

Adjectival Roots and the Single Engine Hypothesis

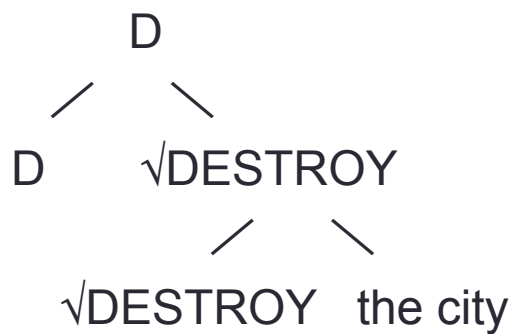
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(1) Distributive Morphology

- (i) Single Engine: the same operations and principles govern morphological and syntactic computation.
- (ii) Acategorical Root: roots are acategorical, acquiring specific categories via their first merger with category-determining heads.

(2) Marantz (1997)

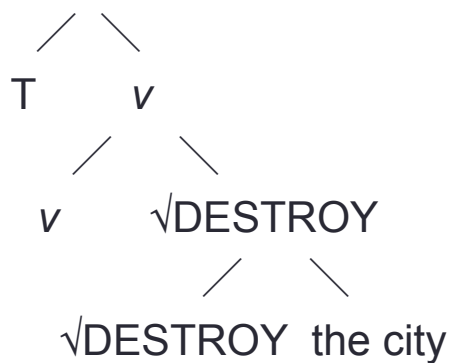
a. the destruction of the city



→ √DESTROY is categorized as N in the environment of D

(2) Marantz (1997)

b. (John) destroy(ed) the city



→ √DESTROY is categorized as V in the environment of v.

(3) The Contextual Determination of Syntactic Category by Functional Heads

- Fries (1952:76)
 - says determiners “serve as markers of Class I” (=Ns)
 - defines Vs in terms of auxiliary verbs preceding them.
 - but lists only *not* and degree modifiers like *very* as function words that precede As.

(4) Is the Adjectival Environment Definable?

- By ‘functional category’ in its narrow sense as in Abney (1987) and Chomsky (1995)

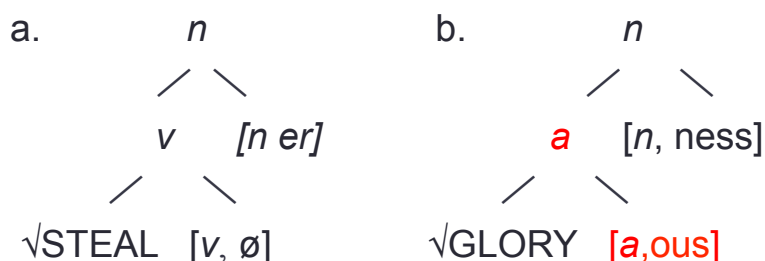
→ The answer is NO.

Very and *not* are not obligatory functional heads.

(4) Is the Adjectival Environment Definable?

By Derivational Suffixes as Category-Deciding Functional Heads: Embick and Marantz (2008) and Embick (2010)),

→ Yes. There are many A-forming suffixes like –ous, so ‘acategorical roots’ can be categorized by such suffixes



Outline of Talk

1. Is the Adjectival Environment Definable?
2. Evidence for the Inherent Nominal and Verbal Features
3. Peculiarities of Adjectives
4. An Analysis
5. Apparent Evidence on the Category-Neutrality of Ns and Vs
6. Remaining Issues

Section 2

Evidence for the Inherent Nominal and Verbal Features

2.1 Morphological Evidence

(8) Fabb (1988): Root-selecting Suffixes

- Many English suffixes attach only to roots and select for a particular category.
- -IVE attaches only to simple Vs.
 - a. [v restrict]-ive
 - *[n class]-ive *[a formal]-ive
 - b. *[v [n class]-ify]-ive
 - *[v [a formal]-ize]-ive]

(9) Myers' (1984) Generalization

No (root-selecting) derivational suffix can be added to a zero-derived word.

a. [n cover]

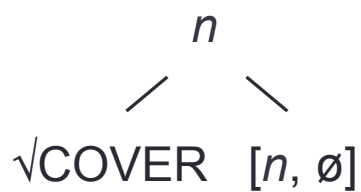
==> cover-age

b. [v [n cover] \emptyset]

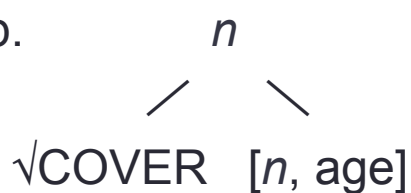
==> *cover-ive, *cover-al, *cover-ant

(10) Embick and Marantz (2008)

a.



