **šáma* > *šámma*. Kapeliuk (1992) points out that in the Northeastern Neo-Aramaic dialect of Urmi an intervocalic consonant which follows a stressed short vowel is often geminated. This takes place in both nouns and verbs of some productive types, such as *malximma* 'fit (feminine)' < *malxəma* (cf. masculine *malxim*), and serves to bring such words in line with the general pattern of the language, in which stressed syllables must be heavy (either closed or containing a long vowel). Kapeliuk includes among the examples of this phenomenon the word *imma* 'one hundred', which I take to be possibly an instance of the *šəmma* change. Kapeliuk's observation could provide an explanation for the final step in the chain of developments beginning with epenthesis, *šáma* > *šámma*.

9.2.3.4. Does Binarity Apply to Stems or to Full Words?

One way of resolving the difference between minimality in native words and in loanwords might be to postulate that the moraic binarity constraint applies to stems rather than full words (cf. McCarthy and Prince 1995: 323–25). Native Aramaic nouns have a class-marking suffix *-a* or *-e* (*kalb-a* 'dog', *ga:r-e* 'roof'). The stems of minimal words, excluding the class-markers, are identical in prosodic shape to most short loanwords. Thus ***zerk*** 'small, white grapes' parallels native ***kalb***+*a* 'dog', and ***čo:l*** 'wilderness' parallels native ***gó:r***+*a* 'man'.

Unfortunately, this resolution of the contradiction is insufficient. To see why, we must now turn to the productive categories of short words, which we postponed earlier. These are the (singular) imperative of verbs of Theme I (pʕal), Hertevin *ploṭ* 'go out', Aradhin *pḷoṭ*, Zakho Jewish/Amadiya *pḷo:ṭ*, and another monosyllabic form of Theme I verbs, which functions in Hertevin as a perfect and in Zakho as a preterite: Hertevin *pleṭ* 'gone out', Zakho *šqi:l* 'took'.[13] These clearly violate syllabic binarity (2). Here are two typical Theme I verbs, with a Theme II verb for comparison (Amadiya Jewish examples):

(5)

	Theme I		*Theme II*
	'open'	'see'	'send'
Gerund/Progressive	ptá:xa	xzá:ya	mšadó:re
Present (< Earlier Aramaic active participle)	pá:təx	xá:ze	mšá:dər
Imperative	pto:x	xzi:	mšá:dər
Preterite (< Earlier Aramaic passive participle)	pti:x	xze:	mšó:dər

Forms like *pto:x*, *pti:x*, *xzi:*, *xze:* comply with moraic binarity (3) but violate syllabic binarity (2).

[13] The stem vowels are basically long in Hertevin and Aradhin, as well as in Zakho/Amadiya, as the suffixed forms show: plural Hertevin *plu:ṭen*, Aradhin *pḷu:ṭu*, third-person feminine singular Hertevin *pli:ṭa*. The long vowel shortens in the unsuffixed forms through the quite general process of shortening in closed syllables (Jastrow 1988: 10, 13–14).

These two subminimal, monosyllabic forms are frequently lengthened, in some dialects, by the addition of a meaningless suffix. In Hertevin it is *-ek,* as in *ptoḥ* ≈ *ptoḥḥek* 'open' (imperative), *pteḥ* ≈ *pteḥḥek* (perfect; Jastrow 1988: 53). A variety of other monosyllabic forms have similar free variants that are not short, including the irregular *(b)zaḥ* ≈ (*b*)*zaḥḥek* 'let's go' ('we will go'), *ʔet* ≈ *ʔettek* 'there is', *let* ≈ *lettek* 'there isn't', *bass* ≈ *bassek* 'it's enough', *hwen* (ibid., p. 211) ≈ *hwennek* (ibid., p. 53) 'I have become'. The suffixation of *-ek* can even be fed by phonological processes that have the effect of creating a short form. Thus the Theme I verb *k-l-y* 'stop, remain standing' has the regular imperative singular *kli:*, plural *klo:wen* (ibid., p. 39), but for this particular verb (of which the imperative is presumably used especially frequently) the imperative plural may be contracted to *klo:n*, a subminimal form to which *-ek* may be added creating the lengthened form *klo:nnek* (ibid., p. 53). There is no *-ek* in the imperatives and perfects of verbs of Theme II and III, which are disyllabic (e.g., *maḥlop* 'exchange').

