

# Inflectional Identity

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# A pseudo-cyclic effect in Romanian morphophonology

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## Abstract

Romanian phonology is shown to be subject to inflection dependence, a systematic restriction on phonological alternations. Inflection dependence means that segmental alternations are permitted in the derivatives of a lexeme only if certain inflected forms of that lexeme, its inflectional bases (Albright 2002), independently display the alternation. The study documents this pervasive constraint on alternations and proposes an analysis for it, based on a modified variant of Lexical Conservatism (Steriade 1999b).

The broader significance of inflection dependence is the need to allow access in phonological computations to a broader class of lexically-related, derived lexical items relative to what the phonological cycle (Chomsky et al. 1956) and its descendants permit. I discuss the difference between inflection dependence and the phonological cycle and propose a mechanism that reduces the formal differences between them to rankings of correspondence and phonotactics.

## 10.1 Introduction

### 10.1.1 *The phenomenon*

This is a study of the interaction between lexical structure, paradigm structure, correspondence, and phonotactics. I document a new type of alternation

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avoidance whose preliminary formulation appears below:

- (10.1) A phonological modification of the stem is avoided when triggered by a derivational affix, unless the modification is independently found in the inflectional paradigm of the stem.

A simplified scenario loosely based on Romanian illustrates in (10.2) the basic phenomenon. The words /bak/ and /pak/ represent two inflectional classes, Class 1 and 2. These classes take different inflectional suffixes, /i/ and /u/. As a result, the verbs in each class undergo different alternations: inflected /bak + i/ undergoes palatalization ( $k \rightarrow tʃ/_i$ ) and becomes [batʃi], while in /pak + u/ the rule cannot apply and the stem remains intact. Had /pak/ inflected as /pak-i/, it too would have become [patʃi]. This difference in the range of predictable root alternants found in inflection has consequences for the derivational behaviors of /bak/ and /pak/: a derivational suffix /ik/ attaches to both classes and triggers, in principle, the same rules as the inflectional /i/, so /ik/ should cause /k/ to palatalize to [tʃ] when added to both stems. The suffix /ik/ does indeed cause Class 1 /bak-ik/ to become [batʃik], just like inflectional /i/ did. But /ik/ has no effect on Class 2 items like /pak/, which fail to generate [tʃ] alternants throughout the system.

- (10.2) A schematic illustration of inflection dependence

Lexicon	root /bak/, Class 1	Inflection	Class 1: suffix /i/, /bak-i/
	root /pak/, Class 2		Class 2: suffix /u/, /pak-u/
Phonology	velar $\rightarrow$ palatoalveolar/ __ front vowel		
IO Mappings	/bak-i/ $\rightarrow$ [batʃi]	/pak-u/ $\rightarrow$ [paku]	
Derivation	/bak/ +/-ik/: /bak-ik/		/pak/ + /ik/: /pak-ik/
IO Mappings	/bak-ik/ $\rightarrow$ [batʃik] not *[bakik]	/pak-ik/ $\rightarrow$ [pakik], not *[patʃik]	

### 10.1.2 An outline of the ingredients

Intuitively, this pattern of inflection dependence suggests an analysis in which the phonology of derived forms takes into account the set of stem variants that are known by the speaker to “exist independently”, that is, in this case, the stem variants that arise independently of derivation, in inflection. If a stem variant in [-tʃ] “exists independently”, in this sense, it can be deployed in a phonotactically appropriate context, e.g., before an [i]-initial derivational

suffix. In that case, the constraint triggering palatalization can be satisfied. If no such variant exists, the palatalization constraint cannot be satisfied: that is why we get [pakik].

What exactly does it mean for a form to “exist independently”? Does it mean “to be listed in the lexicon”? If so, are all members of inflectional paradigms lexically listed? Why they and not other morphologically complex forms? The chapter proposes answers to these questions based on a combination of analytic ingredients originating in the theory of Lexical Phonology (Kiparsky 1982), Correspondence Theory (McCarthy and Prince 1995), and modifications of the latter (Steriade 1999a,b). We will need for our analysis a distinction between a core lexicon of basic atomic entries (roots and affixes) and a derived lexicon containing morphologically complex words, organized in successive layers. We will also need a grammar with extensive access to members of the derived lexicon. Access of the grammar to the list of derived lexical items is regulated in most conceptions of phonology by the phonological cycle (Chomsky, Halle, and Lukoff 1956). The findings in this study suggest that the cyclic dependence of one form upon another (e.g., the dependence of *originality* upon *original*) represents just a limiting case of a broader form of potential dependence between lexically-related forms.

Directly below, section 10.2 presents the outlines of the Romanian phenomenon of inflection dependence. Section 10.3 provides its analysis and section 10.4 extends the basic pattern studied earlier to related processes. The concluding section 10.5 discusses the structure of the derived Romanian lexicon based on the evidence of inflection dependence.

## 10.2 Inflection dependence in Romanian

### 10.2.1 Segment inventory

The segmental contrasts of Romanian are outlined below, with corresponding orthographic symbols added in angle brackets, for the non-obvious cases. More descriptive detail and an analysis of Romanian nuclear alternations appear in Steriade 2006.

#### (10.3) a. Vowels

i	i <î, â>	u
e	Λ <â>	o
	a	

#### b. Tautosyllabic vocoid sequences

ie, iu, iu	ii, iu	ui,
ea, eo, eu, ei	Λi, Λu	o_a, O_i, Ou
	ai, au	

## c. Consonants

<b>p</b>	<b>t</b>	<b>ts</b> <ɬ>	<b>tʃ</b> <ce, ci>	<b>c</b> <che, chi>	<b>k</b> <c>
<b>b</b>	<b>d</b>		<b>dʒ</b> <ge, gi>	<b>j</b> <ghe, ghi>	<b>g</b>
<b>f</b>		<b>s</b>	<b>ʃ</b> <ş>		
<b>v</b>		<b>z</b>	<b>ʒ</b> <j>		
<b>m</b>	<b>n</b>				<b>h</b> <h>
	<b>l, r</b>				

The Romanian material presented here appears in IPA transcription, as the Romanian spelling does not distinguish glides from vowels.

## 10.2.2 Declension basics

Romanian declension makes two overt binary distinctions for number and case. The four forms are distinct in pronouns, below, and in definite forms of nouns and adjectives.

## (10.4) Pronominal declension pattern

	Singular		Plural	
	masculine	feminine	masculine	feminine
NOM-ACC	X-u	X - ɹ	X-i	X-e
GEN-DAT	X-u-i	X-e-i	X-or	

In indefinite forms, these distinctions are systematically compressed. Each noun and adjective has no more than two—and typically exactly two—overtly distinct forms: a nominative singular and one other. The form and function of the other form depends on gender and declension type. Typical masculines have a distinct singular and plural form, with no case distinctions within each number in the indefinite declension; typical feminines have an undifferentiated plural form, and a singular in which the NOM-ACC is distinct from the GEN-DAT, the latter being identical to the plural. The distinct structure of masculine and feminine paradigms is illustrated below:

(10.5) Gender-based distribution of endings: masculine and feminine *e/i* adjectives

	NOM-ACC sg	GEN-DAT sg	Plural	gloss
masculine	vérd-e		/verd-i/ [vérz-i]	green
feminine	vérd-e	/verd-i/ [vérz-i]		

The same effect is observed with nouns: [peréte] ‘wall’ and [petfété] ‘seal’ belong to the same declension but have different genders and thus distribute the same case forms differently.

- (10.6) Gender-based distribution of endings: masculine and feminine -e/-i declensions

	NOM-ACC sg	GEN-DAT sg	Plural	gloss
masculine	perét-e		/peret-i/ [perétsi]	wall
feminine	petfét-e	/petfét-i/ [petfétsi]		seal

A classification of the declension classes of the language is provided in (10.7). The classes are generated by freely combining any of the three NOM-ACC singular markers with any of three plural markers.<sup>1</sup> All combinations are attested.

- (10.7) Declension classes as combinations of singular/plural markers<sup>2</sup>

Singular \ Plural	-e	-i ([i]/[ɨ])	-uri ([uri]/[uri])
-u ([u]/[ɨ]/∅)	lémn-u, lémn-e ‘wood’	lúp-u, lup-i ‘wolf’	trúp-u, trup-uri ‘body’
-Λ	áp-Λ, áp-e ‘water’	árip-Λ, aríp-i ‘wing’	líps-Λ, lips-uri ‘lack’
-e	núm-e, núm-e ‘name’	lúm-e, lum-i ‘world’	vrém-e, vrem-uri ‘time’

The nine declension classes are denoted here by listing the defining combination of endings; thus, [lemn] ‘wood’ belongs to the u/e class.

The neuter nouns, left out of the picture until now, represent a subset of the declension types definable on the set of endings in (10.7)—the u/e, u/uri, e/e classes. These induce agreement as masculines in the singular and as feminines in the plural, a pattern that raises interesting issues (cf. Bateman and Polinsky 2006) that are unrelated to the point of this chapter. They are left unaddressed here. I summarize next the distribution of declension types by gender; this is the minimum that will be immediately relevant in this chapter.

<sup>1</sup> The classification of declension types in (10.7) is non-standard. Traditional classifications do not factor in the predictable effects of gender and phonology (see GLR 1966, Lombard and Gâdei 1981, Hristea and Moroianu 2005).

<sup>2</sup> Variants in parenthesis arise as a function of the noun’s position in the clitic group: group-final high vowels become glides and post-consonantal w is deleted. (For analysis, see Steriade 1984, Chitoran 2002, Popescu 2000).

## (10.8) Gender distribution across declension classes

	Plural	-e	-i	-uri
Singular				
-u		N	M	N
-A		F	F	F
-e		N	M or F	F

10.2.3 *Inflection dependence*

The descriptive focus in this study is a generalization about the effect of a word's inflectional class on the phonology of its derivatives. The generalization is that stem alternants generated in inflection determine the range of possible stem modifications the word can undergo in derivation. The generalization encompasses all consonantal alternations active in Romanian and possibly some vocalic alternations as well. The robustness and generality of the effect suggest that it arises from a central mechanism in the grammar of the language. The discussion here will use one alternation to illustrate the phenomenon in some detail, with a sketch of the full picture deferred to section 10.4.

10.2.3.1 *K-Palatalization* This section documents the effect of inflection dependence on one process, K-Palatalization. This process turns [k] to [tʃ] and [g] to [dʒ] before front vowels and glides:

## (10.9) K-Palatalization

The process	Noun alternations	gloss	Verb alternations	gloss
k → tʃ / _[-back]	núk-A nútʃ-i fiik-A fiitʃ-e	'nut(s)' 'daughter(s)'	fák fátʃ-i fák-A fátʃ-e	'do': indic. 1sg/2sg 'do': subj/indic. 3sg
g → dʒ / _[-back]	mág mádʒ-i álg-A áldʒ-e	'mage(s)' 'seaweed(s)'	súg súdʒ-i súg-A súdʒ-e	'suck': indic. 1sg/2sg 'suck': subj/indic. 3sg

K-Palatalization is automatic before plural suffixes. It applies in the plurals of all recent loans (e.g., [pʃeninj], pl [pʃenindʒ-j], cf. German *Pfenning* 'coin'; [demiurg], pl [demiurdʒ-j] cf. Greek *demi-ourgos* 'artisan, creator') and in wug words. The process is limited to derived environments:

## (10.10) Non-derived environment blockage

- kilogram 'kilogram'; k'estije<sup>3</sup> 'issue, thing'; oki<sup>4</sup> 'eye'
- ginion 'bad luck'; g'ém 'pool of thread'; triungi 'triangle'

<sup>3</sup> The surfacing [ke], [ge] sequences are realized with fronted velars and a palatal on-glide: [kʲe], [gʲe]; so are, probably, [ki], [gi] but the lack of a [ji]–[i] contrast makes it hard to detect their on-glide.

<sup>4</sup> UR is /oki-u/, /triungi-u/, with word final /u/ regularly deleting; the /u/ resurfaces in the definite forms [oki-u-ɫ], [triungi-u-ɫ]. The restriction of K-Palatalization to derived environments explains the

A minimal constraint-based analysis appears below. As we are concerned here not with the nature of the phonotactics triggering palatalization but with the correspondence constraints competing with them, the phonotactic constraint is only sketched. (See Flemming 2002 and Wilson 2006 for an analysis of the factors leading to velar palatalization.) To formalize derived environment restrictions, I rely on Comparative Markedness (McCarthy 2002). The active phonotactic penalizes only violations not found in the lexical entry of the base morpheme. In the case at hand the phonotactic  $*_{N}KE$  is violated only by the introduction of velar+[-back] sequences absent from the lexical entries of component morphemes.<sup>5</sup>

(10.11) K-Palatalization

- a.  $*_{N}KE$ : Sequences of non-strident [-anterior] C's before front vowels that are new relative to the base morpheme are prohibited.
- b.  $*_{N}KE \gg \text{Ident F}$

nuk- <u>i</u>	$*_{N}KE$	Ident F
a. [nuk <u>i</u> ]	*!	
☞ b. [nut <u>f</u> <u>i</u> ]		*

10.2.3.2 *Derived verbs* We now consider the effect of K-Palatalization in derivation. The analysis is based on a broader survey of derivational morphology but space limits the discussion to derived verbs in [í], [á], [uí], and to nominal suffix [íst]. This section provides background information on these derivatives. All suffixes are attached to stems stripped of their nominal declension markers:

- (10.12) Deriving a verb from a noun or adjective with [í], [á], [uí]
- a. pǎdúr-e 'forest' : im-pǎdur-í 'to cover with forests'
- b. kléjt-e 'pliers': des-kléjt-á 'to force open, to pull apart'
- c. pǐld-ǎ 'example': pǐld-uí 'to make/give an example'

fact that the velars of such forms are never palatalized, including before suffixes that invariably trigger the process. The plural of [oki] is [oki], not \*[oʃi], from /oki-i/. There are interesting and unresolved issues here regarding the interpretation of what is new and what is old in these plural [ki] sequences but the most plausible explanation for the lack of K-Palatalization in the plural is that the [ki] is non-derived because an identical sequence occurs internal to the root.