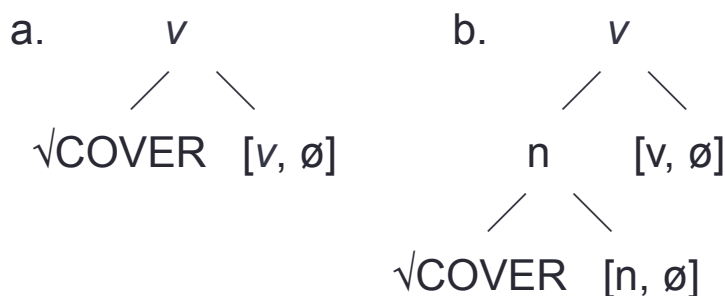
b.



→ (10a,b) are derivationally the same.

(11) Embick and Marantz (2008)

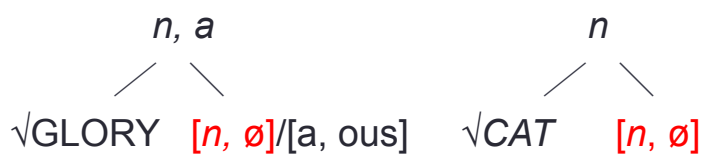
- **Would** analyze the verb *cover* as (11a) or (11b):



- (11a) is derivationally the same as (10a)
Two kinds of empty head need to be assumed in (11b).

(12) Embick and Marantz

- Apart from truncation cases, the category of the innermost empty head is the root's category.



- Each root has inherent phonetic content. It merges with a phonetically empty head of a particular category: √GLORY and √CAT are realized as the nouns *glory* and *cat*.
- √GLORY and √CAT have the feature [n].

2.2 Phonological Evidence

(13) Dutch Ns can have complex rhymes (Don, 2004, 2005a, b)

a. a long vowel with three consonants:

VVC1C2C3 (C2 C3=coronal)

koorts [k^ort^s] 'fever' oogst [o^xst] 'harvest'

b. a short vowel followed by three consonants:

VC1C2C3 (C3 =coronal)

hengst [hɛŋst] 'stallion' inkt [iŋ^{kt}] 'ink'

c. a long vowel followed by two consonants:

VVC1C2 (C2 =coronal)

beest [best] 'animal' hoofd [ho^{ft}] 'head'

(14) Syllable Structure of Dutch Vs are more restricted

a. Vs without a nominal counterpart may not allow complex rhymes:

e.g. win, kom, vang

b. All verbs with a complex syllable structure have a nominal counterpart:

e.g. [V oogst] from (13a)

[V hengst] from (13b)

→ [V oogst] and [V hengst] are not roots but derived from Ns.

(15) English Ns can end with complex rhymes

- Hammonds 1999
- English Disyllabic **Ns** with penultimate stress can have a complex final rhyme.
- VC+Coronal

tum ult	leg end	sil ence	bal ance
honest	har vest	lum ox	fa ult

(16) All Verbs with Final Complex Rhymes ==> Derived from Ns

balance	ballast	challenge
distance	forest	garland
garment	harvest	husband
interest	pigment	silence
<u>tempest</u>	warrant	<u>fault</u>

(17) With Root-selecting Suffixes

a. Root-selecting denominal suffixes:

[n tempest]-uous

[n fault]-y

b. Root-selecting deverbal suffixes:

*[v [n tempest]]-ive

*[v [n fault]]-ant

cf. (8a) [v restrict]-ive, [v defi]-ant

(18) Summary of Section 2

1. Many suffixes in English may attach only to roots or monomorphemic items of specific categories.
2. Simple Ns/Vs need to be distinguished from their zero-derived verbal/nominal counterparts.
3. These facts force us to conclude that nominal and verbal roots are inherently categorized via the features [n] and [v].
4. I will analyze zero derivation into **Ns** or **Vs** simply as the merger of a stem with the feature [n] or [v].
5. What about **As**? Are they inherently categorized or not?