In the Jewish dialects of northwestern Iraq (Zakho, Amadiya, etc.) a different meaningless suffix, *-ən,* has a similar function:[14]

(6) Imperative singular *pto:x* ≈ *ptó:xən*
Preterite masculine singular *ptí:x* ≈ *ptí:xən*

The dummy suffix *-ən* appears also in *ʔi:θ* ≈ *ʔí:θən* 'there is' and second-person singular verb forms like *pátxət* ≈ *patxé:tən* 'you (singular masculine, feminine) open' (< Earlier Aramaic *pa:təx* + *att*). There is no dummy suffix in feminine or plural:

(7) Imperative plural *ptó:xun*
Preterite feminine singular *ptí:x-a*
Plural *ptí:x-i*

The feminine and plural forms, and the masculine singular when supplemented by *-ek* or *-ən*, comply with syllabic binarity. The unsuffixed masculine singular does not, but, like many loanwords, it complies with moraic binarity. The affixation of *-ek* in Hertevin and *-ən* in Zakho/Amadiya, which "repairs" short forms by making them longer, proves that short words violate a general pattern of the language, the requirement for words to exceed some minimum length. Imperatives and perfects may be viewed as meeting the requirement in their underlying forms, which contain long vowels, but as being subminimal in their actual pronunciation. Furthermore, the affixation of these dummy suffixes demonstrates that the minimality constraint applies not at the level of stems, but at the level of whole words because while a form like *pti:xa* is fine, *pti:x* is only partially good; it conforms to moraic binarity but not to syllabic binarity, which is precisely why it is extended to *pti:xən*. Therefore the major constraint that applies to native Aramaic words must be disyllabicity, applying to the whole inflected word.

The major conclusions so far are these:

(8) a. Northeastern Neo-Aramaic vacillates between quantity-sensitivity and -insensitivity, with concomitant vacillation between moraic and syllabic application of foot-binarity and word minimality.
b. For the native vocabulary in general, syllabic binarity applies.
c. In the imperative and preterite and in loanwords, bimoraicity is sufficient.
d. Just as there is vacillation between quantity-sensitivity and insensitivity, there is vacillation on the application of minimality to certain categories of words, reflected in the affixation of the dummy suffixes, optionally in most cases.

9.2.3.5. C_2 is Sonorant

In nearly all the words exhibiting the *šəmma* change (table 9.1) the second consonant, the one which is geminated, is a sonorant (*m*, *n*, *w*, or *l*). This suggests that the phonetic mechanism of the change may have commenced with syllabification of the sonorant consonant (e.g., *šma:* > *šm̩a:*). The same mechanism may have

[14] In the dialect of the seventeenth-century Nerwa manuscripts, Sabar has discerned some syntactic/semantic relevance of this *-ən* (Sabar 1976: xxxiv, 40 n. 34).

operated in the items in table 9.2.[15] In most of Northeastern Neo-Aramaic the numeral 'one hundred' is *ʔəmma* or the like, but the pronunciation of this word at an earlier period is unclear. In Syriac it is spelled <mʔʔ>, but vocalized *ma:*. Is the first <ʔ> merely a historical spelling, based on an earlier *mʔa:*? Oddly, before this word the conjunction *w-* and prepositions *b-, l-* take an epenthetic *a*, suggesting a pronunciation like *wamʔa:* or *wamma:* in Syriac (Nöldeke and Euting 1898: sec. 43E, though Nöldeke suggests a pronunciation "*wamā*"). If in pre-Northeastern Neo-Aramaic the word was **mʔa:*, which is the expected descendent of Proto-Semitic **miʔat-* and would coincide with the Syriac facts, then this **mʔa:* could have metathesized to *ʔma:* and then undergone the *šəmma* change, producing the Northeastern Neo-Aramaic form *ʔəmma*. Alternatively, the expected *mʔa:* could have become something like *mma:* or *ṃma:*, yielding *əmma* through vocalization of the initial sonorant consonant. The remaining items in table 9.2, the prepositions *b-* and *l-* when suffixed, have forms like *ʔəbb-e* 'in him', *ʔəll-e* 'to him', resembling words like *šəmma, ʔəmma*, but the mechanism of the change is unclear. The corresponding Turoyo forms *ʔe:l-e, ʔe:b-e* would follow by the regular sound changes from proto-Central Neo-Aramaic forms **ʔəbb-*, **ʔəll-* (cf. Turoyo *le:bo* < *ləbba:* 'heart' and many similar items). If so these would not coincide temporally with the *šəmma* change, which took place in Northeastern Neo-Aramaic but not in Turoyo, therefore after the split of Central Neo-Aramaic into the two branches.

