Accentual allomorphs in East Slavic: an argument for inflection dependence

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For Morris Halle, on his birthday.

Abstract

This study analyzes stress in the derived nouns and adjectives of two East Slavic languages, Ukrainian and Russian. Both languages display an effect of inflection dependence (Steriade 2007): the shape of derivatives is influenced by the stem allomorphs found in the inflectional paradigms of their bases. In the East Slavic case, the accentual alternations found in the inflectional paradigms of base nouns determine where stress may fall in these nouns' derivatives. The proposed generalization is that derivatives are faithful not to the underlying representation of the base noun, and not to one derived form of that noun, but to the entire set of surface stem allomorphs found in the inflection of the base noun. This generalization is formalized in a modified version of Benua's (1997) theory of Base-Derivative correspondence, itself a modification of the idea of cyclic inheritance (Chomsky, Halle and Lukoff 1956).

1. Introduction

The stress of Ukrainian and Russian derivatives depends on the range of accentual allomorphs found in the inflectional paradigm of their base. The stem of a derivative can adopt a certain accentual profile – unstressed, or stressed on a particular syllable – only if some inflected form of its base contains a stem allomorph with the same accent. This creates a distinction between variable and invariant nouns, illustrated below with Ukrainian data.

1. Derived adjectives of accentually variable vs. invariant base nouns, in Ukrainian

	Citation form of base	Nom. Pl.	Adjective in *ov-yj*
(a) Variable bases: both stressed and stressless stems	harbúz 'melon' jármarok 'fair' paljt-ó 'overcoat'	harbuz-ý jarmark-ý páljt-a	harbuz-óv-yj jarmark-óv-yj paljt-óv-yj
(b) Invariable bases: only stem-stressed	abrykós 'apricot' káktus 'cactus'	abrykós-y káktus-y	abrykós-ov-yj káktus-ovyj

The nouns in (1.a) have an stressless stem allomorph, in the singular or in the plural, and use that stem to generate penultimate stressed *–óv-yj* forms. The nouns in (1. b) have invariant stem stress in inflection and keep that stress in derivation, yielding *–ov-yj* forms with pre-penultimate stress.

The two languages analyzed here have different accentual systems, but the phenomenon of interest to us, the freedom to use in derivation the stem allomorphs of inflection, is found in both. Our chapter provides a description of this pattern, connects it to related data outside of Slavic, and analyzes it based on a modified conception of the phonological cycle.

1.1 Proto-Slavic accentual classes and theit modern East Slavic counterparts

A long tradition has observed that the accent of Slavic derivatives, and of their Proto-Slavic counterparts, is predictably related to the mobility of the accent in their bases: Bulaxovsjkyj 1927, Hartmann 1936, Halle 1973, Garde 1976, Dybo 1981, Zaliznjak 1985, Halle and Kiparsky 1981, Melvold 1989, among others; cf. also review in Lehfeldt 2001. For Proto-Slavic, the reconstructed system is relatively simple. As shown by Dybo 1981, stress in Proto-Slavic paradigms can be derived from the underlying stress properties of the stems and of the inflectional suffixes, plus a general preference to preserve the stress of the stem over that of the

suffix. Dybo (1981) shows that the same underlying representations that predict the stress of inflectional paradigms determine stress placement in derivatives as well[1]. The general pattern is illustrated below:

2. Proto-Slavic accent as a function of the underlying accent of the stem and the suffix

    a. Underlyingly accented stem: *báb- 'woman'

with unaccented infl. suffix:	*báb-ǫ (Acc Sg)
with accented infl. suffix:	*báb-a (Nom Sg)
with unaccented deriv. suffix:	*báb-ьsk-ъ, *báb-ьsk-a (Adj, 'related to women')
with accented deriv. suffix:	*báb-ьj-ь, *báb-ьj-a (Adj, 'related to women')

    b. Underlyingly post-accented stem: *os- 'wasp', *žen- 'woman'

with unaccented infl. suffix:	*os-ǫ̇, *žen-ǫ̇ (Acc Sg)
with accented infl. suffix:	*os-á, *žen-á (Nom Sg)
with unaccented deriv. suffix:	*žen-ьsk-ъ, *žen-ьsk-a (Adj, 'related to women')
with accented deriv. suffix:	*os-ьj-ь, *os-ьj-a (Adj, 'related to wasps')

    c. Underlyingly unaccented stem: *mǫž- 'male human', *vorg- 'enemy'

with unaccented infl. suffix:	*mǫ̃ž-ъ, *vôrg-ъ (Nom Sg)
with accented infl. suffix:	*mǫž-ý, *vorg-ý (Inst Pl)
with unaccented deriv. suffix:	*mǫ̃ž-ьsk-ъ, *mǫž-ьsk-á (Adj, 'related to men')
with accented deriv. suffix:	*vorž-ьj-ь́, *vorž-ьj-á (Adj, 'related to enemies')

The noun in (2.a) has underlying stress on the stem. It is, adopting Stang's (1957) terminology, a type (a) noun; we use "class (a)", "type (a)" interchangeably here. Stress remains on the stem of this noun in all its inflected forms, and in all its derivatives. Had stress shifted to any other syllable, the resulting form would be unfaithful to the underlying stress of the stem. This result is guaranteed if faithfulness to the stem accent outranks faithfulness to any suffix, inflectional or derivational.

In (2.b), we illustrate a *post-accenting* type (b) stem. Proto-Slavic post-accentuation occurs when a stem-final vowel is both short and underlyingly accented (Illich-Svitych 1963,

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[1] Recent developments in Slavic historical accentology suggest that the Proto-Slavic picture was somewhat more complex within the inflection. See Shrager 2007, Ch. 1 for a recent overview written in English.

Dybo 1981). Assume that Proto-Slavic accent was a tonal accent realized on two moras. When the stress-bearing unit is a long vowel, the tonal accent can be realized within that stressed nucleus. When stress falls on a short vowel, the tonal accent extends to the next syllable, producing the post-accentuation reflexes of modern languages. Stress in words containing this type of stem always falls on the immediate post-stem syllable, regardless of the underlying accent of the suffix. In inflection, the ending is stressed after a type (b) stem, whether it is underlyingly stressed, as in *os-a, or unstressed, as in *os-ǫ. In derivation, it is always the derivational suffix immediately following the root-final syllable that gets the stress: *os-ьj-ь.

The forms in (2.c) illustrate the Proto-Slavic mobile nouns, type (c). Their stems were underlyingly stressless. When the derivational suffix or the inflectional ending was underlyingly stressed, that stress was realized on the surface: *mǫž-y, *mǫž-ьsk-a, *vorž-ьj-ь.[2] When the suffixes were stressless, an initial stress was assigned to the prosodic word: *mǫ̃ž-ъ, *mǫ̃ž-ьsk-ъ.

Summing up, the reconstructed Proto-Slavic accentual alternations can be derived from the underlying accent of stems and affixes plus two assumptions: only one stress can surface in each word, and faithfulness to stems outranks faithfulness to affixes (McCarthy and Prince 1994).

The systems of modern East Slavic languages are nowhere near as transparent. Consider inflection first. The Proto-Slavic accentual types are derived from the underlying accent of the stem and the ending: either the stem is accented, in types (a,b), and then the placement of stress is fixed, or else, in type (c), stress alternates depending on the accentual status of the ending. In modern East Slavic no such analysis is possible. There are fixed-stress types which continue the Proto-Slavic types (a) and (b) and are still refered to by those terms. In addition, there is a variety of different accentual types, with the same endings surfacing as stressed in some and stressless in others, in multiple combinations. The Russian data in (3) illustrates this. Ukrainian, seen in section 2, is similar.

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[2]In *mǫž-ьsk-a, accent is on the ending because the ending itself is underlyingly stressed, while the derivational suffix -ьsk- is underlyingly stressless. In *vorž-ьj-ь, the suffix -ьj- is underlyingly stressed, but as it has a short vowel, stress surfaces on the following syllable, according to the regular post-accentuation pattern.

3. Accentual variety in Russian: some accentual types of the *o*-inflection of nouns[3].

Class (a), fixed stem stress: *udod* 'hoopoe'		Class (b), fixed stress on ending: *dožd^j* 'rain'	
Sg	Pl	Sg	Pl
N	udód □■	udód-y □■-○	N, A	dóžd^j ■	dožd^j-í □-●
G, A	udód-a □■-○	udód-ov □■-○	G	dožd^j-á □-●	dožd^j-éj □-●
D	udód-u □■-○	udód-am □■-○	D	dožd^j-ú □-●	dožd^j-ám □-●
I	udód-om □■-○	udód-ami □■-○○	I	dožd^j-óm □-●	dožd^j-ámi □-●○
L	udód-e □■-○	udód-ax □■-○	L	dožd^j-é □-●	dožd^j-áx □-●

Class (c), stem stress in sg, ending stress in pl.: *dub* 'oak'		Class (d), ending stress in sg., stem stress in pl.: *kazak* 'cossack'	
Sg	Pl	Sg	Pl
N,A	dúb ■	dub-ý □-●	N, A	kazák □■	kazák-i □■-○
G	dúb-a ■-○	dub-óv □-●	G	kazak-á □□-●	kazák-ov □■-○
D	dúb-u ■-○	dub-ám □-●	D	kazak-ú □□-●	kazák-am □■-○
I	dúb-om ■-○	dub-ámi □-●○	I	kazak-óm □□-●	kazák-ami □■-○○
L	dúb-e ■-○	dub-áx □-●	L	kazak-é □□-●	kazák-ax □■-○

Class (e): class (c) with stem stress in Nom.pl.: *volk* 'wolf'		Class (f): class (b) with stem stress in Nom.pl.: *gvozd^j* 'nail'	
Sg	Pl	Sg	Pl
N	vólk ■	vólk-i ■-○	N, A	gvózd^j ■	gvózd^j-i ■-○
G, A	vólk-a ■-○	volk-óv □-●	G	gvozd^j-á □-●	gvozd^j-éj □-●
D	vólk-u ■-○	volk-ám □-●	D	gvozd^j-ú □-●	gvozd^j-ám □-●
I	vólk-om ■-○	volk-ámi □-●○	I	gvozd^j-óm □-●	gvozd^j-ámi □-●○
L	vólk-e ■-○	volk-áx □-●	L	gvozd^j-é □-●	gvozd^j-áx □-●

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[3] Squares stand for stem syllables, circles for desinential syllables; black shapes denote stressed positions. The words in (3) are of the same declension class: endings –*y*/–*i* (Nom Pl) and –*ov*/-*ej* (Gen Pl) are allomorphs whose selection is conditioned by the palatalization of the stem-final consonant; all other endings are strictly identical. We use Zaliznjak's (1977) labels for accentual types. Russian accent is discussed in section 3. We use standard transliteration for Russian and Ukrainian rather than IPA notation.

These accentual paradigms lend themselves to multiple analyses. Some assign stress to individual case/number forms (Halle 1973, Zaliznjak 1977); others uses some paradigmatic cells as bases for still others (Butska 2002, Feldstein 2006, Ivlieva 2009, Yanovich & Steriade 2010). But all analyses must appeal to lexically indexed rules or constraints (Pater 2010) to produce the attested variety of accentual types. This contrasts sharply with the Proto-Slavic system, where each ending was invariably stressed in all mobile words, or invariably stressless in all.
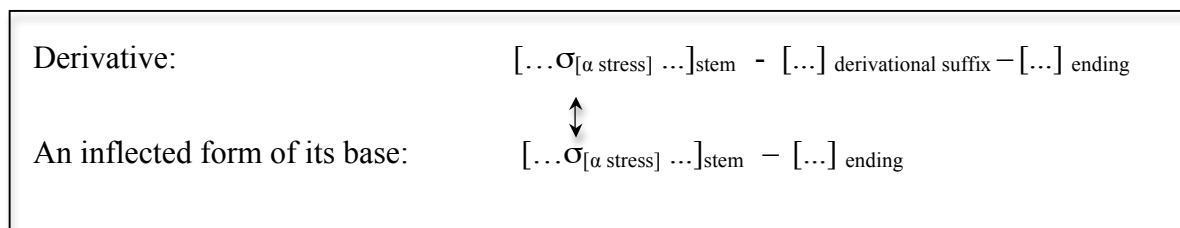
Despite this variety of accentual types in inflection, fewer distinctions affect accent placement in derivatives. Thus Halle's (1973) analysis of Russian derivatives distinguishes underlyingly stressed bases, type (a), and underlyingly stressless post-accented bases of type (b) from all others[4]. Zaliznjak's (1985) analysis of Russian derivatives distinguishes fixed stem-stress bases from all others. So, surprisingly, while inflection displays a wide range of accentual alternations, most differences between these patterns become irrelevant in derivatives. This is very different from the Proto-Slavic situation, where, as noted above, the same properties were relevant for determining stress in inflection and derivation.

1.2. Match Stem Stress and lexical conservatism

To explain this collapse of the accentual distinctions in the derivational morphology of modern East Slavic, we will propose the following: stress in the derivatives is optimized, in a sense to be made precise below, by evaluating the faithfulness of candidate derivatives relative to *any* surface accentual allomorph found in the inflectional paradigm of its base. Words belonging to different mobile-stress paradigms – recall from (1) Ukrainian *harbúz, harbuz-ý*; *jármarok, jarmark-ý*; *paljt-ó, páljt-a* – behave similarly *qua* bases, and differently from the accentually imobile class (a), because they all these bases provide their derivatives with stressless stems. That's all that matters in derivation: the existence of a stem allomorph with a desirable accentual profile, anywhere in the inflectional paradigm of the base. The generalization we anticipate is that, for a large class of derivatives, the relevant base-faithfulness constraint is the one in (4).
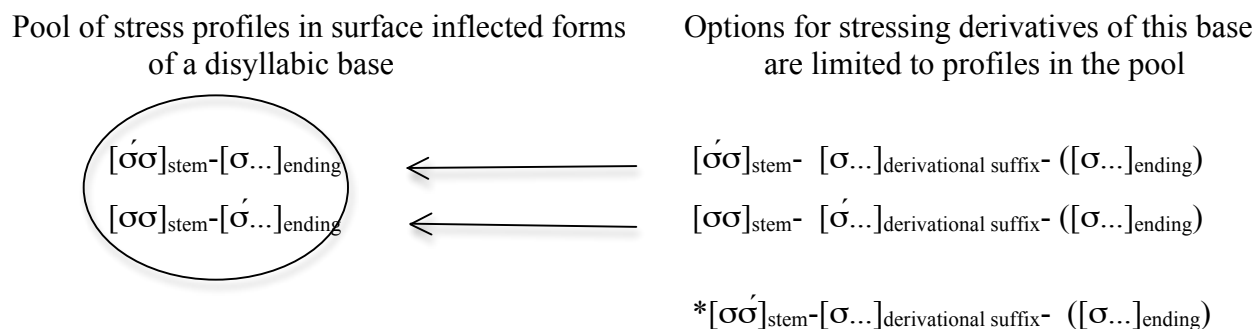
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[4] Halle analyzes type (b) words as having stressless stems that bear a feature [+Oxy]. That feature triggers a rule that assigns accent to the suffix. For mobile-stress types (e.g. for all of *dub, kazák, volk, gvozdʲ* in (3)), he proposes that their stems are similarly stressless, and assigns the + or – Oxy feature separately to individual case-number forms. When he discusses stress in derivational morphology, he speaks of [+Oxy] and [-Oxy] stressless stems, but does not define which case-number form should determine which category the base's stem goes to. From his examples of stems in the "stressless [-Oxy]" class, it appears that he assumed that all mobile-stress types belong to that category.

4. MATCH STEM STRESS: A syllable in the stem of the derivative is [α stress] only if a correspondent of that syllable *in some inflected form of its surface base* is also [α stress].

