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UDC: 811.163.4'37
DOI: 10.19090/gff.2022.3.87-109
Originalni naučni rad

POSSESSIVE, KIND AND NOT SO KIND: THE DIFFERENT USES OF THE ADJECTIVAL *-OV* IN SERBO-CROATIAN

The paper tackles correlations between prosodic and semantic properties of Serbo-Croatian adjectives with the suffix(es) *-ov*/*-in*. A corpus study was performed to identify: (i) the types of bases that these suffixes attach to, and (ii) semantic and prosodic properties of these derivations. The results show that besides the strictly possessive/relational domain (e.g., *Ivan-ov* 'Ivan's) *-ov* and *-in* are productively combined with bases denoting plants to derive kind or material denotations (e.g., *hrast-ov* 'made of oak'). These denotations also allow combinations of stems and suffixes that are not found with possessives. Specifically, only with kind or material denotations can feminine bases combine with *-ov* e.g., *jabuk-ov* 'made of apple' (cf. *jabuk-in* 'belonging to an apple (tree)'). Moreover, kind or material forms can involve a shift in the prosodic pattern of the base. We approach these data from the perspective of Distributed Morphology (Halle-Marantz 1993). We argue that possessive *-ov*/*-in* forms always involve a phasal *n* projection which triggers spellout, resulting in full productivity, semantic transparency and prosodic faithfulness. Kind or material forms involve a 'defective' n head, which can lack a gender feature (explaining the occurrence of *-ov* on feminine bases). This n head acts as a phase at LF, triggering semantic transparency, while being permeable at PF, allowing prosodic shifts (Marušič 2005, 2009).

Key words: possessive, kind semantics, compositionality, prosodic faithfulness, Serbo-Croatian

1. INTRO

This article targets a data set consisting of Serbo-Croatian (SC) adjectives derived with the affix *-ov*, which show a clear correlation between semantics and prosodic faithfulness to the base. In order to enable the reader to appreciate our examples, we start with an introductory note on Neo-Štokavian prosody (on which

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SC standard prosody is based). Neo-Štokavian is a system in which both stress and tone play a role, but the distribution of stress is predictable from that of tone (see, e.g., Zec-Zsiga 2010 and Zsiga-Zec 2013). Per word, there is one syllable with High tone (H, marked with acute accent: tá) and one syllable with stress (marked with a stress mark: ˈta). There are two possible relations between H and stress: they are either on the same syllable or the stressed syllable precedes that with H. In the former case, traditional descriptions speak of falling accents (e.g., in ˈhráasta 'oak tree.GEN.SG' whereas in the latter case they speak of rising accents (e.g., in ˈhraastóvi 'oak tree.NOM.PL').

We start with masculine and neuter bases, in (1) and (2), respectively. The adjectivizer *-ov* can derive possessive adjectives (1a, 2a) and adjectives denoting materials defined by the nominal element in the base, kind/material (K/M) adjectives, (1b, 2b). In (1) and (2), possessive adjectives retain the prosodic pattern of the base, while the derivation of K/M adjectives can involve a prosodic shift: vowel shortening and the shift of H to the suffix (1b, 2b).

(1)	a.	ˈhráast 'oak tree'	→	ˈhráast-ov koren	'the root of the oak tree'
	b.	ˈhráast 'oak tree'	→	ˈhrast-óv pod	'oak flooring'
(2)	a.	ˈviin-ó 'wine'	→	ˈviin-óv-a reputacija	'the wine's reputation'
	b.	ˈviin-ó 'wine'	→	ˈvin-óv list	'grape leave'

As a matter of fact, all minimal pairs which only differ in prosody have monosyllabic masculine/neuter bases as the examples in (1) and (2). With polysyllabic bases, possessive/kind pairs show no prosodic differences, as illustrated by masculine (class 1) nouns in (3) and (4).

(3)	a.	ˈjávor 'maple tree'	→	ˈjávor-ov koren	'the root of the maple tree'
	b.	ˈjávor 'maple tree'	→	ˈjávor-ov pod	'maple flooring'
(4)	a.	ˈjásen 'ash tree'	→	ˈjásen-ov izdanak	'the sprout of the ash tree'
	b.	ˈjásen 'ash tree'	→	ˈjásen-ov prut[1]	'ashwood stick'

The situation becomes more complicated in the main feminine class (class 3, ending in *-a* in the citation form). There, all possessive adjectives have the suffix *-in* rather than *-ov*. Prosodically, *in*-adjectives are always faithful to the base. On the K/M side, there are three options. Some bases take *-in* also in this use, leading to

[1] Nikolić (2000) also registers *ja*ˈ*sen-óv*, but we didn't find any native speakers who accept this form.

homonymy, as illustrated in (5). Other class-3 bases take the suffix *-ov* in the K/M adjective, but this affix leaves the prosody of the base unaffected, as illustrated in (6). Finally, there is a group of class-3 bases which take the suffix *-ov* in the K/M adjective and display, in the *ov*-adjectives, the prosodic shifts already illustrated in (1-2) for class-1 and class-2 items. Such bases are illustrated in (7).

