

Approaching the puzzle of the adjective*

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Abstract

I show a way to solve Borer’s (2013) “puzzle of the adjective”: adjectives behave like derived words regarding some morphological phenomena and like roots regarding others. My key overarching assumption is that adjectives are in fact non-primitive, comprising an adposition and a nominal. Other assumptions, framed within a syntactic approach to morphology, include: a universal recursive hierarchy of lexical categories; the idea that categorizers are simple lexical items relating a span of the categorial hierarchy to an exponent; the assumption that lexically and morphologically conditioned allomorphy is sensitive to stretches of the syntactic representation, rather than to exponents; and a rather flexible lexicalization procedure, one syntactic representation being mappable to different combinations of lexical items.

Keywords: adjectives, adpositions, categorizers, allomorphy, Spanning

1 Introduction

Among the many treasures to be encountered in Hagit Borer’s *Structuring Sense* trilogy is the “puzzle of the adjective”, a series of observations on the peculiar morphological behaviour of adjectives (Borer 2013: 371–378). Based on English, Borer shows that underived adjectives, unlike underived nouns and underived verbs, display properties of both derived words and (uncategorized) roots.

Starting with their behaviour as derived and categorized words, underived adjectives do not allow productive conversion into other categories. Thus, *green*, *fat*, *smart* or *ice-cold* are, robustly, adjectives, and cannot be used as either nouns or verbs: *very/*a/*to green*, *very/*a/*to fat*, *very/*a/*to smart*, *very/*a/*to ice-cold*. Overtly derived words are also categorially rigid, as illustrated by the derived noun *formation* (cf. *a/*to/*very formation*), the derived verb *caramelize* (cf. *to/*a/*very caramelize*), and the derived adjective *foggy* (cf. *very/*a/*to foggy*). The pattern contrasts with the categorial lability attested in the case of the nominal and verbal categories. Indeed, non-derived items such as *table*, *blackboard*, *dance*, and *rub* can be used indifferently as nouns or as verbs, even if they have a prototypical or more frequent use in one of these two categories. As shown by Borer, (underived) adjectives pattern with derived words in other respects: they do not root-select their nominalizers (e.g., *rapid-ity*, *rapid-ness*); generally, they do not show root variation when inflected; and, complementarily, the inflectional morphology of adjectives is never allomorphic. I contribute the observation that even if deadjectival nominalizers do not show root-triggered allomorphy, the adjectival base itself can, unexpectedly, show allomorphy (e.g., *clear* vs *clar-ity*; cf. **clear-ity*).

Strikingly, when we consider a different set of morphological processes, adjectives pattern like roots. Thus, they may trigger allomorphic versions of their verbalizer, and that is why we have, for instance, *en-sure* but not **sur-ify*. Relatedly, Borer shows how certain derivational affixes like *-ize* indistinctly select adjectives (e.g., *actual-ize*) or nouns (e.g., *computer-ize*) as bases. I observe that this indiscriminate selection can be more clearly circumscribed: it is a prerogative of verbalizers, not of nominalizers or adjectivizers.

I approach this complex state of affairs from the perspective of a syntactic theory of morphology. At the syntax-morphology interface exponents are assigned to spans, sequences of syntactic nodes

* I vividly remember a course Hagit gave in Autònoma de Barcelona years ago, when I first met her. Her revolutionary “Jabberwockyan” approach to grammar captivated me immediately. By then, I discovered her papers and books—which, as I often tell my friends, I read like novels.

We always stand on giants’ shoulders and few giants are as tall and sturdy as Hagit. This short paper is but a very imperfect attempt to show how inspiring her work is. Happy Birthday, Hagit!

defined by the relation of embedment (Bye & Svenonius 2012, Svenonius 2016). Lexicalization is flexible, and exponents may be associated with a subset of the syntactic nodes that they are specified for (Ramchand 2008, Caha 2009).

The reason why adjectives, simple (*smart*) or derived (*foggy*), behave as derived words stems from the fact that they are indeed always complex and categorized, corresponding to an adposition embedding a noun (Mateu 2002, a. o.). In turn, the fact that simple adjectives behave like roots as regards, for instance, verbalization, has to do with the nature of categorizers, which are but exponents of sequences of underlying syntactic categories. Verbalizers are exponents of the sequence $\langle V > P \rangle$ (a verb embedding an adposition). Simple adjectives correspond to the sequence $\langle P > \text{ROOT}_N \rangle$, where the root obtains nominal category by virtue of being the complement to P. The combination of a verbalizer and a simple adjective thus corresponds to the sequence $\langle V > P > \text{ROOT}_N \rangle$. When exponents are retrieved to be assigned to the configuration, the one corresponding to the adjective may lexicalize $\langle \text{ROOT}_N \rangle$ alone. The verbalizer (*en-*, *-ize*, *-ify*, etc.), assigned to $\langle V > P \rangle$, turns out to be structurally adjacent to the (nominalized) root, which explains why it can show root-triggered allomorphy.

This paper is structured as follows. In section 2 I describe the puzzling morphological properties displayed by adjectives. Since this paper is my way of accepting Borer's challenge, I draw heavily on her study, but I add some new empirical observations. In section 3 I present the theoretical tools that I adopt to understand the morphology of the adjective. In section 4 I deal with the puzzles presented in section 2, and I explore some further predictions of the model presented in section 3. I conclude and point out remaining challenges in section 5.

2 The puzzles of the adjective

In this section I present the facts that make the morphological behaviour of the adjective ambivalent. Here is a first list of properties, as presented in Borer (2013):

- 1) Adjectives do not allow productive conversion.
- 2) Deadjectival nominalizers (*-ness*, *-ity*) are not root-selected.
- 3) Adjectives do not show root allomorphy in inflection.
- 4) Comparative and superlative affixes do not show allomorphy.

For Borer, these properties suggest that adjectives are inherently categorized, because they are also characteristic of derived nouns and derived verbs. However, the real puzzle emerges in light of the fact that adjectives sometimes behave as uncategorized elements, that is, roots. Specifically, and contrary to what happens with deadjectival nominalizers, we do attest the next fact:

- 5) Deadjectival verbalizers may be root-selected.

Borer, among other authors, also indicates the following:

- 6) Certain derivational affixes indistinctly select N or A as bases.

I argue that this observation can be made more precise:

- 6') Indiscriminate N/A selection is only displayed by verbalizers.

Finally, I contribute another observation on the root-like behaviour of adjectives:

- 7) In deadjectival nominalizations the base can show allomorphy.

Below I explore each of these facts in more detail.

2.1 Absence of productive conversion

Borer (2013) devotes much of her study to show and explain the unrestricted productivity of conversion of nouns and verbs in English. Simply put, non-derived nouns can always be used as verbs and non-derived verbs can always be used as nouns. (1) contains a list of words, either simple or compound, that can be used interchangeably as nouns or verbs, as indicated by their compatibility with the indefinite article and the infinitival marker:

- (1) a/to {rub, dance, blackboard, wallpaper}

From the point of view of lexicalist morphology, this phenomenon is known as conversion or zero derivation. The label makes sense in lexicalist approaches, because these cases are taken to be the outputs of a category converting mechanism. By contrast, Borer's explanation for this categorial lability of non-derived items is based on a contextual theory of categorization. Specifically, she assumes that these items are roots, elements without inherent category that are, however, automatically categorized when they are embedded under an extended functional projection of nominal or verbal nature:

- (2) a. [DP a RUB/DANCE/BLACKBOARD/WALLPAPER]
b. [TP to RUB/DANCE/BLACKBOARD/WALLPAPER]

Derived words do not support zero derivation. Again, (3) shows derived words that are inexorably verbs, nouns, and adjectives, respectively:

- (3) a. to/*a/*very {be-moan/en-snare/solid-ify/activ-ate}
b. a/*to/*very {recit-al/don-ation/marri-age/develop-ment}
c. very/*to/*a {fam-ous/analyt-ic/norm-al, catt-y}

These words can only be combined with functional items of the same extended projection. It is important to point out that compounds such as *blackboard* are as categorially flexible as non-compound words. This fact corroborates that what originates the categorial rigidity that we see in (3) is not morphological complexity, but really the presence of categorizers. As we see in (4), adjectives that seem completely devoid of categorizing morphology behave like words already categorized, rather than like roots:¹

- (4) *a/*to {smart/fat/white/broad/pure/ice-cold}

From the point of view of Borer's contextual categorization theory, as illustrated in (2), the question is why we should not be able to use what appears to be a root, such as *SMART*, as a noun, or as a verb, by embedding it at the base of a nominal or a verbal projection, respectively.

