Derivational Affixes as Roots Across Categories

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Abstract: Several recent accounts (Lowenstamm 2014; Nevins 2015; Creemers, Don, and Fenger 2017) couched in the framework of Distributed Morphology (Halle and Marantz 1993, 1994) argue for extending the separation between roots and categorial heads to derivational affixes. Such approaches offer a straightforward account of affixes that surface under different categorial embeddings (e.g., *-ant*, both in the noun *defendant* and in the adjective *defiant*) by viewing these affixes as roots. In this article, the affixes-as-roots approach is applied to Slovenian affixes. An account is proposed of the variable prosodic behavior of Slovenian derivational affixes, which behave as either stress-attracting or stress-neutral. It is shown that Slovenian derivational affixes have no lexical stress and all their prosodic effects follow from the structures in which they occur. Specifically, stress-attracting behavior is a result of the fact that sequences of roots with no intermediate functional structure (the so-called radical cores) are spelled out to phonology without any prosodic specification. Phonology then assigns the default final prosody to such sequences, creating the illusion of accented derivational affixes. The proposed account is applied to two affixes, *-av* and *-ov*, which occur across categorial embeddings (nominal, verbal, adjectival).

Keywords: roots, affixes, categories, Distributed Morphology, Slovenian, phasal spell-out, Optimality Theory

1. Introduction[1]

The distinction between roots and categorial heads is one of the key properties of most syntax-centric approaches to morphology, the most prominent among which is Distributed Morphology (Halle and Marantz 1993, 1994). In Distributed Morphology (DM), roots are uncategorized and contain references to phonological material and semantic content, but no further internal structure. Categorial heads, on the other hand, display more variation in terms of
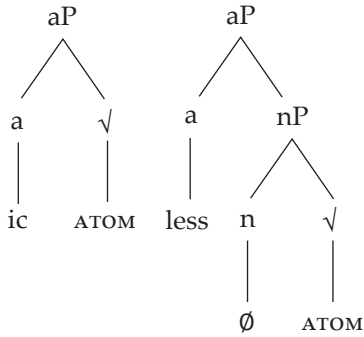
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their content, at least in the classical version of Distributed Morphology. For instance, the adjective *cheap* would be analyzed as having a silent adjectivizer, whereas the adjectives *Christmass-y* and *price-less* would be analyzed as having overt adjectivizers. On the side of meaning, while the adjectivizer in *price-less* has a clear semantic contribution, those in *cheap* and *Christmass-y* can be seen as pure adjectivizers. In sum, in classical DM, both semantic and phonological contents are "distributed" in such a way that they are typically obligatory properties associated with roots, but may or may not appear on categorial heads. Therefore, in classical DM, categorial heads are a heterogeneous class of linguistic objects in terms of information that they carry.

While being quite heterogeneous in terms of phonological and semantic content, categorizers in classical DM are allowed quite little structural variation. The only available structural distinction between heads of the same category is that between root-selecting and category-selecting categorial heads. This distinction has been amply used to account for differences in semantic and phonological behavior of affixes. Assuming that categorial heads define spell-out domains, within which the affix can influence the phonological content and the meaning of the root, root-selecting affixes are expected to show up with more unpredictable meaning and cause more phonological changes on the root, whereas category-selecting affixes are expected to have a predictable meaning and cause fewer phonological modifications (for an overview and a specific proposal, see Marvin 2002: 16–31).

This may seem promising in resolving some of the classical puzzles, e.g., the differences in stress assignment between stress-shifting Class 1 and stress-neutral Class 2 affixes in English. For instance, the difference between the stress-shifting affix in *atom-ic* and the stress-neutral affix in *atom-less* can be accounted for by assuming that *-ic* is root-selecting, whereas *-less* is category-selecting (more precisely, noun-selecting), as illustrated in (1). The difference in stress follows from phasal spell-out, assuming that categorial heads trigger spell-out. In *atomic*, there is only one phase, and both √ATOM and *-ic* are in it. Therefore, both elements belong to the same stress-assignment domain. In *atomless*, on the other hand, the nP, which only contains √ATOM and a mute nominal head, gets spelled out first (the output being *átom*), whereas *-less* gets spelled out in the second phase and therefore fails to influence the stress of the whole.

(1)   *atomic* and *atomless* in classical DM

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        aP                aP
       /  \              /  \
      a    √            a    nP
      |    |            |    / \
      ic  ATOM        less  n   √
                            |   |
                            ∅  ATOM
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It may seem as if the classical system is offering a perfect structural match for the English stress facts, as it allows a two-way contrast, which perfectly matches the distinction between the stress-shifting Class 1 and stress-neutral Class 2 affixes. A further advantage is that this system correctly predicts that category-selecting Class 2 affixes can come after both Class 1 and Class 2 affixes, as testified by the adjective-selecting affix *-ness*, which can be added both to *atomic* and to *atomless*. However, there is a problem: classical DM also predicts all affixes that can attach to other affixes to behave like *-ness*, i.e., to be category-selecting and stress-neutral. This prediction is not borne out. Continuing to build on the structure from the previous examples, we find that *atomless* indeed only allows further nominalization with a Class 2 suffix (in *atomlessness*), but *atomic* allows both a Class 2 suffix, in *atomicness*, and a Class 1 suffix, in *atomicity*. The Class 1 status of *-ity* is attested by its stress-shifting behavior. While both *atomicness* and *atomlessness* are stressed in the same way as their respective related adjectives *atomic* and *atomless*, *atomícity* displays a stress shift with respect to *atómic*.

A stress-shifting category-selecting affix is not representable in the model just sketched. In (2) the "classical" trees for *atomicity*, *atomicness*, and *atomlessness* are shown. The problem is that as long as we maintain that *-ic* is an adjectival head, *-ity* will have exactly the same structural position as *-ness*, i.e., it will be outside the first phase, and for *atomicity*, the wrong output (**atómicity*) will be predicted.

(2)   *atomicity*, *atomicness*, and *atomlessness* in the classical DM analysis
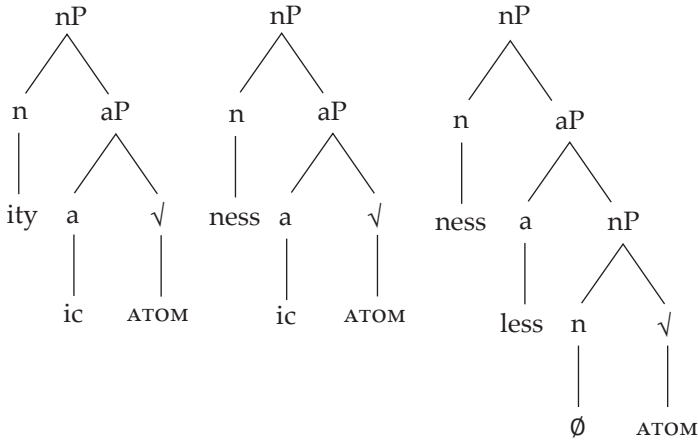
As convincingly shown by Lowenstamm (2014), whatever version of phasal spell-out assumed, *atomicity* and *atomicness* will always end up having the same predicted stress pattern, because *-ity* and *-ness* are not root-adjacent. This also goes for approaches which assume diacritics on affixes, as long as they also assume that these diacritics cannot influence the spell-out of the previous phases (e.g., Marvin 2002: 80). This means that the classical DM treatment of affixes in combination with phasal spell-out cannot accommodate the existence of Class 1 and Class 2 affixes beyond the first phase.

The solution proposed by Lowenstamm (2014) amounts to "promoting" derivational affixes to roots. Roots now include items which have phonological and/or semantic content, whereas categorial heads are (typically) mute and without any stored meaning. In this new picture, roots are quite structurally variegated, as some of them can project to the phrasal level without a complement (e.g., √DOG), while others require a complement, which can either be a category (e.g., in the case of √NESS) or a root (e.g., in the case of √ITY). Lowenstamm claims that root-selecting roots will only be encountered in what he terms "the radical core", a set of roots which form a root phrase at the bottom of the structure. Lowenstamm further assumes that phonological rules re-apply with each new root phrase. The same result can be obtained by having the rules apply to the whole radical core at once, on the first round of spell-out. In (3) the Lowenstammian analyses of *atomicity* and *atomicness* are given.

(3) *atomicity* and *atomicness* in the Lowenstammian re-analysis
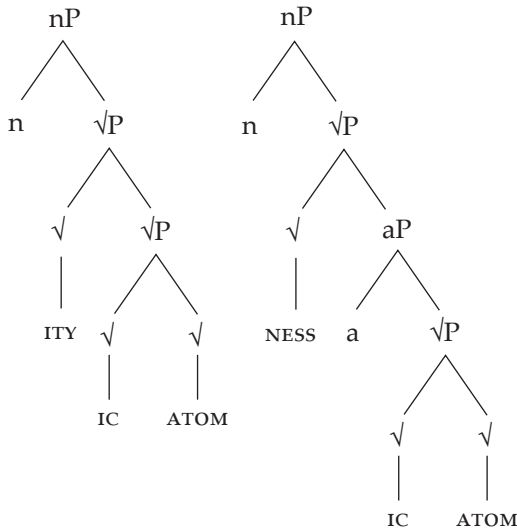
Now we can finally make a structural distinction between *-ity* and *-ness*. The root-selecting root √ITY is part of a radical core, which can be viewed as a single stress-assignment domain. On the other hand, √NESS is an adjective-selecting root which remains in the highest phase and therefore has no influence on stress. The consequences of the Lowenstammian turn for the architecture of grammar are many, and exploring all of them would go beyond the scope of this paper. In order to set the stage for this article and turn to Slovenian data, in the following subsection, I will focus on two of these consequences: the combinability of derivational affixes with different categories (both as selectors and as selectees of roots) and the information that needs to be stored concerning this combinability.

