# On Cranberries, Categories, and Core <br> Morphology Days in the Low Countries 2021, April 22-23, 2021 

## 1. INTRODUCTION: THE ISSUE OF ACATEGORIAL ROOTS?

Background assumptions: i) 'root' an indispensable part of the mental lexicon; of a traditional and (even more so) a DM one \& ii) the notion 'morphological root' is underlined by the intuition that words may share a minimal - bare 'core'; that which remains invariant when all identifiable morphological formatives have been taken away.

## QS: What is the nature of roots?

Within DM, there is broad consensus that roots are acategorial (Josefsson 1995, 1997, 1998, 2001, Marantz 1997, 2001, Arad 2003, Embick and Marantz 2006, Embick and Noyer 2007, Acquaviva 2009, Harley 2014, Haugen and Siddiqi 2013, among many others).


Thus in DM roots have

- no morphosyntactic category
- no gender or declension/conjugation class (Acquaviva 2009, following Harris 1996, though with caveats, for Harris roots have category)
- no phonology
- for some researchers (e.g., Pfau 2000, 2009, Acquaviva 2009, Harley 2014), no meaning


#### Abstract

"On their own, roots are unpronounceable. It is "words"-roots combined with nominal, adjectival, or verbal features - that we pronounce. Roots also lack a fixed or precise semantic interpretation. It is only in the specific environment of certain morphemes that they acquire an actual interpretation as nouns or verbs. The root $\sqrt{\text { hammer, for example, is assigned an interpretation of a manner verb when }}$ embedded in a verbal environment, and an interpretation of an instrument used for hammering when embedded in a nominal environment." (Arad 2003:10)


## Upshot: Roots have a category.

Disclaimer: Though we discuss the nature of roots in general, our primary focus will be on empirical domain of cranberry items. Hence, the conclusions we draw about them are merely suggestive for the broader domain of roots, but due to the nature of the empirical domain probed, they seem quite indicative.

## 2. CRANBERRY MORPHEMES AS A CLUSTER OF PHENOMENA

"...because cran is completely isolated from the syntax by its occurrence inside only the one word, there is no way in which it can have syntactic properties of its own, and hence semantic properties" (Aronoff 1974:38)
Lexicon of Linguistics: "a type of bound morpheme that cannot be assigned a meaning nor a grammatical function, but nonetheless serves to distinguish one word from the other.
EXAMPLE: the English word cranberry seems morphologically complex, since it must be distinguished from words such as raspberry, blackberry, and gooseberry. Still, cran has no meaning and does not function as an independent word: cranberry is the only word in which cran appears."
The usual suspects:
(2) a. cran- (cranberry)
b. -mit (permit, transmit, commit, remit, submit, resubmit, recommit, intromit, intermit, remit, but also admit, demit, emit, omit)
c. -ceive (receive, perceive, deceive, conceive, apperceive, misconceive, misperceive, preconceive...)
d. cob- (cobweb)
e. were- (werewolf, werebear, wereboar, wererat, weretiger)
f. $\quad-\operatorname{kemp}(t)$ (unkempt)
g. ruth- (ruthless)
h. reck- (reckless, from OE reccelēas)

What these morphemes have in common: they are bound.

### 2.1. Lack of meaning

Not necessary: ed- (edible), cob- (cobweb) and -ept (inept) are quite transparent and comfortable for further derivation: in-ept-ly, in-ept-ness etc.

### 2.2. Hapax morphemes and lexical category

Cranberry morphemes in (2b-c, e) are not restricted to just one environment. Even cran isn't (see Appendix for crantini etc.)
Conversely, a morpheme can be single-use (hapax) and still clearly have a lexical category:
(3) a. ruth-, reck-, gorm-...: -less adjoins only to nouns
b. (il)leg-, plaus-, ed-...: -ible is an allomorph of -able and only adjoins to verbs (cf. permissible, admissible, accessible...)
c. -ept: the negative in- is an adjectival prefix

No direct connection between the underdetermination of a lexical category and the hapax status.

### 2.3. Root vs. affix

So far we have been looking at limited-distribution roots. There are limited-distribution and even hapax affixes:
a. -uz-: only used in franc-uz 'a Frenchman', cf. Francija 'France’ Russian
b. -ës-: only used in bel-ës-yj 'offwhite, whitish', cf. bel-yj 'white'
c. -s-: only used in plak-s-a 'crybaby' from plak-at' 'to cry'; marginally there's also $x n y k-s-a$ from xnyk-at' 'to snivel' and krik-s-a from kryč-at' 'to yell', with the same semantics of habituality
(5) a. diev-egge 'female thief', cf. dief 'thief'

Dutch
b. frans-oos 'Frenchman', cf. Frans 'French'

Again, all of these do have a lexical category, so once again, being hapax does not mean acategorial.