<sup>5</sup> Here I deviate from the technical details of McCarthy's proposal in ways that are not germane to the main points.

There is no observable syntactic or semantic difference among the three verbalizing suffixes. Data like (10.13) suggest that, in native stems, the choice of suffix is variable or lexically arbitrary.

(10.13) Variation between [í], [á], [uí]

- a.  $\rho\lambda\acute{\imath}\acute{\alpha}\nu\zeta\epsilon\eta\text{-}(u)$  'spider':  $\imath\text{-}\rho\lambda\acute{\imath}\epsilon\eta\zeta\epsilon\eta\text{-}\acute{\alpha} \sim \imath\text{-}\rho\lambda\acute{\imath}\epsilon\eta\zeta\epsilon\eta\text{-}\acute{\imath}$  'become covered in spider webs'
- b.  $\text{dr}\acute{\epsilon}\text{p}\text{-}(u)$  'right, straight':  $\imath\text{-}\text{dr}\epsilon\text{p}\text{-}\acute{\alpha}$  'to make straight';  $\imath\text{-}\text{dr}\epsilon\text{p}\text{-}\text{u}\acute{\imath}$  'to justify a right'
- c.  $\text{gr}\acute{\imath}\zeta\text{-}\Lambda$  'care, worry':  $\imath\text{-}\text{gr}\acute{\imath}\zeta\text{-}\acute{\alpha}$  'to cause/feel worry';  $\imath\text{-}\text{gr}\acute{\imath}\zeta\text{-}\acute{\imath}$  'to take care'

We observe next that the variation in suffix choice is modulated by consonantal phonotactics. The suffix [í] requires K-Palatalization. For this reason, its selection is severely restricted after stems that lack palatalized allomorphs generated in inflection. This is one aspect of inflection dependence. The other is the differential application of K-Palatalization in derivatives marked by [i]-initial suffixes, depending on the structure of the inflectional paradigm of their base.

10.2.3.3 *Inflection dependence of K-Palatalization* In the declension classes  $u/\acute{\imath}$ ,  $\Lambda/\acute{\imath}$ ,  $u/e$ , and  $\Lambda/e$ , K-Palatalization generates alternations between  $k/\text{t}\acute{\jmath}$ ,  $g/\text{d}\acute{\zeta}$ . In the declension class  $u/\text{ur}\acute{\imath}$  these alternations are not expected and do not occur.

(10.14) K-Palatalization and declension classes

		Singular	Plural	Gloss
Alternations: $k/\text{t}\acute{\jmath}$ , $g/\text{d}\acute{\zeta}$	Class $u/\acute{\imath}$	$s\Lambda r\acute{\alpha}k\text{-}(u)$	$s\Lambda r\acute{\alpha}\text{t}\acute{\jmath}\text{-}\acute{\imath}$	'poor' (masc.)
	Class $u/e$	$kat\acute{\alpha}rg\text{-}(u)$	$kat\acute{\alpha}r\text{d}\acute{\zeta}\text{-}e$	'mast'
	Class $\Lambda/\acute{\imath}$	$n\acute{u}k\text{-}\Lambda$	$n\text{u}\text{t}\acute{\jmath}\text{-}\acute{\imath}$	'nut'
	Class $\Lambda/e$	$s\Lambda r\acute{\alpha}k\text{-}\Lambda$	$s\Lambda r\acute{\alpha}\text{t}\acute{\jmath}\text{-}e$	'poor' (fem.)
No alternations: $k/k$ , $g/g$	Class $u/\text{ur}\acute{\imath}$	$l\acute{o}k\text{-}(u)$	$l\acute{o}k\text{-ur}\acute{\imath}$	'place'

Turning now to derived verbs, we expect K-Palatalization to be triggered by [í], but not by [á], [uí]. An effect of inflection dependence will emerge if K-Palatalization is blocked or otherwise avoided in derivatives of words lacking a palatalized allomorph generated in inflection. This can be detected by comparing the derivatives of the classes in which alternations arise ( $u/\acute{\imath}$ ,  $u/e$ ,  $\Lambda/\acute{\imath}$ ,  $\Lambda/e$ ) with those of the non-alternating  $u/\text{ur}\acute{\imath}$  class. One expects one of two

effects: either invariant nouns like [fok, fok-uri] will avoid the verbal [i] suffix, while alternating stems like [sarák, sarátʃi] permit it; or [i] will attach freely to nouns of all classes but verbs derived from the invariant u/uri class will block K-Palatalization, while bases from other classes undergo it.

(10.15) Possible manifestations of inflection dependence

(a) affix avoidance	Inflected forms	Choice of verbalizing suffix
Alternating classes: u/i, u/e, A/i, A/e	sarák, sarátʃ-i	-i ok
Non-alternating class: u/uri	fók, fók-uri	-i avoided
(b) phonotactic violated	Inflected forms	K-Palatalization
Alternating classes: u/i, u/e, A/i, A/e	sarák, sarátʃ-i	/...k-i/ → [...tʃi]
Non-alternating class: u/uri	fók, fók-uri	Blocked: /...k-i/ → [...ki]

Both effects are encountered but only the former arises with derived verbs. What we find is that the choice of verbal suffix is adjusted, and invariant stems (henceforth referred to as K/K stems) avoid [i]. (10.16) compares variable stems (referred to as K/Tʃ) and invariant ones (K/K) with respect to their selection of verbalizing suffixes.

(10.16) Derivatives of alternating K/Tʃ and invariant K/K bases: choice of [-i] vs. [-á], [-uí]

		Base		Derived verb
		Singular	Plural	
a	Class u/uri	fok 'fire'	fók-uri	-a: in-fok-á, *-fotʃ-i 'to fire up'
	Class u/i	kolák 'bagel'	kolátʃ-i	-i: iŋ-kolátʃ-i, *-kolakí 'to roll up'
b	Class u/uri	tîrg 'market'	tîrg-uri	-ui: tîrg-úi, *tîrdʒi 'to go shopping'
	Class u/i	pribéag 'wanderer'	pribédʒ-i	-i: pribédʒ-i *pribegí 'to wander'

Note that in this case there is a default preference for the verbalizer [i]: K/Tʃ stems like [kolák]/[kolátʃ-i] tend to select it. This preference is overridden after

K/K stems, whose inability to undergo K-Palatalization forces the selection of the alternative verbalizing [á], [uí] suffixes. More detail on these points appears below.

When the suffix offers a single [i]-initial form, the derivatives of invariant stems violate K-Palatalization. This is typical of currently productive suffixes, like [ist], whose effect on K/K and K/Tʃ bases is seen below:

(10.17) -ist derivatives of K/Tʃ and K/K bases

	Base		-ist noun
	Singular	Plural	
K/K	fók 'fire'	fók-uri	fok-íst, *foʃíst 'locomotive engineer'
K/Tʃ	stájg-Λ 'left (hand)'	stájndʒ-i	stindʒ-íst, *stingíst 'leftist'
K/K	[fránk-o] (<Franco>, the generalissimo)		frank-íst *frantʃíst 'Franco supporter'
	[góg-a] (<Goga>, Romanian politician)		gog-íst, *godʒ-íst
K/Tʃ	faláng-Λ 'falanx'	falándʒ-e	falandʒ-íst, *falangíst 'falangist'
	lódʒik-Λ 'logic'	lódʒitʃ-i	lodʒitʃ-íst

All masculine proper names (e.g., Franco) behave as invariant K/K stems. That is because their only chance to undergo palatalization would have been the plural, which they lack. (Feminine singularia tantum behave identically but this requires more analysis, deferred to section 10.5). The effect holds more generally for all singularia tantum and thus includes mass nouns as well, e.g., [vlág-Λ] 'life force, energy' lacks a plural, hence cannot palatalize in inflection. For this reason it cannot palatalize in derivation either. It cannot select the common -i verbalizing suffix, yielding instead [vlág-uí] 'to deprive of force'; \*[vládʒ-i] cannot be a derivative of [vlág-Λ].

10.2.3.4 *Effects of \*<sub>N</sub>KE in derivation* We verify now that what was referred to earlier as "the application of Palatalization in derivation" is indeed a phonotactically driven effect rather than an unrelated fact of allomorph selection. The point is made by the observation that palatalized stem allomorphs of K/Tʃ bases appear only before front-vocalic derivational suffixes. Two examples illustrate this below; more detailed lexical counts establish this in the next section.

(10.18) The Phonotactic \*<sub>N</sub>KE distributes dʒ/tʃ-final allomorphs before -{e,i,j}

- a. Inflection: [stájg-Λ] 'left (hand)'; [stájndʒ-j] 'left-pl'
- b. Front-vocalic derivational suffix: [stindʒ-íst] 'leftist', \*[sting-íst]
- c. Back-vocalic derivational suffix: [sting-átʃ] 'lefty', \*[stindʒ-átʃ]

- d. Inflection: [kovrig] 'pretzel'; [kovrídʒ-j] 'pretzels'
- e. Front-vocalic derivational suffix: [in-kovridʒ-i] 'fold like a pretzel', \*[-kovrig-i]
- f. Back-vocalic derivational suffix: [in-kovrig-á] 'fold like a pretzel', \*[-kovridʒ-á]

In the derivatives of K/tʃ nouns like [stíng-Λ]/[stíndʒ-j], the palatalized allomorph occurs only before front suffixal vowels—forms like [stíndʒ-átʃj] are impossible. This is consistent only with the idea that a phonotactic constraint identical or related to the one triggering the alternation in inflection distributes the stem allomorphs in derivation.

10.2.3.5 *Lexical counts* We now verify on a larger scale the existence of the suffix selection effect seen in the preceding sections. A set of 157 derived verbs from k/g-final stems was assembled from the dictionaries DEX (2002) and *Dictionar Invers* (1957). The aim was to have an exhaustive list. Whether the result is exhaustive in a lexicographic sense, it very likely exceeds the limits of any Romanian speaker's active vocabulary. Many of the items found in the *Dictionar Invers* were previously unknown to the author and could not be Googled. They were counted in all cases where a velar-final base for the verb could be identified and where the verb sounded like a possibly usable one.

This survey sought to establish several points: the dispreference for [-i] suffixation in K/K bases compared to K/Tʃ bases; the blockage of K-Palatalization in derivatives from the same K/K bases; and use of palatalized Tʃ-allomorphs only before front suffixal vowels. All points were informally suggested by examples above; all will be predictions of the analysis given below.

We establish first the baseline relative frequency among the three verbalizing suffixes, [-i], [-á], [-uí]. This could be inferred from the frequency of [-i], [-á], [-uí] verbs from bases that end in consonants unaffected by alternations: [r, n, m, ts, ʃ], and the labials [p, b, f, v, m]. (Bases ending in [t/d] and [s/z] are subject to further alternations and are discussed in section 10.4.) A list of 388 derived verbs whose bases end in these consonants was assembled. The list excludes clear loans from French (e.g., [remark-á] 'remark', French *remarquer*) whose assignment to the [-á] conjugation is based on their French inflectional class rather than a preference for [-á]. The relative frequencies of [-i], [-á], [-uí] in this set appear below.

- (10.19) Frequencies of [-í], [-á], [-uí] in native derived verbs from bases ending in non-alternating C's (n=388).

[-í]-verbs	57%
[-a]-verbs	40%
[-uí]-verbs	3%

These figures indicate a preference for [-í] and a strong dispreference for [-uí]. We can encode this by a ranking of affixal preference: Use [-í]  $\gg$  Use [-á]  $\gg$  Use [-uí]. There is nothing in the rankings that predicts the exact numerical pattern of preference. The ratios in (10.19) may be arbitrary, or shaped by other constraints, and the complete analysis will require additional technology, such as the use of stochastic or weighted ranking (Boersma and Hayes 2000).

Against this background, I give next the frequencies [-í], [-á], [-uí] in the 157 verbs surveyed that are susceptible to K-Palatalization of the stem-final C. I divide the verbs into those derived from bases that possess a palatalized allomorph in inflection (K/Tj) and those that lack it (K/K).

- (10.20) Distribution of [-í], [-á], [-uí] suffixes as a function of K/Tj alternations in the base

	K/Tj bases, n=108	K/K bases, n=49	K/Tj bases have palatalized allomorphs, e.g., [kolák]/[koláfj]
í-verbs	77%	6%	K/K bases lack palatalized allomorphs, e.g., [lók]/[lókuri]
á-verbs	19%	38%	
uí-verbs	4%	45%	

The distribution of [í], [á], [uí] among the verbs derived from velar-final bases shows a pattern that approaches complementarity: [í] is markedly overrepresented among alternating K/Tj bases and substantially underrepresented as a suffix to non-alternating K/K bases. The analysis will predict the underrepresentation effect; the overrepresentation of [í] on K/Tj is not incompatible with the analysis but will remain unexplained. It may indicate that in calculating the baseline frequency of verbalizing suffixes we have underestimated the preference for [í].

