

## Adjectival Roots and the Single Engine Hypothesis

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### 1. Is the Adjectival Environment Definable?

The tenet of distributive morphology (DM) is the single engine hypothesis: (i) the same operations and principles govern morphological and syntactic computation. Another assumption commonly held in DM is that (ii) roots are acategorical, acquiring specific categories via their first merger with category-determining heads. For instance, Embick (2010:31,103) assumes that roots have phonological and semantic information but lack categorial features, while category-determining heads, which include overt derivational suffixes, have categorial and other grammatical features but no phonological representation. (i) and (ii) are theoretically independent, and (ii) is rather stipulative in that the set of features to be assembled into a terminal node in the sense of Chomsky (1995) and subsequent work should in principle be available to all kinds of terminal nodes. The absence of any feature in one type of syntactic input calls for a principled reason.

Moreover, (ii) is empirically problematic in that there is no clearly obligatory context in which a root becomes adjectival. As for the nominal and verbal environments in English, Marantz (1997) gives (1a,b) but no context for As.

- (1) a. John destroyed the city                      b. the destruction of the city
- v

  /  \  
v  √DESTROY

  /  \  
√DESTROY  the city

D

  /  \  
D  √DESTROY

  /  \  
√DESTROY  the city

In DM, a root becomes verbal in the environment of a light V, which is required by higher clausal heads. The definite article is required in (1b), and singular countable Ns generally need to be preceded by some article. It is not a new idea to identify the syntactic categories of words in relation to the functional categories they need to occur with. Fries (1952:76), for instance, says that determiners “serve as markers of Class I,” which corresponds to the nominal category. Interestingly, he lists only *not* and degree modifiers

like *very* as function words that precede As, but they are not obligatory for them, unlike auxiliaries for Vs and determiners for Ns.<sup>1</sup> As for obligatory inflection, countable Ns, when not preceded by an article, have to be affixed with the plural morpheme, and Vs in general require tense or aspectual markers, while the comparative inflections, which are affixed only on As, are not required by them. Thus, no mention of the adjectival environment in Marantz (1997) is not accidental, reflecting no or insufficient basis for the contextual definition of the adjectival category.

In this paper, I will argue that nominal and verbal roots are inherently categorized in terms of two privative features [n(ominal)] and [v(erb)] in Chomsky (1995), and uphold the acategorial analysis only of As: adjectival roots are minimal substantive elements without a categorial feature. I also assume that both roots and suffixes have underlying phonological forms. The minimalist literature makes almost no reference to the feature [adjective], and As were defined rather contradictorily via two binary features as [+N, +V] in the X-bar theory. Back in the pre-GB period, Ross (1972) argued that Ns and Vs are the opposite ends of category differentiation. In this way, it is well motivated to posit in UG just two privative categorial features (or one binary feature, say [+/-N]) for elements with encyclopedic contents. Then, the acategorial status of adjectival roots follows from this language design. I will argue that the characterization of As as category-less can account for a number of peculiar properties observed on them by Myers (1984) and others.

In the rest of this paper, I will first review morphological and phonological evidence against the acategorial treatment of nominal and verbal roots: Fabb's (1988) selection-based theory of suffixation in English and Don's (2004, 2005a,b) studies on Dutch Ns and Vs. In Section 3, I will discuss several differences between As and Ns/Vs mainly based on Myers (1984). In particular, there is no zero derivation into As, though zero-derived Ns and Vs are abundant. The opposite asymmetry is observed on morphologically complex words as input: morphologically complex As can undergo zero derivation but Ns and Vs resist it. The categorial fuzziness of A is also discussed. Section 4 presents an analysis of the asymmetries between A and N/V under the assumption that only two categorial features [n] and [v] are available in UG and zero derivation is the merger of a stem with one categorial feature and nothing else. In Section 5, I will take up Kiparsky (1982, 1997) and Arad (2003, 2005), and argue that the evidence they present to support the category-neutral assumption on nominal and verbal roots is not convincing. Remaining issues will be discussed in Section 6.

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1. Actually, *not* can be followed by most other categories: Vs, Ps, Ns, and clauses.

## 2. Evidence for the Inherent Nominal and Verbal Features

### 2.1 Morphological Evidence

DM assumes that derivational suffixes like *-ive* are allomorphic realizations of category-deciding heads. This simply says that each suffix derives a word of a particular category but fails to express another important fact: each suffix takes only a stem of a particular category. As has been fully demonstrated by Fabb (1988), many of the English suffixes attach only to roots and they select for a particular category. For example, *-ive* is affixed only to simple Vs:

- (2) a. \*classif(y)-ive    b. \*moderniz(e)-ive    c. restrict-ive

As Embick and Marantz (2008:8, note 2) admit, it is not the case that every root can appear with every possible category-deciding head. The categorial selection by root-selecting suffixes poses a challenge to the acategorial root hypothesis.