(5)	a.	ˈruuž-á ‘rose’ →	ˈruuž-ín koren / # ruž-ev koren	‘the root of the rose’
	b.	ˈruuž-á ‘rose’ →	ˈruuž-ín ekstrakt	‘rose essence’
(6)	a.	ˈlíp-a ‘linden’ →	ˈlíp-in koren / #ˈlíp-ov koren	‘the root of the linden’
	b.	ˈlíp-a ‘linden’ →	ˈlíp-ov sto	‘a table made of linden’
(7)	a.	ˈjeel-á ‘fir’→	ˈjeel-ín koren / #ˈjel-óv koren	‘the root of the fir’
	b.	ˈjeel-á ‘fir’→	ˈjel-óv pod	‘fir flooring’

We present an analysis of the observed correlation between prosodic (un)faithfulness and semantics couched in Distributed Morphology (DM) (Halle-Marantz, 1993). We argue that semantically transparent and prosodically faithful possessive structures are derived by attaching *-ov/-in* to phasal nPs, while K/M adjectives are derivations from defective nPs, which lack the semantics of individuation, can lack a gender feature and don’t act as phases at PF (see Marušič 2005, 2009 for non-simultaneous spellout). The lack of a gender feature on the defective *n* explains why *-ov* can also attach to otherwise feminine-marked bases. Moreover, defective nPs, when lacking a gender feature, are constellations where the affix *-ov* and the root end up in the same phase and *-ov* can therefore influence the spellout of the root.

2. BACKGROUND

As a syntaxocentric approach to morphology, DM provides a way of capturing correlations between semantic and prosodic shifts of the type investigated in this paper. In its Y-shaped model of grammar, syntax, as the only structure-building module, interfaces with Phonological Form (PF) and Logical Form (LF). Consequently, syntactic operations have effects on both of these levels of representation (Chomsky, 1995). If we assume that Syntax is responsible for word-internal structure building, then correlations between semantic and prosodic effects at word level can be analyzed as ramifications of syntactic operations.

DM research agenda has produced quite promising results when it comes to capturing links between phonology/prosody and semantics in the domain of morphology across languages. Marantz (2001) accounts for the differences between English suffixes *-ee* and *-er* by attributing them to the differences in merge sites. The agentive suffix *-er* is always stress-neutral (i.e. it does not affect the stress pattern of the base it attaches to), and it produces semantically transparent outputs. The derived word always denotes the agent of the event named by the verb form in the base (see, however, Alexiadou-Schäfer 2010 for a more detailed empirical picture including some exceptions). On the other hand, the suffix *-ee* is a stress-carrying suffix, which means that the derived word will always be stressed on this suffix, regardless of the stress pattern of the base. This phonological property correlates with non-compositional or totally opaque semantics. The *ee*-derivation will sometimes denote a theme of the event named by the base (e.g., *examinee*), but it can also denote an individual who is not a direct participant of the verbal situation (e.g., an *amputee* is the person whose body part has been amputated not the actual body part itself). Furthermore, the suffix *-er* is more productive and it always attaches to verbs while *-ee* can also attach to roots (e.g., *amput-ee* / **amputat(e)-ee*). Marantz (2001) captures these facts by assuming that *-er* attaches to a phasal projection, vP, which triggers spellout. This results in fixed phonology of the base and transparent semantics. On the other hand, *-ee* attaches to roots, allowing prosodic interaction between the suffix and the base (stress shift) and non-compositional interpretations.

South Slavic has also proven to be a fertile ground for the investigations of this type couched in DM. Marvin (2002, p. 124) demonstrates that various instances of correlation between semantic and prosodic properties in Slovenian can be captured by syntactic accounts. For instance, Slovenian allows two types of deverbal derivations involving the suffix *-ec* (8). This suffix can attach to active participles, and in that case, it attracts stress to the syllable preceding it (8a). On the other hand, it can also attach to passive participles, in which case the stress pattern of the base is preserved (8b).

(8) a. ˈplava-l(swim-ACT.PTCP) + -ec → plaˈvalec; *ˈplavalec (‘swimmer’)

b. ˈpita-n(‘feed-PASS.PTCP’) + -ec → *piˈtanec;ˈpitanec(‘the animal for feeding’)

Marvin (2002) argues that derivations involving passive participles include more syntactic structure and presumably a phasal head, which block the interaction between the suffix and the base. Simonović (2020) addresses the same data in a DM framework where derivational affixes are roots (Lowenstamm 2014), arguing that stress-shifting is a consequence of stress deletion and imposition of default stress in

constellations where roots select other roots as complements. He shows that all derivations involving active participles are stress-shifting, which he takes as an argument that the relevant morpheme is a root selected by other roots.

When it comes to SC, a number of puzzling phenomena concerning correlations between prosody and semantics have received explanations couched in syntaxocentric approaches. Arsenijević and Simonović (2013) point to correlations between prosodic and semantic (ir)regularities with deadjectival nominalizations in SC (9). The nominalizing suffix *-ost* attaches to adjectives and in many cases produces two versions, which differ only in prosody. One member of the pair retains the prosodic pattern of the base (9b), while the other one alters it (9a). Systematically, the prosodically faithful member is also semantically more transparent, i.e. it denotes the state of some property as applying to an individual or what Roy (2010) terms *State-Nominal* (see Marvin 2002 for similar data in Slovenian).