### 2.4. Free cranberry morphemes

Single-use morphemes need not be bound (the so-called fossil words, or cranberry words (see Aronoff 1974))
(6) a. kith and kin noun
b. eke (only in eke out) verb
c. spick and span adjective

Fossil words can be functional (e.g., to and fro, hither and yon)
And be restricted in their use as well:
(7) a. hark (hark back to or hark at you)
verb
b. hither (come hither, hither and thither, hither and yon) demonstrative
c. mettle (in high mettle, test/prove/show (one's) mettle, on (one's) mettle) noun

And, very rarely, their category is underdetermined:
(8) days of yore

There might be some fossil words underdetermined for category. So what? They must have a category, this is definitely syntax: But Satan now is wiser than of yore, and tempts by making rich, not making poor (Alexander Pope); A nation now poorer than of yore.

### 2.5. The issue of phonaesthemes

Firth 1930, Bolinger 1950, Bergen 2004: frequent sound-meaning pairings that are clearly not morphemes (though see Rhodes and Lawler 1981):
(9) a. gl- 'light, vision': glimmer, glisten, glitter, gleam, glow, glint, etc.
b. sn- 'nose, mouth': snore, snack, snout, snarl, snort, sniff, sneeze, etc.

For (9a): these are all verbs. So:
$>$ shared sound
$>$ shared meaning (the lexical-semantic class of the totality)
> shared category
$>$ NOT a morpheme
Why?
phonaesthemes are not syllabic (but then neither is the past tense $-d$ )
English prefixes are not category-determining heads (with the possible exception of en- in envisage, enliven, etc., though probably not enjoy; see Hammond 1993)
Making gl-a morpheme would lead to an impossible syntactic structure
Hypothesis: it is having lexical category that determines whether something is a morpheme.

### 2.6. Intermediate summary

The lexical indeterminacy of cranberry morphemes is hugely exaggerated
Limited distribution is not a property that is only relevant for morphology: fossil words are free, but have limited distribution
The fact of single use does not exclude having lexical category and multiple environments of use do not ensure it

The fact that the lexical category of a morpheme cannot be determined does not entail the lack of a lexical category (cf. fossil words)

In fact, assuming that morphemes must have a lexical category explains why phonaesthemes are not morphemes

Even the fact that a morpheme might have a certain meaning in isolation does not entail that this meaning is retained in composition (cf. handsome, understand - see Aronoff 1974:37)

## 3. AgAINST ACATEGORIAL COMPOUNDING

### 3.1. Compounding vs. derivation

The first member of an English nominal compound can belong to any lexical category (from Andrew McIntyre's handout):
(10) a. [N N]N: chess table, strawberry jam, diesel motor, bookshelf
b. [V N] N : crybaby, scrubwoman, bakehouse
c. [Participle $N]_{\mathrm{N}}$ : filing cabinet, reading class, writing table, drinking water

e. [Particle/Preposition N] N : outhouse, outgrowth, undergrowth, offprint
f. $\quad[\mathrm{N} \mathrm{A}]_{\mathrm{A}}$ : bloodthirsty, pain-free, theory-neutral, colourblind, class-specific

So a cranberry morpheme as the first member of a compound can be of any lexical category... in principle
A lexical-semantic class of cranberry morphemes: Monday, Tuesday...
These are nouns: the only example of a day-compound that has a non-nominal first member is holiday and it is also the only one that is not a day

The fine line between compounding and derivation with cranberry morphemes is not clear:
(11) a. behind, hindmost, hindsight
b. before, foremost, foreleg, foresight...

Probably, nouns. On cranberry itself see the appendix
Suppose we find a better example. What then?
Cranberry morphemes do have a lexical category (though it cannot be always determined unambiguously)
Minimally, compounding doesn't require bare roots as input:
> there are compounds where the lexical category of the members is clear
$>\quad$ in languages with overt morphology are there any others?