There are 3 [í] verbs on K/K bases. All three undergo palatalization, e.g., [nimík] 'nothing', [nimík-uri] but [nimitj-í] 'destroy'. These are lexical exceptions in two senses. First, the use of [í] is normally blocked on K/K nouns and novel derived verbs follow this pattern without exception (e.g., [dig]/[dig-uri] 'dike', [in-dig-uí] 'to surround by a dike'). Second, we have seen that

in the derivatives of K/K bases the option of blocking palatalization is standard, e.g., [fokist], [frankist]. Verbs like [nimitʃi] are archaisms dating back to stages of the language where the relevant nouns inflected differently: [nimik], in particular, comes from an earlier feminine form, still in occasional use, [nimikΛ] 'small thing, nothing'. As a feminine, [nimikΛ] could have pluralized only as [nimítʃ-i] or [nimítʃ-e]. Either form will explain the shape of [nimitʃ-i] 'destroy'. Synchronically, [nimitʃ-i] has become idiosyncratic when [nimikΛ] dropped out of common use; only its relative frequency allows the verb to survive now in its old form. The discussion of this case simply underscores that even the exceptions to the pattern of inflection dependence have some explanation, in this case a historical one. The phenomenon is, in other words, robust.

Finally, of the 108 K/Tʃ bases in the corpus, none displays the Tʃ allomorph in derivation before anything other than a front vowel. This does not reflect a restriction on the distribution of [tʃ] and [dʒ], which need not be followed by {e, i, j}; cf. [aritʃ] 'hedgehog', [dʒuvaer] 'jewel'. Rather, this is a restriction on the Tʃ-allomorphs of alternating K/Tʃ nouns. It shows that when \*<sub>N</sub>KE, the constraint triggering palatalization, is moot, the stem chosen is the velar-final one: [sting-atʃ] (10.18c.), [in-kovrig-a] (10.18f.). This choice can be a markedness effect (e.g. \*affricate) or a faithfulness effect, or both. The point of interest is that there is some default dispreference for the use of Tʃ-allomorphs, a dispreference overcome before front-vocalic suffixes, where \*<sub>N</sub>KE triggers their selection.

### 10.3 The analysis

How can we understand inflection dependence? We can approach the question by considering the structure of lexical entries and the way in which the grammar makes use of information they contain.

#### 10.3.1 *Derived lexicon*

We have seen that the grammar remembers which stem allomorphs have been generated in inflection and that it references these, that is, it checks to see if they exist, in derivation. So, in deciding whether to generate the derivative \*[sting-ist] or [stindʒ-ist] 'leftist', the grammar checks the inflected forms of [sting-Λ] 'left' and finds [stindʒ-i]. It is normally the function of the lexicon to remember things, so the following proposal emerges: the inflectional morphology assembles and the phonology generates inflected forms for each lexeme. These are then stored in a derived lexicon and made

available as reference terms in the generation of other complex forms. Here is a first version of the analysis of palatalization in -ist derivatives which makes concrete the process by which [stindʒ-ist] and [fok-ist] are selected: relevant items of the derived lexicon appear in the upper left cell of each tableau.

(10.21)  $\text{Ident}_{\text{lex}}[\text{F}] \gg *_{\text{NKE}}$

•fok-u	$\text{Ident}_{\text{lex}}[\text{F}]$	* <sub>NKE</sub>	•sting-Λ	$\text{Ident}_{\text{lex}}[\text{F}]$	* <sub>NKE</sub>
•fók-uri			•stindʒ-ĩ		
☞ a. [fok-íst]	*!		☞ a. stindʒ-íst		
b. [fofj-íst]		*	b. sting-íst		*!

For the moment, the constraint  $\text{Ident}_{\text{lex}}[\text{F}]$  can be taken to be identical to any Ident F constraint (cf. McCarthy and Prince 1995) and the <sub>lex</sub>-subscript can be ignored.

### 10.3.2 Deriving palatalization in the plural

Plural forms like [stindʒĩ] cannot be underlying lexical items: their phonology is predictable. We cannot list the effects of palatalization because we know that the process applies to any novel item as well as to wug words. Thus a Romanian speaker might not know what a [fislag-Λ] is<sup>6</sup> but he does know that its plural must be [fisladʒ-e] or [fisladʒ-ĩ]. The analysis cannot proceed on the assumption that such forms are listed in the core lexicon but it must derive them instead. It must do so in a pass through the phonology that is antecedent to the one represented in (10.21). This earlier pass provides the reference terms used in (10.21). However, deriving the palatalized plurals is impossible with the ranking in (10.21):

(10.22) Deriving palatalization in plurals?

• sting- -ĩ	$\text{Ident}_{\text{lex}}[\text{F}]$	* <sub>NKE</sub>
a. stindʒ-ĩ	*!	
!☞ b. sting-ĩ		*

The solution will be to split \*<sub>NKE</sub> into a general version, which continues to be outranked by  $\text{Ident}_{\text{lex}}[\text{F}]$ , and a morpheme-specific one,<sup>7</sup> \*<sub>NKEpl</sub>, which penalizes KE sequences specifically assembled by concatenating a stem and a plural suffix. The morpheme-specific version of the phontactic outranks faithfulness:

<sup>6</sup> It is a wug word.

<sup>7</sup> Cf. Pater 2006

- (10.23) Deriving palatalization in plurals: a morphemically indexed constraint

• sting- $\underset{\cdot}{\text{ɨ}}$	* <sub>N</sub> KE <sub>pl</sub>	Ident <sub>lex</sub> [F]
a. stind $\underset{\cdot}{\text{ɜ}}$ - $\underset{\cdot}{\text{ɨ}}$		*
b. stɨng- $\underset{\cdot}{\text{ɨ}}$	*!	

Evidence that confirms the analysis is the behavior of palatalization in verbs. Productive verbs of the first conjugation – the heirs to the Latin first conjugation – block palatalization. The suffix *-ez/-eaz-* that characterizes all singular forms is expected to trigger it but systematically does not:

- (10.24) No palatalization in productive verbs

mark-a ‘to mark’	Indicative singular	Subjunctive singular
First person	mark- <i>éz</i>	s <sub>Λ</sub> mark- <i>éz</i>
Second person	mark- <i>éz-<math>\underset{\cdot}{\text{ɨ}}</math></i>	s <sub>Λ</sub> mark- <i>éz-<math>\underset{\cdot}{\text{ɨ}}</math></i>
Third person	mark- <i>eáz-Λ</i>	s <sub>Λ</sub> mark- <i>éz-e</i>

In unproductive verb classes, including in the first conjugation, palatal alternations occur everywhere one might expect them. Here is a sample paradigm:

- (10.25) Palatalization in unproductive verbs

sek-á ‘to dry’ (trans.)	Indicative singular	Subjunctive singular
First person	sék	s <sub>Λ</sub> sék
Second person	sét $\underset{\cdot}{\text{f}}$ - $\underset{\cdot}{\text{ɨ}}$	s <sub>Λ</sub> sét $\underset{\cdot}{\text{f}}$ - $\underset{\cdot}{\text{ɨ}}$
Third person	s $\underset{\cdot}{\text{e}}$ ák-Λ	s <sub>Λ</sub> sét $\underset{\cdot}{\text{f}}$ -e

Phonologically, forms like [s<sub>Λ</sub> sét $\underset{\cdot}{\text{f}}$ -e] ‘that he dry’ and [s<sub>Λ</sub> mark-*éz-e*] ‘that he mark’ look like minimal pairs: one undergoes palatalization, the other does not. In fact, the application of palatalization is predictable from the suffix containing the front vocoid: *-ez/eaz-* never triggers palatalization, while *-e* and *- $\underset{\cdot}{\text{ɨ}}$*  always do. This is support for the notion that the application of palatalization in inflection is triggered by morphemically-indexed constraints like \*<sub>N</sub>KE<sub>pl</sub> and, thus, indirectly, it is support for the analysis in (10.23).

The evidence that the palatalized plurals are generated by a morpheme-specific version of \*<sub>N</sub>KE should not obscure the continuing role of the general constraint in the system. We will still need the general version \*<sub>N</sub>KE to explain the lawful distribution of *tʃ/dʒ* stem allomorphs before front vocalic derivational suffixes.

10.3.3 *The lexical entries of the derived lexicon*

What is the internal structure of a derived lexical entry? How are the complex items [stɪŋ-ɹ] and [stɪndʒ-ɹ] recorded in the derived lexicon? What will matter for our analysis is, for the moment, just the possibility of recognizing whether such derived forms are lexically related or not. Lexical relatedness reduces, in sparse models of the lexicon, to pure morphemic identity:<sup>8</sup> [stɪŋ-ɹ] and [stɪndʒ-ɹ] are related in such models if and only if they reduce to one root, when all effects of phonology and morphology have been factored out. But in analyzing inflection dependence we need more than access to the sparse core lexicon; we need, for instance, to know that the complex surface form [stɪndʒ-ɹ] exists – not potentially but actually<sup>9</sup> – and that it is related, not accidentally similar, to the root of [stɪŋ-ɹ]. Only if they are related does palatalization in one license palatalization in derivatives of the other.

Here is an example that makes the point concrete. The term for ‘century, extended time interval’ is [vɛ́ak], plural [vɛ́ak-uri]. A plural [vétʃ-ɹ] appears in the phrase [pe vétʃ-ɹ] ‘forever’ (lit- “for ages”) and relates to the abstract [vétʃ-íe] ‘eternity’. Although all phonological differences between [vétʃ-ɹ] and [vɛ́ak] are due to fully productive processes, speaker intuition and the derivational behavior of [vɛ́ak] suggest that [vétʃ-ɹ]/[vétʃ-íe] are lexically unrelated to it. The derivatives of [vɛ́ak] are those of a K/K noun and do not palatalize, e.g., the derived verb is [vek-úi] ‘to live out one’s life’, not \*[vétʃ-í].

Exactly why the noun in [pe vétʃ-ɹ] does not count for Romanian speakers as an alternate plural of [vɛ́ak] is unclear. The point of the example is simply to illustrate that the analysis of inflection dependence must rely on a very specific understanding of lexical relatedness: the regular, all-purpose plural of one noun is related to its singular; the masculine of one form is related to its regular feminine. Less clearly characterized relations, like that of the contextually restricted plural [vétʃ-ɹ] to [vɛ́ak], do not appear to qualify and do not license the processes we discuss.

Beyond this, one can envision the structure of the derived lexicon in two ways: one macro-entry could house the entire pool of phonological variants, e.g., the derived stems [stɪŋg-] and [stɪndʒ-], along with syntactic, lexical semantic, and inflectional class information. The other possibility is to assume that the derived lexicon is related or identical to the notion of the access

<sup>8</sup> See Stockall and Marantz 2005 for recent discussion.

<sup>9</sup> All productive feminine nouns ending in velars have the *potential* of a palatalized allomorph because all productive feminine plural endings cause palatalization. The singularia tantum like [vlag-ɹ] do not *actually* have such allomorphs because they lack a plural. It is only this fact about actual presence or absence that matters to the phonology of their derivatives.

lexicon (Marslen-Wilson et al. 1994): a modality specific, redundantly specified access set of forms linked to a single, modality neutral, sparsely specified central entry. In our example, the items [stɪŋg-] and [stɪndʒ-] would be located in the auditory access lexicon, and linked to the central entry /stɪŋg/. Whether lexical relatedness is encoded via the concept of macro-entry or by positing links between the related items will not matter here. What will matter though is exactly which forms are accessible in the computation of which other forms.

#### 10.3.4 Access to the derived lexicon and the cycle

Thus far we have proposed that morphologically complex items are generated in several passes through the grammar. First, inflected forms are assembled and their phonology is computed, with the results being stored in the derived lexicon. Then, derived forms are assembled, with their phonology computed by reference to the derived lexical items stored on the first pass. Now we consider what type of access to derived information the grammar needs in order to model the inflection dependence effect.

The distinction between a basic and a derived lexicon and the notion that the latter is built in successive passes through the grammar come from Lexical Phonology and Morphology (LPM, Kiparsky 1982). The model motivated by inflection dependence must incorporate these elements.

But LPM, in its rule- and constraint-based versions, also contains a hypothesis about the limited access the grammar has to the derived lexicon. This is the hypothesis of cyclic application initiated by Chomsky, Halle, and Lukoff (1956) and which, for our purposes, can be formulated as follows: when the grammar derives an expression E, it can access as its input only the cyclic outputs of the morphosyntactic subconstituents of E.<sup>10</sup>

In our case, the hypothesis of cyclic application is an obstacle to the analysis: [stɪndʒ-i] 'left-pl' is not a syntactic subconstituent of [stɪndʒ-ɪst] 'leftist', but the derivation of the latter must be based on knowledge of the former. If, in some way, [stɪndʒ-i] is declared a syntactic subconstituent of a derivational form like [stɪndʒ-ɪst], then it should also be one for similar derivatives, like [stɪŋg-átʃ] 'left-handed', but a cyclic derivation based on first cycle [stɪndʒi] predicts overapplication, \*[stɪndʒ-átʃ].

What we need here is access to multiple derived, lexically-related forms rather than to just the one subconstituent of the larger form under evaluation. This is not a new finding. The need to compute the phonology of complex

<sup>10</sup> The Strict Cycle Condition (Mascaró 1976) makes the additional requirement that only the cyclic outputs of the immediate subconstituents of E be consulted.

forms from inflected words that are related to but not nested within them was demonstrated by Kraska-Szlenk (1995) among others:<sup>11</sup> Kraska-Szlenk (1995: 108ff) shows that the stem vocalism of Polish inflected diminutives is determined by the vocalism of the NOM singular form, even though this form is not syntactically or phonologically contained within any of the case forms dependent on it. The data fragment below illustrates how raising of [ɔ] to [u] (normally triggered by underlyingly voiced codas) applies in diminutives if and only if it has lawfully applied in their NOM singular.