(9) a. ˈópaasan (‘dangerous’) + ost → oˈpaasn-ást (‘danger’)

b. ˈópaasan (‘dangerous’) + ost → ˈópaasn-ost (‘dangerousness’)

In Arsenijević and Simonović’s (2013) analysis, the semantic transparency and phonological faithfulness of the derivations, illustrated in (9b), again stem from the presence of additional syntactic structure, blocking interaction between the suffix and the base. The same authors have also shown that the differences between deverbal nouns derived from passive participles of imperfective and perfective verbs using the suffix *-je* exhibit similar correlations between prosody and semantics (Simonović-Arsenijević, 2014). Specifically, deverbal nouns derived from passive participles of imperfective verbs are almost totally productive, semantically transparent and phonologically faithful to the base, whereas their counterparts derived from passive participles of perfective verbs are far less productive, alter the prosody of the base and tend towards semantic opaqueness. These facts lend themselves to the same type of analysis where the more productive, phonologically faithful and semantically transparent derivations involve more syntactic structure (see also Kovačević 2021).

When it comes to the suffix *-ov*, which is in focus of our investigation, Simonović and Mišmaš (2020) provide an analysis which employs the tools of DM to capture a rather diverse set of properties of this suffix in Slovenian. They highlight the remarkable multifunctionality of this suffix by showing that it can be combined with various categories and derive various categories. One of its functions is to derive possessive denominal adjectives which can also denote K/M (i.e. the phenomenon that we are exploring here for SC). In addition, *-ov* can be

found as an extension in nominal declension classes and in denominal adjectives ending in *-(e)n*. Drawing on Lowenstamm's (2014) analysis of affixes as roots, Simonović and Mišmaš (2020) argue that *-ov* is a root that can attach both to other roots and to categorized structures, resulting in different phonological and semantic properties.

In SC, the suffixes *-ov* and *-in* are also multifunctional. One of their uses is as augments in nominal paradigms (Simonović-Arsenijević, 2019). Some nouns require no augments of the root/stem either in singular or in plural (e.g., *konj* 'horse', *konj-i* 'horses'). Others require the augment *-in* in singular, but combine with case suffixes directly in plural (e.g., *Srb-in* 'Serb', *Srb-i* 'Serbs'). The third group of nouns have the augment *-ov* in the plural (e.g., *lav* 'lion', *lav-ov-i* 'lions'). Simonović and Arsenijević (2019) assume that *-in* and *-ov* are allomorphs of the same abstract morpheme (Num) for singular and plural, respectively.

These same two affixes behave as allomorphs in the formation of possessives. These possessive forms are traditionally labeled 'possessive adjectives' due to their adjectival properties such as agreement with the head noun. In the formation of possessives, *-ov* is attached to referential masculine/neuter nouns, while *-in* combines with feminine ones (10). In contrast to their role in case paradigms, where *-ov* and *-in* seem to be allomorphs conditioned by number, in (10), these same two suffixes appear as allomorphs conditioned by gender.

(10) a. brat-ov pas
brother-POSS dog
'brother's dog'

b. sestr-in pas
sister-POSS dog
'sister's dog'

As discussed in the introduction, the possessive affix can attach to bases that denote inanimate entities, giving rise to relational or part/whole semantics (11).

(11) a. hrast-ov-Ø koren
oak-POSS-MASC root
'the root of the oak tree'

b. vrb-in-a grana
willow-POSS-FEM branch

‘the branch of the willow tree’

In some cases, however, these suffixes can be attached to non-referential bases, but, then, they do not derive typical possessive semantics. Instead, the derived adjective denotes either a mass consisting of the entities named by the base or the material that the entity denoted by the head noun is made of (see Stevanović 1986; Klajn 2002; Stojković 2015), In (12a), the suffix *-ov* is attached to the root/base *hrast* (‘oak’) resulting in a mass reading (~ “an unbounded collection of oak trees”) in (12b) or material reading (~”oakwood”).

(12) a. hrast-ov-a šuma
oak-POSS-FEM forest
‘a forest consisting of oak trees’ NOT ‘a forest belonging to oak trees’

b. hrast-ov-Ø pod
oak-POSS-MASC floor
‘oak floor’

Essentially, these two possible readings correspond to atomic and non-atomic mass/kind denotations (cf. Barner-Snedeker 2005; Chierchia 1998; Rothstein 2010). Thus, we refer to these two denotations together as K/M.

Crucially, the prosodic pattern of the base can change with K/M denotations, but with possessives/relationals, the prosodic pattern of the derived form is faithful to the base. As we already illustrated in (1), repeated here as (13), the possessive reading of *hrastov* (‘oak-ov’) retains the prosodic pattern of the noun *hrast* (‘oak’), whereas the kind reading of *hrastov* (‘oak-ov’) is pronounced with a shifted prosodic pattern.

(13) a. ˈhráast ‘oak tree’ → ˈhráast-ov koren ‘the root of the oak tree’

b. ˈhráast ‘oak tree’ → ˈhrast-óv pod ‘oak flooring’

Finally, only with K/M denotations but not with possessive/relational readings can *-ov* attach to feminine nouns. All the base nouns in (14) are feminine and in the typical possessive/relational form they combine with the suffix *-in* like all other feminine nouns. However, they tend to derive these forms used for K/M denotations with the suffix *-ov*.