### 3.2. Overt morphology in compounds

Argument: category-specific morphology requires the presence of the category

### 3.2.1. Imperative compounds in SC

In all the instances of these compounds, the first element is a verb in the 2 PsSg Imperative form. Whatever the analysis of their origin etc., what is important for us is that these cases of compounding clearly do not involve cannot be category-less roots.
The origin, semantic types, and use of these compounds have attracted a great deal of interest in the literature on SC (see Daničićc 1876, Stevanović 1956, Klajn 2002, Progovac 2006, among others). Though interesting, these issues are outside of the domain of this paper. What is relevant for us here is that the first element of these compounds cannot be a bare root - it must be a verb as it appears in the form of 2SG imperative, ending in either ' i ' or ' j ', depending on the verb. In SC, $-o$ - and $-e$ - are the linkers, $-i$ - is not
(12) a. vuci-batina (pull-whip) (vuci.IMP, as opposed to vući.INF, vuče.3SG.Present, vuk.ROOT, as evident in vuk-ao.PastParticiple)
b. seci-kesa (cut-purse) (seci.IMP, as opposed to sek.ROOT (e.g. trbo-sek (stomach-ripper) sek-ač (cut-ter), seći. INF seče.3SGPresent)
c. deri-koža (rip-skin) (deri.IMP, as opposed to derati.INF, dere.3SG.Present, der.ROOT, as in oblak-o-der (skyscrape(er))
(Progovac 2006: Ex7)
d. some proper names: Branimir (defend-peace), Želimir (want-peace), Budislav (be-glorious); Branislav (defend-glory)...

There are no compounds that allow verbal roots as a first member and yet show no verbal morphology

### 3.2.2. Infinitive-containing compounds in Dutch

Though the morphemes en and $s$ (homophonous or identical to plural markers) are attested in compounds in Dutch, here -s- is unambiguously a linker and -en-, the infinitive marker:
(13) eten-s-tijd (eating time), varen-s-man (sea farer), zien-s-wijze (lit. seeing way, view); uitgaan-s-verbod (lit. outgoing prohibiton, curfew)
For further examples, overview, and discussion of compounding in Dutch, see Booij 1992

### 3.2.3. Nouns \& adjectives as non-heads

If it is plural, it has to be nominal:
(14) English: mice-infested, menbashing, oxenpower (ox-oxen), dice thrower (die - dice)...
(15) Serbo-Croatian suppletive plurals and case-marked nonheads:
a. dec-o-ubica (child-murderer): dete (child) - deca (children)
b. ljud-o-žder (cannibal): čovek (man) - ljudi (people - suppletive)
c. Viš-e-grad (toponym, lit. higher-town): visok (high/tall) - viši-(taller)
d. Svrsi-shodan (useful) - svrha nominative - svrsi -dative (purpose)
e. Bogu-mrzak (God-displeasing) bog-nomintive bogu-dative (god)

Particularly interesting are (d) and (e): no linker - nonheads directly adjacent to the head.

### 3.2.4. Are Slavic compounds always predictive?

Russian, two core types: with a derived second member and with a bare root one (Vinogradov 1952:273-277 for nominal compounds)
Nominal and adjectival compounds all involve the linker o (allomorph e after palatalized consonants)
(16) exocentric $\left[\mathrm{N}-\sqrt{V}_{\mathrm{V}}\right]_{\mathrm{N}}$ compounds (underived verbal root as the second member)
a. sen-o-kos 'haying' $\leftarrow$ sen-o 'hay' + kos-it' 'mow-INF'
b. pyl-e-sos 'vacuum cleaner' $\leftarrow$ pyl' 'dust' + sos-at' 'suck-INF'
c. sneg-o-pad 'snowfall' $\leftarrow$ sneg 'snow' + pad-at' 'fall-INF'

The first member is a noun. However, there are exceptions (probably, a closed class):
d. skor-o-xod 'footman, foot courier' $\leftarrow$ skor-o 'fast' (adverb) + xod-it' 'walk-INF'

And there are A-N compounds of the same type:
e. čern-o-zëm ‘black earth' $\leftarrow$ čern-yj ‘black' + zem-lja 'earth'
(17) derived nominal compounds (a derived deverbal noun as the second member)
a. mjas-o-rub-k-a 'meatgrinder' $\leftarrow$ mjaso 'meat' + rub-it' 'chop-INF' + diminutive
b. vod-o-kač-k-a 'water-tower' $\leftarrow$ vod-a 'water' + kač-at' 'pump-INF' + diminutive

The first member is a noun. However, there are exceptions (probably, a closed class):
c. tix-o-xod-k-a 'tardigrade' $\leftarrow$ tix-o 'quiet' (adverb) + xod-it' 'walk-INF'

And there are A-N compounds with the same suffix:
d. bos-o-nož-k-a 'sandal' $\leftarrow$ bos-oj 'barefoot' (adjective) + nog-a 'foot'
it seems impossible to unambiguously determine the category of Russian compound members without looking into the details of semantic composition
Yet the first member of a compound created with the linking vowel -o- cannot be a verb