Section 3 Peculiarities of Adjectives: Myers (1984)

(19) Zero Derivation into N/V versus A

- English zero derivation from monomorphemic categories into Ns and Vs is productive but that into As is not:
 - a. I'd like two [N [A purple]]-s.
 - b. The [V [A Green]]-ing of America
 - c. *They are much too [V hurry] for their own good.
 - d. *He's a truly [N saint] man.
- If UG has [*n*] and [*v*] but no categorial feature for As, there should be no zero derivation into As.

(20) A-forming Suffixes

- Many adjectival suffixes appear to simultaneously derive Ns (and sometimes Vs):
 - a. [a, v X-y] (e.g. bloody, dirty)
 - b. [a, n X-ive] (e.g. conservative)
 - c. [a, n, v X-ive] (e.g. negative)
 - d. [n, a X-al] (e.g. national, universal)
 - e. [a, n X-an] (e.g. American)
 - f. [a, n X-ish] (e.g. Danish)
 - g. [a, n X-ary] (e.g. revolutionary)

(21) V/N-forming suffixes

- No categorial flexibility between N/V and A:
 - a. [v, *a X-ize]
 - b. [v, *a X-ify]
 - c. [n, *a X-er]
 - d. [n, *a X-ment]
 - e. [n, *a X-ity]
 - f. [n, *a X-ness]

(22) Lee's (2008) objection

- Examples of Zero Derivation from Complex Words?
 - a. posture miniature → no base?
 - b. vacation (<--[V vacate])
 - barrier (<--[N/V bar])
 - audition (<--[V audit])
 - engineer (<--[N engine])
 - c. closure (<--[A/V close])
 - bandage (<--[N band])

(22) Lee's (2008) objection

1. prefixed V→N: review, preview
→ prefixes do not decide a category.
 2. complex A→V: bloody, negative
 3. complex A→ N: valuable, Spanish, negative
 4. No case of complex V as input
- 2, 3, 4 = (20)(21) Myers (1984)

(23) Morphologically complex inputs to zero derivation

- Morphologically complex As like (20) only.
 - a. [a, v X-y] (e.g. bloody, dirty)
 - b. [a, n X-ive] (e.g. conservative)
 - c. [a, n, v X-ive] (e.g. negative)
 - d. [n, a X-al] (e.g. national, universal)
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Section 3.2 (24)-(27)

- **Skip**

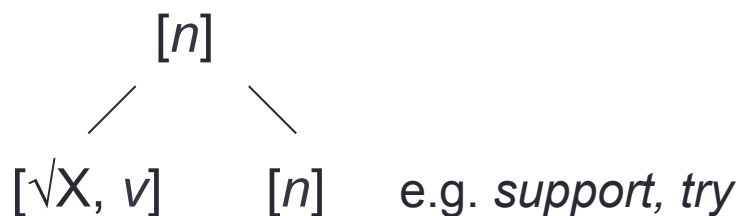
Section 4 An Analysis

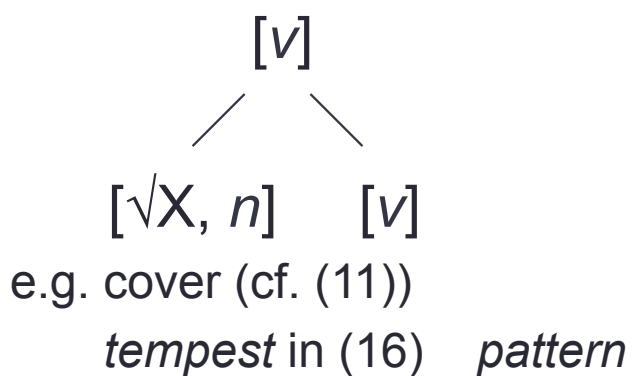
(28) Assumptions

- i. UG has just two categorial features for substantives $[n]$ and $[v]$, and no categorial feature for As.
- ii. Zero derivation is the merger of a stem with $[n]$ or $[v]$.