The categorial rigidity of adjectives goes hand in hand with the fact that the corresponding functional projection, which contains the category Deg(ree), only admits elements that are adjectives. That is, and as shown in (5)b, items that are N-V ambivalent cannot be used with a degree head like *too*:

- (5) a. [DegP too smart/fat/white/broad/pure/ice-cold]

¹ There are indeed exceptions to this restriction, especially in the sense that there are words that are ambiguous between adjectives and verbs:

- (i) to/very {dry/grey/yellow/thin}

These counterexamples notwithstanding, adjectives still contrast with non-derived nouns and verbs in that the latter are always categorially labile.

- b. *[_{DegP} too rub/table/dance/blackboard/wallpaper]

It turns out, therefore, that the functional projection of the adjective, unlike that of the noun and the verb, is not able to categorize a root as an adjective, which is an additional problem for the theory of contextual categorization of roots.

2.2 Absence of root-selected deadjectival nominalizers

There seem to be only two nominalizing suffixes for adjectives in English: *-ity* and *-ness*. Borer observes that the distinction is due to the classical difference between a morpheme boundary, +, which characterizes *-ity*, and a word boundary, #, which characterizes *-ness*. This correlation is related to the fact that *-ity* causes stress shift, while *-ness* does not. In any case, both seem to be variants by default, because they are not selected by the root. Thus, *-ity* appears with simple adjectives but also with complex adjectives, as shown in (6)a and (6)b, respectively, and *-ness* can be added to just any adjective, as shown in (7):

- (6) a. sincér-ity, acíd-ity, clár-ity
b. read-abíl-ity, verb-ós-ity, grammat-icál-ity
- (7) sincere-ness, acid-ness, clear-ness, read-able-ness, mind-ful-ness, sense-less-ness, ...

This situation contrasts with that observed in the case of the categorizers that appear with verbal or nominal bases. As we can see in (8), we encounter deverbal nominalizers that can be considered default, like *-ation*, *-ing*, and *-er* in (8)a, since they can combine with roots (*form*) or with derived bases (*formalize*); alongside, there is a variety of deverbal nominalizers that combine only with roots and whose form is determined directly by the choice of root, see (8)b:

- (8) a. form-ation, form-al-iz-ation, form-ing, form-al-iz-ing, form-er, form-al-iz-er
b. recit-al/*-ment, pay-ment/*-ance, hindr-ance/*-al

In the case of the denominal adjectivizer, it has a default exponent *-al*, and maybe also *-y*, as shown in (9)a, and other, root-selected ones, as shown in (9)b:

- (9) a. norm-al, develop-ment-al; catt-y, risk-y
b. por-ous/*-ic, electr-ic/*-ous

Since deadjectival nominalizers do not have root-selected allomorphs, we see, again, that adjectives, at least in terms of nominalization, behave as derived forms. From a perspective on allomorphy that is standard in syntactic approaches to morphology (cf., e.g., Embick 2010), it would seem that in deadjectival nominalizations the root of the adjective is somehow non-adjacent to the nominalizer.

2.3 Absence of root- and affix-allomorphy in inflection

Borer claims that adjectives do not show root-allomorphy when combined with comparative or superlative suffixes. Complementarily, these suffixes do not show allomorphy either. The exceptions to this generalization, shown in (10) are few and, according to Borer, very revealing:

- (10) a. good – better – best
b. bad – worse – worst
c. many/much – more – most
d. little – less – least

In the degree inflection of these four adjectives we observe both cases of suppletion, such as that of *good/bett-er*, and cases of non-suppletive allomorphy, such as that of *bett-er/be-st*. As gathered from

Bobaljik's (2012) crosslinguistic study, adjectives that do show allomorphy and/or suppletion in their comparative or superlative forms belong to roughly the same semantic class in all languages: they have meanings ('good', 'big', etc.) that suggest that they are actually "light" or functional elements, rather than elements containing a root. Therefore, these cases cannot be compared, following Borer, with unquestionably non-functional adjectives, like *dry* or *smart*.

The fact is that, outside these four cases, the root of the adjectives does not change in the comparative or in the superlative, and these affixes are always the same in English: *-er* and *-est* (and, note, the portion *-st* is found in all superlative forms in English, with no exceptions). This situation contrasts sharply with what we find in the inflection of nouns and verbs, in which the allomorphy of both the root and the inflectional affixes is well attested. (11)a shows examples of root variation in verbs, while (11)b shows that the past suffix can be the regular *-ed*, the irregular *-t*, or the absence of a mark, or null morph:

- (11) a. hide/hid, teach/taught, eat/ate
 b. walk-ed, burn-t, hid-∅

It is true that there are fewer examples of root allomorphy in nouns, related to the plural, but there are still cases, such as those in (12)a. And the exponent of nominal plurality can show a variety of forms, as shown in (12)b:

- (12) a. child/childr-en, man/men, goose/geese
 b. fox-es, ox-en, foc-i, phenomen-a, sheep-∅

Regarding the presence of allomorphy in degree inflection, both simple or derived adjectives would behave like derived words in general, which show a total absence of allomorphy, both on the root and on the inflectional suffixes. Thus, derived verbs exceptionlessly take the *-ed* exponent in the past, and derived nouns always take the default *-s* exponent in the plural, and the form of their roots is not affected by the inflectional features:

- (13) a. crystall-iz-ed, be-moan-ed, puri-fi-ed, en-dear-ed
 b. friend-ship-s, neighbour-hood-s, pay-ment-s

From the point of view of a syntactic and localist theory of allomorphy, these cases are not surprising. As shown in the examples *crystallized* and *friendships*, analyzed in (14), the root is not adjacent to the tense or number morpheme, and therefore there cannot be any allomorphic interaction:

- (14) a. [_{TP} T [_V ize_V CRYSTAL]]: *crystall-iz-ed*
 b. [_{NumP} Num [_N ship_N FRIEND]]: *friend-ship-s*

What is surprising, again, is that simple adjectives behave as derived words, as far as degree inflection is concerned.

In a departure from Borer's stance, in section 4.5 I will capitalize on and try to account for the fact that while we do find cases of inflection-triggered variation in the adjectival base (*good/bett-er*), we do not seem to observe variation in the inflectional affixes of adjectives.²

2.4 Root-selection in deadjectival verbs

In section 2.2, it was shown that deadjectival nominalizers are not root-selected. In striking contrast, there are root-selected deadjectival verbalizers. For instance, the verbalizing prefix *en-* and the

² Another inflectional peculiarity of adjectives is that they never seem to show defective paradigms, unlike verbs and nouns (Cristina Real-Puigdollers, p. c.).

verbalizing suffix *-ify* cannot be added to complex adjectives, as shown in (15), and are selected by specific roots, as shown in (16):

- (15) a. *en-courage-ous, *en-beauti-ful, *en-bas-ic
 b. *courage-os-ify, *beati-full-ify, *bas-ic-ify

- (16) en-sure/*sur-ify, pur-ify/*en-pure

In this case, therefore, we do find signs of structural adjacency between the root of the adjective and the categorizer, which should lead us to conclude that, in terms of verbalization, adjectives do not behave as derived words.