(14) a. maslin-ov-o ulje (cf. maslin-a)
olive-POSS-NEUT oil olive-FEM

	‘olive oil’		‘olive
b.	palm-ov-o	ulje	(cf. palm-a)
	palm-POSS-NEUT	oil	palm-FEM
	‘palm oil’		‘palm’
c.	vrb-ov-Ø	šumarak	(cf. vrb-a)
	willow-POSS-MASC	grove	willow-FEM
	‘willow grove’		‘willow’

Summarizing the description, we can say that we observed a strong generalization, on the one hand, and a tendency on the other. The rule is that *-ov*/*-in* derivations with completely transparent possessive or relational semantics always preserve the prosodic shape of the base noun, and the choice of the suffix is completely determined by the gender of the base (*-ov* for masculines/neuters and *-in* for feminines). The tendency is that K/M denotations sometimes induce a prosodic shift (i.e. the prosodic pattern of the derived item is different from the prosodic pattern of the base noun) and the choice of the suffix is not entirely predicted by the gender of the base noun, in that the suffix *-ov* can attach to feminine nouns.

This picture raises some interesting questions. Descriptively, an important question concerns the scope of these patterns. To answer this question, one needs to collect a representative sample of *-ov/-in* derivations with the K/M semantics. Furthermore, a quantitative statement of the identified tendencies would be useful (i.e. what proportion of K/M adjectives shows prosodic unfaithfulness to the base and/or gender mismatches between the base and the suffix?). Finally, the question becomes how to account for this semantic, prosodic and morphological contrast between pure possessive/relational forms and K/M denotations.

3. METHODOLOGY

In order to explore the questions raised in the previous section, we conducted a corpus-based study with the aim of collecting and then analyzing a representative sample of the forms under investigation. We used the online corpus of (Eastern) SC called srWaC (Ljubešić & Klubička 2014) and conducted a simple search that extracted all the adjectives ending in *-ov* or *-in* with at least 4 attestations per million words. This gave us 1838 lexemes in total, but the majority of these lexemes were basic possessive adjectives (e.g., *Ivan* ‘Ivan’ → *Ivan-ov* ‘Ivan’s’),

which were not of primary interest to us. For that reason, we manually isolated only those *-ov*/*-in* forms that allowed what we termed K/M reading.

We then built a database where each extracted item was annotated for four different properties. The first property that we coded for was the gender of the noun that the adjective was derived from (masculine/feminine/neuter). Second, we coded for the suffix used to derive the typical possessive form from this noun (*-ov*/*-in*). The purpose of this step was to check whether the predictability of the possessive affix based on the gender specification of the noun has any exceptions. Third, we entered the information on the suffix that is used to derive the adjective denoting K/M because, as we already pointed out, this adjectival form can differ from the possessive adjective in the choice of the suffix. Here, we observed three different options: *-in*, *-ov*, or both. Native speaker judgements and independent corpus attestations were used to decide which forms were possible for each item. Finally, the items were coded for the presence or absence of a prosodic shift in the derived form with the K/M denotation. An item was marked as having a prosodic shift with the K/M denotation if the derived form with a prosodic shape different from the one in the base noun was acceptable to some speakers. Our annotations do not entail that a form marked as displaying a prosodic shift does not also allow a prosodically faithful option with the same denotation, at least for some speakers. Instead, such an annotation entails that there exists a prosodically unfaithful variant of a given form.

4. RESULTS

The data that we gathered exhibited some revealing patterns regarding (i) the productivity of K/M readings with *-ov*/*-in* forms; (ii) the distribution of gender mismatches between the base noun and the suffix; and (iii) the presence of prosodic shifts. We will present these findings in turn. First, we will discuss the findings related to productivity. Second, we will describe the data on gender mismatches. Finally, we show our results for prosodic shifts.

4.1. Productivity

Our starting point regarding the productivity of the patterns under investigation was to determine the number of *-ov*/*-in* derivations giving rise to ‘kind’ semantics (in the corpus). We were also interested in the (lexico-semantic) domains in which they are productive. For instance, even if the use of *-ov*/*-in* is not the most productive way of deriving K/M meanings in SC, it is still possible that it

is a fully productive or at least a reasonably productive with particular classes of nouns.

We made some rather interesting observations on both fronts. Firstly, having extracted only the forms with the possible a K/M reading from our initial pool of 1838 words, we obtained a total of 54 lexemes. All of these lexemes allowed both possessive/relational and K/M readings, so it was possible to compare them. Secondly, all but one of the forms with extracted from the corpus were derived from nouns denoting plants (e.g., *bor* 'pine', *breza* 'birch', *malina* 'raspberry', *višnja* 'cherry', *jasen* 'ash'', etc.). Curiously, the only exception that we found was *vino* 'wine' producing the form *vin-ov*, which refers to the grapevine.

Finally, in terms of the gender of the base, the majority of adjectives were derived from masculine bases (n=30). 22 adjectives were derived from feminine bases, and there were only 2 neuter bases in our sample.

4.2. Gender of the base and the selection of the suffix

Each item in our database was coded for the gender of the base, the suffix used to derive the possessive form (*-ov*/*-in*) and the suffix used to derive the K/M form (*-ov*/*-in*/both). This data structure allows us to quantify the correlation between the gender of the base and the type of suffix both in the possessive and in the K/M form. For possessives, there were no surprises, and the mapping between the gender of the base noun and the suffix was one-to-one. All possessive adjectives derived from masculine/neuter nouns included the suffix *-ov*, and this was the only possible option. There was the same level of predictability with feminine bases, as they all combined with the suffix *-in*, and none of them allowed *-ov*.