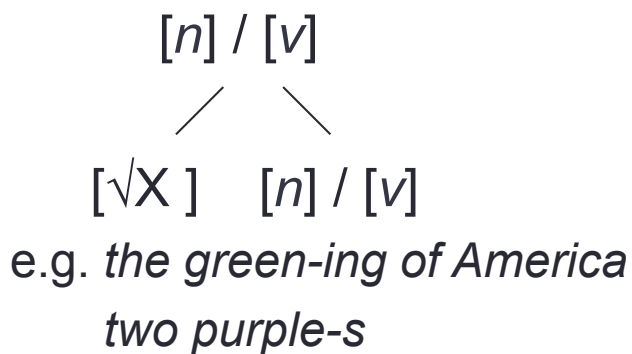
(29) Zero Derivation: simple $V \rightarrow N$

- a. \sqrt{X} stands for the phonetic/semantic (& syntactic) features of a substantive root.
- b. V/N inherently have a categorial feature.



(30) Zero Derivation: Simple N --> V**(31) Zero Derivation: Simple A --> N/V**

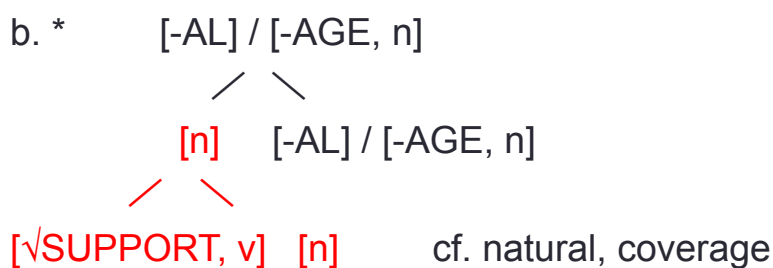
- A substantive w/o a categorial feature = A



(32) No Zero Derivation into As

- (28i) UG has just two categorial features for substantives [*n*] and [*v*], and no categorial feature for As.
- (28ii) Zero derivation is the merger of a stem with [*n*] or [*v*].
- Given (28i, ii), it follows that zero derivation into As is impossible:
- *[AP too [V hurry]] *AP truly [N saint]] in (19c,d)

(33) Myers' generalization



(34) Overt Derivation: Simple V → N

- Like a substantive root, a suffix can bear either [n] or [v]

[SUF, n]



[√X, v] [SUF, n]

V → N trial, annoyance, defendant

V → V ?

(No V-V root-selecting suffix in Fabb 1988)

(35) Overt Derivation: Simple N → V/N

[SUF, v] / [SUF, n]



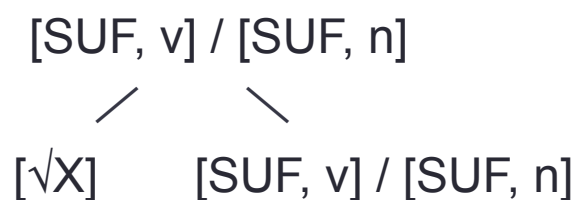
[√X, n] [SUF, v] / [SUF, n]

e.g. N → V: class → classify

symbol → symbolize

N → N: cover → coverage, violin → violinist

library → librarian

(36) Overt Derivation: Simple A → V/N

e.g. A → V: modernize, widen, intensify

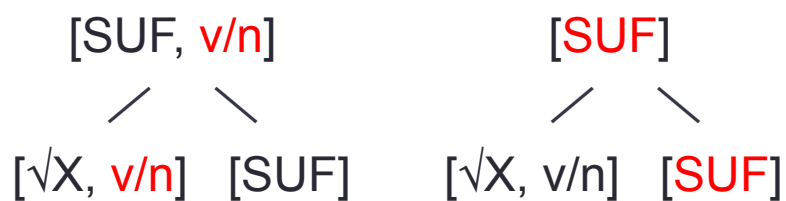
A → N ?

(-ism, -ist, -ity are not root-selecting)

(36) Overt Suffixation: Simple V/N → A

• A-forming suffixes lack a categorial feature.

