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## Modern Hebrew Segholate Phonology

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## Modern Hebrew Segholate Phonology/ Noam Faust (Université Paris 7)

Working version 23/06/09

### 1. Introduction and problem

The Modern Hebrew (henceforth MH) data in (1) contrasts two types of basic Hebrew nouns. The nouns in (1a) have penultimate stress; whereas all other nouns in (1b) have final stress (not marked). In addition, the first vowel of the singular nouns in (1b) is not present in the plural, and instead we find a vowel *a* where the singular has an unstressed vowel *e*, alongside the regular plural suffix *-im*. The same plural suffix is concatenated to the forms in (1b). An *a* in the initial open syllable of bisyllabic nouns (1b) is deleted; this is the only stem-internal modification in such nouns.

(1)	Initial data			
		<i>sg.</i>	<i>pl.</i>	
	a. Q <sub>v</sub> <sub>1</sub> Te <sub>2</sub> L	séfer	sfarim	'book'
		kélev	klavim	'dog'
		gódel	gdalim	'size'
	b. Qa <sub>1</sub> Tv <sub>2</sub> L	pakid	pkidim	'clerk'
		gamal	gmalim	'camel'
		karov	krovim	'close, relative'
	c. QTv <sub>2</sub> L	kluv	kluvim	'cage'
		clav	clav	'cross'
		kfic	kficim	'spring (in bed)'

Nouns like those in (1a) are traditionally called "segholates" (after the name of the symbol for the vowel [e] in Biblical Hebrew). In MH, they constitute a moderately productive class. This paper will initially ask the following question:

#### (2) 1st Study Question

Why is it that only penultimately stressed masculine nouns (i.e. masculine segholates) regularly have templatic plurals?

Furthermore, we observe that the vocalizations of the three noun types in (1) constitute the bulk of attested CVCVC vocalizations in Hebrew. We may make the following descriptive generalization: when there is a stable V2 (e.g) vowel, the Vowel in V1 (if there is one) will be [a]. One may also generalize that when there is only a V1 vowel, there may only be a vowel [e] in V2. As we will see below, this [e] is not a "real" vowel: it is there to save the illicit final consonant cluster. The correct generalization about these nouns is thus the following: when there is only a V1 vowel, there is no vowel in V2. This asymmetric state-of affairs is presented in (3a), and the second study question, which stems from it, is stated in (3b)

(3) Vocalization: overview and question<sup>1</sup>

## a. vocalization

Qv <sub>1</sub> T(e)L	Qa <sub>1</sub> Tv <sub>2</sub> L
QTV <sub>2</sub> L	*Qv <sub>1</sub> Ta <sub>2</sub> L

## b. 2nd study question:

Why don't we find cases of QVTaL (\*QiTaL, QuTaL etc.)?

We will see that both study questions can be answered together.

## 1. More data: determining the lexical site

Consider the masculine-feminine forms in (4).

## (4) Masculine-feminine

	<i>ms.</i>		<i>fm.</i>	
a. QaTVL				
	pakid		pkida	'clerk'
	karov		krova	'close, relative'
	garuš		gruša	'divorcee'
b. Qv <sub>1</sub> T(e)L				
	kélev		kalba	'dog'
	péred		pirda	'mule'
	pérec 'outburst'		pirca	'loophole'
	xófeš 'liberty'		xufša	'vacation'

QaTVL nouns become QTVL before the feminine suffix *-a*, just as before the plural suffix in (1) above.<sup>2</sup> The vowel in V2 is again stable (kaxol, kxulim). Segholates (i.e. Qv<sub>1</sub>T(e)L nouns), on the other hand, do not behave as they did before the plural prefix; instead, no vowel is attested in V2 before the feminine suffix and it is the V1 position which is maintained. In addition, we observe a neutralization in the quality of V1: both *a* and *i* in the feminine segholate may correspond to *e* in the free segholate. To summarize, segholates have three stems, where QaTVL nouns have two:

1 I assume that the widely attested [QiTuL] is actually /qittul/. I assume the same for the poorly attested QiToL, QuTaL, and QiTaL: they are all case of /QvTTvL/. These assumptions are confirmed by both spirantization data and diachrony, and - as we will see - confirm to the analysis in the body of the paper. One small class, QoTaL, necessitates further investigation: historically, this class is underlyingly /QvvTaL/.

