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Slavic Linguistics Society

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articles

reviews

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Slavic Linguistics Society

Where: Indiana University, Bloomington, Indiana, USA
When: 4–6 September 2020

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Keynote speakers:

Joanna Błaszczak (University of Wrocław)
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As appropriate, identify the framework, describe the methodology, explain how the data are analyzed—in other words, please be as concrete and specific as possible in describing your work.

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On the Morphosyntax of Russian Verbal Aspect

Frank Y. Gladney

Abstract: Aspect is a syntactic feature of the sentence predicate, the Infl head of which is generated +Pfv or –Pfv and +Past or –Past. Verb forms comply with these features or are Inflected for them. Prefix-verb compounds are not stored in the lexicon but are base-generated in the sentence. They provide the environment for the Secondary Imperfective Rule, which assigns the feature +Iter to V when it contains a prefix. This feature governs the introduction of themes between the verb root and the ending. The +Iter feature can also be generated with the verb independently of the SIR, thus yielding the so-called procedurals. With unprefixed verbs aspectual patterning is a matter of their form (thematization) and their meaning. Those that are grammatical in +Pfv predicates are +Telic (have a telos or goal). This depends on their formal and semantic properties and ultimately on the intention of the speaker.

1. Introduction

Verbal aspect in Russian is widely held to be a lexical feature of individual verbs, which are entered in the lexicon as either perfective or imperfective (+/–Pfv).[1] It is further assumed that the lexicon contains not only simple verbs like *pisat'* 'write' but also prefix-verb compounds like *napisat'* 'write', *zapisat'* 'write down', and *zapisyvat'* 'idem'. The redundancy of a lexicon that contains partially similar entries, in this case pairing /pis/ with the meaning 'write' in four separate entries, is mitigated by the inclusion in the grammar of a derivational component that derives *napisat'* and *zapisat'* from *pisat'* by prefixation and *zapisyvat'* from *zapisat'* by suffixation.[2] The purpose of this paper is

[1] Manova 2007 is representative of this widely held view.

[2] The term "derive" has a diachronic sense which posits an earlier stage of Russian when the lexicon contained the preposition/prefix /za/ and the verb /pis/ but speakers did not regularly use them in combination, also a later stage when the combined use of /za/ and /pis/ was common enough to merit being entered in the lexicon. The Russian Academy Grammar prefers a synchronic interpretation whereby "derived from" is replaced by "motivated by". In saying that *zapisat'* is motivated by *pisat'*, we allow that both are entered in the lexicon but that the pairing of *pisa-* with the meaning 'write' occurs only in the *pisat'* entry. The *zapisat'* entry includes its form and a ref-

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to present a different, syntactic account of verbal aspect, in which +PFV and –PFV are not features of individual lexical entries but features of the sentence predicate in which verb forms occur. The sentence predicate is headed by the functional category INFL(ection), which is generated with the features +PFV or –PFV in addition to +PAST or –PAST, and verb forms adapt to these features.

The view that verbal aspect is a matter of inflection, not derivation, was advanced by Jurij Maslov, who came out "in favor of the inflectional character of the aspect category, in favor of recognizing perfective and imperfective forms, which express one and the same lexical meaning, as forms of the same verb" (1959: 170, transl. from Russian by F. G.), and by Alexander Isačenko, for whom it was beyond doubt that, for example, *otdat'* and *otdavat'* 'give back' and similar prefixed pairs are aspectual forms of the same verb (see e.g., Isačenko 1962: 352). This view is countered by Zaliznjak and Šmelev (2000: 15), who give five arguments that aspect is derivational, not inflectional: 1. Aspect pairs involve prefixes and suffixes, which are features of derivation, not inflection. Prefixed *napišet* and unprefixed *pišet* are indeed related by derivation since they differ in their morphemic makeup,[3] whereas *zapišet* and *zapisyvaet* 'write down', as argued below, do not. 2. Many imperfective verb forms, for example, *znat'*, *naxodit'sja*, *stoit'*, *sootvetstvovat'*, *protivorečit'*, have no perfective counterparts. But some nouns lacking plural forms and others lacking singular forms does not keep ±PLUR from being inflectional in nouns. 3. There is no one-to-one correspondence between verbs and prefix-verb compounds; for example, *rezat'* and *rvat'* have various P-V counterparts. True but irrelevant, because prefixation is not claimed to be inflectional. 4. Every inflected word should have a base form, for example, the infinitive, but aspect pairs have two infinitives. The base form shared by prefixed aspect pairs is $[_V\ [_V\ P\ V\ ]\ E]$. 5. Aspect pairs sometimes differ in meaning. So do the +PLUR and –PLUR forms of some nouns.

The paper is organized as follows. Section 2 presents the syntax and morphology of verb forms. Section 3 presents their phonology. Section 4 lists the themes for which verbs are specified in the lexicon. Section 5 treats the themes which verbs acquire in the sentence. Section 6 presents the Secondary Imperfective Rule, which assigns the feature +ITER(ative) to the verb. Section 7 treats verbal prefixation. Section 8 presents the other source of the +ITER feature. Section 9 contrasts –ITER and +ITER +PFV verb forms. Section 10 deals with multiple prefixation. Section 11 addresses aspect in unprefixed verbs. Section 12 treats verbs which take thematic /n/ and addresses the question of semelfactive aktionsart. Section 13 contrasts punctual and durative actions.

erence to a derivational rule which states that verbs in *za-* mean roughly 'down' plus the meaning of the entry that matches *zapisat'* minus *za-*. *Zapisat'* would then be what Jackendoff (1975) calls an "impoverished entry".

[3] I use mostly the third-person singular as my citation form.

Section 15 treats –Pfv /n/ forms. Section 16 introduces the feature +Det(erminate). Section 17 treats +Det verb forms with other thematizations. Section 18 introduces telicity, the feature +Telic. Section 19 discusses telicity alone. Section 20 is a summary.

2. The Syntax and Morphology of the Verb

In a syntactic account of the Russian verb, the syntax component of the grammar does much of what in a traditional grammar is done by a morphology component. The phrase-structure rule that expands VP into V and its complements continues on the word level and expands V into V and E (ending). The $[_V$ V E] structure thus generated is next lexicalized, for example, V → /pis/ and E → /t/ or E → /l/, depending on the predicate's tense feature and subject-predicate agreement. Verbal prefixation is also handled by the syntax. A sublexical phrase-structure rule expands V to $[_V$ P V], which then may be lexicalized P → /za/ and V → /pis/, resulting in $[_V [_P$ /za/] $[_V$ /pis/]].

What remains for the morphology component of the grammar is to introduce thematic elements between V and E. This is done by readjustment rules. First proposed by Chomsky and Halle (1968: 9), readjustment rules apply to the structured morpheme strings created by sublexical phrase-structure rules and lexical insertions and provide the input to the phonology component of the grammar. They have been applied to a broad range of linguistic phenomena, but in this paper their sole task is introducing phonemes between V and E, a process I call thematization. Thematization is often morphologically motivated, as when the introduction of a thematic vowel between two consonants in a verb form cancels the environment for a sound change that would obscure the form's transparency. In the Old Church Slavonic aorist form meaning 'they burned', when the $[_V$ V E] structure $[_V [_V$ /žeg/] $[_E$ /sen/]] was realized athematically, the result was *žasę* with the root vowel lengthened and its final consonant elided. But in younger manuscripts we find thematic /o/ introduced between V and E and the result is the more transparent *žegošę*. Old Russian *ěste* 'you eat' became *edite* with the introduction of thematic /i/ into $[_V [_V$ /ěd/] $[_E$ /te/]]. For a current example, some Russian speakers introduce only thematic /j/ and /e/ into lexical $[_V [_V$ /max/] $[_E$ /t/]] 'waves' and say *mašet*. Others introduce also /a/ and say *maxaet*, preserving the *max-* of past-tense *maxal*.

3. The Phonology of the Verb

The phonology component of the grammar turns thematized strings of lexical items into phonetic representations, for example, $[_V [_V$ /pis/] /j/ /e/ $[_E$ /t/]] into [p'íšit]. In some descriptions of Russian, the phonology component is limited

to deriving +back [ɨ] from a more abstract /i/, and the relationship of [š] to /s/ is assigned to a morphophonology component of the grammar. In this paper phonology includes morphophonology and accounts for all allomorphy short of suppletion. It accounts for 'write' being sometimes *pis-*, sometimes *piš-*, but not for 'go' being sometimes *id-*, sometimes *š-*.

Some members of the verbal paradigm are more transparent in structure than others. Compare the 2sg., 3sg., 1pl., and 2pl. forms of first-conjugation *nesëš'*, *nesët*, *nesëm*, *nesëte* 'carry (somewhere)' with those of second-conjugation *nosiš'*, *nosit*, *nosim*, *nosite* 'carry': the endings *-š'*, *-t*, *-m*, *-te* are clearly distinguished from thematic *-ë-* and *-i-*. But the structure of the 1sg. and 3pl. forms is opaque. The Russian Academy Grammar (§1550), which does not analyze the terminal portions of verb forms into theme plus ending, recognizes a first conjugation with the endings *-(j)u*, *-eš'*, *-et*, *-em*, *-ete*, *-(j)ut* and a second conjugation with the endings *-(j)u*, *-iš'*, *-it*, *-im*, *-ite*, *-(j)at*. Timberlake (2004: 99) more or less follows suit.

Verbal morphology is simpler when all verbs select the same set of endings and do not need to be specified for conjugation class, as their conjugation class follows from their thematization. However, morphological simplicity comes at the cost of highly abstract representations of the 1sg. and 3pl. forms and phonological rules of limited application. As the 1sg. ending I propose /m/, as in *em* 'I eat' and *dam* 'I'll give'. In terms of lexical items, *nesu* is [$_V$ [$_V$ /nes/] [$_E$ /m/]] and *nošu* has its ablauted form [$_V$ [$_V$ /nos/] [$_E$ /m/]]. The former is thematized to [$_V$ [$_V$ /nes/] /o/ [$_E$ /m/]], while the latter is doubly thematized to [$_V$ [$_V$ /nos/] /i/ /o/ [$_E$ /m/]]. In both forms /om/ monophthongizes via a back nasal vowel to *-u*. (This doesn't occur in *em* and *dam* because in these forms /m/ is followed by a fleeting vowel.) In *nošu* /i/ combines with /s/ to yield *š*. The 3pl. forms are underlyingly [$_V$ [$_V$ /nes/] [$_E$ /nt/]] and [$_V$ [$_V$ /nos/] [$_E$ /nt/]], thematized respectively to [$_V$ [$_V$ /nes/] /o/ [$_E$ /nt/]] and [$_V$ [$_V$ /nos/] /i/ [$_E$ /nt/]]. In the former /on/ develops like /om/ to *-u-*, and in the latter /in/ monophthongizes via a front nasal vowel to an intermediate /ä/ which loses its –back feature before the hard final [t].

Accounting for morphophonological alternations in Russian verb forms calls for more vowel phonemes than just /i e a o u/. At very least, a +back –round counterpart of /i/ must be recognized, as in /kry/ 'cover'. This vowel and that in /bi/ 'beat' cannot be subsumed under a single /i/ because they behave differently. Before thematic /j/, as in 3sg. *kroet* and *b'ët* and imperative *bej*, /y/ and /i/ change into fleeting vowels, realized as mid vowels in *kroet* and *bej* and elided in *b'ët*. Fleeting vowels should be recognized as real vowels, bundles of phonetic features, not as abstract, nonphonetic units—Išačenko 1970 proposed {#}—that are turned into vowels by morphophonemic rules. In their analysis of Russian adjectives, Halle and Matushansky (2006: 355) posit nine vowel phonemes, which they define with four binary features: ±high, ±back, ±round, and a feature they call ±advanced tongue root but I will call ±tense.

For five of their nine vowels I substitute letters which are more familiar to Slavists. For representing the fleeting vowels I follow Lunt's (1977: 76) suggestion. The +high vowels are /i ь y ъ u/. The –high vowels are /ĕ e o a/. The +round vowels are /ъ u o/. The +tense vowels are /i y u ĕ a/, and the –tense vowels are /ь ъ e o/. I add a tenth vowel, a +tense, –round, –high, and –back /ä/, which is needed so that consonant palatalization can be regular in position before a –back vowel. In tabular form the ten vowel phonemes assumed in this paper are given in Table 1.

Table 1: Russian vowel phonemes

	i	ь	y	ъ	u	ĕ	e	o	a	ä
High	+	+	+	+	+	–	–	–	–	–
Back	–	–	+	+	+	–	–	+	+	–
Round	–	–	–	+	+	–	–	+	–	–
Tense	+	–	+	–	+	+	–	–	+	+

4. Lexical Verbal Themes

Structures of the format [$_V$ V E] are thematized according to how the verb, that is, the morpheme that occupies the V position in the verb form, is specified in the lexicon. Note that the morpheme in the V position is not always a lexical verb. In *usilit* 'strengthen', for instance, it is a lexical noun. It occurs in this verb form owing to the sublexical recategorization V → N that results in the structure [$_V$ N]], lexicalized as [$_V$ [$_N$ /sil/]].

Aside from a handful of athematic forms like *est* 'eats', which is structured [$_V$ [$_V$ /ĕd/] [$_E$ /t/]] with nothing between V and E, nonpast verb forms in Russian are all thematic. Russian has about 50 so-called consonant verbs, which end in a consonant. Their nonpast forms show what may be considered the unmarked, default thematization, /o/ in the 1sg, and 3pl. forms (*nesu*, *nesut*) and /e/ in the other four forms (*nesëš'*, *nesët*, *nesëm*, *nesëte*). Their past-tense forms are athematic (*nës*, *nesla*, *neslo*, *nesli*).[4] Somewhat smaller is the class of vocalic verbs, which end in a vowel. These include /zna/ 'know' /grĕ/ 'heat', /bi/ 'beat', /kry/ 'cover', and /u/ 'shoe'.[5] In nonpast forms they have thematic /j/, which entails the unmarked /o/ and /e/ nonpast thematization: *znaju*, *znaeš'*, *greju*, *greeš'*, *b'ju*, *b'ëš'*, *kroju*, *kroeš'*, *obuju*, *obueš'*. They have athematic past-tense forms: *znal*, *grel*, *bil*, *kryl*, *obul*.

[4] An exception is *revët* 'roar', which has thematic /ĕ/ in past-tense forms, *revel*.

[5] Occurs only with a prefix, /ob/ or /raz/.

Somewhat larger is the class of verbs, exemplified by /pis/ 'write', which have thematic /a/ in past-tense forms only (*pisal*) and in nonpast forms thematic /j/, which entails the unmarked nonpast themes (*pišu*, *pišeš'*). Since verbs that take /a/ only in past-tense forms regularly take /j/ in nonpast forms, they may be entered in the lexicon specified +A/PAST.

Exceptions to this distribution of themes include a dozen asyllabic verbs like *bral* and *lgal*, which have /a/ in past-tense forms but no /j/ in nonpast forms (*berut*, *lgut*, not **berjut*, **lžut*). An isolated exception is /sos/ 'suck': although syllabic like /pis/ and having /a/ only in past-tense forms, it has no /j/ in nonpast forms: *sosët*, not **sóšet*. There are also a handful of verbs like /bor/ 'battle' and /mel/ 'mill' which have /j/ in nonpast forms (*borjutsja*, *meljut*) but no /a/ in past-tense forms (*borolsja*, *molol*, not **boralsja*, **melal*).

This class of verbs is not itself productive,[6] but the highly productive thematic diphthong /ou/ entails +A/PAST thematization. For example, the noun /torg/ 'trade' when it occurs in a verb form selects /ou/ and has +A/PAST thematization (*torguet*, *torgoval*) The productivity of thematic /ou/ is due in part to being selected by the productive verbal suffixes /iz/ and /ir/, as in *realizuet*, *realizoval* 'realize' and *formiruet*, *formiroval* 'organize'.

A larger, productive class of verbs has thematic /a/ in both past and nonpast forms, for example, /kop/ 'dig': *kopaet*, *kopal*. Verbs of this class can be specified in the lexicon simply +A because thematic /a/ in nonpast forms entails thematic /j/ and /o/ ~ /e/. The productivity of +A verbs is due in part to +A thematization losing its aspectual function and becoming lexicalized. For example, *bodaet* 'butt' is no longer aspectually related to *a **bodët*.

Another productive class of verbs has thematic /ě/, which in nonpast forms entails thematic /j/ and /o/ ~ /e/. An example is /um/ 'know how': *umeet*, *umel*. After a palatal consonant /ě/ shifts to *a*, thus /slux/ 'listen (to)': *slušaet*, *slušal*.

Standing apart from the above verb classes, which share /o/ ~ /e/ thematization, are verbs like /pros/ 'request', which show thematic /i/ in both nonpast and past forms (*prosit*, *prosil*). Their lexical specification is +I. With some verbs +I thematization is aspectual (see below). Also showing thematic /i/ in nonpast forms are verbs like /sid/ 'sit' (*sidit*), which have thematic /ě/ in past-tense forms (*sidel*). Their lexical specification is +Ě/PAST.

Thematic /n/ (discussed below) is a lexical thematization inasmuch as verbs are specified for it in the lexicon, but it is an aspectual thematization because its occurrence is conditioned by aspect.

This account of verbal conjugation, based on verb roots and their thematizations, differs from accounts based on stems, such as that proposed in Jakobson 1948. Jakobson's "full stems" include thematic elements that are sometimes truncated in position before endings, which endings sometimes

[6] Although the class of *-tat'* verbs denoting noises, like *bormotat'* 'mutter', *groxotat'* "roar', *roptat'* 'grumble', *kvoxtat'* 'crow', etc. may be productive.

include thematic elements. For example, *kopal* 'dug' according to Jakobson is underlyingly /kopaj+l/ where /j/ is truncated before /l/, and *pišet* 'writes' is underlyingly /pisa+et/,[7] where /a/ is truncated before /e/ and /s/ is iotated to *š* in the process. Compare Jakobson's full-stem representations /nes/, /pisa/, /kopaj/, /umej/, /prosi/, and /side/ with my root-based representations /nes/ (unmarked), /pis/ +A/PAST, /kop/ +A, /um/ +Ě, /pros/ +I, and /sid/ +Ě/PAST.

5. Aspectual Verbal Themes

In addition to lexical thematizations which verbs bring to the sentence from the lexicon, there are ITER(ative) thematizations, which they acquire in the sentence.[8] The sentence environments in which verbs acquire +ITER thematization are discussed in sections 6 and 8. Here they are simply listed. Verb forms not specified +ITER are –ITER.

The default aspectual thematization is +A. But there are two groups of verbs that constitute exceptions. First, three vocalic verbs, /da/ 'give', /sta/ 'stand' and /zna/ 'know', have the +ITER thematization +A/PAST. Thus –ITER (+PFV) *prodast*, *prodal* 'sell', *vstanet*, *vstal* 'stand up', and *uznáet*, *uznal* 'recognize' have the +ITER (–PFV) forms *prodaët*, *prodaval*, *vstaët*, *vstaval*, and *uznaët*, *uznaval*.[9] Verb forms with +A or +A/PAST +ITER thematization accent the postroot syllable.

Second, a handful of consonant verbs when specified +ITER undergo /CeC/ → /CoC/ ablaut and take +I thematization. They are /bred/ 'shuffle', /lěz/ 'climb', /nes/ 'carry', /ved/ 'lead', /vez/ 'convey', and a verb that may be represented as /xed/ 'walk'.[10] The ablaut change /CeC/ → /CoC/ is a minor phonological rule that applies only to verbs specified for it in the lexicon. –ITER *bredët*, *lezet*, *nesët*, *vedët*, *vezët*, and suppletive *idët* have the +ITER forms *brodit*, *lazit*, *nosit*, *vodit*, *vozit*, and *xodit*.

This unproductive and irregular class of verbs over the years has lost members and continues to lose them. *Gonit* 'drive' is no longer the +ITER of a lost –ITER *ženetъ*. It has been realigned with the latter form's past-tense form *gnal*. *Voločit* 'drag' no longer functions as the +ITER counterpart of a –ITER *voločët* 'drag', possibly because of the sound changes undergone by underlying /velk/ in addition to ablaut. The relationship of –ITER *bredët* to +ITER *brodit* has weakened owing to semantic divergence. Their weakened relationship is

[7] I have altered Jakobson's notation.

[8] I follow Dostál (1954: 19) in so labeling them, aware of the distinction he draws between morphological iteratives and semantic iteratives, since not all of the former express iteration. Meillet (1934: 291–92) favors the term durative over iterative.

[9] The +A form *obnimaet* 'embrace' has the ablauting +A/PAST variant *ob"emlet*.

[10] Some scholars, e.g., Isačenko (1962: 381), consider these pairs to be suppletive like –ITER *idët* ~ +ITER *xodit* 'go'.

seen in +ITER (–PFV) *perebrodit* 'ford' having been replaced by *perebredaet* with the productive +A thematization. As for /lěz/, +ITER *lazit* 'climb, clamber' still contrasts with –ITER *lezet* 'climb, crawl', even though /CeC/ ~ /CoC/ ablaut is opaque in this verb. The weakening of the ±ITER relationship is reflected in *vylezaet* 'climb out' with +A thematization competing with *vylazit*. However, +ITER *nosit*, *vodit*, *vozit*, and *xodit* maintain a relationship with –ITER *nesët*, *vedët*, *vezët*, and *idët*, and likewise with prefixes, for example, +PFV *prinesët* ~ –PFV *prinosit* 'bring', etc.

Otherwise, consonant verbs show the +ITER thematization /a/. The –ITER (+PFV) forms *spasët* 'save' and *načnët* 'begin' have the +ITER (–PFV) forms *spasaet* and *načinaet* (*-čn-* lengthens to *-čin-*). An exception to this rule is /krad/ 'steal', which has the unmarked /e/ ~ /o/ –ITER thematization in unprefixed use (*kradët*) but +Y +ITER thematization in prefixed use, *obkradyvaet* 'rob'.

Vocalic verbs also show +A +ITER thematization. –ITER (+PFV) *ub'ët* 'kill', *zakroet* 'close', and *razuet* 'unshoe' have +ITER (–PFV) *ubivaet*, *zakryvaet*, and *razuvaet*. The hiatus between the verb-final vowel and thematic /a/ is filled by /v/.

Certain verbs that reflect +ITER with internal changes also show the default /a/ when +ITER. Thus /bьr/ 'take', /rъv/ 'tear', and /rěz/ 'cut', which have thematic /a/ in –ITER *sobral* 'gather', *sorval* 'tear off', and *otrézal*, *otrézet* 'cut off', have it also in +ITER *sobiral*, *sryval*, and *otrezál*, *otrezáet*.

But most verbs with /a/ as their lexical thematization in their +ITER thematization accompany it with an additional, exclusively aspectual, thematization for /y/. If [V [V [P /za/] [V /pis/]] [E /l/]] 'wrote' in a –PFV environment had only +A thematization it would be homophonous with +PFV *zapisal*. So it acquires also /y/, thus [V [V [P /za/] [V /pis/]] /y/ /a/ [E /l/]]. The hiatus between the theme vowels is filled by /v/: *zapisyvaet*. These two theme vowels and the hiatus filler constitute what some scholars consider the –PFV suffix /yva/. Verb forms with thematic /y/ are accented on the syllable before /y/ (*raskápyvaet* 'excavate'). That is, /y/ attracts the accent and surrenders it to the previous syllable.