> Derivative: $[\ldots \sigma_{[\alpha\ \text{stress}]} \ldots]_{\text{stem}}$ - $[\ldots]_{\text{derivational suffix}}$ − $[\ldots]_{\text{ending}}$
>
> $\updownarrow$
>
> An inflected form of its base: $[\ldots \sigma_{[\alpha\ \text{stress}]} \ldots]_{\text{stem}}$ − $[\ldots]_{\text{ending}}$

To make (4) concrete, imagine a a disyllabic, accentually mobile base noun like Ukrainian *jármarok* (class (c) in (2), common to Russian and Ukrainian). Some of its inflected forms have stem stress, e.g. *jármarok*. Others, like *jarmark-ý,* have a stressless stem. The totality of these forms make up a pool of accentual allomorphs from which derivatives choose their own stem. (5) depicts the two choices that MATCH STEM STRESS sanctions, plus a third option which the constraint penalizes.The forbidden option consists of stressing in derivation a stem syllable that is never stressed in inflection:

5. Satisfying MATCH STEM STRESS

Pool of stress profiles in surface inflected forms of a disyllabic base

Options for stressing derivatives of this base are limited to profiles in the pool

$[\acute{\sigma}\sigma]_{\text{stem}}\text{-}[\sigma\ldots]_{\text{ending}}$ $\longleftarrow$ $[\acute{\sigma}\sigma]_{\text{stem}}\text{-}[\sigma\ldots]_{\text{derivational suffix}}\text{-}([\sigma\ldots]_{\text{ending}})$

$[\sigma\sigma]_{\text{stem}}\text{-}[\acute{\sigma}\ldots]_{\text{ending}}$ $\longleftarrow$ $[\sigma\sigma]_{\text{stem}}\text{-}[\acute{\sigma}\ldots]_{\text{derivational suffix}}\text{-}([\sigma\ldots]_{\text{ending}})$

$*[\sigma\acute{\sigma}]_{\text{stem}}\text{-}[\sigma\ldots]_{\text{derivational suffix}}\text{-}([\sigma\ldots]_{\text{ending}})$

The Ukrainian forms in (6) provide a glimpse at the material explained by MATCH STEM STRESS, expanding on the data in (1). As seen before, base nouns with fixed stem stress have one allomorph and must use that form in derivatives, (6.a). Most bases with ending stress, (6.b), and with mobile stress, (6.c), also provide a stressless allomorph. This can be used in *–ov-yj* derivatives to produce the penult stress favored by Ukrainian (*obruč-év-yj, pojizd-óv-yj*[5]). The *–n-yj* and *sjk-yj* derivatives prefer allomorphs stressed on the stem-final syllable, to promote penult stress in the suffixed form, and use these wherever available: cf. (6.b.ii; 5.c.ii-iii)

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[5] The alternation between *-ev-yj* and *-ov-yj* is controlled by the palatality of the preceding consonant.

compared to (6.a.ii).

6.   Effects of MATCH STEM STRESS (in Ukrainian)

a.   Fixed stem stress (type *a*) => pre-penultimate stress in the derivative

    i. *osýk-a* 'asp', GenSg *osýk-y*, NomPl *osýk-y* => *osýk-ov-yj* 'of an asp'

    ii. *Úžgorod* (toponym), GenSg *Úžgorod-u* => *Úžgorod-sjk-yj* 'from U.'

b.   Post-accentuation (type *b*) => penultimate stress in the derivative

    i. *obrúč* 'hoop', GenSg *obruč-á*, NomPl *obruč-í* => *obruč-év-yj* 'of a hoop'

    ii. *obrúč* 'hoop' => *obrúč-n-yj* 'of a hoop'

c. Mobile stress (types c, d) => penultimate stress in the derivative

    i. type (c): *pójizd* 'wedding cortege, GenSg *pójizd-a*, NomPl *pojizd-á*

        => *pojizd-óv-yj* 'of wedding cortege'

    ii. type (c): *nébo* 'heavens', Nom.Pl. *nebes-á*, Gen.pl. *nebés* => *nebés-n-yj* 'heavenly'

    iii. type (d): *častot-á* 'frequency', NomPl *častót-y* => *častót-n-yj* 'related to frequency'

None of the derivatives in (6) violates MATCH STEM STRESS. All are *lexically conservative*, in the sense that they use only stem variants independently guaranteed to occur elsewhere (Steriade 1999a,b, 2007).

The data in (6) also provides a glimpse of the differences between the modern Ukrainian system and Proto-Slavic. First, the derivatives of Ukrainian post-accenting nouns, type (b), are not invariably post-accenting themselves: attested *obrúč-n-yj* (6.b.ii) is not postaccenting *obruč-n-ýj. Second, the Ukrainian derivatives of *stressed* stems, types (a) and (c)[6], are not invariably stem-stressed: *pojizd-óv-yj* (6.c.i) is not. In general, only the derivatives of class (a) nouns are stem-stressed with any consistency in East Slavic. These are first indications that the analysis sketched above for Proto-Slavic doesn't fit the modern East Slavic data considered here.

While the data in (6) suggests certain regularities, defended in detail below, the empirical picture in modern East Slavic is much more complex. First, there exist *dominant* derivational suffixes that create forms whose stress is unaffected by any form of faithfulness. In their

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[6] Modern Ukrainian type (c) nouns must be analyzed as having underlyingly stressed stems. See section 2.8.

presence, all base properties are overridden[7]. For example, all Ukrainian –*yčn-yj* derivatives are stressed on the penult no matter what forms they are based on. Naturally, we concentrate here on the non-dominant, or *recessive* derivatives.

Second, a minority of Ukrainian recessive derivatives have penult or final stress even when no appropriate stem allomorph is provided by the base. The details on this are provided below. Historical studies show that reassignment of stress types and restructuring of accentual paradigms took place in East Slavic dialects throughout their documented history (cf. Zaliznjak 1985 for eastern East Slavic, Vynnycjkyj 2002 for south-western East Slavic, a.o.) The contemporary lexicons of Ukrainian and Russian contain both remnants of these historical developments and innovations still productive today. This is as expected for ongoing changes that spread, sometimes incompletely, through a lexicon. Because of this mix of forms reflecting old and new systems, we find strong tendencies but no categorical restrictions in our East Slavic data. Nonetheless, we can show that MATCH STEM STRESS is a factor in the Ukrainian and Russian derivational morphology. That constraint alone does not determine the form of the derivative, but it is a central part of the interplay that does.

We focus on three noun-to-adjective derivational suffixes of Ukrainian (–*n-yj, –sjk-yj* and –*ov-yj*), and three suffixes of Russian (–*ostj, –yšš-e*, and possessive –*ov*). The evidence for MATCH STEM STRESS in East Slavic is not limited to those. Ivlieva 2009 provides additional evidence from Russian for the same idea.

1.3. Predictably derived stem allomorphs; inflection dependence

The principles that distribute listed allomorphs of roots and affixes have been investigated by Bonet, Lloret and Mascaró 2007, Kager 1996, Drachmann, Kager and Malikouti-Drachmann 1996, Paster 2005, Tranel 1996, a.o. The conclusion reached in most of those studies is that when a morpheme offers multiple listed variants, markedness constraints are at least in part responsible for their surface distribution.

Our study follows in this line of thought, with a difference: the markedness-driven distribution documented in this chapter involves not underlying allomorphs of the base noun but predictably derived ones. Thus the difference between the stem allomorphs in Nom. Sg. *obrúč* vs.

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[7] It's unclear if Proto-Slavic had dominant derivational suffixes. Dybo 1981:258-259 discusses the most likely candidates and argues that there are reflexes of recessivity for all of them.

Gen.sg. *obruč-á* is predictable for a post-accenting noun: the noun must be listed as post-accenting, in a way we outline below, but its two stems, the result of its being post-accenting, need not be listed in the permanent lexicon. The scenario we defend is one in which the inflected forms of the base words have their phonology, including their accent, regularly derived by the grammar in a first derivational step. The results are stored in a derived lexicon of inflected forms. In a later step, the grammar computes the accent of the derivatives of these words. At this later stage, all inflected surface forms of the base, and their stress profiles, are available for look-up. Those forms function as a collective base in the evaluation of candidates for the derivative: MATCH STEM STRESS checks the stem stress of the derivative against this set.

We call this phenomenon *inflection dependence* (Steriade 2007). We do not deny the activity of additional correspondence constraints seeking a match with a specific form in the inflectional paradigm of the base. We suggest that such constraints have an effect in Ukrainian. But in this study we focus on the evidence for the less well documented constraint type that characterizes the inflection dependence effect: i.e. MATCH STEM STRESS.

1.4. The alternatives to MATCH STEM STRESS

The main finding here is that the accentual profile of *any inflected form of the base* can be adopted by that base's derivatives for the purpose of optimizing their stress, regardless of the morphosyntactic features expressed in that inflected base form. There is no unique base form in the computation of the derivative. Different forms serve that role, depending on their phonological properties.

We compare this anticipated finding to some baseline analytical expectations derived from current views on how bases influence the shape of their derivatives. We spell out what such expectations are based on the theory of the cycle (Chomsky, Halle and Lukoff 1956, Chomsky and Halle 1968), its Optimality Theoretic offshoots (Kenstowicz 1996; Benua 1997; Kiparsky 2000; Bermúdez-Otero 2010), and other recent work.

The essence of this baseline alternative to our own analysis is that only two forms can influence the derivative. One of them is the underlying representation of the root, for a mono-morphemic base stem; or of the root plus a derivational affix, in the case of a complex stem. What is the other form? That would correspond to the output of a derivative's first cycle in a

rule-based theory of the cycle, or in Kenstowicz's (1996) OT reconstruction of the cyclic idea, and in Stratal OT (Kiparsky 2000; Bermúdez-Otero 2010).

What is the *domain* of this first cycle whose output might be inherited by the derivative? Here the theories cited abide, mostly tacitly, by the assumption that any cyclic domain contained in the derivative corresponds to a subconstituent of the derivative's syntactic structure. Chomsky , Halle and Lukoff 1956 were the first to spell out this assumption. Benua (1997:30) too upholds something akin it. This rules out the possibility that any inner cycle in a derived word might be a case- or number-inflected form of the base. Cases are licensed by syntactic structures inaccessible inside a derivative. As a result, overtly case-inflected forms are rarely if ever found as stems of derived words. This is true in East Slavic as well: none of the Ukrainian derivatives seen earlier in (6), or below, contain in their stems any case suffix. As for number, most derivatives are interpreted as having bases insensitive to number information. The forms discussed here are no different in this respect.

A further class of possibilities is reviewed in Albright's (2002, 2005, 2010) studies of bases in inflectional paradigms. The in-principle options reviewed there can be considered for derivational morphology as well. They include: the base as the most informative surface form of the inner lexeme (the form preserving most phonological contrasts between bases), the base as the on-average most frequent form of the lexeme, the base as citation form or as syntactically unmarked – whatever *unmarked* may mean (cf. Garrett 2007). All these possible theories of what a base may be are entertained against the assumption, empirically supported in Albright's work, that there is a *unique* base in every inflectional paradigm. In an extension to derivational morphology, this means a unique base for each derivative.

The East Slavic evidence documented here should be evaluated against these two expectations: each derivative has a unique base, and this base is an uninflected form.

2. Ukrainian evidence for MATCH STEM STRESS

This section documents the effects of inflection dependence in Ukrainian denominal adjectives. The evidence comes from the following sources: the Ukrainian dictionaries of Pogribnyj 1984 and Andrusyshen and Krett 1957; the inverse dictionary of Ukrainian by the Potebnja Linguistics Institute of the Ukrainian Academy of Sciences, which we refer to as ISUM 1985; the Ukrainian grammar of Pugh and Press 1999; the on-line declension help for individual

nouns, provided by the Ukraïnsjkyj Lingvistyčnyj Portal at http://lcorp.ulif.org.ua/dictua/;
Butska's 2002 treatment of Ukrainian nominal accentuation, continued in Truckenbrodt and
Butska 2003; and finally Vynnycjkyj 2002, an extensive descriptive work on Ukrainian stress in
all parts of speech, reviewing historical and dialectal facts regarding changes in accent placement.
Our assumptions about underlying accent in different noun classes and the mechanisms that
derive accentual mobility come from Yanovich and Steriade 2010. We introduce these below.

2.1. Preference for penult stress in modern Ukrainian

      The East Slavic accentual systems have a shared characteristic: the position of the stress
is, in principle, unconstrained. In Ukrainian, however, penultimate stress is preferred. In some
Western Ukrainian dialects, this preference is reported as an invariant fact (Zilynskyj 1979:184,
194; Reiter 1969, Baerman 1999). The data we analyze – from standard Ukrainian, based on an
Eastern dialect – show that aspects of the penult preference are present everywhere.

      We infer the penult preference in Eastern Ukrainian from two kinds of data. The first are
Zilynskyj's (1979) observations about his own productions (in Standard Ukrainian) accompanied
by transcriptions that assign stress numbers – 1 'main' to 6 'very weak or no stress' – to every
syllable. These data indicate that at least a secondary stress is present on the penult whenever
clash avoidance allows it. The examples below illustrate two points: under clash with final or
antepenult main stress, Zylinskyj reports the penult as weakly stressed or unstressed, a 4, 5, or 6
stress (7.a). Everywhere else, the penult is recorded as a 1 or a 2 (7.b). We indicate the position
of main and secondary stresses using acute and grave accents.

7.   Degrees of stress in E. Ukrainian:
     Zilynskyj's transcriptions (1979:187-190; accents added by us)
     a.   weak or no stress on the penult under clash with main stress

         dòbrotá   *pèrenočuválysjmo*
         2 4 1   2 4 3 4 1 4 3

     b.   strong (secondary or main) stress on the penult everywhere else

         ròzgovóri̯uvàly   *pèrenočuvály*
         2   4 1 4 2 4   2 6 4 3 1 5

Lehr-Splawinsky (*apud* Zylinskyj 1979:189) makes a supporting point: "When more than two syllables follow the primary accent, there is a tendency for the end of the word to be trochaic, i.e. for secondary accent to fall on the second syllable from the end, i.e. ´- -."

These descriptions suggest an analysis in which lapse avoidance (*Lapse) and final stress avoidance (NonFinality) are active. Their joint effect is to promote penultimate stress, normally the main stress of the word. Competing with them are clash avoidance (*Clash) and faithfulness to lexically specified stress (IdentStress IO) – or, as we shall see, correspondence to a surface base. These can cause violations of *Lapse, or NonFinality. In *dòbrotá* 'goodness', a lexical stress on the final is preserved in violation of NonFinality. In *pèrenočuválysjmo* (from *pèrenočuváty* 'to pass the night') the base stress on *vá* is preserved: here IdentStress BD, *Clash and NonFinality make it impossible to satisfy *Lapse. Aside from such circumstances, a penult stress will always surface. This penult stress normally becomes the main stress, enforced by MainStressRight (MSR).

A second class of observations, on the distribution of stress in derived forms compared to their bases, shows a preference to maintain the penult accent *as main stress*. The table in (8) provides data on the stress patterns of the citation forms of polysyllabic nouns and derived adjectives from a Ukrainian database described in 2.4. below. In accordance with the information reported above, we interpret the dictionary stress data as reporting the position of main stress.

8. Lexical frequencies of stress positions in a database of nouns and derived adjectives.

	Pre-antepenult	Antepenult	Penult	Final
bases	1	55	450	370
derivatives	48	376	413	184

This data shows that the prevalent position of main stress, for both bases and derivatives, is on the penult. Pre-penultimate stress is found, with rare exceptions, only among derivatives. We interpret this restriction as the interaction between the MSR and faithfulness in the derivative to the main stress position of the base (below, MatchStemStress(Main)). The vast majority of pre-penult stresses arise when the syllables of a derivational suffix are added to a stem that preserves the main stress of its base: e.g. *káktus, káktus-ov-yj* 'of a cactus', or, as we learn from Zilynskyj and Lehr-Splawinsky, [káktusòvyj], with a secondary stress on the penult and a

violation of MSR. Main stress on a pre-penult is under-represented in bases because the sole competitor to MSR is irrelevant to base accentuation: it's MATCH STEM STRESS(MAIN).

Pre-penultimate stress is, to an extent, also under-represented in derivatives: that's because MSR isn't always outranked by base faithfulness. This argument emerges from the table in (9), which provides rates of stress by position in *–ov-yj* adjectives. The data come from ISUM 1985:

9. Lexical frequency of different accent positions in Ukrainian *-ov-yj* adjectives: N = 3385

	Final	Penult	Antepenult	Pre-antepenult
Main stress	17%	37%	40%	6%

Two facts about this distribution indicate a preference for the penult as the locus of main stress. First, the majority of the base nouns belong to class (a), by far the best populated accentual class in East Slavic. Most derivatives of class (a) nouns keep stem stress – cf. Halle 1973 for Russian, Butska 2002 and below for Ukrainian. Then we expect pre-penultimate stress for all class (a)-based *–ov-yj* adjectives[8]: e.g. *Labradór, Labradór-ov-yj; káktus, káktus-ov-yj.* But this is not what (9) shows: a significant number of *–óv-yj* adjectives, most of which must be class (a)-based, have penult stress. Pre-antepenultimate stress is rare, even though most bases – like *káktus –* have penult stress themselves and are expected to produce such *–ov-yj* derivatives. Antepenult stress, though well attested, is still less frequent than the predominance of class (a) bases would lead one to expect.

