בס"ד

CVC Roots in Hebrew

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In this article I argue that the Hebrew tri-consonantal root spells out the composite Syntactic Object formed by Merge of an elementary CVC root and one or more functional heads. I also present five novel rules that allow us to find the CVC root for many Hebrew words. These five formal rules make no use of informal semantic intuitions, but rather are precise and algorithmic. The striking support for this proposal derives from the simple fact that these five rules are all in complete agreement with each other.

1. Introduction

Quite generally, Roots have the form of a typical syllable. For Hebrew, a typical closed syllable is CVC. Phonologically, we would expect Hebrew Roots to be mostly CVC.

Semantically, Roots are supposed to have a very simple meaning. This is simply not the case with tri-consonantal roots. Most such roots are associated with a specific syntactic category, which the real Roots are not supposed to be. They often lexicalize much more than just an entity, a state or an event: for example, they could include some relation to an external argument.

In Section 2, I present five novel Rules that together enable identification of bi-consonantal Roots in many Hebrew words. Section 3 follows with some general remarks.

2. The Five Rules

Rule #1: The Lexical Gemination Rule

Some of the monosyllabic nouns in Hebrew don't have any overt phonological material other than the CVC Root. Any other syntactic heads that may be present (such as, for example, a 'little n'), are implicit ("covert").

(1) GaN 'garden'
(2) SHeN 'tooth'
(3) DoV 'bear'

For this class of nouns, the Lexical Vowel is immediately apparent . In such monosyllabic nouns, Lexical Vowels are reflected in their surface form. That is not generally the case with most Hebrew verbs. The Lexical Vowels are usually deleted by various phonological rules, and as a result it is often impossible to identify them.

Another interesting property of this class is the gemination of the root-final consonant (when not prevented by phonological context).

(4) DuB.Bim 'bears'

I suggest that this is true for CVC roots more generally, and is not limited only to mono-syllabic nouns.

It follows that:

(5) If gemination is not imposed by a morphological rule, the geminated consonant is Root-final.

In other words, if a word has an instance of a geminated constant, which is not morphologically motivated, that consonant must be root-final.

(6) Ge.DuL.Lah 'greatness'

We conclude that in (6), [D, L] is the Root.

The Root is merged first with 'little a' (spelled out by 'G'), and then with 'little n' (spelled out by 'u').

Sometimes gemination is required by a general morphological rule. For example, in Piel the middle consonant is geminated:

(7) DiB.BuR 'speaking'

Sometimes the gemination results from the assimilation of 'N' to the following consonant.

In such cases the Lexical Gemination Rule does not apply. It only applies when a consonant undergoes gemination for no apparent morphological reason.

Rule #2: The Kamatz Rule

When the Root is spelled out by the initial two consonants, then the Lexical Gemination Rule makes sure that the second consonant is geminated, as in (8) and (9). In such cases the vowel 'a' is short and is indicated by a Patach :

(8))aD.DiR 'powerful'
(9) TZaD.DiK 'righteous man'

Sometimes, the first vowel of a noun or an adjective is nevertheless a Kamatz:

(10))a.DaM 'man' (noun)
(11) Ga.DoL 'big' (adjective)

In such cases, it seems that the Lexical Gemination Rule was not applied, which in turn implies that the Root is not spelled out by the **initial** two consonants (which, of course, would trigger Gemination and preclude the possibility of the appearance of a Kamatz). If so, the Root must be spelled out by the **final** two consonants.

In other words, if the first vowel is a Kamatz, then the initial consonant is not a part of the Root.

This Rule does not apply to verbs.

Rule #3: The Segolate Noun Rule

Segolate nouns constitute a class of nouns that morphologically are just a little more complex than monosyllabic nouns. They have an extra consonant, but, other than that, no additional overt morphemes are present.

(12) DeReKh 'way'
(13) SeFeR 'book'

The Segolate Noun Rule tells us which pair of consonants it is that spells out the Root.