+A is the +ITER thematization also for +I verbs. They regularly precede it with thematic /i/, which causes iotation in the final consonant. Thus –ITER (+PFV) *predstavit* 'present' and +ITER (–PFV) *predstavljaet* and –ITER (+PFV) *pobedit* 'vanquish' and +ITER (–PFV) *pobeždaet*. There are exceptions: –ITER (+PFV) *vystupit* 'step out' has the +ITER (–PFV) form *vytupaet* with no /i/, not **vystupljaet*.

+ITER thematic /y/ is productive, occurring also in forms where avoidance of homophony with the –ITER form does not require it. For –ITER (+PFV) *prigotovit* 'prepare' the +ITER (–PFV) is *prigotovljaet* with /a/ and also *prigotavlivaet* with an additional /y/. The choice between /a/ and /a/ with /y/ is sometimes determined stylistically. The bookish (Church Slavic) *prosvetit* 'enlighten' has its +ITER (–PFV) form with only thematic /a/, *prosveščaet*, but in the +ITER (–PFV) form of native Russian *prosvetit* 'X-ray', thematic /y/ occurs in addition to /a/: *prosvečivaet*.

To summarize, the three aspectual thematizations discussed, +I with ablaut, +A, and +Y, while differing in their range of occurrence are equivalent realizations of the +Iter feature. Their equivalence is reflected in their alternating with one another. +Iter is expressed by +I and ablaut in *vylazit* 'climb out' and *perebrodit* 'ford' and innovatively by +A in *vylezaet* and *perebredaet*. There is also alternation between +A and +A with +Y thematizations, for example, in *prigovovljaet* and *prigotavlivaet* 'prepare'. The phoneme string *-iva-* in *prigotavlivaet* or *-yva-* in *zapisyvaet* has no more claim to the status of a suffix than does the *-a-* of *spasaet* or the *-i-* of *vylazit*. Prefixed imperfective verb forms show various thematizations, but they do not contain suffixes. –Pfv *zapisyvaet* has the same three-morpheme structure, [$_V$ [$_V$ [$_P$ /za/] [$_V$ /pis/]] [$_E$ /t/]], as +Pfv *zapišet*, differing from the latter only in its aspect-conditioned thematization. This is the basis for claiming the ±Pfv relationship between such sets of prefixed verb forms is inflectional. It is not derivational because the phonemes between V and E are not suffixes.

6. The Syntax of +Iter

The main source of +Iter in verb forms is the Secondary Imperfective Rule (SIR), which assigns +Iter to V when it contains a prefix. This feature comes to be associated with the morpheme at V and conditions its +Iter thematization. The SIR owes its centrality to the workings of verbal aspect to the semantic bleaching of +Iter thematization in prefix-verb compounds. In *pisyval* 'used to write' in the absence of a prefix +Iter thematization is meaningful, marking the form as Iterative and nondurative. Iterative V *molodosti Saša pisyval stixi* 'In his youth Saša wrote poetry' is grammatical, but durative **Kogda Maša vošla v komnatu, Saša pisyval stixi* 'When Maša entered the room Saša was writing poetry' is not. Such forms are moreover restricted to past tense. **I po sej den' on pisyvaet stixi* 'And to this day he writes poetry now and then' is ungrammatical.

The latter restriction on +Iter forms does not apply to /by/ 'be' or the dozen Verbs of Motion. In the following –Iter/+Iter pairs, the +Iter member also has nonpast forms, even if it lacks durative meaning: *bežit/bégaet* 'run', *bredët/brodit* 'wander', *edet/ezdit* 'ride', *gonit/gonjaet* 'drive', *idët/xodit* 'walk', *letit/letaet* 'fly', *lezet/lazit* 'climb', *nesët/nosit* 'carry', *plyvët/plavaet* 'swim', *polzët/polzaet* 'crawl', *taščit/taskaet* 'drag', *vedët/vodit* 'lead', and *vezët/vozit* 'convey'.

Owing to the semantic bleaching (grammaticalization) of +Iter in the environment of a prefix,[11] in *zapisyvaet* both of these restrictions are canceled: *V*

[11] Prefixes are important also for Stephen M. Dickey's historical-comparative approach to verbal aspect, which differs from my synchronic generative approach. He is concerned with "the role that the prefix *po-* has played in the grammaticalization of aspect in the individual Slavic languages" (2011: 176). I think he meant to say "the role

tot/ètot moment Saša zapisyval/zapisyvaet svoi vpečatlenija 'At that / this moment Saša was/is recording his impressions'. The semantic depletion of +ITER in prefixed verbs is the basis of syntactic (inflectional) aspect in Russian.[12]

7. Verbal Prefixation

Verbal prefixation, as proposed above, is base-generated in the syntax. V is expanded to [$_V$ P V] and P and V are lexicalized individually. But a competing view, that verbal prefixation involves movement transformations, should be noted. Fowler (1996) proposes, in contrast to my INFL VP sentence predicate, a more ramified one consisting of an Imperfective Phrase containing a Perfective Phrase containing VP, thus [IPFV [PFV [$_{VP}$ V]]]. PFV is the position for a perfectivizing prefix and IPFV the position for an imperfectivizing suffix. With /za/ at PFV and /pis/ at V, /pis/ raises to [$_{PFV}$ /za/], which gets affixed to it, thus [$_{PFV}$ /za-pis/], which in a nonpast sentence with a third-person singular subject is realized as *zapišet*. On the other hand, with /yva/ in the IPFV position [$_{PFV}$ /za-pis/] raises to it, thus [$_{IPFV}$ /yva/ /za-pis/], and the affixation of /yva/ to /za-pis/ results in *zapisyvaet*. This formalizes what is commonly taught about aspectual derivation: prefix imperfective *pisat'* to get perfective *zapisat'*; suffix perfective *zapisat'* to get imperfective *zapisyvat'*.[13]

Researchers at the Center for the Advanced Study of Theoretical Linguistics (CASTL) in Tromsø, Norway, also hold that prefixation involves movement transformations, but they posit a more ramified structure for the sentence predicate than Fowler's. They propose two different PFV positions to accommodate what they consider two different classes of verbal prefixes. Structured at the PFV within VP are lexical prefixes, which have mostly spatial meanings. Structured at the higher PFV outside VP are supralexical prefixes, which have abstract meanings (see Svenonius 2004). To see how this works with two PFV nodes and two kinds of prefixes, take Fowler's [IPFV [PFV [$_{VP}$ V]]] and embed it in a constituent headed by supralexical PFV, thus [PFV [IPFV [$_{VP}$ PFV [V]]]].

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that the grammaticalization of the prefix *po-* has played in the emergence of aspect in the individual Slavic languages".

[12] This can be said of Slavic generally. Kuryłowicz (1928: 199) observed that while these thematizations ("suffixes") leave only traces in other Indo-European languages, uniquely in Slavic they play a role in expressing verbal aspect.

[13] The example and the formalization are mine. Fowler explains his analysis as follows: "Verbal prefixes can profitably be considered as syntactically separate from the rest of a prefixed verb, added to the inflected verb through a syntactic process of head-to-head movement, following assumptions that have become standard in GB theory in the 1990's. Moreover, I claim that there are two separate aspectual elements associated with verbs: both perfectivizing prefixes and imperfectivizing suffixes occupy separate projections in the functional apparatus of a sentence" (1996: 99).

With the lower (righthand) Pfv hosting the lexical (spatial) /za/ and /beg/ 'run' at V, we get *zabežit* 'drop in (to see)'. And when this P-V combination is raised to Ipfv it is imperfectivized to *zabegáet*. But when the higher (lefthand) Pfv is occupied by the supralexical (inceptive) /za/ (with nothing in the two lower positions), /beg/ raises to it and yields *zabégaet* 'start running'. The lack of a –Pfv counterpart to *zabégaet* is explained by there being no Ipfv position above the higher Pfv to which *zabégaet* can raise.[14] Tatevosov (2013: 46) claims that the Tromsø view of verbal prefixation is generally accepted and provides a list of supralexical prefixes: inceptive *za-* (*zapet'* 'start singing'), deliminative *po-* (*posidet'* 'sit for a while'), cumulative *na-* (*nalovit' ryby* 'catch a lot of fish'), distributive *pere-* (*perestreljat' vsex vragov* 'shoot all the enemies'), completive *do-* (*dopisat'* 'finish writing'), repetitive *pere-* (*perečitat' roman* 'reread a novel'), attenuative *pod-* (*podzabyt'* 'somewhat forget'), and distributive *po-* (*pobrosat'* 'throw about').

But an examination of verbal prefixes and their aspectual environments will, I believe, show the difference between lexical and supralexical prefixes to be simply a matter of –Iter versus +Iter environments.

8. The Other Source of +Iter

Aside from the +Iter feature being assigned to V by the SIR, V can be generated +Iter independently. When VP is expanded to +Iter V (plus complements) and lexicalized as [$_V$ /beg/], it receives its +Iter shape, *bégaet*. If +Iter V prior to lexicalization is expanded to [$_V$ P V] and lexicalized as [$_V$ [$_P$ /za/] [$_V$ /beg/]], /beg/ shows the same +Iter shape, *zabégaet*. Note that *zabégaet* differs from the result of +Iter being assigned to the verb by the SIR, which is *zabegáet*, the –Pfv of *zabežit* 'stop by'.

Whereas in *zabégaet* the entire [$_V$ P V] is generated +Iter, it is possible for only the lower, subordinate V to be +Iter. We see this in *zaxaživaet* 'stop by from time to time', which differs from morphologically identical *snašivaet* 'wear out' by the position of the +Iter feature. In the latter, the entire [$_V$ [$_P$ /sъ/] [$_V$ /nes/]] is +Iter, which conditions the abstract sense of /sъ/ (see below). In *zaxaživaet* on the other hand, [$_V$ [$_P$ /za/] [$_V$ /xed/]] is –Iter and the prefix is spatial. Only the lower V is +Iter. Thus *snašivaet* is the –Pfv of +Iter *snosit*, while *zaxaživaet* is the +Iter of –Pfv *zaxodit*.

9. –Iter and +Iter +Pfv Verb Forms

The following listing shows a –Iter prefixed verb form conditioning a spatial sense of the prefix and a +Iter prefixed verb form conditioning an abstract

[14] This formalization of the Tromsø proposal is mine.

sense of the prefix.[15] I cite only +PFV forms because the +ITER feature introduced by the SIR is irrelevant. In the traditional literature +PFV +ITER prefix-verb compounds are discussed under the rubric of procedurals (Aktionsarten, *sposoby dejstvija*).

Do- Spatial *do-* 'action to a certain point':[16] *Doveli železnuju dorogu do morja* 'They built the railroad as far as the sea'.
Abstract *do-* 'action to a certain state': *Mal'čiki dokatalis' do prostudy* 'The boys skated so long they caught colds'.[17]

Na- Spatial *na-* 'action directed onto a surface': *My nabreli na lesnoe ozero* 'We wandered onto a forest lake'.
Abstract *na-* 'accumulation': *Nadavala nam sovetov* 'She gave us a lot of advice'.

O(b)- Spatial *o(b)-* 'action surrounding the object': *Kosmičeskij korabl' dvaždy obletel Zemlju* 'The spaceship circled the earth twice'.
Abstract *o(b)-* 'transformation': *ob"ezdit' lošad'* 'saddle-train a horse'.

Ot- Spatial *ot-* 'motion away from a point': *Ne bez truda otkačnuli v storonu odnu cep'* 'With some difficulty they shoved aside one of the chains'.
Abstract *ot-* 'completion of action': *Otkačali tonuvšego* 'They revived the drowning victim'.

Pere- Spatial *pere-* 'action across or through something': *Požarnye perekriknulis' s kem-to v dome* 'The firefighters made contact with someone in the house'.
Abstract *pere-* 'excess; superiority': *Paren' perekričal vsex kolleg* 'The boy drowned out all his friends'.

Po- Spatial *po-*: 'movement along': *Oni poveli ego v spal'nju i povalili na krovat'* 'They led him into the bedroom and dumped him on the bed'.
Abstract *po-* 'action of short duration': *Povodili bol'nogo po komnate* 'They walked the patient around the room'.

Pro- Spatial *pro-* 'action through, across, or past the object': *Čerez melkovod'e lodku protaščili volokom* 'They dragged the boat through the shallows'.

[15] I say "sense" rather than "meaning" because I assume these are single polysemous prefixes, not pairs of homophonous prefixes.

[16] The definitions of prefixes are from Wheeler 1984.

[17] I omit *iz-* from this listing because *izojti* 'exude', as in *izojti krov'ju* 'bleed to death', and *izojti vostorgom* 'overflow with delight' does not show the spatial counterpart to the abstract 'exhaustiveness of action' sense seen in *izletaet vse gorjučee* 'use up all the plane's fuel'.

Abstract *pro-* 'duration of action through a period of time': *Celuju nedelju protaskal pis'mo v karmane* 'He carried the letter around in his pocket all week'.[18]

Raz- Spatial *raz-* 'action in different directions': *Zmei raspolzlis' v raznye storony* 'The snakes slithered off in different directions'.
Abstract *raz-* 'intensified action': *Sdelalas' sumatoxa, slugi razbégalis', kak odurelye* 'Turmoil ensued; the servants started running around stupified'.

S- There are two spatial *s-*s, 'motion downward' and 'converging motion': *Snesla čemodan s čerdaka* 'She carried the suitcase down from the attic', *Sveli sborniki v odin tom* 'They gathered the collections into a single volume'.
Abstract *s-* 'realization': *Mat' snosila rebenka k vraču* 'The mother took her child to the doctor'.

U- Spatial *u-* 'movement away from a place': *Xozjain uvël gostej v kabinet* 'The host took the guests into his study'.
Abstract *u-* 'achievement': *Ego uxodili* 'He was done in'.

Vy- Spatial *vy-* 'motion outwards': *Vytaščila zanozu iz pal'ca* 'She pulled the splinter out of her finger'.
Abstract *vy-* 'completion of process': *Vyxodili vse zaly muzeja* 'They visited all the museum galleries'.

Za- Spatial *za-* 'action beyond a given point': *Zabežala k nam po doroge domoj* 'She dropped in on us on her way home'.
Abstract *za-* 'commencement of action': *Mostki zaxodili pod nogami* 'The planks shifted under our feet'.[19]

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[18] An exception to the pairing of +Iter form with abstract prefixes is seen in *Protiskali škaf v dver'* 'They squeezed the wardrobe through the doorway (in several tries)', where the verb has +Iter shape but the prefix still has a spatial sense.

[19] As for other prefixes, *v-* has mostly spatial senses, almost no abstract senses elicited by a +Iter V. However a reviewer calls attention to *vbégat'sja* 'be trained to race', as in *Rysak ne vbegalsja ešče* 'The trotter hasn't learned to run yet', in Vladimir Dal"s *Tolkovyj slovar' živogo velikorusskogo jazyka*. *Vz-* has spatial meaning in *Vsplyl Petropol', kak triton* 'St. Petersburg rose up like Triton' but does not occur with an independently generated +Iter V. *Voz-* has the abstract meaning of inception in *vozljubit*, but it does not occur with +Iter thematization, i.e., no **vdrug vzbégaet* 'suddenly start to run'. *Nad-*, *pod-*, and *pri-* share the abstract meaning of limited extent, for example, in *Nadkusila ogurec* 'She took a bite of the pickle', *Seno podmoklo* 'The hay got wet', and *Cvety privjali* 'The flowers faded'. But again there is no pairing of these meanings with non-SIR +Iter thematization. Next to spatial *pod-* in *podplyvët k pristani* 'sail up to the wharf' there is no abstract *pod-* as in **podplavaet* 'do some sailing'. *Niz-* 'down' is only spatial.

The inclusion of *po-* in the above list calls for commentary. My claim that po-verbs like the other prefix-verb compounds show a spatial sense in the –ITER compound and an abstract sense in the +ITER compound is counter to the consensus of Russian grammars and dictionaries, which is that *po-* has only abstract senses, no spatial sense, and that with Verbs of Motion the abstract sense is inceptive. The dictionary entries for *po-* plus –ITER Verbs of Motion uniformly give 'begin to …' as the first gloss and list examples of this sense such as *Pošël dožd'* 'It started to rain', *Ponës vsjakuju čuš'* 'He started talking rubbish', and *Brosilsja v vodu i poplyl* 'He dove into the water and started swimming'. But they also give examples that are not inceptive such as *Povela rebënka v Detskij sad* 'She took her child to kindergarten', *Mjačik pokatilsja na mostovuju* 'The ball rolled out onto the roadway', and *Polez v karman* 'He reached into his pocket'. In the latter examples the spatial (directional) sense in the prefix is supported by the accompanying goal expression.

A spatial *po-* is further supported by the aspect pair +PFV *povedët* ~ –PFV *povodit* (*plečami*) 'shrug', which patterns like the other Verbs of Motion in that with spatial prefixes they occur in both aspects—*perevezët* ~ *perevozit* 'transfer', *otnesët* ~ *otnosit* 'carry away', etc.—but with abstract prefixes, for example, +PFV *zabégaet*, *dokataetsja*, *povodit*, they lack –PFV counterparts.

The polysemous verbal prefix *po-* invites comparison with the likewise polysemous preposition *po*. In *po ulice* 'along the street' and *po gorodam* 'across cities', *po* denotes distribution along a dimension and over multiple objects. It shares a sense with the *po-* of *povela*, *pokatilsja*, and *polez*, which is roughly 'along'. On the other hand, the delimitative *po-* of *povodili* shares a sense with the *po* of *po pojas v vode* 'up to the waist in water' and *po pjatoe maja* 'until May fifth', which also express a limit.[20]

10. Multiple Prefixation

Verb forms may have more than one prefix. This happens when $[_V$ P V] instead of being lexicalized is expanded to $[_V\ [_P$ P P] V] by the rule P → P P and then lexicalized. This gives us *doizberët* 'finish choosing', *pereraspredelit* 'redistribute', *podzarastët* 'grow a little', and *priotkroet* 'open slightly'. The prefix clusters *doiz-*, *pereraz-*, *podza-* and *priot-* have the same syntactic function as the simple prefixes *iz-*, *raz-*, *za-*, and *ot-*. They provide the environment for the SIR, which when it applies yields *doizbiraet*, *pereraspredeljaet*, *podzarastaet*, and *priotkryvaet*.[21]

[20] For a fuller discussion of *po-* and *po* see Gladney 2013: 644–45.

[21] Tatevosov (2009: 138). rejects the idea of prefix clusters. A prefix cluster (*prifiksal'nyj kompleks*) for him is only "when we have a single morpheme consisting of two". But *do-* and *-iz-* in *doizberët* although immediate constituents remain discrete morphemes.

Multiply prefixed verb forms have a different structure when the V of [$_V$ P V] is expanded by the rule V → P V for the structure [$_V$ P [$_V$ P V]]. Verb forms with this structure include *porazbégajutsja* 'scatter', *navydumyvaet* 'make up (many stories)', and *perespraśivaet* 'question (many people)'. In these forms a +Iter thematization conditions an abstract sense in the prefix just as it does in *pobégaet* 'run (a while)', *navozit* 'get in (a supply of)', and *pererešaet* 'solve (many problems)'. All six forms have the structure [$_V$ P V] except that in the first three V has the expanded structure [$_V$ P V].

11. Aspect in Unprefixed Verbs

If aspect, as I claim, hinges on the grammaticalization of +Iter thematization in the environment of a prefix, how do we account for in the absence of a prefix? The two dozen or more verbs like /bros/ 'throw' which can occur in a +Pfv predicate without a prefix cannot simply be listed in the lexicon as exceptions.[22] Lists of exceptions, such as ablauting verbs in Russian or strong verbs in English, tend to grow shorter with time, but this is not happening with +Pfv-compatible unprefixed verbs. Besides, there are verbs like /krik/ 'shout' which with thematic /n/ (*kriknet*) have the same distribution. They are productive and so cannot be reduced to a list. To understand the +Pfv-compatibility of unprefixed verbs we must examine their form (thematization) and their meaning.

12. +N Verbs

Verbs like /krik/ pose a quandary for the Academy Grammar. It calls them "unpaired (*nesootnositel'nye*) perfective verbs" (§1421), but it defines verbal aspect as "the system of two opposed sets of verb forms", +Pfv forms and –Pfv forms (§1386). *Kriknet* is +Pfv—It does not combine with *budet*—but rather than being aspectually paired with –Pfv *kričit*, it is said to be paired with it on the quasiaspectual dimension of aktionsart. It is called the semelfactive of *kričit*, derived from it with the semelfactive suffix /nu/. This /nu/ is contrasted with an inchoative suffix /nu/ which occurs in –Pfv forms like *slabnet* 'grow weak'.

In the descriptive framework of this paper, verb forms like *kriknet* have the same [$_V$ V E] structure as other unprefixed verb forms. With *kričit* it shares the lexical structure [$_V$ [$_V$ /krik/] [$_E$ /t/]]. The two forms differ because unprefixed /krik/ is specified in the lexicon for +N thematization in a +Pfv predicate

Immediate constituency is a necessary condition for morpheme fusion but not a sufficient one.

[22] Their number varies according to how we analyze verb forms. We recognize fewer unprefixed verbs when we appreciate Karcevski's observation (1927: 100) that speakers will treat the initial portions of verb forms as prefixes whenever possible.

and otherwise for +Ě/PAST thematization. The +N feature triggers thematic /n/, which entails thematic /o/ and /e/ in nonpast environments and thematic /ou/ in past environments.[23] In a –PFV predicate the +Ě/PAST feature means *kričit* in the nonpast and *kričal* in the past. Recognizing the phonemes separating verb from ending in *kriknet* and *kriknul* as the results of thematization spares us having to decide whether a suffix /nu/ has an /n/ allomorph or whether /nu/ undergoes truncation before a vowel in nonpast forms.

There are reasons to question a semelfactive /nu/ suffix. Among the dozen or so aktionsarten that have been proposed for Russian, this would be the only one expressed by a suffix. Suffixes as a rule head the word and determine its category. The adjective suffix /ьn/ makes *snežnyj* 'snowy' an adjective. The verbal suffixes /ir/ and /iz/ recategorize the lexical noun /regul/ and the lexical adjective /real/ respectively as verbs: *reguliruet* 'regulate' and *realizuet* 'realize'. But /krik/, as in *kričit*, is already a verb, and *kriknet* is not a recategorization.

Second, as Plungian (1998: 376) observes, derivational affixes are normally shared by aspectually paired verb forms. For example, the prefix *pere-* is common to +PFV *pereprygnet* 'jump over' and its –PFV counterpart *pereprygivaet*. But the putative /nu/ of +PFV *vzgljanët* 'glance' does not occur in –PFV *vzgljadyvaet*, which suggests that it does not pertain to derivation.

Furthermore, the claim that *-n- ~ -nu-* is a semelfactive suffix is undercut by its functional identity with the *-n-* of *vstanet* 'stand up' and the underlying /n/ of *sjadet* 'sit down' and *ljažet* 'lie down'. With these three verbs /n/ does not occur in their prefixed –PFV forms. In +PFV *vstanet* 'arise' /n/ is verb-final, and being between vowels it makes it to the surface, providing a bridge between long unproductive /n/ infixation and productive postroot /n/ thematization. In +PFV *zasjadet* ~ –PFV *zasedaet* 'sit down' and +PFV *poljažet* ~ –PFV *polegaet* 'be lodged (of standing crops)', the roots are structured /CVnC/ and so /n/ is reflected only in the alternation of the root vowels.