In addition, homophonous V-N pairs related by zero derivation call for clarification of category-deciding heads assumed in DM. Embick and Marantz analyze phonologically distinct words with the same category from a common root such as (3a,b)

- (3) a. 
$$\begin{array}{c} \text{n} \\ / \quad \backslash \\ \sqrt{\text{COVER}} \quad [\text{n}, \emptyset] \end{array}$$
    b. 
$$\begin{array}{c} \text{n} \\ / \quad \backslash \\ \text{COVER} \quad [\text{n}, \text{age}] \end{array}$$

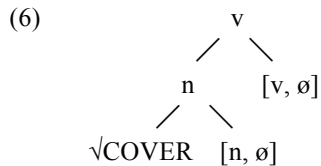
The N *cover* has the zero-derived verbal counterpart, of which they have not presented an analysis. According to Myers' (1984) generalization in (4), the V *cover* cannot simply be analyzed on a par with (3a) as in (5).

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

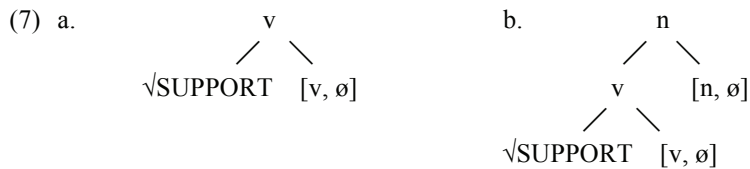
- (5) 
$$\begin{array}{c} \text{v} \\ / \quad \backslash \\ \sqrt{\text{COVER}} \quad [\text{v}, \emptyset] \end{array}$$

It is because the N *cover* can be affixed with a root-selecting suffix like *-age* as in (3b), while the V *cover* cannot: \**cover-ive*, \**cover-al*, \**cover-ant*. More generally, most homophonous N-V pairs have either N or V as basic, the other being zero-derived from the former and resisting further suffixation.

One way to analyze the verbal *cover* as more complex than the nominal one would be (6).



*Support* is an example of the opposite case: the verbal *support* can be suffixed with *-ive*, but the nominal *support* does not allow any root-selecting suffix: *\*supportage*, *\*supportal*, *\*supportous*, *\*supportist*. The N-V pair of *support* would be analyzed as (7a, b) on a par with (3a) and (6).



Given Myers' generalization, the outer null heads in (6) and (7b), which are responsible for zero-derivation, cannot be identified with the inner null head in (3a), (6), and (7a,b) since only the former block further suffixation. The necessary distinction is easily made without two kinds of empty heads if the inner heads are all removed, which amounts to denying the categorial root hypothesis on Ns and Vs. I will assume below that nominal and verbal roots are categorized inherently rather than by external category-deciding head.

## 2.2 Phonological Evidence

Don (2004, 2005a, b) argues for the necessity to distinguish simple and denominal Vs in Dutch based on their phonological asymmetries. In Dutch, Ns can have more complex word-final rhymes than Vs: a long vowel (VV) with three consonants as in (8), a short vowel (V) followed by three consonants as in (9) or a long vowel (VV) followed by two consonants as in (10), where the last one or two consonants are restricted to coronals as specified below:

- (8) VVC<sub>1</sub>C<sub>2</sub>C<sub>3</sub> (C<sub>2</sub>C<sub>3</sub>=coronal)
- |    |        |          |           |
|----|--------|----------|-----------|
| a. | koorts | [ko:rts] | ‘fever’   |
| b. | oogst  | [o:xst]  | ‘harvest’ |
- (9) VC<sub>1</sub>C<sub>2</sub>C<sub>3</sub> (C<sub>3</sub>=coronal)
- |    |        |         |            |
|----|--------|---------|------------|
| a. | hengst | [hɛŋst] | ‘stallion’ |
| b. | inkt   | [ɪŋkt]  | ‘ink’      |
- (10) VVC<sub>1</sub>C<sub>2</sub> (C<sub>2</sub>=coronal)
- |    |       |         |        |
|----|-------|---------|--------|
| a. | kood  | [ko:d]  | ‘rope’ |
| b. | hoofd | [ho:ft] | ‘head’ |

On the other hand, most Vs have far simpler syllable structures without any of the complex rhymes possible in Ns: e.g. *win*, *kom*, and *vang*. In fact, some Vs have a complex rhyme like (8)-(10) but all of them have a homophonous nominal counterpart. To maintain the phonological distinction between Ns and Vs with respect to their syllabic structures, it is necessary to assume Vs with a complex syllable to be zero-derived from Ns: [v oogst] from (8b) and [v hengst] from (9a).<sup>2</sup> Don (2004, 2005) also argues for the distinction between simple and deverbal Ns, into which I do not go here.