It appears then that in a significant minority of derivatives accentual markedness (on our interpretation, MSR) overrides base faithfulness, shifting main stress to the penult. We assume that final main stress is disfavored by NONFINALITYMAIN: this rules out unfaithful alternatives like **Làbradòr-ov-ýj, *kaktùs-ov-ýj,* limiting the choices to just two, faithful but marked *Làbradór-ov-yj, káktus-òv-yj,* and unfaithful, unmarked *Labràdor-óv-yj, kàktus-óv-yj.*

A final observation confirms that the discrepancy between expected and attested pre-penultimate stress comes from the preference for penult stress. 53 *–ov-yj* adjectives are listed in ISUM as having two accentual variants. They are written with two accents, e.g. *<káktus–óv-yj>,* as a means of abbreviating two main stress options: *káktus–ov-yj* and *kaktus–óv-yj.* There is a

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[8] We did not conduct a count of how many of the 3385 *–ov-yj* derivatives have bases that are not of class (a). However, Butska 2002 found only 722 nouns of types other than (a), so the proportion of type (a) bases in our sample must be significantly higher than the 46% of forms with stem stress in the *–ov-yj* derivative.

striking fact about these variants. Virtually all (50/53) involve variation between accent on a non-penult syllable (final, antepenult or pre-antepenult) and the penult. There is no variation between distinct pre-penultimate positions: *káktus-ov-yj* never varies with **kaktús-ov-yj*. There is rare variation between pre-penult and final stress: cf. fn. 9. Without a penult preference there is no reason why the attested variation should be restricted in just this way. We interpret this gap by conjecturing that the variably accented forms reflect the variable ranking between MSR and either (ii) accentual faithfulness to the main stress of the base (MATCH STEM STRESS (MAIN)), or (iii) the faithfulness to a lexicalized, inherited derivative with final stress *–ov-ýj*[9]. Productive derivatives don't have final-stressed variants (**kaktus–ov-ýj*): this stems from invariably high-ranked NON FINALITY (MAIN). The only source of variation is then the demotion of MATCH STEM STRESS (MAIN) below MSR. An analysis in these terms appears below.

10. Penult preference and accentual variants

(i) Deriving the regular pattern

	Base: káktus	NON FINALITY (MAIN)	MATCH STEM (MAIN)	MSR
☞ (a)	káktus –òv-yj			*
(b)	kàktus –óv-yj		*!	
(c)	kaktùs –ov-ýj	*!	*	

(ii) Deriving unfaithful variants: MSR optionally moves up in the ranking

	Base: káktus	NON FINALITY (MAIN)	MSR	MATCH STEM (MAIN)
(a)	káktus –òv-yj		*!	
☞ (b)	kàktus –óv-yj			*
(c)	kaktùs –ov-ýj	*!		*

Our synchronic analysis of penult-stressed *kaktus–óv-yj* as an innovation enabled by the rise of penult stress in Ukrainian receives support from diachronic observations in Veselovsjka (1970) and Vynnycjkyj (2002). Veselovsjka notes, regarding *–ov-yj* adjectives, that they have been consistently moving towards penult stress from the late 16th century to the present day.

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[9] The historical source of final accented *–ov-ýj* forms is discussed by Hartmann 1936, Reiter 1969, Lehfeldt 2001. For derivatives of final-stressed bases, like *budják* 'thisle' we don't exclude the possibility that an older final-stressed form, *budjak-ovýj,* could vary with base-faithful, antepenult stressed *budják-ovyj*. Such variation is indeed found among the other derived adjectives and its infrequent status for *–ovyj* should be considered accidental. It is only for derivatives of non-final stressed bases like *káktus* plus disyllabic *–ov-yj* that the remarks in the text hold.

Vynnycjkyj discusses a number of accentual variants of adjectives, underived and derived, where penultimate accent has become possible over the last two centuries, or has completely replaced an earlier accent on some other syllable.

Even if penultimate stress is on the rise now, final stress in adjectives (i.e. stress on an inflectional ending) must have been a favored option at some point in the history of Ukrainian. We find traces of this in certain loanwords that occasionally yield final stressed derivatives: e.g. *šljuz* '(water) lock', from Dutch *sluis* or German *Schleusse,* and related *šljuz-ov-ýj* 'related to a (water) lock'[10]. What matters here, however, is the current general preference for penult stress, which is indicated both by the synchronic data discussed above, and by the historical evidence in Veselovsjka (1970) and Vynnycjkyj (2002).

2.2. Inflectional paradigms of derived adjectives

When we refer to an adjective, e.g. *velýk–yj* 'big,' as having penultimate stress, we refer to a paradigm whose Nominative, plus two thirds of the other forms, carry surface penultimate stress, but where forms with antepenult stress also exist. The latter contain disyllabic inflectional endings. Stress in Ukrainian adjectives is invariant, so forms with disyllabic endings (e.g. *velýk–oju* 'big-fem.Instr.sg', *velýk–ymy* 'Instr.pl') keep stress on the same syllable as forms with monosyllabic endings (e.g. *velýk–a* 'fem.Nom.sg', *velýk–i* 'Nom.pl').

There are two related points here that require analysis: the very fact of accentual uniformity in adjectives, which differ in this respect from nouns, and the fact that what we call a 'penult-stressed' adjective has some inflected forms that aren't penult-stressed. We claim that the second of these facts – the deviations from penult stress – stems from the first: there is a base form in every adjectival gender/number subparadigm, the Nominative, and the accentual uniformity of adjectival paradigms is due to the fact that all other paradigm members must match the stress of that base. This point is not further reflected below: the reader will bear in mind then that further Base-Derivative constraints on stress identity between the citation form and the rest of the derived adjective's paradigm must operate in the complete analysis[11].

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[10] Stress shifts from the penult to the final have also happened in the very recent history of Ukrainian. E.g., Vynnycjkyj 2002 discusses *pux-ov-ýj* 'down (Adj)', where in the late 19th century the penult-stress form *pux-óv-yj* was common (cf. Vynnycjkyj 2002, p.309), or *vognj-an-ýj* 'fire (Adj)', with *vognj-án-yj* dominant in the first half of the 19th century, but then becoming marginal (ibid, p. 301). The factors generating these shifts remain unclear to us.
[11] Other instances of paradigms leveled in favor of the citation form (Nom.sg.) or one of the genders in multiple-gender paradigms are documented by Kraska-Szlenk 1995, Booij 1986, Kenstowicz 1998.

2.3. Ukrainian accentual classes

We examine now the correlation between the stress assigned to the base noun in inflection and the accentual possibilities attested for its recessive adjectival derivatives.

Ukrainian has 4 main accentual classes, similar to those of Russian. These differ in the number of accentual allomorphs found in inflection: class (a) nouns have one stem allomorph, which always contains an accent; classes (b)-(d) have typically more than one, always including an unstressed allomorph. Within a class, gender differences create further accentual distinctions, triggered by differences between gender-specific endings. Nouns may also be defective, having only plural or only singular forms. All these factors determine if and where the accent surfaces on the stem of the noun, and hence its full set of accentual allomorphs. Ultimately then, it is not just membership in one of the classes (a)-(d) that affects how a noun's derivatives will be accented. It is that, plus all other circumstances about the inflection of the base.

2.4. The Ukrainian database

Our Ukrainian evidence comes from a database of adjectival derivatives (from the *–n-yj, –ov-yj*, and *–sjk-yj* set) whose base noun inflection is known to us. We have built this collection by looking up the adjectives derived from the core set of mobile nouns in Butska 2002, and later through searches in Andrusyshen and Krett 1957, Pogribnyj 1984, ISUM 1985 and the http://lcorp.ulif.org.ua/dictua/ site. The database is being constantly updated. It currently contains over 1000 recessive adjectives. Variant forms are listed as distinct items. Where our sources disagree about the accentual class of a base noun, we side with Pogribnyj 1984.

The purpose of this database is to check correlations between the accentual class of the base noun and the accent of its derivatives. In the early stages of assembling it we did not count derivatives with the monosyllabic suffixes *–n-yj* and *–sjk-yj* if they met two conditions: their base was a final-accented noun, e.g. *Labradór*, and the adjective's stress was, as predicted, on the penult. Thus *Labradór-sjk-yj*, was initially excluded, while *Labradór-ov-yj* wasn't. The reason was that the factor responsible for the penult stress is *Labradór-sjk-yj* is ambiguous between faithfulness to the base stress and the markedness preference for penult stress. By contrast, stress in *Labradór-ov-yj* has a single explanation: faithfulness to the base. (Forms like **Labrador-óv-yj* or **Labrador-sjk-ýj,* which arise if factors distinct from faithfulness get the upper hand, were

also deemed worth recording, because they indicated the rate of success of constraints that compete with faithfulness.) In this way, numerous items like *Labradór-sjk-yj* were initially omitted. We later decided that this omission was an error and attempted to remedy it when expanding the database. But the result is that, in its present form, the database underrecords penult-stressed derivatives that are faithful to their base.

A second exclusion emerged as advisable. We observed that a significant minority of the derivatives are unfaithful to their presumptive nominal bases, but not unfaithful to the extended lexical family of the base: they use a stem allomorph occuring in a lexically related form. Two examples in this class, *manevr-óv-yj* and *avstríj-sjk-yj*, are shown below. Both are penult-stressed, unlike the faithful derivatives we expected, **manévr-ov-yj* and **ávstrij-sjk-yj*.

11. Base uncertainty

    ii. The stem allomorph used in the derivative does not occur in the inflection of the base, but occurs in a related verb:

        a) Presumptive base, class (a): *manévr* 'maneuver, stratagem'

        b) Unfaithful derivative: *manevr-óv-yj* 'shunting'

        c) Related verb: *manevr–uvá-ty* 'to shunt, to maneuver'

    iii. The stem allomorph used in the derivative does not occur in the inflection of the base, but occurs in a co-derivative:

        a) Presumptive base, class (a): *Ávstrij-a* 'Austria'

        b) Unfaithful derivative: *avstríj-sjk-yj* 'from Austria'

        c) Related lexical item with identical stress: *avstríj-etsj* 'Austrian (person)'

These cases are of great interest to us because they suggest, in the spirit of our proposal, that the forms consulted to check satisfaction of MATCH STEM STRESS are not limited to the underlying or citation form of the base noun. They may include co-derivatives of that noun, if this allows satisfaction of markedness constraints that would otherwise be out of reach[12]. Adjectives like those in (11) appear to satisfy markedness by referencing such co-derivatives. However, a subset of these revealing forms is ambiguous: the syntactic base of *manevr-óv-yj* could be the verb *manevr–uvá–ty*, not the noun *manévr*. When unable to decide the syntactic filiation of items like

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[12] A case of this sort is found in English (Steriade 1999a); a related Russian case is documented in section 3.

it, we have excluded all derivatives that could be deverbal, as *manevr-óv-yj* could be. Derivatives like *avstríj-sjk-yj* whose stress matches the stress of a non-verbal derivative were kept on the list on the grounds that, had they been derived from co-derivatives like *avstrí–etsj,* the derivational suffix of that derived noun would have surfaced in the result, **avstríjetsjkyj*. We are thus fairly confident that a subset of the adjectives studied here, including *avstríj-sjk-yj*, license their penultimate stress by reference to forms that are only indirectly related to their base noun.

2.5. Derivatives of type (a) nouns

    Class (a) nouns have fixed accent on the same stem syllable throughout their inflectional paradigm. Like our predecessors, we attribute this to the fact that they contain an underlyingly accented syllable. The lack of alternations in their inflection is explained by Butska 2002: any underlying stress on inflectional affixes is protected by inactive faithfulness constraints. Stem faithfulness competes only with markedness, and normally outranks it.

    Our database contains 581 recessive denominal adjectives from type (a) bases. A breakdown of this set according to stress position and faithfulness is given below.

    12. Derivatives from type (a) bases. N = 581
        380 *–ov-yj*; 201 *–n-yj* and *–sjk-yj* forms.

	Faithful-Base: 78%	Faithful-Related: 8%	Not Faithful: 14%
Pre-antepenult (9%)	10%	0	0
Antepenult (58%)	75%	0	0
Penult (27%)	14%	64%	74%
Final (5%)	0	36%	26%

    The category 'Faithful-Base' contains derivatives that preserve the main stress of the base noun, like *káktus-ov-yj*. The category 'Faithful-Related' refers to derivatives that preserve the stress of a form related, but not identical to, their base noun, as discussed above in connection to *avstríj-sjk-yj*. 'Not Faithful' are adjectives whose main stress does not match any related form we could find: *kaktus-óv-yj* fits in here. Many such 'Not Faithful' forms have faithful variants, like *káktus-ov-yj*. For each of these categories we indicate (12) the lexical frequencies of the accent patterns they display. E.g. 10% of the 'Faithful-Base' derivatives from type (a) nouns have main stress on a pre-antepenult syllable, as *káktus-ov-yj*.

The revealing fact in (12) is that forms faithful to their base have predominantly (85%) pre-penultimate accent, while the 'Faithful-Related' and 'Not-Faithful' categories have predominantly penultimate accent (64% and 74% respectively). This asymmetry is explained in the same way as the variation in *<káktus-óvyj>,* (10). That is, class (a) derivatives that do not preserve the stress of their nominal base (i.e. the 'Faithful-Related' and 'Not Faithful' categories) rank the constraints inducing penult main stress, like MSR, above MATCH STEM STRESS. It is then expected that penult stress predominates in this unfaithful class. But MSR >> MATCH STEM STRESS is a lexically indexed ranking: the majority of Ukrainian recessive derivatives place MATCH STEM STRESS above all accentual markedness constraints and class (a) reflects this general fact. The reduced frequency of penult stress in the faithful majority of class (a) derivatives is related to this, as is the absence of final stress in the faithful class: adjectives with final stress have an unstressed stem. For any class (a) base, an unstressed stem is unfaithful.

The fact that most base-faithful adjectives are stressed on a *pre*-penultimate syllable stems from two facts. First, a majority of class (a) derivatives in our database (65%) are suffixed with disyllabic *–ov-yj*, so faithful stress in the derivative must be prepenultimate, e.g. *Labradór-ov-yj*. Second, as noted above, we delayed recording ambiguous adjectives like *Labradór-sjk-yj*, where faithfulness and markedness converge to produce penult stress. Had we recorded these from the start, the proportion of penult stress in class (a) derivatives would have been higher.

There are 37 derivatives of class (a) nouns that carry final stress, e.g. *birž-ev-ýj* from *bírž–a* 'exchange'. These are neither faithful to their base nor acentually optimal. We think they are lexicalized suvivors of earlier stages in the development of Ukrainian accent and present evidence bearing on this n sections 2.8 and 2.9. As this predicts, no recent loanword base (e.g. *káktus, Labradór,* etc.) produces final-stressed derivatives.

2.6. Interim summary: derivatives of constant-stress nouns

Up to this point we have supported the hypothesis that some form of accentual correspondence, in competition with markedness constraints enforcing penult stress, explains the predominant pattern of derivatives of class (a) nouns, the deviations from these patterns, and the limits on attested variation. We have not yet presented evidence that favors MATCH STEM STRESS over alternatives like IO IDENT STRESS or BD IDENT STRESS, the latter conceived as faithfulness to the stress of *one* base item (Benua 1997). Indeed, the derivatives of fixed-stress class (a) nouns

cannot provide such evidence. The evidence must come from derivatives of accentually mobile bases discussed next: when the base provides several accentual allomorphs of the stem we can distinguish the effects of MATCH STEM STRESS from the effect of faithfulness to a single base.

