

Getting to the Root

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PART I

1 General

Aim: evaluating where we are, re *roots*, some 25 years after introducing them as a major component in building word structure into the syntax.

Means: evaluating, in particular, the Semitic root with a focus on its morphophonology

Largely agreed upon (among constructivists):

- Roots are morphologically atomic.
- Roots are a-categorial.
- Roots may have (contextual) allomorphs.
- Roots select (or are selected by) allomorphic exponents of functional and categorial vocabulary.
- Late phonological realization

Largely underdiscussed (by hypothesis, because the model is not quite ready to handle)

- Atomicity in the relevant sense (e.g., English ‘opaque’ prefixes such as *de-story*)
- Affix movement/internal merge

Not agreed upon:

- Do roots have (grammatically specified) Content (=conceptual meaning)?
 - Yes (Rappaport-Hovav 2017, i.a.; pretty much the null hypothesis)

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- Yes, as a set of pre-determined contextual alloemes (Marantz, 2013; Harley, 2014 i.a.)
- Yes, but binary classification only with formal force (e.g., *stative* vs. *eventive*, Embick 2004, 2010)
- No (Borer, 2005, 2013)
- Are roots phonologically restricted?
 - Yes (Embick and Halle 2005; Borer, 2003, 2005, 2013)
 - No (Harley, 2014)
- Do roots have complements (and do they project)
 - Yes (Marantz 1997 and some subsequent; Harley 2014 i.a.)
 - No (Borer, 2005; 2013 i.a.)
- Root Content and root syntax interaction:
 - Root syntax (complement, projection) independent from (grammatical) Content (Harley, 2014)
 - Root syntax contingent on/delimited by (grammatical) Content (LRH, various; Embick, 2004, 2010; Alexiadou et al. 2015 i.a.)
- Architecture:
 - Do (English) affixes select other affixes?
 - Y: Plag, 1999; Embick, 2010;
 - N: Borer, 2013
 - Given a C-functor X which is specified to merge with category Y (X[Y]), can X merge with a (perpetually) uncategorized root? So, for instance, can *-ation* in English which merges with V (e.g., in [_v categorize]+*ation*) but not with A or another N, also merge with a root (e.g., [_√form]+*ation* or [_√na]+*ation*)?
 - Yes: Starting with Marantz (1997), the consensus in DM for level I affixes (see in particular Marvin, 2002 and subsequent). Situation for level II affixes not clear.
 - No: Borer (2013)

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- As well as the applicability of Phase Theory, the definition of locality, direction of selection, and other related architectural matters not touched upon directly in this presentation

2 Methodological Considerations with Some Illustrations:

Are properties diagnosed (complements, Content, vocabulary insertion/PF) associated with a *root*, or with a categorized constituent, (overwhelmingly, under discussion, of type V)?

In English, which remains the benchmark for root-based investigations, just about all mono-morphemic verbs are co-extensive with roots, which makes the answer non-obvious.

- Internal to any grammatical system, it would be prudent to exclude, as specifically *root*-related properties, any properties that can be directly shown to be available in *non-root* contexts.
- Internal to any grammatical system, it would be prudent to consider as specifically *root*-related properties which are held constant across all occurrences of the root (see Rappaport-Hovav 2017 for an explicit discussion in the context of root Content).

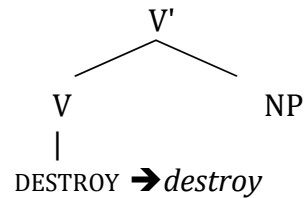
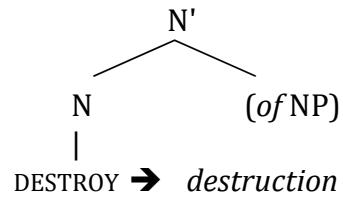
2.1. Constant root properties, phonological allomorphy

1. a. {*sub, con, de, in, re, aC, per, pre*} *ceive* {*able, ing, er, #*
scribe
duce
sume
mit
- b. {*sub, con, de, in, re, aC, per, pre*} *cept* {*ible, ion, ive*
script
duct
sumt
mis

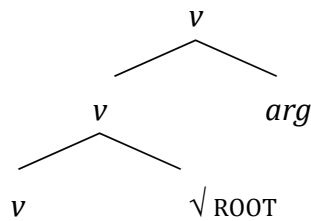
(original argument from Aronoff 1976)