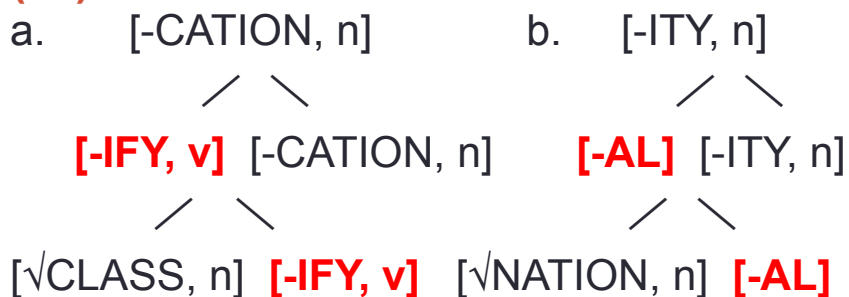
a. Relativized Head b. Strictly Right-Headed



e.g. V--> **A**: *defiant, restrictive, advisory*

N--> A: *reptilian, moneyed, boyish, hearty*

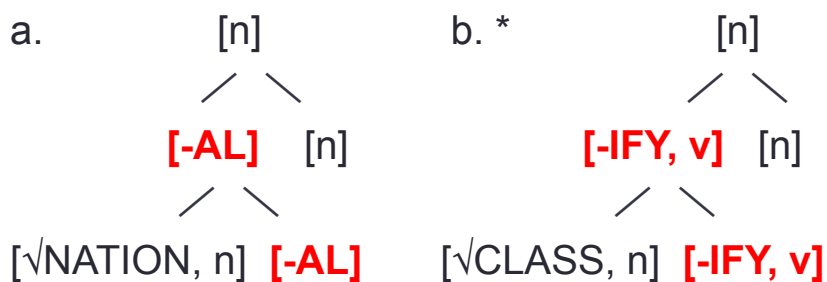
Polymorphemic Lexical Items as Input: (38) Overt Suffixation



- Overriding of the lower suffix's category by the selecting head should generally be allowed as in (38a).

Polymorphemic Lexical Items as Input: (39) Zero Suffixation

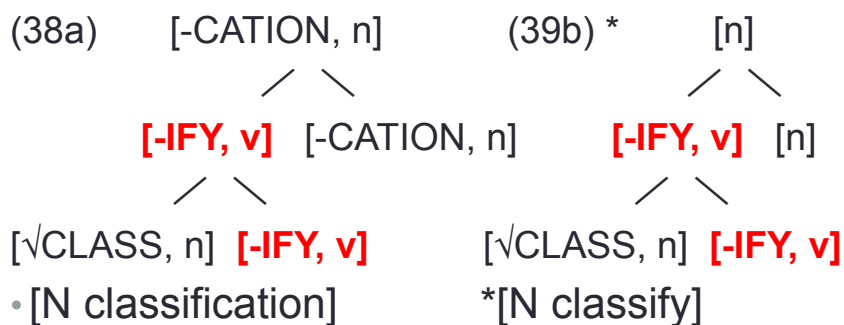
(23) Morphologically complex inputs to ZD are restricted to As. Why?



- The overt suffix in (39b) has a categorial feature but that in (39a) does not.

(40) Why is (38a) OK but (39b) is not?

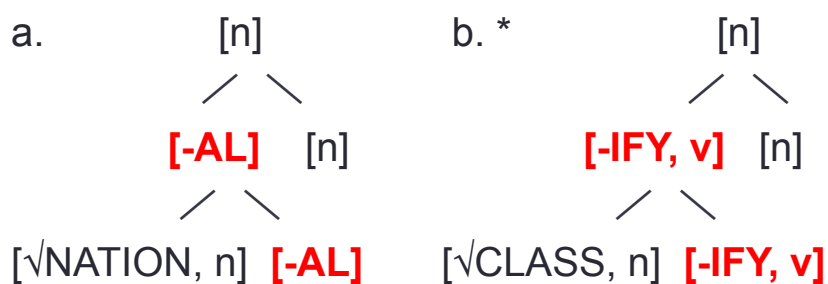
- A derived V is subject to overt suffixation but not to zero derivation. Why?



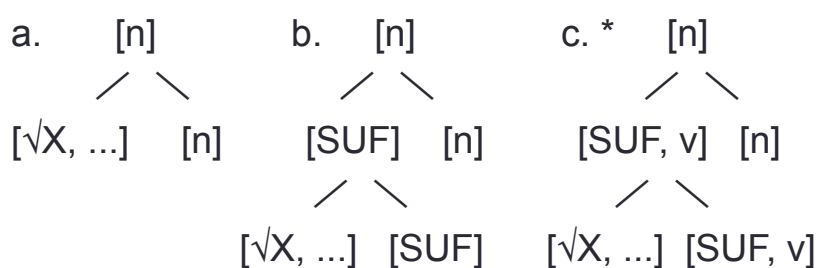
(40) Why is (38a) OK but (39b) is not?