Hammonds (1999: 251) makes a similar observation on English Ns and Vs. Disyllabic Ns with penultimate stress can have a consonant cluster word-finally, where the last consonant is restricted to a coronal roughly on a par with the patterns of Dutch Ns in (8)-(10).

- (11) a. tumult                      b. legend                      c. silence  
       d. balance                    e. honest                     f. harvest  
       g. lummoX                    h. fault<sup>3</sup>

Hammonds (1999:251-2) observes that “all verbs that exhibit penultimate stress and end in more than one consonant are simultaneously nouns” as in (12a-o) and concludes “that final clusters are impossible for verbs and that these words are examples of true nouns.”

- (12) a. balance                      b. ballast                      c. challenge  
       d. distance                    e. forest                      f. garland  
       g. garment                    h. harvest                     i. husband  
       j. interest                    k. pigment                    l. silence

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2. Multisyllabic words are not discussed here to make the argument simpler.  
 3. (11a-g) are from Hammonds (1999:251), to which I add *fault*.

m. tempest

n. warrant

o. fault

In other words, (12a-o) are not simple Vs but should be analyzed as zero-derived from the corresponding Ns.

The conclusion is supported by morphological data. In particular, attaching the Root-selecting denominal suffixes *-ous* and *-y* to *tempest* and *fault* is allowed, yielding [<sub>A</sub> tempestuous], and [<sub>A</sub> faulty], respectively,<sup>4</sup> whereas root-selecting deverbal suffixes like *-ant* and *-ive* may not be affixed on them: e.g. \*[<sub>A</sub> tempestive], \*[<sub>A</sub> faultant]. These deverbal suffixes cannot be attached to other words like *forest* and *silence*, while the root-selecting denominal suffix *-ed* is possible: e.g. *forested* and *silenced*. This is consistent with the assumption that *forest* and *silence* are basically Ns.

Bearing on Don (2004, 2005a, b) and Hammonds (1999), I have argued that simple Vs need to be distinguished from denominal ones. If denominal Vs have a phonetically empty head, that head cannot be identified with a category-deciding head generally assumed in DM. Moreover, simple Vs cannot be regarded as acategorial since they are categorially selected by root-selecting suffixes like *-ive*. Thus, I claim that verbal as well as nominal Roots are inherently categorized via the features [verbal] and [nominal], respectively. Like roots, suffixes can have a categorial feature. If suffixes happen to have no phonetic or semantic content, they zero-derive Ns and Vs. In other words, what counts as zero derivation into N or V is simply the merger of a stem with the feature [n] or [v].

### 3. Peculiarities of Adjectives

#### 3.1 Myers (1984)

As has been discussed in the previous section, the acategorial root hypothesis faces difficulties in accounting for the categorial selection by root-selecting suffixes and zero-derived pairs of Ns and Vs. In contrast, As exhibit a number of properties that arguably support the category-neutral treatment of them.

Myers (1984:57) explicitly claims that English zero derivation from monomorphemic categories into Ns and Vs is productive but that into As is not.<sup>5</sup>

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4. Fabb (1988:532-533) does not include the denominal *-al* in his list of root-selecting suffixes, but Myers (1984:62) does. Hammonds (1999:251) includes *triumph* as a denominal V with two word-final consonants, and it cannot be affixed with *-al*: \*[<sub>A</sub> triumphal].
  5. Quirk et al. (1973:1011-1013) list zero derivation from V/A to N and from N/A

- (13) a. I'd like two [<sub>N</sub> [<sub>A</sub> purple]]-s.  
 b. The [<sub>V</sub> [<sub>A</sub> Green]]-ing of America

- (14) a. \*They are much too [<sub>V</sub> hurry] for their own good.  
 b. \*He's a truly [<sub>N</sub> saint] man.<sup>6</sup>

I have claimed that zero derivation into N and V such as (13a,b) is due to the merger of a stem with the feature [<sub>n</sub>] or [<sub>v</sub>]. If the categorial feature for As is non-existent, there should be no zero derivation into A, which is supported by (14a, b).

Another interesting observation by Myers (1984:57) is that many adjectival suffixes appear to simultaneously derive Ns (and sometimes Vs) as exemplified in (15), while V/N-forming suffixes show no such categorial flexibility as in (16).<sup>7</sup>

- |         |                 |                            |
|---------|-----------------|----------------------------|
| (15) 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)       |
- 
- |         |               |    |                |
|---------|---------------|----|----------------|
| (16) 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] |

Lee (2008) objects to the claim that derived words cannot be input to zero derivation by listing Vs like (17a-f).

- |         |         |    |           |    |          |
|---------|---------|----|-----------|----|----------|
| (17) a. | posture | b. | miniature | c. | vacation |
| d.      | barrier | e. | audition  | f. | engineer |
| g.      | closure | h. | bandage   |    |          |

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to V but no instance of zero derivation into A. Pesetsky (1995:86) basically agrees on this, but cites *U.S.* in (i) as an instance of zero-derived A. To me, *U.S.* as a zero-derived A in (i) is not convincing.