2.5 N/A indistinctness in derivational bases

Finally, Borer, among other authors, observes that the nominal and adjectival categories are selected by some derivative affixes indistinctly, as exemplified in English with deadjectival (see (17)a) and denominal (see (17)b) suffix *-ize*:

- (17) a. [glob-al]_A-ize, [academ-ic]_A-ize
 b. [comput-er]_N-ize; [pedestri-an]_N-ize; [psychoph-ant]_N-ize; [miss-ion]_N-ize (Borer 2013:280)

Something that to my knowledge has not been previously observed is that it is only verbalizers, among all categorizers, that can display this indiscriminate selection. That is, no nominalizer or adjectivizer indistinctly selects N or A (or V). For instance, *-ness_N*/*-ity_N* select only A, *-ship_N*/*-hood_N*/*-dom_N* select only N, *-ation_N*/*-ment_N* select only V, *-al_A*/*-ic_A*/*-ful_A* select only N, and *-able_A* selects only V.

3 Theoretical assumptions

In this section I present the theoretical assumptions that I will make in order to explain the peculiar behaviour of adjectives. One fundamental assumption, which I substantiate and explore in more detail in section 3.1, is that adjectives are not simple categories, but compound ones. Specifically, they consist of an adpositional element and a nominal element. This would hold of both overtly derived and simple adjectives. (18) shows the structure of the adjective *smart*, composed of an abstract adposition taking a bare root as complement:

- (18) *smart* = [_{PP} P *SMART*_{C=N}]

Adpositions take nominal categories, as standardly assumed, and so I take the root to be automatically categorized as nominal by virtue of its being the complement of P (as indicated via the subscript _{C=N}). Assuming this structure, we can derive the fact that adjectives behave as derived words: at some level of representation they are in fact so.

The second major group of assumptions, dealt with in section 3.2, has to do with the nature of categorization and categorizers.

The remaining assumptions, dealt with in section 3.3, pertain to the way the morphophonological component of language interprets the configurations produced by the syntax.

3.1 Adjectives as underlying PPs

Several authors, myself included, have assumed that adjectives are not primitive categories. As far as I know, such a proposal was first made by Mateu (2002: 24–44), within a framework assuming Hale & Keyser's (1993, 1998, 2002) theory of argument structure. For Hale & Keyser, adjectives correspond to elements that take a specifier but not a complement. Since such a configuration is impossible according to the principles of X'-theory, Hale & Keyser assume that adjectives must be combined with an auxiliary projection that takes them as complements. It is in the specifier of this

ancillary projection, h^* , that the only argument of the adjective appears, as shown in (19) (from Hale & Keyser 1998: 82):

(19) [h^* specifier [h^* h^* h]]

An example of this structure is that of deadjectival verbs such as *clear*, shown in (20). Here the abstract adjective *CLEAR* is combined with a light verb *V* and it is in the specifier of this category that the argument of the adjective, *the sky*, is projected:

(20) The sky cleared.
[v the sky [v V *CLEAR*]]

Mateu (2002) argues that the argument structure of adjectives is equivalent to that of an adposition that takes a non-relational element as complement. In Hale & Keyser's theory, adpositions can take a specifier. Thus, the abstract structure of the sentence in (20) would be, for Mateu, as shown below:

(21) The sky cleared.
[v V [P the sky [P P *CLEAR*]]]

Some of the theoretical and empirical gains of reducing adjectives to adpositional projections are explored by Mateu (2002) himself (see also Acedo-Matellán 2016: 20–22). In addition to Mateu (2002), Armitavalli & Jayaseelan (2003) have independently proposed that the adjective comprises a combination of a noun and an adposition (under the guise of case). The idea has also been assumed by Kayne (2017) in his exploration of the English prefix *un-* and, even more recently, by Fábregas (2020) in his study of derived adjectives in Spanish.

While nobody could deny that APs and PPs display evident differences, I would like to capitalize on their striking commonalities. These commonalities are found in syntax, semantics, and morphology and suggest that both categories share a grammatical core.

Drawing on Baker's (2003) study of lexical categories, it can be shown that the syntactic tests that he uses to distinguish adjectives from nouns and verbs (Baker 2003: 192–230) are also compatible with PPs. Let us begin with the attributive construction, that is, the direct association of the adjective to a nominal category, with no functional material intervening. Adjectives can be used attributively, unlike nouns or verbs (examples from Baker 2003: 192):

(22) a. a rich man, a shiny coin
b. *a wealth man, *a genius man
c. *a shine coin, *a hunger man

PPs clearly pattern with APs in that they are licensed in the attributive construction:

(23) a man of wealth, a house on the hill, a woman in blue shoes

Baker (2003) shows that degree heads like *too* or *so* are compatible with adjectives, but not with nouns or verbs (examples adapted from Baker 2003: 212):

(24) a. Mary is too/as/so intelligent.
b. *Mary is too/as/so (a) genius.
c. *Mary too hungers (to think straight). *Mary as hungers as John.

We see that at least some instances of PPs are perfectly happy with degree heads, contrasting with the sharp rejection of nouns and verbs:

(25) too near the wall; so into pop music; as far from home

Similarly, comparative and superlative degree modification is only available to APs and PPs, while it is impossible with nouns or verbs:³

- (26) a. Which town is nicer/nicest?
b. Which town is nearer/nearest the river?
c. *girler, *mannest
d. *I eater/*I more eat ‘I eat more’, *I growest/*I most grow ‘I grow the most’

Last, Baker observes how APs, unlike NPs or VPs, can form resultative secondary predicates (examples from Baker 2003: 219):

- (27) a. I beat the metal flat.
b. *I beat the metal break/broke/breaking.
c. *I beat the metal (a) sword.

As extensively studied in the literature, PPs can be resultative secondary predicates too:^{4,5}

(28) I beat the metal {to pieces/into a thin sheet}

On the semantic side, an evident shared property of APs and PPs is that they take an external argument that is interpreted as a figure or theme, as Baker (2003: 77–78) points out for adjectives and Svenonius (2003) for adpositions. In the example, *the mouse* is interpreted as a figure with respect to *grey* and with respect to *in the cellar*:⁶

(29) The mouse is {grey/in the cellar}.

Finally, and with direct relevance for present purposes, both adjectives and adpositional particles, contrary to nouns and verbs, support nominalization with *-ness* in English:⁷

- (30) a. smartness, acidness, humbleness
b. inness, outness, nearness, aboutness
c. *abilityness, *mathematicianness
d. *bewitchness, *jeopardizeness

³ By all means, there are exceptions to the availability of degree modification, both for adjectives and adpositions, most probably having to do with the nature of the scale they encode, open or closed:

- (i) a. ??*tool/more triangular*
b. **tool/more under the table*; cf., however, *more under control*

⁴ Interestingly, resultative adjectives in Finnish and Hungarian must appear with a directional postposition (Acedo-Matellán 2016: 231–235).

⁵ An, admittedly, very marginal, syntactic fact bringing together PPs and APs has to do with the adverb *right*, classically considered to be only combinable with (certain) PPs (Emonds 1985). This modifier can be found with some adjectives in non-standard varieties of English, as shown in the Google examples of (ib):

- (i) a. right to the left, right under the table, right above, right on time, ??right at your will
b. “It is right good for the lungs and for many other diseases.”
“it is right nice to see you young ladies together”
“I am sure ye shall lose that good knight Sir Lamorake, which is right great pity”
“This video game is right perfect”
“If you’ve done nothing to secure your website, your window is right open”

⁶ Another semantic commonality between APs and PPs can be found in Roy’s (2013) crosslinguistic study of non-verbal predication. Roy argues that predicates built on APs and PPs are situation-descriptive, whereas those built on NPs are property-assigning (see Roy 2013: 172).

⁷ I assume that adpositional particles, like *in* or *out*, are underlying PPs (Kayne 1985, Svenonius 1996, Acedo-Matellán 2016).

