

7 Accentual allomorphs in East Slavic: An argument for inflection dependence*

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For Morris Halle, on his birthday

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

	Nominative Sing.	Nominative Pl.	Adjective in <i>ov-yj</i>
(a) Variable bases: stressed and stressless stems	garbúz ‘melon’ jármarok ‘fair’ paljt-ó ‘overcoat’	garbuz-ý jarmark-ý páljt-a	garbuz-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 (1a) have a stressless stem allomorph, in the singular or in the plural, and use that stem to generate penultimate stressed *-óv-yj* forms. The nouns in (1b) have invariant stem stress in inflection and keep that stress in derivation, yielding *-ov-yj* forms with pre-penultimate stress.

The two languages analysed here have different accentual systems, but the phenomenon of interest to us, the freedom to use in derivation any stem

allomorphs of the inflected base, is found in both. Our chapter provides a description of this pattern, connects it to related data outside of Slavic, and analyses it based on a modified conception of the phonological cycle.

The remainder of section 7.1 outlines the better known mechanisms of Proto-Slavic accentuation and the difference between Proto-Slavic accent and the two East Slavic systems analysed here. The basic accentual generalization we defend for modern East Slavic is introduced in section 7.1.2. Section 7.2 presents the Ukrainian evidence for it and its analysis. Section 7.3 is a sketch of some of the Russian evidence for the same idea. Section 7.4 is an extension of this idea beyond accent and beyond Slavic languages.

7.1.1 Proto-Slavic accentual classes and their modern East Slavic counterparts

The accent of derivatives in Proto-Slavic and East Slavic is predictably related to the mobility of accent in their bases (Bulaxovs'kij 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). In this section we briefly outline the Proto-Slavic accent system, seeking to establish a common point of departure for the two East Slavic systems of interest to us.

Accent in Proto-Slavic inflected nouns can be derived from the underlying accentual properties of stems and suffixes (Dybo 1981). The same underlying properties that predict stress in inflectional paradigms determine stress in derivatives.¹ This pattern is illustrated below:

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

- | | |
|-------------------------------------|---|
| a. Underlyingly accented stem: | <i>*báb-</i> ‘old woman’ |
| with unaccented infl. suffix: | <i>*báb-ǫ</i> (Acc Sg) |
| with accented infl. suffix: | <i>*báb-a</i> (Nom Sg) |
| with unaccented deriv. suffix: | <i>*báb-bšk-ъ, *báb-bšk-a</i> (Adj, ‘related to women’) |
| with accented deriv. suffix: | <i>*báb-bj-b, *báb-bj-a</i> (Adj, ‘related to women’) |
| b. Underlyingly post-accented stem: | <i>*os-</i> ‘wasp’, <i>*žen-</i> ‘woman’ |
| with unaccented infl. suffix: | <i>*os-ǫ, *žen-ǫ</i> (Acc Sg) |
| with accented infl. suffix: | <i>*os-á, *žen-á</i> (Nom Sg) |
| with unaccented deriv. suffix: | <i>*žen-bšk-ъ, *žen-bšk-a</i> (Adj, ‘related to women’) |
| with accented deriv. suffix: | <i>*os-bj-b, *os-bj-a</i> (Adj, ‘related to wasps’) |

- | | |
|----------------------------------|--|
| c. Underlyingly unaccented stem: | <i>*mǫž-</i> ‘male human’, <i>*vǫrg-</i> ‘enemy’ |
| with unaccented infl. suffix: | <i>*mǫž-ǔ</i> , <i>*vǫrg-ǔ</i> (Nom Sg) |
| with accented infl. suffix: | <i>*mǫž-ý</i> , <i>*vǫrg-ý</i> (Inst Pl) |
| with unaccented deriv. suffix: | <i>*mǫž-ǔsk-ǔ</i> , <i>*mǫž-ǔsk-ǎ</i> (Adj,
‘related to men’) |
| with accented deriv. suffix: | <i>*vǫrž-ǔj-ǔ</i> , <i>*vǫrž-ǔj-ǎ</i> (Adj, ‘related
to enemies’) |

The class of nouns illustrated in (2a) – known as class (a) or type (a) nouns (Stang 1957) – have fixed accent on the stem. Accent remains on the stem in all inflected forms, and in all derivatives. This pattern can be generated if the stem is underlyingly accented and if faithfulness to the stem accent outranks faithfulness to any suffix, inflectional or derivational.

The nouns in (2b) illustrate *post-accenting*, or class (b) nouns. Proto-Slavic post-accentuation occurs when a stem-final vowel is short and underlyingly accented (Illich-Svitych 1963; Dybo 1981). Assume that Proto-Slavic accent was a tonal accent and had to be realized on two moras. When the stress-bearing unit was a long vowel, the tonal accent could be realized within the stressed nucleus. When stress fell on a short vowel, the tonal accent had to extend to the next syllable. This produced the post-accentuation reflexes of modern languages, perhaps because the stressed syllable was identified as containing the end-point of the tonal accent’s domain.³ Stress in words containing a post-accenting stem always lands on the syllable immediately following the stem, regardless of the underlying accent of the suffix. In inflection, the ending is stressed after a type (b) stem, whether underlyingly stressed, as in **os-ǎ*, or not, as in **os-ǒ*. In derivation, it is always the derivational suffix immediately following the root-final syllable that gets the stress: **os-ǔj-ǔ*.

The nouns in (2c) illustrate the Proto-Slavic mobile nouns, class (c). Their stems were underlyingly stressless. When combined with an accented derivational or inflectional suffix, that affixal accent surfaced: **mǫž-ý*, **mǫž-ǔsk-ǎ*, **vǫrž-ǔj-ǎ*.⁴ When combined with unaccented suffixes, an initial stress was assigned to the prosodic word: **mǫž-ǔ*, **mǫž-ǔsk-ǔ*.

Summing up, the reconstructed Proto-Slavic accentual alternations can be derived from the underlying accent of stems and affixes, the mechanism of postaccentuation, and two additional 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. While the Proto-Slavic accentual types are derivable from the underlying accent of the stem and the ending, no such analysis is possible for modern East Slavic accent. There are fixed-stress

types which continue the Proto-Slavic types (a) and (b) and are still referred 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 abbreviated Russian paradigms in (3) illustrate this. Ukrainian, seen in section 7.2, is similar.

(3) Accentual variety in Russian: some accentual types of the *-o* nouns.⁵

Class (a), fixed stem stress: <i>udod</i> 'hoopoe'			Class (b), fixed ending stress: <i>dožd'</i> 'rain'		
Sg		Pl	Sg		Pl
N	udód □■	udód-y □■-○	N, A	dóždj ■	doždj-i □-●
G, A	udód-a □■-○	udód-ov □■-○	G	doždj-á □-●	doždj-ěj □-●
L	udód-e □■-○	udód-ax □■-○	L	doždj-é □-●	doždj-áx □-●

Class (c), stem stress in sg., ending stress in pl.: <i>dub</i> 'oak'			Class (d), ending stress in sg., stem stress in pl.: <i>kazak</i> '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 □■-○
L	dúb-e ■-○	dub-áx □-●	L	kazak-é □□-●	kazák-ax □■-○

Class (e): same as class (c), but stem stress in Nom.pl.: <i>volk</i> 'wolf'			Class (f): same as class (b), but stem stress in Nom.pl.: <i>gvozd'</i> 'nail'		
Sg		Pl	Sg		Pl
N	vólk ■	vólk-i ■-○	N, A	gvózdj ■	gvózdj-i ■-○
G, A	vólk-a ■-○	volk-óv □-●	G	gvozdj-á □□-●	gvozdj-ěj □-●
L	vólk-e ■-○	volk-áx □-●	L	gvozdj-é □□-●	gvozdj-áx □-●

These accentual paradigms lend themselves to multiple analyses. Some assign stress to each individual case/number form (Zaliznjak 1967, § 6: 15–22; Halle 1973); others use some paradigmatic cells as bases for deriving still others (Butska 2002; Feldstein 2006; Ivlieva 2009; Yanovich and Steriade 2010). All analyses must appeal to lexically indexed rules or constraints (Pater 2010) to differentiate the attested types of accentual paradigms. This contrasts sharply with the Proto-Slavic system, where each ending is reconstructed as having been invariably stressed in all mobile words, or invariably stressless in all.

Despite the 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. 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 accent patterns are irrelevant in derivatives (cf. Feldstein 1984: 506). This is different from Proto-Slavic, where the same properties of morphemes – underlying accent and post-accentuation – determined stress in both inflection and in derivation.

7.1.2 Match Stem Stress and lexical conservatism

To explain this collapse of accentual distinctions in the derivational morphology of modern East Slavic we will propose the following: the faithfulness of candidate derivatives to their base is assessed by letting the derivative's stem correspond to *any stem allomorph* found in the inflectional paradigm of the base. Words belonging to different mobile paradigms – recall from (1) *garbúz*, *garbuz-ý*; *jármárok*, *jármárok-ý*; *páljt-ó*, *páljt-a* – behave similarly *qua* bases insofar as these paradigms contain among their allomorphs a stressless stem. This stem is used to optimize the derivatives' stress. That's all that matters in derivation: the existence of some stem allomorph possessing a desirable accentual profile, anywhere in the inflectional paradigm of the base. The accentually immobile class (a) nouns differ from the mobile bases in lacking *any* unaccented stem allomorph in its inflectional paradigm. The generalization we anticipate is that, for a large class of derivatives, the only relevant base-faithfulness constraint is the one in (4).

- (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].

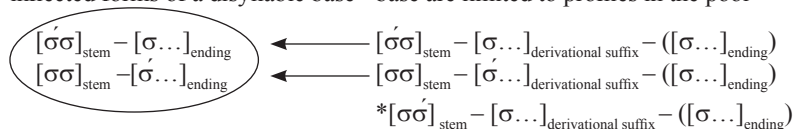
Derivative: $[\dots S_{[\alpha \text{ stress}]} \dots]_{\text{stem}} - [\dots]_{\text{derivational}} - [\dots]_{\text{ending}}$

An inflected form of its base: $[\dots S_{[\alpha \text{ stress}]} \dots]_{\text{stem}} - [\dots]_{\text{ending}}$

To make (4) concrete, imagine a disyllabic, accentually mobile base noun like Ukrainian *jármárok* (class (c) in (2), common to Russian and Ukrainian). Some of its inflected forms have stem stress, e.g. *jármárok*. Others, like *jármárok-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



The Ukrainian forms in (6) provide a preview of the material explained by MATCH STEM STRESS, expanding on (1). As seen before, base nouns with fixed stem stress have one allomorph and must use that form in derivatives, (6a). Most bases with ending stress, (6b), and with mobile stress, (6c), also provide a stressless allomorph. This can be used in *-ov-yj* derivatives to produce the penult stress favoured by Ukrainian (*obruč-év-yj*, *pojizd-óv-yj*).⁶ 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. (6b.ii; 6c.ii-iii) compared to (6a.ii).

(6) Effects of MATCH STEM STRESS (in Ukrainian)

- a. Fixed stem stress (type a) w. non-final stress => 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* => *Užgorod-sjk-yj* ‘from U.’
- b. Post-accentuation (type b) => penultimate stress in the derivative
 - i. *obruč* ‘hoop’, GenSg *obruč-á*, NomPl *obruč-i* => *obruč-év-yj* ‘of a hoop’
 - ii. *obruč* ‘hoop’ => *obruč-n-yj* ‘of a hoop’
- c. Mobile stress (types c, d) => penultimate stress in the derivative
 - i. type (c): *pójizd* ‘train’, GenSg *pójizd-a*, NomPl *pojizd-ý* => *pojizd-óv-yj* ‘of train’
 - ii. type (c): *nébo* ‘heavens’, NomPl. *nebes-á*, Genpl. *nebés* => *nebés-n-yj* ‘heavenly’
 - iii. type (d): *častót-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 summary 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 *obruč-n-yj* (6b.ii) is not post-accenting **obruč-n-ýj*. Second, the Ukrainian derivatives of *stressed* stems, types (a) and (c),⁷ are not invariably stem-stressed: *pojizd-óv-yj* (6c.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 to the stem. In their presence, all base properties are overridden.⁸ 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, we will see that a minority of Ukrainian recessive derivatives have penult or final stress even when no appropriate stem allomorph of the base exists. 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, Vynnyckyj (2002) for south-western East Slavic, among others). 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*, *-išš-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; see also Melvold (1989: 48ff).