- The overriding nominal head in (39b) has no phonetic and probably no semantic contents.
- That in (38a) has phonetic and some semantic contents.
- Intuitively, the verbal suffix **-ify** in (38a) can be easily distinguished from the complex nominal suffix **-ification** at the PF(/LF) interfaces.
- The verbal **-ify** is non-distinct from the putative nominal **-ify** in (39b).

(39) Morphologically complex inputs to ZD are restricted to As. Why?



(41) Possible and Impossible Zero Derivation



- Let's assume that **zero derivation from a complex word is not possible** regardless of its category.
- Merging a categorial feature with a root is OK but with a suffix in the syntactic computation is not.

(42) Root versus Suffix

- DM assumes that Roots lack a category but suffixes have a category.
- The defining properties of substantives are their semantic contents: [$\sqrt{\text{COVER}}$, n] [$\sqrt{\text{SUPPORT}}$, v]
- Those of suffixes are their categorial features (i.e. whether they are N- or V-forming), which cannot be overridden by zero morphemes as in (41c).
- Instead of (41b), [n] can be bundled into [SUF], forming [SUF, n].
- [n] cannot be bundled into [SUF, v] because the resultant lexical item [SUF, v , n] is contradictory.

(43) Categorial Indeterminacy of A-forming Suffixes

(20c)

1. [a negative] \rightarrow [$\sqrt{\text{NEGATE}}$, v]-[ive]
 2. [n negative] \rightarrow [$\sqrt{\text{NEGATE}}$, v]-[ive, n]
 3. [v negative] \rightarrow [$\sqrt{\text{NEGATE}}$, v]-[ive, v]
- 2,3 are presumably marked options available when lexical items are formed.
 - Inputs to zero derivation are mostly simple words.

(44) V/N-Forming Suffixes

- Bundling [n] or [v] is allowed as part of category-neutral (=A) suffixes when terminal nodes are assembled rather than the merger in (41b)
- a. [-IVE] → [-IVE, n] [-IVE, v]
- b. [-IFY, v] → *[-IFY, v, n]

Section 5 Apparent Evidence on the Category-neutrality of Ns and Vs

5.1 Kiparsky (1982, 1997) (46)(47)

- a. He **hammered** the desk with **his shoe**.
- b. *She tapes the picture to the wall with **pushpins**.
- Harley (2005)
- manner incorporation versus instrumental incorporation

5.1 Kiparsky (1982, 1997) (48)-(50)

- a. Not Stress-shifting
[v/n debáte] [v/n refórm] [V/N exháust]
 - b. Stress-shifting
[v permít] - [N pérmit]
 - [v transfér] - [N tráfser]
 - [V prodúce] - [N pródùce]
- Myers (1984) (48b) are limited in number.
P-V compound?

5.2 Arad (2003, 2005) (51)

Locality constraint on the interpretation of roots (Arad 2003: 747):

- (Acategoryal) Roots are assigned an interpretation in the environment of the first category-assigning head with which they are merged.
- Once this interpretation is assigned, it is carried along throughout the derivation.

Prediction under Arad (2003, 2005)

In my theory:

- Ns and Vs are categorized via [n] and [v].
- It follows that Ns/Vs do not allow multiple interpretations contrary to Arad's claim.
- As are acategoryal, lacking a categorial feature due to language design.
- It follows that **only As allow multiple interpretations.**

Verbal Alternation in Hebrew

root	pattern	verb	
ʕmd	1. CaCaC	ʕamad	'be standing'
ʕmd	2. niCCaC	neʕamad	'stand up'
qpl	3. CiCCaC	qipel	'fold'-transitive
qpl	4. CuCCaC	qupal	'passive of 3'
ʕmd	5. hiCCiC	heʕamid	'make stand up'
ʕmd	6. huCCaC	huʕamad	'passive of 5'
qpl	7. hitCaCCeC	hitqapel	'fold-intransitive'

→ They are all verbal roots. No evidence for the acategorical status of V roots.