2.2. *Non root properties, internal arguments*

2. Chomsky (1970): argument of the listed item, realized in accordance with syntactic categorial context:

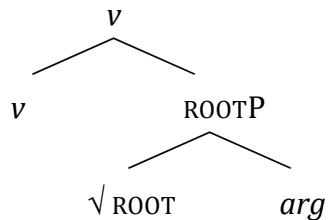


3. Embick (2004, 2010):



argument of the root, but realized as complement of v

4. Harley (2009, 2014):



Because of the abundance of proposed operations that can suppress arguments or existentially close them, the absence of an argument in itself is not a counterargument to the claim that roots take complements. What is a counterargument, however, is the presence of an

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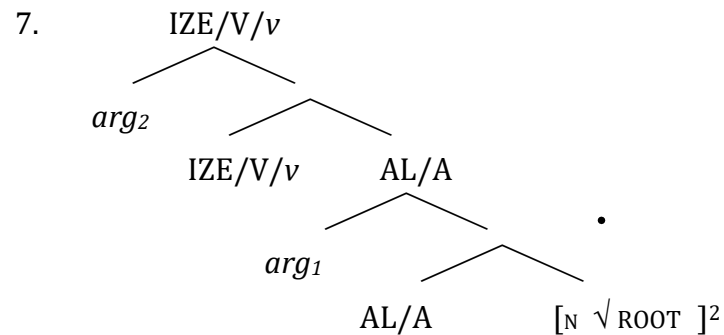
(internal) argument that could not possibly be the argument of the root by any sensible measure. The cases in (5), note, are compositional, so that is *not* the issue. In all of them, the *-ize* verbalizer operates on the perceived argument of the *-al* adjective, and in all of them the *-al* adjective turns an understood nominal into a one place predicate, and *-ize* verbalizes and (optionally) adds a causer/agent, roughly as outlined in (6). None of the arguments could (non-vacuously) be arguments of *sense, commerce, verb* etc., and rather conservatively, something like (7) appears plausible:¹

5. *commercialize, sensualize, verbalize, sexualize* etc.

6. SENSE (*sense*) →

having properties associated with SENSE: $AL(x, sense)$

endowing x with the property SENSUAL: $IZE(y, (AL(x, sense)))$



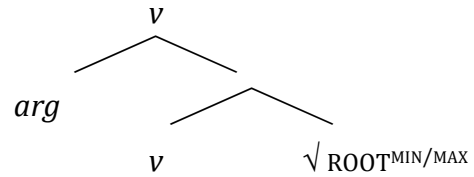
¹ See also Beaver and Koontz-Garboden (2012) on the significance of derived verbs in the root debate.

² Regarding the categorial status of the root in (7) and similar, three theoretical possibilities have been put forth: *-al* merges directly with an uncategorized root; the root is categorized through merging with *n* prior to its merger with *-al*; or finally the root is categorized as N by being the complement of *-al*. My own work has advocated the 3rd possibility, but the matter is set aside here as it is largely tangential to the matter under discussion. I will return to some aspects of this question in the discussion of Semitic roots.

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But if (5)-(7) are on the right track, and must be (and have been) integrated into e.g., Harley's system, there is absolutely no way to block as an alternative representation for (4) as in (8) Is there any reason to think that *paint a picture* or *move the sofa* are ambiguous?³

8.



³ Note that without adding additional assumptions, the structure in (8) is identical to the structure in (3), but in (3) the argument is meant as a complement, while in (8) it is a specifier, and where, by assumption, *complements* are selected by a head (here the root), while specifiers are not selected. Should any of these structures be adopted as such, they would need to be fine-tuned to eliminate the ambiguity.

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2.3 Root Content and Alloemes: *reductio ad absurdum*

The image displays four overlapping screenshots of thesaurus.com for the word "pinch". Each screenshot shows a different semantic field with its corresponding synonyms:



- Top-left screenshot:** Semantic field: *verb press tightly*. Synonyms: cramp, squeeze, compress, nip, wrench, crush, tweak, confine, pain, wrest, hurt, chafe, grasp, twinge, wring.
- Top-right screenshot:** Semantic field: *noun predicament*. Synonyms: crunch, difficulty, necessity, strait, zero hour, box, emergency, oppression, stress, clutch, exigency, pass, tight spot, contingency, hardship, plight, tight squeeze, crisis, juncture, pressure, turning point.
- Bottom-left screenshot:** Semantic field: *verb be stingy*. Synonyms: scrape, economize, scrim, stint, afflict, oppress, skimp, pinch pennies, distress, press, spare.
- Bottom-right screenshot:** Semantic field: *verb steal*. Synonyms: cop, lift, purloin, swipe, crib, nab, rob, take, filch, pilfer, snatch, knock off.

Each screenshot also includes a "See also synonyms for: pinched / pinching" link.

Inevitably, all (partial) synonyms of item X_i with Content c_i are alloemes of X .