7.1.3 Predictably derived stem allomorphs; inflection dependence

The principles that distribute listed allomorphs of roots and affixes have been investigated by Bonet *et al.* (2007); Kager (1996); Drachman *et al.* (1996); Paster (2005); Tranel (1996), among others. 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. *obruč* vs. 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 relevance of additional correspondence constraints seeking a match with a specific form in the inflectional paradigm of the base. When such constraints dominate the output, it may appear that a single form serves as the base. We suggest that such constraints do have an effect in Ukrainian. But the focus here is on the evidence for the less well documented constraint type that characterizes the inflection dependence effect: MATCH STEM STRESS.

7.1.4 The alternatives to MATCH STEM STRESS

Our main finding will be that the accentual profile of *any inflected form of the base* can be adopted by its 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 (Burzio 1998, 2005; Steriade 1999a,b).

We compare this anticipated finding to baseline analytical expectations derived from current views on how bases influence the shape of their derivatives. We spell these out starting from the theory of cyclic rule application (Chomsky *et al.* 1956; Chomsky and Halle 1968), its Optimality Theoretic offshoots (Kenstowicz 1996; Benua 1997; Kiparsky 2000; Bermúdez-Otero 2011), and other recent work.

The essence of the baseline alternative to our 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 the root with derivational affixes (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 2011).

What is the *domain* of this earlier 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 *et al.* (1956) were the first to spell out this assumption. Benua (1997: 30) too upholds something akin to it, as does Kager (1999). This rules out the possibility that any inner cycle to in a derived word might be a case- or number-inflected form of the base. Nominal case is 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: the derivatives we consider do not 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 a syntactically unmarked form – whatever *unmarked* may mean. All these possible theories of what a base may be are based on 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.

7.2 Ukrainian evidence for MATCH STEM STRESS

This section documents the effects of inflection dependence in the recessive Ukrainian denominal adjectives. We show that these derivatives obey a revised version of the constraint MATCH STEM STRESS (4), and do so frequently to the exclusion of other forms of faithfulness. In sections 7.2.1–7.2.6 we introduce the necessary background on Ukrainian, and show the effects of faithfulness for fixed-stress bases. Then, in sections 7.2.7–7.2.12, we examine derivatives of post-accenting and mobile-stress nouns, and show that they are faithful to their bases under the MATCH STEM STRESS interpretation of faithfulness, but not on alternative interpretations that require a unique base.

Our sources are: 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, to which we refer 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) analysis of Ukrainian nominal accentuation, continued in Truckenbrodt and Butska (2003); and finally Vynnyčkyj (2002), an extensive description of Ukrainian stress in all parts of speech, for historical and dialectal data on accentual changes. Our assumptions about underlying accent in different noun classes and the mechanisms that derive accentual mobility come from Yanovich and Steriade (2010).

7.2.1 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 analyse – from standard Ukrainian, based on Eastern dialect – show that aspects of the penult preference are present in general. Having relied on secondary literature and dictionary data for the evidence of penult-stress preference, we do not know its exact extent across Ukrainian vernaculars. As we consistently use standard-Ukrainian stress facts as explananda, this is not problematic for our purposes here.

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 (7a). Everywhere else, the penult is recorded as a 1 or a 2 (7b). We indicate the position of main and secondary stresses using acute and grave accents.

- (7) Degrees of stress in E. Ukrainian (1 the strongest, 6 the weakest):
 Zilynskyj's transcriptions (1979: 187–190; accents added by us)
- a. weak or no stress on the penult under clash with main stress

<i>dòbrotá</i>	<i>pèrenočúválysjmo</i>
2 4 1	2 4 3 4 1 4 3

- b. strong (secondary or main) stress on the penult everywhere else
ròzgovórjivàly 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 (*LAPSER) and final stress avoidance (NONFINALITY) are active. Their joint effect is to promote some stress on the penult. In the unmarked case, MAINSTRESSRIGHT (MSR) will make this the main stress of the word. Competing with *LAPSE and NONFINALITY are clash avoidance (*CLASH) and faithfulness to lexically specified stress (IDENTSTRESS IO) – or, as we shall see, correspondence to a surface base. In *dòbrotá* ‘goodness’, lexical stress on the final is preserved in violation of NONFINALITY. In *pèrenočuválysjmo* (from *pèrenočuvály* ‘to pass the night’) the base stress on *vá* is preserved: here IDENTSTRESS BD, *CLASH and NONFINALITY make it impossible to satisfy *LAPSER. Aside from such circumstances, a penult stress will always surface. Penult stress becomes the main stress in e.g. *pèrenočuvály* in (7b). Deviations from MSR in nominal forms and their derivatives are analyzed below. Constraint definitions are found in the Appendix.

A second class of observations, on the distribution of stress in derived forms compared to their bases, shows a preference to maintain the penult stress *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 section 7.2.5. Based on the information reported above, we interpret the dictionary stress data as reporting only the position of *main* stress.

(8) Lexical frequencies of main 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 result of the interaction between the MSR and faithfulness to the main stress position of the base, MATCHSTEMSTRESS(MAIN). The vast majority of pre-penult main stresses arise when a derivational suffix is added to a stem

that keeps 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-antepenult is essentially impossible *in bases* because the sole competitor to MSR is irrelevant to base accentuation: it’s the Base Derivative (BD) faithfulness constraint 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. These data come from ISUM (1985).

- (9) Lexical frequency of main stress positions in Ukrainian *-ov-yj* adjectives:
 N = 3385

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

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 intact the stress of their base – 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:⁹ e.g. *labradór*, *labradór-ov-yj*; *káktus*, *káktus-ov-yj*. But this is not what (9) shows: a significant number of *-ov-yj* adjectives, most of which must be class (a)-based, have penult stress. Among them are *metal-év-yj* ‘of metal’, *lozung-óv-yj* ‘of slogan’, *fósfor-óv-yj* ‘of phosphor’ from the class (a) nouns *metál*, *lózung*, *fósfor*. Pre-antepenultimate main stress is rare, even though most bases – like *káktus*, *lózung*, *fósfor* – are penult stressed and expected to produce pre-antepenult stressed *-ov-yj* forms. Antepenult stress is well attested but less frequent than the proportion of class (a) bases leads one to expect.

It appears then that in a significant number of derivatives accentual markedness 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*, **fósfor-ov-ýj*, limiting the choices to just two, faithful but marked (e.g. *làbradór-ov-yj*, *fósfor-òv-yj*) and unfaithful, unmarked (**labràdor-óv-yj*, *fósfor-óv-yj*).

A final observation confirms the preference for penult stress. 94 *-ov-yj* adjectives are listed in ISUM as having two variants. Most are written with two accents, e.g. <náftóvyj> ‘of oil’, or <káktusóvyj> ‘of a cactus’, to abbreviate two accentual options: e.g. *káktusovyj* and *kaktusóvyj*. There is a striking fact about all these doublets. The majority (81/94) limit variation between accent on a non-penult (final, antepenult or pre-antepenult) and

the penult. Five apparent exceptions come from bases whose own accent varies: e.g. variable class (a) <fárfór> ‘porcelain’ gives rise to variable <fárfórovj>. Setting those aside, there is no variation between stress on pre-penultimate positions: *káktusovj*, from invariant *káktus*, never varies with **kaktúsovj*. In eight forms, stress varies between the antepenult and the final: e.g. <stánovj> ‘of status’, from class (a) *stán* ‘social class’. In these cases, a lexicalized, inherited derivative with final stress, here *stanovj* varies with a newer form that’s accentually faithful to its base, *stán-ov-yj*.¹⁰ Aside from these eight items, all ISUM doublets, 90% of all relevant forms, involve variation between *faithful non-penult stress and faithless penult stress*. Without a markedness preference for penult stress there is no reason why variation should be restricted in just this way.

We interpret this data by conjecturing that the variably accented derivatives reflect variation in the ranking between the markedness constraints that ensure penult stress (NONFINALITY (MAIN), MSR and *LAPSER) and either (i) accentual faithfulness to the main stress of the base (MATCH STEM STRESS (MAIN)), or (ii) faithfulness to a lexicalized, inherited derivative with final stress *-ov-yj*.¹¹ Productive derivatives from the adjectival classes we study here generally don’t have final-stressed variants: we infer from this that NONFINALITY (MAIN) isn’t involved in the variation and can only be outranked by faithfulness to frozen derivatives like *stanovj*. The major source of doublets then is just the relation between MATCH STEM STRESS (MAIN) and, on the other hand, MSR and *LAPSER. We analyze this type of variation next, as it will play a larger role in the analysis.

7.2.2 Analysis thus far: Lexicalized and free variation

If the stress variation in <náftóvyj>, <káktusóvyj> was general, we would propose to variably rank MATCH STEM STRESS (MAIN) against *LAPSER, MSR. The dictionary data suggests otherwise: variation is restricted to a subset of the recessive derivatives. Stress fluctuates in *kaktus-ov-yj*, but not in *gúmus-ov-yj* ‘of humus’ or in most other class (a) derivatives. Stress in unfaithful items like *metal-év-yj*, *fosfor-óv-yj* is fixed on the penult, with no reported variation.

To analyze all three options for derivatives of class (a), at least two constraints must be lexically indexed. We adopt Pater’s (2010) analysis of lexical exceptions. A markedness or faithfulness constraint is cloned to produce a version that evaluates only L, a closed list of lexical items. We identify the constraints to be cloned in the present case as MSR and *LAPSER and we refer to their lexically indexed clones as MSR_{L1} and *LAPSER_{L2}. We identify the lexical items contained in the L1 and L2 sets as the *bases* of

the relevant *-ov-yj* derivatives. Thus the ranking $MSR_{L1} \gg MATCH\ STEM (MAIN) \gg MSR$ is a fragment of a grammar that shifts main stress only in derivatives of a closed L1-set that includes *káktus* and *fósfor*. Membership in the L1 set is invariant for *fósfor*, but it is variable for *káktus*. Similarly, membership in the L2 set is variable for *náfta* (cf. <*náftóvyj*>) but invariant for *metál* (cf. *metalévyj*).

On this view, no ranking fluctuates, but *membership* in the sets L1 and L2 may: it does fluctuate for items like *káktus*, *náfta*, with consequences for their derivatives. (10a) is the analysis of a derivative of *káktus*, understood as a member of L1: here lexically indexed MSR_{L1} decides the outcome. (10b) is the analysis of a derivative of *káktus*, seen this time as a *non-member* of L1: with MSR_{L1} moot, the ranking $MATCH\ STEM\ STRESS \gg MSR$ is decisive. There is no variation for *gúmusovyj* because *gúmus* is never a member of L1. There is no variation for *fósforóvyj* because *fósfor* is always a member of L1. In (10c–d) we illustrate the same idea, applied this time to variation between antepenult and penult stress in cases like <*náftóvyj*>.

(10) Penult preference and accentual variants

a. Effect of MSR_{L1} in unfaithful derivatives: *káktusóvyj*, *fósforóvyj*

	Base: $káktus_{L1}$	NON FINALITY (MAIN)	MSR_{L1}	MATCH STEM (MAIN)
(a)	<i>káktus -òv-yj</i>		*!	
☞ (b)	<i>káktus -òv-yj</i>			*
(c)	<i>kaktùs -ov-ýj</i>	*!		*

b. Effect of MATCH STEM (MAIN) in faithful derivatives: *káktusovyj*, *gúmusovyj*

	Base: <i>káktus</i>	MSR_{L1}	MATCH STEM (MAIN)	MSR
☞ (a)	<i>káktus -òv-yj</i>	moot		*
(b)	<i>káktus -òv-yj</i>		*!	

c. Effects of $*LAPSER_{L2}$ in unfaithful derivatives: *náftóvyj*, *metalévyj*

	Base: $náfta_{L2}$	$*LAPSER_{L2}$	MATCH STEM (MAIN)
(a)	<i>náft -ov-yj</i>	*!	
☞ (b)	<i>naft -òv-yj</i>		*

d. Effect of MATCH STEM (MAIN) in faithful derivatives: *náftovyj*, *labradórovyyj*

	Base: <i>náfta</i>	$*LAPSER_{L2}$	MATCH STEM (MAIN)	$*LAPSER$
☞ (a)	<i>náft -ov-yj</i>	moot		*
(b)	<i>naft -òv-yj</i>		*!	