Table 9.2. Northeastern Neo-Aramaic Words Exhibiting Changes Similar to the *šma:* > *šəmma* Change

Gloss	*Syriac, Pre-NENA*	*Turoyo*	*Aradhin*	*Urmi*	*Azerbaijan*	*Hertevin*	*ZJ-group*
'hundred'	ma: (=[mma:] or [mʔa:]?)	mo (tremo, tloθomo)	imma	imma	imma	ma (-ʔma)[16]	ʔimma
'in' (suffixed)	b-	ʔeb-	əbb-	—	ibb-	-b-	ʔəbb-
'to' (suffixed)	l-	ʔel-	əll-	ill-	ill-	lal-	ʔəll-

9.2.3.6. Feminine Numerals

Several Northeastern Neo-Aramaic dialects maintain distinct masculine and feminine numerals from 'one' to 'ten'. The feminine numeral 'three' (Aradhin *ṭiḷḷiθ*, attested also in Hertevin *ṭelladma* and Zakho Jewish *ṭallasma* 'two hundred') is a case of the *šəmma* sound change, but it also contributes to a paradigmatic change in the feminine numerals. All the feminine numerals from 'two' to 'nine' and, in most dialects, '-teen' (from the feminine form of 'ten') have become disyllabic (table 9.3). The phonetic changes by which they have become disyllabic are diverse and in some cases resemble processes we have discussed above, but I would not assume that Aradhin *tišša* 'nine' (feminine; < Earlier Aramaic *tšaʕ*) is an instance of the *šəmma* change, but rather that it is due to paradigmatic pressure.

Table 9.3. The Feminine Numerals

Gloss	*Syriac, Pre-NENA*	*Turoyo*[17]	*Aradhin*	*Mangesh*	*Hertevin*	*ZJ-group*
'one'	ħða:	ħðo	ða(ʔa)	xða	ħda	(xədda?[18])
'two'	tarte:n	tarte:	tərte	təttə	(tre:ma)	tarteʔ-ma
'three'	tla:θ	tlo:θ	ṭiḷḷiθ	ṭəḷḷaθ	ṭellad-ma	ṭa/ṭəllas-ma
'four'	ʔarbaʕ	ʔarbaʕ	ʔärbe	ʔarbə	ʔarbeʔ-ma	ʔarbeʔ-ma

[15] There are few more possible examples which are still more uncertain or doubtful. Azerbaijan has *kimma* 'how much', from Earlier Aramaic *kma:*, but all other dialects known to me have *kma* and the like. Aradhin has *šowwaṭ* 'February' (Syriac *šva:ṭ*). For 'someone, so-and-so' (Earlier Aramaic *pla:n*) the form is unclear. Maclean (1901) writes the Urmi word <pelān> 'someone, so-and-so' (transliterated here from Syriac script), which, together with his transcription 'pilân', would indicate [pilan] from an earlier **pillan,* ultimately from Earlier Aramaic *pla:n.* Maclean (1895: 282–83) lists a few other words which might be considered here but probably do not represent the same phenomenon.

[16] Note the *ʔ* in *tmaneʔma* 'eight hundred'; is this by analogy with *ʔarbeʔma*, *šawweʔma*, *ʔeččeʔma*, or an indication of original **ʔma:*?

[17] Jastrow 1998: 358.