(10.26) Polish stem vocalism in diminutive nouns (Kraska-Szlenk 1995)

	NOM sg	GEN sg	GEN pl
'cow': /krɔv/	kruf-k-a	kruf-k-i	kruv-ek
'ditch': /dɔw/	dɔw-ek	dɔw-k-a	dɔw-k-uf

Raising applies as expected in the NOM sg of 'cow'—before the underlying /v/ of /kruv-ka/—but not in the NOM sg of 'ditch', where the voiced /w/ is not a coda. Raising is not expected to apply in the GEN pl of 'cow', but it applies anyway; it is also expected to apply in the GEN forms of "ditch" but it does not. That is because application or non-application is determined entirely by the NOM sg form, which acts here as an inner cycle. The point is that if this is an inner cycle, it is one without the benefit of syntactic subconstituency. That is also what happens in Romanian [stɪndʒ-ɪst], which can consult the plural [stɪndʒ-ɪ] without containing it.

What is fundamentally new about the Romanian case is that it shows the need to allow grammatical computations freer access to derived lexical items, not only for the purpose of generating uniform paradigms – as in Polish – but also for the purpose of satisfying phonotactic constraints. Romanian also shows the widespread need for such access to the derived lexicon throughout the entire system, rather than limited to a small subparadigm. The entire derivational system works by consulting the phonology of the derived inflected items, as suggested for Palatalization in section 10.2 and below, in section 10.4, for other processes.

If the architecture of the cycle is generally insufficient to model the phonological dependence of derived lexical items on each other, we still need additional mechanisms that bring back the cycle in the cases where a liberalized access to the derived lexicon overgenerates. These will be discussed in 10.3.6.

<sup>11</sup> See also Burzio (1996); Steriade (1999a, b); Albright (2002); Pertsova (2004) for cases with a similar character.

## 10.3.5 How the grammar uses lexical resources: LexP constraints

The grammar we assume uses correspondence constraints (McCarthy and Prince 1995) to verify that the properties of the candidates evaluated find correspondents in the properties of lexically-related listed forms. Correspondence constraints were formulated, however, on the assumption that for each candidate there is exactly one relevant, underlying or derived, input form.

Here we have seen the reason why this cannot be maintained in the general case. Thus, when [stind<sub>3</sub>-íst] is computed, its [d<sub>3</sub>] is sanctioned by the [d<sub>3</sub>] found in the plural [stind<sub>3</sub>-î]. However, the grammar was not specifically looking for the plural in computing [stind<sub>3</sub>-íst] – there would be no syntactic or semantic reason to look for a plural – rather, it was looking for any listed form that might contain a [d<sub>3</sub>], and just found that one. The kind of correspondence constraints we need check candidate properties not against one specific item but against a pool of lexically-related items and are satisfied if at least one form in the pool provides the correspondent. I call these constraints LexP constraints (Steriade 1999a, b) and identify them here by the subscript <sub>lex</sub>. These differ from standard correspondence constraints in just this respect that they are satisfied if any one in a larger list of inputs provides the correspondent property. Ident<sub>lex</sub> [±F] is defined below; to understand how it operates, we re-examine one of the tableaux in (10.21).

- (10.27) Ident<sub>lex</sub> [αF]: For any segment *s* in a subconstituent *C* of an expression under evaluation, if *s* is [αF] then *s* has an [αF] correspondent in a listed<sup>12</sup> allomorph of *C*.

• {sting-; stin:d <sub>3</sub> } • {-íst}	Ident <sub>lex</sub> [F]	* <sub>N</sub> KE
☞ a. stind <sub>3</sub> -íst		
b. stɪŋg-íst		*!

Candidate (a.) in (10.27) satisfies Ident<sub>lex</sub> F in the following way. It contains two subconstituents, a stem and an affix. Every segment in the stem subconstituent of [stind<sub>3</sub>-íst] has a featurally identical correspondent in the [stind<sub>3</sub>] allomorph of the stem, and every segment in the suffix has a featurally identical correspondent in the one allomorph of the suffix. Candidate (b.) satisfies (10.27) in the same way but by reference to the [stɪŋg] allomorph.

Nothing prevents, in principle, different elements in an expression from finding their listed correspondents in different listed allomorphs. This case is encountered in English, e.g., *bureáucrat-ism* takes its stem stress from that of

<sup>12</sup> *Listed* means listed in the core or the derived lexicon and is consistent with predictable properties.

*bureáucracy* but its t-final from *búreaucrât*. Relevant cases are also encountered in French liaison (Steriade 1999a, b). The phenomenon has been dubbed “the split-base effect”: the elements of one surface stem originate in two distinct listed allomorphs, or bases, of it. Romanian does not offer comparable phenomena in the cases discussed here but the analysis of agent nouns like [VAZ-A-tór] ‘one who sees’ requires reference to several distinct verbal forms: the present participle [VAZ-í-nd] supplies the stem consonantism while the infinitive [ved-ǎ] supplies the height of the theme vowel (Steriade 2003). The split-base effect is the predicted consequence of the use of LexP constraints, so its verified existence confirms the general lines of the analysis. Militating against the combination of elements from distinct listed allomorphs, there are also constraints promoting strict identity of the surface stem to just one listed form. These are discussed in greater detail in Steriade (1999b) on the basis of French data.

Other correspondence constraints are defined analogously to  $\text{Ident}_{\text{lex}}$  [aF].  $\text{DEP}_{\text{lex}}$  appears in (10.28):

- (10.28)  $\text{DEP}_{\text{lex}}$ : For any segment  $s$  in some subconstituent  $C$  of a candidate expression,  $s$  has a correspondent in a listed allomorph of  $C$ .

The status of MAX in this system is less straightforward. If a surface candidate has potentially more than one lexically-listed correspondent then the question is what circumstances will satisfy MAX. Suppose  $\text{MAX}_{\text{lex}}$  is formulated as below:

- (10.29)  $\text{MAX}_{\text{lex}}$ : Given a subconstituent  $C$  of a candidate expression, if  $C$  has a set  $S$  of listed allomorphs  $\{A_1, A_2, \dots, A_n\}$ , then every segment in each member of  $S$  has a correspondent in  $C$ .

This condition is violated unless every segment in each listed allomorph shows up in the unique surface candidate of the subconstituent  $C$ . To see how this might work, consider the hypothetical evaluation of  $\text{MAX}_{\text{lex}}$  in *brotherly*, making the assumption that *brother* and *brethren* are the listed allomorphs of the stem. Neither *brotherly* nor *\*brethrenly* satisfy  $\text{MAX}_{\text{lex}}$  on the definition in (10.29) because either form misses a segment or more from the other one of the two listed stems. The danger associated with (10.29) is that it will promote candidates like *\*brotherenly*, whose stem combines the segments of both stems. No comparable cases exist, to my knowledge, and this suggests that (10.29) is never active, so the wrong constraint. The alternative is a version of MAX that requires at least one listed allomorph to be such that each of its segments find a surface correspondent in the candidate.

- (10.30)  $MAX_{lex}$ : Given a subconstituent C of a candidate expression, if C has a set S of listed allomorphs  $\{A_1, A_2, \dots, A_n\}$ , then at least one member of S is such that every segment in it has a correspondent in C.

The constraint in (10.30) will have to be tested against systems in which stem variants involving segment deletion arise routinely. Leaving aside this case, the purpose of this section has been to indicate that it is feasible to reformulate correspondence constraints on the assumption that candidates are compared to a set of potential input correspondents rather than to only one.

### 10.3.6 *The cycle again*

Until now, the case was made here for allowing grammar greater access to the derived lexicon in computing new forms. I consider now the class of well-known cases that seem to argue to the contrary, that is, that the only accessible phonological information in computing some form is found in the cyclic outputs of its subconstituents. Such cases represent the empirical evidence for the cyclic claim outlined earlier, namely that, in deriving an expression E, the grammar can access only the cyclic outputs of E's subconstituents. The purpose of this section is to make this type of evidence compatible with the proposals motivated here by inflection dependence.

Consider Levantine Arabic *fhím-na* 'he understood us'. A large body of literature (Brame 1974; Kenstowicz and Abdul Karim 1982; Kager 1999; Kiparsky 2000) has discussed the fact that, in forms like this, reference to cyclic subconstituents explains the otherwise unexpected failure of syncope on the first syllable: stressless non-final [i] should have deleted, given syncope's general mode of application, yielding \**fhím-na*. The cycle, in an OT grammar equipped with correspondence, explains the blockage of syncope in *fhím-na* by comparing this form with its immediate stem subconstituent *fhím* 'he understood'. Syncope does not apply in *fhím* because one [i] is stressed and the other is in a closed syllable. Faithfulness to *fhím* blocks syncope in *fhím-na*.

The question for us is what causes *fhím-na* to choose to be faithful to just the one stem allomorph *fhím* when other stem variants are also available: these other forms arise from the application of syncope to other verbal forms, where one or the other of the two [i]'s are unprotected by stress or closed syllables. We will consider just one of these allomorphs, that of *fhím-t* 'I understood'. Here stress falls on the extra-heavy final syllable, leaving the initial unstressed [i] ready to syncope: /*fhím-t*/ → [f*h*ímt]. Now, in any constraint-based account of these data, syncope is promoted by a constraint that's satisfied in *fhím-t* and violated in *fhím-na*. It is violated in

the latter under the compulsion of a higher-ranked faithfulness condition which requires the stressed vowel of the base *fhim* to have a correspondent in its derivative *fhím-na*.<sup>13</sup> The situation is depicted in (10.31), making the assumption that *fhim* ‘he understood’ is the only input in computing *fhím-na*.

- (10.31) Selecting *fhím-na*: evaluation based on a single accessible stem allomorph

fhim	MAX stressed V	Syncope trigger
☞ fhím-na		*
fhím-na	*!	

Consider now what happens when we make available to the grammar of Levantine multiple-stem allomorphs: the attested *fhím-na* seems no longer able to win. That is because the alternative *fhím-na* – based on the stem of *fhim-t* – satisfies both MAX stressed V (under the only conceivable <sub>lex</sub>-version of this constraint, in (10.33)) and the phonotactic triggering syncope.

- (10.32) Selecting *fhím-na*: evaluation based on all stem allomorphs attested in inflected verb forms

{fhim, fhím-}	MAX <sub>lex</sub> stressed V	Syncope trigger
fhím-na		*!
!☞ fhím-na		

- (10.33) MAX<sub>lex</sub> stressed V: Given a subconstituent C of a candidate expression, if C has a set S of listed allomorphs {A<sub>1</sub>, A<sub>2</sub>, ... A<sub>n</sub>}, then at least one member of S is such that its stressed vowel has a correspondent in C.

What prevents then ‘he understood us’ from being realized as *\*fhím-na*? The question is generally one about the compatibility between the Romanian system, where phonotactics are satisfied by redistributing stem allomorphs without regard to cyclic restrictions, and the Levantine system, where the same process of stem swapping is blocked. It is not clear that some independent factor differentiates Romanian from Levantine; so it is not clear why the two systems must differ as they do. We will assume then that the difference between them stems from constraint ranking. The mechanism we need, similar to the LexP/M conditions in Steriade 1999b, is tentatively introduced here. It requires both a better understanding of syntactic structure and a comparison between

<sup>13</sup> *Fhim-t* lacks such a base. Its stem *fhim* is an uninflected verb form lacking stress properties.

pairs of systems that are more similar than Romanian and Levantine, but a proposal is spelled out here in the interest of having a concrete possibility before us.

The general idea is that of a constraint that promotes phonological identity between morphosyntactically identical expressions. So, in the case of *fhím-na* 'he understood us' the stem *fhím-* is syntactically identical to the isolation *fhim* 'he understood': both represent the exponents of the third person singular perfect. Syncope in *fhím-na* is inhibited in order to signal through phonological identity the syntactic identity of the inner stem to the third singular verb *fhim*. Had syncope applied, the result *\*fhím-na* would contain a stem that is phonologically identical not to the third singular but to the stem of the first singular verb. What we need then is a system of conditions penalizing the phonological divergence between syntactically identical expressions.

To formulate our constraint, we need to make precise the notion of morphosyntactic identity that conditions phonological identity. We will assume that syntactic properties like person, number, aspect, and case are represented as syntactic feature values. The stem of a plural noun will thus be referred to as being [+plural], that of a first singular verb will be marked as [+participant, +speaker] (Halle 1997). Candidates being evaluated and listed stems will differ potentially in their feature specifications. We will assume that the candidate stem is specified strictly for syntactic properties of the stem constituent, ignoring information contributed by the larger syntactic context in which the stem occurs. So the verb stem *fhím-* of *fhim-na*, when viewed as a candidate, is assumed to be marked as [-participant<sub>subj</sub>, -speaker<sub>subj</sub>, +singular<sub>subj</sub>] (that is, as having a third person singular subject) and it will bear no specification corresponding to the person and number of any object argument. Information about the object argument is outside the domain of the stem. When considered, however, as an item of the derived lexicon, as a potential reference term, the stem will be assumed to carry syntactic information provided by the immediate context, whenever this information is not incompatible with stem-internal information. Thus, the stem *fhim-* of *fhim-t* will be specified as first person singular based on information provided by the first person singular suffix -t and given the absence of incompatible person/number information present on the stem itself. Similarly, the stem [stind<sub>3</sub>] of the Romanian plural [stind<sub>3</sub>-i] will be specified as plural, based on information provided by the plural suffix and given the absence of incompatible information inherent in the stem.