Our claim is that penult-stressed unfaithful derivatives are due to the rise of penult main stress in Ukrainian. This is supported by diachronic observations in Veselovsjka (1970) and Vynnyckyj (2002). Veselovsjka notes that the *-ov-yj* adjectives have been consistently moving towards penult stress from the late sixteenth century to the present. Vynnyckyj discusses 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 some derivatives must have been a favored option at some recent point in the history of Ukrainian.¹² What matters here, however, is the current general preference for penult stress, supported both by the synchronic data discussed above, and by the historical evidence in Veselovsjka (1970) and Vynnyckyj (2002). This markedness preference reveals the unusual faithfulness system of Ukrainian studied here.

7.2.3 Inflectional paradigms of derived adjectives

When we refer to an adjective, e.g. *velyk-yj* ‘big’, as having penultimate stress, we refer to a paradigm whose Nominatives and two-thirds of the oblique forms carry surface penultimate stress, but where forms with antepenult stress also exist. The latter contain disyllabic inflectional endings (e.g. *velyk-oju* ‘big-fem.Instr.sg’, *velyk-ymy* ‘Instr.pl’). Stress in Ukrainian adjectives is invariant, so forms with the disyllabic endings keep stress on the same syllable as forms with monosyllabic endings (e.g. *velyk-a* ‘fem. Nom.sg’, *velyk-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 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.¹³

7.2.4 Ukrainian nominal accentual classes

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

Ukrainian nouns fall into four main accentual classes, similar to Russian. These differ in the number of accentual allomorphs found in inflection: class (a) nouns have one stem allomorph, which is always accented; classes (b)–(d) have typically more than one, almost 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 accent classes that affects how a noun's derivatives will be accented. It is that, plus all other circumstances about the inflection of the base.

7.2.5 The Ukrainian database

Our Ukrainian evidence comes from a database of adjectival derivatives in *-n-yj*, *-ov-yj*, and *-sjk-yj* 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 by adding derivatives of both mobile and immobile bases, through searches in Andrusyshen and Krett (1957), Pogribnyj (1984), ISUM (1985) and the <http://lcorp.ulif.org.ua/dictua/> site. The database currently contains over 1,000 recessive adjectives. Variant forms are listed as distinct items. Where our sources disagree on the accent class of a base, 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 *labradór-sjk-yj* is ambiguous between faithfulness to the base *labradór* and the markedness preference for penult stress. By contrast, the stress in *labradór-ov-yj* has a single explanation: faithfulness to the base.

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 perhaps faithful to a stem allomorph occurring 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 **ávstríj-sjk-yj*.

(11) Base uncertainty

- a. The stem allomorph used in the derivative does not occur in the inflection of the base, but occurs in a related verb:
 - i. Presumptive base, class (a): *manévr* ‘maneuver, stratagem’
 - ii. Unfaithful penult-stressed derivative: *manevr-óv-yj* ‘shunting’
 - iii. Related verb: *manevr-uvá-ty* ‘to shunt, to maneuver’
- b. The stem allomorph used in the derivative does not occur in the inflection of the base, but occurs in a co-derivative:
 - i. Presumptive base, class (a): *Ávstríj-a* ‘Austria’
 - ii. Unfaithful penult-stressed derivative: *avstríj-sjk-yj* ‘from Austria’
 - iii. Related lexical item with identical stress: *avstríj-etsj* ‘Austrian (person)’

These cases are of 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 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.¹⁴ Adjectives like those in (11) appear to satisfy markedness by referencing such co-derivatives. 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 *manevr-óv-yj*, we have excluded them from our count. 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 *avstríj-etsj*, the derivational suffix of that derived noun would have surfaced in the result, **avstríjetsjkyj*. We suspect then that a subset of the adjectives studied here, including *avstríj-sjk-yj*, licence their penultimate stress by reference to forms that are only indirectly related to their base noun.

7.2.6 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. Accentual faithfulness to stems 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. 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 in connection to *avstrij-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*. The majority of class (a) derivatives belong only to the ‘Faithful-Base’ class: e.g. *gúmus-ov-yj* ‘of humus’. For each of these categories we indicate in (12) the lexical frequencies of attested main stress positions. For example, in 10% of the ‘Faithful-Base’ derivatives from type (a) nouns have main stress on a pre-antepenult syllable, as *gúmus-ov-yj*.

(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 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, the derivatives that don’t preserve the stress of their base, the ‘Faithful-Related’ and ‘Not Faithful’ categories, rank constraints inducing penult main stress above MATCH STEM STRESS. It is then expected that penult stress predominates in this unfaithful class.

The majority of Ukrainian recessive derivatives place MATCH STEM STRESS above all accentual markedness constraints. The low frequency of penult stress in the faithful majority of class (a) derivatives is related to this.

The fact that most base-faithful adjectives are stressed on a *pre*-penultimate syllable stems from three 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 may have been higher. Finally, most bases have non-final stress, as seen in (8).

There are 37 derivatives of class (a) nouns that carry final stress, e.g. *bírž-ev-ýj* from *bírž-a* ‘exchange’. These are neither faithful to their base nor accentually optimal. We think they are lexicalized survivors of earlier stages in East Slavic, where a large number of *-ov-yj* adjectives had final stress in accordance with Hartmann’s Law (Hartmann 1936).¹⁵ We present some evidence on this in section 7.2.10. As this predicts, recent loanwords (*káktus*, *gúmus*, *labradór*, *fósfor*, *metál*, *manévr*) normally produce non-final stressed derivatives.

7.2.7 Interim summary: Derivatives of constant-stress nouns

Up to this point, we have shown that a form of accentual correspondence, in competition with markedness, explains the predominant accent pattern of derivatives from 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 IDENT STRESS IO or IDENT STRESS BD, the latter conceived as faithfulness to the stress of *one* base item. Indeed, the derivatives of fixed-stress class (a) nouns cannot provide such evidence. The argument must come from derivatives discussed next: when bases provide several allomorphs of the inflected stem, we can distinguish the effects of MATCH STEM STRESS from the other forms of faithfulness.

7.2.8 Derivatives of type (b) nouns

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

(13) Ukrainian type (b) nouns

(a) Stressed stem allomorph in Nom.sg. <i>garbúz</i> ‘watermelon’			(b) Stressed stem allomorph in Gen. pl. <i>knjažná</i> ‘princess’		
Sg		Pl	Sg		Pl
N,A	garbúz □■	garbuz-ý □□-●	N	knjažn-á □-●	knjažn-ý □-●
G	garbuz-á □□-●	garbuz-ív □□-●	G	knjažn-ý □-●	knjažón □■
D	garbuz-ú □□-●	garbuz-ám □□-●	D	knjažn-í □-●	knjažn-ám □-●
I	garbuz-óm □□-●	garbuz-ámy □□-●○	A	knjažn-ú □-●	knjažón □■
L	garbuz-é □□-●	garbuz-áx □□-●	I	knjažn-óju □-●○	knjažn-ámy □-●○
			L	knjažn-í □-●	knjažn-áx □-●

We follow Butska (2002) in assuming that the root of these nouns is underlyingly unaccented. 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 this default stress on the suffix. In addition to the default suffix stress, we must also derive the invariant stem-final stress in zero-suffixed forms of this class, e.g. Nom. Sg. forms like *garbúz*. 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. *garbuz-ý*, satisfies that constraint while keeping the stem unstressed. When no ending surfaces, in *garbúz*, only stem-final stress satisfies COINCIDE-RIGHT. Another possibility is to assume an opaque scenario in which the ending is a jer bearing stress, yielding intermediate *garbuz-b´*. When the jer deletes, its stress is transferred to the preceding syllable: *garbuz- b´ => garbúz*. (Cf. Zaliznjak 1967 for Russian.) Evidence discussed below perhaps favors this option, as does Russian data discussed in section 3. We leave the choice between these scenarios open: they are not strictly relevant to what follows, and the evidence favoring one or another remains unclear.

What is important here is that most type (b) nouns – 90% of those in our database – will have acquired *two* stem allomorphs in inflection: the unstressed and the final-stressed one. The MATCH STEM STRESS hypothesis predicts that both of these allomorphs can be deployed to facilitate satisfaction of markedness constraints (*LAPSER, 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 *obruč* ‘hoop’ illustrate this below. The final-stressed stem is used in *obruč-n-yj*. The stressless stem originating in 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)

a. Derivatives with a disyllabic suffix

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

b. Derivatives with a monosyllabic suffix

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

Pairs like *obruč-óv-yj*, *obruč-n-yj* are common, as predicted. From class (b) we cite: *lemíš-n-yj*, *lemeš-év-yj* from *lemíš* ‘plowshares’; *jazyč-nyj*, *jazyk-óv-yj* from *jazyk* ‘language’;¹⁶ *tabún-nyj*, *tabun-óv-yj* from *tabún* ‘herd’; and *čavún-ny-j*, *čavun-óv-yj* from *čavún* ‘cast iron’.

On our analysis, both *-ov-yj* and *-n-yj*, *sjk-yj* derivatives from class (b) nouns can satisfy markedness without violating MATCH STEM STRESS. The analysis is confirmed 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 class (b) bases. $N = 221$; 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 *obruč*, 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. *jaryn*, the only inflected form providing a stem-stressed allomorph. This form licenses the penult stress in *jaryn-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 for a faithful, penult-stressed derivative.

(16) Class (b) bases of feminine nouns

	Base: jaryn-, jarýn (G.pl.)	MATCH STEM STRESS	MARKEDNESS
(a)	jâryn-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 *tajg-á* ‘taiga’ or *taft-á* ‘taffeta’, or in *pluralia tantum* items like *xarč-i* ‘food, provisions’. There are 17 derivatives of such nouns in our database.¹⁷ Six 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 **táft-n-yj* etc. Such forms, from such defective bases, would violate MATCH STEM STRESS. But at the same time we expect all these defective nouns to use their *stressless* stem in *-ov-yj* forms. 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,¹⁸ 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*.¹⁹

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-ov-yj*, exclude older lexicalized adjectives. It is the latter that 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-stress will be found in classes (c)–(d): class (b) contains some productive derivatives, the agentives in *-ár* and *-ák*, while classes (c) and (d) lack these. This prediction will be supported.²⁰

7.2.9 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: for *kočerg-á* 'poker' should that form be *kočérg*, *kóčérg*, *kočéróg*, nothing?

Type (c) nouns have stem stress in the singular, and shift it to the ending in the plural: e.g. *jármárok*, *jármárok-ý* 'fair'. The position of stress inside the stem is unpredictable, as seen in pairs like *učýtelj* 'teacher' vs. *pérepel* 'quail'; *profésor* vs. *jármárok*. All polysyllabic nouns whose Nom.sg. carries word-final stress, e.g. *sekretár*, are excluded from this class and go instead to classes (a) or (b);²¹ 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 with two and three stem allomorphs; selected case forms.

(a) Three allomorphs: <i>nébo</i> 'heaven'			(b) Two allomorphs: <i>profésor</i> 'professor'		
Sg		Pl	Sg		Pl
N	néb-o ■-○	nebes-á □□-●	N	profésor □■□	profesor-ý □□□-●
G	néb-a ■-○	nebes □■	G	profésor-a □■□-○	profesor-ív □□□-●
D	néb-u ■-○	nebes-ám □□-●	D	profésor-u □■□-○	profesor-ám □□□-●
L	néb-i ■-○	nebes-áx □□-●	L	profésor-i □■□-○	profesor-áx □□□-●

The mechanisms generating accentual alternations in class (c) are briefly discussed next.

7.2.9.1 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 can be summarized 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.²² 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 paradigm 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 better satisfy Markedness and

Faithfulness. This is explained if the singular is generated on its own, while the plural, generated in the next step, adjusts its stress to keep it distinct from the already fixed singular. The adjusted stress of the plural necessarily contains additional violations of Markedness and/or Faithfulness.