[18] Sabar (1976: 39 n. 25) records *xədda* as the colloquial Jewish Amadiya form, but I have not heard it from speakers from that community; it may have become obsolete under pressure from the influential Zakho dialect. Otherwise the dialects of the Zakho-Jewish group have *xa* for both masculine and feminine.

Table 9.3. The Feminine Numerals (*cont.*)

Gloss	*Syriac, Pre-NENA*	*Turoyo*	*Aradhin*	*Mangesh*	*Hertevin*	*ZJ-group*
'five'	ħa(m)meš	ħamməš	xamməš	xamməš	ħammeš-ma	xamməš-ma
'six'	še:θ	še:θ	iššit	ʔəššət	ʔeššet-ma	ʔəššət-ma
'seven'	švaʕ	šwaʕ	išwa	ʔəšwa	šawweʔ-ma	(ʔə)šwaʔ-ma, šowaʔ-ma
'eight'	tma:ne:	tmo:ne:	tma:ne	tmanə	tma:neʔ-ma	(tmanya ʔimmaye)
'nine'	tšaʕ	čaʕ	tišša	təšə	ʔečče ʔ-ma	ʔičča ʔ-ma
'ten'	ʕsar	ħṣa:r	əssər	—	—	—
'-teen'	-ʕsar	-ħṣar	-əssər	-ssar	-ʔessar	-ʔsar, -ʔəssar

9.2.3.7. Nöldeke's Zweiradikalige Substantive

The classic treatment of short words in Semitic is Nöldeke's 1910 article "Zweiradikalige Substantive," which discusses most of the items I have examined here, among others. Nöldeke demonstrates that short word stems often lengthen *necessarily*, as he says, when new words are derived from them through the characteristically Semitic templatic morphology. He adds that even those short words that are basic, not derived, sometimes lengthen, though there is no necessity for such because no derivational template is involved.[19] Many of Nöldeke's observations about developments in ancient Semitic languages are not accounted for by the analysis presented here for Northeastern Neo-Aramaic. It has been the purpose of the present work to show just what "necessity" it was that compelled these words to lengthen in modern Aramaic.

9.3. Question 2: What motivated the historical change in Aramaic phonology?

Up to this point we have shown *how* the *šma:* > *šə́mma* change is embodied in the phonology of Aramaic. We have not addressed the question of *why* — what set off the change? In other words, what caused the disyllabicity constraint to come to the fore? Constraint (2) was not active in Earlier Aramaic, which had not only many monosyllabic basic words but also several productive morphological templates that produced monosyllabic words. The constraint became active as a consequence of morphosyntactic changes: the loss of the only two Earlier Aramaic morphological categories in which the basic form of a word (the citation form) can be monosyllabic and unsuffixed, namely, the perfect tense of verbs and the absolute state of nouns and adjectives. The historical impetus for the modern Aramaic disyllabic minimality is thus morphological, not phonological. The absence of short words (of major lexical classes) in Northeastern Neo-Aramaic is a consequence of the loss of two important morphological categories of Earlier Aramaic nominals and verbs in which monosyllabic stems can appear unsuffixed: the absolute state of nouns and adjectives and the perfect tense of verbs. Only a few relic forms of these categories survive in the modern language. The other productive categories which had unsuffixed stems in older Aramaic are the Theme I (pʕal) active participle, which was and remains disyllabic (e.g., Syriac *ša:qəl*), satisfying the minimal template, and the Theme I passive/perfect participle and imperative, which remain as the anomalies that we have discussed above. I suggest that the requirement for words to have at least two syllables is an epiphenomenon, a mere side-effect of the loss of the older Aramaic absolute state and perfect tense on one hand and, on the other, of the general sound changes which produced long vowels in stressed open syllables (as in *ʔa:xa* < *ʔaħa:* 'brother', *ʔi:ða* < *yða:* 'hand', and the like).