(i) the U.S./American economy

6. Myers (1984:56-58) convincingly argues that multi-categorial words like *calm* and *red* are basically As, from which Ns and Vs are derived.  
 7. (15a-d) are from Myers (1984:57), to which I add (15e-g).

It is not clear whether the Vs in (17a-f) really involve derived words. There are no conceivable stems for (17a,b), and (17c-f) are only weakly related to the respective stems, though (17g, h) are arguably derived from [V close ] and [N band ], respectively. If (17a-f) are independently listed in the lexicon, it can be largely maintained that most derived Ns and Vs cannot be input to zero derivation but derived As can.<sup>8</sup>

Going back to (15), *-less* and *-ful* derive only As unlike the suffixes in (15), but they have word-sized counterparts: *less* and *full*.<sup>9</sup> It can be said that A-forming suffixes allow categorial indeterminacy or are identical to existing full As, which I assume to lack a categorial feature, while V/N-forming suffixes function exclusively to form Vs/Ns and should be analyzed as having the relevant categorial feature just like full-fledged Vs and Ns.

### 3.2 Adjectives in Other Languages

Categorial indeterminacy or flexibility of As appears to be attested in other languages. Hale and Keyser (2002:13-14) and their work cited therein deal with zero derivation by positing four argument structure types: monadic, basic dyadic, composite dyadic, and atomic. Each structure tends to be headed by a particular category, but the composite dyadic structure, which is typically associated with As in English, is headed by Vs in Navajo and Ns in Warlpiri. This observed difference is eliminable if the composite dyadic structure is headed by any category as long as it is substantive.

This conclusion is supported by the following data from English.

- (18) a. The screen is [A clear].  
       b. The screen cleared.  
       c. I cleared the screen.
- (19) a. The machine [V broke].  
       b. I broke the machine.

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8. Lee (2008) also takes up prefixed Vs as input to zero derivation, but they are irrelevant to the discussion here. Other cases in his list fall under (15a-g). Lee attempts to explain the absence of zero-derived Ns from [X-ize] and [X-ify] based on Plag's (1999) observation of affix-affinity. His analysis cannot be extended to the absence of zero-derived As in (16a,b) since the N-forming suffixes *-ation* and *-cation* would not compete with the zero adjectival suffix.

9. The N-forming *-ful* as in *spoonful* is set aside here. *-Able*, which has the word-size counterpart, could be added to this list.



- (20) a. The car was a total [N wreck].  
 b. I wrecked the car.
- (21) a. The price is [P up].  
 b. They upped the prices.

As typically head the composite dyadic structure because they are acategorical, but other categories may appear as heads.

Second, Japanese has two kinds of As ending in *-i* and *-na*. Many of the stems of *na*-adjectives, which are referred to as adjectival nouns, are also used as Ns.

- (22) a. *totemo kenkoo-na hito* (\**totemo kenkoo-no hito*)  
 very healthy person  
 ‘very healthy person’  
 b. *kazoku-no kenkoo-wo kangaeru*  
 family-GEN health-ACC think  
 ‘think of (my) family’s health’

The degree modifier *totemo* and the *na*-ending show that *kenkoo* in (22a) is a *na*-adjectival stem, while the genitive and accusative markers in (22b) indicate that *kenkoo* is a simple N.

Third, Indonesian is somewhat similar to Navajo and Warlpiri in that it has adjectival roots but no clear candidates for A-forming overt affixes, though N/V-forming affixes are abundant (Sneddon 1996:48-53).

#### 4. An Analysis

##### 4.1. Zero Derivation from Monomorphemic Lexical Items

I have proposed to analyze zero derivation as merging a stem with one of the two categorial features to its right: [n] or [v]. I assume that merger at this level is linear to the extent that the Right-Hand Head Rule of Williams (1981) is correct. Verbal and nominal stems contain the relevant categorial feature, while those without a categorial feature are what count as adjectival. Zero derivation from a morphologically simple N, V and A goes as (23)-(25), respectively, where  $\sqrt{X}$  stands for the stem’s inherent sound/meaning.

- (23) 
$$\begin{array}{c} [n] \\ / \quad \backslash \\ [\sqrt{X}, v] \quad [n] \end{array}$$
 V --> N:  
*support* (cf. (7b)), *try*

- (24) 
$$\begin{array}{c} [v] \\ / \quad \backslash \\ [\sqrt{X}, n] \quad [v] \end{array}$$
- (25) 
$$\begin{array}{c} [n] / [v] \\ / \quad \backslash \\ [\sqrt{X}] \quad [n] / [v] \end{array}$$
- N --> V:  
*cover* (cf. (6)), *tempest* in (12m),  
*pattern*  
 A --> N: *purple* in (13a)  
 A --> V: *green* in (13b)

Zero derivation or conversion is by definition category-changing; so the merged categorial feature is always distinct from that of the stem.