Finally, since a semelfactive /nu/ suffix in *kriknet* is tied to a contrasting inchoative /nu/ suffix in *slabnet*, if the difference between the two forms can be shown to be predictable from the meaning of the verb (see below), their suffix status is undermined.

13. Punctual and Durative Actions

Since the aspectual patterning of unprefixed verbs depends in part on meaning, a closer look at meaning is called for. To begin with, verbs may denote activities or states, and activities may be punctual or durative. A cough is punctual and breathing is durative. Hence in English the verbs cough and breathe differ in what is known as their lexical aspect, one punctual, the other

[23] Thematic /ou/ is realized as *ov* before a vowel, e.g., in *prikosnovenie* 'a touch'; compare *prikosnulsja* 'touch'.

durative. Their grammatical aspect may vary according to sentence context. A durative activity like breathing may be presented as punctual. *Suddenly at 4:15 she breathed* is understood punctually as 'took a breath' or 'started breathing'. But punctual activities do not admit a durative reading. *He coughed for two seconds* is understood as iterated coughs, not as a single protracted cough. And although *I heard him cough* can refer to both a single and multiple coughs, *I hear him cough* has only the multiple reading.

The verbs for coughing and breathing in Russian likewise differ in lexical aspect, /kašlj/ 'cough' being punctual and /dyx/ 'breathe' durative. The situation in Russian is complicated by the interaction of lexical aspect with grammatical aspect. Perfective aspect, which presents the activity in terms of completion, combines with lexical aspect straightforwardly: *On kašljanul* 'He coughed' denotes a single cough. On the other hand, imperfective aspect, which presents the activity as ongoing, does not readily combine with punctual verbs because punctual activities have no duration. –Pfv *kašljaet* does not denote a cough in progress, only iterated coughs.[24] With durative verbs, +Pfv parcels the activity into discrete events: *On doxnul* 'He took a breath'; also *On doxnul tri raza* 'He took three breaths'. –Pfv *dyšal* denotes ongoing breathing. *On dyšal tri minuty* 'He breathed (for) three minutes' is okay, but *On dyšal tri raza* 'He breathed three times' is hard to interpret.[25] If these meanings are predictable from the meaning of ±Pfv in combination with punctual and durative lexical aspect, it is not clear what additional meaning elements /n/ forms have which support a semelfactive aktionsart. I do not see how *Ona švyrnula kamen' v vodu* 'She flung a stone in the water' with a semelfactive /nu/ would differ grammatically from *Ona brosila kamen' v vodu* 'She threw a stone in the water'.

14. Activity Verbs

Russian has a productive class of +n verbs that have +Pfv forms with thematic /n/ and –Pfv forms with other thematizations. Some of them have punctual lexical aspect, so their +Pfv forms denote single events and their –Pfv forms denote iterations. This group includes /bod/ 'stab', /bryzg/ 'splash', /bryk/ 'kick', /bux/ 'thump', /čix/ 'sneeze', /drog/ 'shake', /glot/ 'swallow', /gryz/ 'bite', /kač/ 'rock', /kap/ 'fall', /kašlj/ 'cough', /kleu/ 'peck', /kol/ 'poke', /kozyrj/ 'salute', /koleb/ 'rock', /kus/ 'bite', /kyd/ 'throw', /morg/ 'blink', /pleu/ 'spit', /sverk/ 'flash', /švyrj/ 'fling', /vilj/ 'wag', and /zev/ 'yawn'. Others have durative lexical

[24] I am aware that when single completed actions are narrated they end up as present-tense imperfectives. In the Russian counterpart *He cleared his throat, coughed, and took a deep breath*, "coughed" is +PFV *kašljanul*, But in the narration corresponding to *He clears his throat, coughs, and takes a deep breath*, "coughs" is –Pfv *kašljaet*. But this does not support a durative reading of *kašljaet*.

[25] A reviewer suggests the translation 'He took three Breathalyzer tests'.

aspect, so their +Pfv forms parcel the activity into individual episodes and their –Pfv forms denote ongoing activity. This group includes /dvig/ 'move', /du/ 'blow', /gläd/ 'look', /kos/ 'touch', /krik/ 'shout', /liz/ 'lick', /maz/ 'smear', /risk/ 'risk', /rug/ 'scold', /sou/ 'shove', /trog/ 'touch', and /xoxot/ 'guffaw'. With reference to Vendler's (1967) four-way classification of events into states, activities, accomplishments, and achievements, these verbs, whether punctual or durative, all denote activities.

15. Stative Verbs

Contrasting with the above are +N verbs whose /n/ forms are –Pfv. They include /blek/ 'faded', /brjuzg/ 'swollen', /bux/ 'swollen', /dox/ 'dead', /drog/ 'chilled', /gas/ 'extinguished', /glox/ 'deaf', /gork/ 'rancid', /gruz/ 'sunken', /gyb/ 'lost, /lip/ 'sticky', /molk/ 'silent', /pax/ 'smelly', /pux/ 'swollen', /sip/ 'hoarse', /slab/ 'weak', /sox/ 'dry', /väd/ 'withered', /vis/ 'hanging', /xrip/ 'hoarse', and /zäb/ 'cold'. The Academy Grammar (§835) says these verbs mean 'acquire the characteristic named by the motivating adjective', so I gloss them as adjectives. Their adjectival character is brought out by nearly all of them forming *-lyj* adjectives: *blëklyj, obrjuzglyj, nabuxlyj, doxlyj, zagloxlyj, gorklyj, ogruzlyj, giblyj, naliplyj puxlyj, siplyj, soxlyj, vjalyj, vislyj, xriplyj,* and *zjablyj*. None of the activity verbs in the previous section form *-lyj* adjectives. All these items qualify as Vendler's states. That the past-tense forms of stative verbs do not have /n/ (*blëkli, zjabli*) but the past-tense forms of activity verbs do (*kriknuli, prygnuli*) is because /n/ is a verbal theme and stative verbs are less verbal than activity verbs. Note also that verbal *-nu-* never occurs in *-lyj* adjectives: no **blëknulyj*.

Several +N verbs have both stative and activity meanings and accordingly both –Pfv and +Pfv forms: stative –Pfv *dóxnet* 'die' (of animals),[26] *drognet* 'be cold', *páxnet* 'smell', and *xripnet* 'go hoarse', contrasting with activity +Pfv *doxnët* 'take a breath', *drognet* 'flinch', *paxnët* 'blow', and *xripnet* 'say (something) hoarsely'.[27] These forms do not support the existence of two distinct /nu/ suffixes because the consistent alignment of /n/ forms denoting activities with +Pfv aspect and of /n/ forms denoting states with –Pfv aspect is evidence for a single +N feature patterning differently according to the meaning of the V.

16. Det(erminate) Verbs

Thematic /n/ has an affinity with +Pfv aspect: it makes a verb +Pfv-compatible if it denotes an activity. Thematic /i/ (not accompanying *o*-ablaut as in *nosit*,

[26] /dox/ acquired this meaning from the meaning it has in combination with the prefix *iz-*, as in *izdoxnet* 'die (of animals)'. See Vaillant 1946: 13.

[27] On the other hand, /bux/ 'swell' and /bux/ 'thump' are simply homonyms.

etc.) also shows this affinity, conditioning +Pfv compatibility in a number of verbs discussed below. Of course a much stronger affinity with the +Pfv aspect is shown by prefix-verb compounds (Meillet 1934: 291), which are +Pfv-compatible except for a few isolated cases with verbs denoting states, such as *nadležit* 'is required' and *obstoit* 'be'. Thus prefixation, thematic /n/, and thematic /i/ share a feature Det(erminate). The Det feature, although not sufficient for a verb form to be +Pfv-compatible, is a necessary one, as no unprefixed verb can be used perfectively if it is –Det. Contrasting with the +Det feature is the +Iter feature, which has a corresponding affinity with –Pfv aspect.

The features Iter and Det invite combining into a single binary feature, ±Iter or ±Det. Certain forms point to Det as the feature for which verb forms are positively marked. *Liznët* 'lick' and *xoxotnët* 'guffaw' are clearly +Det vis-à-vis –Det *ližet* and *xoxočet*. For the Verbs of Motion, *idët*, *nesët*, *polzët*, and *taščit* are considered +Det vis-à-vis –Det *xodit*, *nosit*, *polzaet*, and *taskaet*. From the standpoint of form, however, *xodit*, *nosit*, *polzaet*, and *taskaet* are marked +Iter vis-à-vis unmarked *idët*, *nesët*, *polzët*, and *taščit*. Likewise with prefix-verb compounds, –Iter *zanesët* 'bring', *zabežit* 'drop by, running', and *pereprygnet* 'jump across' are unmarked vis-à-vis marked +Iter *zanosit* 'wear out', *pobégaet* 'run a little', and *pereprygaet* 'traverse with iterated hops'. It seems neither ±Iter nor ±Det by itself will account for the facts and both are needed. Verbs with three thematizations need both features. For /bros/ 'throw', *brosaet* is –Det with regard to +Det *brosit* and –Iter with regard to +Iter *vybrasyvaet* 'throw out'. For /krik/ 'shout', *kričit* is –Det with regard to +Det *kriknet* and –Iter with regard to +Iter *vykrikivaet* 'cry out'. For /kač/ 'rock', *kačaet* is –Det with regard to +Det *kačnët* and –Iter with regard to +Iter *otkačivaet* 'revive'.

17. +Det with Other Verbs

The affinity of +Det thematization with +Pfv aspect is worth exploring for other verbs. Among the +Det verbs of motion, the thematization pattern of *plyvët/plavaet* 'float' and *polzët/polzaet* 'crawl' functions aspectually uniquely in +Pfv *padët* ~ –Pfv *padaet* 'fall'.[28] However, the thematization of +I +Det *katit* 'roll'

[28] A handful of verbs contrast +Det +I forms with –Det +A forms. Although they are not classified among the Verbs of Motion, their +I forms express unidirectional motion and +A forms express multidirectionl or iterated motion. They are /klon/ 'incline', /lom/ 'break', /val/ 'roll', and /vorot/ 'turn. In *Veter klonit derev'ja* 'The wind bends the trees' the motion is unidirectionally downward, while in *Sëstry moi tebe klanjajutsja* 'My sisters send their regards' the motion is iterated. In *Bolel'ščiki lomjat na stadion* 'The fans are surging into the stadium' it is unidirectional motion, whereas in *Ledokol lomaet lëd* 'The icebreaker is breaking up the ice' it is iterated. In *Tolpa válit na ploščad'* 'The crowd is rushing to the square' the motion is unidirectional, while in *Rebjatiški valjajutsja v snegu* 'The kids are rolling around in the snow' it is multidirectional. And in *Lošadi vorotjat ot sena mordy* 'The horses are refusing to eat the hay' the motion is

and *taščit* 'drag' contrasting with +A in –DET *kataet* and *taskaet* has a broader aspectual utilization.

18. Telicity

For a verb form to be grammatical in a +PFV predicate, its being +DET is necessary but not sufficient. It must have a property that I propose to call telicity: it must be +TELIC, have a telos or goal.[29] The reason the +DET Verbs of Motion are not +PFV is that they are –TELIC, have no goal. The motions they denote—carrying, leading, conveying, walking, running, shuffling, climbing, riding, floating, crawling, flying, and chasing—are all unidirectional, but they entail no goal. *Polzët* 'crawl' can continue indefinitely without reaching one. The thematically identical *padët* 'fall', on the other hand, has an end point or goal—hitting the ground. Hence +TELIC *padët* is +PFV while –TELIC *polzët* is –PFV.

The goal criterion may hold also for a number of +I +DET verb forms. The following +I forms occur in +PFV predicates because they imply a goal. *Blagoslovit* 'bless': the goal is putting someone in the state of blessedness.[30] *Brosit* 'throw': the goal is the launch of a projectile. *Kaznit* 'execute': it is irreversible punishment. *Kontuzit* 'injure': a serious internal injury. *Krestit* 'baptize': the making of a Christian. *Kupit* 'buy': the transfer of ownership. *Lišit* 'deprive': the termination of possession. *Prostit* 'forgive': the cancellation of fault. *Pustit* 'let go': termination of holding. *Ranit* 'wound': the inflicted wound. *Rešit* 'solve': the answer to a problem. *Rodit* 'give birth': a new living creature. *Ženit* 'marry': the formation of a marriage bond. For another three verbs, telicity is unclear. *Javit* 'show': the resulting display. *Stupit* 'step': a single discrete step. *Xvatit* 'grab': the resulting gain. For *blagoslovit*, *brosit*, *javit*, *kupit*, *krestit*, *lišit*, *prostit*, *pustit*, *rešit*, *rodit*, *stupit*, and *xvatit*, their +PFV value is confirmed by their having +A counterparts in –PFV predicates.

unidirectional, whereas with *Voročal kočergoj v peči* 'He stirred the stove with a poker' motion is in various directions. These distinctions like those of the Verbs of Motion are subaspectual.

[29] Dickey (2007) has a different use for this term. Applying it to prefix-verb compounds, he contrasts *napisat'* 'write', which is telic in "impos[ing] an inherent limit (telos) on the writing event beyond which it cannot continue" with atelic *popisat'* 'write for a while', which has no telos. For me telicity is the property of a verb form that allows it to occur in a +PFV predicate.

[30] The fully congruent *blagodarit* 'thank' is –TELIC and –PFV perhaps because being thanked does not have the lasting effect of being blessed.

19. Telicity Alone

In the absence of +Det thematization, the occurrence of a verb in a +Pfv predicate may be motivated semantically. This is clear in +Telic /da/ 'give', an action resulting in a transfer of possession, versus –Telic /zna/ 'know', which is not an action but a state. But for the most productive class of verbs in Russian, those with thematic /ou/, telicity depends on how the speaker views the event. This explains the wide variation in the aspectual patterning of +ou verbs. To take only one example, some speakers consider /arest/ to be –Telic, occurring in –Pfv contexts like *Poxožix ljudej arestujut i privodjat k Mixailu Mixajloviču Gerasimovu* 'People like this are arrested and brought to M. M. G.' This is consistent with its prefixed use in +Pfv contexts like *Včera menja zaarestovali za kurenie v nepoloženom meste* 'Yesterday I was arrested for smoking in a nonsmoking area'. Prefixed, it is subject to the SIR, as in *Ego obnaruživajut i zaarestovyvajut* 'He is discovered and arrested', where thematic /ou/ entails +a/past, with +y thematization in the +Iter form. For other speakers /arest/ is +Telic occurring in +Pfv uses like *Mavrodi boitsja, čto ego najdut i siloj arestujut* 'Mavrodi is afraid they will find him and forcibly arrest him'. This +Pfv +Telic use creates the possibility of +Iter +y thematization, as in *Amerikanskie special'nye sily arestovyvajut sataninskuju gruppu pedovilov* 'American special forces arrest a satanic group of pedophiles'. For speakers who have *arestuet* for +Pfv contexts but lack *arestovyvaet* for –Pfv contexts, /arest/ is marked NO +Iter. This makes it biaspectual, as are other borrowed +ou verbs and a few +i verbs like /kazn/ 'punish', /kontus/ 'contuse', /ran/ 'wound', and /žen/ 'marry', which lack +Iter /a/ thematization and are marked NO +Iter.

20. Summary

The syntactic approach to Russian verbal aspect taken in this paper is based on two main assumptions. First, all the morphemes constituting verb forms—prefixes, roots, suffixes, and endings—are sound-meaning pairings stored in the lexicon which are introduced into the sentence by lexical insertion. None are created in the course of sentence derivation. The sublexical phrase-structure rules V → P V and V → V E generate the structure [$_V$ P V] [E], which may be lexicalized as [$_V$ [$_V$ [$_P$ /za/] [$_V$ /pis/]] [$_E$ /t/]] and realized as *zazpišet* or *zapisyvaet* depending on the aspect of the predicate.

Second, not every phoneme or phoneme string in a verb form is a morpheme or part of a morpheme. The *-yva-* in *zapisyval* results from [$_V$ [$_V$ [$_P$ /za/] [$_V$ /pis/]] [$_E$ /l/]] in a –Pfv predicate receiving the default thematization /a/, thus [$_V$ [$_V$ [$_P$ /za/] [$_V$ /pis/]] /a/ [$_E$ /l/]], and then, since the result would be homophonous with +Pfv *zapisal*, an additional thematization for /y/, thus [$_V$ [$_V$ [$_P$ /za/] [$_V$ /pis/]] /y/ /a/ [$_E$ /l/]], with the hiatus between the theme vow-

els filled by /v/. If *-yva-* were a suffix, a morpheme stored in the lexicon, there would have to be a grammatical category, say IPFV in a structure like [$_V$ [P V] IPFV E], of which /yva/ would be the lexicalization of IPFV. But then the *-a-* of –PFV *spasal* 'saved' would be an /a/ allomorph of /yva/ and we would have to provide for the distribution of the allomorphs. This complication is avoided when we identify the *-a-* of *zapisyval* with the *-a-* of *spasal* and introduce *-yva-* one segment at a time. The question is whether verbal morphology is realizational, where "a word's inflectional markings are determined by the morphosyntactic properties which it carries", or incremental, where "words acquire their morphosyntactic properties only as an effect of acquiring the exponents of those properties" (Stewart and Stump 2012: 384). I opt for the former: *zapisyval* includes *-yva-* because it is –PFV and prefixed; it is not –PFV because it contains a suffix /yva/.

Central to the workings of verbal aspect in Russian is the Secondary Imperfective Rule (SIR), which assigns the feature +ITER to V when it contains a prefix. Without the SIR, Russian would not have inflectional aspect. There are [$_V$ P V] compounds in Russian like [$_V$ [$_P$ /sъ/] [$_V$ /děl/]] 'do', [$_V$ [$_P$ /na/] [$_V$ /pis/]] 'write', and [$_V$ [$_P$ /po/] [$_V$ /pros/]] 'request' which never undergo the SIR because speakers never employ them in –PFV predicates. This is because these prefixes compounded with these verbs are mostly bleached of the meaning they have with other verbs. Whether or not they are entirely empty of meaning, the fact is speakers don't use them in –PFV predicates because they find the simple verbs adequate for the intended meaning. If all P-V compounds were like these three, the SIR would never apply and Russian would not have inflectional aspect. It would be like English, where verb-particle combinations have aspectual properties similar to prefixed verbs. *They dragged the log* has an imperfective meaning like its translation *Taščili brevno*, as shown by the time expressions of duration they select, *(for) two hours* and *dva časa*. But with the particle *out* (*They dragged the log out*) as with the prefix *vy-* (*Vytaščili brevno*) they select elapsed-time adverbials, *in two hours* and *za dva časa*. But what sets Russian off from English is the SIR, which assigns +Y thematization to [$_V$ [$_P$ /vy/] [$_V$ /task/]] and yields –PFV *vytaskivali*. English has nothing comparable.

The syntactic approach to Russian verbal aspect taken in this paper redefines ±PFV from a feature of individual verbs to a feature of sentence predicates. Therefore the question is How is the verb form morphologically compatible with the aspect of the predicate? If the predicate is +PFV and the verb is prefixed, it is compatible with only a few exceptions like *zavisit* 'depend'. If the predicate is –PFV and the verb is prefixed, the SIR adapts it to the predicate. But if the predicate is +PFV and the verb is not prefixed, its grammaticality depends on its form (thematization) and its meaning. The morphological property +DET(erminate) identified with thematic /n/ and to some extend with thematic /i/ is a factor in an unprefixed verb being +PFV-compatible. Ultimately, it comes down to whether the verb form is +TELIC, expresses a telos

or goal. For the many verbs with thematic /ou/ their telicity, hence their +Pfv-compatibility, is a matter of how the speaker views the event in question.

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Phonological Words in the Syntax and in the Lexicon: A Study of Russian Prepositions*

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Abstract: Phonological words play a crucial role in phonology, but where exactly they are produced in syntax is not clear. I propose a theory whereby the syntax issues phonological word diacritics to the complex constituents it creates. Additionally, certain morphemes can be specified in the lexicon as possessing these diacritics. The phonology then interprets the diacritics—sometimes it ignores them, and other times it makes phonological words to satisfy language-specific prosodic requirements. The resulting theory is demonstrated on the complex patterning of prepositions in Russian. The class of prepositions in Russian has certain syntactic traits in common, but there are many patterns where prepositions diverge according to their phonological word status. There are correlations between morphosyntactic structure and phonological word status: morphologically complex prepositions are always words. On the other hand, the presence of a morphological root, phonological size, and stress do not align with word status. The large range of phonological and morphosyntactic patterns involving prepositions in Russian demonstrates the need for an explicit and rich theory of word formation at the phonology-syntax interface.

1. Introduction

The notion of the word has an odd status in modern linguistic theory. On the one hand, it is probably the least controversial representational level in phonology. Most phonologists would agree that the phonological word is needed to define the smallest string pronounceable in isolation and to delimit the domain for stress assignment, minimal word constraints, and various demarcative rules. By comparison, the syllable, the foot, and the autosegmental tier

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have all been questioned; the generalizations they capture could be addressed in other ways (Steriade 1999; Gordon 2002; Rose and Walker 2004; Downing 2006, inter alia). On the other hand, the importance of the grammatical, or lexical, word has declined in recent theories of syntax: morphemes/morphosyntactic features interact within domains that are not coextensive with the phonological word (Marantz 1997 et seq.). The result, as Svenonius (2016) points out, is that phonologists (e.g., Selkirk 1995) rely on the notion of a word to be defined extraphonologically—presumably in the morphosyntax—but it is not clear how such units are generated in the theory of syntax.

The goal of this paper is to present a case that clarifies some of the empirical challenges for a complete theory of phonological word formation: prepositions in Russian. Russian has a number of word-domain phonological rules which make it possible to diagnose whether the units in question form words. Thereare also several morphosyntactic patterns that distinguish between strings that form phonological words as opposed to strings that are phonological clitics. Moreover, Russian morphology is sufficiently rich that it is possible to demonstrate that common intuitions about lexical vs. functional word status cannot be formalized in terms of lexical words having a root and functional ones not having one (contra, e.g., McCarthy and Prince 1994; Urbanczyk 2006; Myler 2017). It is also not possible to simply point to certain projections as the site of phonological word formation (as in Svenonius 2016), because morphosyntactically identical prepositions can differ in word status.