<http://thesaurus.com>

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floor   [See definition of floor on Dictionary.com](#)

noun bottom of a room; level of a multistory building *verb* perplex, confound

OTHER WORDS FOR *floor* ● MOST RELEVANT

| | | | | |
|----------|------------|---------|-----------|----------------|
| baffle | discomfit | fell | overthrow | bow over |
| beat | disconcert | flatten | prostrate | bring down |
| bewilder | down | ground | puzzle | bring up short |
| conquer | drop | level | stump | knock down |
| defeat | dumbfound | nonplus | throw | lay low |

See also synonyms for: **floored / flooring**

floor   [See definition of floor on Dictionary.com](#)

noun bottom of a room; level of a multistory building *verb* perplex, confound

OTHER WORDS FOR *floor* ● MOST RELEVANT

| | | | | |
|----------|----------|--------|-----------|--------------|
| basement | flooring | stage | landing | tier |
| canvas | ground | boards | mezzanine | upstairs |
| carpet | mat | cellar | nadir | downstairs |
| deck | rug | flat | story | lowest point |

See also synonyms for: **floored / flooring**



write   [See definition of write on Dictionary.com](#)

verb put language down on paper

OTHER WORDS FOR *write* ● MOST RELEVANT

| | | | | |
|----------|-------------|------------|----------------|------------|
| address | sign | ghost | comp | scriven |
| compose | tell | indite | dash off | set down |
| create | author | ink | draw up | set forth |
| draft | autograph | inscribe | drop a line | take down |
| note | chalk | letter | drop a note | turn out |
| pen | commit | pencil | jot down | write down |
| print | communicate | reproduce | knock off | write up |
| record | copy | scribe | knock out | |
| rewrite | correspond | transcribe | note down | |
| scrawl | engross | typewrite | push a pencil | |
| scribble | formulate | bang out | put in writing | |

Note that complex words (e.g., *electricity*) have multiple alloemes as well (in your spare time, look up e.g., *verbalization*)

electricity   [See definition of electricity on Dictionary.com](#)

noun energized matter, power

OTHER WORDS FOR *electricity* ● MOST RELEVANT

| | | | | |
|---------|-----------|---------|--------------------|-------------|
| heat | current | juice | utilities | magneticism |
| service | electron | light | voltage | |
| AC | galvanism | spark | electromagneticism | |
| DC | ignition | tension | hot stuff | |

Substantive words have LOTS of meanings, and yes, we know all these meanings and that knowledge resides *somewhere*, but do we really want it in the *grammar*? Does it ever have the meaning force of quantifiers, or determiners? Do all these alloemes have any computational force, to speak of?

And do we actually stand a chance of being able to select the right allomorph on the basis of a well-defined, local syntactic context, as oppose to, well, 'life'?

PART II

3 The Semitic Root, Foreview

- The distinction between a root and a categorized constituent is clear-cut.
- There is a clear morpho-phonological distinction between the of verbs which are co-extensive with roots, and verbs which comes with an overt categorial exponent.
- The system is very heavily 'derivational' in the sense that categorial markers are abundant and endemic.
- There are non-trivial selection relations that hold both relative to roots and relative to categorizers.

Conclusions to be reached:

General:

- A study of the Semitic root and its morphological context strongly supports a root-based syntactic approach to word formation.
- A study of the Semitic verbal morpho-phonology provides important answers to questions that can only be partially studied on the basis of systems that are either mostly 'inflectional' or which, like English and other European languages, have opaque or incomplete derivational morphology.

Particular:

- The Semitic root has phonology, both in terms of its own realization and in terms of its impact on the realization of merging exponents.
- The Semitic root has no Content.
- The Semitic root has no syntax (no category, no arguments).
- The Semitic root is first and foremost a unit of sound! Unlike some notions of *roots* now in circulation, the Semitic root is absolutely and totally *not* an (a categorial) lexeme! If, then, English roots are lexemes, then we are looking at very different units here, with the obvious theoretical consequences.

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- Both merger with (uncategorized) roots and with a categorized constituent are possible, but there are no ambiguous derivational affixes.
- Affix selection is possible.

4 Semitic Roots and Keys: Morpho-Phonology

9. A. The Semitic *root*: a string of radicals (2-4), in and of itself devoid of category, and *not* a possible phonological word.
- B. Semitic *keys* clearly do have a category and thus are not *roots*.
- C. Keys (as well as nominal templates) are alternative phonological instantiations of C-functors, i.e., they are V (*v*) exponents (similarly, nominal and adjectival templates are N or A exponents respectively), in line with most classical treatment and more recently with Arad, 2005, Borer, 2013 (but contra, e.g., Doron 2003 and Kastner 2016). In some cases, syntactic factors delimit exponent selection.