Granted these assumptions about syntactic feature specifications in the stem, the general proposal is that a candidate stem must stand in correspondence to any lexically-related listed expression possessing the same set

of syntactic specifications. The condition promotes global correspondence between the two expressions, based on their syntactic identity. Once correspondence is established, the detailed aspects of phonological identity – segment-to-segment correspondence, featural, and prosodic identity – are handled by standard one-to-one correspondence constraints like MAX, DEP, Ident, etc. Our condition establishing global correspondence between syntactically identical expressions appears below:

- (10.34) Given a subconstituent C of a candidate expression characterized by a set of syntactic specifications  $\{[\alpha F], [\beta G], \dots, [\gamma H]\}$ , C stands in correspondence to that one of its listed allomorphs that is characterized by the same set of syntactic feature values.

In the Levantine case, the correct result is obtained by letting (10.34) and the standard correspondence constraint MAX stressed V (as distinct from the MAX<sub>lex</sub> constraint in (10.33)) outrank the syncope trigger constraint. (10.34) selects *fhim* as the derived lexical item standing in correspondence with the stem of ‘he understood us’. (10.34) excludes as a correspondent the stem *fhim-* of first person *fhim-t*: This stem has been marked as first person singular and is thus syntactically non-identical to the stem of ‘he understood us’. Having established correspondence between *fhim* and the stem of ‘he understood us’, the ranking of MAX stressed V over the syncope trigger blocks the deletion of the initial [i] and selects *fhím-* as the stem of *fhím-na*. (Stress is determined entirely by the phonotactics and will not concern us here.) Below stems are given subscript indices to mark correspondence relations:

- (10.35) Effect of (10.34) in selecting *fhím-na* over *fhim-na*

• $fhim_i-$ [-participant <sub>subj</sub> , -speaker <sub>subj</sub> ]	(10.34)	MAX stressed V	Syncope trigger
• $fhim_j-$ [+participant <sub>subj</sub> , +speaker <sub>subj</sub> ]			
☞ $fhím_i - na$			*
$fhím_i - na$		*!	
$fhím_j - na$	*!		

In Romanian, the effect of (10.34) is to establish correspondence between the stem of [stindʒ-íst] and the listed allomorph [sting] of [stíng-A] ‘left’ on the grounds that both are non-plural. Then if (10.34) and Ident strident outrank the phonotactic \*<sub>N</sub>KE, we would predict \*[stíng-íst], a sort of cyclic identity effect. The actual outcome [stindʒ-íst] can be modeled by ranking \*<sub>N</sub>KE above Ident strident or above (10.34). Of the two available rankings that select [stindʒ-íst], we choose the former. The limited extent of linguistic variation

we have observed does not require that (10.34) be anything but undominated. Ident<sub>lex</sub> strident dominates \*<sub>N</sub>KE, as argued earlier, and thus continues to play a key role in prohibiting forms like [fofj-íst], on non-alternating [fók], [fók-urj].

(10.36) \*<sub>N</sub>KE  $\gg$  Ident strident selects [stind<sub>ʒ</sub>-íst] over [sting-íst]

•sting <sub>i</sub> - [-plural]	(10.34)	Ident <sub>lex</sub> strident	* <sub>N</sub> KE	Ident strident
•stind <sub>ʒ</sub> - [+plural]				
sting <sub>i</sub> -íst			*!	
stind <sub>ʒ</sub> -íst	*!			
stind <sub>ʒ</sub> <sub>i</sub> -íst				*

The discussion of cyclicity can now be summarized. I have proposed a mechanism that establishes correspondence under syntactic identity between expressions listed in the (derived or underlying) lexicon and constituents of expressions being evaluated. As is standard under the theory of Correspondence, correspondent elements need not be identical. They are non-identical under rankings in which a constraint like (10.34), which establishes global correspondence, and some competing phonotactic outrank individual correspondence constraints like MAX or Ident. Consistent with this, the analysis of [stind<sub>ʒ</sub>-íst] in (10.36) establishes correspondence between the stem of this noun and the singular stem of 'left' [sting-]: lack of identity between the correspondent stems is generated by the ranking \*<sub>N</sub>KE  $\gg$  Ident strident. Cyclic identity arises only when an individual correspondence constraint like Ident outranks the competing phonotactic.

The proposal sketched here succeeds in finding the common ground between standard cases of cyclicity and the newly found phenomenon of inflection dependence. It upholds the claim made earlier that the grammar has broader access to the derived lexicon than previously assumed in the analysis of cyclicity. The appearance of restricted access – for example, the appearance that *fhím-na* is computed by a grammar that can consult *fhím* but not *fhím-t* – emerges under just one of several possible rankings between correspondence and phonotactics. If the ranking of the Syncope trigger and MAX stressed V in (10.35) is reversed, the grammar generates *fhím-na*; and if constraint (10.33), MAX<sub>lex</sub> stressed V, becomes active in a Levantine-type system, then syncope in hypothetical *fhím-na* becomes possible just for roots in which a subject-inflected form of the verb, e.g., *fhím-t*, has undergone syncope of the initial vowel. Thus, only a couple of rankings differentiate systems that appear as radically different as Romanian and Levantine.

#### 10.4 Inflection-dependence and related beyond K-Palatalization

In addition to Palatalization, several other phonological processes operate at various levels of productivity in Romanian phonology. This section presents evidence that some of them are inflection-dependent in ways that are substantially identical to those documented for Palatalization. The purpose is not to provide an exhaustive analysis of the system but to hint at the generality of the phenomenon described here. The fact that we are in the presence of a general phenomenon here is also suggested by the existence of something like inflection dependence in Italian (Burzio 1996), where the irregular application of Palatalization in inflection (e.g., *comico*, *comi[tʃ]-i* 'comical'; vs. *antico*, *anti[k]-i* 'old, antique') mirrors the possibilities for Palatalization in derivation (e.g., *comi[tʃ]-ità* 'comicalness'; *anti[k]-ità* 'antiquity').

##### 10.4.1 Segmental alternations: Assibilation and S-Palatalization

Alveolar stops become strident-voiceless [ts] and voiced [z]—before [i] in derived environments; the fricatives [s], [z] becomes palatoalveolar [ʃ], [ʒ] in the same context. The examples below come from declension; comparable alternations arise in verbal inflection:

##### (10.37) Assibilation and S-Palatalization

Assibilation	t → ts/[−back, +high] d → z/[−back, +high]	frát-e fráts-î vérd-e vérz-î	'brother' 'pl' 'green, masc' 'pl, masc'
S-Palatalization	s → ʃ/[−back, +high] z → ʒ/[−back, +high]	supús supúʃ-î viteáz vitéʒ-î	'subject, masc' 'pl, masc' 'brave, masc' 'pl, masc'

Nouns and adjectives that form their plurals by suffixing [-e] or [-uri] will have no occasion to assibilate or S-Palatalize. Forms that lack a plural because they do not inflect (e.g., they are adverbs) will also be non-alternating. The inflection-dependent status of the processes in (10.37) is established by comparing the derivatives of nouns/adjectives with [i]-plurals, which undergo Assibilation and S-Palatalization, with those of otherwise similar non-alternating items. Here we focus on the derived verbs in -í, -á, -uí. I will refer to non-alternating nouns and adjectives as T/T and s/s bases, respectively, and to the alternating ones as T/Ts and s/ʃ bases. We observe below that the derivatives of T/T and s/s bases do not undergo either Assibilation or S-Palatalization, in the same way that derivatives of K/K bases do not undergo K-Palatalization.

- (10.38) Derived verbs on T/T bases compared with those of alternating T/Ts bases

		Base		Verb in -i
a	T/T: Adverb	gáta 'ready'		pre-gat-í, *pregatsí 'to make ready'
	T/Ts: u/i Adj.	lat-(u) 'wide'	lats- <u>i</u> 'pl'	lats-í *latí 'to make wide'
b	T/T: Adverb	amínte 'in mind'		amint-í, *amintsí 'to bring to mind'
	T/Ts: e/i Adj.	kumínte 'wise'	kumínts- <u>i</u> 'pl'	kumints-í *kumintí 'to make wise'

- (10.39) Derived verbs on s/s bases compared to those of alternating s/f bases

		Base		Verb in -i
a	s/s: u/uri N	popas 'rest'	popás-uri	popos-í, *popofí 'to stop and rest'
	s/f: u/i N	pás 'step'	páf- <u>i</u>	páf-í, *pasí 'to step'
b	s/s: numeral	fás-e 'six'		in-fes-í, *infejí 'multiply by six'
	s/f: u/i Adj.	sánatós 'healthy'	sánatóf- <u>i</u>	in-sanatof-í, *insanatosí 'recover'

Lexical counts support the idea that the contrasts above reflect systematic restrictions. For reasons of space, we will consider just the applicability of Assibilation in T/Ts bases like [kumínte]/[kumínts-i] compared to T/T bases like [amínte]. Of the 90 [-i] derived verbs based on T/Ts bases, fully 85% undergo Assibilation in derived verbs, so 85% of these verbs behave phonologically like [a kumints-í] 'to make wise'. By contrast, only 5% of the [-i] verbs derived from the T/T bases (n=65) undergo Assibilation: the vast majority of the non-alternating verbs block Assibilation. Second, we observe that the [i] verbal suffix is underrepresented in derivatives of T/T bases, which tend to prefer non-assibilating suffixes like [á] and [uí]; by contrast, [i] is somewhat overrepresented in derivatives of T/Ts bases. So, of the 243 derived verbs surveyed that are susceptible to Assibilation of the stem-final C, 79% of the verbs derived from T/Ts bases (n = 101) use the assibilating suffix [i]. As we have seen, the majority do assibilate. Only 46% of the verbs derived from T/T bases use [i], and, as indicated above, most of these do not assibilate. So inflection dependence works, in the case of Assibilation, both to limit assibilation to the derivatives of alternating T/Ts verbs and to limit assibilating suffixes to those same bases.

The deviations from a categorical 100%-0% distribution of Assibilation across the two classes of [-i] verbs are lexical exceptions: thus, [dovád-á], [dovéz-í] 'proof' is exceptional in having as derived verb [doved-í] 'to prove' as against expected \*[dovez-í]. Conversely, the verb [in-suflets-í] 'to breathe life into' shows Assibilation despite the fact that its u/e base [súflet], [súflet-e] 'breath, soul' lacks it. These cases are relatively rare and many have diachronic explanations. The current analysis cannot encode them without appeal to some form of exception feature, which I leave unspecified. The clear prediction

of our analysis is that novel [-ɨ] verbs follow the general trend and assibilate only if their inflected base already has. Although this is not yet verified on a larger scale, I can report anecdotally that a nonce verb like [rinz-ɨ] is uninterpretable as based on the T/T form [rind], [rind-uri] 'row': its only conceivable [d]-base is a non-existent noun like [rind], [rinz-ɨ].

#### 10.4.2 Overview of inflection dependence

In the previous section, I have shown that two more processes display the symptoms of inflection dependence found initially for K-Palatalization. To put this information in broader perspective, one can add that Assibilation, K- and S-Palatalization are the most productive consonantal alternations operating in inflection and, in principle, applicable in derivational contexts as well. This finding suggests then that, at least for consonants, inflection dependence is a central mechanism operating in Romanian grammar. It is characterized, in its general form, by the ranking in (10.40a.) below, where F(C) refers to any consonantal feature and \*F(C)/K to any phonotactic constraint targeting a consonantal feature in some context K.<sup>14</sup> The ranking in (a.) states that the Ident<sub>lex</sub> constraint for any feature F(C) outranks the phonotactic. This describes the inflection dependence effect, the impossibility of C-alternations generated in derivation for nouns that fail to alternate in the same way in inflection. For the subset of C-phonotactics studied here, we have established also the class of rankings summarized in (b.). This describes the absence of cyclicity effects, that is, the potential phonotactically-driven dissimilarity between correspondent stems (as defined by (10.34)) with respect to values for consonantal features F(C).

- (10.40) a. Ident<sub>lex</sub> F(C)  $\gg$  \*F(C)/K  
 b. \*F(C)/K  $\gg$  Ident F(C)

Under the opposite ranking to (10.40b.)—Ident F(C)  $\gg$  \*F(C)/K—correspondent stems must have identical values for the features of their C's. This would describe a system in which, say, [st<sup>h</sup>ing-Λ, st<sup>h</sup>indz-ɨ] has only derivatives like \*[st<sup>h</sup>ing-ɨst], with the [g] of the non-plural inflectional stem kept identical to the [g] of its derivational correspondent. Cases of this sort probably do occur in Romanian, for alternations that we have not considered; their analysis requires considerably more space than we have available here and is left to future discussion.

<sup>14</sup> The notion that a phonotactic constraint targets a specific feature is adopted from Wilson (2001) and left here unformalized: K-Palatalization targets the C-features [dorsal] and [strident] and not the V-feature [-back] because it has the effect of modifying the former and not the latter.

For vocalic alternations, inflection dependence is harder to document, in part because the processes triggering vocalic alternations in inflection and derivation are distinct. In at least two cases, it is very likely that vocalic processes are not inflection-dependent: the raising of [a] to [ʌ] (illustrated by (10.41a.)) and the compression of the diphthongs [ɛa], [ɔa] to [e], [o] (in (10.41b.)) happen productively regardless of whether the base noun displays these alternations in inflection.