All in all, we see that diverse phenomena in language treat APs and PPs alike. The idea that they share a grammatical representation should therefore be seriously considered.

3.2 Categorization and categorizers

Borer (2013) explains the productive conversion of underived nouns and verbs in English as the ability of a root, acategorical, to be embedded as the bottommost element of a functional projection of nominal or verbal category. For example, in (31)a the root *FORM* appears with a segment of the extended projection of the noun, D, which automatically categorizes it as a noun, as expressed via the subscript $C=N$. In (31)b, the same root is associated with a segment of the extended projection of the verb, T, and this is why it is categorized as a verb:

- (31) a. $[\text{DP } D \text{ } FORM_{C=N}]$: *a form*
 b. $[\text{TP } T \text{ } FORM_{C=V}]$: *to form*

Roots also obtain a category when merging with categorizers. For instance, the same root, *FORM*, obtains verbal category by merging with *-ation*, itself of nominal category, and it obtains nominal category when merging with *-al*, itself of adjectival category:

- (32) a. $[\text{NP } -ation_N \text{ } FORM_{C=V}]$: *formation*
 b. $[\text{AP } -al_A \text{ } FORM_{C=N}]$: *formal*

Thus, categorizers not only project a category, they also require combination with a base of a certain category. The base can be acategorical (i.e., a root, as in (32)) or it may be an already categorized item, as long as its category fits the selectional requirements of the categorizer, as show in (33):

- (33) a. $[\text{NP } -ation_N \text{ } personify_V]$: *personification*
 b. $[\text{AP } -al_A \text{ } celebration_N]$: *celebrational*

In Borer's theory, categorizers or C-functors are special syntactic objects, because they are single items that relate to category in two different ways: they project one category and select or determine another, and this is written into the categorizer as an idiosyncrasy. For example, *-ation* is one of the phonological realizations of the nominalizer (subscript N) that selects verbs (enclosed subscript V):

- (34) $C_{N[V]}$

Note that what categorizers do is really relate an exponent with a set of categories that are in a head-complement relation. For instance, *-ation* is the label assigned to a set comprising the two categories N and V, where V is the complement of N. Such kind of object is a naturally occurring one in theories of the syntax-lexicon interface where exponents can be assigned to whole stretches of the syntactic tree, like Nanosyntax or Spanning. It is by appealing to the principles of theories of this kind that I intend to reinterpret Borer's C-functors. As I will make explicit in the next section, lexical items associate an exponent to a *span* or set of contiguous nodes in the syntax. In particular, I take categorizers to correspond to a span of the following Universal Recursive Categorical Hierarchy (based on a seminal proposal by Ross 1973):

- (35) The Universal Recursive Categorical Hierarchy (URCH)

... N > V > P > N ...

Here are some reflections of why this hierarchy makes sense, syntactically. That P should embed a nominal hardly needs any justification. The embedment of P under V is one of the major claims in

Hale & Keyser’s (1993, 2002) theory of argument structure: it categorizes the whole class of location/location verbs like *corral* and *saddle*. As indicated in section 3.1, under Mateu’s (2002) remodelling of their theory, $V > P$ also characterizes the structure of deadjectival verbs like *clear*. As it turns out, all change of state/location verbs for Mateu involve this embedment relation. Baker (2003) considers that in fact all lexical verbs have an underlying adjective in their structure. If adjectives boil down to $V > P > N$ and Baker (2003) is correct, all lexical verbs would comprise the $V > P$ span.⁸ Finally, regarding $N > V$, there is evidence that the most peripheral layer of the sentence, C, sitting on top of the extended projection of the verb, behaves as a nominal. Thus, clauses pattern like nominals in that they can be arguments of predicates:

- (36) a. {Jane’s presence/that Jane is present} is a surprise for all.
 b. Gladys resented {Jane’s presence/that Jane was present}.

In other languages like Spanish or Norwegian (Svenonius 2021), clauses can also be complements of prepositions:

- (37) Estamos muy sorprendidos de {la presencia de César/que César esté presente}.
 we_are very surprised from the presence of César/that César is.SBJV present
 ‘We are very surprised {at César’s presence / that César is present}.’

And in some languages like Spanish, *that*- and infinitival clauses can even appear with articles:

- (38) a. El que César esté presente.
 ART.M.SG that César is.SBJV present
 ‘The fact that César is present.’
 b. El estar César presente.
 ART.M.SG be.INF César present
 ‘The fact that César is present.’

The postulation of the URCH allows us to dispense with the idiosyncratic encoding of categorial selection on categorizers. Categorizers are lexical items that provide an exponent to—or “expose”—a span of the URCH. When a root is embedded under a particular category, it obtains the category that should correspond following the URCH. Thus, a root embedded under an N, such as the suffix *-ment*, is a V and a root unbedded under a P, such as the suffix *-al*, is an N:

- (39) a. [_{NP} N = *-ment* *DEVELOP*_{C=V}]: *development*
 b. [_{PP} P = *-al* *NORM*_{C=N}]: *normal*

Adopting Borer’s theory of zero derivation (see (31)) and the URCH-based theory of categorizers, together with a spanning approach to the syntax-morphology interface, we arrive at a contextual theory of categorization that does not need special syntactic objects like C-functors.

3.3 A spanning approach to the syntax-morphology interface

I frame my theory within the so-called Spanning approach (Bye and Svenonius 2012, Svenonius 2016, Ramchand 2018). Syntax yields representations consisting of hierarchies of nodes that follow a universal sequence. The representation is shipped off, in successive chunks, to the interfaces for interpretation. The lexicon is the module that separates the syntax from the interfaces of

⁸ I am not ready to exclude, as Baker (2003) does, the possibility that a class of verbs embed a nominal, rather and adjective, in their underlying structure, i.e., in the present terms, that $V > N$ be a licit span. After all, this pattern is pervasively attested in syntax and it defines another major type of verbs in Hale & Keyser’s theory, namely denominal verbs. If $V > N$ is a licit span, the hierarchy could therefore skip steps (i.e., skipping P, in this case), as in Svenonius’s (2021) graph-theoretic approach to extended projections.

externalization and meaning. This is where syntactic representation is interpreted lexically, via L(exical) I(tem)s, here represented in caps and italics, like *ABCD* (differently from roots, represented in small caps and italics: *abcd*). An LI is a pair consisting of a syntactic representation and a set of exponents, i.e., phonological indices (one or several). The syntactic representation corresponds to a span, “[a] contiguous sequence of heads in a complementation relation” (Ramchand 2018: 27). I will represent exponents informally, via normal spelling and in italics. This is the representation of the LI *ABCD*:

(40) $ABCD = \{ \langle X > Y > Z \rangle, \{ abcd \} \}$

The span contained in a LI is called l(exical) span, while that in the syntactic representation is the s(yntactic) span. The LI in (40) is monoexponential, since the set of its exponents contains only one element: *abcd*. Its l-span is $\langle X > Y > Z \rangle$, that is, the specification of the maximal span to which this LI can assign an exponent.

Lexicalization is the assignment of phonological information to the representation yielded by the syntax. Lexicalization consists of several successive phases:

- (41) a. L(exical) Match
 b. Exponent Assignment
 c. Elimination of syntactic information
 d. Linearization of exponents
 e. Implementation of phonologically conditioned allomorphy

For my purposes, I will describe the first four phases, with a special focus on the first two. Much of what follows is inspired by the system developed by Bye and Svenonius (2012) (see also Acedo-Matellán and Real-Puigdollers 2019).

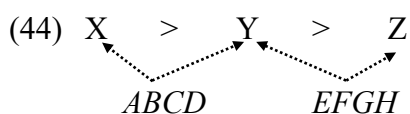
L-Match is the assignment of LIs to s-spans. It comprises a step where LIs are retrieved from the (post-syntactic) lexicon and a step where they are actually associated with s-spans. I will assume a very strict principle:

- (42) *Exact Retrieval*
 Retrieve only those LIs whose l-spans exactly replicate some s-span of the syntactic representation.