## 1.1. -*Ness* and -*ic* as Phrasal Idioms?

If affixes are roots, they are predicted to be able to surface under different categorial embeddings, just like "traditional" roots can (e.g., in the nouns/verbs *work*, *walk*, *need*, etc.). This prediction is addressed by Lowenstamm (2014). He shows that there are many affixes in English which surface under different categorial embeddings. For instance, *-ic* is not only present in adjectives, such as *magic*, *pragmatic*, and *atomic*, but also in nouns, such as *magic*, *pragmatics*, and *logic*. At first blush, a perfect parallelism seems to be preserved between "traditional" roots (e.g., *dog*, *cat*, and *walk*) and affixal roots (e.g., *-ness*, *-ity*, and *-ic*). They do of course differ in their selectional requirements: "traditional" roots do not require any complements in order to project to the phrasal level,

whereas affixal roots require either a category or a root as their complement. On the other hand, it still remains true of all roots that they need to be categorized in order to surface. The issue of what exactly sieves out unattested combinations of roots and categories was addressed by Lowenstamm: it is the Encyclopedia. For instance, Lowenstamm (2014) states that, in principle, well-formed yet unattested combinations, such as the adjective *motric (cf. *motricity*), are unattested because they are simply not recorded in the Encyclopedia.

This understanding of the Encyclopedia is not new in the DM literature. The same idea, applied to "traditional" roots, has often been exemplified by the noun *cat* and the claim that "*cat* is a phrasal idiom" (Marantz 1996), i.e., that the meaning of the root √CAT, 'furry domestic feline', is stored in the Encyclopedia together with its nominal context. More generally, Marantz (1996: 9) claims that "in semantic interpretation, the Encyclopedia assigns to atoms of syntactic composition noncompositional (atomic) meanings based on the choice of Vocabulary item for that atom and based on the syntactic context". The reason for the non-attestedness of the verb *to cat* in most varieties of English then lies in the fact that there is no Encyclopedia entry for this combination. Marantz (1996: 23) therefore concludes that "the meaning of 'cat' is idiomatic, i.e., Encyclopedic—a function of the choice of a particular Vocabulary item in a particular syntactic environment".

There is, however, an important difference between recording the categorial context of "traditional" roots and doing the same for affixal roots. For instance, recording √CAT as occurring in an nP is a matter of one Encyclopedia entry, whereas analogous recording for √NESS means that the same piece of information (regarding the category selected by the root, the category that selects the root, as well as the semantic contribution of the parts) will be repeated thousands upon thousands of times in the Encyclopedia, as -*ness* combines with virtually all adjectival items, always producing nouns and having a very limited range of semantic contributions. Moreover, even non-attested well-formed items such as *motric* are easily categorized by native speakers of English: in this case, most probably as an adjective, less probably as a noun. In sum, having the categorial adherences of affixal roots recorded in the Encyclopedia by simply stating them for each word in which these affixal roots occur turns out to be an extremely extravagant solution.

In order to keep the advantages of Lowenstamm's proposal, I submit that the categorial adherences are recorded only once, in the same Encyclopedia entry where their selectional requirements are recorded. The Encyclopedia entries for √NESS and √IC would then look like the representations in (4). The selectional requirements are encoded as uninterpretable features. For example, the uninterpretable feature on √NESS is the reason why this root cannot project at the phrasal level without an adjectival complement. Of course, there may be more to the Encyclopedia entries than this basic sketch, e.g., a specific "flavor" of the involved categorial heads. I leave this issue to further research.

(4)   Encyclopedia entries for √NESS and √IC

nP   nP   aP

n   √   n   √   n   √

NESS$_{[u\ aP]}$ IC$_{[u\ √P]}$ IC$_{[u\ √P]}$
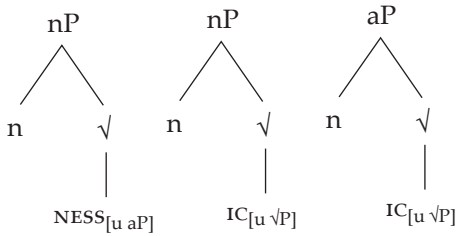
This proposed solution begs the question of the unattestedness of indepen-dent words *ness* and *ic* for most (but not all) speakers of English. One part of the explanation lies in the lacking complement of the affixal roots, even though idioms can exceptionally contain "ungrammatical" structures (e.g., *as sure as eggs is eggs, monkey see monkey do*). Another promising answer lies in the incomplete or completely lacking semantic content associated with the idioms in (4). Note that in classical Distributed Morphology, affixes like *-ness* and *-ic* were unproblematically considered under the rubric of nominalizers and adjectivizers without any additional meaning. The nouns *ness* and *ic* and the adjective *ic* are therefore licit by virtue of being stored in the Encyclopedia but lack any meaning or, alternatively, have a meaning so general that they never get selected for insertion.

Assuming idioms which potentially lack any meaning may seem counter-intuitive, but it actually simply positions a piece of information that has to be stored anyway in the most natural place for storing unpredictable information: the Encyclopedia. Completely parallel to any other Encyclopedia entry, items like those in (4) will be used in analyzing and interpreting com-plex items. A speaker who has never been exposed to the item *cobra cat* will assume that it should be interpreted compositionally based on the nouns *cobra* and *cat*. By the same token, a speaker who has never been exposed to a noun such as *blueness* will base their interpretation on the Encyclopedia entries for *blue* and *ness*, whereby the latter happens to have quite general meaning but plays a crucial role in assigning the correct functional structure.

1.2. Why Look Beyond English, and What Slovenian Can Offer

The data discussed by Lowenstamm, presumably selected because they are most representative of the phenomena discussed, are restricted to specific lex-ical classes: Latinate nominal and adjectival affixes. This may make the pre-sented analysis suspect of obscuring the actual source of the generalization. First, an important portion of Lowenstamm's arguments are phonological. Numerous accounts in the phonological literature assume that speakers have access to the feature [+loan] and that such a feature can trigger and block pho-

nological processes (Jurgec 2008; Ito and Mester 2009; Simonović 2015). In other words, as long as no native examples are identified, the real question may be why (some) Latinate affixes enforce a reapplication of the stress rule. Second, the fact that all examples listed by Lowenstamm involve roots that occur in adjectival and nominal environments makes an alternative account involving productive conversion worryingly plausible. Thirdly and relatedly, if affixes are roots and can in principle surface under different categorial embeddings, in languages which have pronounced phonological asymmetries between lexical classes (Smith 2011), the same affixal roots should be able to surface differently under different embeddings, e.g., displaying different prosody, in line with what free roots do. However, since in English the main contrast in this domain is the prosodic contrast between nouns and verbs (see Smith 2016: 2 for an overview), this prediction cannot really be tested. Moreover, even if fully categorially versatile native affixes were found in English, some important cross-linguistic predictions made by Lowenstamm's account still could not be directly tested. For instance, English has a default inflectional class for each of the main categories, and all English affixes we have discussed fit unproblematically into these classes (e.g., *darknesses* vs. **darknessen*). Languages that have more complex inflectional systems may have to store more information on the inflectional class or even have the same affix under the same category correspond to different inflectional classes. Exploring versatile affixes in languages with more complex inflectional systems is therefore an important next step in understanding the amount of stored information for each of the categorial embeddings.

Slovenian turns out to be an ideal case study for a further exploration of the proposed model. It has native affixes which are categorially versatile, some of them appearing in all three major categories: nouns, verbs, and adjectives. Moreover, Slovenian displays prosodic asymmetries between lexical classes. Finally, it is a language with a rich system of inflectional classes, especially in the nominal and verbal domains. In this article, I will extend the approach sketched above to Slovenian. I will present an account of stress assignment in Slovenian and then focus on two affixes, *-av* and *-ov,* which show up across the three categories, and present an analysis of these affixes in the framework sketched above. The rest of this article is organized as follows. Section 2 presents an overview of the relevant properties of Slovenian stress across the three lexical categories and brings a proposal of how prosody assignment proceeds, both in environments with intertwining between roots and categories and in radical cores. Section 3 presents an overview and a formalization of the behavior of the two affixes in three categorial contexts. Section 4 summarizes the main findings of the paper and sketches the directions for further research.

2. Slovenian Stress: Lexical Classes, Morphological Structure, Default Stress

Standard Slovenian is a lexical prosodic system which comprises both stress and pitch-accent varieties. Stress varieties are in focus here, as a vast majority of consulted speakers only have contrastive stress (as further described in §3). It should be noted, however, that the few speakers from pitch-accent varieties converge with stress speakers when it comes to stress placement in the examples quoted in this article.