4.1 Keys and Key Signatures

- A. The *root* selects a *key*, potentially more than one (*one-to-many, no default*).⁴
- B. *Keys* select vocalization exponents in within the functional spine, to give rise to a fixed *perfective* and *imperfective* (PRF/IMP) stems respectively. *Deterministic, no default (one-to-one)*.⁵
- C. *Keys* select C-exponents (N[V], A[V]). *Deterministic, no default (one-to-one)*.
- D. i. ROOT ~ KEY ~ Functional exponents
ii. ROOT ~ KEY ~ C-exponent

Terminology:

- Root radicals notated with numerals (1, 2, 3, 4, according to position within the consonantal root)
- V-exponents (templates, binyanim) are labeled *keys* (think musical keys)
- ~ notates selection.

⁴ Alternatively, and depending on theoretical perspective, *keys* select *roots*. The ramifications of these different executions are set aside.

⁵ The notions perfective and the imperfective stems as used here are specifically in reference to two vocalization schemes, which, in turn, are associated with syntactic functions. The particular correlation between these stems and what they realize, on the verbal spine, varies across Semitic languages. In Modern Hebrew, specifically, the perfective stem is PST, while the imperfective stem is the realization associated with FUT/INF/IMP.

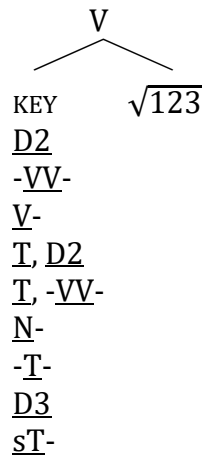
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10. Comparison with English:

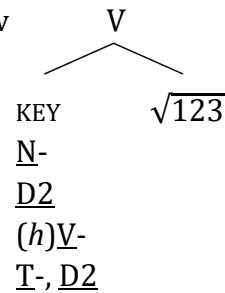
- A. ✓ The root selects C-functor exponents, potentially more than one):
liquefy/liquidize; transmission/transmittance/transmittal
- B. ×C-functors do not select inflectional exponents. Rather, inflection reverts to default
- C. ×/✓C-functors do/do not select C-exponents:
 - i. -ize selects -ation; -able select -ity: Plag (1999); Embick (2010) i.a.
 - ii. 3rd tier C-functors are default (N[V]=-ation, A[N]-al, V[N,A]-ize etc.): Borer (2013)
- D. i ROOT ~ C-functor × ~ Functional exponents
- ii ROOT ~ C-functor ?? ~ C-exponent

11. The root + *key signature* give rise to a categorized, V, constituent, which is still in need of vocalization. Following Goldenberg 1994, I will call this constituent the *Augmented Root*.

A. Arabic:



B. Hebrew



D2/D3: doubling of the 2/3 radical
V: key-specified vocalic slot (cf. Guerssel and Lowenstamm, 1996)

By assumption, I (*Qal*) is not a key, i.e., it doesn't correspond to a V exponent.
 See below.

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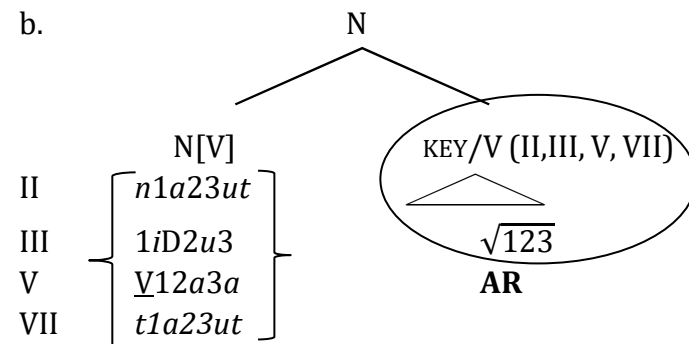
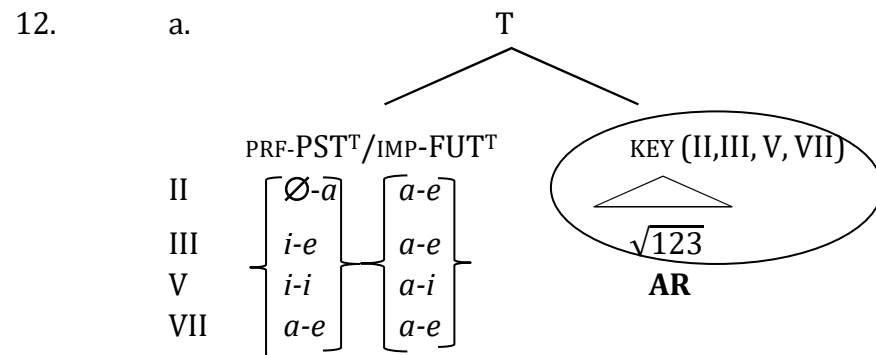
| | | | |
|------|--------|---------------|---------------------|
| II | 1223 | <i>qttl</i> | 'massacre' |
| III | 1VV23 | <i>kVVtb</i> | 'correspond' |
| IV | V123 | <i>Vhlf</i> | 'compensate' |
| V | t1223 | <i>tfrrq</i> | 'scattered.Intrans' |
| VI | t1VV23 | <i>tqVVtl</i> | 'fight' |
| VII | n123 | <i>nktb</i> | 'subscribe' |
| VIII | 1t23 | <i>ktbt</i> | 'correspond' |
| IX | 1233 | <i>hmrr</i> | 'redden' |
| X | st123 | <i>stktb</i> | 'ask to write' |