(10.41) Vocalic alternations are not inflection-dependent:

	Base		-í verb	
	Singular	Plural		
a	Class u/ur <sub>i</sub> ̃	záf 'robbery'	záf-ur <sub>i</sub> ̃	ʒʌf-úí, *ʒaf-úí 'to rob'
	Class ʌ/ur <sub>i</sub> ̃	blán-ʌ 'fur'	blʌn-ur <sub>i</sub> ̃	ím-blʌn-í, *ím-blʌn-í 'line with fur'
b	Class ʌ/e	glɔát-ʌ 'crowd'	glɔát-e	ín-glɔt-í, *ínglɔatí 'to crowd'
	Class ʌ/í	grɔap-ʌ 'grave'	gróp-í	ín-grop-á, *íngropá, 'to bury'

The vowel [a] raises before high vowels in the plural of feminine nouns (e.g., blán-ʌ/blʌn-ur<sub>i</sub>̃) and in stressless syllables ([ím-blʌn-í], on [blán-ʌ]). Raising of [a] happens not only in the derivatives of alternating nouns like [blán-ʌ] but also to nouns like [záf], which have no occasion to alternate in inflection; [záf] is neuter and thus not subject to the [a]-[ʌ] raising found in plural feminines but it does raise to [ʒʌf-] when stressless, in derivatives like [ʒʌf-úí]. The same pattern is found with diphthongal alternations: [o] is expanded to [ɔa] under stress, before a non-high vowel, and this yields alternations like [gróp-í] (no expansion) vs. [grɔáp-ʌ] ([o] expands to [ɔá] before non-high [ʌ]). In feminine nouns of the ʌ/e declension (e.g., [glɔát-ʌ, glɔát-e]) both the singular and the plural are eligible for expansion and the vocalism is then invariant in inflection. Both alternating [o]/[ɔá] and non-alternating [ɔá]/[ɔá] nouns are able to alternate in their derivatives, so the expansion process is not inflection-dependent.

Both the details and the rationale of this difference between consonantal and vocalic processes are yet to be explored. For a native speaker, the intuition is that the vocalic alternations in (10.41) generate only minimal dissimilarity between stem variants compared to the C-alternations discussed in the rest of this study, so it seems intuitively possible to recover [ʒaf] from the stem [ʒʌf]- of a verb like [ʒʌf-úí] but not [fok] from a stem variant [fotf] of hypothetical \*[fotf-ist]. This conjecture that the basis for inflection dependence relates to mechanisms of similarity computation awaits further elaboration.

## 10.4.3 Use of plural stems in other contexts

The avoidance of hiatus and the preference for polysyllabic stems leads to another use of plural stems in non-plural contexts. This section outlines the evidence.

(10.42) illustrates feminine stems in [l], related to [l-e] plurals, occurring before vowel-initial derivational suffixes.

(10.42) The plural stem in  $\_C$  before vowel-initial derivational suffixes:

Singular	Plural	Derivative with V-initial suffix	gloss
steá <sup>15</sup>	sté-l-e	stel-úts- $\Lambda$ , *ste-úts- $\Lambda$	'star, little star'
likeá	liké-l-e	likel-ízm, *like-ízm	'scoundrel, scoundrelism'
zi	zí-l-e	zil-ijóár- $\Lambda$	'day, little day'

The roots in (10.42) do not end in /l/ and [l]-insertion is not a general solution to hiatus but a lexically specific one. Only nouns that have [l] before plural vowel-initial suffixes use it before derivational suffixes.

(10.43) Nouns lacking plural stems in  $\_C$

Singular	Plural	Derivative with V-initial suffix	gloss
Manike-w	(Manike-j)	manike-ízm, *manikel-ízm	'Manichee, Manichaeism'
ví-e	ví-í /vi-i/	vi-ijóár- $\Lambda$ , *vil-ijóar $\Lambda$	'vineyard, little vineyard'
í-e	í-í /i-i/	i-ijóár- $\Lambda$ , *il-ijóar- $\Lambda$	'shirt, little shirt'

A sketch of the analysis of this case appears below, using the constraint DEP<sub>lex</sub>s (10.28).

(10.44)

[zil-e] <sub>pl</sub> , [zi] <sub>sg</sub>	DEP <sub>lex</sub> s	*HIATUS	[vi-í] <sub>pl</sub> , [vi-e] <sub>sg</sub>	DEP <sub>lex</sub> s	*HIATUS
a. [zil] <sub>sg</sub> ijóar $\Lambda$			a. [vi] <sub>sg</sub> ijóar $\Lambda$		*
b. [zi] <sub>sg</sub> ijóar $\Lambda$		*!	b. [vil] <sub>sg</sub> ijóar $\Lambda$	*!	

A different consideration that calls for the frequent use of the plural stem in derivatives is the rhythmic preference for stems having at least two syllables before the tonic. This is illustrated by alternations between the suffix allomorphs [-i.qáar $\Lambda$ ]/[-i.ór] ('Diminutive fem/masc', after one syllable) vs. [-jóar $\Lambda$ ]/[-jór] ('Diminutive fem/masc', after stems with two or more syllables):

<sup>15</sup> The underlying structure is /st-e/, with regular lengthening and diphthongization of final [e] → [ea] under stress. What is phonologically unpredictable is the presence of [l] as hiatus breaker in the plural.

## (10.45) Satisfying stem minimality:

Glide/vowel alternations in [ior]~[j̥ior]/ [iqarΛ]~[j̥iqarΛ]

Monosyllabic stems	Disyllabic stems	Trisyllabic stems
sur-i.qá.ɾA 'sister-DIM'	ini.m-iqá.ɾA 'heart-DIM'	prepeli.tʃ-iqá.ɾA 'quail-DIM'
frats-i.ór 'brother-DIM'	dulΛ.p-iór 'cupboard-DIM'	ɳAZDɾAVΛ.n-iór 'smart-DIM'

This preference is pervasive in Romanian morphology and triggers a wide range of otherwise inexplicable allomorphic choices (Steriade 2003). The derivatives of monosyllabic nouns of the u/uri declension like [vint(u)]/[vint-ur-ɨ] 'wind' satisfy it by selecting as their stem the plural stem in -ur-, which extends the pre-tonic string by one syllable (10.46).

## (10.46) The plural stem extension -ur- used to satisfy stem minimality

Singular	Plural	Derivatives	glosses
vint(u)	vint-ur-ɨ	vint-ur-á, *vint-á, vint-ur-él, *vint-él	'wind, shake in the wind,' 'wind-DIM'
val	val-ur-ɨ	val-ur-él, *val-él	'wave, wave-DIM'
frig	frig-ur-ɨ	in-frig-ur-á,- *frig-a, frig-ur-él, *frig-él	'cold, make cold,' 'cold-DIM'

The diminutive suffix observed in (10.46) is [-el], not [-ur-el]. The 1957 edition of *The Romanian Academy's Reverse Dictionary* ("Dictionar Invers") lists 36 diminutive forms ending in [-ur-el]. All but one come from monosyllabic stems that form their plurals with the [-ur] extension. This means that only words with [-ur-ɨ] plurals have the option of suffixation to the [-ur]-stem:

## (10.47) The plural stem extension [-ur] is not used if the base lacks an [-ur] plural

Singular	Plural	Derivatives	gloss
alb	alb-ɨ	alb-í, alb-él, *alb-ur-í, *alb-ur-él	'white, whiten, white-DIM'
lung	lundʒ-ɨ	lundʒ-í, lundʒ-él, *lung-ur-í *lung-ur-él	'long, lengthen, long-DIM'
albastr-u	albáʃtr-ɨ	albástr-él, *albástr-ur-él	'blue, blue-DIM'
galben	galben-ɨ	galben-él, *galben-ur-él	'black, black-DIM'

Polysyllabic roots with [-ur] plurals also fail to use the [-ur] extension in derivation:

- (10.48) The plural stem extension *-ur-* is not used if the root is disyllabic or longer

Singular	Plural	Derivatives	gloss
vîrtéz	vîrtéz-ur-î	vîrtež-él, *vîrtež-ur-él	'maelstrom, maelstrom-DIM'
postáv	postáv-ur-î	postAV-él, postAV-jór *postAV-ur-él	'woolcloth, woolcloth-DIM'

The analysis of these cases follows the pattern illustrated earlier in (10.44). The phonotactic here is the effect of *EDGEMOST L* (Prince and Smolensky 1993) dominated by \**CLASH*: together, these require a stress on the initial, provided that no clash ensues with the main stress.<sup>16</sup> The use of the *[-ur]* extension provides this buffer syllable between the initial and the main stress. I assume the ranking \**CLASH*, *DEP<sub>Lex S</sub>* >> *EDGE L*, although the only critical part of the analysis is that *DEP<sub>Lex S</sub>* outrank at least one of the two rhythmic constraints.<sup>17</sup>

- (10.49) Analysis of the contrast between *[vəl-ur-él]* and \**[alb-ur-él]*

Listed: • <i>[val-ur-î]<sub>pl</sub></i> , <i>[val]<sub>sg</sub> • [él]<sub>dim</sub></i>	* <i>CLASH</i>	<i>DEP<sub>Lex S</sub></i>	<i>EDGE L</i>
☞ a. <i>[vəl-ur]<sub>sg</sub>-[él]<sub>dim</sub></i>			
b. <i>[vAl]<sub>sg</sub>-[él]<sub>dim</sub></i>			*!
c. <i>[vəl]<sub>sg</sub>-[él]<sub>dim</sub></i>	*!		
Listed: • <i>[alb-î]<sub>pl</sub></i> , <i>[alb]<sub>sg</sub> • -[él]<sub>dim</sub></i>	* <i>CLASH</i>	<i>DEP<sub>Lex S</sub></i>	<i>EDGE L</i>
☞ a. <i>[alb]<sub>sg</sub>-[él]<sub>dim</sub></i>			*
b. <i>[əlb-ur]<sub>sg</sub>-[él]<sub>dim</sub></i>		*!* (ur)	

A complete analysis must explain the distribution of various diminutive suffixes. In particular, we need to know why longer diminutive suffixes like *[-ițél]*, *[-ișór]* (e.g., *[alb-ițél]*, *[alb-ișór]* 'white-DIM') are not regularly used with monosyllabic stems. I assume that the short diminutive suffix *[-él]* is the object of a variable preference<sup>18</sup> relative to longer suffixes like *[-ișór]*. It is this preference that forces the use of the *[ur]* extension.

Both \**HIATUS* and the rhythmic constraints invoked above have widespread, albeit subtle, effects on Romanian phonology. In this section we have observed that these constraints motivate the use of syntactically inappropriate plural extensions in forms where a stem unmarked for number would

<sup>16</sup> Secondary stress in Romanian is discussed by Chitoran (2002).

<sup>17</sup> Unlike Chitoran (2002), I find the difference between 0 stress and 2 stress hard to detect. I am not sure if the winner in (10.25b) is *[alb-él]* (violating *EDGE L*) or *[əlb-él]* (violating \**CLASH*). I assume, arbitrarily, the former.

<sup>18</sup> Diminutives are productively formed on line. The variable preference for *[-él]* is seen in the possibility of generating forms like *[vinturél]* and *[albél]*, as against *[vintișór]*, *[albișór]*. The latter are also possible.

normally be expected. This use illustrates the same general point as the phenomena we documented at the beginning of this study: plural stems are made available by the system in order to optimize phonotactic satisfaction.

## 10.5 The layered lexicon

### 10.5.1 *Outline of the argument*

The evidence thus far indicates that stems of plural nouns and adjectives are consulted in generating derivatives for these lexemes. The investigation is now extended to other inflected forms and it reveals a difference between the status of plurals and that of other inflections. We use this difference to address a question left unformulated until now: why should the plurals determine the shape of a lexeme's derivatives? The suggested answer will be that plurals are inflectionally diagnostic forms in Romanian—they are invariably more informative than other items in identifying a noun's inflectional type. This section shows that it is the inflectionally diagnostic forms (Albright's 2002 "inflectional bases") that are assembled and phonologically processed first; and it is these derived lexical items that are then consulted in the generation of other derivatives and that of other, less informative, inflectional forms. We will suggest then that the derived lexicon is layered, with information found in the early layers (the plurals) available to be consulted in later layers (derivatives; and non-plural inflected forms) but not the other way around. The layers look superficially similar to the lexical strata of Lexical Phonology and Morphology but differ from the latter in that they do not necessarily correspond to layers of affixation or to layers of syntactic information. Rather derivational priority—which forms are generated "early" and which ones "late"—is a function of morphological informativeness: more informative forms are generated first and consulted by less informative ones.

### 10.5.2 *Plurals and obliques in feminine paradigms*

In this section I demonstrate a phonological dependence between two inflected nominal forms: the plural and the oblique (GEN-DAT) singular. The dependence involves the applicability of phonological processes (Assibilation, K- and S-Palatalization) in the oblique; only if these processes are observed in the plural is it possible to apply them in the oblique.

10.5.2.1 *Feminine paradigm structure* In Romanian feminine declensions, the oblique singular forms are generally identical to the plural forms. The identity holds across declension types for regular or suppletive nouns.<sup>19</sup>

<sup>19</sup> Feminines forming their plural in [-uri], e.g., [matas-e]/[matas-uri] 'silk', deviate from this rule.

- (10.50) Identity between singular oblique forms and plurals in feminine nouns and adjectives

	NOM-ACC sg	GEN-DAT sg	Plural	gloss
Λ/e	run-Λ		run-e	'rune'
Λ/i	lun-Λ		luni-ɨ	'moon'
e/i	pΛfun-e		pΛfun-ɨ	'pasture'
suppletive	sor-Λ		suror-ɨ	'sister'

Masculine nouns and adjectives have a single singular indefinite form and a single, typically distinct, plural, as seen in earlier in (10.5–10.6). They will not be of further interest here.

There are three distinct facets of the formal identity between the feminine plural and the feminine singular oblique. One is the identity of the suffix (e.g., the fact that [ɨ] appears as both the plural and the GEN-DAT sg suffix in [lun-ɨ] 'moon'). Another is the identity of the stem (e.g., the fact that [suror]- is the stem allomorph of the plural and GEN-DAT sg). The third is the identity of "rule application" in the two cases, which the following examples illustrate:

- (10.51) Stem-allomorph identity between singular oblique and plural in feminine N's and Adjs.