2.7. Derivatives of type (b) nouns

Class (b) nouns stress their inflectional endings whenever they contain an overt vowel:

13. Ukrainian type (b) nouns

(a) Stressed stem allomorph in Nom.sg. *harbúz* 'watermelon'		(b) Stressed stem allomorph in Gen. pl. *knʲážna* 'princess'	
Sg	Pl	Sg	Pl
N, A	harbúz □▪	harbuz-ý □□-●	N	knʲažn-á □-●	knʲažn-ý □-●
G	harbuz-á □□-●	harbuz-óv □□-●	G	knʲažn-ý □-●	knʲažón □▪
D	harbuz-ú □□-●	harbuz-ám □□-●	D	knʲažn-í □-●	knʲažn-ám □-●
I	harbuz-óm □□-●	harbuz-ámi □□-●○	A	knʲažn-ú □-●	knʲažón □▪
Loc	harbuz-é □□-●	harbuz-áx □□-●	I	knʲažn-ój □-●	knʲažn-ámi □-●○
			L	knʲažn-í □-●	knʲažn-áx □-●

We follow Butska (2002) in attributing the avoidance of stem stress in this class to two factors. The root of these nouns is underlyingly unaccented. Second, if the inflectional suffix is unaccented as well, some surface stress must be assigned. In that case, faithfulness to the unstressed root makes it preferable to locate a default stress on the suffix. The last fact to derive is the invariant final stress in zero-suffixed forms of this class, e.g. Nom. Sg. forms like *harbúz*. Butska (2002) proposes to index to class (b) nouns a constraint COINCIDE-RIGHT, favoring adjacency between main stress and the right stem edge. Stress on the ending, e.g. *harbuz-ý,* satisfies that constraint while keeping the stem unstressed. When no ending surfaces, in *harbúz*, only stem-final stress satisfies COINCIDE-RIGHT. Another possibility is to assume an opaque scenario in which the ending is a jer vowel that does not surface, but bears stress, yielding *harbuz-ъ́*. When the jer deletes, its stress is transferred to the preceding syllable: *harbuz-ъ́* => *harbúz*. Evidence discussed below perhaps favors this option, as does Russian data discussed in section 3. Yet another possibility is to use positional faithfulness within the root: if stress must be

assigned to an unaccented root, the last root syllable has lower priority for preserving its underlying stressless status (IDENT STRESS/NONFINAL >> IDENT STRESS/FINAL). We leave the choice between these scenarios open: they are not irrelevant to what follows, but the evidence favoring one or another remains unclear.

What is important here is that most type (b) nouns – 90% of the ones in our database – will have acquired *two* stem allomorphs in inflection: the unstressed and the final-stressed one. The MATCH STEM STRESS hypothesis leads us to expect then that both of these allomorphs will be deployed, to facilitate satisfaction of markedness constraints (*LAPSE, MSR, NONFINALITY (MAIN)) in both types of derived adjectives: those followed by two affixal syllables (*–ov-yj*) and those followed by one (*-sjk-yj*, *-n-yj*). Derivatives of *obrúč* 'hoop' illustrate this below. The final-stressed stem is used in *obrúč-n-yj*. The stressless one, from the other inflected forms (*obruč-í, obruč–ú, obruč–ý* etc.), appears in *obruč -óv-yj*.

14. Class (b) derivatives can satisfy both markedness and MATCH STEM STRESS (MAIN)

i. Derivatives with a disyllabic suffix

	Base: obrúč–, obruč–	MATCH STEM STRESS (MAIN)	MARKEDNESS
☞ (a)	òbruč -óv-yj		
(b)	obrúč -ov-yj		*! (LAPSE)
(c)	obrúč -ov-ỳj		*! (MSR)
(d)	obrùč -ov- ýj		*! (NONFINAL(MAIN))

ii. Derivatives with a monosyllabic suffix

	Base: obrúč–, obruč–	MATCH STEM STRESS (MAIN)	MARKEDNESS
(a)	òbruč-n-ýj		*!(NONFINAL(MAIN))
☞ (b)	obrúč -n-yj		

Pairs like *obruč-óv-yj* and *obrúč-n-yj* are common, as predicted. From class (b) we cite: *lemíš-nyj* and *lemeš-évyj* from *lemíš* 'plowshares'; *jazýč-nyj, jazyk-óvyj* from *jazýk* 'language'[13]; *tabýn-nyj*, *tabyn-óvyj* from *tabýn* 'herd'; and *čavún-nyj*, *čavun-óvyj* from *čavún* 'kettle'.

_____

[13] Velars regularly palatalize (k → č) before *–nyj*.

We anticipate then that both *–ov-yj* and *–n-yj, sjk-yj* derivatives from class (b) nouns will satisfy markedness without violating MATCH STEM STRESS. This hypothesis is borne out if such derivatives are both penult-stressed and belong to the Faithful-Base category defined earlier. This is essentially what we find: all class (b) derivatives but one match the stress an attested stem allomorph and the majority is penult-stressed.

15. Derivatives of type (b) bases. N = 224; 61 derived with *–sjk-yj, -n-yj*, 160 with *–ov-yj*

	Faithful-Base: 220	NotFaithful: 1
Pre-penultimate	2 %	
Penult	74%	1
Final	24%	

Further details on the stress of class (b) derivatives support the analysis. The nouns of class (b) differ on whether a suffixless form exists in their paradigm and, if one does, which case/number combination it expresses: in masculines like *obrúč* it will be the Nominative singular, but in feminines it will be the Genitive plural. Thus *jaryn-á* 'grain (fem.)' has a suffixless Gen. pl. *jarýn*, the only inflected form providing a stem-stressed allomorph. This form licenses the penult stress in *jarýn-nyj* 'of grain'. We will encounter similar Gen. pl.-based items in other mobile classes: they bear out our claim that any member of the inflectional paradigm of the base noun can provide the stem allomorph needed in the derivative.

16. Class (b) derivatives of feminine nouns

	Base: jaryn–, jarýn (G.pl.)	MATCH STEM STRESS	MARKEDNESS
(a)	jàryn-n-ýj		*! (NON FINAL(MAIN))
☞ (b)	jarýn-n-yj		

What happens if a class (b) noun lacks any stem-final stressed allomorph? That question arises if all its forms have an overt ending, as in pluralless feminines like *tajgá* 'taiga' or *taft–á* 'taffeta', or in *pluralia tantum* masculines like *xarč-í* 'food, provisions'. There are 17

derivatives of such nouns in our database[14]. 6 other derivatives are based on class (b) pluralless

feminine mass nouns whose only stem-stressed allomorph would be a Vocative: e.g. *xalv-á*

'halvah' with a potential Vocative *xálv-o*. We doubt that the Ukrainians address themselves to

the halvah in this or any other fashion and count these in the set of defective class (b) nouns

lacking any stressed stem. We expect all these nouns to lack penult-stressed *–n-yj* and *–sjk–yj*

derivatives, such as **tájgn-n-yj* etc. Such forms, from such defective bases, would violate

MATCH STEM STRESS. But we expect all these nouns to use their *stressless* stem in *-ov–yj*

derivatives. Both expectations are met. Of the 23 derivatives from these defective class (b) bases

all but one, the sole unfaithful derivative of class (b) nouns[15], are *–ov–yj* forms using the

stressless stem of their base: e.g. *xalv-óv-yj, tajg-óv-yj, taft-óv-yj, xarč -óv-yj*[16].

As with class (a), we find a minority of final stressed items – e.g. *dnipr–ov-ýj* from

Dnipr-ó 'Dniepr' – which we identify again as lexicalized archaisms. This final-stressed

minority is larger for class (b) derivatives than for class (a): 25% vs. 5%. The likely reason is that

class (a) has a larger share of new words: recent loanwords and productively derived nouns.

Their derivatives, e.g. *káktus-ovyj,* exclude older lexicalized adjectives, which we believe

provide the main source of final stress. Class (b) derivatives, with fewer loan-based items among

them, include a larger proportion of such older forms. If this is the reason, even higher rates of

final-stressed derivatives should be found in classes (d) and (c): class (b) contains some

productively derived nouns, the agentives in *–ár* and *–ák*, while classes (c) and (d) lack these.

This prediction will be supported[17].

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[14] Relevant bases are the feminines *mišur-á, tertj-á, vzuttj-á, žyttj-á, šeljug-á, taft-á, tajg-á, česuč-á, alyč-á, birjuz-á, lobod-á, parʧ-á*; the neuters *tepl–ó, pyjsm-ó*, and the masculine pluralia tantum *xarč-í, svjatk-ý, parʧ-í.*

[15] This exceptional word is *mišúr-n-yj*, from *singulare tantum mišur-á* 'tinsel, trumpery.'

[16] Final-stressed derivatives like **tajg–n-ýj,* from defective class (b) bases like *tajgá*, would be faithful to their stressless stems. They are nonetheless unattested. Perhaps **tajg–n-ýj* is eliminated by competition with forms like *tajg-óv-yj,* which are both faithful and accentually unmarked. Competition is possible between *–n-yj* and *–ov-yj* because they seem to be syntactically and semantically equivalent (unlike *–sjk-yj*, which is restricted to human referents). We have not tested the hypothesis of a grammatically regulated competition between *–ov-yj* and *-n-yj*.

[17] Another possibility is to appeal to a fact that singles out just class (b). Historically, and perhaps underlyingly, class (b) zero-suffixed forms like *harbúz* end in a stressed jer. If the derivation *harbuz-ъ′ => harbúz* is justified, then nouns like *harbúz*, the majority of our class (b) bases, lack any stressed allomorphs at the intermediate level of representation that precedes the loss of jers in a stepwise derivation (cf. Pesetsky 1979). We discuss in section 3 how this might play a role in the stress of Russian derivatives. We find the Russian evidence for this idea more persuasive and incline, for Ukrainian, in favor of the explanation given in the text.

2.8. Type (c) nouns and their derivatives

> The next two sections are dedicated to M.M. Zoščenko's (1895-
> 1958) portrayal of the painful dilemmas posed by accentually
> mobile Genitive plurals: *kočerg-á → kočérg? kóčerg? ☉?*

Type (c) nouns have stem stress in the singular, and shift it to the ending in the plural: e.g.
jármarok, jarmark-ý 'fair'. The position of stress inside the stem is unpredictable, as seen in
pairs like *učítelj* 'teacher' *vs. pérepel* 'quail'; *profésor* vs. *jármarok*. Polysyllabic nouns whose
Nom.sg. carries final stress, e.g. *sekretár*, are excluded from this class and go instead to classes
(a) or (b); nonetheless, no property of class (c) stems positively predicts their stress. Accordingly,
we posit underlying stress in class (c). Sample class (c) inflectional alternations are seen below.

17. Ukrainian type (c) nouns

(a) Three stem allomorphs: *néb-o* 'heaven'			(b) Two allomorphs: *profésor* 'professor'		
	Sg	Pl		Sg	Pl
N, A	néb-o ■-○	nebes-á □□-●	N	profésor □■□	profesor-ý □□□-●
G	néb-a ■-○	nebés □■	G	profésor-a □■□-○	profesor-ív □□□-●
D	néb-u ■-○	nebes-ám □□-●	D	profésor-u □■□-○	profesor-ám □□□-●
I	néb-om ■-○	nebes-ámi □□-●○	A	profésor-a □■□-○	profesor-ív □□□-●
Loc	néb-i ■-○	nebes-áx □□-●	I	profésor-om □■□-○	profesor-áx □□□-●

2.8.1 Accentual contrast between singular and plural in class (c)

        Both classes (a) and (c) contain underlyingly stressed stems. What differentiates them? In
Yanovich and Steriade (2010), we claim it is class (c)'s preference to keep the singular and
plural stems accentually distinct. The analysis goes as follows. A group of Ukrainian nouns are
subject to a lexically indexed constraint demanding an accentual contrast between the singular
and the plural stems: the two stems must differ in the position of main stress[18]. Without this
constraint, stress in each singular and plural form would have been individually optimized
relative to the ranked Markedness and Faithfulness constraints. The contrast condition forces one
number subparadigm to differentiate its stem from that of the other. The study cited shows that,
in all Ukrainian noun types that enforce the singular-plural contrast, it is the singular forms that

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[18] See Kenstowicz 2005 for a survey of paradigm-internal contrast effects.

better satisfy Markedness or Faithfulness. This is explained if the singular is generated on its own, while the plural, generated in the next step, adjusts its stress, in violation of conflicting constraints, to keep it distinct from the already fixed singular.

In the subset of nouns subject to the contrast condition, some stems have underlying stress. These surface faithfully with stem stress in the singular. They are the type (c) nouns. Underlyingly unstressed nouns subject to the contrast constraint surface with ending stress in the singular, and shift stress to the stem in the plural. These are the type (d) nouns. A small third class, the *kóleso* nouns, satisfy paradigm contrast through stem-internal accent shifts.

For present purposes, only three properties of class (c) bases matter, and they remain independent of how we derive accent mobility. First, class (c) nouns have distinctive, hence underlying stress. Second, accent mobility creates in all class (c) nouns multiple accentual allomorphs: two in masculines like *profésor*, three in neuters like *nébo*. Last, in the stressed stem allomorphs, stress need not be stem-final: it isn't in *jármarok* or *profésor*. In the next section, we use these properties of class (c) bases to explain the stress of their derivatives.

2.8.2. The derivatives of class (c) nouns

Stress distributions among adjectives derived from class (c) are summarized below.

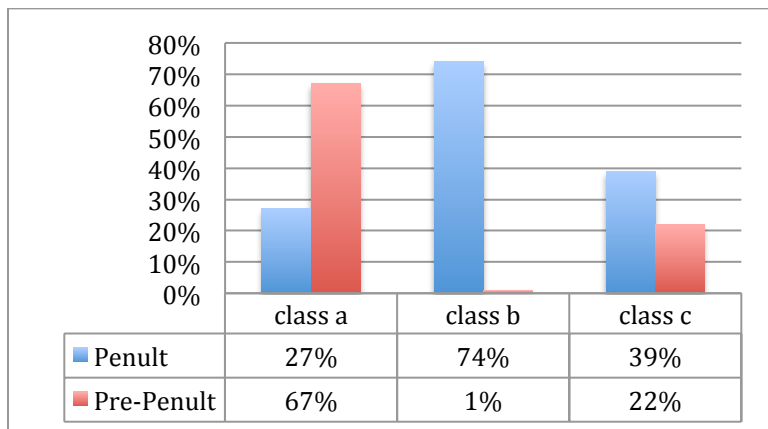18. Class (c) derivatives. N = 164; 75 with –*n-yj, sjk-yj*, 89 with –*ov-yj*

	Faithful-Base: 93%	Faithful-Related: 6%	Not Faithful: .06%[19]
Pre-penult	23%		
Penult	39%	100%	100%
Final	39%		

Like class (b), the vast majority of class (c) nouns have accentually faithful derivatives: the Faithful-Base rates are 99% and 93% in classes (b) and (c) vs. 78% in class (a). This difference is expected, since we define faithfulness as matching the stress pattern of any stem allomorph of the base: classes (b)-(c) offer more allomorphs and thus more faithfulness options.

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[19] An example of the 'Faithful-Related' category is *lymár-nyj* 'of a saddler', based on *lýmar, lymar-ý* 'saddler', and related to *lymár-nj-a* 'saddlery'. All –*ar–nj-a* nouns denoting the site of a trade are stressed on the penult. The 'Not Faithful' category is occupied by just one very frequent item, *xolód-nyj* 'cold-Adj' on *xólod* 'cold-N'. Russian has the same stress for the cognate item: this suggests it is an archaism.

With respect to markedness, class (c) derivatives differ systematically from those of class (b) *and* of class (a). We see this in the rates of penult (unmarked) vs. pre-penult (marked) stress:

19. Rates of penult and prepenult stress in the derivatives of classes (a), (b), and (c).

	class a	class b	class c
■ Penult	27%	74%	39%
■ Pre-Penult	67%	1%	22%

What increases the rates of pre-penult stress in class (c) derivatives, compared to class (b)? It's the large number of class (c) bases which, like *profésor,* have pre-final stress, a pattern absent in class (b). Of the 144 class (c) bases, 90 have pre-final stress and pose the following problem. Their derivatives can satisfy both markedness and faithfulness in only one form: a stressless stem + penult-stressed *-óv-yj*. In faithful forms suffixed with *–n-yj* or *–sjk-yj*, some markedness constraint must be violated: we argue below that the lesser violation yields pre-penult stress, as in attested *profésor-sjk-yj.* By contrast, most class (b) derivatives give rise to *two* faithful-unmarked combinations: the final-stressed stem + *C-yj* and the stressless stem + *-óv-yj*, e.g. *obrúč-n-yj* and *obrúč-óv-yj.* It is for this reason that prepenult rates are negligible in class (b).

What increases the rates of penult stress in class (c) derivatives compared to class (a)? In faithful derivatives suffixed with *–ov-yj*, class (c) bases provide a stressless stem: e.g. *jarmark-óv-yj* 'of a fair' using the stem of plural *jarmark-ý*. Class (a) nouns lack this variant: a class (a) faithful *–ov-yj* form is forced to adopt prepenult stress, as *káktus-ov-yj* does.