2 This has been analyzed in OT in Bat-EL (200?) in the following manner: QaTVL nouns have two stems, QaTVL and QTVL. The speaker strives to unify the syllable-size of all members of a paradigm, and so she selects the shorter stem for the suffixed noun. Bat-El has a problem with QaTaL nouns that do not alternate with QTaL (i.e. those for which I have assumed an underlying geminate): she solves this problems by stating that these simply do not have two allomorphs. In other words, the present paper treats the phenomenon as phonological, while Bat-El's views it as morphological. Since Morphology is not as well defined as phonology (for some, anything can be "morphological"), I consider the present analysis, if it is correct, preferable by far.

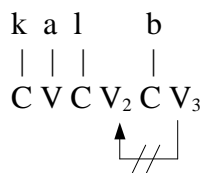
## (5) Stems

	<i>Free</i>		<i>Bound</i>
	<i>ms.</i>	<i>fm.</i>	<i>pl.</i>
<i>QaTVL</i>	pakid		pkid-
<i>Qv<sub>1</sub>T(e)L</i>	pérec	pirc-	prac-

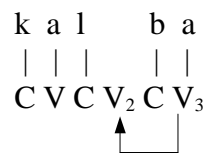
The unstressed vowel *e* alternates with zero when followed by another vowel. Unsurprisingly, the vowel *e* breaks other impermissible consonant clusters in Modern Hebrew (*li-srok* 'scan' => *srika* 'a scan' ; *limxok* 'erase' => *mexika* 'erasure' \**mxika*). In Government Phonology (GP; Kaye et al 1990), such a behaviour is typical of empty nuclei. The following diagram demonstrates how this is represented in the CV-option of that theory, which assumes that all "syllables" are of the CV type (instead of Onset-Nucleus pairs):

## (6) Vowel-Zero alternation in CV-GP

a. /kalb/ =&gt; (kálev) =&gt; [kélev] 'dog'



b. /kalb+a/ =&gt; [kalba] 'bitch'



In (6a) the empty V-slot is not **properly-governed** by a vocalic element in the following V-slot; an empty nucleus is thus not **licensed** in this position, and the position has to be realized. It is realized as the less marked vowel of the (specific) language; in MH, this vowel is *e*. In (6b), the position is well-governed, and the empty nucleus is licensed and not pronounced.

The lexical vowel of segholates is thus clearly V1. This is the vowel speakers have to memorize when deriving a segholate from the root. For the remainder of this paper, I leave aside the alternations in the quality of this vowel (for my view on these, see Faust, in preparation). The implications for the data in (6) are clear: segholates do not have three stems. Like QaTVL nouns, they have two stems (at best): QVT(e)L for singulars and QTaL for the plural. We will now see that, in fact, both segholates and QaTVL have only one stem.

## 2. Stress in Modern Hebrew

Stress in the native vocabulary of MH seems to be final. But if stress were final, we'd expect MH to behave like e.g. French, where even vowels that alternate with zero consistently get stressed (appel 'call (imper.)' [appel], but appeler [aple] 'to call'). In a view of MH as stress final, segholates (along with all loanwords) would constitute a class apart. Indeed, all accounts blah blah blah. The true nature of MH lies in the distinction between final and iambic, or right-headed.

I propose the following rule for Hebrew:

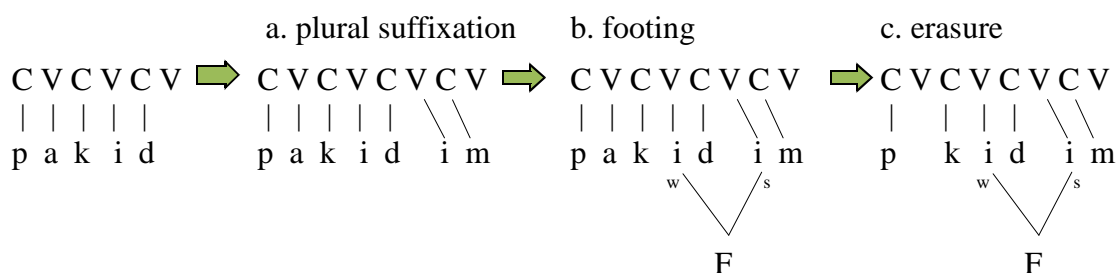
(7) **Modern Hebrew stress**

Build an iambic foot from the lexical vowel. Reduce remaining well-governed vowels.