I open the section by considering stress both in words and in affixes in the three lexical classes in §2.1. In §2.2 I develop an account of how Slovenian affixes shift stress. In §2.3 I discuss the consequences of a system which allows contrastive lexical prosody on free roots (in the sense that they can surface without a complement), but does not allow any on affixal roots.

2.1. Stress and Morphological Structure in the Three Lexical Classes

For each category, I first turn to words of this category in general and then to the prosodic effects of affixes that belong to this category.

2.1.1. Nouns and Nominal Affixes

Noun forms typically consist of a stem and an inflectional ending. Each noun belongs to an inflectional class which comes with its own set of endings. Nouns allow stress on any syllable of the word, indicating that stress in nouns is lexical. This is shown below on four nouns which all have the nominative singular ending *-a*.[2]

(5) Variable stress in nouns

lúbenic-a 'watermelon-NOM.SG'
polítik-a 'politics-NOM.SG'
čičerík-a 'chickpea-NOM.SG'
gosp-á 'lady-NOM.SG'

Nominal derivational affixes are also specified for a declensional class and can be stress-attracting or stress-neutral. This is shown using the affix *-ic-*

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[2] The following abbreviations are used throughout the paper: 1 = first person; ADJ = adjective; DEF = definite; DU = dual; F = feminine; INF = infinitive; M = masculine; NOM = nominative; PL = plural; PRES = present tense; SG = singular.

(specified for the same declensional class as the above nouns), which in this case derives the feminine counterpart of a masculine noun.

Table 1. Variable prosodic effects of *ica*-affixation

Masculine counterpart	Feminine *ica*-counterpart
prijátelj 'friend$_M$'	*prijátelj-ic-a* 'friend$_F$'
továriš 'comrade$_M$'	*tovariš-íc-a* 'comrade$_F$'

The examples in Table 1 show a two-way contrast. There are no affixes that impose stress on the inflectional ending, so there are no complex nouns of the type **prijatelj-ic-á*.[3] The non-existence of derivational affixes that impose stress on the inflectional ending is a generalization that holds of all adjectival and nominal affixes (as well as, vacuously, of all verbal affixes). We will return to this issue in §2.1.4.

In sum, Slovenian nouns display full lexical stress contrast, whereas nominal affixes display a two-way contrast: either attracting stress or having no effect on stress.

2.1.2. Verbs and Verbal Affixes

Slovenian verbs minimally have the structure stem + theme vowel + inflectional morphology. Each verb (and each verbalizing affix) belongs to a conjugation class. Conjugation classes can be seen as combinations of two theme vowels that have a complementary distribution: one surfaces in finite and the other in non-finite forms. In order to illustrate the inflectional class of a Slovenian verb, we use two forms: the infinitive (e.g., *or-a-ti* 'to plough') and the first-person plural form of the present tense (*or-je-mo* 'we plough').

Verbal prosody is far more restricted than is the case in nouns. The stress patterns possible in a verbal form are two: stress either falls on the theme vowel or on the syllable preceding it. This indicates that verbal stress is controlled by the theme vowel. However, the segmental content of the theme vowel is not sufficient to predict the stress pattern, as shown below on three verbs which have *-i-* as both theme vowels.

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[3] Simplex nouns of the type *gosp-á* are also rare, *gosp-á* actually being the only one in its inflectional class for most speakers. However, inflection stress is common in other declensional classes, e.g., the main neuter declension (*zlat-ó* 'gold', *mes-ó* 'meat'). The generalization that no derivational affix imposes inflection stress holds of affixes of these classes as well.

Table 2. Variable stress in *i/i* verbs

INF	PRES.1PL	Gloss
páz-i-ti	páz-i-mo	'mind'
dob-í-ti	dob-í-mo	'get'
lom-í-ti	lóm-i-mo	'break'

Verbal affixes come with their own theme vowel and generally impose their own prosodic pattern, thereby deleting the pattern of the base. This is one of the reasons for analyzing the theme vowels as determining the prosody of verbs in Slovenian (as further elaborated in §3.1.1).

One of the very few exceptions from the restricted two-way prosodic contrast is a small set of denominal verbs derived by the verbalizer that shows up as the theme vowel *-a-* . These verbs can, in very few cases, preserve the nominal stress pattern, which places stress "earlier" than the syllable preceding the theme vowel.

Table 3. Preserved nominal stress in denominal verbs

INF	PRES.1PL	Gloss	Related noun	Gloss
málic-a-ti	málic-a-mo	'snack'	málic-a	'snack'
prídig-a-ti	prídig-a-mo	'preach'	prídig-a	'sermon'

Another verbalizer that can preserve nominal prosody will be discussed in §3.1.2. It should be noted that the number of verbs with "non-verblike" prosody (i.e., stress before the stem-final syllable) does not seem to exceed a dozen in any variety. Some varieties allow no such verbs at all. For instance, many varieties, among them colloquial Ljubljana Slovenian, can realize the two verbs quoted above as *málc-a-t* and *prídg-a-t*, with stem-final stress. In sum, while the exceptions are relevant and will be analyzed separately, virtually all Slovenian verbs have stress either on the theme vowel or on the syllable preceding it, a pattern best analyzed as theme-vowel controlled.

2.1.3. Adjectives and Adjectival Affixes

Simplex adjectives in modern Slovenian have a strong tendency towards stem-final stress (e.g., *zel[ɛ́]n* 'green'). Few simplex adjectives have penultimate stress in the form with no overt inflection (indefinite masculine, e.g., *v[ɛ́]lik* 'big'),

but stress becomes stem-final as soon as there is an overt affix (e.g., *velík-ega* 'big-m.gen'). Adjectives derived from other classes can, however, maintain the stress of the base. As a consequence, in derived adjectives any syllable of the stem can be stressed. This is illustrated using the affix *-sk*. This affix derives relational adjectives that only have a definite form, which is why all forms in Table 4 end in the masculine definite ending *-i*.

Table 4. Preserved nominal stress in denominal adjectives

Relational *sk*-adjective	Related noun
máribor-sk-i	*Máribor* 'Maribor'
profésor-ski-i	*profésor* 'professor'
generál-sk-i	*generál* 'general'

In the case of affixes that contain stressable material, they can be either stress-neutral or stress-shifting, as shown below.

Table 5. Variable stress in *at*-adjectives

At-adjective	Related noun
ápn-at/apn-át 'chalky'	*ápn-o* 'chalk'
brad-át 'bearded'	*brád-a* 'beard'

Summarizing, we can say that simplex adjectives have a strong tendency towards stem-final stress. On the other hand, derived adjectives can either preserve the lexical stress of other categories or have the stress pattern imposed by the stress-attracting suffix. As with nouns, we can observe a two-way distinction between stress-attracting and stress-neutral adjectival affixes.

2.1.4. Summary: Stress Across Categories in Slovenian

Regarding the relative dominance of lexical stress across categories, nouns allow the most prosodic contrast and are the only category that can have its lexical stress preserved in the verbal domain. This matches the existing cross-linguistic generalizations on noun privilege (Smith 2011). In terms of Optimality Theory (Prince and Smolensky 2002), this would be formalized using a special faithfulness constraint dominating general faithfulness (Beckman 1998). The relevant constraint ranking would be Faith-Noun>>Faith, indicating that faithfulness in nominal environments is stronger than faithfulness in general.

The issue of lexical stress in verbs and adjectives is more complicated. On the one hand, if we take all members of the category as a whole into account, verbal stress is much more restrictive. Verbal stress is either on the stem-final syllable or on the theme vowel (except in a dozen verbs which preserve the nominal stress pattern with stress "earlier" on the stem, presumably due to Faith-Noun). Adjectives then seem much more permissive, as they allow all stress patterns that are attested in nouns, with the exception of stress on inflectional material. However, if we only take simplex members of each category as a starting point and move gradually towards complex items, the picture changes radically: simplex adjectives with overt inflection only allow stem-final stress, and the apparent diversity of stress patterns in complex adjectives is a result of the preservation of nominal stress (again, presumably due to Faith-Noun).

The exceptional restrictiveness of the verbal prosody seems quite reminiscent of systems that have predictable prosody in verbs and lexical stress in nouns, such as Spanish (see Roca 2005) or Hebrew (Becker 2003). In Slovenian, some minimal lexical contrast is allowed, but it depends on the lexical specification of the theme vowel, rather than on the lexical stress of the root.

Regarding stress patterns allowed in categories as a whole, as overviewed in Table 6 below, the only stress pattern possible in all categories is stem-final (in which the stressed syllable always precedes theme vowels and inflectional endings). Stem-final stress is by far most common in nouns, verbs, and adjectives in Slovenian. Simonović and Mišmaš (2020) found, based on 3,000 most frequent members of each of the three main categorial classes, that 63% of verbs, 70% of nouns, and 73% of adjectives have stem-final stress as the only option in the entire paradigm.