All of this empirical complexity justifies a theory whereby words are formed in multiple places in the grammar: the morphosyntax, the lexicon, and the phonological component. First, the morphosyntactic component systematically creates complex constituents (mostly via head movement), and designates them as phonological words via diacritics. Second, certain morphemes are stored in the lexicon with diacritics for PWd status, ω. Morphosyntactically identical morphemes can either map to words or not. Compare the examples in (1) and (2): the first two prepositions have the phonological characteristics of words, whereas the next two are proclitics. This is despite these prepositions being polysyllabic and containing roots. Third, and finally, phonology can disobey the instructions about phonological word formation that it gets from the syntax and the lexicon. Even prepositions such as *pered* 'before' become words when focused or pronounced in isolation. This is consistent with the proposal by Selkirk (1995), in which the phonological component receives instructions from the morphosyntax as part of the input to the derivation, but syntax-phonology mappings are mediated by violable constraints. Phonology can demote words to clitic status, and promote non-words to word status.[1]

[1] A note on transcription: instead of the *JSL* standard transliteration using the scientific system, because of the desirability of phonetic and phonological accuracy, as well as the need to segment in a way that cannot be accommodated within the Rus-

(1) Russian root prepositions that systematically get PWd status

a. $\sqrt{\text{skvózʲ}}_{\omega}$ [skvósʲ níx] 'through them$_{GEN}$' cf. skvaz-nʲ-ak 'draught'

b. $\sqrt{\text{mimo}}_{\omega}$ [mímə níx] 'past them$_{GEN}$'

(2) Russian root prepositions that do not normally get PWd status

a. $\sqrt{\text{pered}}$ [piridnámi] 'before us$_{INST.PL}$' cf. [piréd-nik] 'apron'

b. $\sqrt{\text{tɕerez}}$ [tɕiriznix] 'through them$_{ACC.PL}$'

I discuss several morphotactic phenomena that treat prepositions differentially in Russian, depending on phonological word status. First, Russian prepositions differ in their ability to host second position clitics—the ones that have phonological word status do so, and the phonological clitics do not (this has already been shown for Serbian by Zec 2005; Diesing and Zec 2017). Second, Russian has a rule called **approximative inversion**, where the order of the noun N with respect to the cardinal numeral in the noun phrase is flipped to mean "approximately so-many Nouns" (see (3a) vs. (b)). When this cardinal-noun phrase is embedded inside a prepositional phrase, the preposition optionally appears inside the inverted structure, as shown in (3c)—let us call this **P-flop**. But P-flop is not available if the preposition in question is usually a phonological word (see (3d)). Both second position clitics and approximative inversion P-flop can be analyzed in my proposal without confronting interface dilemmas about whether phonological derivations are interspersed with morphosyntactic reordering (cf. Embick and Noyer 2001; Halpern 1992).

(3) Approximative inversion: differences between prepositions in P-flop

a. default: Card N	b. appx: N Card
pʲátʲ tunnélej five tunnels	tunnélej pʲátʲ tunnels five
'five tunnels'	'about five tunnels'

sian orthography (either in Cyrillic or in transliteration), I use the IPA throughout and transcribe stress using acute accents on the vowels. Russian <ч> is rendered as [tɕ], and <ш, ж> as [ʂ, ʐ]; see Padgett and Żygis 2007. Other details of transcription, such as devoicing, vowel reduction, and palatalization, are given where the relevant phenomena are discussed but abstracted away otherwise, to make the morphemes easier to identify for non-Russian readers.

(3)	c.	appx: N P Card	d. *N P_{Pwd} Card
		tunnélej t͡eerez pʲátʲ	*tunnélej skvózʲ pʲátʲ
		tunnels through five	tunnels through five
		'through about five tunnels'	'through about five tunnels'
			✓skvózʲ tunnélej pʲátʲ

The rest of the paper is organized as follows. The proposal is laid out in more detail in section 2. Section 3 follows with a discussion of phonological word diagnostics in Russian, with special attention to prepositions. The internal morphosyntax of prepositions is described in section 4, while section 5 contains an analysis of phonological word formation. I then show how the theory handles morphosyntactic patterns where prepositions pattern together as a substitution class (section 6) but pattern apart in others (section 7). Section 8 addresses some alternative theories, and section 9 concludes.

2. The Proposal and Background Assumptions

The claim is that phonological words are not formed in just one place in the grammar—instead, there are two stages of word formation, and three separate places in the grammar where it is decided. First, complex morphosyntactic constituents derived by movement receive provisional PWd status. Second, some morphemes already have this status, diacritically, in the lexicon. Third, and finally, the phonology decides how to interpret the word formation instructions from the syntax and the lexicon, and adds its own prosodic conditions.

2.1. PWd Diacritics Generated by Morphosyntactic Word Formation

I assume with many that words are systematically built by head movement in the morphosyntax (Halle and Marantz 1993; Oltra-Massuet and Arregi 2005; Matushansky 2006; Myler 2017; Kastner 2019). This movement is triggered by morphosyntactic features such as tense and number, which have language-specific settings. Further, I assume that the end of head movement generates a PWd diacritic. This is similar in spirit to Svenonius (2016), who argues that certain syntactic nodes in any given language are marked with a ω feature that delimits PWd formation.[2]

[2] Unlike Svenonius, I do not assume Mirror Theory (Brody 2000), but rather something along the lines of Distributed Morphology assumptions about how movement works (see, e.g., Myler 2017 or Kastner 2019 for recent explicit proposals). Note that some recent morphosyntactic work has distinguished between true head movement and the kind of movement that results in morphosyntactic word formation—Harizanov and

One consequence of this assumption is that morphological complexity should as a rule correlate with PWd status when this complexity is the result of movement, although obviously monomorphemic strings can be words, too. In modern morphosyntax, it is commonplace for an apparently monomorphemic item to be analyzed with extensive functional structure, a lot of which is phonologically null. For example, in Russian, pronouns bear gender, case, and number morphology, which is not always overt (e.g., [ón] 'he_{NOM}' vs. [on-á] 'she_{NOM}'). If we assume that at least some of this structure is put together through movement, it follows that Russian pronouns should be phonological words, despite lacking contentful lexical roots. Indeed, Russian pronouns are systematically stressed, and they can host 2nd-position enclitics (see 7.3), as well as prepositional proclitics, as we saw in the previous section. Testelets (2003) argues that Russian lacks "weak" pronouns (in Cardinaletti and Starke's (1999) sense), and phonologically, Russian pronouns are quite different from their South Slavic counterparts (see Franks and King 2000 for a review).

2.2. PWd Diacritics Marked on Individual Morphemes in the Lexicon

Second, I propose that individual morphemes can be specified with their own PWd lexical diacritics. This will allow a single morphosyntactic class to be phonologically heterogeneous. Examples of idiosyncratic differences between morphemes of the same class have been documented before (e.g., Zec 2005; Kaisse 2017; Bennett, Harizanov, and Henderson 2018). In English, the prepositions *of* and *up* differ in PWd status: *up* does not reduce, whereas *of* has reduced or stressed pronunciations depending on context (Selkirk 1995). The present work contributes a detailed case study of such differences from Russian, along with some morphosyntactic causes and consequences; I will devote major effort to the claim that Russian monomorphemic prepositions can differ arbitrarily in PWd status (see §3 and §7).

2.3. Words Created by the Phonological Grammar

Phonology has the last word on phonological word boundaries. This is a consequence of an important feature of PWd diacritics: whether they come from head movement or the lexicon, they are only suggestions to the phonological grammar. The phonology can interpret them faithfully, add phonological words where no diacritics were given, or ignore PWd diacritics altogether and make bigger words than the morphosyntax suggested. The assumption that phonology translates PWd diacritics into PWd structure imperfectly is familiar from the influential work of Selkirk (1995), who identifies several condi-

Gribanova (2019) term this latter type of repositioning **amalgamation**. Adopting their term, it is amalgamation that generates PWd diacritics.

tions where English systematically promotes function words to PWd status (focus, utterance-final position, etc.). Translating diacritics into PWd structure is also not altogether novel; compare some recent proposals about other prosodic information in the lexicon—for example, McCarthy and Pruitt (2013) suggest that lexical stress is marked via abstract diacritics (as Alderete 2001; as opposed to as stored foot structure in Inkelas 1989; Revithiadou 1999). The phonology then interprets lexical stress diacritics by mapping them to foot structure.

2.4. What will not be a PWd?

Given these three sources of PWd status, there are certain contexts where we would expect PWd boundaries to be systematically absent. Thus, items that stay in situ will not get PWd diacritics in the syntax. Neither will items that are repositioned by post-syntactic operations such as **local dislocation** (Embick and Noyer 2001). Indeed, local dislocation depends in some cases on wordhood status, so it will have to happen after PWd diacritics are assigned. We will see examples of both types of cases in Russian: simple prepositions that stay in situ (*po* 'on', *za* 'behind', *ot* 'from')[3] and second position clitics: *-lʲ(i)*, *-b(i)*, *-ʒ(e)*, *-to*, *-de*, and verbal clitics such as *-sʲ(a)*, *-ka* (see 5.2). On the other hand, Lowering—the operation Embick and Noyer propose to get tense marking into position in English, for example—does generate a PWd diacritic on the resulting branching structure.

When items are not labeled as PWds, their affiliation in the prosodic structure of an utterance is determined in language- and structure-specific ways (Selkirk 1995). I will use Alignment constraints (McCarthy and Prince 1993) to account both for the direction of leaning and the type of constituent that the item leans on (Lieber 1980; Klavans 1985; Marantz 1988; see Bennett, Harizanov, and Henderson 2018; and Tyler 2018 for some recent alternatives to alignment).

In any given language, certain morphemes can systematically fail to project PWds because they are subminimal. In Russian, the vowelless prepositions *k* 'towards', *v* 'into', *s* 'with' (see 7.2) cannot form phonological words and therefore cannot occur in positions where PWds are required.

[3] I assume that stacked/serial prepositions such as *iz-za* 'from behind' and *iz-pod* 'from under' are pronounced in situ, too (see Roy and Svenonius 2009 for some discussion). I do not discuss these in detail, but impressionistically, they seem to pattern with simplex prepositions morphosyntactically and morphophonologically, as expected. More interesting are related cases where non-terminal nodes correspond to PWds, such as *gonna*, *wanna*, *I'ma* (= *I am going to*) in English. It seems unlikely that all such portmanteaux can be ascribed to the application of regular phonological rules, but they could be handled if non-terminal insertion is allowed in DM (see Gouskova and Bobaljik to appear for a review).

Bennett, Harizanov, and Henderson's (2018) prosodic smothering is the logical opposite of lexically idiosyncratic ω-diacritic-bearing morphemes: some items can rob their sisters of PWd status. They analyze these cases as prosodic subcategorization. As we see, then, the empirical picture of PWd formation is quite complex. There are complex constituents that form words (derived by movement), complex constituents that fail to form words in the presence of certain morphemes (prosodic smothering), morphemes that systematically project PWds (via lexical ω diacritics), morphemes that fail to pro ject PWds at all times (because they are subminimal), and morphemes that alternate in PWd status depending on context.

2.5. Morphotactics and Modularity of Grammar

A major issue for any theory of the phonology-syntax interface is whether certain phonological factors can affect the positioning of morphemes such as clitics (see, e.g., Shih and Zuraw 2017 for a recent discussion). We will see that in several cases in Russian, several morphotactic patterns depend on phonological word status. This characterization of the phenomena is controversial (compare Franks and King 2000 and Bošković 2001, as well as many others). I am taking the view that phonology can indeed matter, but in a limited way. At some point in the derivation, the pronunciations of morphemes have been decided on, and ω diacritics are available for the phonology's use, but no phonological operations have happened—no predictable stress rules or segmental rules have applied. It is at this point that certain reordering can occur, and it can refer to the diacritic information or morpheme identity. I am not assuming that phonology generates actual PWd structures before this kind of reordering takes place; phonological evaluation may well be serial/cyclic, but this cyclicity is not a necessary corollary of the claim that PWds are the phonology's interpretation of diacritics.[4]

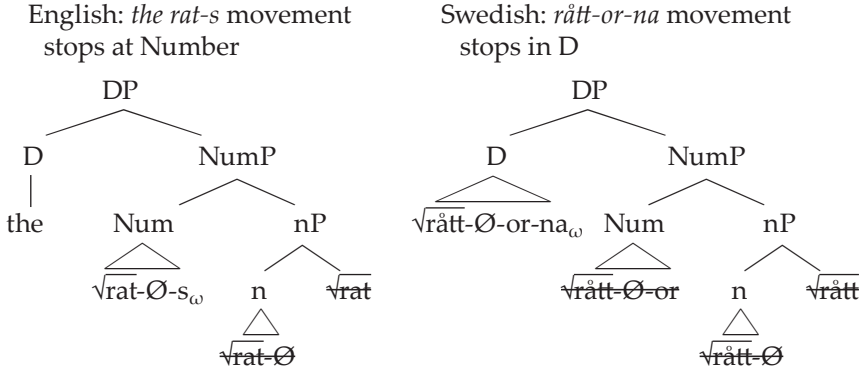
Another interface question is whether syntactic derivations can fail for phonological reasons, and if so, how. I assume that well-formed syntactic outputs can fail to map to a pronounceable output in the phonological component (Orgun and Sprouse 1999; Wolf and McCarthy 2010; Bye 2007; among others). Some specific examples of this are in §7.2 and §7.4.

[4] Some morphotactic positioning must take place in the actual phonology, however. We know that infix positioning can be sensitive to environments like "first non-labial consonant" (see Zuraw and Lu 2009 on Toba Batak *um-/up-*) or "after the stressed syllable" (many examples, e.g., Ulwa; McCarthy and Prince 1990). Whether such infixes differ in meaningful ways from clitics that are sensitive only to PWd status is an open question.

2.6. Brief Example: PWd Diacritic Generation in Word Formation in Two Languages

Let's compare two languages that differ in their morphosyntax in a way that has consequences for PWd formation. I assume that in English, even apparently monomorphemic nouns, verbs, and adjectives such as *rat*, *run*, *red* get PWd status by virtue of merging with *n*, *v*, *a*, and then undergoing head movement to aspect, number, and so on. The morphosyntactic features require movement even when this movement does not result in overt morphological complexity. The features of the English D head do not compel movement, whereas in languages such as Swedish, they do. In English, the root merges with *n* and raises to number but not D; in Swedish, it raises all the way to D (Delsing 1993). Once movement stops, PWd diacritics are generated at the relevant node: NumP in English, and DP in Swedish. In English, the morpheme occupying D is outside PWd, and its ultimate prosodification is determined by the phonology, which in English favors procliticization. In another language, the morpheme in that position could "lean" onto the preceding word; see Klavans 1985 or Marantz 1988 for some cases.

(4) English vs. Swedish, after morph insertion



It should be acknowledged that head movement in cases like this is controversial. Critics point out that movement fails to account for the position of adjuncts—e.g., adjectives in both Swedish and English NPs. Their positioning suggests that Ns do not need to move to D to get definiteness marking (see Embick and Noyer 2001 on similar issues for Bulgarian DPs, as well as Svenonius 2017, 2018; Harizanov and Gribanova 2019 for general discussion). The key alternative to movement would be the one explored by Embick and Noyer, namely, Lowering—and it is compatible with my proposal; so is Harizanov and Gribanova's amalgamation as distinct from movement.

As I will show in §4, some Russian prepositions provide clear evidence of having morphological structure, which automatically translates into PWd status. Others get PWd status sometimes by virtue of being focused or ending up in final position, à la Selkirk 1995 (see §7.2). Still others get PWd status because the pieces realizing them are diacritically marked as PWds in the lexicon (see §7.3–7.4).

3. Russian PWd Diagnostics Applied to Function Words

I next turn to the specifics of the Russian case study. First, I review the diagnostics for phonological words in Russian, paying special attention to prepositions. As has been known since Trubetzkoy 1939, it is not always possible to isolate morphological boundaries definitively by using phonological diagnostics alone, but Russian has enough of these rules to diagnose PWd boundaries in most cases.

3.1. Voicing Neutralization Patterns

Russian has two rules for obstruent voicing: word-final devoicing and word-internal voicing assimilation. The constraint against voiced obstruents is enforced by alternations: inside a word, pre-sonorant obstruents retain their voicing, but at the end of a word, they devoice, even if followed by a sonorant in the next word (shown in (5)). While these alternations may be phonetically incomplete in the lab, they are neutralizing in normal speech (Dmitrieva, Jongman, and Sereno 2010).

(5) Word-final devoicing (Padgett 2002 and many others):

UR	With [+son]	Gloss	Pre-pausal	Before [$_{\omega}$+son with *jejo* 'her'
/rod-/	ród-a	'kin, type$_{GEN.SG}$'	ró<u>t</u>$_{(NOM.SG)}$	ró<u>t j</u>ejó (/*ró<u>d j</u>ejó)
/rod-/	rod-n-á	'related$_{ADJ.FEM.SG}$'		
/rot-/	rót-a	'company$_{NOM.SG}$'	ró<u>t</u>$_{(GEN.PL)}$	ro<u>t j</u>ejó

Unlike nouns, verbs, and adjectives, prepositions vary in whether their final obstruents devoice before sonorant-initial morphemes. Some, like /skvoz$^{j}{}_{\omega}$/ and /protiv$_{\omega}$/, devoice obligatorily (see (6a–b')). Others, like /pered/, however, remain voiced before a sonorant-initial morpheme but devoice when they occur in utterance-final or prepausal position. By this diagnostic, then, /skvoz$^{j}{}_{\omega}$/ is a separate phonological word in (6a), whereas /pered/ varies: it is grouped with the following pronoun or noun in (6c) but stands alone as a PWd in (6c').

(6) Prepositions vary in pre-sonorant position

a.	/skvoz$^{j}_{\omega}$/	skvós^{j} nejó 'through her$_{GEN}$'
a′.	skvoz^{j}-n^{j}-ák	'draft'
b.	/protiv$_{\omega}$/	prótif nejó 'against her$_{GEN}$'
b′.	protív-nik	'adversary'
c.	/pered/	pered néj 'before her$_{INST}$'
c′.	péret	'before'
d.	/tɕerez/	tɕerez nejó 'through her$_{ACC}$'
d′.	tɕéres	'through'

Russian also has regressive voicing assimilation in obstruent clusters. This rule is variable and gradient, which has led to some disagreement about the facts (Hayes 1984; Kiparsky 1985; Burton and Robblee 1997; Padgett 2002, 2012; Gouskova 2010). It is not controversial that voicing assimilation is obligatory inside phonological words, as in (7a). Sequences with disagreeing voicing can occur across word boundaries—for example, when a devoiced word-final obstruent abuts a word-initial voiced obstruent (as in /god delal/ [gót délal] in (7b)). Similarly, underlyingly voiceless stops (as in /kot/) do not have to undergo voicing assimilation to the following voiced obstruent when separated by a word boundary (certainly not in careful speech).

(7) Regressive voicing assimilation in obstruent clusters

a. obligatory inside words:

i.	/pod-n^{j}os/	podn^{j}ós	'carried up'
ii.	/ot-n^{j}os/	otn^{j}ós	'carried away'
iii.	/pod-sel/	potsél	'sat near'
iv.	/ot-sel/	otsél	'sat away from'
v.	/pod-dal/	poddál	'kicked'
vi.	/ot-dal/	oddál	'gave away'

b. gradient/absent across words:

i.	/god n^{j}os/	gót n^{j}ós	'carried for a year'
ii.	/kot n^{j}os/	kót n^{j}ós	'tomcat carried'
iii.	/god delal/	gót délal	'did for a year'
iv.	/kot delal/	kót délal	'tomcat did'

Prepositions such as /k, v, s/ pattern as if word-internal with respect to voicing assimilation; this is usually taken to be evidence of their PWd-internal parse. But longer prepositions are not uniform with respect to this diagnostic: /tɕerez/ assimilates to the following voiceless obstruents, but /skvoz$^{j}_{\omega}$/ does not have to. This difference correlates with morphotactic behavior; the prepositions that voicing phonology diagnoses as PWds (such as /skvoz$^{j}_{\omega}$/) can host

2nd-position clitics, cannot double, and fail to invert in approximative inversion; the ones that behave as non-words in voicing cannot host 2nd-position clitics, can double, and do invert (see §7 for more).

(8) Regressive assimilation in prepositions

		Before V ("Oksana")	Before (opp. voice) stop	
a.	/k/	koksáne	gborísu	'to Boris'
b.	/v/	voksánu	ftebʲá	'in you'
c.	/s/	soksánoj	zborísom	'with Boris'
d.	/tɕerez/	tɕerezoksánu	tɕerestebʲá	'through you'
e.	/skvozʲ$_{\omega}$/	skvósʲoksánu	skvósʲborísa	'through Boris'

When it comes to enclitics, the picture is more complex. The one sonorant-initial enclitic, [li] 'question particle', conditions devoicing (as in /mog=li/ → [mók=li] 'he could Q'). But enclitics also undergo devoicing after apocope, as in /mog-l-a=bʲ/ 'she could irr.' [mogla=p]—see §3.3). Further, enclitics condition voicing assimilation, which would only be possible if they were inside the words (e.g., /boris=ʐe/ [boriz=ʐe] 'Boris, however', Halle 1959: 22). I analyze apocope and devoicing of enclitics in §3.3 and §5; for solutions to the assimilation problem, see Gouskova 2010; Padgett 2012. On the interaction between enclitics and prepositions, see §7.3.

3.2. Presence of at least One Stress

Another diagnostic of phonological wordhood in Russian is stress. Absence of a stress on a morpheme means it is not a word. Each word is required to have at least one stress, but more than one stress is possible in a word. Stress in Russian is contrastive and lexical; its phonological analysis requires assuming that more than one morpheme is accented in the UR (Halle 1973; Zaliznjak 1985; Melvold 1989; Alderete 1999; Revithiadou 1999; and others)—even though normally, only one of those stresses makes it to the surface. In (9), the underlined vowels are stressed according to Zaliznjak (1985). For example, in /band-it-izm/ [banditízm], each morpheme can be shown to be independently accented, but the two suffixes are also dominant, so stress falls on the outermost dominant suffix. When no dominant suffixes are present, the leftmost stressed morpheme wins, as in /band-a/ [bánda]. Crucially, though, there is no rhythmic secondary stress, nor a limit on the number of unstressed syllables in a row (cf. (9a), with six unstressed syllables following initial stress and (9b), with four unstressed syllables preceding penultimate stress). Secondary stresses can surface in compounds when the left-hand stem is accented, but not otherwise; there are also some loan prefixes such as /super/ and /psevdo-/ that regularly have stress (Yoo 1992; Gouskova 2010; Gouskova and Roon 2013).

(9) PWds have at least one stress: Single-root words:

a.	/vi̲-krista̲l-iz-ova̲-tʲ-sa/	vʼikristəlizəvətsə	'to crystallize$_{(PERF)}$'
b.	/krista̲l-iz-ova̲-tʲ-sa/	kristəlizavátsə	'to crystallize$_{(IMPF)}$'
c.	/ba̲nd-i̲t-i̲zm/	bənditízm	'banditism'
d.	/ba̲nd-a̲/	bándə	'gang'
e.	/golov-a̲/	gəlavá	'head'

Compounds can have more than one stress (but do not have to):

f.	/oboro̲n-o-sposo̲b-nostʲ/	abaròːnəspasóbnəstʲ	'defense capability'
g.	/golov-o-kruz̨-e̲n-ij-e/	gələvəkruz̨énijə	'vertigo (head-spinning)'
h.	/s-ve̲rx-tɕelove̲k/	svèrxtɕilavék	'superman'

Consistent with the voicing diagnostic, prepositions vary in stress. Morphologically complex prepositions (discussed in more detail in 4.2) are always stressed in a consistent location, determined by the morphemes in the string (e.g., [v-pered-í] 'in front of'). Some monomorphemic prepositions are also always stressed: /skvózʲ$_{ω}$/ 'through', /ókolo/ 'around'. (I will argue below that despite being stressed, *ókolo* is not a phonological word, based on its morphotactic behavior.) Other monomorphemic prepositions are usually unstressed except when stranded or focused (e.g., /tɕerez/ 'through', /pered/ 'before'); others cannot even be stranded (e.g., /u/ 'by, near'; see 7.2). Prepositions can also be stressed in fixed collocations such as /po neb-u/ [pó nib-u] 'across the sky' (Ukiah 1998; Blumenfeld 2012), with the following noun unstressed.[5] This ability to be stressed at the expense of the following noun is often taken to be evidence of prepositions being in the same phonological word as nouns, in accordance with other diagnostics.