### 3.3. Category-specific class restrictions

Empirical cases that require access to both PF \& LF \& the categorial information (the declensional/gender information, in turn presupposed by the category label - see Stevanović 1964 for examples and overview)
(18) Suffix -ad creating collective nouns has very specific restrictions: Neuter, declension class III (exception dete (child) II) ; e-stem; typically [+younglings]: tele (calf) - telad (collective); jagnje (lamb) - jagnjad; pile - pilad (chick); pače (duck) - pačad etc.
(19) Suffix -ov added to derive descriptive labels, specifically for dogs and horses: zeljov (a dog with gray-green coat - zeleno (green)), žutov (a dog with a yellow coat (žut - yellow), mrkov (a brown horse - mrk (brown)), šarov (a dog with a multi-colored coat - šaren (multicolored)

## 4. Conclusion

A careful examination of cranberry morphemes reveals that the use of the term is deceptive.
We maintain that parameters such as non-compositional meaning, limited/hapax distribution, derivational status (compounding or affixation), being free or bound and prosodically well- or ill-formed does not entail the lack of the lexical category.

Conversely, the under-determination of the lexical category is not limited to morphology (recall 2.4 and see also: I know those Algerine cut-throats of yore; and if they are met bravely, they quickly show the white feather. "Roger Willoughby" by William H. G. Kingston; Miners Alley visits a Christmas of yore. http://www.boulderweekly.com/article-4022-swansea-song.html

Such distributional properties of roots as conjugation class or gender are difficult to achieve if roots are acategorial (see Matushansky 2015 for discussion)
A closer examination of compounding suggests that the lack of a lexical category in the first member of a compound may be only apparent: while the grammatical category of cob-, cranor luke- might not seem as obvious as that of ruth- or -ceive, the very fact that they appear in a compound requires them to have a category modulo other language groups (see Zhang 2007 who argues that Chinese exhibits root-compounding). For inflectional languages - even those with morphologically eroded systems like Dutch or English - we suggest that the aphorism, Absence of evidence is not evidence of absence applies.

## 5. References

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## APPENDIX: THE CASE OF CRANBERRY

A random search of compounding involving -berry suggests that the category of the first part of this compound is overwhelmingly a noun:
(20) strawberry (also OE eorðberge (earth-berry) and its counterparts in Modern German and Dutch, a.o.); dewberry; cowberry; mountain berry; foxberry; quailberry; bearberry; beverberry; courgarberry; partridgeberry; lingonberry (lingon - cow), salmonberry; huckleberry (dialect: hurtle-berry - whortleberry); gooseberry; wolfberry (goji berry); bilberry (billo -ball - Scandinavian origin/Danish); acai berry; cloudberry; baneberry; buffalo berry; bunch berry; juneberry; elderberry (ME, elder (alder) - a kind of tree); mistletoe berry; nannyberry; sugarberry; ivy berry; virginia creeper berry; wineberry; whortle berry (whortle - wyrt, Germ. wurzel, root - small shrub); windberry; mooseberry; marion berry; dogberry; poisonberry; brambleberry; crackerberry; mulberry (a tree of the genus morus - Modern German: maulbeere); raspberry ( $15^{\text {th }}$ raspise - a kind of wine)

So, overwhelmingly, the -berry compounds seem to be of the [N-N] type. Even those cases that seem to be cases of A (youngberry) one needs to be very careful. As it turns out, the first member here is a proper name - the founder's surname. Pokeberry derives its name from the name of American Indian Powhatan people, boysenberry owns its name to Rudolf Boysen and loganberry to James Harvey Logan. Finally, tayberry is named after the River Tay in Scotland and farkleberry owns its name to a dice game called Farkle. Even the relatively newly coined crantini (analogy to appletini) suggests that cran- is treated as a noun. So, there seems to be enough evidence that cran- in ModE is a noun.

Crucially for our discussion, however, our argument would be unaffected if we were to find that cran- were an A, even though most berry-compounds are noun-noun ones. After all, blackberry and blueberry are likely [A-N] compounds, whereas goldenberry is clearly an [A$\mathrm{N}]$ one. The point is that our argument that compounding takes items with a syntactic category as input would still hold. What we wanted to demonstrate with this small corpus exercise and 'thought experiment' is that there is far less unpredictability than typically assumed and that even in such an 'obscure' set as the set of the original cranberry morphemes it is not the case that 'anything goes' universe holds. After all, noun-noun compounds are the most common types of nominal compounds, followed by the adjective-noun and then verbnoun ones (Carstairs-McCarthy 2002, a.o.)