Of course, there are some complications to this rule<sup>3</sup>; nevertheless, for the data discussed in this paper it is all we need.

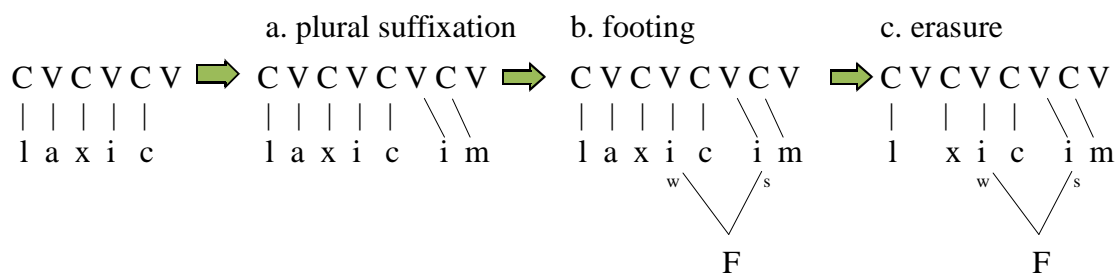
As we have seen, QaTVL nouns present a bisyllabic free stem and a monosyllabic bound stem. The bisyllabic stem always has a vowel [a] in V1, and it is this [a] that disappears when the stem is bound. This change is *not* explicable in terms of licensing or government alone: the same relation holds between V2 and V1 in both free (QV1TV2Lim) and bound (QV1TV2L) stems. This is where the stress rule is important:

(8) vowel deletion in pkidim



In the singular form QaTVL, stress fall Stress is placed on the lexical vowel of the head, namely the plural suffix. An iambic (=right-headed) foot is built and the vowel *a*, which is in a governed position, is reduced. However, sometimes reducing this vowel creates an illicit cluster of descending sonority. As phonology *cannot* look ahead,<sup>4</sup> the vowel is *still* reduced in these cases, and the V-slot is empty. That this nucleus surfaces as *e* is unsurprising, since (as we have just seen) this is the realization of illicit empty nuclei in MH.

(9) Vowel deletion resulting in illicit cluster: lexicim 'buttons'

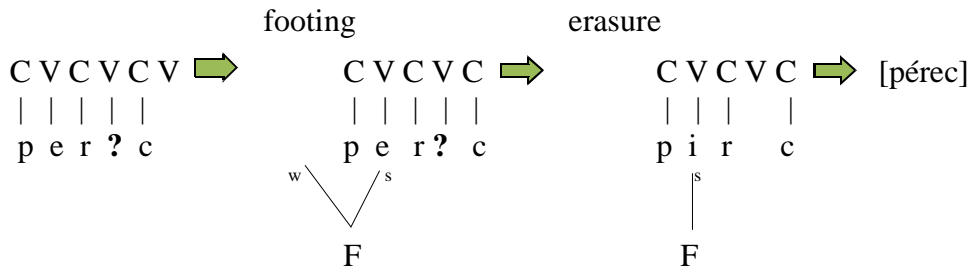


QaTVL nouns thus have one single unique "stem" for both singular and plural: this stem is the one apparent in the singular form. Now consider the case of the free segholate. In these, I repeat, the lexical vocalic position is V1. The foot built for such an item has a degenerate left branch. Moreover, because the foot built on V1 is iambic, whatever vowel there might be in V2 is always reduced. V2 is an empty nucleus. Because (the native vocabulary of) MH does not tolerate *any* final consonant clusters, this empty nucleus is realized as *e*.

3 "Well-governed" is added for these cases, mos of which will be analyzed as in fn.1, i.e. as having a medial virtual geminate (S&S). For loanwords (and some native words), the rule would probably have to be attenuated to "reduce remaining (predictable) well-governed vowels".

4 Nor does it "evaluate candidates", as is current practice in Optimality Theory.

(10) footing of singular segholate



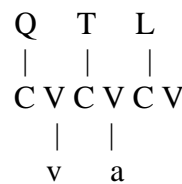
Because it is outside the foot, the identity of the vowel in V2 is not detectable in the free segholate. Now let us go back to our second study question, namely "why don't we find cases of QVTaL" in MH. It is now tempting to say that there *are* cases of QiTaL, but their V2 vowel is always reduced.