Stem-final stress is, at the same time, the pattern of all nominal and adjectival derivations in which the affix is stress-shifting (as there are arguably no derivational affixes longer than one syllable, excluding the inflectional ending). Taking this generalization as a starting point, in what follows I investigate how affixes influence stress in Slovenian and whether the two-way contrast between stress-affecting and stress-neutral affixes corresponds to any structural difference.
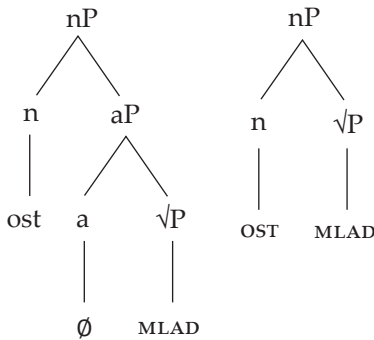
Table 6. Attested stress positions across categories

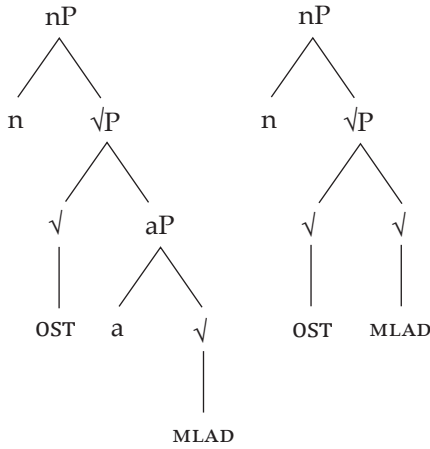|	Pre-stem-final stress	Stem-final stress	Theme/inflection stress
Nouns	✓	✓	✓
Verbs	marginal	✓	✓
Adjectives	✓	✓	X

2.2. How Affixes Assign Stress in Slovenian

In the research programme outlined in §1, the first place to look for structural correspondents of prosodic differences is the distinction between deradical and decategorial derivations, expecting more prosodic changes in the former and more faithfulness to the base in the latter. The first and most influential discussion of the contrast between decategorial and deradical derivations in the existing literature on Slovenian is Marvin 2002. Marvin presents a classic DM analysis of several nominalization patterns, among which are nominalizations in *-ost*, traditionally analyzed as deadjectival. Slovenian *ost*-nominalizations come in two flavors: one more productive, compositionally interpreted, and prosodically faithful to the base adjective, and the other, more rare, idiomatic, and characterized by the stress-shifting behavior of *-ost*. One of the relevant minimal pairs quoted by Marvin is *mlád-ost* 'youngness' (prosodically faithful to *mlád* 'young') versus *mlad-óst* 'youth, young years'. Marvin's analysis, which I follow, is that *mlád-ost* is a deadjectival nominalization, whereas *mlad-óst* is a root nominalization. The relevant Marvin-style trees for *mlád-ost* and *mlad-óst* are shown in (6).

(6)   Marvin-style trees for *mlád-ost* and *mlad-óst*

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        nP                        nP
       /  \                      /  \
      n    aP                   n    √P
      |   /  \                  |    |
     ost a    √P               OST  MLAD
         |    |
         ∅   MLAD
```

In order to account for the stress difference, Marvin assumes that *-ost* is lexically specified as stressed. This property of *-ost* is only realized when it is in the same phase with the root, i.e., in the root nominalization *mlad-óst*. In the real deadjectival nominalization, the output of the first round of spell-out is just the adjective *mlád*, and *-ost* comes too late to change its stress.

In (7) I show the Lowenstammian trees for *mlád-ost* and *mlad-óst*. In what follows, I argue that recasting the contrast between the two nouns in Lowenstammian terms brings an additional gain: it is not necessary to assume any lexical stress on *-ost*.

(7)   *mlád-ost* and *mlad-óst*: the Lowenstammian analysis