In the Earlier Aramaic perfect paradigm, many of the forms are monosyllabic (some with disyllabic alternatives). They are highlighted in the following table:

[19] "Bildete man aber weitere Ableitungen von solchen Wörtern, so mußte man in vielen Fällen notwendig einen dritten Radikal annehmen; … Und auch ohne Not wandelten namentlich jüngere Dialekte manchmal die bilitteralen Formen in trilitterale der üblichen Weise um. Gerade aber darin, daß die Verstärkerung bei mehreren dieser Wörter auf ganz verschiedene Art geschieht, zeigt sich wieder, daß die einfache bilitterale Form die ursprüngliche ist" (Nöldeke 1910: 111) ("But when further derivations have been built from such words, in many cases it was necessary to add a third radical.… And even without necessity younger dialects, especially, often reshaped the biliteral forms to triliteral in the usual way. But the very fact that the strengthening in some of these words happened in entirely different manners shows that the simple biliteral form is the original one" [translation by RDH]).

(9) The Syriac Perfect Tense

	Singular		*Plural*	
	‘kiss’	‘see’	‘kiss’	‘see’
Third-person masculine	**nšaq**	**ħzi:**	**nšaq**(u:n)	**ħzi:w**
Third-person feminine	nešqaθ	ħezyaθ	**nšaq**(e:n)	**ħzi:**
Second-person masculine	**nšaqt**	**ħzi:t**	nšaqto:n	ħzi:to:n
Second-person feminine	**nšaqt**	**ħzi:t**	nšaqte:n	ħzi:te:n
First-person	nešqe:θ	**ħzi:θ**	**nšaqn**(an)	**ħzi:n**

The absolute and construct states of nouns and adjectives are often monosyllabic too. In older Aramaic the basic form of a noun is the absolute state, and the determinate state marks syntactic-semantic definiteness. In Syriac and Eastern Aramaic, the basic form of a noun is the determinate state, which is suffixed. The absolute state appears only with quantifiers and in some idioms and is not attested for all nouns in Syriac; it is thus on a trajectory of obsolescence. Still in Syriac the absolute state is normal for predicate adjectives.

(10) The Syriac Nominal States

Nouns	*Determinate State*	*Absolute State*	*Construct State*
‘house’	bayta:	**bay**	**be**:θ
‘year’	šatta: (< *šanta:)	**šna:**	**šnaθ**
‘head’	re:ša	**re:š**	**re:š**
‘name’	**šma:**	**šem**	**šem**
‘son’	**bra:**	**bar**	**bar**
‘hand’	ʔi:ða: (< *yða:)	**yað**	**yað**, **ʔi:ð**
Adjective ‘good’			
masculine singular	ṭa:va:	**ṭa:v**	**ṭa:v**
feminine singular	ṭa:vθa:	ṭa:va:	ṭa:vaθ
masculine plural	ṭa:ve:	ṭa:vi:n	ṭa:vay
feminine plural	ṭa:va:θa:	ṭa:va:n	ṭa:va:θa:

The absolute state has been lost in Northeastern Neo-Aramaic (except for a few fossils). The construct state survives and is productive, but is phonologically and syntactically bound (though it may be stressed): *bé:θa* ‘house’, *bé:θ ħakó:ma* ‘king’s house, palace’, *bé: ħakó:ma* ‘royal family’.

With the extinction of the perfect tense and the absolute state in Central-Neo-Aramaic, the monosyllabic forms (absolute states) of a huge number of nouns, verbs, and adjectives were replaced, as the basic, lexical, or citation form, by disyllables. Thereupon the language became intolerant of monosyllables.

This is an instance of a class of phenomena known as “the emergence of the unmarked” (Kager 1999: 215–16). There is a perennial conflict between the pressure to simplify pronunciation to a relatively easy form (represented in Optimality Theory as markedness constraints, like binarity and stress-to-weight) and the pressure to preserve lexical and morphological information (faithfulness constraints). In Earlier Aramaic there were numerous monosyllabic words, corresponding to a mental grammar in which faithfulness constraints, mandating the preservation of monosyllabic morphological-lexical forms, dominated the universal syllabic binarity (markedness) constraint, rendering it powerless. When the perfect tense and absolute state became obsolete, nearly all monosyllabic forms of nouns, adjectives, and verbs disappeared from the language. Children acquiring Aramaic as their native language no longer had evidence to pronounce monosyllables, and the universal disyllabic binarity (a markedness constraint) could assert itself. The effect was that all the few surviving monosyllables grew longer, in one way or another. Thus the *šma: > šámma* shift is a case of phonological change driven by prior morphological change. Morphological change instigated by sound change is a commonplace of historical linguistics, but the contrary is not so well known.