Our analysis predicts that the pre-penult stresses of class (c) derivatives should come only from *n-yj* and *sjk–yj* forms: all class (c) *–ovyj* derivatives have the option of penult stress, using the stressless stem allomorph of their base, and should exercise it. This is largely correct: of the 35 class (c) derivatives with pre-penult stress, 31 are suffixed with *–sjkyj* or *–nyj*. Two of the remaining four have bases that are variously listed as class (a) or (c) in our sources, and a third has the expected variant with penult-stress.

Several class (c) nouns have a final-stressed stem allomorph in the zero-suffixed Genitive plural: e.g. *nébo* 'heaven', *nebés,* cf. (17.a). We expect this stem to be usable before *–n-yj* and *–sjk-yj,* where it insures penult stress: e.g. *nebés-nyj* 'heavenly'. Derivatives from at least 4 other bases have this third stem. All bear out the expectation:

20. Class (c) derivatives from the third (Gen.pl.) stem

Base	Base Gen. pl.	Derivative	Gloss
čúd-o, čudes-á	čudés	čudés-n-yj	'miracle' 'wonderful'
molýtv-a, molytv-ý	molytóv	molytóv-n-yj	'prayer'
pidóšv-a, pidošv-ý	pidošóv	pidošóv-n-yj	'sole (of a foot)'
tíl-o, tiles-á	tilés	tilés-n-yj	'body', 'corporeal'

A large proportion of class (c) derivatives have final stress, e.g. *step-ov-ýj* 'of a steppe' *porox-ov-ýj* 'of powder'. Many of these have penult-stressed variants, e.g. *vijsjk–ovýj* and *vijsjk–óvyj* 'military' from *víjsjko* 'troups, army', but not all do. It has been our contention throughout that these represent lexicalized archaisms. For class (c) this claim is supported by derivatives of recent loans, which are more likely to reflect the currently productive system. The corpus contains 10 such forms from class (c) loans. They behave uniformly. Those suffixed with *–ovyj* carry penultimate stress and use the stressless plural stem: *tenor-óv-yj*, 'of a tenor' on *ténor, tenor-ý*. Those suffixed by *–n-yj, –sjk–yj* carry ante-penult stress, as in *kórpus-n-yj*[20]. The absence of final stress in this set suggests that NONFINALITY (MAIN) outranks *LAPSE.

21. Class (c) productive derivatives: MSR, NONFINALITY (MAIN) >> *LAPSE

	Base: kórpus–, korpus–	MATCH STEM STRESS	NONFINALITY (MAIN)	*LAPSE
(a)	korpus-n-ýj		*!	
(b)	korpús-n-yj	*!		
☞ (c)	kórpus-n-yj			*

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[20] The others are: *buxgálter-sjkyj* 'of an accountant (< *Buchhalter*)', *káter-nyj* 'of a torpedo' (< *cutter*), *dóktor-skjyj* 'of a doctor', *ávtor-sjkyj* 'of an author', *dyréktor-sjkyj, redáktor-sjkyy, profésor-sjkyj, asésor-sjkyj.*

We consider now an analysis in which source of antepenult stress in class (c) derivatives is not MSR, NONFINALITY (MAIN) >> *LAPSE but faithfulness to the citation form, the Nominative singular. We name this constraint MATCH CITATION STRESS and observe in (22) that it would have outrank *LAPSE to select *kórpus-n-yj*.

22. Class (c) productive derivatives: MATCHCITATIONSTRESS >> *LAPSE

	Base: kórpus, korpus–	MATCHSTEMSTRESS	MATCHCITATION	*LAPSE
(a)	korpus-n-ýj		*!	
(b)	korpús-n-yj	*!	*	
☞ (c)	kórpus-n-yj			*

The ranking MATCH CITATION STRESS >> *LAPSE does not, however, generalize to other classes. It predicts antepenult stress as the productive option for class (b) *–ovyj* derivatives. This is a first wrong result: of the *–ov–yj* forms from class (b), there are 113 penult-stressed items, like *obrúč*, *obruč-óv-yj,* to only 3 with pre-penult stress (e.g. *targán* 'beetle', *targán-ovyj*). Class (d) will pose comparable difficulties.

23. Class (c) productive derivatives: MATCHCITATIONSTRESS >> *LAPSE

	Base: obrúč–, obruč–	MATCH STEM STRESS	MATCH CITATION	*LAPSE
(a)	obruč -óv-yj		*!	
☞ (✘) (b)	obrúč -ov-yj			*

The overall analysis must predict both penult stress in class (b) *–ovyj* derivatives like *obruc-óv-yj* and pre-penult stress in class (c) *–nyj* and *–sjkyj* derivatives like *kórpus-nyj*. The only ranking that achieves both results is MATCH STEM STRESS, NONFINALITY (MAIN) >> *LAPSE, as in (21). Still, to derive the minority option found in *targán–ov-yj* only appeal to MATCH CITATION STRESS seems to help. Then class (c)-based forms like *kórpus-nyj* are generated by two possible rankings: the prevalent one, *LAPSE >> MATCH CITATION, which also generates penult *obruc-óv-yj,* and the minority ranking MATCH CITATION >> *LAPSE, which generates *targán-ov-yj*.

2.9. Derivatives of type (d) nouns

Our corpus contains 101 derivatives from class (d). In this class, as in (c), a contrast between the singular and the plural stems is enforced. Class (d) stems are unaccented in all singular forms, while in the plural some stem syllable carries the accent. We attribute this to the fact that (d)-roots are underlyingly unstressed: their singular forms stress the endings because the singular is faithful to the stressless quality of the root. The stressed stems of the plural result from contrast-driven stress retraction.

Thus all class (d) nouns have a stressless stem allomorph plus a stressed allomorph resulting from retraction in the plural. Most stems retract stress to the last stem syllable, as in (24.i). A few retract to the initial, but keep final stress in one plural form, the Genitive (24.ii). Class (d) stems are further differentiated by epenthesis: many end in consonant clusters that require epenthesis in the zero-suffixed Gen.pl, (24.iii), e.g. /jadr/→ [jáder]. This epenthetic vowel is never stressed in inflection. We illustrate all three types with Nominative and Genitive forms; all others case forms follow the stress pattern of the Nominative for that number.

24. Class (d) accentual alternations in inflection

(i) Two stem allomorphs: *kovbas-á* sausage'		(ii) Three allomorphs: *syrot-á* 'orphan'			
Sg		Pl	Sg		Pl
N	kovbas-á □□-●	kovbás-y □■-○	N	syrot-á □□-●	sýrot-y ■□-○
G	kovbas-ý □□-●	kovbás □■	G	syrot-ý □□-●	syrít □■

(iii) Stems with epenthesis: *jadr–ó* 'grain'		
	Sg	Pl
N, A	jadr-ó □-●	jádr-a ■-○
G	jadr-á □□-●	jáder ■□

Our analysis predicts that derivatives of *kovbasá* and *syrotá* type-nouns will behave like class (b) *obrúč*: that's because all three have both an unstressed and a final-stressed stem allomorph. For derivatives of nouns like *jadró*, predictions are more complex: before a suffixal consonant, *jadr-* must undergo epenthesis to avoid sonority-dipping *drC,* as in **jadr-nyj*. To satisfy MATCH

STEM STRESS, this stem *jader–* should have initial stress to *jáder-n-yj*.   These predictions are partly borne out, as discussed below. First, an overview of stress in class (d) derivatives:

25. Derivatives from paradigm *d* bases. N = 101; 45 in *–ov-yj*, 56 in *–sjk–yj, –n–yj*.

	Faithful-to-Base : 94%	Faithful-Related: 3%	Not Faithful: 3%
Pre-penult	2%	0	0
Penult	61%	100%	100%
Final	35%	0	0

All 43 adjectives in *–n-yj*, *–sjk-yj* from (d)-bases like *kovbas–á, syrot–á* use the stem of the Genitive plural, *kovbás, syrít,* and achieve penult stress in this way: e.g. *kovbás–n–yj, syrít–sjk–yj*. These are parallel to class (c) items like *čudés-n-yj, molytóv-n-yj* and, like them, they confirm the use of oblique allomorphs of the stem in the formation of derivatives. As anticipated, the Gen. pl. stem of class (d) nouns functions in the same way as the Nom. sg. of class (b).
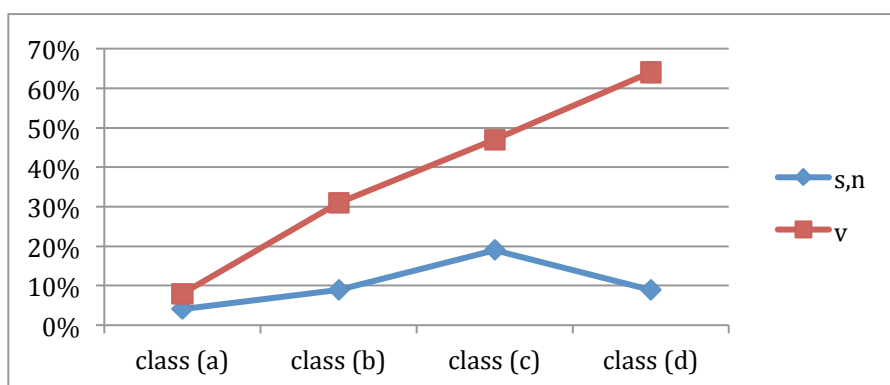
Epenthetic bases like *jadr-ó, jáder* yield both penult and antepenult-stressed derivatives: *jáder-n-yj* but also *jadér-n-yj*. The variation between these is parallel to the variation between faithful *káktus-ovyj* and unmarked *kaktus-óvyj* from class (a) bases. Penult stressed *jadér–n–yj* and similar forms[21] represent the only items classified as other than 'Faithful-to-Base' in class (d). Given the structure of stem allomorphs from class (d), the only way to get penult stress in a not-'Faithful-to-Base' derivative is to stress these epenthetic vowels.

The high rate of final accented derivatives from class (d) is the only major source of deviations from predicted patterns. Examples include *golov-n-ýj* (*golov-á,* pl. *gólov-y* 'head'), *stin-n-ýj* (*stin-á,* pl. *stín-y* 'wall'), *groz-ov-ýj* (*groz-á,* pl. *gróz-y* 'threat'). These satisfy MATCH STEM STRESS, but items like *stin-n-ýj* and *groz-ov-ýj* could take on penult stress while satisfying MATCH STEM STRESS, and yet they don't. The constraint MATCH CITATION we appealed to in explaining pre-penult stresses in (b) derivatives like *targán-ovyj*, is perhaps at work in favoring the final stress of *golov–n–ýj, stin-n-ýj*. There is variation: derivatives of similarly shaped bases – e.g. *stin-á* 'wall' vs. *strun–á* 'cord, string' – display different solutions to the conflict between MATCH CITATION and the preference for penult stress: *stin–n–ýj* vs. *strún–n–yj*.

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[21] They are: *stegén-nyj, jarém-nyj, vidérnyj, tjurém-nyj, rebér-nyj, čyséljnyj,* from, respectively, *stegn-ó, jarm-ó, vidr-ó, tjurm-á, rebr-ó*. All have epenthetic genitive plurals stressed on the first stem syllable.

Appeal to MATCH CITATION does not however explain why two thirds of the class (d) derivatives in –*ov–yj* (30/45) have final stress. Having by now surveyed derivatives from all major classes, we can address this problem more generally. We compare in (26) final stress rates in –*ov-yj* vs. –*n-yj*, –*sjk-yj* forms across accent classes: in each class, we calculate what percentage of –*ov-yj* and of –*n/sjk-yj* derivatives have final stress. We observe a steady increase in relative frequency of final stress going from class (a) to the increasingly unproductive classes (b), then (c), then (d). This increase affects mostly the –*ov-yj* forms. The comparison suggests that final stress is concentrated in –*ov-yj* forms and, among these, that it resides mostly in the unproductive accentual classes, (c) and (d).

26. Rates of final stress in –*n-yj* and –*sjk-yj* vs. –*ov–yj* forms across accent classes

The trends in (26) suggest that the historical source of final stressed adjectives is to be found among -*ov-yj* forms, where it is still to some extent preserved. This is consistent with our claim that most final-stressed adjectives are archaisms.

2.10. Derivatives of *kóleso-type nouns*

A fifth accentual type involves stem-internal accent shifts: in every singular form, stress falls on a non-final stem syllable (e.g. *kóles–o* 'wheel', *kóles-a, kóles-u* etc.), while in the plural stress falls on a later syllable, still inside the stem (e.g. *kolés–a* 'wheels', *kolís, kolés-am* etc.). The corpus contains 9 derivatives from such nouns, 8 of which satisfy MATCH STEM STRESS. The remaining one (*pered-ov-ýj* 'foremost', from *péred, peréd-y* 'front') belongs to the final-stressed category, common among older –*ov-yj* forms. All but one faithful derivative of *koleso* nouns are stressed on the penult. The one deviation, a lawful one, is *postél-ev-yj* (27.b): this form could not be stressed on the penult without violating MATCH STEM STRESS.

27. Faithful derivatives of *kóleso* nouns

     a. Penult stressed

        tsýgán-sjk–yj 'of a Gypsy' (from *tsýgan, tsygán-y* 'Gypsy')

        kolés-n-yj 'of a wheel' (from *kóles-o, kolés-a* 'wheel')

     b. Stressed on a pre-penult

        postél-ev–yj 'of bed' (*póstilj, postél–i* 'bed')

These adjectives are consistent with the overall picture of Ukrainian recessive derivatives: they carry penult stress, but only if a stem allomorph is available to license it. The stem allomorph they use is never identical to the one contained in the citation form.

2.11. Matching segmental and prosodic properties in stem allomorphs

     In some Ukrainian nouns, stems that differ accentually differ also segmentally. An example is 'evening', *véčir* (Nom.sg) *véčor-a* (Gen.sg) *večor-ý* (Nom.pl). This is a class (c) word with two stressed allomorphs, with [o] or [i] as their last vowel. A no-longer productive process turns *o* into *i* before before the former jers of the Nom. sg. and Gen. pl: *véčor-Ø → véčir*.

     The question for us is how the derivatives of such nouns combine the accentual and segmental information provided by their bases in forming their own stems.

     Imagine a faithful *–ovyj* derivative of *véčir*. If optimally stressed on the penult, it could be *večir–óvyj* or *večor-óvyj*. MATCH STEM STRESS is satisfied either way. Its formulation in (4) demands only that each candidate syllable, independently of all others, find an identically stressed counterpart in some base allomorph. That matching process is represented in (28), where candidate stems appear, separated into syllables, in the second row. Stem allomorphs appear in the leftmost column. A perfect match between syllables is a cell marked by '+'. When syllables match accentually but not segmentally, the cell is marked by a (+). Even if we consider only perfect matches, it can be seen that both candidates, *večir–óvyj* and *večor-óvyj*, pass MATCH STEM STRESS in its present formulation. In fact, only *večor-óvyj* is attested.

28. Matching syllables of the derivative's stem in the base stem

	večor-óv-yj		*večir-óv-yj*	
	ve -	*čor*	*ve -*	*čir*
véčir		(+)		+
véčor–a		+		(+)
večor-ý	+	+	+	(+)

In a more restrictive matching system, the entire stem of the candidate must find one correspondent among the inflected stems of the base. This can be formalized in several ways. We present one. We replace MATCH STEM STRESS with two constraints, both undominated. One – call it MATCH STEM – requires each derivative's stem to find a global correspondent in one of the base stems. The other, IDENT MAINSTRESS BD (abbreviated in the tableaux below as IDSTRESS) requires accentual identity between each pair of correspondent syllables in the correspondent stems. Further identity constraints, including MAX, DEP and IDENT F, promote segmental identity between correspondent stem. This system favors candidate derivatives whose stem corresponds, in the case in (28), to *véčir*, or to *véčor-*, or to *večor* but not to composites created, Frankenstein-style, from bits and pieces of each[22]. This alternative is seen in simplified form below. We use superscripts to identify correspondent stem pairs.

29. MATCH STEM + IDENT MAINSTRESS BD instead of MATCH STEM STRESS

	Base: véčir[1], večor[2]-	MATCH STEM	IDSTRESS	MARKEDNESS
(a)	véčir[1]-òv-yj			*! (MSR)
(b)	vèčir[1]-óv-yj		*!	
☞ (c)	vèčor[2] -óv-yj			

Candidates based on the third stem *véčor*– don't contribute to the argument and are ignored.