```
        nP                           nP
       /  \                         /  \
      n    √P                      n    √P
          /  \                         /  \
         √    aP                      √    √
         |   /  \                     |    |
        OST a    √                   OST  MLAD
               |
              MLAD
```

The Lowenstammian analysis of the deadjectival nominalization *mlád-ost* parallels the classical analysis. Since the affixal root √OST is in a different phase from the root √MLAD, the affix is expected to be stress-neutral. The difference between the two accounts becomes clear in the case of the stressed *-ost* in the "idiomatic" nominalization *mlad-óst*. As can be seen in (7), the first phase now consists of a sequence of roots with no intermediate functional structure, i.e., a radical core. I submit that radical cores display total neutralization of lexical prosody. Specifically, radical cores always lead to the deletion of lexical stress and therefore always surface with the default stress pattern, which in Slovenian is stem-final stress. This is how the final stress of *mlad-óst* is obtained.

Support for the proposed analysis comes from two types of transparent deverbal nominalizations discussed by Marvin: *je*-nominalizations and *c*-nominalizations. Both of these nominalization types are convincingly analyzed as containing the passive participle, whose prosody they also preserve. The regular pattern is illustrated in Table 7 below.

Table 7. *Je*-nominalizations and *c*-nominalizations: The regular cases

PASS.PTCP	Nominalization
pítan 'fed'	*pítan-ec* 'animal for feeding' *pítan-j-e* 'feeding'
poslán 'sent'	*poslán-ec* 'envoy, representative' *poslán-j-e* 'sending, mission'

The mentioned prosodic faithfulness pattern is extremely regular, and Marvin does not mention any exceptions. However, some exceptions do exist. All four exceptions that were accepted by at least three of the seven consulted speakers are illustrated in Table 8 (the profile of the consulted speakers is described in §3).

Table 8. *Je*-nominalizations and *c*-nominalizations:
Exceptional cases with stress shifts

PASS.PTCP	Faithful nom.	Stress-shifting nom.
míšljen 'thought'		*mišlj[έ]n-j-e* 'thinking, opinion'
vprášan 'asked'		*vprašán-j-e* 'question'
šívan 'sewn'	*šívan-j-e* 'sewing'	*šiván-j-e* 'sewing kit'
múčen 'tortured'	*múčen-ec* 'tortured person'	*muč[έ]n-ec* 'martyr'

A feature shared by all four exceptions is that they have stress unexpectedly shifted to the syllable preceding the inflectional ending. In some of the examples above, the stem-final position of the stress is somewhat obscured in the citation form due to schwa-epenthesis in forms without overt inflectional morphology (e.g., *mučen[ə]c*). Below I quote the dual forms of the four stress-shifting nominalizations, since the dual ending always has an overt exponent.

(8)   Dual forms of stress-shifting *je*-nominalizations and *c*-nominalizations

   mišlj[έ]nj-i 'opinion-DU'
   vprašánj-i 'question-DU'
   šivánj-i 'sewing kit-DU'
   muč[έ]nc-a 'martyr-DU'

   Following the classical DM analysis, where stress-attracting behavior of affixes is a consequence of lexical stress, in these exceptional items, the nominalizers in question would have to become root-selecting, because otherwise they would not be able to affect the stress of the derived word. On top of that, they would also have to become lexically stressed, or rather, display their being lexically stressed in this extremely limited number of cases, where they also show up in a configuration where they typically do not appear. My analysis of these exceptional cases is that they have indeed lost parts of the internal functional structure of their transparent counterparts but have kept the identical root structure. This is also evidenced by their specific, non-trans-

parent meaning. As for their stress pattern, it is a natural consequence of the structure in which they appear: the radical core.

A bold claim that can be formulated based on this discussion of a handful of examples involving three nominalizers is that all affixes that appear stressed simply correspond to radical-core structures, i.e., are root-selecting. Clearly, a model that dispenses with lexical prosodic marking on affixes would have an advantage over a theory that assumes such marking (e.g., that presented in Marvin 2002).

In order to show how stress assignment works in the proposed account, I go back to the minimal pair *mlád-ost* and *mlad-óst* and show how their stress is computed. I will use an OT grammar that will be sensitive to phasal information (for comparable approaches, see Gribanova 2015; Sande, Jenks, and Inkelas 2020). Since affixal roots do not have any lexical stress that influences the surface form, but free roots do, Slovenian is a system that would traditionally be analyzed as featuring *Root Faithfulness* (Beckman 1998). Now, since affixes are roots, we have to make a terminological intervention and speak of *Free Root Faithfulness* instead (referring to roots that can surface without a complement). The constellation in which special faithfulness is revealed is Faith-Special>>Markedness>>Faith. In our case, the relevant markedness constraint is the one responsible for (stem-)final prosody. I will use the constraint Iamb to this effect. Now the key ranking for Slovenian is Faith-FreeRoot>>Iamb>>Faith.

We can now turn to an analysis of *mládost*. If the ranking Faith-Free-Root>>Iamb>>Faith defines the phonological grammar that applies at every round of spell-out, the adjective *mlad* will come out of the first round of spell-out with stress, regardless of whether it had stress underlyingly.[4] Now at the second round of spell-out, its stress mark will be regarded as a stress mark on a free root, and it will be protected by Faith-FreeRoot. This is shown in Table 9.

Table 9. OT tableau for *mládost* 'youngness'

mlád + ost	Faith-FreeRoot	Iamb	Faith
☞ a. mládost		*	
b. mladóst	*!		*

---

[4] I am not claiming that the rankings are exactly the same at every round of spell-out. There are actually indications that they are not for aspects of the phonological form which are not in focus here. Specifically, Slovenian has productive coda devoicing, and the adjective *mlad* is pronounced as [mlat] in isolation. Yet in the deadjectival nominalization, only [mladost] is encountered and never *[mlatost]. This indicates that only the final ranking enforces coda devoicing. I leave this issue to further research.

In Table 10, the same evaluation is shown assuming lexical stress on the affix. As expected, the effect of this underlying stress is not visible.

Table 10. OT tableau for *mládost* 'youngness' assuming lexically stressed *-óst*

mlád + óst	Faith-FreeRoot	Iamb	Faith
☞ a. mládost		*	*
b. mladóst	*!		*

Now we can turn to *mlad-óst*. In this case, there is a radical core immediately in the first phase. Since radical cores get spelled out to phonology with no prosodic specification whatsoever, there is no input stress in the tableau in Table 11. Note that both candidates violate Faith constraints for having epenthetic stress (I omit the even higher-ranked Culminativity, which blocks the candidate with no stress). The winner gets decided by Iamb.

Table 11. OT tableau for *mladóst* 'youth'

mlad + ost	Faith-FreeRoot	Iamb	Faith
a. mládost	*	*!	*
☞ b. mladóst	*		*

2.3. Is it Good to Allow No Stressed Affixes?

A central feature of the model proposed here is that derivational affixes have no underlying prosody. An important point raised by one of the reviewers is to what extent a model that bans lexical prosody on affixes in a language, but allows it, for instance, in nouns in that same language, is more desirable than a model that allows lexical prosody everywhere. This question becomes even more urgent given the fact that this blocking of lexical prosody in derivational affixes was not and cannot be claimed to be universal. Indeed, already within Slavic there are languages in which derivational affixes need to carry prosodic specifications. For instance, Melvold (1990) convincingly shows that Russian affixes need the amount of lexical specification required for nouns. An illustrative example comes from the class of relational *ov*-adjectives (Melvold 1990:

206). In Table 12, three of these adjectives are shown together with their base nouns, which all belong to the same prosodic type (the type in which the stress remains on the stem in the paradigm). Based on data like this, Melvold (1990) argues for three different adjectival *-ov* affixes with three different prosodic specifications.

Table 12. Unpredictable stress in Russian relational *ov*-adjectives

Ov-adjective	Nominal base
štámb-ov-yj	*štamb* 'tree trunk'
bred-óv-yj	*bred* 'delirium'
šum-ov-ój	*šum* 'noise'