When it comes to K/M readings, the situation was much less transparent and there was no one-to-one mapping between the gender of the base and the suffix. However, variation was entirely confined to the forms derived from feminine bases. In the masculine portion of the database, all the adjectives were still derived with the suffix *-ov* and no other option was allowed. The same applies to neuters. However, with the adjectives derived from feminine nouns, the strict feminine to *-in* mapping that was systematically observed with possessives applied in only 4 out of 22 cases. 7 adjectives allowed the suffix *-ov* as the only option with the K/M reading, whereas 11 items, which is exactly 50% of the feminine portion of the sample, allowed both the suffix *-in* and the suffix *-ov*.

Finally, we collected data on the presence of prosodic shifts in both possessive and K/M readings. The possessive adjectives were completely uniform in this regard, since they all showed full prosodic faithfulness to the base, and no

cases of prosodic shift were attested in that portion of the database. Again, K/M adjectives showed some variation in this regard; however, unlike in the case of suffix selection, variation was not confined to feminine bases. We observed prosodic shifts in 5 adjectives with masculine bases while 25 of them were prosodically faithful to the base. Even though the number of adjectives with feminine bases was smaller than the number of adjectives with masculine bases, there were also 5 prosodically shifted adjectives in this portion of the database. Finally, both adjectives with neuter bases exhibited prosodic shifts. The table in (15) summarizes the data.

(15)		**suffix**			**prosodic change**	
		-ov	*-in*	both	yes	no
	masculine	30	0	0	5	25
	feminine	7	4	11	5	17
	neuter	2	0	0	2	0

Summarizing the results of our investigation, we can conclude that true possessive/relational forms are fully productive, and involve one-to-one mapping between the gender of the base and the suffix in the possessive form such that masculine/neuter bases always combine with *-ov*, while feminines always combine with *-in*. Also, possessive forms are always completely prosodically faithful to the base. With regard to K/M adjectives, we observed that they are productive only with nominal bases denoting plants. Masculine/neuter bases always combine with *-ov*, while feminine bases can combine with *-in*, *-ov*, or both. Finally, prosodic shifts are quite restricted, but present in all three genders

5. ANALYSIS

The main findings summarized at the end of the previous section call for an analysis that would unite several seemingly disparate observations. On the one hand, we want to account for the productivity puzzle with the K/M readings associated with *-ov*/*-in* suffixes because these forms seem to be quite productive but they only select nouns denoting plants. Next, an explanation is needed for the fact that feminine nominal bases can be combined with *-ov*, *-in* or both to derive K/M readings, which is not possible with possessive adjectives. Finally, the (restricted) possibility of prosodic shifts with K/M adjectives should also be explained.

5.1. Morphosyntactic analysis

Starting form the issue of productivity, *-ov*/*-in* with K/M denotations are in competition with other suffixes (16). The suffixes in (16) are not interchangeable and they are all specialized for bases of some kind (although it is not easy to formalize these specializations precisely).

(16) a. -en gum-en
rubber-EN
'made of rubber/rubbery'

b. -n papir-n-i
paper-N-DEF
'made of paper'

c. -sk beton-sk-i
concrete-SK-DEF
'made of concrete'

d. -an zemlj-an
earth-AN
'earthen'

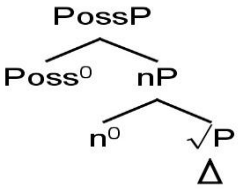
The two suffixes under investigation here (*-ov* and *-in*) clearly specialize in bases denoting plants. In order to capture this 'lexical domain' specialization we postulate that they are able to 'access' the meaning of the structure they attach to, selecting bases with the lexico-semantic feature [plant]. Assuming that roots do not come with semantic features as specific as this one, the only way to capture this semantic specialization is to say that *-ov/-in* attaches to nPs or more precisely to the set of nPs with the semantic feature in question.

The observations about the interplay between semantics and prosody point in the same direction. Specifically, the presence of a phasal head in the derivation triggers spell-out, ensuring semantic transparency and phonological faithfulness to the base. The absence of a phasal head allows lexicalization and prosodic unfaithfulness.

Possessive derivations are fully productive, always semantically transparent and phonologically faithful to the base. Thus, we assume that typical possessives

with *-ov*/*-in* contain a categorizing *n* head on top of the root and below the layers that introduces the suffix (we label this layer Poss) as in (17).

(17)



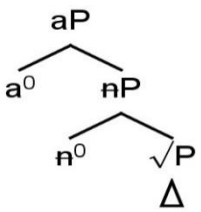
The presence of a full phasal head *n* in (17) ensures that the derivation is spelled out to the interfaces before the suffix is attached, resulting in totally predictable semantics and prosody.

From the semantic point of view, the denotations of K/M forms are still transparent. They systematically derive adjectives that denote K/M defined by the nominal element in the base. Following Chierchia (1998), among others, we assume that the K/M denotation is the very basic denotation of a noun, which then gets further enriched (see also Zamparelli 1995). Based on this semantic fact, we conclude that these *-ov*/*-in* adjectives denoting 'kinds' also involve the categorizing *n* head, whose effects manifest themselves at the semantic (LF) interface in the form of full semantic transparency.