The point thus far is that the combination MATCH STEM + IDENT STRESS succeeds in selecting the one attested candidate, *vèčor-óv-yj*, while MATCH STEM STRESS, defined as in (4), can't decide between *vèčor-óv-yj* and *vèčir-óv-yj:* both satisfy markedness and both pass MATCH STEM STRESS.

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[22] We thank Bruce Hayes for the Frankenstein reminder.

The more restrictive mechanism in (29) is representative of the entire Ukrainian system. Nouns comparable to *véčir* have *–ov–yj* derivatives parallel to *vèčor-óv-yj*, not **vèčir-óv-yj*. As predicted, the same kinds of bases opt for one of the stem-stressed allomorph before *–n–yj, –sjk–yj*. That stem is typically the one used in the Nom. sg, e.g. *véčir-n-yj*, a point we return to below. Bases that generate both derivative types are seen in (30.i), others in (30.ii-iii). Indices are used as in (29); stems indexed as ^{1} appear in the Nom.sg.

30. Distribution of stems in derivatives of *véčir*-type bases

	Base stems	Class	*–ov-yj* forms	*–n–yj, –sjk–yj*	Gloss
i.	jávir^1, jávor^2-, javor^3-	(c)	javor^3-óv-yj	jávir^1–sjk-yj	'sycamore maple'
	kólir^1, kólor^2-, kolor^3-	(c)	kolor^3-óv-yj	kólir^1-nyj	'color'
	tábir^1, tábor^2-, tabor^3-	(c)	tabor^3-óv-yj	tábir^1-nyj	'camp'
	bolót^1-, bolot^2–, bolít^3	(c)	bolot^2-óv-yj	bolót^1-nyj	'swamp, bog'
ii.	óvid^1, óvod^2–, ovod^3–	(c)	ovod^3-óvyj		'cleg'
	óbid^1, óbod^2–, obod^3–	(c)	ovod^3-óvyj		'rim, felloe'
	txír^1, txor^2–	(b)	txor^2–évyj		'ferret'
	čol^1-, čól^2-, čil^3	(d)	čol^1-óv-yj		'forehead'
iii.	lemíš^1, lemeš^2-	(b)		lemíš^1–n-yj	'plowshare'
	jákir^1, jákor^2–, jakor^3–	(c)		jákir^1-n-yj	'anchor'
	syrot^1-, sýrot^2-, syrít^3–	(d)		syrít^3-sjk-yj	'orphan'

The selection of base stems for all the *–ov–yj* derivatives in (30) follows exactly the evaluation in (29), but the choice between options like *jávir^1–sjk-yj* and hypothetical **jávor^2–sjk-yj* or between *bolót^1-nyj* and hypothetical **bolít^3-nyj* is yet to be spelled out. The fact is that when the Nom. sg. stem and some other stem offer equally unmarked and equally faithful derivatives only the former is attested. We suggest that MATCH CITATION STEM breaks a tie between otherwise equivalent candidates. The constraint prefers global correspondence between the stem of the derivative and the stem of the citation form. It must be lower ranked than markedness, to avoid *LAPSE or MSR violating forms like **jávir-ov-yj, *jávir-òv-yj*.

31. MATCH CITATION can break a tie, but can only to do that.

	Base: jávir[1], jávor[2]-, javor[3]-	MARKEDNESS	MATCH CITATION STEM
☞ (a)	jávir[1]-sjk-yj		
(b)	jávor[2]-sjk-yj		*!

	Base: jávir[1], jávor[2]-, javor[3]-	MARKEDNESS	MATCH CITATION STEM
(a)	jávir[1]-òv-yj	*!(MSR)	
☞ (b)	jàvor[3]- óv-yj		*

Several items deviate from the pattern in (30), but do so in a systematic way: they are unfaithful derivatives whose stems are segmentally identical to a citation form but mismatch its stress.

32. Deviations from the distribution in (30)

Base stems	Class	–n–yj, –sjk–yj forms	Gloss
próstir[1], próstor[2]-, prostor[3]-	(c)	prostír[1]-nyj	'space'
storon[1]-, stóron[2]-, storín[3]	(d)	storón[1]-nyj	'side'

These instantiate the already discussed possibility that MARKEDNESS moves up to outrank IDENT STRESS, an option formalized earlier as MARKEDNESS >> MATCH STEM STRESS. Among the resulting unfaithfully stressed stems, MATCH CITATION again chooses the citation form, only this time in accentually modified form.

33. MATCH CITATION breaks a tie among unfaithfully stressed options

	Base: próstir[1], próstor[2]-, prostor[3]-	MARKEDNESS	IDSTRESS	MATCHCITATION
(a)	próstir[1]-sjk-yj	*! (*LAPSE)		
☞ (b)	prostír[1]-sjk-yj		*	
(c)	prostór[1]-sjk-yj		*	*!

Forms like *targán-ov–yj* (from class (b) *targán*) and *golov-n-ýj* (from class (d) *golov-á*) had earlier suggested an alternative grammar in which MATCH CITATION outranks accentual markedness. This too is expressible as a ranking variation in the revised analysis:

34. MATCH CITATION moves above MARKEDNESS

	Base: golov¹-, gólov²-, golív³-	IDSTRESS	MATCHCITATION	MARKEDNESS
☞ (a)	golov¹-n-ýj			*(NONFINAL)
(b)	golív³-n-yj		*!	
(c)	golóv¹-n-ýj	*!		

	Base: targán¹, targan²-,	IDSTRESS	MATCHCITATION	MARKEDNESS
☞ (a)	targán¹-ov-yj			*(LAPSE)
(b)	targan²-óv-yj		*!	

The variations discussed require the three ranking options below:

35. Three productive grammars for Ukrainian derivative stress

    a. The majority ranking

        MATCH STEM, ID STRESS >>   MARKEDNESS >>   MATCH CITATION

    b. One minority ranking (cf. 32; cf. also *kàktus-óvyj*)

        MATCH STEM, MARKEDNESS   >>   IDSTRESS (>>)   MATCH CITATION

    c. Another minority ranking (cf. *targán-ovyj, golov-n-ýj*)

        MATCH STEM,   MATCH CITATION, ID STRESS >>   MARKEDNESS

In this revision of the analysis the position of MATCH STEM need not vary. Unfaithful derivatives are created by a change in the ranking of IDENT STRESS (MAIN) BD relative to Markedness.

      Having acknowledged the existence of variation, we emphasize one invariant aspect: pre-penultimate main stress occurs in the recessive derivatives only under two circumstances, when (a) the base noun offers no stem whose use can generate a penult stress or, much less frequently, (b) when the derivative's stem is evaluated by the grammar in (35.c) and its citation form has main stress on non-final-stem syllable. Among the 1091 forms of the database, there are 430 pre-penultimate stressed derivatives and all but 2 fit this description[23]. Our analysis predicts exactly this.

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[23] The two exceptions are *nóvyn-sjk-yj*, listed alongside expected *novýn-sjk-yj*, on *novyn-á* 'novelty, virgin' (class d; plural stem *novýn-*) and *kamfór-ov-yj* on *kamforá* ('camphor', class b or d, singulare tantum). *Kamfór-ov-yj* is possibly modeled on attested *kamfór-n-yj,* an unfaithful derivative that follows the ranking in (35.b).

2.12. Summary: evidence for MATCH STEM STRESS *in Ukrainian adjectives*

Ukrainian mobile nouns generate two and sometimes three accentual allomorphs in their inflection. These variants surface in different case-number forms. A final-stressed allomorph appears in Nom.sg. masculines of class (b) nouns like *harbúz*, in Gen. pl. forms of class (d) like *syrít*, and in all plurals of *kóles–o* nouns. Whatever its source in the base paradigm, this stem variant is used to form *-n-yj, -sjk-yj* adjectives: its function there is to produce penult stress. A stressless allomorph appears in non-Nom. sg. forms of masculine class (b) nouns, in plurals of class (c), and singulars of class (d). This one is useful in generating penult stressed *–ov–yj* forms.

Recall the expectations derived in an earlier section from current theories of what may count as a base. Had the stress of adjectival derivatives been derived by reference to just one form of the stem – the underlying form or the citation form – the stress of Ukrainian derivatives would be very different. If the base was the citation form, no noun with a *stressed* citation form, e.g. *obrúč,* could generate a stressless stem derivative, like *obruč-év-yj*. If the base was the underlying form, no noun with an underlyingly stressless root, e.g. /*obruč*/, could generate a stressed-stem derivative like *obrúč-n-yj*. In fact, both types are used in adjectival derivatives from all mobile nouns, showing that no unique reference term determines accentual faithfulness.

Had the derivatives' stress been free to deviate from their base in the service of Markedness, it would be hard to understand how class (a) derivatives, most of which have marked pre-penult stress, differ from the other accent classes, whose derivatives are mostly penult-stressed. Suppose we are willing to stipulate that class (a) derivatives are special as a group in tolerating pre-penult stress. Then the difference *within* class (c) derivatives between marked pre-penult stress in *kórpus–n–yj*   vs. unmarked penult stress in *nebés-n-yj* would still remain unexplained.

MATCH STEM explains all these subregularities in a general way. If faithfulness is satisfied by reference to any surface allomorph of the base, the attested distribution is the expected one: bases with *no* allomorph useable to promote penult stress (*káktus*) get pre-penult stress in all their faithful derivatives; bases with just *one* useful allomorph provide a chance at penult stress for one of their faithful derivatives and force Markedness violations in others (*jávir, javor-*), while bases with two useful allomorphs (*obrúč, obruč-*) can have two distinct types of unmarked and faithful derivatives.

The summary below associates each position of main stress – final, penult, pre-penult – with its source in the grammar or the lexicon.

36. Main stress positions of Ukrainian derivatives and their grammatical sources

   Final stress:
   ⇨ Lexically listed

   ⇨ Grammar (35.b): IDSTRESS, MATCH CITATION >> MARKEDNESS (NONFINALITY)
        –n-yj, sjk-yj forms whose base citation form is stressed on the ending

   Penult stress:
   ⇨ Grammar (35.a): IDSTRESS >> MARKEDNESS,
        o *–n-yj, sjk-yj* forms whose bases have a final-stressed allomorph;
        o *–ov-yj* forms whose bases have a stressless stem allomorph

   ⇨ Grammar (35.c): MARKEDNESS >> IDSTRESS   any base+ suffix combination

   Pre-penult stress:
   ⇨ Grammar (35.a): IDSTRESS >> MARKEDNESS
        o *–n-yj, sjk-yj* forms whose base lacks a final-stressed allomorph;
        o   *–ov-yj* forms whose base lacks a stressless stem allomorph

   ⇨ Grammar (35.b): IDSTRESS, MATCH CITATION >> MARKEDNESS (*LAPSE)
        o *–n-yj, sjk-yj* forms whose base citation is penult-stressed
        o *–ov-yj* forms whose base citation stem is final-stressed

We document next an inflectional dependence effect involving MATCH STEM in the derivational morphology of Russian.

3. Russian evidence for MATCH STEM STRESS

The accent in Russian inflected nouns is broadly similar to that of Ukrainian. The two languages also have accentually similar derivational suffixes.

There are differences too. First, Russian has additional accentual types, variants of classes (b) and (c), where the Nom. pl. bears stem stress, illustrated by *volk* and *gvozdj* in (2). Nouns from these classes are so frequent that Zaliznjak (1985) sets them up as the distinct accentual classes (e) and (f). Second, Russian adjectival inflection distinguishes "short" and "long" forms, the former mostly used as predicates. In the long forms, Russian adjectives have columnar stress like most Ukrainian adjectives. But in the short forms, Russian has many

different accentual types, exemplified below. As there is almost no accentual mobility in Ukrainian adjectives, we did not consider any deadjectival derivatives in that language. In Russian, we will.

Turning to the derivational morphology, both Ukrainian and Russian derivational suffixes are divided into dominant and recessive. In recessive derivatives, stress is determined jointly by properties of the base stem and of the affix. It is such suffixes that provide the Russian evidence for an analysis in terms of MATCH STEM + IDENT STRESS. In this section, we discuss three recessive suffixes whose stress is expected if these constraints are undominated. In Ukrainian, we analyzed suffixes whose accentual behavior is the same, *modulo* differences stemming from their phonological shape, i.e. their syllable count. The Russian suffixes we consider have distinct accentual preferences reflecting, we argue, their underlying accentual status: one is stressed, the others are stressless.

37. Russian recessive suffixes:
   a. Stressed: *-išš-* (denominal, forming augmentative nouns)
        okn-íšš-e 'huge window' <= *okn-ó* 'window'
   b. Stressless: *-ov-* (denominal, forming possessive adjectives):
        glaz-óv-yj 'of eye' <= *gláz*, Nom.pl *glaz-á*
   c. Stressless: *-ostj-* (de-adjectival, forming creates nouns denoting qualities):
        grámotn-ostj 'literacy' <= *grámotn-yj* 'literate'

We show that the accentual properties of these affixes are preserved only when an appropriate stem allomorph is found among the inflected forms of the base noun, allowing an underlyingly stressed suffix to surface with stress, and a stressless one to surface without it. When the base offers no allomorph allowing the affix to maintain its underlying stress value, the derivative is faithful to its unique base, or else a paradigm gap arises. None of these suffixes is allowed to generate an accentual allomorph of the stem that is not already present in the inflectional paradigm of the base: all are lexically conservative.

The idea of lexical conservatism is, to our knowledge, new in the literature on Russian stress. In particular, it distinguishes our take on the data from that of Zaliznjak (1985), to whom we are indebted for finding affixes relevant for our argument and for descriptive generalizations.

In addition to Zaliznjak's high-level descriptions, we use primary data from the accentual dictionary Zaliznjak (1977), and from work with native speakers of Russian.

3.1. -išš- keeps its underlying accent, subject to MATCH STEM STRESS

    Ivlieva (2009) shows that the augmentative *-išš-* surfaces as stressed when attached to a base that independently possesses a stressless stem allomorph (38.b-f). Below, we amplify her evidence. When no such allomorph is generated in the inflection of the base, the suffix surfaces stressless, (38.a). The stressless stem allomorph that *-išš-* prefers may come from any case/number combination: in type (b) masculines, a stressless stem is found in any form other than the Nom.sg., (38.b); in type (c), it is the plural forms that offer it, (38.c); in type (d), it is the singular that has stressless stems, (38.d); bases of types (e), (f) behave like (c), (b), except that the Nom. Pl. stem is stressed and thus unusable with *-išš-*.

    38. Russian derivatives with *-išš-* from bases of major accentual paradigms

        a. type *a* noun ➔ no stress on *--išš-* (35 examples in Zaliznjak 1977)
            <u>Base</u>: NomSg *škól-a*, GenSg *škól-y* `school'
                =><u>Derivative</u>: *škól-išš-e*, **škol-íšš-e*

        b. type *b* noun ➔ stressed *-íšš-* (25 examples in Zaliznjak 1977)
            <u>Base</u>: NomSg *xvóst*, GenSg *xvost-á* `tail'
                =><u>Derivative</u>: *xvost-íšš-e*,* *xvóst-išš-e*

        c. type *c* noun ➔ stressed *-išš-* (11 examples in Zaliznjak 1977)
            <u>Base</u>:   NomSg *dóm*, GenSg *dóm-a*, NomPl *dom-á*, GenPl *dom-óv* `house'
                =><u>Derivative</u>: *dom-íšš-e*, **dóm-išš-e*

        d. type *d* noun ➔ stressed *-íšš-* (11 examples in Zaliznjak 1977)
            <u>Base</u>: NomSg *okn-ó*, GenSg *okn-á*, NomPl *ókn-a*, GenPl *ókon* `window'
                =><u>Derivative</u>: *okn-íšš-e,* **ókn-išš-e*

        e. type *e* noun ➔ stressed *-íšš-* (8 examples in Zaliznjak 1977)
            <u>Base</u>: NomSg *vólk*, GenSg *vólk-a*, NomPl *vólk-i*, GenPl *volk-óv* `wolf'
                =><u>Derivative</u>: *volč-íšš-e*, **vólč-išš-e*

        f. type *f* noun ➔ stressed *-íšš-* (7 examples in Zaliznjak 1977)
            <u>Base</u>: NomSg *pleč-ó*, GenSg *pleč-á* NomPl *pléč-i*, GenPl *pleč-éj* `shoulder'

=>Derivative: *pleč-íšš-e*, **pléč-išš-e*

In sum, whenever the base provides a stressless stem allomorph – everywhere except in class (a) derivatives – *-íšš-* preserves its own underlying stress. We analyze this pattern by ranking IDENT STRESS*iš̃š*, a lexically indexed I(nput) O(utput) faith constraint, above root-faithfulness, IDENT STRESS ROOT IO. In turn, IDENT STRESS*iš̃š* is outranked by MATCH + IDSTRESS, the package we used to analyze the inflection dependence effects in Ukrainian: for simplicity, we abbreviate this combination as MATCH+IDSTRESS. Candidates shown as violating this combination may violate either of its components. This ranking prevents the suffixal properties from being preserved at the expense of the unselective form of stem faithfulness.