Other “ Root-level“ Variation in Hebrew (52a)

a. √šmn		
CeCeC (n)	šeme	'oil, grease'
CuCaC (n)	šuman	'fat'
CaCeC (a)	šamen	'fat'
hiCCiC (v)	hišmin	'grow fat/fatten'

→ A → N/V?

Other Alternations (52b-d)

b. $\sqrt{x\check{s}b}$

CiCCeC (v) xišev 'calculate'

maCCeC (n) maxšev 'a computer/calculator'

→ V-based Derivation

V – V-er e.g. make - maker

- Many of Arad's root derivation might involve ordinary derivation from categorized roots.

(53) Multiple Contextualized Meaning (MCM)

a. \sqrt{bxn}

CaCaC boxan 'examine'

hiCCiC hivxin 'discern'

b. \sqrt{btx}

CaCaC batax 'trust'

CiCCeC biteax 'insure'

hiCCiC hivtiax 'promise'

→ The shared meaning is adjectival.

(54) Multiple Contextualized Meaning (MCM) in Japanese

- a. √tasika-da 'is certain'
- b. √tasika-meru 'make sure, ascertain'
- c. √tasika-ni suru 'ensure, confirm'

The Chinese reading of *tasika* is *kaku*.
Kaku is involved in numerous Vs (*kakuyaku-suru*) and *na*-adjectives (*kakujitu-da*)

Section 6 Remaining Issues

(55) Truncation in Embick and Marantz (2008)

$n \leftrightarrow -ity / X_$

$X = \text{Roots } (\sqrt{\text{ATROC}}, \sqrt{\text{CURI} \text{OUS}}, \dots);$

$[a, -able], [a, -al]$

$n \leftrightarrow -ness$

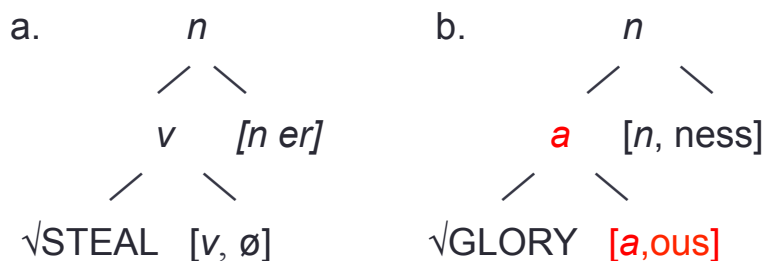
→ *-ity* attaches to (i) **A-forming** suffixes like *-able/-al* and also to (ii) **BOUND ROOTS** like $\sqrt{\text{ATROC}}, \sqrt{\text{CURI} \text{OUS}}$.

Is this a coincidence or a necessity?

(4) Is the Adjectival Environment Definable?

By Derivational Suffixes as Category-Deciding Functional Heads: Embick and Marantz (2008) and Embick (2010),

→ Yes. There are many A-forming suffixes like *-ous*, so 'acategorical roots' can be categorized by such suffixes



(56) –Ous as a PF Marker of A

- a. glory glori**ous** *gloriousity
gloriousness
- b. *cury curi**ous** curiosity
curiousness
- c. *atroc atroci**ous** atrocity
atrociousness
- d. courage courage**ous** *courageosity
courageousness

(57) Other PF Markers of A: [ənt], [ənd], [əst]

- a. vac**ant** (<-vacate) b. divid**end** (<-divide)
- c. pli**ant** f. mod**est**
- g. hon**est** h. gall**ant**

→ Hammonds (1999:252) proposes to decompose monomorphemic words in (57) into bound roots and the phonologically shared endings.

(57c) pliant versus pliable

- plaint – pliancy
- pliable – pliability
- feasible -- feasibility

Bound Roots as As?

(28i) Assumption

UG has just two categorial features for substantives [*n*] and [*v*], and no categorial feature for As.

- As have semantic/phonetic contents but no categorial feature.
- Bound roots like √ATROC and √PLI have semantic/phonetic contents but no categorial feature.

Final Remarks

- UG has categorial features [*n*] and [*v*] but not [*a*].
- This can account for asymmetries between N/V and A observed in the past literature.
- Especially, Myers (1984) is careful in uncovering peculiarities of As.
- It is expected that the acategorial analysis of As will bring about a breakthrough on issues like truncation.