For example, the LI of (40) can be retrieved to match the s-span $\langle X, Y, Z \rangle$ of (43)a, but not to match those of (43)b or (43)c:

- (43) a. $\langle X, Y, Z \rangle$
 b. $\langle X, Y \rangle$
 c. $\langle Y, Z \rangle$

Nothing else being added, we predict that two or more LIs can be matched to the same s-span, if their l-spans allow them to. For instance, in (44), *ABCD* and *EFGH* are matched to s-spans including the subspan $\langle Y \rangle$ (I represent L-Match via dotted arrows projecting from LIs to s-spans):

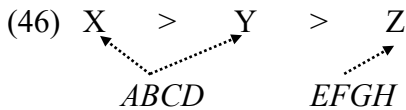


However, this state of affairs would be problematic at the phase of assignment of exponents. The assignment of two exponents to the same s-span could not be interpretable at PF, given the strictly linear nature of phonological representations. It would furthermore bring a problem at the phase of

linearization of exponents, which is based on syntactic hierarchical relations. Two different exponents assigned to the same position cannot be converted into a statement of precedence relations between those exponents. The following principle, therefore, naturally emerges:

- (45) *No Overlap*
 An s-span cannot be matched to two different l-spans.

How does the system abide by No Overlap? Building on Ramchand’s (2008) Underassociation mechanism and Caha’s (2009) Superset Principle, I take the system to allow an LI that otherwise complies with Exact Retrieval to be matched to a subspan of the s-span that its l-span replicates. For instance, while (44) does not conform to No Overlap, (46) does:



Importantly, underassociation of LIs cannot yield an output with unmatched s-spans. Again, this follows naturally from interface legibility conditions: quite straightforwardly, phonology is not supposed to be able to interpret s-spans. I encapsulate the idea into the following principle, which mimics Fábregas’ (2007) Exhaustive Lexicalization Principle:

- (47) *Exhaustive L-Match*
 Every s-span must be matched to some LI.

After L-Match, the phase of Exponent Assignment takes place, that is, the selection of a specific phonological representation for a particular s-span. Exponenting is quite trivial in the case of monoexponential LIs, such as that corresponding to the root *CRYSTAL*:

- (48) $CRYSTAL = \{ \{CRYSTAL\}, \{crystal\} \}$

The exponent *crystal* will be automatically assigned to whichever s-span *CRYSTAL* is matched to. Things are different with multi-exponential LIs, in that they contain more than one exponent. Multiexponentiality is my way of deriving non-phonologically conditioned allomorphy, of the *teach/taught-t* or *clear/clar-ity* type (cf. Acedo-Matellán & Real-Puigdollers 2019). The exponents of multiexponential LIs may be provided with an insertion context: they can make reference to a trivial s-span that is adjacent to the s-span to which the LI is matched. This is shown in (49), containing the multiexponential LI L:

- (49) $L = \{ \{X > Y\}, \{abcd, efgh/\langle Z \rangle\} \}$

The set of exponents of L contains a default exponent *abcd*, with no insertion context, and *efgh*, the exponent to be selected when the s-span to which L is matched is adjacent to the s-span $\langle Z \rangle$. Note that this theory of lexically/grammatically conditioned allomorphy rests on structural, rather than linear adjacency: the selection of a particular exponent is triggered by an adjacent underlying s-span, rather than by any adjacent exponent. This will turn out to be crucial in the account of the puzzling allomorphic interactions that are attested in the morphology of adjectives.

Quite naturally, the selection of exponents in multiexponential LIs is determined by the general principle of specificity or Pāṇini’s Elsewhere Principle: where an exponent with an insertion context can be selected, it will be selected; otherwise, the default exponent will be selected, that is, the one that is not provided with an insertion context.

Since exponents are assigned to a syntactic representation, the set of exponents naturally inherits an ordering from this representation. In particular, an exponent e_1 can be said to be higher than an

exponent e_2 iff the s-span expounded by e_1 is higher in the sequence than that expounded by e_2 . Once all s-spans have received an exponent, the elements of the syntactic representation, the structure, and the syntactic nodes are removed, and only the sequence of exponents remains:

$$(50) e_1 > e_2 > e_3$$

Following Brody (2000) and Svenonius (2016), I assume that the linearization of exponents, that is, the imposition of linear precedence relations between pairs of exponents, boils down, by default, to the simple reversal of the hierarchy of exponents inherited from the syntactic representation. Thus, the relation “embeds” ($>$) is exchanged for the relation “is linearly preceded” ($<$). (51) shows the linearization of the sequence in (51)(50):

$$(51) e_3 < e_2 < e_1$$

4 Dealing with the puzzles

In this section I approach the facts described in section 2 with the theoretical tools presented in section 3. Sections 4.1 through 4.4 are dedicated to the behaviour of adjectives in derivational morphology, while section 4.5 deals with inflection.

4.1 Why (underived) adjectives do not license productive conversion

The lack of productive conversion of adjectives is explained as an incompatibility between the category P that heads the adjective and the segments of the functional projection of nouns and verbs, an incompatibility that I take to cause uninterpretability at LF. Thus, for example, the structure $[_{PP} P SMART_{C=N}]$ is not categorially compatible with a D or T node dominating it:

$$(52) \text{ a. } *a \text{ smart: } [_{DP} D [_{PP} P SMART_{C=N}]] \\ \text{ b. } *to \text{ smart: } [_{TP} T [_{PP} P SMART_{C=N}]]$$

Nor would it be possible for the LI of the adjective *smart*, shown in (53), to be used in the lexicalization of the LF-wise well-formed structures of (54)a and (54)b:

$$(53) SMART = \{ \langle P > SMART_{C=N} \rangle, \{ smart \} \}$$

$$(54) \text{ a. } \langle D SMART_{C=N} \rangle \\ \text{ b. } \langle T SMART_{C=N} \rangle$$

Here the problem is L-Match. The l-span of *SMART* is $\langle P > SMART_{C=N} \rangle$ and it does not correspond to any span of the syntactic representation. Exact Retrieval, therefore, forbids the selection of *SMART*. In other words, if a language has adjectival LIs, that is, items that lexicalize a noun element and an adposition, it cannot use them in contexts where there is no P node, such as the functional projections of nouns and verbs.⁹

The functional projection of the adjective is not able to adjectivize roots that show otherwise N-V lability, as shown:

$$(55) *too \text{ rub}, *too \text{ apple}$$

To understand these cases, I assume that the lowest node of the functional projection of the adjective is P, not Deg, and that without P there can in fact be no adjective. The examples of (55) are ungrammatical because the LIs for *rub* or *apple*, shown in (56)a, have l-spans not featuring P and can therefore not be matched to an s-span containing P, shown in (56)b:

⁹ There are exceptions to this generalization, as pointed out in footnote 1. See also section 5.

- (56) a. $RUB = \{\langle RUB \rangle, \{rub\}\}$, $APPLE = \{\langle APPLE \rangle, \{apple\}\}$
 b. $\langle Deg \rangle P \rangle RUB_{C=N}/APPLE_{C=N}$

However, if some other LI is matched to the s-span $\langle P \rangle$, then the derivation can converge at PF. This is what the suffix $-y$, I surmise, achieves:

- (57) $Y = \{\langle P \rangle, \{y\}\}$

This suffix appears to be a sort of default adjectivizer in English, analogously to the Romance adposition *DE*. Indeed, the adjectivization of roots with $-y$ seems unrestricted, as shown in these Google examples:

- (58) a. “Comfortable excellent but only lace is too *rubby*”
 b. “I found this [soup] too over powering or too ‘*appley*!’”