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, three properties of class (c) bases matter, and they remain independent of how we derive accent mobility. First, class (c) stems have underlying stress. Their stress can, but need not, be stem-final: it is in *pidóšv-a*, it isn't in *jármárok* or *profésor*. Second, accent mobility creates in *all* class (c) nouns multiple accentual allomorphs: normally two, as in *profésor*; three in nouns like *nébo* or *pidóšva* (cf. (17)). Finally, some class (c) nouns alternate segmentally: Nom. sg. *néb-o*, Nom. pl. *nebes-á*, Gen. pl. *nebés*; Nom. sg. *pidóšv-a*, Nom. pl. *pidóšv-ý*, Gen. pl. *pidóšov*. In the next section we use the first two base properties to explain the derivatives' stress. The segmental alternations become relevant later.

7.2.9.2 The derivatives of class (c) nouns

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

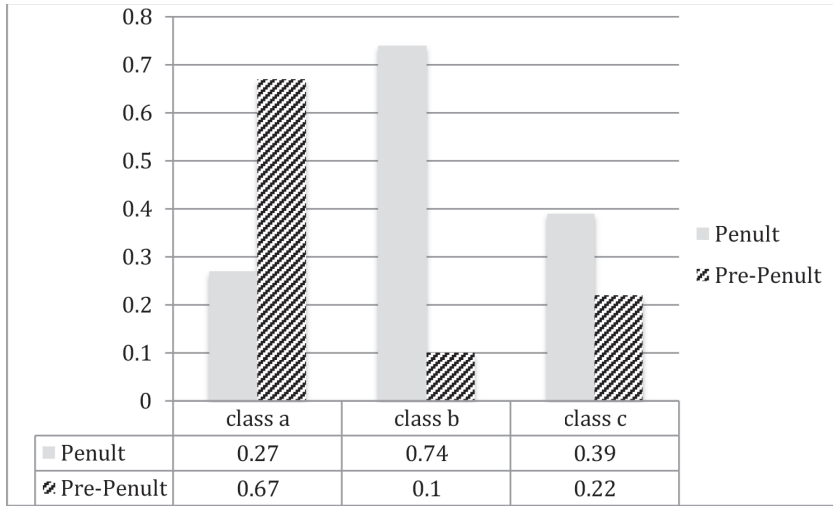
(18) Class (c) derivatives $N = 164$; 75 with *-n-yj*, *sjk-yj*, 89 with *-ov-yj*

	Faithful-Base: 93%	Faithful-Related: 6%
Pre-penult	23%	
Penult	39%	100%
Final	38%	

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.

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)



(19) shows that class (c) derivatives have increased rates of pre-penult stress compared to class (b). What explains this? It's the large number of class (c) bases with pre-final stress, a pattern necessarily absent in class (b). Of the 144 class (c) bases, 90 have pre-final stress, as *jármárok* and *profésor* do. Their derivatives can satisfy both markedness and faithfulness in only one form: the combination of stressless stem + penult-stressed *-óv-yj*, as in *jármárok-óv-yj*. In faithful derivatives suffixed with *-n-yj* or *-sjk-yj*, on the other hand, some markedness constraint must be violated: penult stressed **jármárok-n-yj*, **profésor-sjk-yj* aren't faithful, on any interpretation of faithfulness. We see below that the lesser violation of markedness is to stress the antepenult, e.g. *profésor-sjk-yj*. How does class (b) differ? Most class (b) bases can generate *two* faithful-unmarked combinations: final-stressed stem + *C-yj*, as in *obruč-n-yj*; and stressless stem + *-óv-yj*, as in *obruč-óv-yj*. It is for this reason that prepenult rates are lower in class (b).

(19) also shows that increased rates of penult stress in class (c) derivatives compared to class (a). What explains that? In faithful derivatives suffixed with *-ov-yj*, class (c) bases provide a stressless stem: e.g. *jármárok-óv-yj*, using the stem of plural *jármárok-ý*. Class (a) nouns lack this variant: a class (a) faithful *-ov-yj* form must have prepenult main stress: e.g. *gúmus-òv-yj*.

Our analysis predicts a further difference between class (a) and class (c) derivatives: pre-antepenult stress is possible among the former, as seen in *gúmus-òv-yj*, but not the latter: **jármárok-òv-yj* or **jármárok-ov-yj* should be impossible, as seen below.

(20) Class (c) bases can't be stressed before the antepenult

	Base: jármarok, jármark-	MATCH STEM STRESS	MARKEDNESS
(a)	jármárok-òv-yj		*! (MSR)
(b)	jármárok-ov-yj		*!**(LAPSER)
☞ (c)	jàrmark-òv-yj		

Indeed, all 35 derivatives with pre-penult stresses from class (c) bases are *antepenult*-stressed (e.g. *profésorsjkyj*). A related prediction is that all such proparoxytone forms should contain *n-yj* and *sjk-yj* suffixes: as seen in (20), the *-ov-yj* derivatives not only have the option of penult stress but must exercise it. This is largely correct: of the 35 items with pre-penult stress, 31 are suffixed with *-sjk-yj* or *-n-yj*. 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. (17a). We expect this stem to be usable before *-n-yj* and *-sjk-yj*, where it ensures penult stress: e.g. *nebés-n-yj* 'heavenly'. Derivatives from at least four other bases have this third stem. All bear out the expectation:

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

Base	Base Gen. pl.	Derivative	Gloss
čúd-o, čúdes-á	čúdes	čúdes-n-yj	'miracle' 'wonderful'
molýtv-a, molytv-ý	molytív	molytív-n-yj	'prayer'
pidóšv-a, pidošv-ý	pidošív	pidošív-n-yj	'sole (of a foot)'
tíl-o, tilés-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 have penult-stressed variants, e.g. *vijsjk-ov-ýj* and *vijsjk-òv-yj* 'military' from *vijsjk-o* 'troups, army', but not all do. It has been our contention throughout that final-stressed recessive derivatives 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 *-ov-yj* carry penultimate stress and use the stressless plural stem: *tenor-òv-yj* 'of a tenor' based on *ténor*, *tenor-ý*. Those suffixed by *-n-yj*, *-sjk-yj* carry antepenult stress, as in *kórpús-n-yj*.²⁴ The absence of final stress in this set shows that NONFINALITY (MAIN) outranks *LAPSER, a point anticipated in (10).

(22) Class (c) productive derivatives: MSR, NONFINALITY (MAIN) >> *LAPSER

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

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

(23) Class (c) productive derivatives: MATCHCITATIONSTRESS >> *LAPSER

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

However, the ranking MATCH CITATION STRESS >> *LAPSER does not generalize to other classes. It predicts antepenult stress as the productive option for all class (b) *-ov-yj* derivatives. This is a first wrong result: of the *-ov-yj* forms from class (b), there are 113 penult-stressed items, like *obruč-óv-yj*, to only three with pre-penult stress (e.g. *targán-ov-yj* from *targán* ‘cockroach’). Class (d) will pose comparable difficulties.

(24) Class (c) productive derivatives: MATCHCITATIONSTRESS >> *LAPSER

	Base: obrúč-, obruč-	MATCH STEMSTRESS	MATCHCITATION	*LAPSER
(a)	obruč -óv-yj		*!	
☞ × (b)	obruč -ov-yj			*

The overall analysis must predict both penult main stress in class (b) *-ov-yj* forms like *obruč-óv-yj* and pre-penult stress in class (c) *-n-yj* and *-sjk-yj* derivatives like *kórpus-n-yj*. The only ranking that achieves both results is MATCH STEM STRESS, NONFINALITY (MAIN) >> *LAPSER, as in (22). Still only an appeal to MATCH CITATION STRESS helps derive the few antepenult-stressed class (b) derivatives like *targán-ov-yj*. As MATCH CITATION STRESS will play a significant role later, we outline the analysis: the constraint is indexed to a lexical class L3 that includes *targán*.

- (25) Class (b) antepenult-stressed *-ov-yj* derivatives: MATCH CITATION STRESS_{L3} >> *LAPSER

	Base: Nom.sg. targán _{L3} , targan-	MATCH STEMSTRESS	MATCH CITATION _{L3}	*LAPSER	MATCH CITATION
(a)	targan-óv-yj		*!		*
☞ (b)	targán-ov-yj			*	*

Returning now to class (c) bases like *kórpus*, *profésor*, *jármárok* we must ask what MATCH CITATION STRESS_{L3} might predict for them. It predicts that, if any of these items belongs to the L3 set, *its -ov-yj* derivative will carry stress on a pre-antepenult syllable. This, however, we have seen is impossible in class (c). We resolve the difficulty without abandoning the basic idea. MATCH CITATION STRESS_{L3} can induce violations of *LAPSER, but not of MSR or *EXTENDED LAPSER. To illustrate the necessary ranking we assume now that class (c) *jármárok* belongs to the same lexical class L₃ as *targán*.

- (26) Class (c) pre-antepenult stresses are impossible, even in items belonging to the L3 class. *EXTLAPSER, MSR >> MATCH CITATION_{L3}

	Base: Nom.sg. jármárok _{L3} , jarmark-	*EXTLAPSER	MSR	MATCH CITATION _{L3}
(a)	jármárok-ov-yj	*!*		
(b)	jármárok-òv-yj		*!	
☞ (c)	jármárok-óv-yj			*

7.2.10 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. In the plural, some stem syllable carries the accent. We attribute this to the fact that (d)-roots are underlyingly unstressed: 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.

Most class (d) nouns retract stress in the plural to the last stem syllable, as in (27). A few retract to the initial, but keep final stress in one plural form, the Genitive, (27b). Class (d) stems are further differentiated by epenthesis: many end in consonant clusters that require epenthesis in the zero-suffixed Genitive plural, (27c): /jadr/ → [jáder].

(27) Class (d) accentual alternations in inflection: selected case-number forms

a. Two stem allomorphs: <i>kovbas-á</i> 'sausage'			b. Three allomorphs: <i>syrot-á</i> 'orphan'		
Sg	Pl		Sg	Pl	
N	kovbas-á □□-●	kovbás-y □■-○	N	syrot-á □□-●	sýrot-y ■□-○
G	kovbas-ý □□-●	kovbás □■	G	syrot-ý □□-●	syrit □■

c. Stems with epenthesis: <i>jadr-ó</i> 'grain'		
Sg	Pl	
N, A	jadr-ó □-●	jádr-a ■-○
G	jadr-á □□-●	jáder ■□

Our analysis predicts that derivatives of *kovbasá* and *syrotá* type-nouns behave like those of class (b) *obruč*: that's because all three types have an unstressed stem allomorph, plus a final-stressed one. For derivatives of nouns like *jadr-ó*, predictions are more complex: before a suffixal consonant, stems like *jadr-* must undergo epenthesis to avoid sonority-dipping CrC, e.g. **jadr-nyj*. To satisfy MATCH STEM STRESS, the epenthetic stem should have initial stress, i.e. *jáder-n-yj*, as its base counterpart does. These predictions are partly borne out, as seen below. First, an overview of stress in class (d) derivatives:

(28) Derivatives from class *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 faithful adjectives in *-n-yj*, *-sjk-yj* from (d)-bases like *kovbas-á*, *syrot-á* use the stem of the Genitive plural, e.g. *kovbás*, *syrit*, and thus achieve penult stress: e.g. *kovbás-n-yj*, *syrit-sjk-yj*. These are parallel to class (c) items like *čudés-n-yj*, *molytón-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) items.

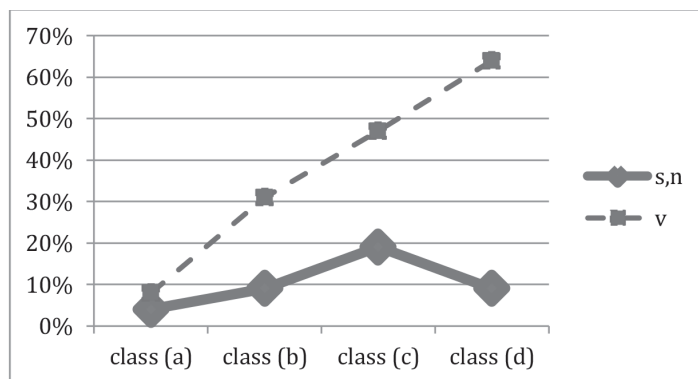
Epenthetic bases like *jadr-ó*, *jáder* yield both penult and antepenult-stressed derivatives: *jáder-n-yj* but also *jadér-n-yj*. The variation between these is parallel to the variation between faithful *káktus-ov-yj* and unmarked *kaktus-óv-yj* from class (a) bases. Penult stressed *jadér-n-yj* and similar forms²⁵ represent the small minority of class (d) derivatives that do not

belong to the ‘Faithful-to-Base’ class. Given the structure of stem allomorphs from class (d), the only source of penult stress in a not-‘Faithful-to-Base’ derivative is stress on such epenthetic vowels.