The main problem with a model that would allow lexical prosody on derivational affixes in Slovenian because it is allowed in Russian would be that all the systematic differences between Russian and Slovenian would be coincidental. One important difference between Russian and Slovenian is the existence in Russian of the type illustrated by the last example in Table 12. Recall that Slovenian derivational affixes show a two-way contrast. They can be stress-neutral or stress-attracting, but if they are stress-attracting, they never introduce any type of stress other than stem-final. This was pointed out in §2.1.1 in the context of the categorial non-existence of derived words of the type *prijatelj-ic-á in Slovenian, despite the existence of nouns of the type *gosp-á*. To illustrate the same problem with a more recent example, a model that allows prosodic marking on Slovenian affixes would need to account for the non-existence of the type *mladost-í 'youth-ᴅᴜ' despite the existence of comparable unsuffixed words, such as *oblast-í* 'authority-ᴅᴜ'. A further empirical prediction of the model which allows lexical prosody on derivational affixes is that some root-selecting affixes should be stress-neutral, but that seems to be wrong (see Simonović 2020 for a discussion and several case studies).

Concluding our initial analysis of stress assignment in Slovenian, we now turn to the two affixes which appear in all three categorial environments.

3. *-Av* and *-ov* Across Categories

Having introduced the model in §1 and presented an overview of lexical classes, as well as an initial account of prosody assignment in §2, I now turn to the main empirical contribution of this article. Two affixes, *-av* and *-ov*, will be observed across categorial embeddings, in verbs, adjectives, and nouns.

First, based on the previous discussion of categorially versatile affixes in §1, it is expected that these affixes will have little or no semantic content of their own common to all their uses. Second, based on the discussion of stress assignment in §2, the stress of the versatile affixes is expected to vary, but this variation is expected to remain restricted to the two-way contrast between root-selecting and category-selecting behavior.

In order to capture the potential correlations with the different categorial embeddings and to target items in which -*av* and -*ov* are indeed pieces of morphology, there was quite a strict selection when creating the data set for this paper. First, only items which have -*av* and -*ov* as the last morpheme before the final categorial head are included. In Table 13, some frequent words are shown which have not made it into the data set for this article because further derivational affixes follow -*av* and -*ov*.

Table 13. Words containing -*av* and -*ov* followed by further pieces of derivational morphology

Word and gloss	Translation
del-av-ec *work*-av-c	'worker'
nog-av-ic-a *leg*-av-ic-NOM.SG	'sock'
il-ov-ic-a ?-ov-ic-NOM.SG	'clay'
grm-ov-j-e *bush*-ov-j-NOM.SG	'shrubbery'

Second, while some of the derivational patterns with -*ov* and -*av* are extremely productive, others are described in grammars and dictionaries, but seem extremely rare in modern Slovenian. In order to avoid basing the account on rare and unfamiliar words, strict criteria have been applied to the derived words formed using less productive patterns. Words derived with such patterns were extracted from the slWaC web corpus (895,903,321 tokens; Erjavec and Ljubešić 2014). Only those words that had more than 20 attestations were presented to Slovenian native informants in order to verify whether these items are used in modern varieties of Slovenian. For this purpose, seven native speakers were recruited from various traditional dialect areas of Slovenian (Carinthia, Lower Carniola, Upper Carniola, Littoral, Styria, and Prekmurje). They were exposed to all the collected derivations and asked

whether they used the word in question and if so, to pronounce them in a carrier sentence. Only those words that were verified by at least five speakers made it into the data set for this article. In what follows, the two affixes will be considered in verbs, adjectives, and nouns.

3.1. *-Av* and *-ov* in Verbs

Before considering the specific uses of *-av* and *-ov* in verbs, I will briefly summarize where we stand on stress assignment in verbs. As described in §2.1.2, verbs show theme-vowel-controlled stress, which can in very few cases get overridden by preserved nominal stress. Furthermore, stress on theme vowels is truly diacritic, as no correlation can be identified between stress assigned by the theme vowel and syntactic structure. This is already evident from simplex verbs like those in Table 2 (p. 205), but it will also become clear from the discussion in this section, where *-av* and *-ov* will appear selected by two different theme vowels and display different prosody in the same structural position. The OT formalization of this pattern would be adding the Faith constraint indexed to theme vowels above the ranking that we identified so far. This yields the ranking Faith-TV>>Faith-FreeRoot>>Iamb>>Faith. The obvious next question is how Faith-TV is ranked with respect to the other special faithfulness constraint mentioned in the previous section, Faith-Noun. The data reviewed in §3.1.2 will show that there is regional variation in this respect.

Turning now to the verbal uses of *-av* and *-ov*, both affixes are used for deriving secondary imperfectives from perfective verbs. In this use, both *-av* and *-ov* always determine the stress pattern of the resultant secondary imperfective verb, as shown by the examples in Table 14, where *-av* and *-ov* select perfective verbs and impose their own prosodic pattern in each case.

Table 14. Imperfectivizers *-av-a* and *-ov-a*

PFV.INF	IPFV.INF	Gloss
pre-kop-á-ti	pre-kop-áv-a-ti	'dig'
pre-gléd-a-ti	pre-gled-áv-a-ti	'check'
o-skrb-é-ti	o-skrb-ov-á-ti	'treat'
pre-gléd-a-ti	pre-gled-ov-á-ti	'check'

The two affixes are not in complementary distribution: some bases are targeted by both (e.g., *pregledati* 'check', above). As for prosody, the two affixes display the two types of behavior that we have already observed in §2.1.2 with

"traditional" verbalized roots: *-av* is always stressed, while *-ov* is followed by the stressed theme vowel in non-finite forms. The allomorph of *-ov* that surfaces in finite forms, *-u*, is always stressed, e.g., in *pregled-ov-á-ti* 'to check', but *pregled-ú-je-mo* 'we check'. In this sense, the imperfectivizers *-ov-a* and *-av-a* behave as "mini verbs" for all intents and purposes (see Quaglia et al. 2022 for an analysis of secondary imperfectivizers as mini verbs).

Tellingly, the prosodic pattern imposed by each theme vowel in the examples above reflects the most common pattern in verbs with this theme vowel in general. Toporišič (2000: 374) finds that most verbs with the thematic combination *a/a* have stress on the syllable preceding the theme vowel, whereas *ov+a/ u+je* verbs virtually always have the stress on the theme in the non-finite, but stem-final stress in finite forms. This generalization extends to verbs in which the preceding sequence is not traditionally analyzed as a root (e.g., *k-ov-á-ti* 'to forge', *k-ú-je-mo* 'we forge'). We can confirm these tendencies based on the database from the project "Hyperspacing the Verb", in which the 3,000 most frequent Slovenian verbs were annotated for various properties, including theme-vowel class and stress. In this database, 92% of all verbs in the *a/a* class have stem-final stress. The verbs of the *ov+á/ú+je* class are considered a subclass of the *a/je* theme-vowel class, where 79% of all verbs have the alternating stress pattern attested in *ov+á/ú+je*. In sum, the theme vowels in question behave with *-ov* and *-av* the way they behave with most free roots.
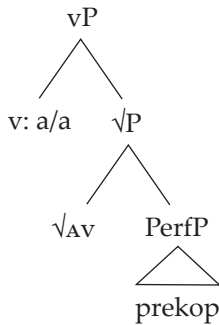
The described prosodic behavior of the two affixes is relevant for all their uses. However, while *-av* is specialized for secondary imperfectivization, *-ov* also combines with other categories, which is why their final (encyclopedic) representation will be discussed in separate sections.

3.1.1. *-Av* in Verbs

The representation of the secondary imperfective *prekopavati* is shown in (9). The label "PerfP" is purely descriptive in order to indicate that *-av* selects a perfective verb.[5]

---

[5] The issue of the merge site of prefixes and, to a lesser extent, the destiny of the original theme vowel in secondary imperfectivizations are among the most hotly debated issues in Slavic morphosyntax (see, among many others, Svenonius 2004; Arsenijević 2006; Žaucer 2009; Gribanova 2013). I leave this issue aside here.

(9) The secondary imperfective *prekopávati*