4.2 Why deadjectival nominalizations show no root-selection but they allow root-allomorphy

The choice of *-ness* or *-ity*, which are the deadjectival nominalizers in English, is not determined by the root: they are both default allomorphs. Thus, both can appear with complex adjectives:

- (59) a. read-abil-ity, elast-ic-ity, por-os-ity
 b. feroci-ous-ness, use-ful-ness, sense-less-ness

A deadjectival nominalization embedding an underived adjective corresponds to the following s-span:

- (60) $\langle N \rangle P \rangle ROOT_{C=N}$

Note that the sequence $N \rangle P$ is not a span of the URCH and, can therefore not constitute the l-span of any categorizer, as per the definition in section 3.2. It follows that the nominalizer (*-ity*, *-ness*) must be exponing just $\langle N \rangle$, which in turn suggests that the adjectival base corresponds to $\langle P \rangle ROOT_{C=N}$. The s-span $\langle N \rangle$ is not adjacent to the root s-span $\langle ROOT_{C=N} \rangle$, and therefore no exponent of the LI matched to $\langle N \rangle$ can make reference to $\langle ROOT_{C=N} \rangle$ as context of insertion. This explains why the root cannot select the nominalizer, despite the linear adjacency between both.

In Section 2 (observation 7) I remarked that, quite puzzlingly, deadjectival nominalizations can show a special form of the root. In particular, *-ity* nominalizations can feature an allomorph of the root:

- (61) a. clear: clarity/*clarity
 b. sane [ei]: sanity/*s[ei]nity

My account of allomorphy, based on structural rather than linear adjacency, explains this striking asymmetry. That is, it explains why in deadjectival nominalizations based on underived adjectives the base cannot select the affix but the affix can select the allomorph of the base. Indeed, note that the s-span $\langle P \rangle ROOT_{C=N}$, to which the LI corresponding to the adjectival base is matched, is actually adjacent to $\langle N \rangle$. Therefore, we expect that this LI may have some special exponent provided with $\langle N \rangle$ as context. I illustrate with the case of *clear* – *clarity*:

- (62) $CLEAR = \{\langle P \rangle CLEAR_{C=N}\}$, $\{clear, \langle N \rangle/clar\}$

When the s-span $\langle P \rangle CLEAR_{C=N}$, to which *CLEAR* is matched, is adjacent to $\langle N \rangle$, other things being equal, the exponent *clar*, rather than *clear*, is selected.

While *-ness*, by hypothesis, exposes the same s-span ⟨N⟩, it does not trigger any special allomorph in the base. This is most surely related to other properties of *-ness*, vs *-ity*, prominently, that it does not trigger stress-shift. While I cannot explore the differences between the two affixes, I will assume, that ⟨N⟩ may be provided with some diacritic blocking its access to the base (cf. Svenonius’s 2016 *w* diacritic, creating a domain for lexical access), therefore making the selection of the special allomorph impossible.

4.3 Why deadjectival verbalizers can be root-selected

In striking contrast to deadjectival nouns, in deadjectival verbs we do find root-selection of the categorizer, as was shown in section 2.4 through the behaviour of *en-* and *-ify* in examples repeated below. These affixes cannot take complex adjectives as bases and are also selected by specific roots:

- (63) a. *en-courageous, *en-beautiful, *en-basic
 b. *courageos-ify, *beatifull-ify, *basic-ify
 (64) a. en-sure/*sur-ify
 b. pur-ify/*en-pure

Given that the verbalizer is added to an adjective, and that adjectives, by hypothesis, comprise a node P and a nominalized root, how is it possible that the root can determine the exponent of the verbalizer if it is not structurally adjacent to it? Key here is the assumption that categorizers correspond to spans sanctioned by the URCH, coupled with the mechanism of Underassociation.

Let us consider the verbalization of the adjective *sure*. It would correspond to the following span:

- (65) ⟨V > P > SURE_{C=N}⟩

Note that the sequence ⟨V > P⟩ corresponds to a span of the URCH. It follows that it can be exposed by a categorizer. In fact, I claim that deadjectival verbalizers have ⟨V > P⟩ as their l-span:

- (66) VERBALIZER = {⟨V > P⟩, {ize, en/⟨SURE⟩, ...}, ify/⟨PURE⟩, ...}}

In a way, therefore, verbalizers contain a “bit” of the adjective.¹⁰ Turning back to the lexicalization of *ensure*, by Exact Retrieval, both the LI corresponding to the verbalizer, in (66), and the LI *SURE*, endowed with the l-span ⟨P > sure_{C=N}⟩ can be retrieved to match subspans of the span in (65). Hence, both are retrieved:

- (67) ⟨V > P > SURE_{C=N}⟩
 VERBALIZER SURE
-

However, one of the two LIs will have to underassociate its P node, so that No-overlap is obeyed. I assume no special algorithm for underassociation, at least for lexical categories: whichever LI can underassociate, may do so. Imagine that *SURE* underassociates, and is matched, finally, to the root s-span ⟨SURE_{C=N}⟩:

- (68) ⟨V > P > SURE_{C=N}⟩
 VERBALIZER SURE
-

¹⁰ As pointed out in footnote 8, I keep the door open to verbalizations that involve no P layer, that is, a ⟨V > N⟩ s-span.

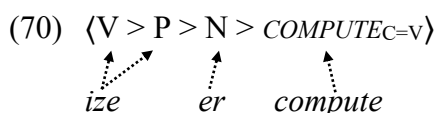
The verbalizer LI is matched to the s-span adjacent to $\langle SURE_{C=N} \rangle$. This allows some of the exponents of the verbalizer to make reference to the root s-span as its insertion context: *en*/ $\langle SURE_{C=N} \rangle$. By the Elsewhere Principle, this exponent wins over the default, *-ize*, and the rest of exponents: *ensure*/**surize*/**surify*...

4.4 Why verbalizers are not fussy about their base being A or N

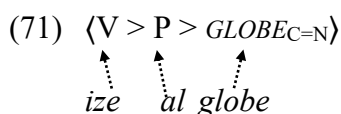
The assumptions invoked in the previous section also provide us with an explanation for the fact that verbalizers do not seem to make a difference between adjectival and nominal bases:

- (69) a. [glob-al]_A-ize, [academ-ic]_A-ize
 b. [comput-er]_N-ize; [pedestri-an]_N-ize; [psychoph-ant]_N-ize; [miss-ion]_N-ize (Borer 2013: 280)

Adjectives and nouns are in a containment relation: an adjective always contains a noun (or root categorized as nominal), as per $P > N$. If a verbalizer may correspond to a span $\langle V > P \rangle$, as we saw in the previous section, it follows that it can be added to both a $\langle P > N \rangle$ sequence, i.e., an adjective, or an $\langle N \rangle$ sequence, a noun. The latter case, as in *comput-er-ize*, is quite straightforward. The underlying span is as follows:

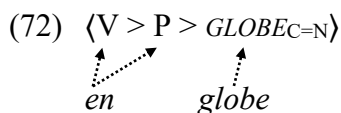


Here *-ize* expones $\langle V > P \rangle$ as default exponent (since the s-span to which it is matched is not adjacent to the root s-span). In the case of the verbalization of adjectives, there will have to be underassociation of the P node, as per No-overlap. Take *glob-al-ize*, corresponding to the next underlying s-span:



Here the verbalizer underassociates and is matched to $\langle V \rangle$, again discharging the default exponent *-ize*, since the span $\langle V \rangle$ to which it is matched is not adjacent to the root s-span (cf. **englobal*).