Abbreviations

[x]	forms that were ungrammatical, or non-existent, at the relevant historical stag
*	reconstructed forms that are presumed to have been grammatical
NENA	Northeastern Neo-Aramaic
ZJ	Zakho Jewish dialect group

Bibliography

Brockelmann, Carl

1928 *Lexicon Syriacum*. Hildesheim: Georg Olms.

1968 *Syrische Grammatik: Mit Paradigmen, Literatur, Chretomathie und Glossar*. Leipzig: VEB Verlag Enzyklopädie.

Broselow, Ellen

1995 "Skeletal Positions and Moras." In *The Handbook of Phonological Theory*, edited by John A. Goldsmith, pp. 175–205. Blackwell Handbooks in Linguistics 1. Oxford: Blackwell.

Cowell, Mark W.

1964 *A Reference Grammar of Syrian Arabic*. Georgetown University Institute of Languages and Linguistics; Arabic Series 7. Washington, D.C.: Georgetown University Press.

Garbell, Irene

1965 *The Jewish Neo-Aramaic Dialect of Persian Azerbaijan: Linguistic Analysis and Folkloristic Texts*. Janua Linguarum 3. The Hague: Mouton.

Goldenberg, Gideon

1994 "Principles of Semitic Word-structure." In *Semitic and Cushitic Studies*, edited by Gideon Goldenberg and Shlomo Raz, pp. 29–64. Wiesbaden: Harrassowitz.

Goldsmith, John A.

1995 *The Handbook of Phonological Theory*. Blackwell Handbooks in Linguistics 1. Oxford: Blackwell.

Hoberman, Robert D.

1989 "Initial Consonant Clusters in Hebrew and Aramaic." *Journal of Near Eastern Studies* 48: 25–29.

1997a "Modern Aramaic Phonology." In *Phonologies of Asia and Africa (Including the Caucasus)*, edited by Alan S. Kaye and Peter T. Daniels, pp. 313–35. Winona Lake: Eisenbrauns.

1997b "The Modern Chaldean Pronunciation of Classical Syriac." In *Humanism, Culture, and Language in the Near East: Studies in Honor of Georg Krotkoff*, edited by Asma Afsaruddin and A. H. Mathias Zahniser, pp. 253–65. Winona Lake: Eisenbrauns.

Jastrow, Otto

1985 *Laut- und Formenlehre des neuaramäischen Dialekts von Mīdin im Ṭūr ʿAbdīn*. Wiesbaden: Harrassowitz.

1988 *Der neuaramäische Dialekt von Hertevin (Provinz Siirt)*. Semitica Viva 3. Wiesbaden: Harrassowitz.

1990 "Personal and Demonstrative Pronouns in Central Neo-Aramaic." In *Studies in Neo-Aramaic*, edited by Wolfhart Heinrichs, pp. 89–103. Harvard Semitic Studies 36. Atlanta: Scholars Press.

1998 "The Neo-Aramaic Languages." In *The Semitic Languages*, edited by Robert Hetzron, pp. 334–77. New York: Routledge.

Kager, René

1999 *Optimality Theory*. Cambridge Textbooks in Linguistics. Cambridge: Cambridge University Press.

Kapeliuk, Olga
1992 "Miscellanea Neo-Syriaca." *Jerusalem Studies in Arabic and Islam* 15: 60–73.

Khan, Geoffrey
1999 *A Grammar of Neo-Aramaic: The Dialect of the Jews of Arbel*. Handbuch der Orientalistik, Abteilung 1, Band 47. Leiden: Brill.

Krotkoff, Georg
1982 *A Neo-Aramaic Dialect of Kurdistan: Texts, Grammar, and Vocabulary*. American Oriental Series 64. New Haven: American Oriental Society.
1985 "Studies in Neo-Aramaic Lexicology." In *Biblical and Related Studies Presented to Samuel Iwry*, edited by Ann Kort and Scott Morschauser, pp. 123–34. Winona Lake: Eisenbrauns.