As has been discussed in Section 3.1, As cannot be zero-derived: *\*too* [<sub>v</sub> *hurry*] and *\*truly* [<sub>N</sub> *saint*] in (14a, b). This is straightforwardly attributed to the absence of a categorial feature like [a] in UG. Myers' generalization also follows with the help of Fabb's (1982) theory of suffixation: root-selecting suffixes cannot attach to (23)-(25) since they are no longer monomorphemic roots as in (26b).<sup>10</sup>

- (26) a. 
$$\begin{array}{c} [-IVE] \\ / \quad \backslash \\ [\sqrt{SUPPORT}, v] \quad [-IVE] \end{array}$$
- b. \* 
$$\begin{array}{c} [-AL] \\ / \quad \backslash \\ [n] \quad [-AL] \\ / \quad \backslash \\ [\sqrt{SUPPORT}, v] \quad [n] \end{array}$$

As Pesetsky argues, root-selecting suffixes like *-ive* and *-al* can have access to the root in their local, adjacent position as in (26a) but cannot if a zero head intervenes as in (26b), which is a categorial feature in my analysis.

#### 4.2 Overt Derivation from Monomorphemic Lexical Items

Derivation with overt N/V-forming suffixes can be analyzed essentially the same way as zero derivation. One difference is that the suffix contains phonological and semantic information besides the categorial feature, which is represented as SUF below:

- (27) 
$$\begin{array}{c} [SUF, n] \\ / \quad \backslash \\ [\sqrt{X}, v] \quad [SUF, n] \end{array}$$
- V --> N:  
*trial, annoyance, defendant*

<sup>10</sup> See also Aronoff and Fuhrhop (2002).

- (28)      [SUF, v] / [SUF, n]      N --> V: *classify, symbolize*  
              /                        \      N --> N: *coverage, violinist,*  
              [√X, n]    [SUF, v] / [SUF, n]                        *librarian*
- (29)      [SUF, v] / [SUF, n]      A --> V: *modernize, widen,*  
              /                        \                                        *intensify*  
              [√X]      [SUF, v] / [SUF, n]      A --> N: ?

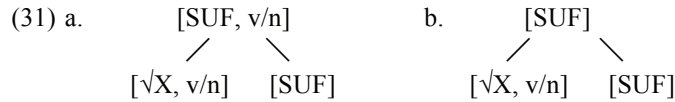
Examples of each pattern are cited from Fabb's list of root-selecting suffixes. The suffix in (28) can contain [n] since morphologically complex Ns derived from simple Ns are attested. (29) is a scheme for A-based overt suffixation.

What is expected but lacking in (29) is the overt derivation of Ns from As by root-selecting suffixes. None of the root-selecting suffixes in Fabb's (1988) list yields Ns from As. This might be an accidental gap. One possible candidate might be *-ity*; it attaches to bound roots, As ending with *-ous*, derived As with *-able* and *-al* as in (30a-d), respectively (cf. Embick and Marantz 2008:15).

- (30) a. atrocity  
       b. curiosity  
       c. readability  
       d. nationality

According to Aronoff's (1976:44) generalization, the pattern exemplified by (30b) is blocked if the portion without *-ous* is an independent N: *glory-glorious-\*gloriousity* versus *\*cury-curious-curiosity*. Suppose that *-ity* is almost root-selecting. Given that *cury* is not a phonological word but *glory* is, it is reasonable to claim that *glorious* is derived (from *glory*) but *curious* is not. Then, we can maintain that *-ity* in (30b) is root-selecting just as in (30a). As for complex As like (30c), their acceptability might be contingent on the N *ability*; it is a kind of bracketing paradox. Then, the remaining productive suffix with *-ity* is *-al* in (30d), and *-ity* is on a par with those "suffixes which attach outside one other suffix" listed in Fabb (1988:534). I will leave this issue open.

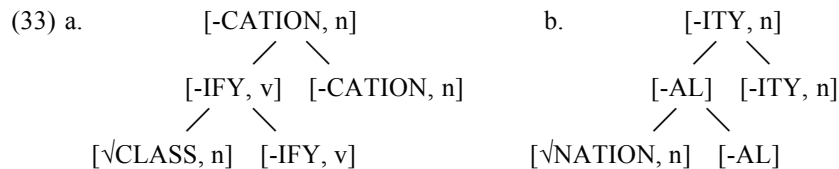
Going back to the main discussion, consider cases where the suffix is adjectival, lacking a categorial feature in my theory. If the categorial feature of the stem percolates up in the absence of a categorial feature in the suffix as in (31a), the resultant word should be nominal or verbal, which is clearly wrong. I will thus assume that projection is rigidly headed by the right-hand member as in (31b), and relevant examples are given in (32a,b).