The high rate of final accented derivatives from class (d) is the only deviation 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 alternative forms like *stin-n-ýj* and *groz-ov-ýj* could have been both faithful and unmarked **stínnyj*, **grozóvyj*. The constraint MATCH CITATION_{L3} explored in (25) could be at work in favouring the final stress of *golov-n-ýj*, *stin-n-ýj*. There is variation: similar bases – e.g. *stin-á* ‘wall’ vs. *strún-á* ‘cord, string’ – have different derivatives, *stin-n-ýj* vs. *strún-n-yj*. This is expected: MATCH CITATION_{L3} is lexically indexed.

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 (29) final stress rates in *-ov-yj* vs. *-n-yj*, *-sjk-yj* forms across all accent classes: in each class, we calculate the percentage of *-ov-yj* and of *-n/sjk-yj* derivatives with final stress. We observe a steady increase in the relative frequency of final stress going from class (a) to the less productive classes (b), then (c), then (d). The increase affects mostly the *-ov-yj* forms. The comparison suggests that final stress is concentrated in the *-ov-yj* adjectives and, among these, that it resides mostly in the less productive classes, especially (d), the class with the smallest membership.

(29) Rates of final stress in *-n-yj* and *-sjk-yj* vs. *-ov-yj* forms across accent classes ‘s, n’ = forms suffixed with *-n-yj* and *-sjk-yj*; ‘v’ = forms suffixed with *-ov-yj*.



The trends in (29) 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.

7.2.11 Derivatives of *kóleso*-type nouns

A fifth accentual class 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 the plural has stress on a later syllable, still inside the stem (e.g. *kolés-a* ‘wheels’, *kolís*, *kolés-am*). The corpus contains nine derivatives from such nouns, eight of which satisfy MATCH STEM STRESS. The remaining one (*pered-ov-yj* ‘foremost’, from *péred*, *peréd-y* ‘front’) belongs to the final-stressed category, common among older *-ov-yj* forms. All but one faithful derivative of the *kóleso* class are stressed on the penult. This one deviation, a lawful one, is *postél-ev-yj* (30b): no other stress pattern in a faithful class (d) *ov-yj*-derivative could be both faithful and less marked.

(30) Faithful derivatives of *kóleso* nouns

a. Penult stressed

tsygán-sjk-yj ‘of a Gypsy’ (from *tsygan*, *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 our 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: markedness precludes that.

7.2.12 Matching segmental and prosodic properties in stem allomorphs

In some Ukrainian nouns, stems that differ accentually differ also segmentally. One example is *kóleso*, *kolís* (Gen. pl.). Another is ‘evening’, *věčir* (Nom.sg.) *večor-ý* (Nom.pl.), from class (c). A no-longer productive process changes *o* to *i* before the former jers appearing in some Nom. sg. and Gen. pl. forms: e.g. *večor-ь* → *věčir*, *kolés-ь* → *kolís* (cf. Zhovtobrijux *et al.* 1979: § 75 for a description of the change).

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 *-ov-yj* derivative of *věčir*. If optimally stressed on the penult, it could be *večir-óv-yj* or *večor-óv-yj*. MATCH STEM STRESS is satisfied either way. Its formulation in (4), and the revised Appendix formulation, demand only that each syllable, independently of others, find an identically stressed counterpart in some allomorph of the base. That matching process is represented in (31), 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-óv-yj* and *večor-óv-yj*, pass MATCH STEM STRESS in its present formulation: each syllable, in each stem, *večir-* or *večor-*, is marked by a + in this table.

(31) Matching syllables of the derivative’s stem in the base stem

	<i>večor-óv-yj</i>		<i>večir-óv-yj</i>	
	<i>ve -</i>	<i>čor</i>	<i>ve -</i>	<i>čir</i>
<i>věčir</i>		(+)		+
<i>věčor-a</i>		+		(+)
<i>večor-ý</i>	+	+	+	(+)

In fact however only *večor-óv-yj* is attested.²⁶ To constrain the selection, we consider a more restrictive matching system that requires the entire stem of the candidate to find *one* correspondent among the allomorphs of the inflected base stem. We replace MATCH STEM STRESS with two constraints, both undominated. One of them, call it MATCH STEM, requires each derivative’s stem to find a correspondent stem in one of the base forms. The other, IDENT MAINSTRESS BD (abbreviated IdMSTRESS) requires identity of main stress between each pair of correspondent syllables in each pair of correspondent stems. Further identity constraints, including MAX, DEP, IDENT F, promote segmental identity between correspondent stems. This system favours candidate derivatives whose stem corresponds, in the case in (31), to *věčir*, or to *věčor-*, or to *večor-*, but not to composites created, Frankenstein-style, from bits and pieces of each:²⁷ unattested *večir-óv-yj* is excluded because its stem is just such a composite. Below superscripts identify correspondent stem pairs.

(32) MATCH STEM + IDENT MAINSTRESS BD instead of MATCH STEM STRESS

	Base: <i>věčir</i> ¹ , <i>večor</i> ² -	MATCH STEM	IdMSTRESS	MARKEDNESS
(a)	<i>věčir</i> ¹ - <i>òv-yj</i>			*! (MSR)
(b)	<i>věčir</i> ¹ - <i>óv-yj</i>		*!	
(c)	<i>večor</i> ² - <i>óv-yj</i>			

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

The point thus far is that the combination MATCH STEM + IDENTMSTRESS succeeds in selecting the one attested candidate, *věčor-óv-yj*, while MATCH STEM STRESS (either (4) or the version in the Appendix) can't decide between *věčor-óv-yj* and *věčir-óv-yj*: both satisfy markedness and both pass MATCH STEM STRESS.

The more restrictive mechanism MATCH STEM + IDENTMSTRESS is representative of the entire Ukrainian system. Nouns comparable to *věčir* have *-ov-yj* derivatives parallel to *věčor-óv-yj*, not **věčir-óv-yj*. As predicted, the same kinds of bases opt for a stem-stressed allomorph like *věčir* before *-n-yj*, *-sjk-yj*. Bases generating both derivative types are in (33a), others in (33b-c). Indices are used as in (32); stems superscripted as ¹ appear in the Nom.sg.

(33) Distribution of stems in derivatives of *věčir*-type bases

	Base stems	Class	<i>-ov-yj</i> forms	<i>-n-yj</i> , <i>-sjk-yj</i>	Gloss
a.	<i>jávir</i> ¹ , <i>jávor</i> ²⁻ , <i>javor</i> ³⁻	(c)	<i>javor</i> ³⁻ <i>-óv-yj</i>	<i>jávir</i> ¹ <i>-sjk-yj</i>	'maple sp.'
	<i>kóilir</i> ¹ , <i>kólor</i> ²⁻ , <i>kolor</i> ³⁻	(c)	<i>kolor</i> ³⁻ <i>-óv-yj</i>	<i>kóilir</i> ¹ <i>-n-yj</i>	'colour'
	<i>tábir</i> ¹ , <i>tábor</i> ²⁻ , <i>tabor</i> ³⁻	(c)	<i>tabor</i> ³⁻ <i>-óv-yj</i>	<i>tábir</i> ¹ <i>-n-yj</i>	'camp'
	<i>bolót</i> ¹⁻ , <i>bolot</i> ²⁻ , <i>bolít</i> ³	(c)	<i>bolot</i> ²⁻ <i>-óv-yj</i>	<i>bolót</i> ¹ <i>-n-yj</i>	'swamp, bog'
b.	<i>óvid</i> ¹ , <i>óvod</i> ²⁻ , <i>ovod</i> ³⁻	(c)	<i>ovod</i> ³⁻ <i>-óv-yj</i>		'cleg'
	<i>óbid</i> ¹ , <i>óbod</i> ²⁻ , <i>obod</i> ³⁻	(c)	<i>obod</i> ³⁻ <i>-óv-yj</i>		'rim'
	<i>txír</i> ¹ , <i>txor</i> ²⁻	(b)	<i>txor</i> ²⁻ <i>-év-yj</i>		'ferret'
	<i>čol</i> ¹⁻ , <i>čól</i> ²⁻ , <i>čil</i> ³	(d)	<i>čol</i> ¹⁻ <i>-óv-yj</i>		'forehead'
c.	<i>lemíš</i> ¹ , <i>lemeš</i> ²⁻	(b)		<i>lemíš</i> ¹ <i>-n-yj</i>	'ploughshare'
	<i>jákir</i> ¹ , <i>jákor</i> ²⁻ , <i>jakor</i> ³⁻	(c)		<i>jákir</i> ¹ <i>-n-yj</i>	'anchor'
	<i>syrot</i> ¹⁻ , <i>sýrot</i> ²⁻ , <i>syrít</i> ³⁻	(d)		<i>syrít</i> ³⁻ <i>-sjk-yj</i>	'orphan'

This table illustrates the following. When a final CiC syllable appears only in a stressed allomorph of the base (as with *jávir*, *lemíš*, *syrít*), the CiC syllable appears only in derivatives whose stem is stressed (e.g. *jávirsjkyj*, *lemíšnyj*, *syrítsjkyj*). Conversely, when the stem of the derivative must be stressless, the CiC syllable belonging to the stressed stem allomorph is absent: e.g. *javoróvyj*, *txorévyj*, *čolóvyj*, not **javiróvyj*, **txirévyj*, **čilóvyj*. This is exactly as predicted by the new mode of evaluation in (32).

The same table reveals a new detail. Under the analysis on (32), some derivatives retain a choice between CVCiC and CVCoC if the two allomorphs have identical accentual properties. Thus (32) allows both *jávir*¹*-sjk-yj* and hypothetical **jávor*²⁻*-sjk-yj*, both *bolót*¹*-nyj* and hypothetical **bolít*³⁻*-nyj*. In fact, when the CVCiC stem is the Nom. sg. only derivatives using the

CVCiC stem are found: e.g. *jávir¹-sjk-yj*, *kólr¹-n-yj*, *tábir¹-n-yj*, *lemiš¹-n-yj*, *jákir¹-n-yj*. On the other hand, forms like *bolót¹-nyj* show that when this jer-induced [i] appears at the end of the Gen.pl. (*bolít*), and markedness is equally satisfied by using the Nom.sg. stem (*bolót-o*), the [i] is being kept out of the derivative. Finally, items like *syrít³-sjk-yj* reconfirm a point made earlier: the Gen.pl. stem (*syrít*) can be used if it alone satisfies accentual markedness.

What we observe here is a *general MATCH CITATION* effect: the lexically unindexed *MATCH CITATION* constraint breaks a tie between otherwise equivalent candidates. The general *MATCH CITATION* constraint must be lower ranked than markedness, to avoid *LAPSER or MSR violating forms like **jávir-ov-yj*, **jávir-òv-yj*.

(34) *MATCH CITATION* can break a tie, but can only to do that.

	Base: jávir ¹ , jávor ² -, javor ³ -	MARKEDNESS		MATCH CITATION
(a)	jávör ³ -sjk-ýj	*!(NFIN)		
☞ (b)	jávir ¹ -sjk-yj		* (*LAPSER)	
(c)	jávör ² -sjk-yj		* (*LAPSER)	*!

	Base: jávir ¹ , jávor ² -, javor ³ -	MARKEDNESS	MATCH CITATION
(a)	jávir ¹ -òv-yj	*!(MSR)	
☞ (b)	jávör ³ -òv-yj		*

Several items deviate from the pattern in (33), but do so in a systematic way: all are unfaithful derivatives whose stems are segmentally identical to a citation form but which mismatch its stress.

(35) Accentually unfaithful derivatives whose stem is segmentally identical to the Nom.sg.