At the same time, this *n* head cannot be of the same sort that is present with possessives because it lacks the semantics of individuation. Recall that possessive denotations are derived on the basis of referential nPs (i.e. those nPs that refer to specific individuals of the kind named by the noun in the base). Moreover, with K/M denotations *-ov* can attach to what are otherwise feminine bases, which is impossible with possessives. Therefore, we assume that this *n* head can also lack gender features. In other words, only those *n* heads that refer to individuals are fully specified for gender in this sense. Since masculine is the unmarked gender, *-ov* is the Elsehwere allomorph of this morpheme. The lack of gender features on *n*, therefore, allows *-ov* to surface with otherwise feminine bases.

Finally, with K/M denotations we also sometimes observe phonological unfaithfulness to the base, which is absent with possessives. The ability of the suffix to affect the phonological shape of the base suggests the lack of a phasal boundary, at least at the phonological interface. We propose the structure in (18) as a way of capturing this set of facts.

(18)



The structure in (18) represents a derivation in which a 'defective' *n* head (symbolized with a strikethrough), which lacks individuation and can lack gender features, is projected on top of a root. This *n* head carries the K/M denotation and ensures semantic transparency, which means that it acts as a phase at LF. However, it is still permeable at PF enabling prosodic shifts. This type of *n* head can be seen as an instance of a *non-simultaneous phase head*, which acts as a phase at one interface but not at the other (Marušič 2005, 2009).

Even though it might be tempting to try to capture these data by assuming a simpler distinction between derivations which involve a categorizing phasal *n* head (explaining full productivity, semantic transparency and phonological faithfulness) and deradical derivations, such an analysis would be too simplistic. K/M derivations are semantically compositional and quite productive (within the lexico-semantic class of plants), while at the same time allowing some prosodic unfaithfulness and gender mismatches when it comes to the selection of suffix. In full recognition of the clash between regularity at the LF interface and (potential) irregularity at PF, we are convinced that these derivations need to be distinguished from fully lexicalized and systematically phonologically unfaithful examples of *ov*-derivations.

Such derivations are also attested in SC. We were able to identify four examples (19).

(19) a. Trn-óv-a Ruž-ica
thorn-POSS-FEM rose-DEM
'Sleeping Beauty'; Literally: 'Thorn's Rose'

b. boj-év-a municija
battle-POSS-FEM ammunition
'live ammunition' Literally: 'Battle's ammunition'

c. kuk-óv-o leto
hip-POSS-NEUT summer

‘never’; Literally: ‘hip’s summer’

d. plod-óv-a voda

fruit/foetus-POSS-NEUT water

‘amniotic fluid’; Literally: ‘foetus’s water’

The derivations in (19) clearly do not involve K/M semantics, which is why we did not include them into our database. However, these examples are highly relevant for our purposes as a point of comparison because they seem to illustrate what true deradical derivations involving these suffixes look like. Namely, all the adjectives in (19) appear only as part of idioms or fixed phrases where their meanings are always non-compositional and they are always prosodically unfaithful to the base noun. In light of such examples, unless we want to collapse K/M derivations with the fully lexicalized ones in (19), we must posit the existence of structures represented by (18) as an intermediate station.

5.3. Phonological analysis: Phasal vs Non-phasal bases

We cast our sketch of a phonological analysis in terms of Optimality Theory (Prince-Smolensky 1993), but we also assume phasal spellout (see, e.g., Sande et al. 2020, for a recent proposal along these lines). It follows from our syntactic analysis presented above that the central contrast in the phonological computation is between cases where the base is a phasal nP and those where the nP does not close off a phase, so that the base and the affix end up in the same spellout domain. In the case of a full nP, the derivation will always proceed in two phases, the prosody of the base will be fixed in the first phase and the derivation will surface with a prosodic pattern faithful to that of the base noun. This is the case in all possessive adjectives analyzed here, as well as in all cases where we can see a gender feature on the nP (recall that all *in*-adjectives have faithful prosody, indicating that the presence of the gender feature makes the nP phasal). In the case of a defective nP, where the root and the affix are spelled out together, we observe two scenarios. We either see the K/M adjective copying the prosodic shape of the noun, just like in the case of a full nP or we see a shifted pattern with two light syllables and final H. As will be shown below, the dichotomy between faithful and shifting monophasal *ov*-derivations depends on the specification on the root.

Before turning to the OT grammar used to capture these facts, we need to address the question of what will serve as the input to this grammar. In the case of a full phasal nP, the input of the final evaluation (where the prosody of the whole

derivation is computed) will be the output of the previous phase, i.e. the prosodic form of the base noun attested, e.g., in the case forms which have an overt ending. On the other hand, in the case of a monophasal *ov*-derivation, the input will contain the underlying representation of the base. In SC, nouns can be underlyingly toneless or endowed with a H (see, e.g., Zec 1999, Becker 2007). Their input specifications are protected by two faithfulness constraints defined in (20) and (21).

(20) LINK-SPONSOR: Assign a violation mark for every H which is not linked to the segmental content of its lexical sponsor.

(21) LINK-MAX-μ: Assign a violation mark for every mora that is present in the input but absent from the output.