- (32) a. V --> A: *defiant, restrictive, advisory*  
 b. N --> A: *reptilian, moneyed, boyish, hearty*

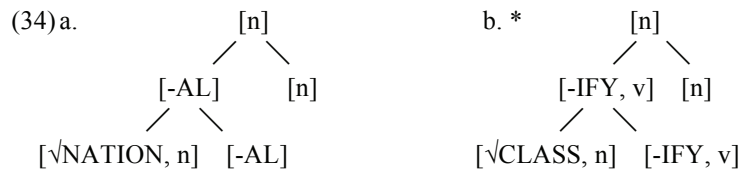
### 4.3 Polymorphemic Lexical Items as Input

Overt suffixation of already suffixed words like *classification* and *nationality* is to be analyzed as in (33a,b).



The outer head decides the category of the whole structure regardless of whether or not the suffix of the base has a categorial feature.

As for zero derivation, the discussion in Section 3.1 has led to the generalization that derived As can be input but derived Ns/Vs cannot. Let us first assume that the two cases have structure in (34a,b).

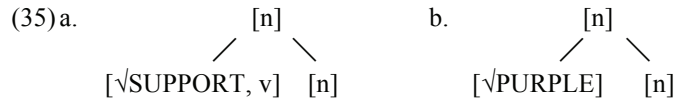


The obvious difference is that the overt suffix in (34b) has a categorial feature but that in (34a) does not. Note, however, that overriding of the lower suffix's category by the selecting head should generally be allowed as in (33a). (34b) differs from (33a) in that the overriding nominal head has no phonetic and probably no semantic contents. Intuitively, the verbal suffix *-ify* in (33a) can be easily distinguished from the complex nominal suffix *-ification* at the interfaces, whereas the verbal *-ify* is non-distinct from the putative nominal *-ify* in (34b).<sup>11</sup> I claim that this partly accounts for the im-

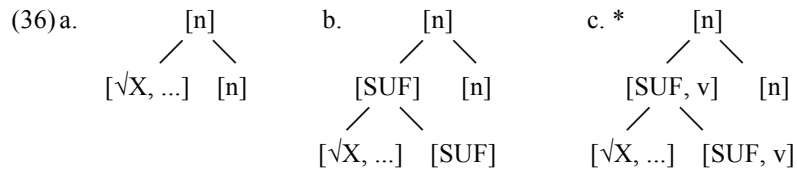
11. Fabb (1988:534-535) treats *-ificatory* and *-istic* derivationally as complex suf-

possible zero derivation in (34b).

Of course, zero derivation is generally possible as long as the base is a substantive category as in (35a,b).



Possible and impossible triads produced by zero derivation into N can be schematized as in (36a-c).



Setting aside (36b) for a moment, it is plausible to argue that the substantive base in (36a) can have its category ignored by the selecting suffix since it retains much semantic content, whereas the suffix in (36c) cannot, which has far less semantic content. In other words, the defining property of a suffix is its category information (i.e. whether it is N-, V-, or A-forming), and that of a substantive is its meaning. It is natural that the essential part of each head and non-head should be respected throughout syntactic computation.

Going back to (36b) with an A-forming suffix, the absence of a categorial feature seems to be crucial. Myers (1984:57) observes that some complex A like *negative* can function not only as N but also as V:

(37) [A, N, V X-ive] (e.g. *negative*) (= (15c))

Each input to syntactic computation is a bundle of features available in UG. Let us suppose that A-forming suffixes, which have been analyzed as lacking a categorial feature, may bear a categorial feature as a marked option when their feature bundles are formed as in (38b,c).

(38) a. [-IVE]                      b. [-IVE, n]                      c. [-IVE, v]  
 (39) a. [-IFY, v]                      b. \*[-IFY, v, n]

---

fixes. Plag's (1999) theory of affix affinity also appears to be relevant here.

Adding [n] to the suffix *-ify* as in (39b) is clearly contradictory. As has been discussed in Section 3.1, suffixed words generally resist zero derivation. Accordingly, I assume (36b,c) to be both impossible. Instead of (36b), I take (38b,c) as marked options available only for acategorical suffixes like (38a) when their feature bundles are formed.

As for the absence of A-forming overt suffixes in Indonesian discussed in Section 3.2, I simply assume that every overt suffix must have a categorial feature in Indonesian; since there is no categorial feature for A in UG, Indonesian does not have A-forming overt suffixes.

## 5. Apparent Evidence on the Categorical-neutrality of Ns and Vs

### 5.1 Kiparsky (1982, 1997)

I have retained the acategorical root hypothesis for As but rejected it for Ns and Vs. My theory would be disconfirmed if it is necessary to distinguish root-derived and word-derived Ns and Vs. In fact, Kiparsky (1982, 1997) argues for that necessity on the basis of examples like (40a,b).