	NOM-ACC sg	GEN-DAT sg	Plural	gloss
Λ/i	nuk-Λ		nutf-ɨ	'nut'
Λ/i	plas-Λ		plAf-ɨ	'district'
e/i	kart-e		kArts-ɨ	'book'
Λ/e	broask-Λ		brqaft-e	'frog'

Table (10.51) shows that the processes undergone by the GEN-DAT sg form—the K-<sup>20</sup> and S-Palatalization, Assibilation, the raising of [a] to [Λ]—are identical to those undergone by the plural. This looks like a trivial consequence of the fact that the stem and the suffix forming the oblique singular are identical to those used in the plural; the same segmental ingredients should yield the same alternations. However, it is not trivial. The consonantal alternations do not independently apply in the plural and the oblique; rather they apply in the oblique only if there is a plural form in which they have also applied. This is shown next.

10.5.2.2 *Feminine singularia tantum* This section focuses on the phonological realization of oblique (GEN-DAT sg) feminine singularia tantum nouns. Proper names and mass nouns are singularia tantum: they lack plural forms

<sup>20</sup> [broaft-e] illustrates the fact that [sk] and [fk] become [ft] in the contexts of K-Palatalization. This process has not been not discussed here as it almost never applies in derivational morphology.

but not necessarily oblique singulars. In the absence of the plural, we can observe how the processes expected to apply in the oblique operate. The generalization we document is that the obliques of feminine singularia tantum cannot undergo K-Palatalization, Assibilation or S-Palatalization, that is, the consonantal processes we have shown to be inflection-dependent in earlier sections.

#### 10.5.2.2.1 Feminine mass nouns

The behavior of mass nouns is illustrated below by comparing these to formally parallel count nouns. The only difference between the two classes of nouns is that one has a plural form and the other does not. What is constant across the mass nouns seen below is that none undergo Assibilation, K- and S-Palatalization.

(10.52) Declension of feminine mass nouns (*e/i*, *Λ/i* types) compared to count nouns<sup>21</sup>

	Mass nouns		Count nouns	
	Indefinite	Definite	Indefinite	Definite
NOM/ACC GEN/DAT	línt-e 'lentils' (*línts-i)	línt-e-a línt-e- <i>i</i> (*línts-i- <i>i</i> )	mínt-e 'mind' mínts- <i>i</i>	mínt-e-a mínts-i- <i>i</i>
NOM/ACC GEN/DAT	sét-e 'thirst' (*séts-i)	sét-e-a sét-e- <i>i</i> (*séts-i- <i>i</i> )	tjetát-e 'fortress' tjetáts- <i>i</i>	tjetát-e-a tjetáts-i- <i>i</i>
NOM/ACC GEN/DAT	vlág-Λ 'force' (*vládʒ-i)	vlág-a vlág-Λ- <i>i</i> (*vládʒ-i- <i>i</i> )	plág-Λ 'wound' pládʒ- <i>i</i>	plág-a pládʒ-i- <i>i</i>
NOM/ACC GEN/DAT	tus-e 'thirst' (*tuf- <i>i</i> )	tus-e-a tus-e- <i>i</i> (*tuf-i- <i>i</i> )	plás-Λ 'district' pláf- <i>i</i>	plás-a pláf-i- <i>i</i>

Some of the oblique forms of mass nouns avoid violating the phonotactics triggering Assibilation, K- and S-Palatalization by adjusting the quality of the suffixal vowel: in the definite forms, an expected [i] in the obliques (e.g., [mínts-i-*i*] 'of the mind') is replaced by [e] in mass nouns like [línt-e-*i*] 'of the lentils'. This affixal adjustment occurs only after the alveolars [t], [d], [s]; its purpose is to avoid triggering Assibilation or S-Palatalization, both of which are expected before [i]. After mass nouns ending in a velar, the affixal vowel of the oblique is changed from [e] or [i] to [Λ]; the latter will not trigger

<sup>21</sup> The morphological structure of (in)definite forms is indicated below: the two morphemes [i] (a clitic marking the definite sg oblique and the plural/oblique suffix) regularly alternate, with [i] word-finally and [i] elsewhere.

Root	Case-number suffix	Definite marker	gloss
mint	e		'mind'
mint	e	a	'the mind'
mínts	<i>i</i>		'of/to mind', 'minds' (indef.)
mínts	<i>i</i>	<i>i</i>	'of/to the mind'
mínts	<i>i</i>	le	'the minds'

K-Palatalization, nor cause a \*KE violation. Indefinite oblique forms of mass nouns seem to lack any acceptable realization but I am not sure if this is a phonological or a syntactic phenomenon. What is constant for all mass nouns like (10.52) is that none displays any consonantal modification relative to the NOM-ACC sg.

#### 10.5.2.2.2 Analysis

The analysis of (10.52) makes the assumption that the plural serves as a reference term in the computation of the GEN-DAT sg, as it does in the computation of derivational forms. The absence of a plural form does not prevent a GEN-DAT sg from being assembled but it does deprive a noun of a palatalized or assibilated listed stem allomorph that could satisfy  $\text{Ident}_{\text{lex}}\text{F}$ . To offer this explanation for the data in (10.52) we must, however, assume that not all inflected forms are computed at the same time or in the same way. The plural is computed before the oblique form; the plural consonantism is generated by morpheme specific phonotactics  $*_{\text{N}}\text{KE}_{\text{pl}}$ ,  $*_{\text{N}}\text{Ti}_{\text{pl}}$  (triggering Assibilation), and  $*_{\text{N}}\text{Si}_{\text{pl}}$  (triggering S-Palatalization), while the oblique is generated by the general, and lower-ranked, phonotactics  $*_{\text{N}}\text{KE}$ ,  $*_{\text{N}}\text{Ti}$ , and  $*_{\text{N}}\text{Si}$ . Here is the analysis of three relevant cases: a new constraint employed is  $\text{Affix}_{\text{OBL}}$ , a cover term for penalties assessed on an inappropriate choice of an oblique affix.

(10.53) K-Palatalization in the oblique form of [plág- $\Lambda$ ] (count noun) and [vlág- $\Lambda$ ] (mass noun)

(a) generating the plural

plág-; - $\underset{\sim}{i}$	$*_{\text{N}}\text{KE}_{\text{pl}}$	$\text{Ident}_{\text{lex}}\text{F}$
plág- $\underset{\sim}{i}$	*!	
$\text{pl}\Lambda\text{d}\underset{\sim}{3}\text{-}\underset{\sim}{i}$		*

(b) generating the oblique

plág-; $\text{pl}\Lambda\text{d}\underset{\sim}{3}\text{-}; -\underset{\sim}{i}, -\underset{\sim}{i}$	$\text{Ident}_{\text{lex}}$	$*_{\text{N}}\text{KE}$	$\text{Affix}_{\text{OBL}}$	vlág-; - $\underset{\sim}{i}, -\underset{\sim}{i}$	$\text{Ident}_{\text{lex}}$	$*_{\text{N}}\text{KE}$	$\text{Affix}_{\text{OBL}}$
$\text{pl}\Lambda\text{d}\underset{\sim}{3}\text{-}\underset{\sim}{i}$				$\text{vl}\Lambda\text{d}\underset{\sim}{3}\text{-}\underset{\sim}{i}$	*!		
plág- $\underset{\sim}{i}$		*!		vlág- $\underset{\sim}{i}$		*!	
plág- $\Lambda$ - $\underset{\sim}{i}$			*!	$\text{vl}\Lambda\text{g-}\Lambda$ - $\underset{\sim}{i}$			*

(10.54) Assibilation in the oblique form of [mínt-e] (count noun) and [línt-e] (mass noun)

(a) generating the plural

mint-; - $\underset{\sim}{i}$	$*_{\text{N}}\text{Ti}_{\text{pl}}$	$\text{Ident}_{\text{lex}}\text{F}$
mint- $\underset{\sim}{i}$	*!	
$\text{m}\underset{\sim}{i}\text{nts-}\underset{\sim}{i}$		*

## (b) generating the oblique

mint-;	Ident <sub>lex</sub> F	N Ti	Affix <sub>OBL</sub>	lint-; -i, -i̇	Ident <sub>lex</sub> F	N Ti	Affix <sub>OBL</sub>
mints-; -i, -i̇							
☞ mínts-i-i̇				línts-i-i̇	*!		
mínt-i-i̇		*!		línt-i-i̇		*!	
mínt-e-i̇			*!	☞ línt-e-i̇			*

- (10.55) S-Palatalization in the oblique form of [plás-Λ] (count noun) and [tús-e] (mass noun)

## (a) generating the plural

plas-; -i̇	N Si <sub>pl</sub>	Ident <sub>lex</sub> F
plás-i̇	*!	
☞ pláf-i̇		*

## (b) generating the oblique

plas-;	Ident <sub>lex</sub> F	N Ti	Affix <sub>OBL</sub>	tus-;	Ident <sub>lex</sub> F	N Ti	Affix <sub>OBL</sub>
pláf-; -i, -i̇				-i, -i̇			
☞ pláf-i-i̇				túf-i-i̇	*!		
plás-i-i̇		*!		tús-i-i̇		*!	
plás-e-i̇			*!	☞ tús-e-i̇			*

## 10.5.2.2.3 Verifying the analysis

We verify next that the affixal adjustment observed in the preceding section – e.g., the substitution of [línt-e-i̇] for expected [línt(s)-i-i̇] – is strictly due to the threat of phonotactic violation posed by [i]. This is shown by feminine mass nouns ending in non-alternating consonants, and which can display in the oblique form the expected [i] suffix. Note the identity of affix structure between the definite oblique forms of mass and count nouns in the table below.

- (10.56) Declension of feminine mass nouns ending in non-alternating C's

	Mass nouns		Count nouns	
	Indefinite	Definite	Indefinite	Definite
NOM/ACC GEN/DAT	míer-e 'honey' (?mier-i̇)	míer-ɛ-a míer-i-i̇	karár-e 'path' karár-i̇	karár-ɛ-a karár-i-i̇
NOM/ACC GEN/DAT	lén-e 'sloth' (?lén-i̇)	lén-ɛ-a lén-i-i̇	páfún-e 'pasture' páfún-i̇	páfún-ɛ-a páfún-i-i̇
NOM/ACC GEN/DAT	fasól-e 'beans' (?fasól-i̇)	fasól-ɛ-a fasól-i-i̇		
NOM/ACC GEN/DAT	alám-Λ 'bronze' alám-i̇	alám-a alám-i-i̇	kirtfium-Λ 'pub' kirtfium-i̇	kirtfium-a kirtfium-i-i̇

It is not impossible to find forms like [míer-e-i̇], [lén-e-i̇], [alám-e-i̇] alongside [mier-i-i̇], etc. However, there is no ban on the morphologically expected

forms in these phonotactically neutral cases. This verifies the central role of the markedness constraints (\*<sub>N</sub>KE, \*<sub>N</sub>Ti, \*<sub>N</sub>Si) and of faithfulness in the analysis of (10.53)–(10.55).

#### 10.5.2.2.4 Plurals as inflectional bases

The evidence presented above of an asymmetric dependence of oblique singulars on plurals argues in favor of an interpretation of inflectional paradigm structure akin to Albright's (2002). I sketch this here in partial answer to a question raised earlier: why do the derivatives of a lexeme consult its plural form? Why do the oblique forms (of feminine nouns) consult the plural?

A possible answer is that across the entire nominal system of Romanian, for all genders and declensions, the NOM-ACC singular (the citation form) and the plural provide indispensable information about the noun's declensional type. If these two forms are known, all other forms of the noun are predictable. The oblique forms of singular masculine nouns are identical to the citation form; the oblique forms of the feminine are identical to the plural; the definite forms can be predicted from the corresponding indefinites, singular or plural, citation or oblique. However, the plural is not predictable from the citation form, nor the other way around. The suggestion then is that the forms assembled and computed first are the informative items of a nominal paradigm, rather than all inflected forms at once.

#### 10.5.2.2.5 Proper names

10.5.2.2.5.1 *K-Palatalization in proper names* Romanian grammars (e.g., GLR 1966: 89) record an unexplained difference between proper names from the feminine declensions and common nouns. Common nouns palatalize [k], [g] before the oblique endings [-e], [-i], as before the plural [-e], [-i], but proper names (of persons or places) block palatalization in the oblique. Normally, the feminine plural is identical to the oblique but in proper names these forms diverge; pluralized names exist but, unlike singular obliques, they always undergo palatalization. Relevant data appear below. Romanian proper names follow the definite declension, as in other languages,<sup>22</sup> so to facilitate the comparison I show them side by side with the definite forms of similar common nouns.