39. Analysis of *-íšš-* derivatives.

    i. The base has no stressless stem allomorph: type (a) base.

	Base: škól- Suffix: –íšš	MATCH+IDSTRESS	IDENT STRESS*iš̃š* IO	IDSTRESS ROOT IO
☞ (a)	škól-išš-e		*	
(b)	škol-íšš-e	*!		*

    ii. The base has a stressless stem allomorph: type (c) base.

	Base: dóm[1]-, dom[2]- Suffix: –íšš	MATCH+IDSTRESS	IDENT STRESS*iš̃š* IO	IDSTRESS ROOT IO
(a)	dóm[1]-išš -e		*!	
☞ (b)	dom[2]-íšš-e			*

This analysis is confirmed by the *-išš-*derivatives of two less common accentual types. The first of these is the Russian counterpart of Ukrainian *kóleso* type, a set of mobile nouns where stress shifts stem-internally: e.g. Russian *ózer-o* 'lake', pl. *ozjór-a*. These nouns lack a stressless stem allomorph. As predicted, the *ózero*-nouns of Russian give rise to stem-stressed *-išš-*derivatives, differing in this respect from all other Russian mobile stress types.

40. Russian *-išš-* derivatives from *ózero*-nouns

Base: NomSg *ózer-o*, GenSg *ózer-a*, NomPl *ozjór-a* `lake'

=>Derivative: *ózer-išš-e, *ozer-íšš-e* [24]

A last class of *-išš-* derivatives are based on class (a) nouns but possess an exceptionally stressed Locative singular ending, and thus a stressless stem. The *-išš-* derivatives based on this type are listed in Zaliznjak (1977) with suffixal stress, unlike all other type (a) derivatives.

41. Type (a) nouns with exceptional LocSg ➔ stressed *-išš-* (3 examples in Zaliznjak 1977)
Base: NomSg *grjázj*, GenSg *grjázj-i*, 2nd LocSg *(v) grjazj-í*. `dirt'
=>Derivative: *grjazj-íšš-a*, **grjázj-išš-a*

Our analysis explains all but two of the 104 augmentative *-išš-* derivatives in Zaliznjak (1977). The two exceptions – *skuč-íšš-a* 'great boredom' and *von-íšš-a* 'great stink' – are based on class (a) nouns: they are unexpected in that the base nouns lack a stressless stem allomorph[25].

3.2. Unstressed possessive -ov-

The suffix *-ov-* forms possessive adjectives and family names. Data on its accentual behavior can be found in V.Kiparsky (1962:264ff). In the terms of the current analysis, *-ov-* is the stressless counterpart of *-išš-*: it seeks a stressed stem, so the suffix itself can remain unstressed. As most noun paradigms provide at least one stressed allomorph of the stem, this requirement is usually satisfied. The only bases that force *-ov-* to be stressed are from class (b): all (b) nouns create *-ov-* derivatives with suffix stress[26].

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[24] Why do we observe *ózer-išš-e*, rather than **ozjór-išš-e* with the plural stem allomorph? This could be an effect of Match Citation, but we have not systematically explored this for Russian.

[25] Both *skuka* 'boredom' and *vonj* 'stink' have related verbs providing a stressless stem allomorph: *skuč-átj* 'to be bored' and *vonj-átj* 'to stink'. Whether the verbs are the bases of the nouns or their co-derivatives, we expect such forms to be available to the formation of *-išš-* forms, as belonging to the 'Faithful-Related' category. On this point, see also the discussion of Section 3.3.

[26] There are too few *-ov-* derivatives in Zaliznjak (1977) to show the behavior of all accentual types of bases: aside from derivatives of proper names, Zaliznjak provides only 16 *–ov-* derivatives from class (a), 5 from class (b), 5 from class (c), and 1 from class (e). To supplement his data, we asked 8 native speakers to fill a questionnaire that asked them to choose which of the accentual variants for an *–ov-* derivative sounds better, for two words from each accentual type of base from (a) to (f). In (42), we report a somewhat simplified picture of the results. For types (a), (b), (c) and (e), there was virtually no variation among our subjects. For types (d) and (f), some speakers reported suffixal rather than stem stress: these responses are not reflected in (42) because such preferences were not consistent across speakers or across items. However they did correlate with the speakers' interpretation of the base word as a family name rather than a common noun. This suggests, contra Zaliznjak, that the family-name forming suffix *–ov–* , unlike the possessive *–ov-*, better prefers or tolerates suffixal stress.

42. Russian derivatives with the possessive -*ov*-:

    iv. type (a) base (constant stem stress):

        Base *arbúz* `watermelon'

            => Derivative *arbúz-ov*

    v. type (b) base (ending stress):

        Base: *most*, GenSg *most-á* `bridge'

            => Derivative *most-óv*

        Base: *starík*, GenSg *starik-á* `old man'

            => Derivative *starik-óv*

    vi. type (c) base (stem stress in the Sg, ending stress in the Pl):

        Base: *glaz*, GenSg *gláz-a,* NomPl *glaz-á*, DatPl *glaz-ámi* 'eye'

            => Derivative *gláz-ov*

    vii. type (d) base (ending stress in the Sg, stem stress in the Pl):

        Base: *vin-ó*, GenSg *vin-á,* NomPl *vín-a*, DatPl *vín-ami* 'wine'

            => Derivative *vín-ov*

    viii. type (e) base (stem stress in the Sg and NomPl, end. stress in the rest of the Pl):

        Base: *volk*, GenSg *vólk-a,* NomPl *vólk-i*, GenPl *volk-óv*, DatPl *volk-ámi*, `wolf'

            => Derivative: *vólk-ov*

    ix. type (f) base (ending stress everywhere except NomPl, stem stress in NomPl):

        Base: *ruk-á*, GenSg *ruk-í,* NomPl *rúk-i*, DatPl *ruk-ámi* `hand'

            => Derivative: *rúk-ov*

        Base: *golov-á*, GenSg *golov-ý,* NomPl *gólov-y*, DatPl *golov-ámi* `head'

            => Derivative: *gólov-ov*

43. Summary of the stress of possessive -*ov*- derivatives:

    a. base is of accentual type *a, c, d, e, f*   =>   -*ov*- derivative

    b. base is of accentual type *b*   =>   -*óv*- derivative

If –*ov*- is underlyingly stressless, a parallel ranking to that used for -*išš*- (MATCH STEM STRESS >> IDENT STRESS$_{OV}$ >> IDENT STRESS ROOT IO) derives most of the data in (42). Only the *ov*-derivatives of class (b) nouns pose a problem, addressed below.

44. Analyses of *-ov-* derivatives from type (a), and (c-f) nouns

    a.   The base is a type (c) noun:

	Base: gólos^1-, golos^2- Suffix: –ov	MATCH+IDSTRESS	IDENT STRESS$_{OV}$
☞ (a)	gólos^1-ov		
(b)	golos^2-óv		*!

    b.   The base is type (f) noun:

	Base: ruk^1-, rúk^2- Suffix: –ov	MATCH+IDSTRESS	IDENT STRESS$_{OV}$
☞ (a)	rúk^2-ov		
(b)	ruk^1-óv		*!

(45) illustrates the difficulty posed by the type (b) derivatives: these should behave like those of types (c-f) – and especially like (d)- or (f)-derivatives, which are also based on underlyingly stressless stems – and yet they don't.

45. Analyses of *-ov-* derivatives from type (b) nouns

	Base: móst^1, most^2- Suffix: –ov	MATCH+IDSTRESS	IDENT STRESS$_{OV}$
☞ (✘) (a)	móst^1-ov		
(b)	most^2-óv		*!

An analysis of Russian phonology that acknowledges the underlying presence of *jers* – the high vowels that lower before another *jer* and otherwise delete (Lightner 1972, Halle 1973) – can detect an independent difference between the type (b) nouns and all other nouns. The difference is that, prior to *jer*-deletion, *no form of a type (b) noun has stem stress*. The only form with surface stem stress in type (b) has, at the intermediate stage with jers, stress on the desinential jer: the intermediate representation for *móst* is *most-ʹъ*. All other noun classes differ from type (b) in this respect: each possesses a paradigm cell in which stress falls on the stem itself

independently of *jer* deletion. Type (f) nouns, type (b)'s closest counterpart, have stem stress in the Nom. Pl., e.g. *rúk–i*: at the pre-*jer*-deletion stage, stress is already on the stem.

The behavior of type (b) *ov*-derivatives is exactly what our analysis predicts, if the intermediate representations like *most-ʹъ* are *the only ones* evaluated. Some aspect of our analysis seems to be on the right track: there is a level of representation at which this analysis, and only it, draws the right distinction between accent classes. However the assumption that faithfulness evaluates intermediate representations is problematic in the context of this surface-oriented approach to East Slavic stress. The reader will recall that the Ukrainian 'jer-final' forms – e.g. the class (b) Nominative singular *obrúč* or the class (d) Genitive plural *syrít* – must be evaluated in their surface forms, as if they are stem-stressed: this is what explains forms like *obrúč-nyj* and *syrít–sjk-yj*. Why should Ukrainian differ in this way from Russian? Thus, while appeal to the stressed *jer* in intermediate *most-ʹъ* sheds light on why the class (b) derivatives are being singled out by Russian *–ov*, it seems unlikely that the actual analysis consults a stressed *jer*.

A possibility that we leave for future work is that there is a residual *surface* distinction in Russian between class (b) Nominative sg. like *móst,* where stress lands on the stem only as a consequence of *jer*-loss, and forms like class (c) *gláz*, where stress is on the stem independently. Specifically, we speculate that the realization of items like *móst* is distinct in some respect from that of other stressed syllables of Russian, perhaps because stress was *tranferred* to the stem from the lost *jer*. If so, this difference causes forms like *móst* to count as distinct from fully stressed stems. The Ukrainian counterparts of such forms may, but need not be, identical to other stressed syllables. We have no further evidence to bear on these speculations at present, and we note that they consistent with all aspects of our analysis of East Slavic.

There are considerably more recessive derived adjectives in Russian than possessive *–ov*. Their accentuation is sketched in V.Kiparsky 1962:258ff. We have not as yet obtained the full data allowing us to propose an analysis for these.

3.3. Unstressable -ostj-

The suffix *-ostj-* creates de-adjectival quality nouns. Its accentual behavior is similar to that of *-ov-*, suggesting that *-ostj-* too is underlyingly stressless. The difference between them is

that *-ov-* can be stressed if necessary, while *-ostj-* is never stressed. Any derivative where *–ostj–* would have to be stressed is absent from the language[27].

In the simple case when the base adjective has constant stem stress, MATCH STEM STRESS has no effect: stressing the stem satisfies all forms of faithfulness to the stem and to the suffix.

46. *-ostj-* derivatives of invariant, stem-stressed adjectives:

   Base: *grámotn-yj*, GenSgMasc *grámotn-ogo* => Derivative: *grámotn-ostj* `literacy'

When the base adjective has both stressless and stressed stem allomorphs in its inflection (47.a-b), the *-ostj-* derivative selects a stressed allomorph. When the base has only stressless allomorphs, (48), no *–ostj-* derivative is formed.

47. *-ostj-* derivatives of adjectives with multiple stem allomorphs
   a. derivatives of mobile-stress Adjectives with one stem-stressed form:
      Base: *molod-ój*, PredMasc *mólod* 'young'
         => Derivative: *mólod-ostj* `youth'
      Base: *udal-ój*, PredMasc *udál,* 'able'
         => Derivative: *udál-ostj* `high ability'
   b. derivatives of mobile-stress Adjectives with two stem-stressed forms:
      Base: *xolódn-yj*, PredMasc *xóloden,* PredFem *xolodn-á* 'cold'
         => Derivative: *xólodn-ostj* `coldness (towards a person)', also ?*xolódn-ostj*
      Base: *zeljón-yj*, PredMasc *zélen,* PredFem *zelen-á* 'green'
         => Derivative: *zeljón-ostj* `greenness', also ?*zélen-ostj*
      Base: *vesjól-yj*, PredMasc *vésel,* PredFem *vesel-á* 'cheerful'
         => Derivative: *vesjól-ostj* `cheerfulness', no alternative *vésel-ostj.

48. *-ostj-* derivative of adjectives lacking a stem-stressed allomorph:
   Base: *golub-ój*, PredFem *golub-á*, but no *gólub, *golúb; 'blue'
      => Derivative: None. **golub-óstj,* **gólub-ostj,* *golúb-ostj are all impossible.

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[27] There are between 2,500 and 3000 *-ostj-* derivatives in Zaliznjak 1977. To our knowledge all but one stress the stem. We did not conduct an exhaustive check of this class and only provide illustrative examples, without counts.

With more than one stressed stem allomorph, as in (47), at least some adjectives appear to allow two –*ostj*- forms: e.g. *xólodn-ostj* and non-standard but acceptable *xolódn-ostj*; *zeljón-ostj* and non-standard *zélen-ostj*. These variants support the simplest version of our analysis, where only MATCH STEM, IDENT STRESS BD and affixal faithfulness control the selection of stem allomorphs. In still other cases only one -*ostj*- derivative seems possible, for reasons that remain unclear: e.g. only *vesjólostj* 'cheerfulness', from *vesjól-yj, vésel, vesel-á* 'cheerful'. Summing up the key findings, -*ostj*- derivatives select a stressed stem allomorph, and when there is a choice of more than one, further preferences apply.

The ranking MATCH STEM STRESS >> IDENT STRESS SUFFIX$_{OSTJ}$>> IDENT STRESS ROOT IO, parallel to those used for -*išš*- and -*ov*-, is helpful here too.

49. Analyses of -*ostj*- stress:

    i.   Bases with one stressed stem allomorph yield one –*ostj* form:

	Base: molod^1, mólod^2- Suffix: –ostj	MATCH+IDSTRESS	IDENT STRESS$_{OSTJ}$
☞ (a)	mólod^2-ostj		
(b)	molód-ostj	*!	
(c)	molod^1-óstj		*!

    ii.   Bases with two stressed stem allomorphs yield two –*ostj* variants:

	Base: xolodn^1-, xólodn^2-, xolódn^3- Suffix: –ostj	MATCH+IDSTRESS	IDENT STRESS$_{OSTJ}$
☞ (a)	xólodn^2-ostj		
☞ (b)	xolódn^3-ostj		
(c)	xolodn^1-óstj		*!

The -*ostj*- derivatives differ from -*išš*- and -*ov*- forms when the base adjective does not provide any stressed stem allomorph, (48). In such cases, faithfulness to the affix is overridden in -*išš*- and -*ov*- forms. But for -*ostj*-, among thousands of such forms in Zaliznjak 1977, there is just one with stress on the suffix: *zl-ostj* `anger', from *zl-ój* `angry', with a non-syllabic stem.

This suffix is then subject to a stricter faithfulness requirement than the others: the combination of suffix and stem faithfulness yields a paradigm gap in this case[28].

The form of this stricter requirement is not immediately relevant here, but we offer, for illustrative purposes, the possibility of ranking the constraint M-PARSE (Prince and Smolensky 1993)[29] below MATCH+IDSTRESS and IDENT STRESS$_{OSTJ}$, and above IDENT STRESS$_{ISS,}$ IDENT STRESS$_{OV}$: this allows the analysis of other Russian suffixes to stand unchanged, while correctly blocking any –*ostj*- derivative that violates either MATCH +IDENTSTRESS or IDENT STRESS$_{OSTJ.}$

50. Analyses of -*ostj*-: Bases without a stressed stem allomorph yield paradigm gaps

	Base: golub- Suffix: –ostj	MATCH+IDSTRESS	IDENT STRESS$_{OSTJ}$	M-PARSE
(a)	gólub-ostj	*!		
(b)	golúb-ostj	*!		
(c)	golub-óstj		*!	
☞ (d)	☉			*

The total ranking for the phenomena discussed here is then MATCH STEM, IDENT STRESS BD, IDENT STRESS$_{OSTJ}$ >> M-PARSE >> IDENT STRESS$_{ISS,}$ IDENT STRESS$_{OV}$ >> IDENT STRESS ROOT.