- (40) a. He hammered the desk with his shoe.  
b. \*She tapes the picture to the wall with pushpin.

According to Kiparsky, the V *hammer* is not derived from the N *hammer* but from the shared root; thus, it can be used with an instrument other than a hammer as in (40a). (40b) is unacceptable since the V *tape* is zero-derived from the N and necessarily implies the use of a tape in the action it expresses. Instead of the root-word distinction, I will claim that *hammer* and *tape* are both zero-derived from N and adopt Harley's (2005) idea that *hammer* is incorporated into a light V as its manner component. Presumably, *tape* in (40b) is incorporated from PP as an instrument. The light V at stake contains [v] as well as some properties relevant to accusative Case checking and external argument.

Second, some V-N pairs share the verbal stress, while others exhibit distinct stress patterns.

- (41) a. [v/N debáte]                      [v/N refôrm]  
          [v/N exháust]  
      b. [v per mít]-[N pér mít]          [v transfér ]-[N tráfser ]  
          [v prodúce ]-[N pródúce ]

Kiparsky (1982) observes that the Ns in (41a), which show the verbal stress

pattern, tend to have a close semantic relation with the Vs, and concludes that they are derived from the Vs. On the other hand, he argues that the Ns and Vs in (41b) are derived from the shared roots since they show typical nominal and verbal stress patterns, respectively. The latter conclusion is not tenable if the Ns in (41b) have secondary stress as indicated above. It seems to reflect the verbal stress since simple disyllabic Ns do not usually have secondary stress. There seem to be variation and empirical difficulties in recognizing secondary stress. Kiparsky (1997:16) himself modifies his judgment, putting no stress on the last syllable of the Ns *permit* and *protest*. For Myers (1984), zero derivation does not affect stress, observing that newly coined words fall under the pattern in (41a) and stress-shifting cases like (41b) are not productive. I thus deduce no conclusion from (41a,b) as to the acategorical root hypothesis.

Note that the distinct stress patterns in (41b) are similar to those of P-V compounds like (42).

- |      |                         |                           |
|------|-------------------------|---------------------------|
| (42) | [V ùpgràde]-[N úpgràde] | [V ùplíft]-[N úplíft]     |
|      | [V òutflòw]-[N òutflòw] | [V òverlòok]-[N òverlòok] |

Each compound has primary stress on V if it is verbal and on P if nominal. Stress-shifting V-N pairs like (41b) can be analyzed as consisting of a bound Latinate root, which is verbal, and a preposition like those in (42). Thus, the stress-shifting in (41b) might be due to the morphological make-up.

## 5.2 Arad (2003, 2005)

Arad (2003, 2005) advocates the category-neutral treatment of nominal and verbal roots based on various data from Hebrew, but I find some of them irrelevant to the question of whether verbal and nominal roots are inherently acategorical. First, verbal alternation among causative, inchoative, transitive, and passive can all be regarded as involving verbal roots. Second, consider the following sets of examples cited from Arad (2003:743).

- |      |           |       |               |
|------|-----------|-------|---------------|
| (43) | √šxn      |       |               |
| a.   | CeCeC (n) | šemen | ‘oil, grease’ |
| b.   | CuCaC (n) | šuman | ‘fat’         |
| c.   | CaCeC (a) | šamen | ‘fat’         |

(44)  $\sqrt{xšb}$ 

- |    |            |        |                         |
|----|------------|--------|-------------------------|
| a. | CiCCeC (v) | xišev  | ‘calculate’             |
| b. | maCCeC (n) | maxšev | ‘a computer/calculator’ |

(43a-b) do not involve Vs, and the adjectival realization of the consonantal root  $\sqrt{šxn}$  in (43c) supports the acategorical nature of As only. (44a,b) involve the derivational process from V to V-*er* in English as the translations show.<sup>12</sup> If so, (44a,b) are both V-based, and constitute no evidence on the category-neutral status of  $\sqrt{xšb}$ . I suspect many of Arad’s examples involve category-changing derivation of this kind rather than derivation from acategorical roots. Hebrew looks quite different from English mainly because roots consist only of consonants and thus are unpronounceable, unlike most English roots. Apart from this difference in phonological make-up, the patterns in (43) and (44) are not particularly illuminating in testing the acategorical root hypothesis.

An interesting phenomenon in Hebrew is what Arad (2003:242) calls multiple contextualized meaning (MCM) exemplified in (45) and (46).

- |                   |    |        |         |           |
|-------------------|----|--------|---------|-----------|
| (45) $\sqrt{bxn}$ | a. | CaCaC  | boxan   | ‘examine’ |
|                   | b. | hiCCiC | hivxin  | ‘discern’ |
| (46) $\sqrt{btx}$ | a. | CaCaC  | batax   | ‘trust’   |
|                   | b. | CiCCeC | biteax  | ‘insure’  |
|                   | c. | hiCCiC | hivtiax | ‘promise’ |

As I maintain the category-neutral treatment for As, adjectival roots are expected to show MCM if Arad’s theory is correct. The shared meaning in (46a-c) appears to be something like ‘sure’ or ‘true,’ which is adjectival in nature. Stems of *na*-adjectives (or adjectival Ns) in Japanese exhibit the paradigm quite similar to (46a-c).