3.3. Vowel Reduction and Deletion

Another diagnostic for word boundaries is unstressed vowel reduction (Bethin 1998, 2006; Crosswhite 1999; Barnes 2003; Padgett and Tabain 2005). In Moscow Russian, there is a five-way vowel contrast in stressed syllables: [i, u, e, o, a]. Unstressed syllables have a three-way contrast, [i, u, ə], but in the immediately pretonic position, it is [i, u, a]. Example (10a) shows vowel reduction in the root /golov/, in various word-internal positions. Under one analysis, reduction is conditioned by iambic footing, such that when the reducing vowel is in an unstressed syllable of an iambic foot, it is required to have a greater

[5] This is a fossil of the historical pattern whereby stress defaulted to the first syllable of a phonological word (Halle's 1973 Basic Accentuation Principle). This initial default for stress may be responsible for the location of stress in prepositions when they are stressed in isolation (e.g., [péred] 'in front of').

prominence than a vowel that is unfooted (as in [gə(la.v-á)] 'head'; see Crosswhite 1999; Gouskova 2010; Bennett 2012 and references therein). This analysis correctly predicts that word-final syllables should reduce as if unfooted even if the following word-initial syllable is stressed, since footing across phonological words is impossible (see (10b)). The vowel reduction diagnostic is most helpful when applied to prepositions that end in the vowels /o, a/. In the few prepositions that end in those vowels, they reduce as if the prepositions are in the same phonological word as the stressed syllable that follows (see (10c)).

(10) Pretonic vowel reduction inside and across words

a. Reduction patterns inside a phonological word: /golov-/ 'head'

gəla̲v-á	'head-$_{NOM.SG}$'	ga̲lóf	'head$_{GEN.PL}$'
góləv-ɨ	'head-$_{NOM.PL}$'	gələv-ə-kruẓénijə	'vertigo (compound)'

b. Reduction patterns across phonological words: /zolot-o/ 'gold'

zólət-ə̲ ínkəf 'Inca gold' (/*zólət-a̲ ínkəf)

c. Reduction in unstressed prepositions shows they are word-internal

/ob vsex/	əba̲ fséx	'about all'	
/po gorod-u/	pa̲ górədu	'around the city'	
/pered vsem-i/	pirida̲ fsémi	'about all'	
/na nix/	na̲ níx	'on them'	(/*nə níx)

Some of the examples above show vowel-zero alternations—for example, /pered/ 'before': [pirida fsémi] vs. [pirid námi] 'us' (Pesetsky 1979; Matushansky 2002; Gribanova 2009, 2010; Blumenfeld 2011; Linzen, Kasyanenko, and Gouskova 2013; Gribanova and Blumenfeld 2013). These alternations are not the best diagnostic for word boundaries, because they are phonologically variable and lexically specific. The single-consonant prepositions *s(ə)*, *v(ə)*, *k(ə)* are most prone to alternations but differ in details amongst themselves. Longer prepositions such as *iz(ə)*, *pod(ə)*, *ot(ə)*, *pered(ə)*, *tɕerez(ə)* show up with vowels only before a restricted set of items such as [vséx] (see 10c), and prepositions such as *vsléd*, *prótiv*, and *skvózʲ* never have a vowel-final variant. It seems reasonable to assume that when the vowel in the preposition is realized as [a]—as in [sa stén] 'from walls'—it is because the preposition is in the same phonological word as the following noun. After all, the vowel is more likely to show up depending on the location of stress in the following word, its initial consonant cluster, and so on (see Linzen, Kasyanenko, and Gouskova 2013). Other diagnostics, such as vowel reduction in the preposition, point to the same conclusion.

Another, unrelated vowel deletion rule applies in final position: enclitic apocope. This affects CV enclitics, whose vowelful (CV) variant shows up af-

ter a consonant, whereas the C variant shows up after a vowel (see (11a–d)). The alternation is close to categorical in Modern Standard Russian for [sʲa] but more variable for the other three morphemes in (11), compare (11a–d) with (11a′–d′).[6] The simplest analysis is that enclitics are parsed as word-internal when the vowel apocopates. The remaining consonant can then be syllabified with the preceding vowel. The devoicing in (11b,c) is just word-final devoicing.

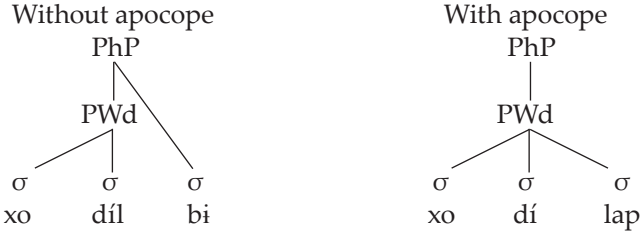
(11) Vowel deletion in C(V) enclitics

	After C:		After V:	
a.	bojál=sʲa	‘feared$_{(MASC)}$’	bojál-a=sʲ	‘feared$_{(FEM)}$’
b.	xodíl=bɨ	‘walked$_{(MASC)}$IRR’	xodíl-a=p	‘walked$_{(FEM)}$IRR’
c.	xodíl=ʐe	‘walked$_{(MASC)}$, though’	xodíl-a=ʂ	‘walked$_{(FEM)}$, though’
d.	búd-eʂ=li	‘you will Q.’	búd-u=lʲ	‘I will Q.’

	V retention OK?
a′.	*bojál-a=sʲa
b′.	xodíl-a=bɨ
c′.	xodíl-a=ʐe
d′.	búd-u=li

Thus, enclitics are parsed into one of two structures, depending on whether the vowel has been deleted or kept. These structures are assigned in the phonology, where both devoicing and apocope depend on whether the enclitic has been incorporated into the phonological word or appended to the higher phrase. I analyze apocope and devoicing more fully in §5.2.

(12) Prosodic structures for CV and C enclitics



3.4. Rules that Do Not Diagnose PWd Edges

Finally, I turn to some rules that I do not consider to be diagnostic of phonological word edges, even though they are sometimes considered to be

[6] The rule could be lexically idiosyncratic—I do not think it is possible to delete the vowel in the clitics [de], [ka], and [to] in my variety of Russian.

boundary-sensitive. First is *i*-backing. Russian vowels have backer or fronter allophones depending on whether the consonants preceding them are palatalized or velarized (Padgett 2003, 2010, and others). The direction of alternations is controversial, but I take it to be that consonant backness is fundamental and determines vowel pronunciation, but in some cases, affixes can effect a change on preceding consonants. It is sometimes claimed (e.g., Rubach 2000) that consonants palatalize before [i] at a suffix boundary (e.g., /rub-it^{j}/ [rub^{j}it^{j}] 'to chop'; cf. [ob-rúb-ok] 'stump'). At prefix and preposition boundaries, the vowel [ɨ] fails to induce palatalization on preceding consonants and maps to [ɨ] instead: /k ivan-u/ [kɨvanu] 'to Ivan', not *[k^{j}ivanu]. Prefixes likewise velarize following vowels instead of palatalizing themselves (e.g., [s-'ɨgr-an-n-ɨj] 'played (partic.)', [igr-at^{j}] 'to play (impf)']). But while there is an asymmetry in how consonant-vowel interactions work at prefix and suffix boundaries, it is really not clear that this asymmetry is a diagnostic of a word boundary, since all the other diagnostics point to the opposite conclusion. Moreover, Padgett (2010) points out that palatalization does not apply consistently even at suffix boundaries: /gus^{j}-in^{j}-a/ [gus'ɨn^{j}a] 'she-goose', /blag-ost^{j}-in^{j}-a/ [blagost'ɨn^{j}a] 'charity'.

Another rule that I do not consider to be a word boundary diagnostic is hiatus, even though it is sometimes claimed to be a boundary signal (Zubritskaya 1995; Halle and Matushansky 2006; Gribanova 2009 vs. Padgett 2008; Gouskova 2010). Hiatus deletion applies at suffix boundaries (under some analyses), but it fails to apply pretty much everywhere else, including root-internally ([á.ist] 'stork', [pa.úk] 'spider', etc.) at prefix boundaries ([pó-isk] 'search'), and at compound boundaries [zver-o-obráznɨj] 'beastlike'.

Finally, there is no bimoraic or disyllabic minimal word constraint in Russian. This is not particularly controversial, but it bears pointing out, since split patterning of function words often aligns with prosodic size in other languages. For example, Zec's (2005) generalization for Serbo-Croatian is that function morphemes project phonological words when disyllabic but cliticize when monosyllabic. Disyllabic English function morphemes are consistently stressed, whereas monosyllables are not consistent (Selkirk 1995 and others). In Russian, there is no such correlation. The only size requirement on phonological words is that they contain at least one syllable—that is, have a vowel. Words can be monosyllabic (e.g., [dn-ó] 'bottom$_{NOM.SG}$', [tl^{j}-á] 'aphid$_{NOM.SG}$', [dó] 'the note "do"', and many function PWds such as [já] 'I'). There is no evidence for a weight distinction among syllables[7]—no vowel length contrast, and codas do not contribute weight based on any diagnostics.

[7] Ryan (2014) finds gradient effects of onset weight on lexical stress distribution in Russian, but they do not compel categorical distinctions in prosodic cliticization.

3.5. Local Summary

To summarize, Russian marks its phonological words fairly well, and by several diagnostics, prepositions are phonologically heterogeneous. I listed the results of the diagnostics, applied to a range of Ps, in Table 1. Asterisks mean qualifications (* = cannot be stressed except in idiosyncratic collocations, ** = devoicing or stress applies if P is uttered in isolation or finally).[8] Some prepositions always procliticize, others usually do but can be PWds in some positions, still others are always PWds. As I will show next, this taxonomy only partially aligns with morphosyntactic characteristics of these items.

Table 1. Phonological diagnostics for PWd status

Prep.	Gloss	Devoicing	Voicing assim.	Stressed?	V Reduction
k(o)	'towards'	N/A	yes	no*	N/A (yes if *ko*)
pod(o)	'under'	yes	yes	no*	yes
tɕérez(o)	'through'	no**	yes**	no**	yes**
péred(o)	'before'	no**	yes**	no**	yes**
ókolo	'around'	N/A	N/A	yes	unclear
skvózʲ$_{\omega}$	'through'	yes	no	yes	no
prótiv$_{\omega}$	'against'	yes	no	yes	no

4. Prepositions: Internal Morphosyntax

Morphosyntactically, Russian prepositions can be identified as a uniform class based on some diagnostics (see §6), but they also exhibit many differences. Some of these differences are due to their internal structure. Other differences arise because the patterns in question crucially depend on phonological word status. The main point of this section is that the differences between prepositions cannot be reduced to having or lacking roots.

4.1. Root Prepositions vs. Head Prepositions

Russian prepositions come in at least two types: ones that consist of functional structure only, and ones that additionally contain lexical roots (as argued, for

[8] The vowel reduction patterns for the final vowel of [ókolo] require further study. My impression is that it can reduce, but optionally so.

example, by Yadroff and Franks 2001). I will adopt this assumption, since the evidence for prepositions having roots is abundant. Many Russian prepositions are monomorphemic and double as prefixes, e.g., /v/ 'in', /s/ 'with' (see Matushansky 2002 et seq.). These prepositions cannot act as roots. There are also, however, monomorphemic prepositions that contain recognizable roots that occur elsewhere in the language, in nouns, verbs, and adjectives (e.g., /√pered/ 'in front of' and √mezˌ 'between'—see (13)).[9] As was shown in §3, these prepositions do not pattern as phonological words most of the time—they lack a stress, they fail to undergo final devoicing before sonorant-initial words, etc. Thus, the presence of a root is not sufficient for phonological word status.

(13) Root prepositions that are not PWds: √pered 'before, in front of' and √mezˌ 'between'

a.	per^{j}ód	'front (n)'	e.	mezˌ-á	'division (n)'
b.	peréd-nik	'apron (n)'	f.	mezˌ-ev-á-t^{j}	'to plow a field (v)'
c.	o-pered-í-t^{j}	'to outrun (v)'	g.	pro-mézˌ-nost^{j}	'perineum (n)'
d.	peréd-n^{j}-aj-a	'entryway (adj/n)'			

Similar examples of noun, verb, and adjective use are easy to find for prepositions that do systematically form phonological words (such as √skvoz$^{j}_{\omega}$ and √protiv$_{\omega}$). Several examples are given in (13).

(14) Root prepositions that are PWds: √skvoz$^{j}_{\omega}$ 'through', √protiv$_{\omega}$ 'against'

a.	skvoz-n^{j}-ák	'draft (n)'
b.	skvoz-íst-ij	'see through, holey (adj)'
c.	skvoz-í-t^{j}	'to be drafty (v)'
d.	protív-nik	'adversary (n)'
e.	protiv-n-ɨj	'disgusting (adj)'
f.	protív-e-t^{j}	'to become revolting (v)'

These examples can be easily multiplied; quite a few Russian prepositions are productive roots (e.g., √króme$_{\omega}$ 'except' in [kromé-ʂ-n-ij] 'excessive (adj)', [króm-k-a] 'edge (n)'), √ókolo 'near' [okól-ɨts-a] 'vicinity'. The analysis of *ókolo* as monomorphemic is nonobvious, since etymologically, the initial *o-* and final *-o* are both affixes (with *kol-* being the root meaning "circle"—cf. [kolo] 'wheel' in Czech, [koło] in Polish). I argue that this is no longer a morphologically complex word. There is no word [kolo] in modern Russian, and the relationship between [okolo] and historically related words such as [kolobók]

[9] Example (13a) demonstrates a lexically idiosyncratic rule of stressed [o]-backing (see Padgett 2010 and others). Note that [mezˌ] has a variant, [mezˌdu], often pronounced as [mezˌu] in the multimedia subcorpus of the RNC. The alternation with [zˌd] is a remnant of an archaic rule that is no longer productive.

'fairytale dough boy' and [kolʲtso] 'ring' is too opaque. Sections 7.4 and 7.3 supply some morphosyntactic evidence that *ókolo* is patterning as a proclitic, monomorphemic preposition in the modern language. Its only surprising feature is that it is stressed, but this is consistent with the status of stress in Russian phonology, as reviewed in §3.2.

4.2. Prepositions with Roots

Russian has many prepositions that are morphologically complex and alternate between preposition and adverb categories (see (15)). Historically, words like *vperedí* and *sbóku* derive from PPs, where *-i* and *-u* are case morphemes (Hill 1977; Biskup 2019). Some of these case morphemes (esp. *-i*) are no longer productively used on corresponding nouns (though *-i* survives as a case morpheme in another declension). As discussed in more detail later, many of these words alternate between preposition and adverb. It is easy to demonstrate that these prepositions contain recognizable roots that occur in nouns, verbs, and adjectives. I show just a few examples in (16).

(15) Morphologically complex preposition/adverb class in Russian

a.	v-√pered-í	'in front of'	f.	√sred-í	'among'
b.	po-√zad-í	'behind'	g.	vo-√prek-í	'inspite of'
c.	iz-√nutr-í	'from inside of'	h.	s-√bók-u	'alongside'
d.	v-√nutr-í	'inside'	i.	so-√glás-n-o	'according to'
e.	v-√bliz-í	'near'	j.	√blag-o-√darʲ-a	'thanks to'

(16) Other words with the roots of [sred-í] 'among/in the middle of' and [v-bliz-í] 'near'

a.	sred-á	'environment (n)'	d.	bliz-n-éts	'twin (n)'
b.	po-sréd-nik	'mediator (n)'	e.	blíz-k-ij	'close (adj)'
c.	sréd-n-ij	'average (adj)'	f.	s-blíz-i-tʲ	'to bring closer (v)'

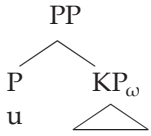
My analysis of the morphosyntactic structure of prepositions is shown in (17). I assume (with Yadroff and Franks 2001 and others) that prepositions that are morphologically simple and do not contain recognizable roots—e.g., *u*, *za*, *v*, *pro*, *dlʲa*—occupy the P head position (see (17a)). Morphologically complex prepositions (e.g., [v-pered-í]) have a more complex internal structure, with the null P head merged last (see (17b). I assume that the root in *v-pered-i* combines with *-i* first, then with *v-*, then merged with the null P-head (as shown in (17b)) or with a null adverbializing category head (not shown).[10] Prepositions

[10] I do not show a full derivation for lack of space, and because it is somewhat peripheral to the main point. For my purposes, the crucial assumption is that some move-

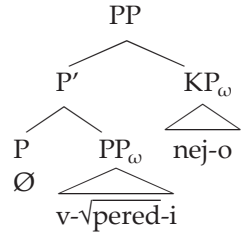
that have roots but no other overt morphemes (e.g., *pered*) consist of a binary branching structure: a root merged with a null P head (see (17d–f)). Such prepositions differ in whether the pieces that realize them are marked with ω diacritics, but the structures are the same. When such morphemes are used as nouns (e.g., [per^{j}ód] in (17c) below), the roots get PWd status because they have additional functional structure in the extended projection of the noun (case, number, etc.). I show where the ω diacritics are placed in each structure. Note that in some cases, the diacritics are generated syntactically when abstract morphemes move: for presentation purposes, they are shown on the phrase nodes, though they are really the property of the complex heads contained inside. In other cases, they are properties of the vocabulary items, as shown in (17f). Syntactic diacritics are passed to the strings that realize the structures, once the vocabulary items are inserted.

(17) Structure

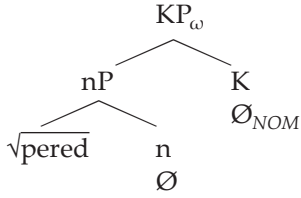
a. [u okn-à] 'by the window', simple P



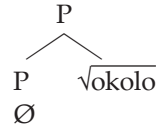
b. [v-pered-í nejó] 'in front of (prep) her'



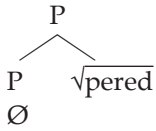
c. [per^{j}ód] 'front (noun)'



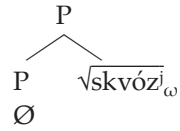
d. [ókolo] 'near (prep)'



e. [pered] 'before (prep)'



f. [skvóz$^{j}_{\omega}$] 'through (prep)'



ment be involved in the derivation of *vperedi* 'in front of' but not *pered* 'before'. Interested readers should consult Svenonius 2006 for a detailed treatment, albeit with different assumptions.

I assume that the semantic role of null P is to introduce a relational interpretation, which these same roots will lack in, say, nominal contexts, unless additional functional structure is present. The null P also is the explanation for the shared syntactic properties of these prepositions, such as their inability to be stranded by split scrambling and their selection for *n*-forms of pronouns (see §6).

5. Analysis of Phonological Word Formation

To analyze phonological word formation, I posit that Russian proclitics and enclitics are parsed differently: proclitics are incorporated into the same PWds as their hosts, whereas enclitics are weakly parsed into phonological phrases. When two ω-marked constituents are nested inside each other, only the outermost gets a PWd—this is similar to a "wrapping" effect (Truckenbrodt 1999), enforced by Selkirk's (1995) NONRECURSIVITY constraint.

5.1. The Basic Analysis of Proclitics

I start by analyzing proclitics and enclitics, and then discuss some consequences of this analysis. The constraints used in the analysis are standard in work on the syntax-phonology interface (Selkirk and Tateishi 1988; Selkirk and Shen 1990; Ito and Mester 1992; McCarthy and Prince 1993; Selkirk 1995); the main revision I introduce is reference to diacritic-marked constituent edges rather than lexical words.

(18) ω-to-PWd-L (formally, ALIGN-L, ω, L, PWd): "Assign a violation mark for every syllable that stands between the left edge of a string bearing a ω diacritic and the left edge of the nearest phonological word."

(19) PWd-to-ω-R (formally, ALIGN-R, PWd, R, ω): "Assign a violation mark if the right edge of a PWd does not coincide with the right edge of a string bearing a ω diacritic."

(20) NONRECURSIVITY(PWd): "Assign a violation mark for every PWd that dominates a PWd."

(21) EXHAUSTIVITY(PhP): "Assign a violation mark for every Phonological Phrase that dominates a constituent that is not a Phonological Word."

Tableaux (22) and (23) treat the prosody of two minimally different Russian prepositions. Prepositions such as /tɛerez/ do not normally project their own phonological words. The Russian phonological word diagnostics reviewed

in 3 point to their word-internal parse, suggesting the structure in (22a) is the output. The winner violates the requirement that the string realizing a ω-bearing XP (here, K(ase)P) must coincide with the left edge of the PWd. The same type of structure will be selected as optimal for rootless prepositions that occupy P heads (incl. [do] 'til', [na] 'on', [u] 'by, near', etc.). All are expected to procliticize and be word-internal. (Presentation note: when two PWds are shown side by side, as in (22b), they are dominated by a PhP, which is not shown for brevity. This applies throughout the analysis.)

(22) Deriving [tɕiriznijó$_{ω}$] 'through her'

($_{PP}$tɕerez ($_{KP}$nej-o)$_{ω}$)	NONREC (PWd)	PWd-to-ω-R	EXHAUST(PhP)	ω-to-PWd-L
☞ a. [tɕiriznijó$_{pwd}$]				**(tɕi, riz)
b. [tɕéris$_{pwd}$][nijó$_{pwd}$]		*!(tɕéris) W		L
c. [tɕéris[nijó$_{pwd}$]]$_{PhP}$			*! W	L
d. [tɕéris[nijó$_{pwd}$]$_{pwd}$]	*! W			L

On the other hand, the vocabulary item realizing the preposition *skvozʲ* enters the phonological derivation with its own ω diacritic from the lexicon. Both the pronoun [nejó$_{ω}$] and the preposition [skvósʲ$_{ω}$] get their own phonological words, as required by ω-to-PWd-L. The diacritic ensures that the prepositions /skvozʲ$_{ω}$/ and /tɕerez/ receive different prosodic parses, even though they have identical morphosyntactic structures. The analysis for /skvozʲ$_{ω}$/ extends to prepositions that have more complex structures, derived by movement, such as [v-pered-í$_{ω}$] 'in front of'.

(23) Deriving [skvósʲ nejó] 'through her', with a diacritically marked PWd preposition

($_{PP}$skvozʲ$_{ω}$ ($_{KP}$nej-ó)$_{ω}$)	NONREC (PWd)	PWd-to-ω-R	EXHAUST(PhP)	ω-to-PWd-L
a. [skvəzʲ nijó$_{pwd}$]				*!(nijo)
☞ b. [skvósʲ$_{pwd}$][nijó$_{pwd}$]				

5.2. Enclitics

As suggested in §3.3, enclitics such as [sʲa], [zʐe], [bɨ], and [li] alternate between two prosodic parses, depending on whether they have undergone apocope. A vowelful enclitic is an appendix to the phonological phrase, whereas an

apocopated enclitic is word-internal (recall the two structures in (12)). These options exist because the phonology allows for more than one parse, and despite each enclitic being in a consistent morphosyntactic position.