#### (10.57) K-Palatalization in feminine proper names vs. common nouns

	NOM/ACC sg	GEN-DAT sg	Plural	gloss
a	pújk-a	pújtf-i-î (*pújk-Λ-î)	pújtf-i-le	'little hen'
	Pújk-a	Pújk-Λ-î, Pújk-i-î (*pújtf-i-î)	Pújtf-i-le	'(woman's name)'

<sup>22</sup> Cf. Elbourne 2005: 172

b	álġ-a	áldʒ-e-ĭ (*álġ-Λ- ĭ)	áldʒ-e-le	'sea grass'
	Vólġ-a	Vólġ-Λ-ĭ (*Vóldʒ-i-ĭ)	Vóldʒ-i-le	'(place name, Volga)'
c	doĭk-a	doĭʃ-i-ĭ (*doĭk-Λ- ĭ)	doĭʃ-i-le	'nurse'
	Doĭk-a	Doĭk-Λ-ĭ, Doĭk-i-ĭ (*Doĭʃ-i-ĭ)	Doĭʃ-i-le	'(woman's name)'

Further examples of velar-final proper names are found in (10.58), including masculines in [-a/Λ]; all of these have obliques in [-Λĭ] or [-ĭĭ]. As a rule, they do not palatalize:<sup>23</sup>

(10.58) Velar-final proper names

- a. Persons' names: [Vóĭka, Rodíka, Veroníka, Ralúka, Anka, Ilínka, Katínka, MARIúka, Kóka, Olġa, Rebéka, Frantʃíska]; masculine [-a] nouns: [Lúka, Dúka]. Their obliques: [VóĭkΛĭ] or [Vóĭkĭĭ] etc.; [DúkΛĭ] etc.
- b. Place names: [Méka, Kalúġa, Vólġa]. Their obliques: [MékΛĭ] etc.

Two facts must be explained: the lack of palatalization in the singular oblique forms and the fact that the plurals of these names are subject to palatalization.

The analysis starts from the idea that proper names are systematically singularia tantum, in the sense that a semantic property of these expressions, perhaps their status as rigid designators,<sup>24</sup> makes it impossible for them to possess a referentially-related plural form. If this is right, the impossibility of K-Palatalization in proper nouns like [Vólġ-a] follows and is parallel to that of mass feminines like [vlág-a]. The ranking  $\text{Ident}_{\text{lex}}\text{F} \gg *_{\text{N}}\text{KE}$  blocks K-Palatalization in both oblique forms, as neither could have acquired a palatalized allomorph, a plural. The definite oblique of [vlág-a] is, if anything, [[vlág-Λ]-ĭ], and likewise the oblique of [Vólġ-a] is [[Vólġ-Λ]-ĭ]. In both cases, the inner constituent would normally be expected to contain a palatalizing oblique suffix, [e] or [i], and in both cases that suffix is replaced with the unmarked singular feminine suffix [Λ] to avoid a violation of  $*_{\text{N}}\text{KE}$ . Using  $\text{Affix}_{\text{OBL}}$  again as a cover term for the constraint that requires an oblique inner suffix in

<sup>23</sup> Continent names in -ika-e.g., [Amérika], [Afrika]-deviate from the general rule; their obliques are [Amériʃĭ] etc., perhaps because they are analyzed as containing the derivational suffix-ik. All new proper names block K-Palatalization, cf. *Toska, Malka, Helga, Vega*.

<sup>24</sup> Kripke 1970.

GEN-DAT forms, we outline the analysis of  $[[V\acute{o}lg-\lambda]-\acute{i}]$  vs.  $[[\acute{a}ld\acute{z}-e]-\acute{i}]$  below:

- (10.59) K-Palatalization in oblique singulars:  
Common nouns and proper names

•[alg-λ], [aldz-e], •-e (oblique marker for feminine nouns) •-i (NP-level clitic marking oblique case)	Ident <sub>lex</sub> [±F]	* <sub>N</sub> KE	Affix <sub>OBL</sub>
☞ a. $[[\acute{a}ld\acute{z}-e]-\acute{i}]$			
b. $[[\acute{a}lg-e]-\acute{i}]$		*!	
c. $[[\acute{a}lg-\lambda]-\acute{i}]$			*!

•[V\acute{o}lg-a] •-e (oblique marker for feminine nouns) •-i (NP-level clitic marking oblique case)	Ident <sub>lex</sub> [±F]	*KE <sup>N</sup>	Affix <sub>OBL</sub>
a. $[[V\acute{o}ld\acute{z}-e]-\acute{i}]$	*!		
b. $[[V\acute{o}lg-e]-\acute{i}]$		*!	
☞ c. $[[V\acute{o}lg-\lambda]-\acute{i}]$			*

A few names of women have alternate obliques in  $[i-\acute{i}]$ :  $[[V\acute{o}\acute{i}k-i]-\acute{i}]$ ,  $[[P\acute{u}\acute{i}k-i]-\acute{i}]$ . I assume that these are cases where Ident<sub>lex</sub> [+strid] and Affix<sub>OBL</sub> outrank \*<sub>N</sub>KE. The constraint Affix<sub>OBL</sub> is satisfied at the expense of \*<sub>N</sub>KE in these cases. These variants confirm the undominated status of Ident<sub>lex</sub> [+strid]; despite the variation, proper nouns are constant in shunning K-Palatalization.

10.5.2.5.5.2 *Proper names and their pluralized counterparts* K-Palatalization does apply to pluralized proper names: *two Volgas* are  $[\acute{d}\acute{o}\mu\lambda\ \acute{v}\acute{o}ld\acute{z}-\acute{i}]$ . Despite this, the palatalized plurals have no effect on the oblique forms of the basic proper name. I show now that this observation is consistent with the analysis developed thus far and that it provides evidence for a derived lexicon with some internal structure, over and above what has appeared to be necessary until now.

Any proper name can give rise to a pluralized form, if only for the purpose of asserting that an individual with some specified property is, or is not,

unique: “There are(n’t) two X’s.” I claim that the process of pluralization involves a step of turning the proper name into a common noun, which can then be standardly pluralized. Then the plural [Vóldzile] ‘the Volgas’ is the plural not of the name Volga but of a common noun [o Vólga] ‘a Volga’, whose meaning is ‘a thing that shares with Volga some property P {being a large Russian river, having Cossacks sing on its banks, bearing the name [Vólga],...}’. The descriptive predicates in curly brackets will vary with the discourse context, so the statement [Nu egzístá dóuá Vóldz-i] ‘there aren’t two Volgas’ will mean that one of these things, whichever one is determined by context, is unique. Because the singular form of such derived common names as ‘a Volga’, is rare, one’s immediate impression may be that the proper name [Vólga] is the singular of the plural [Vóldzile] ‘the Volgas’. I suggest that the relation is indirect; the proper name is converted into a common noun, by a zero derivation process that alters its referential properties and makes it available for pluralization. The paradigm of the item thus derived is identical to that of any basic common noun. This scenario predicts that, for any proper name, there will be not only a corresponding plural but also a singular common noun. In the context of Romanian phonology, we predict that this common noun should undergo K-Palatalization, as it can have a plural and thus the chance to acquire a palatalized allomorph in inflection. This is verified: ‘of a Volga’ is [úneĭ Vóldzĭ], ‘of that Volga’ is [Vóldz-i-i ĭléja].

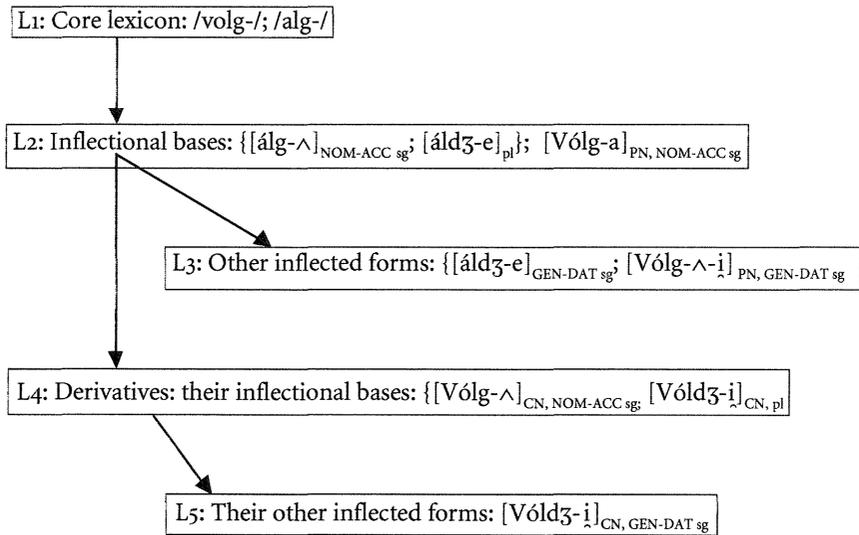
(10.60) A scenario for pluralizing proper names (PN) via turning them into common nouns (CN) (a description of the referent of each noun appears in slashes):

[Volg-] <sub>PN</sub>	→	[[Volg-] <sub>PN</sub> ] <sub>CN</sub>	}	[Volg-] <sub>CN</sub> -Λ	[Voldz-ĭ] <sub>CN</sub>
				[Voldz-] <sub>CN</sub> -ĭ	
				[Volg ] <sub>CN</sub> -a	[[Voldz-] <sub>CN</sub> -i] -le
/a unique individual named Volga/		/any thing sharing a property P with the individual named Volga/		[[Voldz-] <sub>CN</sub> -i] <sub>ĭ</sub>	[[Voldz-] <sub>CN</sub> -i] -lor

Based on the scenario in (10.60) I propose a property of the grammar that prevents it from palatalizing the oblique forms of proper names like [Vólga]. This property involves the flow of information in the computation of derived lexical items: information about the existence of the plural common noun [Vóldz-ĭ] is available when the oblique singular form of this plural is computed but is not when the oblique singular form of the original proper

name was. The path we must assume through the derived lexicon is outlined below using the example of [alg-a] and [Volg-a], in its proper name and common noun versions. Arrows connecting lexical layers indicate the extent to which information generated in one layer is made available in later ones.

(10.61) Accessibility of information in the derived lexicon



The hypothesis depicted in (10.61) is that the derivatives of a lexeme can consult its inflectional bases—so derivatives of [alg-ʌ] may consult its plural, just like [stindʒ-ist] consults [stindʒ-ǰ]—but that no information is returned from the lexical layer generating a derivative to any “upstream” layers. Information about the pluralized common noun [vóldʒ-ǰ], generated in L4, is not available to L3, where the oblique form of the proper name is computed. Making this assumption, the current analysis can generate both the non-palatalized oblique form of the proper name and the palatalized oblique of the common noun derived from it. Critical to the analysis are the assumption about limited information flow—which makes the pluralized common noun [Vóldʒ-ǰ] unavailable to the formation of the proper name’s oblique—and the assumption that the plural palatalization constraint  $*_NKE_{pl}$  outranks the competing  $Ident_{lex}$  constraint.

(10.62) K-Palatalization in oblique singulars: Proper names and common nouns derived from them

a. L3: The oblique of the proper name Volga

<ul style="list-style-type: none"> <li>• [Vólǵ-a]PN</li> <li>• -i (oblique marker for feminine nouns)</li> <li>• -ǐ (NP-level clitic marking oblique case)</li> </ul>	Ident <sub>lex</sub> [±F]	*KE <sup>N</sup>	Affix <sub>OBL</sub>
a. [[Vóldǵ-e]-ǐ]	*!		
b. [[Vólǵ-e]-ǐ]		*!	
☞c. [[Vólǵ-Λ]-ǐ]			*

b. L4: The plural of the derived common noun Volga

<ul style="list-style-type: none"> <li>• [Vólǵ-a]</li> <li>• -i (plural marker for feminine nouns)</li> </ul>	* <sub>N</sub> KE <sub>pl</sub>	Ident <sub>lex</sub> [±F]	* <sub>N</sub> KE
☞a. [[Vóldǵ]-ǐ]		*	
b. [[Vólǵ]-ǐ]	*!		*

c. L5: The definite oblique singular of the derived common noun Volga 'a Volga'

<ul style="list-style-type: none"> <li>• [Vólǵ-a], [Vóldǵ-ǐ]</li> <li>• -i (oblique marker for feminine nouns)</li> <li>• -ǐ (NP-level clitic marking oblique case)</li> </ul>	Ident <sub>lex</sub> [±F]	* <sub>N</sub> KE	Affix <sub>OBL</sub>
☞a. [[Vóldǵ-i]-ǐ]			
b. [[Vólǵ-i]-ǐ]		*!	
c. [[Vólǵ-Λ]-ǐ]			*!

The analysis sketched above is one among several conceivable ones and is given here in the interest of presenting a complete and completely analyzed paradigm.

## 10.6 Conclusion

This study has documented in Romanian an inflection-dependence effect. A cohesive class of phonological processes have been shown to apply in

morphologically complex forms containing a lexeme L only if the same processes have applied to an inflectional base of L.

I have shown that it is actual application rather than potential applicability that matters: K-Palatalization is potentially applicable to any velar-final noun. But it is not actually applied to plural-less mass nouns like [vlág-Λ] or to proper names like [Vólg-a]. It is the actual difference between application and non-application that matters, suggesting that the source of the phenomenon of inflection dependence is to be found in the structure of the derived lexicon and in the grammar's mode of accessing it.

The layered lexicon proposed in the last section follows the basic intuitions behind Lexical Phonology and Morphology (LPM), in its classical or OT incarnations. However a substantial departure was motivated here from the model of cyclic application/evaluation which LPM inherits from earlier versions of generative phonology; the phonology needs to reference the shape of inflectional bases that are not necessarily constituents (e.g., [stíndʒ-j], in [stíndʒ-íst]). This is inconsistent with the cycle as a general model of the phonological dependence between lexically-related expressions. I have proposed a slight modification of Correspondence Theory under which both types of phonological dependence – cyclicity and inflection dependence – can be characterized. The differences between the two types of systems can be seen to arise from minimally different rankings of correspondence and phonotactics.

Finally, on the need to extend access to the derived lexicon, over and above what the cycle allows, a substantial body of work has established this point independently by demonstrating the need to let constraints on paradigmatic contrast (Crosswhite 2001; Kenstowicz 2002; Ichimura 2002; Rebrus and Törkenczy 2004; Hsieh 2005; Ito and Mester 2005; Urbanczyk 2005) carry out a global comparison of inflected forms not contained within each other. Putting together the conclusions of our study with the results of these works should be the next step.

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