**3. Stress and segholate plurals/feminines**

The hypothesis is stated in (11):

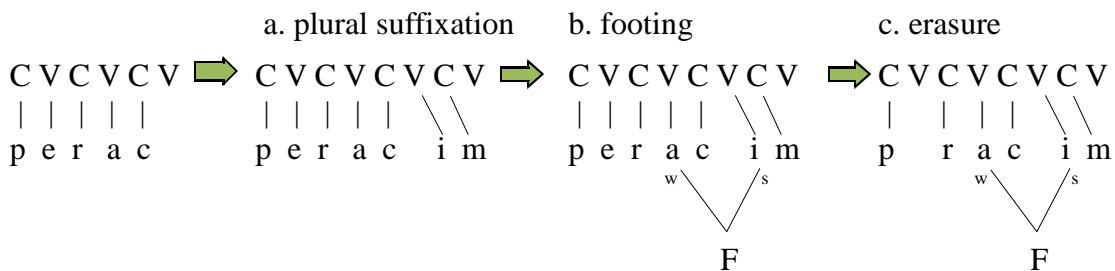
(11) **Segholate V2 hypothesis**

All segholates are underlyingly QVTaL, i.e.:



This hypothesis is proved in the plural segholate stem. Just as in the case of p(a)kidim, stress is placed on the lexical vowel of the head, i.e. the plural suffix. An iambic foot is built, and its left branch falls on the vowel *a*. The first CV is now outside the foot, and its is now deleted.

(12) Segholate plurals



Segholates are thus the exact mirror image of QaTVL nouns.

We have thus answered the two questions above in one move: segholates, i.e. QVTeL nouns, are the missing cases of QVTaL. However, the quality of their V2 vowel is only revealed in the plural, because only then is this vowel footed. This is why only segholates have "templatic" plurals.

We still have one more question to solve. We have seen that the feminine of a QaTVL noun is Q{TVLa}. If segholates are underlyingly QiTaL nouns, why isn't their feminine form \*Q{TaLa},



If so, the case of *pkida* is slightly different from that of *pkidim*. In the latter, the singular's [a] is reduced (\*pakidim => pkidim), whereas in the former the *a* never lands in V1 in the first place.

#### 4. Conclusions:

The segholate class of nouns have a vowel *a* where there is no vowel in the singular. This is a reflex of an infixed plural marker *a* found in the Broken plurals of other Semitic languages. As the many studies (Angoujard, McCarthy, Kihm, Palmer, LeSège, etc.) conducted on those topic show, several aspects of the singular form are respected in the plural form, so that however broken the plural is, it cannot be claimed that no reference is made to the singular.

However, In Hebrew (both Modern and Biblical), this historical infixed marker appears alongside the external plural markers *-im* (or *-ot* in case the free segholate is lexically feminine). Whether this is the case of reanalysis (already in Biblical Hebrew) or preservation of some earlier stages where all plurals were concatenative is insignificant. In MH, as I hope to have made clear, the phonology of the language is perfectly compatible with an analysis of segholates as being underlyingly QVTaL. This is clearly preferable to assuming some kind of stem/root allomorphy (although such cases are not ruled out in principle).

It is standard practice in Semitic morphology (if not in linguistics in general) to both base and bolster an abstraction with the non-existence of its straightforward realization. Thus, one of the most striking evidence for assuming a root  $\sqrt{\text{rcy}}$  for the verb *raca* 'want' (cf. *katav* 'write') is that \**racay* is impossible. Similarly, that there are no independent QiTaL, QuTaL, QaTaL (with v~zero alternation in V2 rather than V1) is proof for the legitimacy of such an abstraction for the segholate stem.

This analysis relied on a distinction between two lexical sites, V1 and V2. Items with a lexical site in V2 can be either nouns or adjectives (though the latter is not true for QTVL item), and constitute the bulk of MH native nouns; items with V1 are exclusively segholate nouns. Moreover, the same vowel root can appear with two different vowels in QaTVL (e.g. *amud* 'column' *amid* 'durable'), but the few equivalent cases for segholates are only distantly related cases (*róga* 'calmness' *réga* 'moment'; there are no QiTL~QaTL pairs). I would like to ask a question for future research: what grammatical information is provided by the position of the vowel? Or, alternatively: what structure does the position convey?

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