| | | | |
|-----|----------|----------------|----------|
| II | n123 | <i>nkns</i> | 'enter' |
| III | 1223 | <i>bššl</i> | 'cook' |
| V | (h)V123- | <i>(h)Vbšl</i> | 'ripen' |
| VII | t1223 | <i>tknns</i> | 'gather' |

The AR is possibly the closest thing, in Semitic, to a *lexeme* (assuming the notion is useful), and as such *it is very different from the root!*

- A. It has a category (*roots do not*)
- B. It has a stable, unique Content which is preserved throughout the functional domain (although additional non-compositional Content can be available with subsequent C-functor merger) (*roots do not*)
- C. It has fixed phonology.

But it is still NOT a phonological word!



4.1.1 Keys, Sub-keys, Roots and Allomorphy

In the presence of some glide radicals, typically realized as vowels (or, plausibly, vocalic radicals) keys may show systematic allomorphy. E.g., when 2=W, III and VII revert to the subkey 1W33, vocalized, identically, as 1o3e3 in both PST and FUT. When 1=W/Y, II and V revert to the subkeys *nW23* for II (vocalized as *no2e3* in PST and as *(n)Va2a3* in FUT), and as *(h)W23* or *(h)Y23*, vocalized in PST as *ho2i3/hi2i3* respectively. While these alternations are root conditioned, in the sense that they are brought about by the nature of the root radicals, I will assume, alongside many others, that an appropriate vocalization representation, complete with the realization properties of glides and the appropriate prosodic domain, would account for these alternations, and that fundamentally, they are rule governed, and are therefore not to be subsumed under idiosyncratic root or key selection.

4.2 The Root Route (Qal)

The so-called 1st template, *Qal* (in Hebrew Grammar) does not involve a C-functor, or a *key*, but rather, the direct merger of the root with the functional spine or a (non-key) C-functor. The root is verbalized contextually, in line with Borer (2013).

13. A. The *root* selects vocalization exponents to give rise to PRF/IMP stems respectively.

Root specific; absent selection, vocalization reverts to default

- B. The *root* selects C-exponents (N[V], A[V]).

Root specific; one-many; absent selection, C-exponents revert to default.

- C. i. ROOT \rightsquigarrow Functional exponent (*or default*)

ii. ROOT \rightsquigarrow C-exponents (*or default*)

14. A. *Root allomorphy*

natan – *yiten*

pst fut

‘give’

laqax - *yiqax*

pst fut

‘take’

(regular: *nabal* – *yinbol*

pst fut

‘wilt’

lamad – *yilmad*)

pst fut

‘study’

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B. *vocalization allomorphy*⁶

| | | | | | | | | | |
|--------------|---------------|---------------|--------------|---------------|---------------|--------------|------------|---------------|---------------|
| <i>sarap</i> | <i>yisrop</i> | <i>lisrop</i> | <i>gadal</i> | <i>yigdal</i> | <i>ligdol</i> | <i>šakab</i> | – | <i>yiškab</i> | <i>liškab</i> |
| <i>pst</i> | <i>fut</i> | <i>inf</i> | <i>pst</i> | <i>fut</i> | <i>inf</i> | <i>pst</i> | <i>fut</i> | <i>inf</i> | |
| ‘burn’ | | | ‘grow.int.’ | | | ‘lie down’ | | | |

DEFAULT

C. **root** **prf** **deverbal nom** **pass. Ptc**

| | | | | | |
|-----|--------------|------------------------|----------------|--------------------|---------|
| ŠMR | <i>šamar</i> | <i>šmira</i> | <i>šamur</i> | <i>guard</i> | DEFAULT |
| RCX | <i>racax</i> | <i>recixa; recax</i> | <i>*racuax</i> | <i>murder</i> | |
| ?BD | <i>?abad</i> | <i>*?abida; ?aboda</i> | <i>*?abud</i> | <i>work</i> | |
| ‘BD | <i>‘abad</i> | <i>*‘abida; ‘obdan</i> | <i>‘abud</i> | <i>lose (int.)</i> | |
| KBŠ | <i>kabaš</i> | <i>*kbiša; kibbuš</i> | <i>kabuš</i> | <i>occupy</i> | |