Base stems	Class	-n-yj, -sjk-yj forms	Gloss
próstir ¹ , próstor ² -, prostor ³ -	(c)	prostír ¹ -n-yj	‘space’
storon ¹ -, stóron ² -, storín ³	(d)	storón ¹ -n-ij	‘side’

These are further instances of lexically indexed *MARKEDNESS* outranking faithfulness, an option formalized earlier as *MARKEDNESS_L >> MATCH STEM STRESS*. In the analysis below, we follow the decision to substitute *MATCH STEM* for the earlier *MATCH STEM STRESS*: *MATCH STEM* is kept undominated and lexically indexed *Markedness* (here *LAPSER_{L,2}) is allowed to outrank only *IDENT STRESS BD*. Among the resulting unfaithfully stressed stems, *MATCH CITATION* again chooses the citation form, this time in accentually modified form.

(36) MATCH CITATION breaks a tie among unfaithfully stressed options

	Base: próstir ¹ , próstor ² -, prostor ³ (L2)	*LAPSER _{L2}	IDMSTRESS BD	MATCH CITATION
(a)	próstir ¹ -n-yj	*!		
☞ (b)	prostír ¹ -n-yj		*	
(c)	prostór ² -n-yj, prostór ³ -n-yj		*	*!

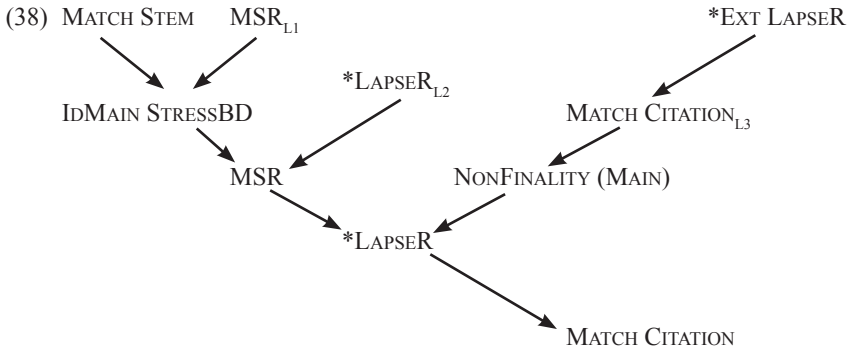
Forms like *targán-ov-yj* (from class (b) *targán*) and *golov-n-ýj* (from class (d) *golov-á*) had earlier suggested that lexically indexed MATCH CITATION_{L3} outranks at least some accentual markedness constraints. This too is expressible in the revised analysis:

(37) MATCH CITATION_{L3} >> MARKEDNESS

	Base: golov ¹ -, gólov ² -, golív ³ (L3)	IDMSTRESS BD	MATCH CITATION _{L3}	MARKEDNESS
☞ (a)	golov ¹ -n-ýj			*(NONFINAL)
(b)	golív ³ -n-yj	*!	*!	
(c)	golóv ¹ -n-ýj	*!		

	Base: targán ¹ , targan ² - (L3)	IDMSTRESS BD	MATCH Citation _{L3}	Markedness
☞ (a)	targán ¹ -ov-yj			*(LAPSER)
(b)	targan ² -óv-yj		*!	

The partial rankings established above are integrated below into a single hierarchy.



Ranking arguments summarized:

MATCHSTEM, MSR _{L1} >> IdMAINSTRESS BD	<i>fòsfor-òv-yj</i> > * <i>fòsfor-òv-yj</i> (L ₁)
MATCHSTEM, IdMAINSTRESS BD >> MSR	<i>gùmus-òv-yj</i> > * <i>gùmus-òv-yj</i> (-L ₁)
MATCHSTEM, *LAPSER _{L2} >> IdMAINSTRESS BD	<i>mètal-év-yj</i> > * <i>mètal-év-yj</i> (L ₂)
*EXTLAPSER >> MATCHCITATION _{L3}	<i>jàrmark-òv-yj</i> > * <i>jàrmark-ov-yj</i> (if the base is in L ₃)
MATCHCITATION _{L3} >> NONFINALITY(MAIN)	<i>golov-n-ýj</i> > * <i>golóv-n-yj</i> (L ₃ , cit. <i>golov-á</i>)
MATCHCITATION _{L3} >> *LAPSER	<i>targán-ov-yj</i> > * <i>targan-òv-yj</i> (L ₃ , cit. <i>targán</i>)
NONFINALITY(MAIN) >> *LAPSER	<i>profèsor-sjk-yj</i> > * <i>profesor-sjk-ýj</i>
*LAPSER >> MATCHCITATION	<i>obruč-òv-yj</i> > * <i>obruč-ov-yj</i>
MSR >> MATCHCITATION	<i>tènor-òv-yj</i> > * <i>tènor-òv-yj</i>

Having earlier acknowledged variation, we should also highlight the existence of a predicted invariant aspect in the accent of Ukrainian derivatives. There are only two circumstances under which pre-penultimate main stress occurs in these derivatives: (a) when the base offers no stem whose use can license a penult stress (*gùmusòvyj*, *profèsorsjkyj*, *postèlevyj*) and (b) when the derivative's stem is evaluated by MATCHCITATION_{L3} (*targánovyj*). Among the 1091 forms of the database, there are 430 pre-penultimate stressed derivatives and all but two fit this description.²⁸ Our analysis predicts exactly this.

We close this section with a summary of how our analysis derives each position where main stress is attested in the Ukrainian recessive derivatives.

(39) Main stress positions of Ukrainian derivatives and their grammatical sources

Final stress:

- Lexically listed
- Ranking: IDENTSTRESS BD, MATCH CITATION_{L3} >> MARKEDNESS (NONFINALITY(MAIN))
 - *-n-yj*, *sjk-yj* forms like *golov-n-ýj*, whose base citation form is ending-stressed.

Penult stress:

- Ranking: IDENTSTRESS BD >> MARKEDNESS
 - *-n-yj*, *sjk-yj* forms like *obruč-n-yj*, whose bases have a final-stressed allomorph;
 - *-ov-yj* forms like *obruč-òv-yj* whose bases have a stressless stem allomorph
- Ranking: MSR_{L1} or LAPSER_{L2} >> IDENT STRESS BD (any base+suffix combination)
 - *-ov-yj* forms like *fòsfor-òv-yj*
 - *-n-yj*, *sjk-yj* forms like *jadér-n-yj*

Pre-penult stress:

- Ranking: IDMSTRESS BD >> MARKEDNESS (*LAPSER or MSR)
 - *-n-yj, sjk-yj* forms like *profésor-sjk-yj*, whose base lacks a final-stressed allomorph
 - *-ov-yj* e.g. *gúmus-òv-yj, làbradór-ov-yj*, whose bases lack a stressless allomorph.
- Ranking: IDMSTRESS BD, NONFINALITY(MAIN) >> *LAPSER
 - *-n-yj, sjk-yj* forms like *profésor-sjk-yj, jávir-sjk-yj*
- Ranking: IDMSTRESS BD, MATCH CITATION_{N₃} >> MARKEDNESS (*LAPSER)
 - *-ov-yj* forms like *targán-ov-yj*, whose base citation stem is final-stressed

7.2.12 Summary: Evidence for MATCH STEM STRESS in Ukrainian adjectives

Recall the expectations derived in section 7.1.4 from current theories of what may count as a base. Consider first the idea that each derivative type has exactly one base. Had the stress of adjectival derivatives been derived by reference to just one form – the underlying form or some surface form, such as the base citation form – the stress system of Ukrainian derivatives would be quite different. If the base was the citation form, no noun with a *stressed* citation stem, e.g. *obruč*, could generate a 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 faithful stressed-stem derivative like *obruč-n-yj*. Both types are in fact used in adjectival derivatives. We conclude that accentual faithfulness is not evaluated relative to a unique reference term.

Having shown that a unique-base model is inadequate for this system, we now review the argument that Faithfulness plays *some* role in it. Suppose that the Ukrainian derivatives' stress was entirely free to deviate from their bases: then penult-stressed pairs like *obruč-év-yj, obrúč-n-yj* would be predicted, but it would be hard to explain the basic difference between class (a) derivatives and those from other classes. This difference is that class (a) derivatives are, as a rule, pre-penult stressed (*gúmus-ov-yj, labradór-ov-yj*), while most other derivatives are penult stressed. MATCH STEM explains this fact 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 (class (a) *gúmus*) 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 (*obruč, obrúč-*) can have two distinct types of unmarked and faithful derivatives.

7.3 Russian evidence for Match Stem Stress

We analyse next an inflection dependence effect involving MATCH STEM in the derivational morphology of Russian. 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. These were 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 BD. In this section, we discuss three recessive suffixes whose stress behavior is expected if these constraints are undominated. The Russian suffixes we consider have distinct accentual preferences reflecting, we argue, their underlying accentual status: one is stressed, the others are stressless.

- (40) Russian recessive suffixes:
- a. Stressed: *-išš-* (denominal, forming augmentative nouns)
okn-išš-e ‘huge window’ <= *okn-ó* ‘window’
 - b. Stressless: *-ov-* (denominal, forming possessive adjectives):
vín-ov ‘of wine’ <= *vín-ó*, Nom.pl *vín-a* ‘wine’
 - 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.

7.3.1 *-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 (41b-f). Below, we amplify her evidence. When no such allomorph is generated in the inflection of the base, the suffix surfaces stressless, (41a). The stressless stem allomorph that *-išš-* prefers is underlined below. It may come from any case/number combination: in type (b) masculines, a stressless stem is found in any form other than the Nom.sg., (41b); in type (c), it is the plural forms that offer it, (41c); in type (d), it is the singular that has stressless stems, (41d); bases of types (e), (f) behave like (c), (b), except that the Nom. Pl. stem is stressed and thus unusable with *-išš-*.

- (41) Russian derivatives with *-išš-* from bases of major accentual paradigms
- a. type *a* noun → no stress on *-išš-* (35 examples in Zaliznjak 1977)
Base: NomSg. *jám-a*, GenSg. *jám-y* 'pothole'
 =>Derivative: *jám-išš-a*, **jam-išš-a*
 - b. type *b* noun → stressed *-išš-* (25 examples in Zaliznjak 1977)
Base: NomSg. *xvóst*, GenSg. *xvost-á* 'tail'
 =>Derivative: *xvost-išš-e*, **xvost-išš-e*
 - c. type *c* noun → stressed *-išš-* (11 examples in Zaliznjak 1977)
Base: NomSg. *dóm*, GenSg. *dóm-a*, NomPl *dom-á*, GenPl. *dom-óv* 'house'
 =>Derivative: *dom-išš-e*, **dóm-išš-e*
 - d. type *d* noun → stressed *-išš-* (11 examples in Zaliznjak 1977)
Base: NomSg *ókň-ó*, GenSg *ókň-á*, NomPl *ókň-a*, GenPl *ókň* 'window'
 =>Derivative: *ókň-išš-e*, **ókň-išš-e*
 - e. type *e* noun → stressed *-išš-* (8 examples in Zaliznjak 1977)
Base: NomSg *vólk*, GenSg *vólk-a*, NomPl *vólk-i*, GenPl *vólk-óv* 'wolf'
 =>Derivative: *volč-išš-e*, **vólc-išš-e*
 - f. type *f* noun → stressed *-išš-* (7 examples in Zaliznjak 1977)
Base: NomSg *pléč-ó*, GenSg *pléč-á* NomPl *pléč-i*, GenPl *pléč-ěj* 'shoulder'
 =>Derivative: *pléč-išš-e*, **pléč-išš-e*

In sum, whenever the base provides a stressless stem allomorph – everywhere except in class (a) – the suffix *-išš-* preserves its stress. We analyse this by ranking IDENT STRESS_{iss}, a lexically indexed IO faithfulness constraint, above root-faithfulness, IDENT STRESS ROOT IO. In turn, IDENT STRESS_{iss} is outranked by MATCH STEM and IDENT STRESS BD: we abbreviate the pair as MATCH + IDSTRESS. The ranking MATCH STEM + IDSTRESS >> IDENT STRESS_{affix} prevents the suffixal properties from being preserved at the expense of stem faithfulness. This ranking is a hallmark of recessive affixes in modern Russian.

(42) Analysis of *-išš-* derivatives.