The location of the Root is revealed by the first vowel of the plural form of the noun in the Construct State.

If the first vowel is 'a', then the Root is represented by the **final** two consonants.

(14) D**aR.K**ei No(aM 'ways of pleasantness'

The remaining consonant spells out an additional morpheme.

If, on the other hand, the first vowel in the construct state is not an 'a', then the Root is represented by the **initial** two consonants.

(15) S**iF.R**ei MuSaR 'books of Ethics'

In such a case, the first vowel of the noun may sometimes reflect the Lexical Vowel of the Root.

(16) Se.FeR 'book'

The long 'e' (Tzere) in (16) manifests the Lexical Vowel.

There is a class of segolate nouns that is not subject to the Segolate Noun Rule. These are de-adjectival nouns with 'o'.

(17))a.DoM 'red' (adjective)
(18))oDeM 'redness' (derived noun)

This 'o' spells out the category-defining head that takes an adjective and returns a noun.

Rule #4: The Alternating Rule

In this section we will consider a class of Hebrew verbs which alternate between a transitive form (in Pa'al) and the intransitive form (in Nif'al). In this section such verbs will be called "Alternating Verbs".

(19) Pa.TaCh 'opened' (transitive)
(20) NiF.TaCh 'opened' (intransitive)

To state the Alternating Rule, first we will need to define Core Transitive Verbs (CTV).

The verbs in (21), (22) and (23) are examples of CTV.

(21) Pa.TaCh 'opened' (transitive)
(22) Sa.GaR 'closed' (transitive)
(23) Sha.VaR 'broke' (transitive)

The intransitive variants of these verbs have anti-causative semantics.

(24) NiF.TaCh 'opened' (intransitive)
(25) NiS.Gar 'closed' (intransitive)
(26) NiSh.BaR 'broke' (intransitive)

The verbs in (27) and (28) are examples of transitive verbs that are **not** CTV.

(27) Dac.ChaF 'pushed' (transitive)
(28))a.ChaL 'ate' (transitive)

In non-CTV verbs, the Roots are expressed by the **final** two consonants.

The Alternating Rule (29) is restricted to Alternating Verbs:

(29) In any Alternating Verb, the initial two consonants spell out the Root **if and only if** the verb is a CTV.

In other words, if the Pa'al form **is** a CTV, then the Root is spelled out by the **initial** two consonants, and if the Pa'al form **is not** a CTV, then the Root is spelled out by the **final** two consonants.

For the purpose of the Alternating Rule, the verbs of creation and destruction are not considered CTV, because for a verb to qualify as a CTV, the inner argument must be pre-supposed to exist both before and after the event described by the verb, which obviously cannot be true for the verbs of creation and destruction.

The Alternating Rule does not apply to Short Verbs.

Rule #5: The Short Verb Rule

Several classes of verbs in Hebrew have only two stable consonants. In these verbs, identifying a CVC Root is straight-forward.

Roots are not just ordered pairs of consonants: each Root also has a Lexical Vowel. In Short Verbs, as in (30), (31), and (32), we typically do not have direct access to Lexical Vowels since they are almost always deleted by phonological processes, which are very intense in Hebrew.

(30) Ra.Tzah 'wanted'
(31) RaTz 'ran'
(32) Ro.TzeTz 'destroyed'

Notice that these three different Short Verbs all have the same pair of consonants [R, Tz] in their Roots, and yet, the Roots of (30), (31) and (32) may still be unrelated due to having different Lexical Vowels (or a different kind of the consonant 'Tz').

3. General Remarks

The five novel rules presented in this article are completely formal and make no use of intuitions regarding the meaning of words.

An early discussion of Hebrew root decomposition can be found in Marantz (2001), which in turn quotes Harbour (2000).

Can it be proven that the model of the Hebrew Verb System presented in this article is correct? The striking support for this proposal derives from the simple fact that these five rules are all in complete agreement with each other.

References:

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