A welcome prediction emerging from the containment relations dictated by the URCH and the flexibility provided by Underassociation is that there can be two different ways of lexicalizing the same s-span $\langle V > P > N \rangle$, one where all the subs-pans $\langle V > P > N \rangle$ have their own exponent, as in *glob-al-ize*, and one comprising less exponents, as in *en-globe*:



In this case, the verbalizer is matched to the s-span $\langle V > P \rangle$, and the LI *GLOBE* is matched to the root s-span, discharging *en* and *globe*, respectively. That the verbalizer can be exponed by a special form (i.e., *en*, instead of *ize*) is as expected, since the s-span to which the verbalizer LI is matched, $\langle V > P \rangle$, is adjacent to the root s-span, $\langle GLOBE_{C=N} \rangle$, and, therefore, the locality condition for allomorphy obtains. Other such expected doublets are *electr-ic-ize*/*electr-ify* and *person-al-ize*/*person-ify*. With Borer (2013: 418–419, 471–480), I take conceptual content to be assigned to phonological representations, within the limit of syntactically established domains that can, crucially, be larger than the root. Regarding the case at hand, while *globalize* and *englobe* may have exactly the same underlying configuration and structural semantics, their encyclopaedic interpretations differ: ‘make global, planetary’ vs ‘form into a globe’, respectively.

4.5 Why adjectives are peculiar as regards inflectional morphology

Let us, finally, deal with the peculiar allomorphy patterns that we observe in the inflection of adjectives. Here I take a distance from Borer's diagnosis. I recall from section 2.3 that she argues for the absence of allomorphy in adjectival roots in comparative and superlative forms, under the assumption that apparent counterexamples like *good – bett-er – be-st* or *bad – worse – wor-st*, and their equivalents crosslinguistically, involve light or functional adjectives. Borer also observes that the degree affixes themselves do not show allomorphs. In my view, the absence of allomorphy in the inflectional affixes is in fact far more robust than the absence of allomorphy (including, from my perspective, suppletion) in the root. It thus merits that we capitalize on it. After all, even adjectives like 'swift' may show what looks like root-allomorphy, as in Classical Greek:

- (73) a. takh-ús
 swift-NOM.M.SG
 b. thátt-ōn
 swift-COMP.NOM.M/F.SG

It is quite reasonable to doubt that *takhús* 'swift' is a functorial adjective, not involving any root. By contrast, the lack of root-triggered allomorphy in the comparative and superlative affixes themselves seems very solid and pervasive. Impressionistically, I can, for instance, think of no counterexamples in at least English, German, and Latin. Interestingly, the only exceptions that come to mind are those cases in which the non-inflectional portion of the adjective also has a special form, as exemplified by forms like *worse* or *less*, in which, in addition to suppletion, we find no overt comparative affix. If this impression is correct, it would turn out that of the four logically possible combinations of regular/irregular root and regular/irregular degree affix, we find no clear examples of the case where the root is regular and the comparative affix is irregular:

- (74) a. Regular base + regular affix: *smart-er*
 b. Irregular base + regular affix: *bett-er*
 c. Irregular base + irregular affix: *worse*
 d. Regular base + irregular affix: unattested

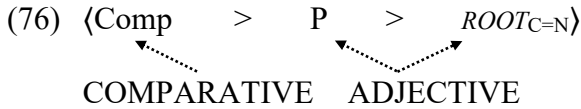
Once alerted to this asymmetry between adjectival root and inflectional affix, one actually finds it outside of the domain of degree inflection. Thus, in French, some adjectives show a special form on their root which, however, coexists with totally regular gender and number agreement morphology. One such case is the adjective for 'good-looking':

- (75) a. le bel /bɛl/ acteur
 ART.M.SG good-looking.M.SG actor
 b. le beau /bo/ garçon
 ART.M.SG good-looking.M.SG boy
 c. les beau-x /boz/ acteurs
 ART.M.PL good-looking.M.PL actors
 d. la bell-e /bɛl/ actrice
 ART.F.SG good-looking.F.SG actress
 e. les bell-e-s /bɛlz/ actrices
 ART.F.PL good-looking.F.SG actresses

As shown in the examples, the root bears the form /bo/ in the masculine plural and in the masculine singular before a noun beginning with a consonant. The elsewhere form seems to be /bɛl/. The suffixes for gender and number are regular, however: a null morph for gender and /z/ for plural.¹¹

¹¹ Alternating adjectival bases of the *beau/bel(l)*-type in French have been approached by Tranel (1990) from a suppletion perspective and by Pak (2008: 237–238) from a phonological perspective.

That adjectival bases may display inflection-triggered variation while they cannot trigger allomorphs on the inflectional affix is exactly what we expect under the lexicalization model developed in section 3.3 and under the assumption that adjectives are complex, the root embedded under a P projection. It is reminiscent of the asymmetry found in deadjectival nominals, where the root, but not the suffix, can show irregular variants. Let us consider the case of comparative adjectives in English. (76) shows the s-span corresponding to an adjective in the comparative degree.



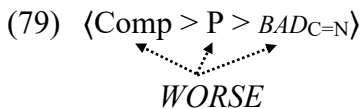
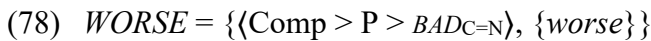
The LI corresponding to the adjective is matched to the s-span $\langle \text{P} > \text{ROOT}_{\text{C}=\text{N}} \rangle$, while the LI of the comparative affix is matched to the s-span $\langle \text{Comp} \rangle$. At Exponent Assignment, no exponent of the comparative could invoke the root s-span as insertion context, because the s-span to which the LI COMPARATIVE is matched is not adjacent to the root s-span. We thus explain the nonexistence of the pattern in (74)d.¹²

The case of (74)b, as in *bett-er*, would involve affix-triggered allomorphy in the base. I assume the following LI for the adjective *good*:

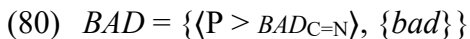


When selecting the exponent to be assigned to the s-span $\langle \text{P} > \text{GOOD}_{\text{C}=\text{N}} \rangle$, the s-span $\langle \text{Comp} \rangle$ can be referred to as insertion context, since this s-span is adjacent to $\langle \text{P} > \text{GOOD}_{\text{C}=\text{N}} \rangle$. This is why *bett* wins over *good* in the comparative.

Finally, the pattern in (74)c, illustrated by *worse*, requires one single exponent for the whole s-span (an analytical possibility mentioned by Bobaljik 2012: 14–15):

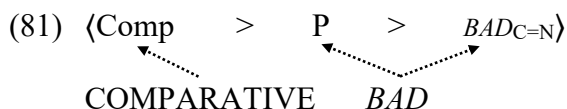


Note that an underlying assumption needed here is that there exist two different LIs that make reference to the same root, the one for the synthetic comparative form in (78) and the one for regular *bad*:



¹² I thank Jonathan Bobaljik (p. c.) for directing me to cases apparently instantiating the (74)d pattern, from Classical Greek and from Czech. Classical Greek indeed features a regular comparative suffix in *-teros* and another special one in *-iōn*. However, if anything characterizes *-iōn* comparatives it is precisely that they almost always attach to irregular bases. Thus, the vast majority of cases are like the one in (73) or like *belt-iōn*, based on *agath-ós* ‘good’, in fact, instantiating the pattern in (74)c. The very few counterexamples are like *kak-iōn* ‘worse’, based on *kak-ós* ‘bad’, which, tellingly, coexist with the doubly irregular *kheir-ōn* ‘worse’ (see Van Emde Boas et al. 2019: 80). As regards Czech, Caha et al. (2019) describe the comparative suffix as involving, on the surface, three different allomorphs: *-ějš*, *-š*, and a null morph. Interestingly, in their analysis they conclude that *-ějš* and *-š* are in a containment relation, so that the former contains the latter, and that two different positions for exponence must be distinguished: C1 (closer to the base) and C2. Crucially, C1 is either systematically *-ěj* or it is exponed together with the base, as a portmanteau (similarly to my proposed analysis of *worse*). What is not found is an independent, overt, irregular exponent for C1 combined with a regular root. Leaving a more in-depth exploration for further research, it could thus turn out that the patterns unearthed for Czech by Caha et al.’s (2019) are all predicted by my account.