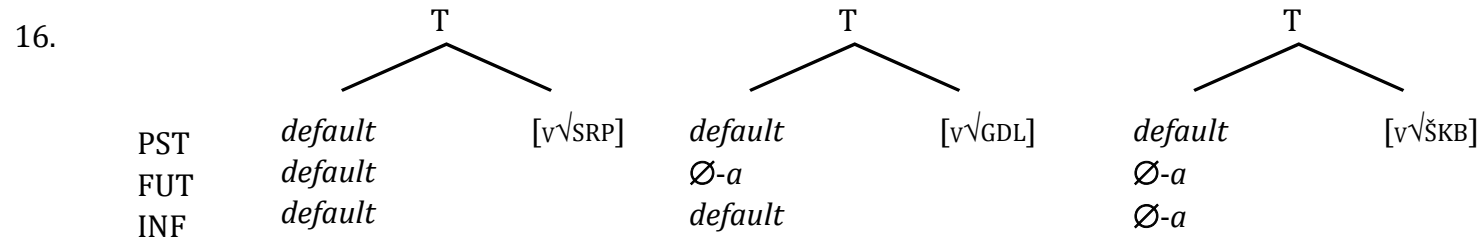
15. *Comparison with English:*

- A. ✓The *root* selects inflectional exponents (e.g., past tense).
Root specific; absent selection vocalization reverts to default; one-to-one
- B. ✓The *root* selects C-exponents (N[V], A[V]).
Root specific; one-many; absent selection, C-exponents revert to default.

⁶ Standard Arabic *I/Qal* allows 3 perfective vocalizations and 3 imperfective ones, and 7 of possible 9 pairings are attested, and root selected. Wright (1898/1979) lists 44 possible N[V] deverbal nominals for *I/Qal* in Classical Arabic and adds the following cautionary note:

“All these nouns cannot, however, be formed from every trilateral verb. The majority of verbs admit of but one form, very few of more than two or three. What these are, must be learned from the Lexicon.” (p. 112, §197)

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- The Semitic root has phonology, both in terms of its own realization and in terms of its impact on the realization of merging exponents
- The Semitic root has no Content.
- The Semitic root has no syntax (no category, no arguments)
- Unlike some notions of *roots* now in circulation, the Semitic root is absolutely and totally *not* an (a categorial) lexeme! If then, English roots are lexemes, then we are looking at very different units here, with the obvious theoretical consequences.

4.2 A Note on Root Suppletion

17. YGD/'MR suppletion: 'say, tell' spoken Modern Hebrew (green: written lg. only; red: ungrammatical)

| Root | Key | PST | PRES (=pres ptc) | IMP | | | PASS ptc | Deverbal Nominal |
|------|------------|---------------|------------------|--------------|----------------|------------------------------|--------------------|---------------------|
| | | | | FUT | INF | IMPR | | |
| 'MR | <i>Qal</i> | <i>'amar</i> | <i>'omer</i> | <i>yomar</i> | <i>lomar</i> | <i>'emor</i> <i>tomar</i> | <i>'amur</i> (def) | <i>'amira</i> (def) |
| YGD | V | <i>*higid</i> | <i>*magid</i> | <i>yagid</i> | <i>lehagid</i> | <i>tagid</i> | <i>*mugad</i> | <i>*hagada</i> |

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Note that the exponent selections here specifically DO NOT pattern along the lines of the PRF/IMP stems: key participial exponents (with the exception of II) are IMP, but in the table in (17), YGD realizes the IMP forms of FUT/INF/IMPR, but not the participial ones.

Note further that both *V-ygd* and *Qal-'amar* are morpho-phonologically predictable here (pace the fact that *ygd* has an initial glide radical).

18. root 876 (GO) is realized as *wen* in the context of PST, *go* otherwise, or root 358 (GOOD) is realized as *bet* in the context of COMPR, *good* otherwise.

19. Root 765 (SAY) is realized as *ygd* in the context of key V, *'mr* otherwise

(19) however, only gives us two alternative realizations for 'root 765/TELL'. Building into it the fact that *V-ygd* is selected/selects FUT, but not participles or PST, cannot be stated relative to the root.