- |                      |    |          |              |                        |
|----------------------|----|----------|--------------|------------------------|
| (47) $\sqrt{tasika}$ | a. | -da      | tasikada     | ‘is certain’           |
|                      | b. | -meru    | tasikameru   | ‘make sure, ascertain’ |
|                      | c. | -ni suru | tasikanisuru | ‘ensure, confirm’      |

Each Chinese character used in Japanese has a Chinese reading and a Japa-

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12. The same account applies to *baxan* (‘test’) / *maxxena* (‘a test-tube/tester’) and *galat* (‘absorb, receive’) / *maqlat* (‘a receiver’) in Arad (2003:743-4).



nese reading. *Tasika* is Japanese, and its Chinese counterpart is *kaku*. *Kaku* enters into many Vs other than (47b,c). If MCM all involves adjectival roots, Arad's theory supports my claim that As lack a categorial feature.

## 6. Remaining Issues

My arguments against Kiparsky (1982, 1997) and Arad (2003, 2005) in the previous section are far from conclusive. Another interesting fact about As that I have not taken up so far is their phonological properties. What Aronoff (1974) calls truncation typically involves an A as one member: [A curious] and [N curiosity] but not [N cury]. As for the N-forming suffix *-ity*, Embick and Marantz (2008:15) claim the nominal head to be realized as *-ity* in the context (48).

- (48) n <--> -ity/X\_  
           X = Roots ( $\sqrt{\text{ATROC}}$ ,  $\sqrt{\text{CURIOUS}}$ , ...); [A, -able], [A, -al]  
       n <--> -ness

They argue that *curiosity* is derivable but *gloriousity* is not simply because  $\sqrt{\text{GLORY}}$  is not included in the list X in (48). Besides bound roots, two A-forming suffixes are listed: *-able* and *-al*. In their theory,  $\sqrt{\text{CURIOUS}}$  is category-neutral and monomorphemic. Then, it should be accidental that it surfaces as a full A and ends with *-ous*, which is affixed on independent Ns and forms As such as *courageous* just like *-able* and *-al*. The ending *-ous*, though it might be part of a bound root, tells us that the whole word is adjectival. In brief, the A *curious* is in some sense polymorphemic.

In this connection, Hammond (1999:252) observes that word-final consonant clusters of disyllabic As (with trochaic stress) are extremely limited: only the coronal clusters [nt], [nd] and [st] are allowed as in (49).

- (49) a. vacant                      b. dividend                      c. absent  
       d. fluent                      e. pliant                         f. modest  
       g. honest                     h. gallant

Verbal roots can be assumed for (49a,b) as in (50a,b) but cannot for the rest.

- (50) a. vacate                      b. divide

Instead, they have morphologically more complex Ns. (49c) is related to the

N in (51a). (49d-g) can be nominalized by the suffix *-y* as in (51b-e).<sup>13</sup> (49g) has a related nominal with the suffix *-ry* as in (51f).

- |         |            |    |            |    |                       |
|---------|------------|----|------------|----|-----------------------|
| (51) a. | absence    | b. | fluency    | c. | pliancy <sup>14</sup> |
|         | d. modesty |    | e. honesty |    | f. gallantry          |

Thus, at least (49c-h) are monomorphemic in its usual sense, but their endings show that they are As, as *-ous* in *curious* does. For this reason, Hammonds (1999:252) proposes to decompose (49) into bound roots and the phonologically shared endings.

It might be reasonable to postulate external category-deciding heads for pairs like *atroc* and *atrocious* since they are categorially distinct and neither is more complex than the other. On the other hand, there is no strong motivation to assume an external category-deciding head in (49c-h) since there are no morphologically related words of the same complexity. I will thus assume that the putative bound roots in (49c-e) as well as *atroc* and *curry* are adjectival, which means that they lack a categorial feature. I wonder if there is any connection between the lack of category and boundedness in As. I leave this issue for further research.

Linguists tend to regard As on a par with Ns and Vs, advancing a claim on the latter with detailed discussion and taking it for granted that it applies to the former. My theory owes a lot to Myers (1984), who has been much more careful in uncovering peculiar properties of As in contrast to Ns and Vs. I have argued that many of them can be explained under the single engine hypothesis with one aspect of language design: categorial features for substantives are restricted to [n] and [v].

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13. Spirantization applies to the final [t] in (49c, d, e).

14. *Pliant* is particularly interesting in that there is another morphologically related adjective *pliable* and its nominal form is *pliability*.

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