The driver of apocope is EXHAUSTIVITY(PhP). In (24a), the vowel has been deleted, and the enclitic is at the end of the phonological word—as confirmed by devoicing. The alignment constraint ω-to-PWd-R is not violated by the winner because the violations are reckoned by syllable; appending a single consonant does not violate EXHAUSTIVITY.[11]

(24) Analysis of apocope in enclitics

/xodila$_{\omega}$ bi/ 'walked (fem) IRR'	ω-to-PWd-R	EXHAUST(PhP)	MAX-V
☞ a. [xodílap$_{pwd}$]			*
b. [[xodila$_{pwd}$] bi$_{PhP}$]		*!	

On the other hand, neither apocopating nor parsing the enclitic inside the PWd is possible when the result of deletion would create a final consonant cluster—a structure known to be marked in Russian on independent grounds (Yearley 1995; Gouskova 2012; and others). When the PWd ends in a consonant, the enclitic is an appendix to the Phonological Phrase (see (25a)), since the alternatives involve fatal misalignment by a whole syllable (as in (25b)) or creating a consonant cluster in final position (25c).

(25) Prosodic treatment of enclitics: appendix to the Phonological Phrase

/xodil$_{\omega}$ bi/ 'walked (masc) IRR'	ω-to-PWd-R	*CC$_{pwd}$]	EXHAUST (PhP)	MAX-V
☞ a. [[xodíl$_{pwd}$] bi$_{PhP}$]			*	
b. [xodíl bi$_{pwd}$]	*!			
c. [xodílp$_{pwd}$]		*!		*

The interaction of apocope and word-final devoicing in enclitics underscores the ability of the phonological component to disobey some of the instructions it was given by the post-insertion component of the morphosyntax. If enclitics merely subcategorize for right-attachment to phonological words,

[11] I do not analyze the variation in apocope, but a basic analysis would assume a ranking or weight tie between EXHAUSTIVITY and MAX-V. Since the variation is lexical, with [sʲa] apocope being basically mandatory in modern Russian, MAX-V would need to be ranked or weighted on an item-specific basis—lower for [sʲa] than for the other enclitics. See Coetzee and Pater 2011; Linzen, Kasyanenko, and Gouskova 2013; Gouskova and Linzen 2015 for pertinent discussion and formalisms.

this requirement would not be satisfied in forms like [xodíla=p], where [p] is clearly word-final. If we instead view prosodification as the purview of the phonology proper, then the inconsistent behavior of enclitics follows—as suggested by Selkirk's (1995) theory, they go wherever the phonology can fit them.

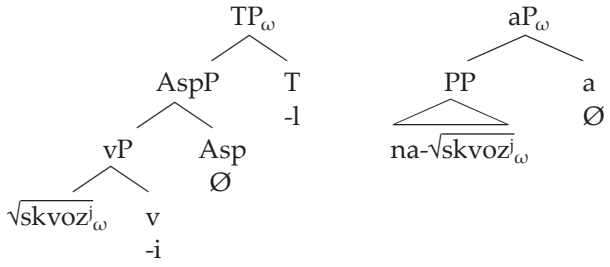
5.3. Diacritic-Marked Morphemes inside Other Words

This section treats roots like $\sqrt{\text{skvoz}^{j}}_{\omega}$ 'through' and $\sqrt{\text{proti}v}_{\omega}$ 'against' when they appear inside nouns, verbs, adjectives, and adverbs—the traditional "lexical" words. Some examples (transcribed narrowly, to illustrate all the relevant rules) are given in (26). As these examples demonstrate, a single phonological word is formed over the entire constituent when the root is embedded inside *n*, *v*, *a*. The syntactic structures I assume for suffixed and prefixed words are in (27).[12]

(26) Verbs, adjectives, adverbs, nouns with *ω*-marked roots are single PWds

a.	/skvoz^{j}-i-l/	skvazíl	'was drafty (v)'
a′.	/protiv-e-l/	pratível	'became revolting (v)'
b.	/skvoz^{j}-n-oj/	skvaznój	'drafty (adj)'
b′.	/protiv-n-ij/	pratívnij	'nasty (adj)'
c.	/na-skvoz^{j}/	naskvós^{j}	'through (adv)'
c′.	/na-protiv/	naprótif	'opposite (adv)'
d.	/skvoz^{j}-n-^{j}ak/	skvaz^{j}n^{j}ák	'draft (n)'
d′.	/protiv-nik/	pratívnik	'adversary (n)'

(27) Structure for [skvazíl] and [naskvos^{j}] after constituents have been assembled



[12] Work on the syntax of Russian verbs assumes that they rise to Asp or Neg if present, but not T (Bailyn 1995; Gribanova 2013; Harizanov and Gribanova 2019); if that is the case, then tense would have to lower onto the verb using the same mechanisms that are proposed for English tense hopping (see Embick and Noyer 2001 for discussion), and the operation would have to feed ω diacritic assignment.

My analysis of the syntactic structure of words like those in (26) predicts that in addition to the diacritic on the root, a second ω diacritic is generated for the entire structure assembled by head movement. (As before, the diacritic is shown on the TP and aP nodes, and is assumed to be the property of the branching structures they dominate.) The diacritics of roots like $\sqrt{\text{skvoz}^{j}}_{\omega}$ and $\sqrt{\text{protiv}}_{\omega}$ must be ignored in favor of the ones that are syntactically generated over the larger constituents. As shown in (28), this follows from the previously established ranking of NONREC(PWd) over ω-to-PWd-R (compare (28a vs. c)). The ω-marked morpheme *skvózj* is separated by a syllable nucleus, [i], from the right edge off the PWd, but the alternatives are worse.[13]

(28) One ω-marked constituent nested inside another, with suffix

(TP$\sqrt{\text{skvoz}^{j}}_{\omega}$ -i-l_{ω})	NONREC (PWd)	EXH (PhP)	PWd-to-ω-R	ω-to-PWd-R	ω-to-PWd-L
☞ a. [skvaz^{j} íl$_{\text{pwd}}$]				*	
b. [[skvós$^{j}_{\text{pwd}}$] íl$_{\text{pwd}}$]	*!				
c. [[skvós$^{j}_{\text{pwd}}$]il$_{\text{PhP}}$]		*!			

To summarize the analysis up to now, then, Russian tolerates PWd-internal proclitics because the constraint that requires PWds to coincide with ω-marked projections is outranked by various well-formedness requirements on prosodic structure. Constituents that enter the system with their own, lexical ω diacritics receive PWd status—except when they are embedded inside larger constituents with syntactically assigned ω diacritics. This is because recursive prosodic words are prohibited categorically in the language. The analytic points along with the rankings that derive them are summarized in (29). I do not present a detailed analysis of how non-ω-marked morphemes get promoted to PWd status in the phonology here; though see §7.2, where I adopt Selkirk's analysis.

(29) Prosodic structure formation in Russian

a. Weak layering for enclitics only: enclitics are dominated directly by PhP:
ω-to-PWd-R >> EXH(PhP) >> ω-to-PWd-L

[13] The tableau leaves out another candidate, [skvós$^{j}_{\text{pwd}}$][íl$_{\text{pwd}}$], which has two prosodic words in a sequence. This satisfies ω-to-PWd-R and violates only the lower-ranked ω-to-PWd-L. But the problem with this candidate is that it incurs a violation of ONSET, faithfulness to voicing /z/ [s], and the constraints that negotiate stress patterns in such verbs. I assume all of these must outrank ω-to-PWd-R.

(29) b. Proclitics are incorporated into PWd with hosts:
NonRec(PWd), PWd-to-ω-R >> ω-to-PWd-L

c. When two ω-marked constituents appear in a nested structure, only the outermost one maps to PWd:
NonRec(PWd), ω-to-PWd-R >> ω-to-PWd-L

This analysis predicts that it is possible for another language to have a different outcome: certain ω-marked morphemes should insist on being PWds even when embedded inside other PWds. One could analyze the behavior of the English prefix *un-* this way (see Borowsky 1986; Inkelas 1989 for some discussion). For my constraints to derive this, NonRec would be ranked below the alignment constraints.

6. Prepositions Pattern as a Class

With a basic analysis of the structure of prepositions and their phonology in place, I next turn to how they behave in the larger syntactic contexts. First, we consider some patterns where prepositions pattern as a class: *n*-allomorphy of pronouns and split scrambling. I suggest these patterns must be analyzed as syntactic, even though there is a plausibly phonological underpinning for them. I demonstrate that the phonological explanation is not right for these patterns—they must instead stem from the syntactic properties of the P head (null or overt). In §7, on the other hand, the prepositions diverge morphosyntactically, in a manner that aligns with their phonology rather than syntactic properties.

6.1. Syntactic Tests for Prepositions?

We need to establish a syntactic test for prepositions, but this is not entirely straightforward, and previous studies (e.g., Philippova 2018) sometimes conclude that some of the items in the descriptive class are not prepositions at all because the class is heterogeneous. A simple, classic test is adverbial modification with *right*/*straight*. Canonical spatial and temporal prepositions in English pass this easily (*right into the box*, *right at five o'clock*, *straight past the stop sign*), but some prepositions fail, such as *of* : **right of a table*, **right of five o'clock*. The only context where *of* appears to be thus modified is in complex phrasal prepositions, such as *in front of*, but they must be spatial/temporal to work (**right in lieu of*, **right in spite of*). Similarly, words such as *despite*, which seem prepositional based on their ability to assign case, nonetheless fail to pass the modification test (**straight despite him*)—presumably because they cannot be used spatially or temporally.

In Russian, the same holds. All canonical head P prepositions (*v* 'in(to)', *s* 'from/with', *k* 'towards', *ot* 'from', *na* 'onto', etc.) pass modification with *prʲamo* 'straight/right', as do root Ps that can be used spatially or temporally:

(30) Modification with *prʲamo* 'straight' for head Ps and root Ps

prʲámo + head P

a.	v dóm	'into the house$_{ACC}$'
b.	s déreva	'from the tree$_{GEN}$'
c.	do pʲatí	'till five (o'clock)$_{DAT}$'
d.	u dóma	'by the house$_{GEN}$'
e.	pósle polúdnʲa	'after noon$_{GEN}$'

prʲámo + root P

f.	skvózʲ tunnélʲ	'through the tunnel$_{ACC}$'
g.	pered dómom	'in front of the house$_{INST}$'
h.	ókolo dóma	'next to the house$_{GEN}$'
i.	vnutrí dóma	'inside the house$_{GEN}$'
j.	vsléd jemú	'after him$_{DAT}$'

Just as in English, prepositions that cannot be used spatially or temporally also cannot be modified this way: **prʲámo blagodarʲá druzʲjám* '*right thanks to friends$_{DAT}$', **prʲámo rádi drúga* '*right for the sake of a friend$_{GEN}$', *prʲámo soglásno slovarʲú* '*right according to the dictionary$_{DAT}$'. I take the position that these items are still prepositions and that this simply reflects a semantic limitation of the test.

6.2. Pronoun N-Allomorphy

Russian pronouns have two forms, mostly in complementary distribution (see (31) and (32)): *n*-forms, which occur with prepositions, and what I'll call iota-forms, which start with [i] or [j] and which occur as posessors, arguments of verbs, and so on (Hill 1977; Chvany 1982; Timberlake 2004; Philippova 2018).

(31) Oná uvídela jevó/*nevó.
she saw$_{FEM.SG}$ him$_{ACC}$
'She saw him.'

(32) Oná uşlá ot nevó/*jevó.
she walked$_{FEM.SG}$ from him$_{GEN}$
'She left him.'

The *n*-forms and iota-forms of all the third person pronouns that exhibit this alternation are shown in (33); nominatives cannot be objects of prepositions, and locative/prepositional case forms are always objects of prepositions, so there is only one set of forms in each column.

(33) Russian pronouns: iota-allomorphs and *n*-allomorphs

	Nom	**Acc, Gen**	**Dat**	**Inst**	**Loc/Prep**
SG FEM	on-á	jejó/nejó	jéj/néj	jéj/néj	néj
SG MASC/ NEUT	ón(ó)	jevó/nevó	jemú/nemú	ím/ním	nʲóm
PL	on-í	íx/níx	ím/ním	ími/ními	níx

Historically, the *n*-allomorphs resulted from a misparse of the prepositions *v*, *s*, *k*, which used to be **vъn*, **sъn*, **kъn*, with yer vowels (Hill 1977). Something similar happened in English: *nother* (*< *a*n *other*), *apron* (< **a n*apron*). What is interesting about the reanalysis in Russian is that it has spread from the three monoconsonantal prepositions to the entire class; as the class of prepositions has been expanding, so has the context for *n*-allomorphy. With just a few exceptions, prepositions pattern together: all appear with *n*-allomorphs under the right conditions (see Philippova 2018 for a recent in-depth study). The table below summarizes some examples of pronouns occurring as objects of verbs (first column), P-head prepositions, and root prepositions. Timberlake (2004: 176) notes, "[root prepositions] governing the dative do not use {n} ([v-sléd jemú] 'after him') and seem doomed never to develop {n}". But this might be changing, too: I found one hit in the RNC of *vopreki nemu* 'in spite of him' (vs. 60 hits with *jemu*), and Philippova (2018) reports some variation, as well.

(34) Conditioning of pronoun *n*-allomorphy: prepositions pattern together (all examples attested in RNC)

	With verb	**With P-head**	**With root prep.**
ACC	uvídelí jejó (/*nejó) 'saw$_{PL}$ her'	na nejó 'onto her'	skvózʲ nejó 'through her'
GEN	jevó (/*nevó) ne biló 'he was not there'	ot nevó 'from him'	otnosítelʲno nevó 'as regards to him'
DAT	kupíla jemú (/*nemú) 'bought$_{FEM}$ for him'	k nemu 'toward him'	voprekí jemú/nemú 'in spite of him'
INST	risovala imi (/*nimi) 'drew$_{FEM}$ with them'	pod nimi 'under them'	mézdu ními 'between them'

While this originated as a phonologically conditioned alternation, the conditions on allomorphy are structural. For one thing, it is not sufficient for the preposition to be linearly adjacent to the pronoun. When the pronoun is a possessive embedded inside an NP, as in (35), the iota-form is required. When the pronoun is the object of P, the *n*-form is required:

(35) Linear adjacency not enough to condition *n*-allomorphy:

Vót ʂto vɨrisovɨvalosʲ skvózʲ [jejó/*nejó bessvʲáznɨj rasskáz].
here what drew$_{INTRANS}$ through her$_{POSS}$ incoherent$_{ACC}$ story$_{ACC}$
'Here is what emerged from her incoherent story.' (RNC)

(36) Compare when "she" is the object of the preposition:

Póstnikov glʲadél skvózʲ nejó/*jejó.
Postnikov looked through her$_{ACC.PRON}$
'Postnikov looked through her.' (RNC)

Words that alternate between prepositions and adverbs, such as [vperedí], can only condition *n*-allomorphs when used as prepositions. This is shown in (37) and (38).[14]

(37) Adverbial use of *vperedi* does not condition *n*-allomorphy on adjacent "them":

Vperedí ix zʐdál tólʲko vólʲnɨj véter i volnújuɕɕije
ahead them$_{ACC.PL}$ waited only free wind and exciting
priklʲutɕénija.
adventures
'Ahead, only free wind and exciting adventures awaited them.' (RNC)

(38) Compare when "they" is an object of the preposition *vperedi* instead

Vperedí nix naxodílsʲa otrʲád uʐé iz
in.front.of them$_{GEN.PL}$ was.located squadron already from
nastojáɕɕix vóinov.
real warriors
'Ahead of them was a squadron of already seasoned warriors.' (RNC)

[14] N-allomorphy can also be conditioned by comparative adjectives (e.g., *beléje nejó* 'whiter than her'). But the conditions on it are a bit different and resemble a more phonologically conditioned alternation (see Philippova 2018).

This suggests that *n*-allomorphy is a property of the syntactic P head. To the extent that prepositions do not (yet) uniformly pattern as a class, the distinctions between them are syntactic (e.g., which case does the preposition assign), not lexical/phonological. As the work on this change in progress indicates (Hill 1977; Philippova 2018), it may eventually result in uniform conditioning of *n*-forms by all the prepositions.

6.3. Left Branch Extraction/Split Scrambling

Another feature that I argue is a syntactic property of the P head rather than a phonological one is the Preposition-First constraint in split scrambling. Split scrambling is a feature of colloquial Russian: an adjective appears away from the noun it modifies, either preceding or following it in the linear string (Sekerina 1997; Nowak 2000; Fanselow and Ćavar 2002; and others). The simple example below shows split scrambling in *wh*-movement, which is known as left-branch extraction (Ross 1967 et seq.). Note that the adjectival *wh*-word appears away from the noun it is modifying. (In the more formal register, the order would be *kakoj dom sgorel?*).

(39) Kak-oj sgorel dom-Ø?
which-$_{MASC.SG}$ burned house-$_{MASC.SG}$
'Which house burned?'

This scrambling can also apply to prepositional phrases, but it is subject to several constraints. One of them is dubbed the "P-First constraint" by Sekerina 1997. The constraint is descriptively stated in (40) and exemplified in the series of examples in (41–44). These show that both complex prepositions (*v-pered-i* 'in front of') and simplex ones (*u* 'next to') pattern alike with respect to P-First.

(40) P-First Constraint:
"Discontinuity within the PP can occur only if the prepositional object is modified by an adjective, and no part of the prepositional object may precede the preposition." (Sekerina 1997)

(41) Vperedí/u kakóvo oní priparkovalisʲ dóma?
in.front.of/next.to which$_{GEN.SG}$ they parked house$_{GEN.SG}$
'What kind of house did they park in front of?'

(42) Vperedí/u bolʲšóvo oní priparkovalisʲ dóma.
in.front.of/next.to big$_{GEN.SG}$ they parked house$_{GEN.SG}$
'They parked in front of the big house.'

(43) Vperedí/u dóma oní priparkovalisʲ bolʲšóvo.
in.front.of/next.to house$_{GEN.SG}$ they parked big$_{GEN.SG}$
'They parked in front of the big house.'

(44) *Bolʲšóvo dóma oní priparkovalisʲ vperedí/u.
big$_{GEN.SG}$ house$_{GEN.SG}$ they parked in.front.of/next.to
'They parked in front of the big house.'

Analogous examples can be easily constructed with other prepositions, regardless of length or PWd status. While the acceptability of splitting varies by speaker (it is an informal register), the ungrammaticality of (44) is striking: the word *vperedi* can appear in sentence-final position when used adverbially, but not as a result of split scrambling. Prepositions such as [u] cannot be used adverbially and cannot appear in final position (under any circumstances—see §7.2).

(45) Oní priparkovalisʲ vperedí.
they parked in.front
'They parked in front.'

(46) *Oní priparkovalisʲ u.
they parked next.to
'They parked in front.'

The syntactic analysis of the P-First constraint remains a mystery (see Bošković 2005 for a review). Movement analyses are problematic because various constraints on movement appear to be violated—constraints that do otherwise hold of movement in Russian. Approaches using base-generation or partial copy pronunciation (e.g., Fanselow and Ćavar 2002) can generate the apparently discontinuous constituents, but they also overpredict. Under such an analysis, it is not clear why the preposition must appear first. But one explanation that is ruled out is a phonological one. It cannot be the case that prepositions resist stranding due to their phonological dependency because even phonological word prepositions have this property. The P-First constraint appears to be due to a syntactic property of P, common to all of them. Since the generalization is not sensitive to the lexical identity of prepositions or their PWd status, it seems likely that the restriction is enforced in the narrow syntax, before lexical insertion.

7. Phenomena that Interact with Preposition Phonology

Having established that there are several cases where prepositions pattern as a syntactic class, I next turn to phenomena where prepositions are more heterogeneous, which turn out to be quite numerous. The facts below suggest at least a three-way distinction: prepositions that are obligatorily cliticized, prepositions that are obligatorily phonological words, and ones that oscillate between these statuses—sometimes in an inconsistent way.

7.1. Doubling

Provided the Preposition-First constraint is satisfied, prepositions may be doubled in colloquial Russian. But this doubling is only possible under certain information structure conditions (Goncharov 2015) and, I argue, only for phonological proclitic prepositions. An example from Goncharov is given in (47); similar examples can be constructed for *v* 'in', *s* 'from', *na* 'on', and other rootless prepositions. As noted by Yadroff (1999: 54), doubling is not possible for morphologically complex prepositions such as *v-pered-i*. Yadroff also notes that in Modern Russian, verbal prefixes (etymological relatives of prepositions) are often doubled as prepositions in the complement of the verb (see (49)). This again would only be available to procliticizing prepositions, since morphologically complex and root prepositions do not appear as verbal prefixes.

(47) Iz tɕáʂki ja pilá iz krásnoj.
from $cup_{FEM.GEN}$ I drank from $red_{FEM.GEN}$
'I drank from a red cup.'

(48) *Vperedí dóma ja stojála vperedí krásnovo.
in.front.of $house_{MASC.GEN}$ I stood in.front.of $red_{MASC.GEN}$
'I stood in front of a red house.'

(49) Ot-stupíl dobrovólʲno ot Kíeva.
$from\text{-}retreated_{MASC.SG}$ voluntarily from Kiev
'He retreated from Kiev voluntarily.' (Yadroff 1999: 71, gloss mine)

If this doubling is enabled by the phonological properties of prepositions, we would expect procliticizing root prepositions such as *pered* to be able to double, whereas prepositions such as *skvózʲ* and *prótiv* shouldn't double. This is indeed what we find in the spoken subcorpus of the RNC. There are numerous examples of doubled *pered*, but no examples of doubled *skvózʲ* (and I would judge the analog of (50) ungrammatical with that preposition).

(50) pered étoj mmm pered verándoj
in.front.of this$_{FEM.INST}$ mmm in.front.of porch$_{FEM.INST}$
'in front of this, um, porch' (RNC)

As expected, doubling is also a feature of sentential clitics *bɨ* 'irrealis' and *ʐe* 'topic', as the following RNC examples show. The first of the doubled clitics appears in second position (after the first phonological word), and the subsequent ones are optionally attached to phonological words that follow.

(51) A já bɨ soglasílsʲa bɨ rabótatʲ i za 5,000 rubléj.
whereas I IRR agree IRR work$_{INF}$ even for 5,000 rubles
'Whereas I would have agreed to work for a mere 5,000 rubles.' (RNC)

(52) Né bɨlo b tebé xoroʂó, t'ɨ b ne razmnoʐálsʲa bɨ.
not was IRR you$_{DAT}$ good you IRR not reproduce IRR
'If it didn't feel good to you, you wouldn't reproduce.' (RNC)

(53) vedʲ bez problémɨ ʐe nám ʐe nikák nelzʲá ʐe.
however without problem TOP we$_{DAT}$ TOP no.way cannot TOP
'However, without a problem, there simply is no way for us.' (RNC)

The requirement that multiply instantiated constituents be phonologically weak suggests that doubling is generated in the syntax, but whether copies get pronounced is resolved at PF (see Barbiers 2014). The Russian pattern suggests that doubling is filtered out or prohibited for constituents marked with ω; the first copy of non-ω morphemes is pronounced obligatorily, and the later ones optionally. I do not formalize an analysis of doubling here for lack of space, but an analogous pattern of prosodic conditions on ellipsis is analyzed in such terms in the following section.