20. Root 765 is realized as *'mr* in the context of PST, PTC, DN; *V-ygd* otherwise.

(20) faces the converse problem – what it states is not a root suppletion, but a suppletive relationship between a root, on the one hand, and a categorized syntactic structure, on the other hand.

If, indeed, there is *suppletion* here, where by *suppletion* we refer to an alternative phonological realization of structurally and semantically identical items, the only possible level at which such *suppletion* can be stated is at the level of the *Augmented Root*. At best, this is not root suppletion, but rather a 'lexeme' suppletion, which, to accommodate, requires a paradigmatic model (and see Embick and Marantz 2008 for extensive critique).

4.3 C-functors and Selection

- Do (English) affixes select other affixes?
- Is the merge environment for some C-functors systematically ambiguous? Specifically, assume a C-functor X which is specified to merge with category Y (X[Y]), can X also merge with a (perpetually) uncategorized root?
-

The answers from Semitic:

- Do Semitic affixes select other affixes?

YES. Keys select both C-functor and S-functor (functional) realizations.

Conclusions for English?

Semitic keys operate outside the default system appropriate for English, and each is associated with its own complete paradigm: functional realization array, N[V] realization, and A[V] realization. E.g., in Hebrew, the vocalization *a-e* in the IMP/FUT, predicts what the deverbal nominal form would be like, although at *i-u* it is most clearly not derived from the IMP vocalization.

In English, any particular exponent selected has zero predictability, relative to any other exponent selection, inflection exhibits clear root locality effects, and where the notion of *default* plays a crucial (and correct) role. Not only don't tense, or plural marking, correlate with any derivational marking, but even wholly within the derivational system, correlations are at best tendential (e.g., *-ate*; *-ive*; *-ation*). As well absent is one-to-one effects. All (Latin) suffixed derived verbs select *-ation* regardless of suffix, all prefixed verbs select *-ment* regardless of prefix, and all derived nominals, regardless of suffix, select *-al* (if they allow further affixation, which is limited).

That there are two distinct systems at play here is conclusively driven home by the contrast, internal to Semitic, between *key* derivations and the Qal derivation, with the latter exhibiting exactly the set of properties otherwise attested in English.

- Is the merge environment for (some) C-functors systematically ambiguous between named categories and an uncategorized root?

Keys merge with uncategorized roots, and, it would appear, ONLY with uncategorized roots, never with any categorized constituents.⁷

Other C-functors merge with designated categorized constituents.

⁷ The T-keys, in Semitic, are possibly best analyzed as derived from other keys, in which case they would be V[V] functors. Morph-phonologically, this is quite straightforward. If a sustainable *syntactic* analysis (and there are quite a few challenges), this would suggest that the key-stock is not uniform, and that the 'basic' keys may only merge with a root, while the 'derived' keys cannot merge with a root, but are veritable V[V] functors. Either way, the situation frequently put forth in English, were most, if not all derivational affixes have an ambiguous merge environment, is not supported.

5 *Semitic roots and Content*

The Semitic root, qua a sequence of radicals, has no inherent Content.

The point has already been made extensively, especially by Aronoff (1994) (but see also Borer, 2013, Harley, 2014, i.a.). Here are just some additional illustrations. I looked, specifically, at roots that occur both in key III and in key V, because to the best of my knowledge nobody has ever proposed that these are (systematically) derivationally related. By way of broad syntactic generalizations, III favors transitivity and unaccusatives are rare or possibly altogether absent. V is more open, but freely allows transitivity and causative construals. Unlike III, inchoatives are quite frequent.⁸

Of the 118 verb pairs checked, 71 (60%) have a veritably different Content. At times these may reflect a metaphorical or historically related Content, now less than obvious, and at other times, with no connection that I can discern:

| | | |
|------------|--------------|-----|
| 21. šiqeʔa | hišqiʔa | ŠQʔ |
| ‘sink’ | ‘invest’ | |
| šillem | hišlim | ŠLM |
| ‘pay’ | ‘make peace’ | |
| ricca | hirca | RCY |
| ‘placate’ | ‘lecture’ | |
| pilleg | hiplig | PLG |
| ‘divide’ | ‘sail’ | |
| qibbel | hiqbil | QBL |
| ‘receive’ | ‘parallel’ | |

47 verb pairs did exhibit Content relatedness. Quite a large number among these are virtual synonyms. Others roughly correspond to causative-inchoative meaning pairs. Some just seem to evoke the same concept, but do not have a canonical Content relatedness:

⁸ With special thanks to Maya Arad for making her root corpus available to me!