An interesting prediction derived from the existence of these two LIs and from the rather loose lexicalization model entertained here is that forms like *badd-er* will be possible, alongside forms like *worse*:



The form *badder* involves the use of two LIs, one for the s-span $\langle \text{P} > \text{BAD}_{\text{C}=\text{N}} \rangle$ and the other one for the s-span $\langle \text{Comp} \rangle$. Non-standard forms like *badder* are indeed attested. See the Google examples below and also, among other studies, Arregi & Nevins (2014):¹³

- (82) a. “This Saturday’s special is badder...”
 b. “My central bank is badder than yours”
 c. “Bruce is badder than ever!”

5 Conclusions and prospects

In this study I have developed an explanation for a series of striking facts, most of them observed by Borer (2013), related to the morphology of adjectives, which set this category apart from nouns and verbs: the absence of productive zero-nominalization and zero-verbalization of simple adjectives; the absence of root-selected deadjectival nominalizers, which puzzlingly coexists with the presence of root allomorphs selected by deadjectival nominalizers and the presence of root-selected deadjectival verbalizers; the categorially ambivalent selection of bases by verbalizers; and, finally, the absence of allomorphy in the inflectional morphology of the adjective, together with the attestation of morphologically conditioned allomorphy of the adjectival root.

The explanation assumes a fully syntactic theory of categorizers, as combinations of categorial nuclei in syntax, that are expounded, via spans, by lexical items at the interface, according to a universal hierarchy. What distinguishes adjectives from other categories is that they comprise an adpositional projection embedding a nominal element (either a full-fledged noun or a nominalized root): they thus behave as already categorized, derived words. Provided a theory of lexically/grammatically conditioned allomorphy based on structural rather than linear adjacency, the root involved in an adjective is never adjacent to nominalizers or to inflectional material, which explains why it cannot trigger allomorphs of these affixes. However, the adjectival base itself, that is, the span comprising a nominalized root and the adposition, is structurally adjacent to the nominalizer or the inflectional material, and therefore its exponent can be selected by them. In the case of deadjectival verbalizations, the verbalizer can be structurally adjacent to the nominalized root of the adjective. This is because the verbalizer is equipped to expone a verbal node and an adpositional node. Upon lexicalization, the verbalizer can lexicalize both nodes, whereas the exponent of the deadjective may lexicalize only the nominalized root. Thus, the span expounded by the verbalizer is structurally adjacent to the root and can show root-triggered allomorphy. The categorial makeup of verbalizers allows them furthermore to combine with nominal and adjectival bases, indistinctly.

Beyond providing an answer to these puzzles, my account produces certain felicitous predictions, like the existence of different possible lexicalizations for the same underlying syntactic structure of the derived word, as in *globalize* and *englobe*. More generally, the account provides evidence for lexicalization based on spans rather than terminals, and a structural rather than a linear account of non-phonologically conditioned allomorphy

¹³ Analogous to *worse/badder* are other felicitously predicted cases of doublets of a synthetic and an analytic form, as *mice/mouses*. *Mice* (for rodents) and *mouses* (for the devices used with computers) also have different conceptual interpretations that could be accounted for in the way proposed for *englobe/globalize* (see section 4.4). For syntactically oriented accounts designed to block forms like *mouses*, see Siddiqi’s (2009) Distributed Morphology account and Starke’s (2010) nanosyntactic account.

Several phenomena and aspects of the execution must be left for future consideration. For instance, I still do not have an explanation for the fact, observed in section 2.5, why only verbalizers, and not nominalizers or adjectivizers, show categorially indiscriminate (A-N) selection of the base. I also have not introduced cyclicity, even though it seems relevant for aspects such as the distinction between *-ity* and *-ness*.

More importantly, the empirical basis of this research is almost entirely on English, and the claims should be tested in more languages, like the claim that the inflectional morphology of the adjective is always regular. Likewise, anonymous reviewers of previous abstract versions have pointed out that the categorial rigidity of adjectives as regards zero derivation or the categorial lability of underived verbs and nouns could be quirks of English morphology and should not warrant the theoretical apparatus entertained here, which aims to be universal. In languages like Romance adjectives appear to convert to nouns productively, while we do not witness the same noun-verb conversion of the *table_N – table_V* type attested in English.

Needless to say, any criticism pointing to a lack of empirical breadth is both fair and necessary. Nevertheless, I would like to show some evidence that we should take the alleged productivity of adjective-noun conversion and the alleged absence of noun-verb conversion in Romance—Spanish, in particular—with a grain of salt. Thus, it is true that many Spanish adjectives like *ciego* ‘blind’, *gordo* ‘fat’, *delgado* ‘thin’, *alto* ‘tall’, or *bajo* ‘short’ coexist with root-identical nominal counterparts. However, the interpretation of the corresponding nouns is certainly not always predictable. Indeed, while *ciego* and *gordo* (and their feminine counterparts) refer, quite naturally, to a blind and a fat person, respectively, this is not the case with the nouns *alto*, denoting a high ground or a top floor, or *bajo*, denoting a first floor or the hem of a skirt. The dictionaries record a noun *delgado* as referring to a part of a ship, but this noun is nonexistent in most people’s vocabulary (certainly in mine).¹⁴ Complementarily, noun-verb zero derivation in Spanish turns out to be surprisingly similar to noun-verb conversion in English in both its productivity and semantic regularity, once the inflectional properties of the former language are taken into account.¹⁵ Indeed, Spanish requires nouns and verbs to appear with purely inflectional markings: word markers (see Harris 1991, a. o.) for nouns, as *e* in *coch-e* ‘car’ and theme vowels (see Oltra-Massuet & Arregi 2005, a. o.) for verbs, as *i* in *dorm-i-r* ‘sleep.INF’. Thus, a pair such as *ces-a(-r)* ‘to stop’ (verb with theme vowel *a*) – *ces-e* ‘stop’ (noun with word marker *e*) qualifies as conversion in that no (overt) categorizer characterizes the verb or the noun. Like this pair we find many other ones: *almacen-a(-r)* ‘to store’ – *almacén* (no word marker in this case) ‘store’, *atac-a(-r)* /ata‘kar/ ‘to attack’ – *ataqu-e* /a‘take/ ‘attack’, *mord-e(-r)* ‘to bite’ – *muerd-o* ‘bite’, *cerr-a(-r)* ‘to shut’ – *cierr-e* ‘shutdown’, *logr-a(-r)* ‘to achieve’ – *logr-o* ‘achievement’, *control-a(-r)* ‘to control’ – *control* ‘control’ (no word marker in this case), *pesc-a(-r)* ‘to fish’ – *pesc-a* ‘fishing’, etc. How exactly the system developed in this paper can be applied to languages like Spanish is a matter for future research.¹⁶

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¹⁴ It is important to distinguish bona fide nouns such as *gordo*, *-a* ‘fat man/woman’ from nominal expressions sporting an adjective and an elliptical noun or pro, as in *el delgado* ‘the thin one’, *un*(o) delgado* ‘a thin one’. See Borer & Roy (2010) for relevant discussion and useful tests based on a comparative study of English, Hebrew, French, and Spanish.

¹⁵ See Valera (2021: 44), who points out that the bulk of conversion cases in Spanish are noun-verb conversion cases.

¹⁶ While I was writing up this paper, I learnt of Fábregas’s (2020) study, a whole monograph dedicated to the morphology of adjectives in Spanish and, crucially, adopting Mateu’s (2002) idea that adjectives are not primitive categories, but comprising an adposition and a nominal. I take it then that the enterprise of applying the compound theory of adjectives to languages like Spanish is indeed feasible.

commented on versions of this work, and to Jaume Mateu, for pointers to useful references regarding the underlying structure of adjectives. Any shortcoming in this version is only attributable to me.

Competing Interests

The author has no competing interests to declare.

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