7.2. Stranding in Ellipsis

Russian is similar to many non-Germanic languages in its reluctance to strand prepositions. As the example in (54) shows, some prepositions can be stranded by a kind of inversion under the right information structure conditions.[15] But this is not typical of the class as a whole (see Philippova 2018

[15] This type of inversion is likely not available to all speakers. I can strand *radi* in my own speech quite freely, but stranding *dlʲa* is not grammatical for me. If I had to read (54), I would destress both the prepositions, hence the stress markings. The RNC subcorpus from which this example is taken is based on written sources, which do not mark stress.

for more discussion of Russian prepositions that can either precede or follow their complements).

(54) Ne pjánstva radi, a udovólʲstvija dlʲa.
not drunkenness for.the.sake.of but pleasure for
'Not for the sake of drunkenness but for the sake of pleasure.' (RNC)

In contrast, stranding in ellipsis is available to a broader class of prepositions (Gribanova 2008). Gribanova observes that the non-syllabic prepositions {v, k, s} cannot be stranded, but most others can, as shown in (55–57). The elided parts of these examples are struck out:

(55) Kapitónov potɛtí ne pómnit, ʂtó bɨlo pósle ~~etovo~~, i
Kapitonov almost not remembers what was after this$_{GEN}$ and
plóxo pómnit, ʂtó bɨlo dó ~~etovo~~.
poorly remembers what was before this$_{GEN}$
'Kapitonov almost does not remember what happened afterward, and doesn't remember too well what happened before.' (RNC)

(56) V dánnom slútɛaje mʲɨ rassmátrivajem kófe ne pósle
In given event we consider coffee not after
závtraka, a péred ~~zavtrakom~~.
breakfast$_{GEN.SG}$ but before breakfast$_{INST.SG}$
'In this case, we consider coffee not after breakfast, but before.' (RNC)

(57) … I sám kagán v néj ili ókolo ~~nejo~~.
… and self khagan in her$_{ACC}$ or around her$_{GEN}$
'And the Khagan (Khan of Khans) is in it or thereabouts.' (RNC)

Crucially, this kind of ellipsis stranding seems to always involve paired/coordinated PPs, suggesting some sort of contrastive pragmatics, and the prepositions are obligatorily stressed and have a H* … L* intonational contour. In light of this, the example in (57) is particularly important, since it shows that the preposition in the first coordinated PP does not need to be syllabic and have a stress/pitch accent on itself. When one of the prepositions is monoconsonantal, however, it must be in the first PP. Inverting the phrases results in sharp ungrammaticality:

(58) *… I sám kagán ókolo nejo ili v ~~nej~~.
… and self khagan around her$_{GEN}$ or in her$_{ACC}$

In analyzing this pattern, I assume that the distinction between prepositions that can be stranded and those that cannot hinges on their ability to express the contrastive focus pitch-accent. This can explain why [v] and other C prepositions cannot be stranded: the prepositions must be focused, but there is no vowel to head a syllable/PWd, and vowel epenthesis is ruled out by DEP-V (in order for this to work, these prepositions have to be treated as underlyingly vowelless; see Gouskova 2012; Linzen, Kasyanenko, and Gouskova 2013; Gribanova 2015). The constraints needed for the analysis are defined below. ASSOCIATEPITCHACCENT is an undominated constraint that requires a pitch-accent to be on a stressed syllable. Also undominated is MAX-PITCHACCENT, a familiar faithfulness constraint. Both of these constraints dominate $\text{MPARSE}_{\text{Foc}}$ (and are abbreviated together in tableaux as PITCHACC). This constraint is violated when phonology fails to supply an output candidate for an input, producing the candidate instead. This is the candidate that wins in cases where a particular input is morphosyntactically well-formed but phonologically ineffable, such as (58). The derivation for this is shown in tableau (62).

(59) ASSOCIATEPITCHACCENT (Selkirk 1995): "A pitch accent associates to a stressed syllable (i.e., the head of a foot)"

(60) MAX-PITCHACCENT: "Assign a violation mark for every pitch accent in the input that does not have a correspondent in the output"—this protects Foc from deletion

(61) $\text{MPARSE}_{\text{Foc}}$: "Assign a violation mark if the input containing Foc lacks a correspondence relation to the output" (Informal; see Wolf and McCarthy 2010)

As shown in (62), the input has been linearized and includes two Foc tones, H* and L*. Candidate (62b) fails because it fails to realize the second pitch accent, L*. The second loser, (62c), inserts a vowel to give the preposition a syllable head. But, while epenthesis happens to resolve illicit segmental clusters and next to certain specific pronouns, it cannot happen for pitch accent realization. The last alternative, (62d), is to realize the L* on the wrong morpheme and to encliticize the preposition onto it—and this, too, is out. I assume that a candidate where stress is shifted, [ilív$^{\text{L*}}{}_{\omega}$], is categorically out because stress on *ili* can never be final.

(62) Stranding non-syllabic preps fails in the phonology: "around it or in <it> + Foc"

/ókolo$_{\omega}$+H* nejó$_{\omega}$ ili v+L*/	DEP-V	PITCHACC	MPARSE$_{Foc}$	ω-to-Pwd-L
☞ a. ⊙			*	
b. [ó^{H}kolo$_{\omega}$] [nejó ili v$_{\omega}$]		*!		
c. [ó^{H*}kolo$_{\omega}$] [nejó$_{\omega}$] [ilivó$^{L*}{}_{\omega}$]	*!			*(ili)
d. [ó^{H*}kolo$_{\omega}$] [nejó$_{\omega}$] [íliv$^{L*}{}_{\omega}$]		*!		*(ili)

The vowelless preposition *v* 'in' can associate with the pitch accent when it is a proclitic, as in (63). This must be because the pitch accent is sufficiently close to it phonologically—that is, ASSOCIATEPITCHACC is satisfied. In such a case, the MPARSE$_{Foc}$ constraint becomes active, ruling out the null parse ⊙ candidate.

(63) Focus associates to syllable that [v] is in: "in it or around <it> + Foc"

/v+H* néj$_{\omega}$ ili ókolo$_{\omega}$+L*/	DEP-V	PITCHACC	MPARSE$_{Foc}$	ω-to-Pwd-L
☞ a. [vné^{H*}j$_{\omega}$] [ili ó^{L*}kolo$_{\omega}$]				*(ili)
b. [vó$^{H*}{}_{\omega}$][néj$_{\omega}$] [ili ó^{L*}kolo$_{\omega}$]	*!			
c. ⊙			*!	

Another condition on stranding is that some prepositions (e.g., [u]) appear to resist stressing in this context altogether. The ungrammatical example in (64) is all the more striking since it is syntactically quite parallel to (57). Another preposition that does not seem to be strandable in this way is [pro] 'about'.

(64) *… I sám khagan v néj ili ú ~~nejó~~.
and self kagán in her$_{GEN}$ or near her$_{ACC}$

A few explanations are available. One is that some prepositions idiosyncratically resist stress, possibly due to a high-ranked morphologically specific constraint against stress insertion.[16] There is evidence for this: Ukiah (1998) does note that these same prepositions are never stressed in fixed collocations; this is all the more puzzling as the vowelful allomorphs of *v, k, s* can be (e.g., in the archaic and stylistically marked [vó pole] 'in a field'). Since Russian speakers see other evidence of arbitrary prosodic distinctions between morphemes,

[16] High ranked but not undominated, since any preposition (except *v, k, s*) can be focused in other contexts, as in *já zabrál knígu* ***ú*** *óli* 'I took the book **from** Olga'.

they have this hypothesis available for the distinction between *u* 'by, near' and *ókolo* 'around'. The other possibility is that the condition is syntactic, since prepositions are known to be syntactically variable.

7.3. Ability to Host Second Position Clitics

Yet another split between PWd prepositions and non-PWd ones is their ability to host second position clitics. Second position clitics attach to constituents that are initial in a particular domain (Klavans 1985 et seq.). The treatment of 2nd-position clitics has long been a matter of controversy in Slavic and beyond (Marantz 1988; King 1995; Franks and King 2000; Embick and Noyer 2001; Bošković 2001; and many others). At issue is the nature of the cliticization context—is it syntactically or phonologically defined? Russian prepositions supply an argument in favor of phonological conditioning. The facts resemble the patterns reported for Serbian by Diesing and Zec (2017).

Second position enclitics such as the question particle *li* appear after the first phonological word as shown in examples (65–66). The negation particle *ne*, itself a proclitic, does not count as a word for the purposes of cliticization, so the prepositions *radi* and *mimo* host two clitics each in these examples.

(65) Ne rádi li níx tak uproɕɕenó dvizẹ́nije v
not for.the.sake.of Q them so simplified$_{PRED}$ traffic in
tséntre, po kolʲtsú?
center along ring
'Is it not for them that traffic has been simplified so much downtown, along Ring Road?' (RNC)

(66) Ne mímo li níx tetɕót reká i unósitsa vníz … ?
not past Q them flows river and rushes downward
'Is it not past them that the river flows, and rushes downward … ?' (RNC)

Russian has several other PWd-targeting enclitics: irrealis *bɨ* and contrastive topic *ʐe*. They can occur on the main tensed verb, but they also commonly follow a 2nd-position clitic distribution:

(67) Skvózʲ bɨ zémlʲ-u im v tartarar'ɨ proval-ít-sa.
through IRR earth-$_{ACC.SG}$ them into hell fall-$_{INF-INTR}$
'Would that they fall through the earth into hell.' (RNC)

(68) Vperedí zę pl^{j}ónk-i molékul-ɨ vózdux-a
in.front.of though film-*GEN.SG* molecules-*NOM.PL* air-*GEN.SG*
dvígaj-ut-sa naprávlenno …
move-*PL-INTR* directionally
In front of the film, however, the air molecules move directionally …
(RNC)

But prepositions do not appear to be promotable to PWd status for the purposes of hosting these enclitics. I did not find any examples of **pered li*, **tɕerez zę*, let alone **na zę*, **k zę*, and so on.

The distribution of these particles suggests that they live in some high clausal position on the left periphery (say, CP), but are reordered to 2nd-position after the first ω-bearing constituent, once the vocabulary items have been inserted.[17] Adapting a Local Dislocation-style rule (Embick and Noyer 2001), we can state this more formally as below. The rule states that the constituent in C is repositioned after the first ω-bearing word it is adjacent to:

(69) Second position sentential clitics after the first PWd
$[_{CP}\ C\ *\ X_{\omega}] \rightarrow [_{CP}\ X_{\omega}\ *\ C]$

One of the consequences of this analysis is that it allows us to position clitics without doing phonology before syntax; whether the first ω-marked constituent is actually prosodified as a full PWd or not is still up to the phonology. This seems right. In some fixed expressions (e.g., [xót^{j} bi] 'even-IRREALIS') the syllable before the clitic may optionally be destressed. Under my analysis, the clitic is positioned with reference to the PWd diacritic of [xót^{j}], which is subsequently destressed, with both morphemes procliticizing onto the following word.

Recall from 4.1 that *ókolo* 'around' is claimed to be a monomorphemic preposition that is undergoing reanalysis and becoming a procliticizing preposition like *pered* 'before' and *tɕerez* 'through'. The RNC supports this: all the examples of [ókolo] hosting 2nd-position clitics (only [zę] and [bi], no [li]) are archaic, from the 1800s. Searching larger corpora such as the search engine Yandex yields mostly Bible translation examples, again in archaic Russian. The most straightforward explanation for this is that the preposition is no longer morphologically complex and is not ω-marked. Additional evidence for this is in the next section.

[17] The rule must be lexically specific, since there are some 1st-position unstressed clitics in Russian, too: the difficult-to-translate *nu* and adversative *da* come to mind. While both are normally 1st-position proclitics, they differ in their stress properties and differ in their ability to invert (thanks to Masha Esipova for drawing my attention to these facts).

7.4. Approximative Inversion

Another phenomenon in Russian morphosyntax that is sensitive to phonology is approximative inversion (recall (3)); see Billings 1995; Franks 1995; Yadroff and Franks 2001; Matushansky 2015; Khrizman and Rothstein 2015; Pereltsvaig 2006 inter alia). As defined by Matushansky (2015), "approximative inversion … reverses the normal linear order between a cardinal and a noun with the semantic effect of imprecision". One crucial aspect of this phenomenon is that it clearly has an effect on interpretation, suggesting it happens in the narrow syntax (before the derivational Y-split into PF and LF). And yet it is subject to several phonological constraints on the inverted constituents (see especially Billings 1995; Matushansky 2015). The constraint I will focus on here is on prepositions. When approximative inversion applies to an NP that is an object of a preposition, the preposition can appear between the inverted noun and cardinal numeral—if P is not a phonological word. Thus, the nonsyllabic and CV prepositions such as [k], [za], and [na] normally appear in the middle of the inverted construction, procliticizing onto the cardinal. As shown in (70) and (71), the P-Cardinal order is more common than P-N in the RNC but both orders are possible:

(70) tɕasám k pʲatí (66 hits), ✓ k tɕasám pʲatí (3 hits)
hour$_{DAT.PL}$ towards five$_{DAT}$
'towards about 5 o'clock' (RNC)

(71) tɕása za poltorá (31 hits), ✓ za tɕása poltorá (1 hit)
hour$_{GEN.SG}$ during one.and.a.half
'in the course of 1.5 hours' (RNC)

On the other hand, morphologically complex prepositions that systematically project phonological words, such as [vperedí] 'in front of' and [soglásno] 'according to', cannot appear inside the inverted construction— they obligatorily precede it (Yadroff and Franks 2001). These prepositions cannot appear between Noun and Cardinal (*N P C), so inversion happens inside the complement without the preposition procliticizing onto the Cardinal (✓ P [N C]):

(72) blagodarʲá zaprósam desʲatí *zaprósam blagodarʲá desʲatí
thanks inquiries$_{DAT.PL}$ ten$_{DAT}$
'thanks to about 10 inquiries'

(73) szádi tɕelovék pʲatí *tɕelovék szádi pʲatí
behind people$_{GEN.PL}$ five$_{GEN}$
'behind about five people'

One of the conditioning factors in approximative inversion is prepositional semantics. Temporal approximation lends itself to inversion more easily than spatial approximation. This makes it difficult to test prepositions that tend to only be used spatially, such as [pered] 'in front of'. But Russian does supply a minimal pair that allows to control for semantics. The two prepositions meaning "through", [tɕerez] and [skvózʲ], primarily differ in phonological properties, and this difference correlates with ability to invert: [skvózʲ] is always a phonological word and cannot invert, whereas [tɕerez] is not a phonological word and does invert:

(74) *Mɨ projéxali tunnélej skvózʲ pʲátʲ, a mózɣet i ɕéstʲ.
we drove tunnels through five or maybe even six
'We drove through about five tunnels, or maybe even six.'

(75) Mɨ projéxali tunnélej tɕerez pʲátʲ, a mózɣet i séstʲ.
we drove tunnels through five or maybe even six
'We drove through about five tunnels, or maybe even six.'

Another feature of this rule is that the Cardinal (e.g., [pʲátʲ] in (75)) bears a strong pitch accent (H* in the simplest case).[18] I think this is key to analyzing the behavior of prepositions, as well as some other aspects of the rule that I do not discuss at length, such as the restriction of the pitch accent-bearing Cardinal to one PWd (Billings 1995; Matushansky 2015).

I propose the following analysis. The movement that creates the approximative inversion must happen in the narrow syntax in order to feed the semantic interpretation at LF.[19] Prepositions are relocated to the middle of the inverted structure after vocabulary insertion, once PWd diacritics have been

[18] Another possibility, suggested by an anonymous reviewer, is that inversion is similar to 2nd-position cliticization, rather than being due to a pitch adjacency requirement. I suspect that pitch plays some role in 2nd-position cliticization, too: in Russian, the clause-initial PWd that hosts 2nd-position clitics is usually marked by prosodic focus of some sort. This is clear in the case of *li* 'Q', as well as the discourse particles, which are associated with intonational as well as positional prominence. So 2nd-position cliticization and approximative inversion could ultimately be unified.

[19] In order to explain the single-word effects discussed by Billings and Matushansky, we could say that cases where the Cardinal exceeds one PWd are generated in the syntax but crash in the phonology (i.e., map to ⊙) when trying to combine with the pitch accent, which for some reason requires a single PWd to bear it.

generated. The preposition swaps places with the immediately adjacent N in order to be left-adjacent to a Cardinal bearing the H* accent—again, as long as that Cardinal is a PWd and P is not.

(76) Local dislocation of P in Approximative Inversion
$P * [N_{\omega} * [Card_{\omega}, H^*]] \rightarrow [N_{\omega}^* P + [Card_{\omega}, H^*]]$

Before concluding, let's consider what appears to be an exception to the generalization that only non-PWd prepositions can appear in the middle of an approximative inversion construction. Matushansky (2015) notes that [ókolo] inverts, and indeed there are many (temporal) examples such as the following in the RNC:

(77) Dn-éj tɕerez désʲatʲ, tɕasóv ókolo pʲatí, v dvérʲ
day-*GEN.PL* through ten hour*GEN.PL* around five in door
mojéj kómnati-kvartíri postuteáli.
my room-apartment knocked
'About ten days later, around five o'clock, someone knocked on the door of my studio apartment.' (RNC)

This would be problematic if *ókolo* was a PWd, but I argue that it is not one—despite bearing stress. Recall from §3 that Russian does not have a one-to-one match between stresses and phonological words. Every PWd must have one, but some can have more than one (Gouskova and Roon 2013 and others). There is evidence that *ókolo* can be stressed even inside another PWd—for example, Zaliznjak (1977) consistently transcribes secondary stress for words containing it and other roots (e.g., [ȍkolo-zemnój] 'near-Earth$_{ADJ}$'). We can count the ability of *ókolo* to invert in approximation among the signs that it is moving away from being a morphologically complex root preposition toward one that is merely a root categorized with a null P, just like *pered* and *tɕerez*.

7.5. Local Summary

To summarize, I have argued that the prepositions of Russian pattern as a class in narrow syntactic phenomena (n-allomorphy, P-First constraint in split scrambling), but are heterogeneous with respect to morphotactic and morphosyntactic patterns that are sensitive to their phonology (doubling, stranding in ellipsis, hosting 2nd-position clitics, and P-flop in approximative inversion). The patterns are summarized in Table 2 on the opposite page for a few key prepositions.

Table 2. Summary of morpho(syn)tactic pattern differences among Russian Ps. (*~yes* means 'is starting to', *~no* means 'used to')

		n-Allo.	P-First	Doubling	Ellipsis	2p. Clitics	Appx. Inv.
k	'towards'	yes	yes	yes	no	no	yes
u	'by, near'	yes	yes	yes	no	no	yes
do	'till, up to'	yes	yes	yes	yes	no	yes
pod	'under'	yes	yes	yes	yes	no	yes
tɕerez	'through'	yes	yes	yes	yes	no	yes
okolo	'around'	yes	yes	yes	yes	~no	yes
skvozʲ$_{\omega}$	'through'	yes	yes	no	yes	yes	no
vperedi	'in front of'	yes	yes	no	yes	yes	no
blagodarʲa	'thanks to'	~yes	yes	no	yes	yes	no

I argued that the prepositions pattern together in the first two patterns because they all have or are P heads. The differences with respect to the last four patterns stem from two properties of these prepositions. First, some default to proclitic status, and others default to PWd status—either because their vocabulary items bear lexical ω diacritics (*skvozʲ*, *protiv*) or because they were put together in the syntax. These Ps will pattern differently with respect to morphological rules that refer to these diacritics (2nd-position clitic positioning, P-flop in approximative inversion). Second, some prepositions can be promoted to PWd status in the phonology when the syntax puts them in certain places, and others cannot be. Promotion is categorically out for monoconsonantal *k*, *v*, *s* for obvious reasons, and for prepositions such as *u* and *pro* for murkier reasons. Longer prepositions can be promoted to PWds, Selkirk (1995) style, and this allows them to be stranded by ellipsis and prevents them from being doubled. The syntax does not differentiate between Ps in these patterns, but the phonology treats them differently.

8. Alternatives

8.1. Lexical Phonology

In the past, it has been suggested that Russian prepositions are attached in the lexicon, as if they were prefixes (Kiparsky 1985). A Lexical Phonology analysis along these lines does have several appealing features. It could explain why morphologically complex prepositions have the phonological properties of

"finished" phonological words—they would have to pass through the lexical phonology strata as they were assembled. It could also be extended to explain the differences between monomorphemic prepositions that always form PWds vs. ones that do not by stipulating passage through a certain stratum for the former class but not for the latter. Many arguments have been adduced against lexicalism—both on general, architectural grounds (Marantz 1997) and specifically with Russian prepositions in mind (Padgett 2002; Gouskova 2010; Linzen, Kasyanenko, and Gouskova 2013). These arguments have not convinced everyone (Bermúdez-Otero 2010; Kaisse 2017; and many others). This is possibly due to the appeal of the underlying intuition that syntactic domains correspond indirectly to phonological ones (for particularly clear discussion, see Wolf 2008).

I think that several of the facts discussed in §7 suggest that the positioning of the prepositions cannot be determined in the lexicon—it is determined in the syntax. This determination sometimes happens fairly late in the derivation, and it is subject to syntactic constraints. If PWd-sized units were formed in the lexicon and submitted to the syntactic component for moving around as units, then some fairly elaborate additional explanations would be needed to get prepositions into place. Undoubtedly, a Lexical Phonology account could be made to work with these facts, but it would need to address the syntactic complexity of the phenomena surrounding Russian prepositions, not just their phonology and internal morphology.

8.2. Everything is a PWd as a Default

Tyler (2018) discusses some facts from English that are similar to the Russian pattern (e.g., the "up" vs. "of" contrast) and proposes an interesting analysis: the proposal is that PWd formation at every syntactic node is the default, and that certain morphemes (e.g., *of* in English) must be prosodic clitics because of their special subcategorization frames. Empirically, this would give the right coverage for Russian monomorphemic prepositions: regardless of their root vs. head status, the ones that obligatorily cliticize would be given the right subcategorization frames, while prepositions such as [skvoz^j] would follow the default pattern—this simply flips what is the norm and what is the exception compared to my analysis.

The main problem I see for this type of analysis is that it is unclear how to derive the fact that morphologically complex prepositions are PWds. There is no obvious connection between morphosyntactic complexity/derivedness and word status in this analysis, and it seems to me that this is a generalization worth capturing. Conversely, just because something is monomorphemic does not altogether predict its behavior. There are different flavors of prepositional monomorphemic clitics in Russian: some cliticize because they phonologically have to (*v*, *k*, *s*), others cliticize because they are not labeled as PWds,

and there are subtle differences in their syntactic patterning based on stress characteristics. Reducing all of these differences to subcategorization frames does not seem possible; the system is richer than that.