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| | | |
|-------------|---------------------------|---------|
| 22. rigeš | hirgiš | TGŠ |
| ‘excite’ | ‘feel’ | |
| soxeax | hisiax | SWX |
| ‘converse’ | ‘converse’ | |
| piyyes | hepis | PYS |
| ‘pacify’ | ‘pacify’ | |
| pocec | hipcic | PWC/PCC |
| ‘explode’ | ‘bomb’ | |
| riba | hirba | RBY |
| multiply.tr | multiply.tr, multiply.int | |

At 40% of relevant cases, the root clearly does give a non-random information about Content, but just as clearly, root Content cannot be reliably built into the grammar.

- The Semitic root has phonology, both in terms of its own realization and in terms of its impact on the realization of merging exponents
- The Semitic root has no Content.
- The Semitic root has no syntax (no category, no arguments)
- Unlike some notions of *roots* now in circulation, the Semitic root is absolutely and totally *not* an (a categorial) lexeme! If then, English roots are lexemes, then we are looking at very different units here, with the obvious theoretical consequences.

6 Roots and (Phrasal) Syntax

If the general line of argumentation in Borer (2005) is on the right track (and see also, in particular, Ramchand 2008; Lohndal 2014, and others) then roots do not have arguments, and neither do larger constituents, such as verbs, or, say the *Augmented Root* as described above, which is, of course *V*, but not phonologically complete. Rather, according to that view, argument arrays are templatic and generated by the functional syntax, and Contentful vocabulary serves to modify them, rather than to determine their properties. Anomalies, when they emerge, are rather attributed to a mismatch between the event structure as it emerges from the functional

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domain, and whatever (conceptual) Content is associated with its Contentful modifier. That anomaly is thus on a par with the anomaly of the adverb *furiously* in (23) and its source, by assumption, is not strictly speaking grammatical:

23. Colourless green ideas sleep furiously

Notwithstanding this approach, it is worthwhile illustrating to the extent that there are some argumental configurations that are favoured in some contexts, what they care about is the *Augmented Root*, by assumption a verbal constituent already, and not the root.

I leave aside the much-debated question of the relationship between event structure and keys. That some keys place restrictions on their array of arguments is clear, with the prime examples being II and VII which are intransitive, a generalization that has no exceptions, and at least in the case of VII, no obvious semantic source.⁹ What is clear, however, is that even if keys can be shown to be the source of argumental alternations, these clearly do not come from the root.

In all the examples below, derivational relatedness has been excluded. Note that at least in some cases, the root Content is related:

- | | | | | | | |
|--------|-----|------------|-----------------|-------------------|--------------|---------------|
| 24. a. | Hi | 'immna-III | 'et ha.yeladim | DO acc case | root: 'MN | |
| | she | trained | OM the children | | | |
| | b. | hi | he'emina-V | l.a.yeladim | PP <i>le</i> | |
| | | she | believed | (to) the children | | |
| 25. a. | hem | boesu-III | b.a.boc | ha.kabed | PP <i>be</i> | root: WBS/BSS |
| | | they | shuffled | in.the.mud | the.heavy | |
| | b. | hem | hebisu-V | 'et ha.caba | DO acc. Case | |
| | | they | defeated | OM the.army | | |

⁹ See, in particular, Ahdout (forthcoming). As Ahdout demonstrates compellingly, verbs occurring in VII can be, syntactically, reflexive, unergative, and unaccusative. Their only common denomination is the absence of accusative Case. Gesenius (1910) records 3 or so occurrences in Biblical Hebrew of VII with a direct object. Setting aside of the actual source of these in BH, it is entirely clear that these are absolutely impossible in Modern Hebrew.

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26. a. ha.xevra bittxa-III 'et ha.saxqanit DO acc Case root: BTX
the company insured OM the actress
- b. ha.xevra batxa b.a.saxqanit PP *be*
the company trusted in the actress
- c. ha.xevra hibtxa li še.teqadem 'oti PP *le*
the.company promised to.me that will promote me
27. a. ha-ƣcina yiddʔa-III 'et ha.xayalot le.gabey ha.xupša DO acc. Case/le.gabey; root: YDʔ
the.officer briefed OM the.soldiers concerning the.leave
- b. ha.ƣcina hodiʔa-V l.a.xayalot ʔal ha.xupša PP *le/ʔal*
the.officer informed to the soldiers about the leave

- The Semitic root has phonology, both in terms of its own realization and in terms of its impact on the realization of merging exponents
- The Semitic root has no Content.
- The Semitic root has no syntax (no category, no arguments)

The Semitic root is first and foremost a unit of sound!

Unlike some notions of *roots* now in circulation, the Semitic root is absolutely and totally *not* an (a-categorial) lexeme! If then, English roots are fully or partially lexemes, then we are looking at very different units here, with the obvious theoretical consequences.

Thank You, and Next Year in São Paulo!

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