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

	Base: škól- Suffix: -išš	MATCH+IDSTRESS	IDENT STRESS _{iss} IO	IDSTRESS ROOT IO
☞ (a)	škól-išš-e		*	
(b)	škol-išš-e	*!		*

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

	Base: dóm ¹ -, dom ² - Suffix: -išš	MATCH+IDSTRESS	IDENT STRESS _{iss} IO	IDSTRESS ROOT IO
(a)	dóm ¹ -išš -e		*!	
☞ (b)	dom ² -išš-e			*

This analysis is confirmed by the *-išš-* derivatives of two less common accentual types. The first of these is the Russian counterpart of the Ukrainian *kóleso* type, a set of nouns where stress shifts stem-internally in the plural: e.g. Russian *ózer-o* ‘lake’, pl. *ozjór-a*. Accordingly, 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.

(43) Russian *-išš-* derivatives from *ózer-o*-nouns

Base: NomSg *ózer-o*, GenSg *ózer-a*, NomPl *ozjór-a* ‘lake’
=>Derivative: *ózer-išš-e*, **ózer-išš-e*²⁹

A last class of *-išš-* derivatives is based on class (a) nouns that have an exceptionally stressed Locative singular ending. These class (a) nouns thus possess a stressless stem allomorph in their inflectional paradigm, e.g. *grjaz-í* ‘dirt-2nd Loc.sg’. The *-išš-* derivatives based on this type are

listed by Zaliznjak (1977) as having suffixal stress, unlike all other type (a) derivatives.

- (44) 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-išš-a*, **grjázj-išš-a*

Our analysis explains all but two of the 104 augmentative *-išš-* derivatives in Zaliznjak (1977). These exceptions – *skuč-išš-a* ‘great boredom’ and *von-išš-a* ‘great stink’ – are based on class (a) nouns: they are unexpected in that the base nouns lack a stressless stem allomorph.³⁰

Additional relevant data is presented by Melvold (1989: chapter 1) in her discussion of derivatives labelled as [-dominant] and either [+accented], like *-išš-* or [-accented], like *-nyk-*. A preliminary check of Melvold’s evidence suggests that it is consistent with our analysis: all [-dominant] affixes are lexically conservative, like *-išš-*.

7.3.2 Unstressed possessive *-ov-*

The suffix *-ov-* forms possessive adjectives and family names. Data on its accentual behaviour 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. We infer from this that the suffix is underlyingly unstressed.³¹ 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.³²

- (45) Russian derivatives with the possessive *-ov-*:

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

Base *arbúz* ‘watermelon’

=> Derivative *arbúz-ov*

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

Base: *most*, GenSg *most-á* ‘bridge’

=> Derivative *most-óv*

Base: *starik*, GenSg *starik-á* ‘old man’

=> Derivative *starik-óv*

- c. 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*

- d. type (d) base (ending stress in the Sg, stem stress in the Pl):
Base: *vin-ó*, GenSg *vin-á*, NomPl *vin-a*, DatPl *vin-ami* ‘wine’
 => Derivative *vin-ov*
- e. 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*
- f. type (f) base (ending stress everywhere except NomPl, stem stress in NomPl):
Base: *ruk-á*, GenSg *ruk-i*, 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*

(46) 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 (45). The *ov-*derivatives of class (b) nouns pose a problem, and this is addressed below.

(47) Analyses of *-ov-* derivatives from nouns of types (a) and (c-f).

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

	Base: <i>gólos¹⁻</i> , <i>golos²⁻</i> Suffix: <i>-ov</i>	MATCH+IDSTRESS	IDENT STRESS _{ov}
☞ (a)	<i>gólos^{1-ov}</i>		
(b)	<i>golos^{2-óv}</i>		*!

- b. The base is type (f) noun:

	Base: <i>ruk¹⁻</i> , <i>rúk²⁻</i> Suffix: <i>-ov</i>	MATCH+IDSTRESS	IDENT STRESS _{ov}
☞ (a)	<i>rúk^{2-ov}</i>		
(b)	<i>ruk^{1-óv}</i>		*!

(48) lays out the difficulty posed by the type (b) derivatives. Most of these should behave like those of types (a, c-f) – since most type (b) bases possess a stressed allomorph – but they don’t.

(48) 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, prior to *jer*-deletion, stress on the desinential *jer*: at that stage *móst* is *most-ǔ́*. 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 behaviour of type (b) *ov*-derivatives is exactly what our analysis predicts, *if intermediate representations like most-ǔ́ are the only ones being accessed by the faithfulness constraints*. 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. In classes (a) and (c–f) there exists a stressed stem allomorph both before and after the fall of *jers*, in class (b), before *jers* fall, there is no stressed stem: this is why *-ov* is forced to take on stress when attached to class (b). However the assumption that faithfulness evaluates intermediate representations is problematic in the context of any 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-n-yj* and *syrít-sjk-yj*. Why should Ukrainian differ in this way from Russian? Thus, while appeal to the stressed *jer* in intermediate *most-ǔ́* sheds light on why the class (b) derivatives are being singled out by Russian *-ov*, it seems unlikely that the actual mechanism consults a stressed *jer*.

A possibility whose verification 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 class (c) Nominative sg. like *gláz*, where stress is on the stem independently of the fate of *jers*. Specifically, we speculate that the realization of *móst* is distinct from that of other stressed syllables of Russian, perhaps because

stress is *transferred* to the stem from the lost *jer*. (A phonetic distinction between an original stressed syllable and a syllable onto which stress retracts is also documented in Latvian: cf. Endzelin 1922, and Derksen 1991: 52.) 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 are consistent with all aspects of our analysis of East Slavic.

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

7.3.3 Unstressable *-ostj-*

The suffix *-ostj-* creates deadjectival nouns denoting qualities. Its accentual behaviour 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. Derivatives where *-ostj-* would have to be stressed are missing from the language.³³

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.

(49) *-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 (50a–b), the *-ostj-* derivative selects a stressed allomorph. When the base has only stressless allomorphs, (51), no *-ostj-* derivative is formed.

(50) *-ostj-* derivatives of adjectives with multiple stem allomorphs

a. derivatives of mobile-stress Adjectives with one stem-stressed form:

Base: *molod-ój*, PredNeut *mólod-o* 'young'

=> Derivative: *mólod-ostj* 'youth'

Base: *udal-ój*, PredNeut *udál-o*, 'able'

=> Derivative: *udál-ostj* 'high ability'

b. derivatives of mobile-stress Adjectives with two stem-stressed forms:

Base: *xolódn-yj*, PredNeut *xólodn-o*, PredFem *xolodn-á* 'cold'

=> Derivative: *xólodn-ostj* 'coldness (towards a person)', also ?*xolódn-ostj*

Base: *zeljón-yj*, PredNeut *zélen-o*, PredFem *zelen-á* ‘green’

=> Derivative: *zeljón-ostj* ‘greenness’, also ?*zélen-ostj*

Base: *vesjól-yj*, PredNeut *vésel-o*, PredFem *vesel-á* ‘cheerful’

=> Derivative: *vesjól-ostj* ‘cheerfulness’, no alternative **vésel-ostj*.

(51) *-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.

With more than one stressed stem allomorph, as in (50), at least some adjectives 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 *vesjól-ostj* ‘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_{OSTJ} >> IDENT STRESS ROOT IO, parallel to those used for *-išš-* and *-ov-*, is helpful here too.

(52) Analyses of *-ostj-* stress:

a. Bases with one stressed stem allomorph yield one *-ostj* form:

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

b. Bases with two stressed stem allomorphs yield two *-ostj* variants:

	Base: <i>xolodn</i> ¹ -, <i>xólodn</i> ² -, <i>xolódn</i> ³ -	MATCH+IDSTRESS	IDENT STRESS _{OSTJ}
☞ (a)	<i>xólodn</i> ² - <i>ostj</i>		
☞ (b)	<i>xolódn</i> ³ - <i>ostj</i>		
(c)	<i>xolodn</i> ¹ - <i>óstj</i>		*!

The *-ostj-* derivatives differ from *-išš-* and *-ov-* forms when the base adjective does not provide any stressed stem allomorph, (51). 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 its case.³⁴

The form of this stricter requirement is not immediately relevant here, but we offer, for illustrative purposes, a ranking of the constraint M-PARSE (Prince and Smolensky 1993)³⁵ 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 + IDENT STRESS or IDENT STRESS_{OSTJ}.

(53) Analyses of *-ostj*- stress: Bases without a stressed stem allomorph yield paradigm gaps

	Base: <i>golub</i> - Suffix: <i>-ostj</i>	MATCH+IDSTRESS	IDENT STRESS _{OSTJ}	M-PARSE
(a)	<i>gólub-ostj</i>	*!		
(b)	<i>golúb-ostj</i>	*!		
(c)	<i>golub-óstj</i>		*!	
☞ (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 impossible **golub-ostj* (with any stress) and parallel forms like *cvétn-ostj* suggests an extension to the set of forms accessed by MATCH STEM. The adjectives *golub-ój* ‘blue’ and *cvétn-ój* ‘coloured’ 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) nouns. But both adjectives lack that form. For *golub-ój*, other short forms do exist, e.g. the feminine singular *golub-á*, but any version of the short masculine – **gólub*, **golúb* – is impossible. For *cvétn-ój* no short form – **cvétn-a*, **cvétn-o*, **cvétn* – is attested at all (Zaliznjak 1977). *Cvetn-ój*, however, differs from *golub-ój* in possessing 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 the *-ostj*- derivative *cvétn-ostj* – and a number of other forms – 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 thus akin to the use of stem allomorphs from co-derivatives we recorded in Ukrainian as ‘Faithful-Related’.³⁶

(54) Using the base's base to form an *-ostj-* derivative:

- a. Base₁: *cvét*, GenSg *cvét-a*, NomPl *cvet-á*, GenPl *cvet-óv* 'color'
 => Base₂ *cvet-n-ój* (no predicative forms) 'colored'
 => Derivative *cvét-n-ostj* 'property of being colored'
- b. Base₁: *krúžev-o*, GenSg *krúžev-a* NomPl *kružev-á*, GenPl *kružev-óv* 'lace'
 => Base₂ *kružev-n-ój* no predicative forms 'lacy'
 => Derivative *krúžev-n-ostj* 'property of being lacy'

(55) Analysis of *-ostj-* stress: A base's base is accessed to provide a stressed stem allomorph

	Base ₁ : <i>cvét-</i> Base ₂ : <i>cvet-</i>	MATCH +IDSTRESS	IDENT STRESS _{OSTJ}	M-PARSE
☞ (a)	<i>cvét-n-ostj</i>	(Base ₁)		
(b)	<i>cvet-n-óstj</i>	(Base ₂)	*!	
(c)	⊙			*!

7.3.4 Summary: Russian recessive suffixes provide evidence for MATCH STEM

The Russian recessive derivatives illustrate the interaction between faithfulness to the accentual properties of the suffix and the higher-ranked stem faithfulness conditions MATCH STEM, IDENT STRESS BD. These Russian recessive derivatives preserve the underlyingly [\pm stress] status of their outer suffix, but only if this is compatible with using an allomorph of the base that is independently available in its inflectional paradigm. Russian recessive derivatives are lexically conservative too.

The accentual class of the base does not directly 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/family-name 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 of the mapping to the surface form 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 analysed 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, overriding all accentual properties of the base lexeme. This allows the language to avoid introducing complexity into the derivation, by collapsing all bases into one class. Second, for derivatives using 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.

7.4 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: $k \rightarrow \text{tʃ}$, $g \rightarrow \text{dʒ}$ 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 tʃ or dʒ (56a). Any velar final noun lacking such an ending lacks the palatalized stem allomorph (56b).