As for the shifted pattern with two short syllables and a final H that surfaces in some K/M adjectives, it is tempting to analyze it as imposed by the prosodic marking on the affix. However, the same pattern can also be encountered for many other adjectivizers. For instance, Simonović and Arsenijević (2020) discuss three such examples (*en*, *at* and *an*). This indicates that this pattern is actually better analyzed as following from a certain structure. For the rightmost H, we assume that this is the epenthetic default (at least in the adjectival domain), imposed by (22). The shortening of long vowels and strict disyllabicity are captured by a constraint conjunction which requires equal trochees in words with an epenthetic H: TROCHAICQUANTITY $\&_{PWD}$ DEP-H.

(22) ALIGNRIGHT-H: Assign a violation mark for every mora between the H and the right edge of the prosodic domain.

(23) TROCHAICQUANTITY & DEP-H: Assign a violation mark for every form where (i) in a rhythmic unit [S W], |S| ≠|W| (from Zec 1999) and (ii) there is a H in the output which is not present in the input.

While this constraint conjunction may appear defined just to capture these data, there is independent evidence for its being active in SC. There are no polysyllabic simplex adjectives which contain long vowels (i.e. there are simplex adjectives like ˈjálov ‘barren’ or ˈgotóv ‘done’, but no simplex adjectives like ˈjáloov or ˈjalóov or ˈjáalov). Furthermore, Zec (1999) shows arguments for TROCHAIC QUANTITY elsewhere in the system (in items that are arguably toneless). Finally, constraint conjunctions which involve DEP-H (essentially regulating epenthetic tone only) have been proposed for SC independently by Becker (2007).

Since the conjunction and LINK-SPONSOR are never violated in our dataset, we place them in the topmost stratum of the ranking. MAX-μ, which only gets violated to satisfy the conjunction, and ALIGNRIGHT-H, which gets violated to

satisfy LINK-SPONSOR, are ranked immediately below them. Finally, DEP-H, which does not decide any winners, will be placed at the bottom of the ranking.

Now, we can turn to the phonological evaluations of our examples. The first tableau shows an evaluation which takes place at the second phase (23). The input will always have a H attached to a specific syllable and this specification will always be respected due to the high-ranked LINK-SPONSOR. The conjunction is irrelevant because there is an input H and MAX-μ protects the long vowel. Essentially, in this system, nothing will ever disrupt the perfect preservation of the prosodic specifications inherited from the previous phase, capturing the total faithfulness encountered in the domain of all possessives and all *in*-adjectives.

(23) OT evaluation for ˈhráastov ‘of an oak tree’

/xráast + ov/	TROCHQU & DEP-H	LINKSPONSOR	MAX-μ	ALIGNRT-H	DEP-H
☞ a. (ˈxráastov)				**	
b. (ˈxraastóv)		*!			
c. (ˈxrástov)			*!	*	
d. (ˈxrastóv)		*!	*		

Concerning monophasal evaluations (24), we start from the cases where the nominal root is endowed with a H. What this evaluation has in common with the previous one is that the conjunction is irrelevant because there is an input H. Here, we see ALIGNRT-H pushing lexical H towards the right edge of the word. However, LINKSPONSOR puts a limit to how far the right alignment can go, as it does not allow the H to leave the sponsoring morpheme.

(24) OT evaluation for ˈmaslínov ‘made out of olives’

/maslin, H + ov/	TROCHQU & DEP-H	LINKSPONSOR	MAX-μ	ALIGNRT-H	DEP-H
a. (ˈmásli)nov				**!	
☞ b. (ˈmaslín)ov				*	
c. ma(ˈslinóv)		*!			

Finally, we present a monophasal evaluation with a toneless root (25). This means that there will be no input H. Now the constraint conjunction eliminates all the candidates that respect the input length and vowel shortening is imposed, to the detriment of MAX-μ. Due to ALIGNRT-H the epenthetic H is right-aligned with the prosodic domain

(25) OT evaluation for ˈhrastóv ‘made out of oak’

/xraast+ov/	TROCHQU & DEP-H	LINKSPONSOR	MAX-μ	ALIGNRT-H	DEP-H
a. (xráastov)	*!			**	*
b. (xraastóv)	*!				*
c. (xraástov)	*!			*	*
d. (xrástov)			*	*!	*
☞e. (xrastóv)			*		*

Our analysis captures the distinction between the ever faithful biphasal and the variable monophasal derivations. We further showed that tone-endowed nouns never allow vowel shortening or H on *ov*. In the next short section, we briefly discuss which nouns come out as toneless in our analysis.

5.3.1. Residual issue: Polysyllabic toneless nouns

The issue of the underlying prosody (i.e. which nouns are toneless, tone-endowed and whether there is need for additional lexical specification of H on specific moras/syllables) is far from resolved for SC. One prominent feature of our analysis is that relatively few classes are required to be toneless, as also reflected in the relatively small number of prosody-shifting K/M adjectives. The nouns that we can view as toneless based on our evidence all have monosyllabic stems and belong to one of the following types (shown with an overt ending *-a*):

- the masculine type ˈxráast-a ‘oak.GEN.SG’ (analysed as toneless in Zec 1999),
- the feminine type ˈbreez-á ‘birch.NOM.SG’ (analysed as toneless in Simonović & Arsenijević 2014),
- the neuter type ˈviin-ó ‘wine’ ‘wine.NOM.SG’ (analysed as toneless in Simonović & Arsenijević 2014).