```
              vP
             /  \
            /    \
       v: a/a    √P
                /  \
               /    \
             √AV    PerfP
                     /\
                    /  \
                 prekop
```

The stored representation of the derivational affix would then be as in (10) below, with √AV being a transitive root specified for selecting perfective verbs and itself verbalized by a verbal head which will get realized as the *a/a* theme combination.

(10) Encyclopedia entry for √AV in verbal contexts

```
              vP
             /  \
            /    \
       v: a/a    √
                 |
                 |
              AV[u PerfP]
```
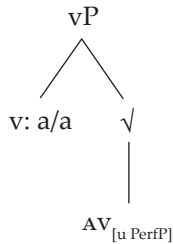
Note that v is a categorial head which eventually ends up realized as a theme vowel, but the relevant Vocabulary item also refers to the content of higher heads (e.g., T). In this case, the head v contains a reference to the combination of theme vowels *a/a*. So, strictly speaking, the piece of the tree for *prekopavati* that is shown in (9) would be spelled out as the verbal stem *prekopav,* and the remaining pieces would be added after higher heads get merged. Yet the portion that is shown in the tree crucially contains all the information shared by the forms of the verb, including the inflectional-class information. The surface stress pattern gets determined only when the theme vowel is spelled out, and since the theme vowel determines the ultimate surface pattern, there is no clue to the stress pattern at the previous stages.

3.1.2. *-Ov* in Verbs

Unlike √av, which consistently combines with perfective vPs (all verbs derived using √av are imperfectivizations), √ov appears in combination with other categories as well, as shown in Table 15. Apart from clearly denominal derivations illustrated by the first two examples in Table 15, there are also derivations which seem to have entire phrases as bases (the third example) or lack direct connection (both phonologically and semantically) to the closest base (the bottommost example in Table 15).

Table 15. Verbalizations (other than secondary imperfectivizations)

Verbalization	Base/related word
pot-ov-á-ti (and *pót-ov-a-ti*) 'travel'	*pot* 'trip'
ver-ov-á-ti (and *vér-ov-a-ti*) 'believe'	*vér-a* 'faith'
vseb-ov-á-ti 'contain'	*v sebi* 'in oneself'
spošt-ov-á-ti 'respect'	(*póšt-a?* 'post')

Due to the versatile selectional behavior of √ov, I propose its encyclopedic representation to be as in (11). √ov is a transitive root that selects complements of any category and itself gets verbalized.

(11)   Encyclopedia entry for √ov in verbs
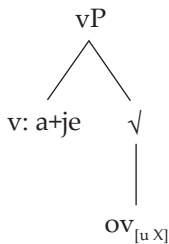
As for the stress pattern, all imperfectivizations display the alternating pattern discussed above (as shown in *o-skrb-ov-á-ti* and *pregled-ov-á-ti* in Table 14 on p. 215) without any exceptions. This TV-controlled stress pattern is not only possible, but also preferred for all other verbs among all speakers, and a majority of the consulted speakers report not ever using any other pattern on verbs derived with √ov. However, some of the Carniola speakers allow a minor pattern with stress on the nominal base, illustrated by the versions in parentheses in Table 15.

My analysis of verb forms like *pót-ov-a-ti* and *vér-ov-a-ti* is that they incorporate an nP. Since all speakers allow forms where the stress of the noun is overridden by the TV-controlled stress, the ranking shared by all speakers is Faith-TV>>Faith-Noun. However, some Carniola speakers also allow the ranking Faith-Noun>>Faith-TV, which enforces the preservation of nominal stress. In at least one case, this analysis leads to the assumption of an nP which does not surface independently: the existence of the verb *var-ov-á-ti* 'guard' (also *vár-ov-a-ti* for some speakers) enforces the assumption of the nP *var*, which is not a word in Slovenian. Note, however, that the existence of such cases is predicted by the model outlined in §1 and that the same nP is attested in related adjectives (e.g., *vár-n-i* 'safe') and nouns (e.g., *vár-uh* 'guardian').

3.2. *-Av* and *-ov* in Adjectives

The adjectivized √av and √ov differ from each other in selectional behavior, quite similarly to their verbalized counterparts. However, it is now √ov that combines with a single category, nPs (with very few possible exceptions), whereas √av is versatile.

### 3.2.1. *-Av* in Adjectives

Even in our restrictive data set, adjectival *-av* can combine with bases which show up independently in the nominal and verbal domain, as well as with otherwise unattested bases, as illustrated by the topmost, the middle, and the bottommost block in Table 16, respectively. With each of these types of bases, *-av* can either behave as stress-shifting or stress-neutral, as illustrated by our examples. In each block, the first example shows stress-neutral behavior, whereas the second example shows stress-shifting behavior.

Table 16. *Av*-adjectives

Av-adjective	Base/related word
búl-av 'lumpy'	*búl-a* 'lump'
blodnj-áv 'delusional'	*blódnj-a* 'delusion'
sprenevéd-av 'hypocritical'	*(sprenevéd-a-ti se)* 'dissimulate'
domišlj-áv 'conceited'	*domíšlj-a-ti si* 'imagine'
mút-av 'mute'	none
čig-áv 'whose'	none

Working on the conservative assumption that the stress-shifting behavior of the affix is due to a radical-core structure (where the default final stress is expected), all stress-shifting items have the same deradical structure. As for the adjectives where -*av* is not stressed, they cannot be root derivations. Examples such as *búl-av* and *sprenevéd-av* are then what they appear at first blush: denominal and deverbal adjectivizations. The cases such as *mút-av*, on the other hand, are then readily analyzed as incorporating a nominal/verbal structure, which happens not to be recorded as an independent word (although they can occur within related words, e.g., the noun *mút-ec* 'mute person').

(12)   Encyclopedia entry for √av in adjectives
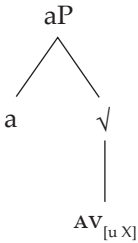
This variety of different structures is actually expected under the assumption of a truly versatile affix, which is assumed to be recorded as represented in (12), i.e., as a transtitive root which can be combined with any kind of object.

3.2.2. -*Ov* in Adjectives

Unlike *av*-adjectives, which display extreme variation, *ov*-adjectives are quite a homogeneous class. Virtually all *ov*-adjectives are denominal and keep the stress pattern of the noun. There are two meanings that *ov*-adjectives cover productively. One is possessive. Such *ov*-adjectives are productively derived from all nouns denoting animate individuals of the masculine and neuter gender. In the examples in Table 17, the bases are given in the dual form in order to show their surface form in the environments with an overt ending. Note that *jelen* 'deer' and *dekle* 'girl' are masculine and neuter, respectively.

Table 17. Possessive *ov*-adjectives

| *Ov*-adjective	Base/related word
jelén-ov 'deer-poss'	*jelén-a* 'deer-du'
deklét-ov 'girl-poss'	*deklét-i* 'girl-du'

Next to these, there is a class of *ov*-adjectives that are traditionally described as kind adjectives, deriving from nouns which denote a type of material. These are illustrated in Table 18. Note that *paradižnik* 'tomato', *žveplo* 'sulfur', and *lipa* 'linden' are masculine, neuter, and feminine, respectively.

Table 18. Kind/material *ov*-adjectives

Ov-adjective	Base/related word
paradížnik-ov 'tomato_{ADJ}'	*paradížnik* 'tomato'
žv[ɛ́]pl-ov 'sulfuric'	*žv[ɛ́]pl-o* 'sulfur'
líp-ov 'linden_{ADJ}'	*líp-a* 'linden'

Both uses are compatible with the general nP-selecting representation in (13). Still, in order to exclude *ov*-possessives derived from feminine nouns (e.g., **Uršk-ov* for 'Urška's', where the correct form is *Uršk-in*), it is necessary to further refine the structure. This refinement leads to two separate Encyclopedia entries. Such a refinement is presented in Simonović and Mišmaš 2020. The possessive √ov then selects those nPs which are headed by an *n* that already carries the specification of the masculine/neuter declension. The √ov that derives kind adjectives, on the other hand, is specified as selecting nPs with no specification for declension class. As for the meaning of the resultant adjectives, Simonović and Mišmaš (2020: 93) suggest that "the possessive meaning might be the default meaning for an adjective derived from an animate noun". A similar proposal is made for the kind meaning. These authors also present data from other languages, where one of these meanings is achieved without any additional morphology (as in the English *bean soup*).

(13) Encyclopedia entry for √ov in adjectives
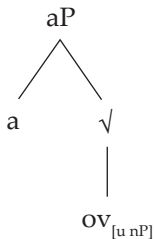
Finally, quite similarly to the nominalizations discussed in §2.2, there are two *ov*-adjectives which reveal a deradical structure. These are the possessive pronominal *njeg-[ɔ́]v* 'his' and the adjective *kralj-év* 'royal'. *Njeg-[ɔ́]v* is also

unique in the sense that its base is not attested as an independent stem. To be sure, there exists *njega* as the genitive/accusative form of the pronoun *on* 'he', but this form cannot in any reasonable way be segmented into *njeg+a* (rather, it is *nj+ega*, as in the adjectival genitive/accusative form *lep-ega* 'beautiful'; cf. also the dative forms *nj-emu* and *lep-emu*, instrumental *nj-im* and *lep-im*, etc.). This unavailability of a transparent link to the base seems to block a denominal structure. On the other hand, the other possessive pronominal in *-ov*, *njihov* 'their', properly contains the genitive/accusative form *njih* and has the expected stress pattern *njíhov*.

3.3. *-Av* and *-ov* in Nouns

As with the verbal and adjectival domains, √av and √ov have rather different functions in the nominal domain. √av behaves as a nominalizer and is always stressed. √ov, on the other hand, cannot be unproblematically classified as a nominalizer, as it shows up as part of a root allomorph and as a case ending and displays different stress patterns in these two functions. I will include an analysis of this nominal *-ov* for completeness and in order to explore how far the proposed analysis can get us, but there are good reasons for considering this analysis separately from the rest.

3.3.1. *-Av* in Nouns

The nominal *-av* is always stressed. It is unique in our sample in that it shows up in three different declension classes. Two of them are attested by single items illustrated in Table 19. The noun *rok-áv* belongs to the main masculine declension, whereas *ljub-áv* belongs to the class of feminine nouns which have a null ending in the citation form.

Table 19. *Av*-nominalizations

| *Av*-noun	Base/related word
rok-áv 'sleeve'	*r[ɔ́]k-a* 'hand'
ljub-áv 'love'	*ljub* 'dear'

The remaining *av*-nominalizations belong to the main feminine declension with the citation form in *-a*. Based on phonological effects, two versions of *-áva* can be identified, a more common non-palatalizing version and a more rare palatalizing version, which could also be represented as *-java*. The more

common version is illustrated in Table 20 and its encyclopedic representation is given in (14).

Table 20. *Av-a*-nominalizations

Ava-noun	Base/related word
vez-áv-a 'binding, inflection'	*véz-a-ti* 'bind'
preslik-áv-a 'mapping'	*preslík-a-ti* 'map'
skušnj-áv-a 'temptation'	*skúšnj-a* 'rehearsal'
nar-áv-a 'nature'	none

(14)   Encyclopedia entry for √AV in *ava*-nouns