- (56) Velar palatalization in Romanian inflected nouns (Steriade 2007)
- Palatalization applies before front vowels
kolák, pl. *koláf-i* ‘bagel’ *stíng-ə*, pl. *stíndǵ-i* ‘left side’
 - No palatalization before back vowels
fok, pl. *fók-uri* ‘fire’, *lok*, pl. *lók-uri* ‘place’ *tírg*, pl. *tírg-uri* ‘market’

Derivational suffixes are potential triggers of velar palatalization. But the version of this process triggered in derivation applies only if there is a palatalized stem allomorph in the inflectional paradigm of the base. This restriction takes two forms. In one case, the same derivational suffix triggers the process in forms whose bases undergo palatalization in inflection (57a), and is blocked in other bases (57b):

- (57) Velar palatalization in Romanian derivatives
- Palatalization applies in derivation:
Base: *stíng-ə*, pl. *stíndǵ-i* ‘left’ => Derivative: *stíndǵ-íst*, **stíng-íst* ‘leftist’
 - Palatalization is blocked in derivation
Base: *fok*, pl. *fók-uri* ‘fire’ => Derivative: *fok-íst*, **fof-íst* ‘locomotive engineer’

Second, 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 (58a); velar-final bases that have not undergone palatalization in inflection, for lack of a trigger ending, avoid the palatalizing derivational suffixes (58b).

- (58) Base allomorphs dictate the choice among derivational suffixes: *-i* vs *-ui*
- Palatalization has applied in inflection and can apply in derivation:
Base: *kolák*, pl. *koláf-i* ‘bagel’
=> Derivative: *íŋ-koláf-i* ‘to roll up’
 - Palatalization could not apply in inflection, and is blocked in derivation
Base: *lok*, pl. *lók-uri* ‘place’
=> Derivative: *in-lok-úi*, **in-lok-i*, **in-lof-i* ‘to replace’

Selecting the suffix *-ui* over *-i* is a means to satisfy both markedness (the trigger of palatalization, *KI below, violated in **in-lok-i*) and faithfulness to the pool of allomorphs found in the inflectional paradigm (violated in **in-lof-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 to be used in the derivative. (59) is a simplified illustration. To highlight 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, *stindz-íst*, **stijg-íst*.

(59) MATCH STEM effects in Romanian derivatives:

b.i.1.a a base with palatalization in inflection: *stindz-íst*.

	Base: stɨŋg-, stɨndz-	Suffix: -íst	MATCH STEM	*KI
☞ (a)	stindz-íst			
(b)	stijg -íst			*!

b.i.1.b a base without palatalization in inflection: *fok-íst*

	Base: fok-	Suffix: -íst	MATCH STEM	*KI
☞ (a)	fok-íst			*
(b)	foɣf-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 *obruč-nyj*) is much more likely to happen in derivatives whose bases, like *obruč*, have acquired the appropriate 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, regardless of the morphological features expressed by the form it surfaces in, will do as long as it improves markedness.

7.5 Models of correspondence

OT models the phonological influences between pairs of morphologically related forms through constraints on Base-Derivative Correspondence (Benua 1997), and Input-Output Correspondence in Stratal OT (Kiparsky 2000; Bermúdez-Otero 2011). In the domain of inflectional paradigms, Uniform Exponence (Kenstowicz 1996) and Optimal Paradigms (McCarthy 2005) constraints are employed. All the works just cited take a restricted view of the conditions under which related forms may correspond. 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 favour extending the range of correspondent pairs, a point anticipated by Burzio (1998) and Steriade (1999a,b). 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. 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 inherited 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-išš-e* 'house-Augm.' takes its accent from the plural of *dóm* (Nom.pl. *dom-á*, Gen.pl. *dom-óv*) but does not contain a plural ending. Nor does the Ukrainian class (c) derivative *tenor-óv-yj* contain any of the plural endings justifying its stressless stem *tenor-*. Ukrainian *syrít-sjk-yj* 'of an orphan' may be said to contain the Genitive plural *syrít* of *syrót-á* 'orphan', but surely not in a syntactic sense. If a syntactic reason existed for Genitive plurals inside *-sjk-yj* adjectives, *all* such derivatives would contain Genitive plurals, independent 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 containment condition is abandoned, as it seems it must be, then multiple bases may in principle 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 *obruč-n-yj* and *obruč-év-yj* 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, again regardless of the morphosyntactic features expressed in the relevant case-number form. Which one is chosen depends solely on the phonological markedness of the result.

To analyse 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 pair like {B *dom-á*, D *dom-íšš-e*}, whether the former is contained or not 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, with non-specific *some*, contain a stem that accentually matches the derivative stem.

While MATCH STEM itself favours no stem, a preference exists in Ukrainian for using in derivatives the stem of the Nominative singular, the form used in East Slavic and elsewhere as the citation form of the noun. Recall the derivatives of class (c) nouns like *jávir*. MATCH STEM is equally satisfied by *jávir-sjk-yj* and **jávör-sjk-yj*, but only the form using the citation stem is a productive option. The constraint MATCH CITATION expresses this.

Because it is a weak preference, MATCH CITATION plays a minor role in our analysis of East Slavic. But it is a significant component of the analysis because it helps place the data analysed here 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 analyse standard ‘one-base’ cyclic phenomena, like the relation between *original* and *originálicity* or that between Palestinian Arabic *fhim* and *fhim-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 favours a *particular base* over others that are in principle available.³⁷

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 Tamarit (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.

We conclude by summarizing the main result. 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 analysed 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.

Notes

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1. Recent developments in Slavic historical accentology suggest that the Proto-Slavic inflectional accent was more complex. See Shrager (2007, Ch. 1) for a recent overview.
 2. In (2) we write both reconstructed acute and circumflex accents with the acute mark ‘´’.
 3. See Kiparsky (2009) for recent discussion.
 4. In **mǫž-bšk-á*, accent is on the ending because the ending itself is underlyingly stressed, while the derivational suffix *-bšk-* is underlyingly stressless. In **vorž-bj-b’*, the suffix *-bj-* is underlyingly stressed but, because it has a short vowel, stress is realized on the following syllable, according to the regular post-accentuation pattern.
 5. 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.
 6. The alternation between *-ev-yj* and *-ov-yj* is controlled by the palatality of the preceding consonant.
 7. Modern Ukrainian type (c) nouns must be analysed as having underlyingly stressed stems. See section 7.2.8.
 8. 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.
 9. 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.

10. By ‘inherited’, we mean inherited from the Ukrainian of the eighteenth–nineteenth centuries at the earliest, not inherited from Proto-Slavic. The accentuation of East Slavic adjectives underwent a period of high instability in the sixteenth–seventeenth centuries, see Zaliznjak (1989) among others, so one cannot assume without argument continuity between modern accentuation and the earlier stages.
11. 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-ov-ýj*, could vary with base-faithful, antepenult stressed *budják-ov-yj*. Such variation is indeed found among the other derived adjectives and its infrequent status for *-ov-yj* 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. A further remark on the subject of final accented derivatives is that these either do not come from recent loanwords or they have close counterparts in Russian suggesting that they could be borrowed fully formed from Russian: e.g. *grup-ov-ýj* ‘of a group’ *stilj-ov-ýj* ‘of a style’.
12. Stress shifts from the penult to the final have also happened in the very recent history of Ukrainian. For example, Vynnyckyj (2002) discusses *pux-ov-ýj* ‘down (Adj)’, where in the late nineteenth century the penult-stress form *pux-óv-yj* was common (Vynnyckyj 2002: 309), or *vognj-an-ýj* ‘fire (Adj)’, with *vognj-án-yj* dominant in the first half of the nineteenth century, but then becoming marginal (2002: 301). The factors generating these shifts remain unclear to us. A related fact are loanwords that occasionally yield final stressed derivatives: e.g. *šljuz-ov-ýj* ‘of a (water) lock’ from *šljúz* ‘(water) lock’, from Dutch *sluis*, German *Schleusse*, or Polish *śluza*.
13. Other instances of paradigms levelled in favour of the citation form (Nom.sg.) of one of the genders in multiple-gender paradigms are documented by Kraska-Szlenk (1995), Booij (1986), Kenstowicz (2005).
14. A case of this sort is found in English (Steriade 1999a); a related Russian case is documented in section 7.3.
15. As before, by ‘earlier stages’ we mean the 18th–19th centuries at the earliest.
16. Velars regularly palatalize (k → č) before *-nyj*.
17. 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*, *parč-á*; the neuters *tepl-ó*, *pysjm-ó*- and the pluralia tantum nouns *xarč-í*, *svjatk-ý*, *parf-í*.
18. This exceptional word is *mišúr-n-yj*, from *singulare tantum mišur-á* ‘tinsel, trumpery’.
19. 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*.
20. Another possibility is to appeal to a fact that singles out just class (b). Historically, and perhaps underlyingly, class (b) zero-suffixed forms like *garbúz* end in a stressed jer. If the derivation *garbuz-ǔ* => *garbúz* is justified, then nouns like *garbúz*, 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 7.3 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 favour of the explanation given in the text.
 21. The one apparent exception to this generalization that we're aware of, *nebiž* 'nephew', has a common initial-stressed variant *nébiž*. Some dictionaries list the latter only.
 22. See Kenstowicz (2005) for a survey of paradigm-internal contrast effects.
 23. An example of the 'Faithful-Related' category is *lymár-n-yj* 'of a saddler', based on *lýmar*, *lymar-i* 'saddler', and related to *lymár-nj-a* 'saddlery'. All *-ar-nj-a* nouns denoting the site of a trade are stressed on the penult.
 24. The others are: *buxgálter-sjk-yj* 'of an accountant (< *Buchhalter*)', *káter-n-yj* 'of a small boat' (English *cutter*), *dóktor-skj-yj* 'of a doctor', *ávtor-sjk-yj* 'of an author', *dyréktor-sjk-yj*, *redáktor-sjk-yy*, *profěsor-sjk-yj*, *asěsor-sjk-yj*.
 25. They are: *stegén-n-yj*, *jarém-n-yj*, *vidér-n-yj*, *tjurém-n-yj*, *rebér-n-yj* from, respectively, *stegn-ó*, *jarm-ó*, *vidr-ó*, *tjurm-á*, *rebr-ó*. All have epenthetic genitive plurals stressed on the first stem syllable.
 26. Historically, the choice between segmental allomorphs like *večor/večir* was conditioned by the following syllable: a syllable with a full vowel selected *večor*, e.g. *večor-ov-yj*, while a syllable with a reduced yer, later lost, selected *večir*, e.g. *večir-n-yj*. Later processes of levelling extended each of these allomorphs. The result is that the modern system no longer represents the original distribution of the CoC/CiC allomorphs.
 27. We thank Bruce Hayes for reminding us to address the Frankenstein option. Cf. Steriade (1999b) for relevant evidence.
 28. The two exceptions are *nóvyn-sjk-yj*, listed alongside expected *novýn-sjk-yj*, on *novyn-á* 'novelty' (class (b) or (d)); plural stem *novýn-* and *kamfór-ov-yj* on *kamforá* ('camphor', (d), *singulare tantum*). *Kamfór-ov-yj* is possibly modelled on attested *kamfór-n-yj*, an unfaithful derivative that follows the ranking in (35b).
 29. 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.
 30. 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 7.3.3.

31. There are too few *-ov-* derivatives in Zaliznjak (1977) to show the behaviour of all accentual types of bases: aside from derivatives of proper names, Zaliznjak provides only 16 *-ov-* derivatives from class (a), five from class (b), five from class (c), and one from class (e). To supplement his data, we asked eight 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 (45), 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 (45) 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-*, prefers or tolerates suffixal stress.
32. The data in (45) includes stress patterns of *potential* family names. *Common* family names may have different stress, perhaps because they're archaisms. The differences mostly affect type (b) nouns: fossilized family names from such nouns often have stem stress, e.g. *Kótov*, *Sómov* (from V. Kiparsky 1962), *Stárikov* (Mikhail Osłon, p.c.).
33. There are between 2,500 and 3,000 *-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.
34. 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 *kúl-j-n-yj*, yields nonce *kúl-j-n-ostj*. For this reason, the impossibility of *golubostj* (side by side with attested, otherwise parallel forms like *zelenostj*) seems to be non-accidental.
35. For similar analyses of different ineffability phenomena see Pertsova (2005), Albright (2009).
36. Many comparable forms are found: *vétrov-ostj* 'windiness' (<= *vetrov-ój* <= *véter*, *vetr-á* 'wind'), among others. In other cases, the use of stressed root allomorphs in *-ostj* forms is impossible, perhaps for reasons of segmental correspondence: *sméx* 'laughter' → *smef-n-ój*, **sméf-n-ostj*.
37. This point is developed in Steriade (2007).

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