The most curious aspect of this picture is the restriction to monosyllabic bases. As we emphasized already in the introduction, prosodic shifts never affect polysyllables and *ov*-adjectives never display stress shifts of base prosody (only H-shifts and vowel shortening).

Traditionally, (and in analyses that were based on nouns), toneless nouns surface with an initial H. Examples of polysyllabic nouns which were assumed to be toneless in previous analyses, (e.g., Zec 1999 and Becker 2007) are ˈjásen ‘ash’ and ˈjábuk-a ‘apple’. We will not delve into an analysis of nominal prosody, which indeed displays different surface patterns in SC from adjectival prosody, but we

need to say something about the items of this type, because they derive K/M adjectives, as shown in (26) and (27).

(26)	a.	ˈjásen ‘ash tree’ →	ˈjásen-ov izdanak	‘the sprout of the ash tree’
	b.	ˈjásen ‘ash’ →	ˈjásen-ov prut	‘ashwood stick’
(27)	a.	ˈjábuk-a ‘apple’ →	ˈjábuk-in /#ˈjabuk-ov koren	‘the root of the apple. tree’
	b.	ˈjábuk-a ‘apple’ →	ˈjábuk-ov ocat	‘apple vinegar’

If we combine the toneless URs for these items with our grammar, the ungrammatical outputs *jaˈsen-óv and *jaˈbuk-óv result. The form jaˈsen-óv is attested in a traditional description, but modern speakers reject it (see footnote 1). In the case of ˈjásen-ov, we can still obtain the correct result by postulating the presence of the masculine gender feature and enforcing a diphasal evaluation (recall that the gender feature cannot be excluded altogether from K/M adjectives, because there are feminine bases which consistently take *-in* in this use, illustrated in 5 and 6). However, no such escape hatch is available for ˈjábuk-a, because the form ˈjábuk-ov clearly indicates the lack of a gender feature and therefore requires a monophasal evaluation. By consequence, for this specific item, the only one of that kind in our dataset, we need to assume full prosodic specification of the H the UR: /jábuk-a/. Now LINKSPONSOR can protect this specification in the derived form and no shift will take place.

This solution covers all the data, but it still remains somewhat mysterious why no single polysyllabic noun allows for a shift, which in the case of polysyllabic items would not only affect H and vowel length, but also stress. Now, given the fact that there is positive evidence of the disappearance of one adjective with stress shift from modern SC (jaˈsen-óv), an alternative solution, involving the interplay between the grammar and the lexicon seems at least equally plausible. Such an analysis would invoke Lexical Conservatism (Steriade 1997), a family of constraints which block new, phonologically different allomorphs. In this case the relevant constraint would block derived adjectives with a stress shift. Nouns like *jabuk-a* can then still be toneless, and the grammar can compute the prosody of their K/M adjectives with a final H and a stress shift. However, Lexical Conservatism would block such a form because it involves a stress shift and a faithfull structure would be introduced as a repair.

Adjudicating between the two options would require a clearer empirical picture of the system as a whole, at least in the domain of stress-shifting adjectivizers. As far as we could observe, no productive adjectivizers in SC behave

as the prosody-shifting *-ov* described in this paper, deleting all vowel length and imposing a final H. However, at least 3 other unproductive adjectival affixes have exactly this effect (see Simonović-Arsenijević 2020 on *an*, *en*, *at*).

6. CONCLUSION

In SC, *-ov* and *-in* can be used to derive possessive as well as kind/material denotations. With possessives, *-ov* is attached to masculine and neuter referential nouns, while *-in* is attached to feminine referential nouns to produce semantically transparent structures in which the prosody of the base is preserved. In kind/material denotations, *-ov* is always attached to masculine/neuter bases, while feminine bases can be combined with *-ov*, *-in*, or both. This latter pattern is productive with bases that denote plants, but not beyond. The two structures are semantically transparent (i.e. they denote kinds). The prosodic shape of the base is altered in some kind/material *ov*-adjectives.

The behavior of possessives is accounted for by assuming that *-ov* and *-in* are attached to nPs specified for gender with individuated semantics. For kind/material adjectives, we postulated the presence of a 'defective' *n* between the root and the suffix. This head is responsible for the transparent, 'kind' semantics, and it also allows the suffix to semantically select bases with a semantic feature [plant]. The fact that this head does not always contain gender features accounts for the variation of *-ov* and *-in* with normally feminine bases. Prosodic modifications in kind/material adjectives are possible because the affix is spelled out together with the root.

The picture emerging from our analysis fits the schema observed in the DM literature. There is a contrast between a more productive pattern involving more structure and more faithful prosody and a less productive pattern in which some aspects of structure are absent and there is no guarantee of prosodic faithfulness. One typical ingredient was absent, however: both types of derivations were shown to be equally semantically transparent because even the 'poorer' structure enforced phasehood at LF. An issue that we hope further research will tackle is the establishing of all features/projections involved and whether there are projections which are systematically treated differently at LF and PF when it comes to phasehood.

Finally, our brief discussion of the productivity of stress-shifting patterns raised some interesting empirical issues concerning the productivity of prosody-shifting (i.e. monophasal) derivational patterns that coexist with prosody-neutral (multiphasal) patterns involving the same morpheme. It seems plausible that in such

cases the more transparent pattern will always be more productive, but we are not aware of cross-linguistic studies to date targeting this generalization.

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