```
                nP
               /  \
              /    \
          n: fem    √
                    |
                    |
                  AV[u √]
```
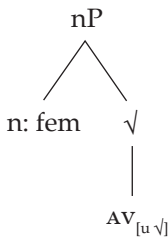
The *java*-class, illustrated in Table 21 below, displays regular palatalization of the final consonant(s) of the base. In Table 21, the first chunk is already shown palatalized, but a more accurate representation would be first having the morpheme *j* separately, for instance /pust+j+av+a/, and then having phonology turn this into *puščava*. Due to the presence of the palatalizing element, the encyclopedic representation in (15) on the following page involves a separate root √J (independently argued for in Simonović 2020).

Table 21. *Jav-a*-nominalizations

Java-noun	Base/related word
pušč-áv-a 'desert'	*pust* 'desolate'
viš-áv-a 'height'	*vis-ok* 'high'
zmešnj-áv-a 'confusion'	*zmeš-a-ti* 'confuse'

(15)   Encyclopedia entry for √Av in *java*-nouns

```
              nP
             /  \
        n: fem   √P
                /  \
               √    √
               |    |
              AV   J[u √]
```
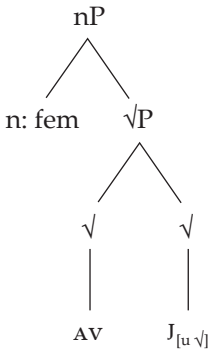
A remark is in order concerning the relation between the representations in (14) and (15), because it is clear that the latter can be subsumed under the former (because √J is a root). The reason why the combination /java/ got its own representation lies in the fact that this combination of affixal roots seems to be frequent enough to be recorded. The issue of recorded combinations of affixal roots is an important one, yet given the limited sample size in this article, it is an issue I have to leave to future research.

3.3.2. -*Ov* in Nouns (A Tentative Unification)

The affix -*ov* is not generally viewed as a nominalizer in the literature on Slovenian, and there is indeed no -*ov* morpheme comparable to the nominal -*av* in Slovenian. There are two morphemes, however, which surface as -*ov* in the nominal inflection. As previewed above, I am reviewing these two instances of -*ov* in order to explore any possible links to the clearly derivational instances of -*ov* discussed in the previous sections and the applicability of the general model proposed in this paper.

One inflectional -*ov* is the genitive dual/plural ending, which applies to virtually all masculine nouns, illustrated in Table 22 on the opposite page. The other -*ov* appears in a limited number of monosyllabic masculine stems, where -*ov* functions as the dual/plural augment. In this limited set of nouns (Mirtič (2016) found no more than 40 in modern Slovenian), -*ov* appears in all dual and plural forms in front of the regular case ending, with one important exception: in cases where the augment is expected to be followed by the homonymous genitive ending, only one -*ov* surfaces, as shown in Table 23.

Table 22. Declension of *šal* 'scarf'

	Singular	Dual	Plural
Nominative	šál	šál-a	šál-i
Genitive	šál-a	šál-**ov**	šál-**ov**
Dative	šál-u	šál-oma	šál-om
Accusative	šál	šál-a	šál-e
Locative	šál-u	šál-ih	šál-ih
Instrumental	šál-om	šál-oma	šál-i

Table 23. Declension of *val* 'wave'

	Singular	Dual	Plural
Nominative	vál	val-**[ɔ́]v**-a	val-**[ɔ́]v**-i
Genitive	vál-a	val-**[ɔ́]v** (*val-**ov**-**ov**)	val-**[ɔ́]v**
Dative	vál-u	val-**[ɔ́]v**-oma	val-**[ɔ́]v**-om
Accusative	vál	val-**[ɔ́]v**-a	val-**[ɔ́]v**-e
Locative	vál-u	val-**[ɔ́]v**-ih	val-**[ɔ́]v**-ih
Instrumental	vál-om	val-**[ɔ́]v**-oma	val-**[ɔ́]v**-i

In what follows, I will summarize and then refine the OT analysis presented in Simonović and Mišmaš 2020. This analysis combines DM representations with an OT evaluation that makes reference to paradigms, both in having evaluations of entire paradigms in the spirit of McCarthy 2005 and in the sense of referring to the citation form (adopting a constraint from Pertsova 2015). Given that paradigms are typically claimed to have no status in DM (see, for example, Bobaljik 2008 for an explicit criticism of the evaluation of entire paradigms), a paradigm-free alternative would be preferable. However, I do not see how the reference to paradigms can be obviated in this case and will therefore keep this aspect of the proposed analysis. One aspect of the analysis presented by Simonović and Mišmaš (2020) that I will not address here is the claim that the genitive dual/plural *-ov* and the augment *-ov* are the same morpheme. This is because nothing in their OT account depends on this assumption, and even forms like *val-ov-ov* are excluded by constraints which apply independently of the homophony/identity between the two affixes (but see Zec 2019 for an analysis which does invoke a ban on adjacent homophonous morphemes).

Simonović and Mišmaš (2020) argue for a null ending in the genitive dual/plural and analyze the unstressed *-ov* that appears in these forms as the Elsewhere allomorph, which is only allowed to surface in contexts where its insertion blocks syncretism with the citation form. The constraint that militates against syncretism with the citation form is CONTRASTCITATION from Pertsova 2015. As Simonović and Mišmaš (2020) point out, since the Elsewhere allomorph does not correspond to any morphosyntactic features, any number of its insertions are lexically sponsored (i.e., vacuously satisfy FAITH). However, the constraint *STRUCTURE (Prince and Smolensky 2002; Zoll 1993; but see Gouskova 2003 for a criticism), which militates against any amount of structure and is operationalized as assigning a violation mark for each morpheme, prefers candidates with fewer Elsewhere allomorphs. The evaluation which leads to the insertion of the Elsewhere allomorph is shown in Table 24. The candidates reflect surface forms, which means that every syllable-final /ʋ/ is shown as [w].

Table 24. OT tableau for *šalov* 'scarf$_{GEN.DU/PL}$'

/ʃal/ + ∅$_{GEN.PL}$	FAITH	CONTRAST CITATION	*STRUCTURE
a. ʃal		*!	*
☞ b. ʃalow			**
c. ʃaloʋow			***!

The exceptional monosyllabic roots which surface with an augment (always realized as a stressed *-ov*) are analyzed as having a complex underlying representation which is essentially an unordered pair of two representations: one involving a root, and one involving a radical core with √ov selecting that root, as shown in (16).

(16)   The two root allomorphs of *val* 'wave'
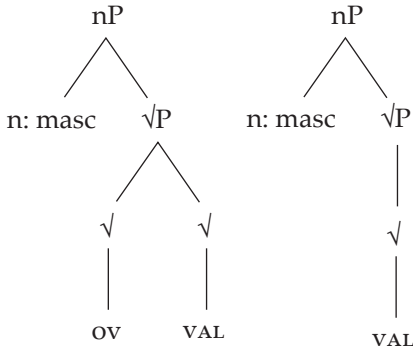
Now Simonović and Mišmaš (2020) assume that radical cores receive their default prosody at some point before the final evaluation and have the complex representation with prosody already assigned in the input of the tableau in Table 25: /vál/ ~ /valóv/.

Table 25. OT tableau for *val* 'wave$_{NOM.SG}$' and *val[ó]v* 'wave$_{GEN.DU/PL}$'

/vál/ ~ /valóv/ + ∅$_{NOM.SG}$ …∅$_{GEN.DU}$, ∅$_{GEN.PL}$	Faith	ConC	*Structure
a. ʋál … ʋál, ʋál		*!*	***
b. ʋalów … ʋalów, ʋalów		*!*	***
☞ c. ʋál … ʋalów, ʋalów			***
d. ʋál … ʋálow, ʋálow			****!*

Assuming that what chooses between the two allomorphs are phonological constraints (Kager 2008), Simonović and Mišmaš (2020) show that syncretism with the citation form can be avoided without resorting to the insertion of the Elsewhere allomorph: the longer allomorph is inserted in the dual and plural subparadigms, where the genitive forms have no ending, and thereby syncretism with the citation form is blocked. In order to appreciate the tableau in Table 25, which shows a parallel evaluation for all three forms which have no underlying ending, we need to recall how the stress pattern of the candidates in *-ov* reveals their structure. Since the augment *-ov* is part of a radical core, it will always carry stress, whereas the Elsewhere allomorph never does so. This enables us to identify *val[ó]v* as a radical-core structure and *válov* as a combination of the shorter root allomorph and the Elsewhere allomorph.

I will address three aspects in which the analysis in Simonović and Mišmaš 2020 can be improved. First, in order for their analysis to work, *Structure needs to count the candidate *válow* with the Elsewhere allomorph as having two morphemes, while the candidate *valɔ́w* is considered as having a single morpheme. The authors state that "phonology does not have access to the internal structure of complex roots so it will consider the two stem allomorphs […] as introducing the same amount of structure". While this may be in line with the more general theory, it is an additional assumption, and a theory in which the preference for *valɔ́w* over *válow* follows from some more general principle would be preferred. Second, while Simonović and Mišmaš (2020) account for the fact that the two root allomorphs make a split across the number subparadigms (one goes to the singular, the other to the dual and plural), they actually do not offer an account of the fact that the shorter allomorph goes to the singular and the longer one to the dual and plural. If the tableau in Table 25 contained the candidate *valɔ́w … vál, vál*, that candidate would emerge as a co-winner. Third, on this analysis, the fact that in all the close to 40 items the shorter version of the root is a monosyllable is entirely accidental. All these three issues can be resolved by adding a single constraint into the picture: the one which strictly requires the stem to be a syllabic iamb. I will term this constraint Stem=SyllIamb (to avoid confusion with the omnibus constraint Iamb used above in my general account).

If the constraint Stem=SyllIamb is added above *Structure, it becomes irrelevant how *Structure counts the morphemes in the radical core (the additional violations if the core structure is counted as bimorphemic are added between brackets), as the winning candidate is decided before, as shown by the evaluation in Table 26 below. The reason why the candidate *valɔ́w … vál, vál* loses is also clear: it incurs an extra violation of Stem=SyllIamb.

Table 26. Revised OT tableau for *val* 'wave$_{NOM.SG}$' and *val[ɔ́]v* 'wave$_{GEN.DU/PL}$'

/vál/ ~ /valɔ́v/ + Ø$_{NOM.SG}$ …Ø$_{GEN.DU}$, Ø$_{GEN.PL}$	Faith	ConC	Stem=SyllIamb	*Struc
a. vál … vál, vál		*!*	***	***
b. valɔ́w … valɔ́w, valɔ́w		*!*		***(***)
☞ c. vál … valɔ́w, valɔ́w			*	***(**)
d. valɔ́w … vál, vál			**!	***(*)
e. vál … válow, válow			**!*	*****
f. valɔ́w … válow, válow			**!	*****(*)

Note that the constraint *STRUCTURE remains relevant for the general picture, as IAMB only refers to the stem and therefore cannot make any difference between forms with additional Elsewhere allomorphs and those without them. This is made clear in the repeated tableau for *šálov* in Table 27, which now also includes STEM=SYLLIAMB.

Table 27. Revised OT tableau for *šalov* 'scarf$_{GEN.DU/PL}$'

/ʃal/ + ∅$_{GEN.PL}$	FAITH	CONC	STEM=SYLLIAMB	*STRUC
a. ʃal		*!	*	*
☞ b. ʃalow			*	**
c. ʃaloʊow			*	***!

Concluding this discussion of the two declensional instantiations of *-ov*, it seems that at least the augment *-ov* is closely related to the derivational instances of *-ov* discussed in previous sections. As for the constraint ranking discussed in this section, it is fully compatible with that developed in the previous sections, as it involves low-ranked constraints that are usually never seen in action in cases where there is one underlying allomorph available. For example, the preference for stems being syllabic iambs can only be seen in action if multiple representations are lexically sponsored and only one of them satisfies this constraint. This is a typical feature of analysis involving unordered pairs of underlying representations (e.g., Kager 2008).

Concluding this case study on *-av* and *-ov* across categories, we can say that the expected dichotomy between stress-shifting root-selectors and stress-neutral category-selectors has been observed for each of the affixes. Even the possibly accidentally homonymous case ending *-ov* fits this general picture, since it gets added to a full nP and is therefore arguably not in the same phase with its base.

4. Summary and Further Directions

The main goal of this contribution was refining the affixes-as-roots approach by proposing an explicit account of stress assignment to radical cores and specifying the necessary encyclopedic entries of affixal roots. A further goal was to apply the refined model to two versatile affixes in Slovenian, which show up in the verbal, adjectival, and nominal domains. The application yielded an adequate account of the prosodic behavior of the two Slovenian affixes in

focus, which were shown to appear both as root-selecting and category-select-ing in different environments. On the prosodic side, the affixes-as-roots ap-proach has achieved dispensing with prosodic marking on Slovenian affixes, as their prosodic behavior was shown to follow from their selectional proper-ties and the assumption that radical cores get spelled out to phonology with-out any prosodic specification. On the semantic side, both affixes were shown to have little or no content of their own, tending to behave as root extensions which enable derivation of related words. At first blush, the semantic empti-ness of the versatile affixal roots seems to hold for other languages to which affixes-as-roots approaches have been applied (English in Lowenstamm 2014; Dutch in Creemers, Don, and Fenger 2017; and Catalan in Nevins 2015), but a more detailed cross-linguistic analysis is certainly desirable.

The complexity encountered in the Slovenian data justified focusing on those words which have the roots in focus as the topmost roots. As illustrated in §3, many words have the same roots in relatively lower positions, where they also influence the prosody of the resultant word. A detailed analysis of all uses of these roots is surely a worthwhile endeavor.

The discussion of the morpheme *-ov* in the nominal declension opens up the question of the distinction between inflection and derivation in the deri-vational-affixes-as-roots approaches. A more complete account of all the con-texts in which these and other versatile affixes appear may open up the space for further unification of the many Encyclopedia entries that were proposed here. Just to name one promising prospective for further research, Zec (2019) analyzes the South Slavic augment *-ov* as the theme of the masculine nominal declension. Zec (2019) considers some of the contexts which were considered here (e.g., *val-ov-i* 'waves'), but also some others (e.g., the related adjective *val-ov-en*). While in these cases I proposed a root analysis, *-ov* does seem to have a special relation to the nominal domain. Apart from the suspicious identity with the Elsewhere allomorph and dual/plural augment *-ov*, there are quite a few nP-selecting instances of *-ov* in the contexts we have considered, e.g., in the denominal verbs (§3.1.2) and in possessive and kind adjectives (§3.2.2). De-spite the existence of clearly non-nominal instances of *-ov* (e.g., the secondary imperfectivizer, §3.1.2), it remains a fact that no similar categorial grouping was found with *-av*. It is my hope that future research will further clarify the picture in this respect.

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