Maclean, Arthur John
1895 *Grammar of the Dialects of Vernacular Syriac*. Cambridge: Cambridge University Press. Reprint, Amsterdam: Philo, 1971.
1901 *Dictionary of the Dialects of Vernacular Syriac*. Oxford: Clarendon. Reprint, Amsterdam: Philo, 1972.

Marogulov, Q. I.
1976 *Grammaire néo-syriaque pour écoles d'adultes (dialecte d'Urmia)*, translated by Olga Kapeliuk. Comptes rendus du G.L.E.C.S, Supplément 5. Paris: Geuthner.

McCarthy, John J., and Alan S. Prince
1995 "Prosodic Morphology." In The *Handbook of Phonological Theory*, edited by John A. Goldsmith, pp. 318–66. Oxford: Blackwell.

Nöldeke, Theodor
1868 *Grammatik der neusyrischen Sprache am Urmia-See und in Kurdistan*. Leipzig: Weigel.
1910 '"Zweiradikalige Substantive." In *Neue Beiträge zur semitischen Sprachwissenschaft*, by Theodor Nöldeke. Strassburg: K. J. Trübner. Reprinted in *Beiträge und neue Beiträge zur semitischen Sprachwissenschaft*, Volume 2, pp. 109–78. Amsterdam: APA-Philo Press, 1982.

Nöldeke, Theodor, and Julius Euting
1898 *Kurzgefasste syrische Grammatik*. Leipzig: C. H. Touchnitz. Reprinted in *Compendious Syriac Grammar*, translated by James A. Crichton. London: Williams & Norgate, 1904.

Odisho, Edward Y.
1988 *The Sound System of Modern Assyrian (Neo-Aramaic)*. Semitica Viva 2. Wiesbaden: Harrassowitz.

Oraham, Alexander Joseph
1943 *Oraham's Dictionary of the Stabilized and Enriched Assyrian Language and English*. Chicago: Consolidated Press (Assyrian Press of America).

Perlmutter, David
1995 "Phonological Quantity and Multiple Association." In *The Handbook of Phonological Theory*, edited by John A. Goldsmith, pp. 307–17. Oxford: Blackwell.

Polotsky, Hans Jacob
1967 "Eastern Neo-Aramaic." In *An Aramaic Handbook*, Part 2, edited by Franz Rosenthal and Zeev Ben-Hayyim, pp. 97–111. Porta Linguarum Orientalium, neue Serie, 10. Wiesbaden: Harrassowitz.

Rubba, Johanna
1989 "Prosodic Conditions on Vowel Length in Neo-Aramaic." n.p.
1993 Discontinuous Morphology in Modern Aramaic. Ph.D. dissertation, University of California, San Diego.

Sabar, Yona
1976 *Pəšaṭ Wayəhî Bəšallaḥ: A Neo-Aramaic Midrash on Beshallaḥ (Exodus)*. Wiesbaden: Harrassowitz.
1984 *Midrashim ba-ʾAramit Yehude Kurdistaʾn la-parashiyot Ṿayeḥi, Beshallaḥ, ye-Yitro* (*Homilies in the Neo-Aramaic of the Kurdistani Jews on the parashot Wayḥi, Beshallaḥ, and Yitro)*. Jerusalem: Israel Academy of Sciences and Humanities [in Neo-Aramaic and Hebrew].

2002 *A Jewish Neo-Aramaic Dictionary: Dialects of Amidya, Dihok, Nerwa and Zakho, Northwestern Iraq*. Semitica Viva 28. Wiesbaden: Harrassowtiz

Sachau, Eduard

1895 *Skizze des Fellichi-Dialekts von Mosul*. Berlin: Akademie der Wissenschaften in Commission bei Georg Reimer.

Sara, Solomon I.

1974 *A Description of Modern Chaldean*. Janua Linguarum 213. The Hague: Mouton.

Shimron, Joseph

2003 *Language Processing and Acquisition in Languages of Semitic, Root-based Morphology*. Language Acquisition and Language Disorders 28. Amsterdam and Philadelphia: Benjamins.

Testen, David

1985 "The Significance of Aramaic *r* < **n*." *Journal of Near Eastern Studies* 44: 143–46.