A comparison between non-existent *golub-ostj and attested parallel forms like *cvétn-ostj* suggests an extension to the set of forms accessed by MATCH STEM. The adjectives *golub–ój* `blue' and *cvetn–ój* `colored' have fixed stress on the ending, the same pattern as in nouns of type (b). In the only form of the adjectival paradigm that has a null ending, the "short" Masculine singular, stress is expected to surface on the last syllable, as in comparable type (b) nominal forms. But both adjectives lack that form. For *golub–ój*, other short forms do exist, e.g. the short Feminine singular *golub-á*, but any version of the short Masculine – *gólub, *golúb – is impossible. For *cvetn-ój* no short form – **cvétn-a, *cvétn, *cvéten* – is attested at all (Zaliznjak 1977). With *cvetn–ój*, however, there is a related form with stem stress: the Adjective's own base, the noun *cvét* 'color'. This noun is of the type (c), with stem stress in the singular. Apparently

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[28] The suffix –*ostj* enjoys the kind of unrestricted productivity that allows the creation of novel forms from any adjectival base: e.g. English *cool*, borrowed as *kúljnyj,* yields nonce *kúljnostj*. For this reason, the impossibility of *golubostj* (side by side with attested, otherwise parallel forms like *zelenostj*) cannot be accidental. That said, we know of one item with the accentual properties of *golubój*. This point is developed in the next paragraph.
[29] For similar analyses of different phenomena see Pertsova 2005, Albright 2006.

the *-ostj-* derivative *cvétn-ostj* is formed by accessing the stressed form of the root *cvét*, its base's base. This is enough to satisfy MATCH STEM. This case is therefore akin to the use of stem allomorphs from co-derivatives that we recorded under 'Faithful-Related' in Ukrainian.[30]

51. Using the base's base to form an *-ostj-* derivative:

    a. <u>Base$_1$</u>: *cvét*, GenSg *cvét-a*, … , NomPl *cvet-á*, GenPl *cvet-óv*, … 'color'

        =><u>Base$_2$</u> *cvet-n-ój*, … , no predicative forms 'colored'

            => <u>Derivative</u> *cvétn-ostj* `property of being colored'

    b. <u>Base$_1$</u>: *krúžev-o*, GenSg *krúžev-a*, … , NomPl *kružev-á*, GenPl *kružev-óv*, … 'lace'

        =><u>Base$_2$</u> *kružev-n-ój*, … , no predicative forms 'lacy'

            => <u>Derivative</u> *krúžev-n-ostj* `property of being lacy

The analysis of *cvétn-ostj* is sketched below.

52. Analysis of *-ostj-* stress: A base's base is accessed to provide a stressed stem allomorph

	Base$_1$: cvét- Base$_2$: cvet–n– Suffixes: –n–, -ostj-	MATCH +IDSTRESS	IDENT STRESS$_{OSTJ}$	M-PARSE
☞ (a)	cvét-n-ostj	(Base$_1$)		
(b)	cvet-n-óstj	(Base$_2$)	*!	
(c)	⊙			*!

3.4. Summary: Russian recessive suffixes provide evidence for MATCH STEM

      The Russian recessive derivatives analyzed in this section –augmentative *-išš-*, possessive *-ov-*, and quality-noun *–ostj-* – illustrate the interaction between faithfulness to the accentual properties of the suffix and the higher-ranked MATCH STEM, IDENT STRESS BD. What emerges is that Russian recessive derivatives preserve the underlyingly [±stress] status of their outer suffix, but only if this is compatible with using an existing allomorph of the base, an allomorph already available in the base's inflectional paradigm.

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[30] Many comparable forms are found: *v'etrov-ostj* 'windiness' (<= *vetrov-'oj* <= *v'eter, vetr-'a* 'wind'), *lj'udsk-ostj* 'humanness (<= *ljudsk-'oj* <= *lj'ud-i* 'human'), a.o. In other cases, the use of stressed root allomorphs in *–ostj* forms is impossible, perhaps for reasons of segmental correspondence: *sméx* 'laughter' -> *smeʃ-n-ój* 'gloss' -> **sméʃ-n-ostj*.

The accentual class of the base does not affect the derivative's stress in the case of *–ostj* and *-išš* nouns: what does matter is the existence of a stem allomorph with accentual properties that allow the derivational suffix to surface with its underlying accentual value.

In the case of the possessive suffix *–ov-,* the accentual class of the base appears to determine the stress of the derivative, in the sense that only type (b) nouns yield *–óv* derivatives. We have tentatively proposed to explain this by noting that at an intermediate stage, before jer-deletion, such type (b) nouns lack any stem-stressed accentual allomorph. On this interpretation, we can maintain that the recessive derivatives of Russian – or at least all the ones analyzed here – determine their stress independently of the accentual type of the base noun.

Though the accentual facts of Ukrainian and Russian differ, as do the properties of cognate affixes, the combination MATCH STEM and IDENT STRESS is a force in the phonology of both, creating the landscape of options for stressing recessive derivatives.

The patterns characterized by MATCH STEM appear to be an innovation in East Slavic. Proto-Slavic accent placement followed the same transparent rules in inflection and in derivation (Dybo 1981). Later this earlier transparent system gave way to the modern East Slavic split between inflectional and derivational accent. In inflection, accent is now determined by the underlying representation of the stem and the set of paradigm contrast and uniformity constraints indexed to a particular stem. This creates the vast accentual diversity found in the East Slavic inflection, especially for nouns, which feature half a dozen major accentual types, with over a dozen subtypes. This complexity, however, is largely irrelevant for accent placement in derivatives: there are virtually no cases in which the specific accentual type of the base directly affects the placement of stress in the derivative.

The derivational system of East Slavic features two essential innovations. First, many affixes of East Slavic have become accentually dominant: they override all accentual properties the base lexeme. This allows the language to avoid introducing complexity into the derivation by collapsing all bases into one class. Second, for derivatives formed by recessive affixes, accent placement in the base still matters, but in a limited way: the stress of the derivative may depend on the range of surface stem allomorphs found in the base's inflection, but not on any of its other accentual properties. In this way, most accentual types of bases are again collapsed into supertypes as far as the derivational morphology goes. These two East Slavic innovations result in a simpler system of accent placement in derivatives.

4. MATCH STEM outside East Slavic

Analyses parallel to the one offered here are needed outside Slavic. The closest counterpart is found in the phonology of Romanian, where consonantal processes are allowed to apply in derived forms only if *some* stem allomorph matching the output of the relevant process exists in an inflected form of the base (Steriade 2007). One process is velar palatalization: $k \rightarrow$ *ʧ*, $g \rightarrow$ *ʤ* before front vowels. Palatalization applies automatically before eligible inflectional endings. Any velar-final noun whose inflectional paradigm contains an ending beginning with *e* or *i*, e.g. plural *–i*, is thus guaranteed to have a stem allomorph ending in *ʧ* or *ʤ* (53.a). Any noun lacking such an ending lacks the palatalized stem allomorph (53.b).

53.   Velar palatalization in Romanian inflected nouns (Steriade 2007)

    a.   Palatalization applies before a from vowel

       kolák, pl. *kolátʃ-i* 'bagel'   *stíŋg-ə,* pl. *stíndʒ-i* 'left side'

    b.   No palatalization before a back vowel

       fok, pl. *fók-uri* 'fire', lok, pl. *lók-uri* 'place'   *tírg,* pl. *tírg-uri* 'market'

Derivational suffixes are also, in principle, triggers of velar palatalization. But the version of this process triggered in derivation is constrained, it applies only if a palatalized stem allomorph exists in the inflectional paradigm of the base. This restriction takes two forms. In the simplest case, the same derivational suffix triggers the process in forms whose bases undergo palatalization in inflection (54.a), and is blocked in other bases (54.b):

54.   Velar palatalization in Romanian derivatives

    c.   Palatalization applies in derivation:

       <u>Base</u>: *stíŋg-ə,* pl. *stíndʒ-i* 'left'   => <u>Derivative</u>: *stíndʒ-íst, *stíŋg –íst* 'leftist'

    d.   Palatalization is blocked in derivation

       <u>Base</u>: *fok*, pl. *fók-uri* 'fire'   => <u>Derivative</u>: *fok-íst, *foʧ-íst* 'locomotive engineer'

In other cases, when there is a choice of suffixes for a given derivative, bases that undergo palatalization in inflection can choose *i-* or *e-*initial derivational suffixes, because they can allow

palatalization to proceed (55.a); velar-final bases that have not undergone palatalization in inflection, for lack of a trigger ending, avoid these palatalizing derivational suffixes (55.b).

55. Base allomorphs dictate the choice among derivational suffixes: i vs ui

    a. Palatalization has applied in inflection and can apply in derivation:

        Base: *kolák,* pl. *kolátʃ-i* 'bagel'

            => Derivative: *ɨŋ-koləʧ-i* 'to roll up'

    b. Palatalization could not apply in inflection, and is blocked in derivation

        Base: *lok*, pl. *lók-uri* 'place'

            => Derivative: *ɨn-lok-uí, *ɨn-lok-í, *ɨn-loʧ-í* 'to replace'

        Base: *tɨ́rg*, pl. *tɨ́rg-uri* 'market'

            => Derivative: *tɨrg-uí, *tɨrg-í, *tɨrdʒ-i* 'to shop'

Selecting the suffix *–ui* over *-i* is a means to satisfy both markedness (the trigger of palatalization, *KI below, violated in **ɨn-lok-i*) and faithfulness to the pool of allomorphs found in the inflectional paradigm (violated in **ɨn-loʧ-i*).

All major consonantal alternations of Romanian display this effect. The equivalent of Slavic MATCH STEM is needed here. The stem of a candidate derivative must find *some* correspondent among stems already generated in inflection, containing identical counterparts to the root consonants used in the derivative. (56) is a simplified illustration. To highlight the essential part, the similarity to the East Slavic pattern, no distinction is made below between the constraint establishing global correspondence between stems (MATCH STEM), and the constraint enforcing segmental identity between corresponding consonants. *stɨndʒ-íst, *stɨŋg –íst.*

56.   MATCH STEM effects in Romanian derivatives:

    a. a base with palatalization in inflection: *stIndZ-ist.*

	Base: stɨ́ŋg-, stɨ́ndʒ- Suffix: –ist	MATCH STEM	*KI
☞ (a)	stɨndʒ-íst		
(b)	stɨŋg –íst		*!

    b. a base without palatalization in inflection: fok-ist

	Base: fok- Suffix: –ist	MATCH STEM	*KI
☞ (a)	fok-íst		*
(b)	fotʃ-íst	*!	

In this way, palatalization in the derivative – or any other consonantal process caused by the derivational suffix – is conditioned by its applicability in the plural of the base. This is parallel to the East Slavic fact that stem destressing (as in *obruč-óvyj*) or the stressing of the last stem syllable (as in *obrúč-nyj*) is much more likely to happen in derivatives whose bases, like *obrúč,* have acquired stressless or final-stressed stems in inflection. As in East Slavic, the MATCH STEM constraint needed in Romanian is concerned with productively generated stems allomorphs, and it is non-selective: if a base offers a choice of stems, any one will do if it improves markedness.

5. Models of Correspondence

OT models the phonological influences between pairs of morphologically related forms through constraints on Base-Derivative Correspondence (Benua 1997), Input-Output Correspondence in Stratal OT (Kiparsky 2000 and Bermúdez-Otero 2010) and, the domain of inflectional paradigms, by Uniform Exponence (Kenstowicz 1996, 1998) or Optimal Paradigm (McCarthy 2005) constraints. All the works just cited take a restricted view of the conditions under which related forms are placed in correspondence. The pairs that qualify must be either derivatives and their bases, provided that the latter are contained as immediate constituents in the former; or they must coexist as members of the inflectional paradigm of the same lexeme.

In this study we have documented phenomena that require extending the range of correspondent pairs. The patterns reported here involve the asymmetric correspondence for which Base-Derivative constraints are best suited: one form has been independently generated, while the second must be generated in a way that maintains similarity to the first. But the bases of our study differ in multiple ways from those studied in Benua 1997 and later work, making certain components of the theory advocated by Benua unworkable for the East Slavic data.

They differ, first, in that East Slavic bases need not be morphologically contained in their derivatives. Benua (1997:30), adapting to OT generalizations from rule-based phonology, claimed that morphological containment is a necessary restriction on Base-Derivative

correspondence. The East Slavic data shows it isn't. The Russian derivative *dom-íšš-e* `house-Augm.' takes its accent from the plural of *dóm* (Nom.pl. *dom-á*, Gen.pl. *dom-óv*, etc.) but does not contain any plural ending. Nor does the Ukrainian class (c) derivative *tenor-óvyj* contain any of the plural endings justifying its stressless stem *tenor-*. Ukrainian *syrít-sjky* 'of an orphan' may be said to contain the Genitive plural *syrít* of *syrot-á* 'orphan', but surely not in a syntactic sense. If some syntactic justification did exist for a Genitive plural inside a *sjk-yj* adjective, all such derivatives would contain Genitive plural forms, regardless of the calculus of stress.

Relatedly, the East Slavic base-derivative relations studied here are unusual in being *unselective*: the derivative can use any one of its inflected base's stems. This property of correspondence derives from the first, the absence of a containment restriction. If the base must be the exponent of an immediate constituent of the derivative, there is a unique base for each derivative. If this containement condition is abandoned, as it seems it must be, then multiple bases become available for any one derivative. The East Slavic data support this second point as well. We have observed, for instance, that the Ukrainian adjectives *obrúč–nyj* and *obruč–évyj* or *jávir-sjk-yj, javor-óv-yj,* use different stems from their base noun, a Nominative sg. in the first cases, and an oblique or plural form in the second ones. That means that both stems are available as bases. Which one is chosen depends on the phonological markedness of the result.

To analyze the East Slavic pattern we have proposed MATCH STEM, a modified Base-Derivative correspondence constraint. The modifications it incorporates bear on the two distinctive aspects of correspondence outlined above. MATCH STEM requires only that a stem of the base correspond to the stem of the candidate derivative, allowing the endings of the base form to lack corresponding material in the derivative. This constraint can be satisfied by any pairs like Base *dom-á* - Derivative *dom-íšš-e,* where the former is not contained in the latter.

Second, MATCH STEM allows unselective correspondence between a candidate derivative stem and any one in a pool of base stems. It does this by requiring only that *some inflected form* of the base, a non-specific *some*, contain the stem that matches accentually the derivative stem.

While MATCH STEM itself favors no stem, a preference exists in Ukrainian for using in derivatives the stem of the syntactically neutral citation form. Recall the derivatives of class (c) nouns like *jávir*. MATCH STEM is equally satisfied by *jávir–sjk-yj* and **jávor-sjk-yj*, but only the form using the citation stem is a productive option.

As a weak preference, MATCH CITATION plays a minor role in our analysis, but it helps place the East Slavic data in broader perspective. It provides the missing link between our conception of a collective base consisting of many stems, any of which is available to derivatives, and the restrictive hypothesis of a unique base upon which earlier work on the cycle was founded. To analyze standard 'one-base' cyclic phenomena, like the relation between *oríginal* and *orìginálity* or that between Palestinian Arabic *fíhim* and *fihím-na,* one need not appeal to a fundamentally different model of grammar from the one we used in East Slavic: one must only rank above MARKEDNESS a Base-Derivative constraint, the counterpart to our MATCH CITATION, which favors *one* base[31].

It would be surprising if the only change needed in the grammar of Base-Derivative relations was limited to MATCH STEM constraints. Recent work in Correspondence Theory has uncovered evidence for changes that go beyond this. In particular, the use of morpheme variants originating in one syntactic context but deployed in others, to improve markedness, is discussed in Bonet and Torres Tamarít 2009, Lloret 2009, Rebrus and Törkenczy 2005, Steriade 1999a, b. Most of these works document the extended distribution of *affixes* to contexts that mismatch their basic exponence functions. The overall picture emerging from all these studies is one in which markedness constraints interact freely with exponence conditions, as well as a variety of correspondence constraints.

To conclude then, accent in East Slavic recessive derivatives is computed by selecting, among all the stems of the inflected base, one that optimizes satisfaction of Markedness, in Ukrainian, and of affixal Faithfulness, in Russian. This generalization can be analyzed in a modified theory of Base Derivative correspondence where markedness competes with both unselective and targeted faithfulness constraints, represented here, respectively, by MATCH STEM and MATCH CITATION.

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[31] This point is developed in Steriade 2007.

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