8.3. Every Step of Movement Adds a PWd Diacritic

Another possibility, suggested by an anonymous reviewer, would tweak my proposal slightly so that every step of movement generates a PWd diacritic. The phonological component would then decide which bracketings to treat as words via the action of constraints such as NonRecursivity(Pwd). This is an interesting idea that could be viewed as a combination of traditional cyclicity (Chomsky and Halle 1968) with modern assumptions about the syntax (for proposals that could be interpreted as employing this idea, see, e.g., Marvin 2002; Bachrach and Wagner 2007). These proposals cannot be addressed in the detail they deserve here, but I see two main issues. One is recognizing that morphemes are heterogeneous with respect to supposedly cyclic rules. Some morphemes are consistent with the cyclic treatment, while other, similar ones ignore phase boundaries (see Gouskova and Linzen 2015 on Russian diminutives; for English, Benua 1997 has a particularly clear discussion of arbitrary distinctions between affix classes). Another issue is getting the phonology to be appropriately sensitive to differences between morpheme boundaries and word boundaries. Such differences have been recognized for a long time (starting at least with Trubetzkoy 1939; see Gouskova 2018 for an overview), and I doubt they can be viewed as a purely phonological matter. I am willing to suspend my skepticism pending a more developed exploration of this idea.

9. Conclusion

Syntactically, Russian prepositions form a substitution class in that they are able to take objects, much as verbs do. Phonologically, however, they run the gamut from single consonant clitics (*v*, *s*, *k*) to monosyllabic clitics (*do*, *iz*, *pri*), polysyllabic clitics (*pered*, *tɕerez*, *ókolo*), and phonological words of varying lengths (*skvózʲ*, *pozadí*, *otnosítelʲno*). I presented some evidence that many of the differences in the morphosyntax of prepositions follow from their phonological, as opposed to semantic or syntactic characteristics. Prepositions that normally form phonological words have certain morphosyntactic behaviors in common that set them apart from clitics: they cannot be doubled; they can host clitics such as *li*, and they must appear initially in a PP that contains an approximative inversion construction. Conversely, clitic prepositions, regardless of size, can be doubled, cannot host clitics, and optionally cliticize onto cardinal numerals in approximative inversion PPs. Within this class, the single consonant clitics further pattern apart from most of the others in that

they cannot be stranded in ellipsis—some Ps can be promoted to phonological word status in such cases, while others cannot.

Any complete theory of the interface must account for apparently arbitrary distinctions between prepositions that always form PWds and prepositions that never do vs. prepositions that fluctuate back and forth. I suggested several ways to analyze these patterns. Some patterns follow straightforwardly from familiar classic approaches to the prosodification of function words, such as Selkirk 1995: when the position of P requires PWd status, it is conferred in the phonological component, to satisfy the relevant constraints. Other patterns must be analyzed outside the phonology proper, but the phonology can still be a dead end for certain derivations that are syntactically well-formed but phonologically unmanageable—these map to null outputs. Finally, there are movement operations after syntax that refer to phonological words—I used a variety of Local Dislocation to analyze those, with the main new contribution being that in my framework, it can happen before phonology proper starts. The diacritic information about PWd status is available before the phonology begins, but it is not the final word on where phonological word boundaries will lie.

PWds are not homogeneous in origin within the theory. Some are created in the syntax, others are morphemes lexically labeled as PWds, still others are created in the phonological component when they end up in certain positions or are combined with certain pitch accent morphemes. This is a richer theory than those that allow PWd creation at certain syntactic nodes only (Svenonius 2016), but this enrichment is motivated by the existence of lexically pre-designated PWd prepositions.

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Reviews

Bill J. Darden. *Studies in phonological theory and historical linguistics*. Bloomington, IN: Slavica Publishers, 2015. viii + 434 pp. ISBN 978-089357-446-8.

Reviewed by Rick Derksen

As suggested by its title, this collection of studies by Bill Darden consists of two parts. The first part contains 17 articles on historical linguistics, 14 of which were originally published in the 1990s. The topics range from Proto-Indo-European and Balto-Slavic to Baltic and Slavic individually. The 10 articles on phonological theory which make up the second part of the book were for the greater part published in the 1970s and 1980s. The most recent phonological study, which is also the article that concludes the volume, is a retrospective on phonology in Chicago in the period 1965–2004. Considering that the author has "never felt any disconnect between diachronic linguistics and linguistic theory" (1), it will come as no surprise that the division between the two parts of the book is not as strict as it may seem. The phonological studies feature many examples from Slavic and Baltic that involve historical developments, while phonological theory is employed to gain a better understanding of historical changes. Throughout the collection one can observe an interaction between phonological theory and empirical findings.

Since I feel that I could hardly do justice to Darden's theoretical work on phonology and morphophonology, I shall focus on the first part of the book. The earliest article on historical linguistics in this collection (Darden 1979) is actually, I am ashamed to admit, the only publication that I knew beforehand. It is a critical assessment of Illič-Svityč's monograph on Slavic and Baltic nominal accentuation (1963, English translation 1979), which tries to clarify the relationship between Slavic and Baltic nominal accent paradigms while providing comparative proof for its Indo-European origins. Darden rejects Illič-Svityč's claims, finding himself closer to Kuryłowicz's view that the Balto-Slavic and Indo-European accent classes are genetically unrelated. When I first read Darden's article, which must have been when I was working on my dissertation (Derksen 1996), I considered Kuryłowicz's accentological work largely obsolete and, to be honest, I see no reason to change my mind. Darden makes a number of valid points, however, as I already realized at the time. First, Illič-

Svityč's handling of data from dialect descriptions and manuscripts, which on the whole was a crucial step forward in comparison with that of many predecessors, occasionally seems somewhat eclectic (92). Second, there is the fundamental issue of to what extent it is justified to identify etyma from different branches of Indo-European as a form that can theoretically be traced to the same protoform, since one or more cognates may have been created at a later stage (ibid.).[1] I agree with Darden that some of Illič-Svityč's comparisons have little evidential value. It does not seem very useful, for instance, to compare Lith. *gãnas* 'herdsman', cf. *ganýti* 'to herd', directly with Skt. *ghaná-* 'striker, killer, club' (101; cf. Derksen 2015: 163). In a publication from 1989, Darden tries to evaluate part of Illič-Svityč's Lithuanian comparative data—the discussion is limited to nouns with a so-called short root—by classifying them into six categories. This categorization is based on the reliability of the etymological connection. Then he combines these sets of forms with a system that purports to quantify the reliability of the accentual variants. Darden again reaches the conclusion that Illič-Svityč's claims cannot be substantiated.

I have no intention of discussing Darden's accentological studies in detail, though his transparent and open presentation reads like an invitation to do so. I would like to point out, however, that apart from questioning certain aspects of Illič-Svityč's methodology, Darden also succeeds in pinpointing one of the main weaknesses of the monograph, to wit, the unconvincing treatment of the fate of the neuter *o*-stems (93). According to Illič-Svityč, Slavic neuter *o*-stems with a short root regularly correspond to Lithuanian masculine *o*-stems with mobile stress, but the evidence does not bear this out. A common pattern is accentual paradigm (AP) b in Proto-Slavic corresponding to AP 2 (original stem stress) in Lithuanian (e.g., *keřslas* AP 2/4 'cutter' vs. PSl. **čerslò* AP b 'ploughshare'). I have argued that in these cases the Lithuanian barytone stress results from an East Baltic retraction of the ictus from **-à*. The stress shift is often accompanied by metatony. Here it is unfortunate that Darden does not discuss nominals with a "long root", as it distorts the overall picture. His motivation was undoubtedly that long roots under certain circumstances attract the stress, which would obscure an original distribution between barytones and oxytones. However, the conditions of this retraction, which is known as Hirt's law, are such that there remains plenty to be said about the preservation of the original state of affairs. Furthermore, a discussion of Lithuanian nominals with an acute root may benefit from Latvian data supporting the Lithuanian evidence for the original paradigm. It is an interesting fact that the majority of Slavic neuter *o*-stems with an originally acute root that escaped Hirt's law belong to AP b, which means that they behave like nouns with a nonacute root (cf. Nikolaev 1989, Derksen 1996: 103–28). I have linked this to the conditions of Kortlandt's late Balto-Slavic retraction from final open sylla-

[1] Darden (92 fn.) acknowledges that this was pointed out to him by Eric Hamp.

bles (in disyllabic forms), which did not operate when the preceding syllable was closed by an obstruent (cf. Kortlandt 1975: 4–7). I assume that there must have existed a Balto-Slavic class of oxytone neuters, which in Slavic ended up in AP b after the loss of laryngeals in pretonic syllables. In East Baltic, these nouns typically have fixed stress and metatony (see also Derksen 2011).

It seems to me that the two articles by Darden discussed above clearly demonstrated the need for additional research on Balto-Slavic accentology and etymology. I should add that with respect to the accentual evidence from other branches of Indo-European there was also still a lot of work to be done, as the accentuation of the Sanskrit and Greek comparanda cannot simply be taken at face value (cf. Lubotsky 1988). On the other hand, Darden's articles do not exactly abound in references to accentological publications, which since Illič-Svityč 1963 have substantially grown in number. As a consequence, his theoretical framework remains somewhat unclear. Darden's appreciation of Kuryłowicz would suggest that he rejects both the Proto-Slavic progressive shift known as Dybo's law and the Proto-Slavic retraction of Stang's law, two pillars of modern accentology.[2] The latter sound law, however, meets with Darden's approval on page 89. One of the things we know with absolute certainty is that Darden assumes a reconstructible Balto-Slavic stage, as is apparent from many articles included in the volume under review (e.g., pp. 22, 72, 79, 128). This fits in with his acceptance of Winter's law (61, 123), which to my mind is one of the strongest arguments in favor of a Balto-Slavic linguistic unity.

Within the field of Balto-Slavic studies, Darden displays a special interest in verbal morphology, which must be viewed in the context of his more general fascination with the evolution of verbal systems. The opening article, "Rebuilding Morphology without Grammaticalization" (1995a), includes Balto-Slavic material, which serves to illustrate functional changes in grammatical categories, in particular the shift from indicative to nonindicative. As its title suggests, "Aspect, Tense, and Conjugation Class in Proto-Indo-European" (1994) is an article that belongs to the realm of comparative Indo-European linguistics. An important role is played by the Hittite evidence and the Indo-Hittite hypothesis, in which Darden has shown a keen interest (cf. Darden 2001). A related study is "The Evolution of the Balto-Slavic Verb" (1996), which contains a lengthy introduction on the Indo-Hittite and Indo-European situation. Here Darden correctly notes (contra Kuryłowicz 1964:

[2] In his introduction to Proto-Indo-European and Balto-Slavic accentology (2013: 22 fn.), Sukač states that "neither Darden's nor Kuryłowicz's works have had any impact on the accentology", referring to Darden's rejection of Dybo's law and Illič-Svityč 1963, as well as to his idiosyncratic interpretation of Saussure's law (Darden 1984). Obviously, this is not the kind of attitude that I would personally advocate. It should be noted that Sukač is incorrect in claiming that Darden does not refer to any works by Dybo and Kortlandt.

80–84) that in the third sg. of the *i*-inflection the East Baltic endings cannot continue **-ei* (61). The Old Prussian form *turri* 'has', which Darden adduces, occurs alongside *turei* and *turrei*, however, and there is no reason why Old Prussian should have to be in agreement with East Baltic.

What the above-mentioned articles have in common is that the author pays a great deal of attention to the impact that changes have on the system as a whole. Instead of merely pointing out developments, he tries to show us what is going on. A more specific topic is addressed in "The Slavic *s*-Aorist and the Baltic *s*-Future" (1995b), formations which Darden by no means regards as an argument against Balto-Slavic. As a possible origin he could have mentioned a PIE *s*-present of the shape **CC-és-ti : *CC-s-énti* (cf. Pedersen 1921: 26). Remarkably, the metatony in Lithuanian third person future forms such as *duõs* 'will give' is left out of the discussion. "Balto-Slavic Factitive-Iteratives" (1997a)[3] is a survey of the relevant formations in Baltic and Slavic and an attempt to establish the Balto-Slavic paradigm. In Darden's scenario, the optative occupies an important position. What I particularly like about this study is how Darden, using examples from English, illustrates the relationship between potential and iterative. Again we may observe that Darden is not content with showing that a postulated development is formally possible.

"On the Prehistory of the Slavic Nonindicative" (1997b) is one of several articles that show another side of Darden's scholarship, viz., his ability to drive his point home by referring to examples in Old Slavic texts. In this case he deals with the prehistory of the imperative, a direct continuant of the optative, and the complex form that is usually called the conditional. Darden's command of Old Slavic philology is even more prominent in "The Contextual Uses of the Present Perfect in *The Primary Chronicle*" (1995c). In the latter article, the author defines various contexts in which we find forms of the *l*-participle + present tense forms of *byti* 'to be' (the auxiliary is sometimes absent). Since in the majority of cases, but not always, these constructions are best translated with an English perfect tense, this is also a contrastive study. Darden concludes that in *The Primary Chronicle* the present perfect is best regarded as a present tense. In "A History of the East Slavic Imperfect" (2004),[4] Darden takes a closer look at the disappearance of the imperfect in East Slavic. This requires a survey of the distribution of the aorist, the imperfect, and the perfect in various documents, including birchbark letters from the 11th and 12th centuries. The heterogeneity of the material makes it far from easy to draw any definite conclusions,

[3] To my knowledge, this paper, which was first presented at a meeting in Toronto in 1997, had not yet appeared in print. It has been available online, however, on the University of Chicago website.

[4] To be exact, this is actually the first publication of a paper presented at a conference in 2004.

one of the complicating factors being the influence of Old Church Slavonic on the written language of the writers. Nevertheless, it seems likely that the imperfect was a live form in the speech of at least some speakers of East Slavic in the 13th century. An important criterion for Darden is the correct use of the perfective imperfect, as this could hardly be learned purely from Old Church Slavonic documents, where the form is rare.

In spite of being a review article, "Comments on Ivanov's *Istoričeskaja grammatika russkogo jazyka*" (1991) is arguably the centerpiece of this collection, if only because of its length. The confrontation between Ivanov's views on Russian historical grammar and Darden's own presents an ideal platform for the expertise that he developed in the course of a career of teaching, since a historical grammar touches on a wide range of subjects. Darden informs us straight away that in his opinion Borkovskij and Kuznecov 1963 is still the best general source on the history of Russian (141). This is in particular true for historical morphology and syntax. As to the section on Russian historical phonology, Darden notes that Ivanov's (1990) book—unlike Borkovskij and Kuznecov—incorporates insights from theoretical phonology, but also that he sometimes finds himself in disagreement (ibid.). Interestingly, Darden adds that in the end the absence of theoretical considerations might be advantageous because the phonological theory one adheres to may become outdated. I am inclined to say that whenever it is possible to provide an accurate description of historical developments without recourse to a specific phonological theory, one should do so. In this case, however, we are almost forced to use phonological terms. The evolution of the vowel system, for instance, is connected with the rise and loss of /j/. It is crucial whether a variety of East Slavic at a certain stage (and in a certain position) had a phoneme /j/ or whether it was just an automatic glide. Likewise, the phonemic status of palatal and palatalized consonants cannot be determined independently of the vowel system. Darden tries to clarify matters by analyzing the spelling variation that we find in Old Russian texts.

In his discussion of the development of *ô*, Darden rightly criticizes Ivanov's use of the term metatony (under neoacute stress), which may only confuse the issue. The question is under which conditions *ô* developed from stressed *o*. Here Darden makes a distinction between lexical accent and phrasal stress. The latter refers to cases where the stress falls on the initial syllable of a phrase, which may include a preposition or prefix (e.g., Modern Russian *zá gorod*). This implies that the noun *górod* has phrasal stress, not a lexical accent. Nouns of this type are old mobilia, and we know that in Proto-Slavic the stressed syllable was falling. Originally falling *o* never shows lengthening, but we do find *ô* in all other stressed syllables, including what Darden calls the grammatically placed accent on endings *(gorodómъ)*, suffixes (*volóvyi*), and the second root in compounds (*ogoródъ*). I see no objection to stating that short rising **ȍ* was lengthened to *ô*, but Darden seems to avoid the phonetic designations rising

and falling deliberately. In his formulation, stressed or accented *o* changed to *ô* except under the phrasal stress. The terms rising and falling come up in connection with the metathesis of liquids in initial position (147–48). Darden dislikes the "normal" explanation presented by Ivanov, according to which in East and West Slavic rising **or-*, **ol-* yield *ra-*, *la-*, while falling **or-*, **ol-* yield *ro-*, *lo-*. His objection is that this hypothesis either implicitly makes claims about the tone of **or-*, **ol-* in unstressed position or even disregards unstressed syllables. For this reason, Darden distinguishes between fixed stress on an initial syllable on the one hand and phrasal accent and unstressed syllables on the other. I agree that the view represented in Ivanov's grammar is inadequate, but I also find it difficult to endorse Darden's formulation. For one thing, the initial metathesis is relatively early and may very well have preceded Dybo's law and therefore the rise of AP b (cf. Kortlandt 2003: 232, Derksen 2008: 41–42). This would have an effect on the distribution: the number of forms with fixed stress on the root would be much higher. Darden does not accept Dybo's law, of course, so within his framework the suggested rule seems to be accurate.

As far as I know, this collection of articles only includes a few papers that were presented at conferences. Nevertheless, the impression one frequently gets while reading Darden's articles is that he is trying to make something clear to an audience. I suppose we could say that Darden's teaching experience shines through in his articles. Furthermore, the articles are characterized by a fair amount of candor. Darden does not hold back when rejecting someone else's conclusions (cf. 184, where Ivanov is accused of "pointless speculation"), but he is also not afraid to admit that his own view may be wrong (cf. 41, 341). As a consequence, he does not shy away from bold theories, which is surely one of the reasons why his articles will continue to make interesting reading.

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Jay H. Jasanoff. *The prehistory of the Balto-Slavic accent*. Leiden and Boston: Brill, 2017. 268 pp.

Reviewed by Ronald F. Feldstein

Harvard Indo-europeanist Jay Jasanoff's book, *The Prehistory of the Balto-Slavic Accent*, is primarily devoted to the question of how the Proto-Indo-European accent system evolved into that of Common Balto-Slavic, as well as Proto-Baltic and Proto-Slavic taken separately. I will discuss the book in terms of how useful it is for a student or specialist in the field of Slavic linguistics. In 1963 Horace Lunt wrote a well-known article about the field of Slavic accentology, in which he lamented the fact that "writings on the subject still are confusing and opaque and … too often they lead off at once into recondite details of Lithuanian, Sanskrit, and Greek where not every Slavist is prepared to follow". Now, 56 years after Lunt's article, this very same situation makes it difficult to follow many of the points in Jasanoff's book for a person without expertise in Indo-European linguistics. The author does his best to make things comprehensible in the first chapters by presenting separate introductions to the accentuation of Proto-Indo-European, Indo-Iranian, Greek, Anatolian, and Germanic. The chapter on Proto-Indo-European introduces the various types of static and kinetic ablaut and accentual relations (5) based on the research of such scholars as Narten and Schindler. Suggestions for further reading are given, since a full treatment of this and similar topics is not feasible in this book. However, throughout the book one encounters complex argumentation based on particular aspects of Proto-Indo-European structure, which makes this book more difficult for me to read than accentological books or papers more narrowly focused on Slavic, such as Stang 1957, Jakobson 1963, or Dybo 1962. As a result, Lunt's comment strikes a responsive chord for the Slavist without extensive Indo-European training. On the other hand, an Indo-Europeanist should feel quite at home learning about the facts of Balto-Slavic in this book.

Following the brief chapters on non-Balto-Slavic languages, the author reviews the accentual systems of Lithuanian, as a representative of Baltic, followed by a chapter on the Slavic accentual system. There is a basic review of the accentual paradigms (APs) established by Stang (1957), known as types a, b, and c. There is also an appeal to a phonological feature that no longer exists but is necessary to maintain the existence of certain sound laws. Curiously,

both Jasanoff and Dybo (1962) appeal to such somewhat speculative features, but they do so in opposite ways. For example, the functioning of the Meillet and Dybo Laws requires an additional feature besides those normally recognized in Common Slavic. First, the Meillet Law specifies the Slavic accentual merger of both acute and circumflex syllables as circumflex in the first syllable of mobile accentual paradigms but not in the case of immobile paradigms. In the immobile accentual paradigms of Slavic, acute and circumflex do not merge and circumflex immobiles experience the rightward shift of the stress known as the Dybo Law. Why do the ostensibly identical circumflex (or short) first syllables of **mobile** paradigms behave differently from the analogous syllables of the **immobile** accentual paradigm? Dybo's answer (1962: 8) is that first syllables of mobile paradigms had a phonological feature on the order of the Latvian broken tone or *stød* ("in the mobile paradigm there was a special intonation—the analog of the Latvian broken tone"). Jasanoff, on the other hand, refers to the initial syllable of mobile paradigms as "left-marginal" accent and attributes a "low or falling" pitch accent (59) to such syllables, which differentiates them from initial syllables of the immobile paradigms, which he refers to as having "lexical" accent.

The curious thing is that we get the reverse attribution of pitch accent and broken tone in the works of Jasanoff and Dybo when we come to another thorny issue—the nature of acuteness in unstressed syllables. Just as an additional phonological feature is needed to make the Meillet and Dybo Laws work correctly, we also need such a feature to make the Saussure and Hirt Laws work. They make reference to acute syllables in unstressed position—either a pretonic acute in the case of the Hirt Law or a posttonic acute in the case of the Saussure Law of Lithuanian. However, Balto-Slavic is often assumed to have had an acute tone only under stress. As stated by Jakobson (1963: 671), "the word contained no more than one phonologically rising, acute syllable"; cf. Olander 2009: 110–11 for further discussion. In Jasanoff's third chapter, which is largely devoted to the origin and phonological properties of the acute, he claims that the acute was originally not a particular pitch accent in Balto-Slavic, but "a *stød* or passage of creaky voice" (102). Thus, we have a *stød*-like phonological description assumed for the mobile paradigms by Dybo but the assumption of virtually the same thing for acute syllables by Jasanoff. One wonders if this is a sort of deus ex machina. Of course, differences of interpretation are numerous in the specialized treatments of Balto-Slavic accentology. As noted by Lunt (1963: 83), "The fundamental assumptions and methods" of certain accentologists "are simply incompatible". Relative chronologies can also be very varied, depending on the given author's specific theory. For example, Jasanoff places Hirt's Law after the development of Balto-Slavic accentual mobility (106), while Olander, the author of another major book on Balto-Slavic accentology, regards Hirt's Law as "the first phonetic accent replacement in the prehistory of Baltic and Slavic" (2009:

25). It sometimes seems that each accentological treatment has its own different chronology, reflecting different assumptions about several processes. This compounds the difficulty for the reader, who must keep several different relative chronologies in mind while evaluating each new treatment of the subject.

Some of Jasanoff's main points of argumentation are the origin of acute syllables from long (but not hyperlong or hiatal sequences) vowels rather than only from lost laryngeals as assumed by other accentologists such as Kortlandt (1975). Jasanoff also emphasizes the original nonaccentual phonological nature of acute syllables, a feature called "acuteness", as mentioned above. However, the single most important focus of this book is the author's treatment of the origin of Balto-Slavic accentual mobility. This was also the main theme of Olander 2009, and it is important that the reader understand the reason behind this. The Balto-Slavic branch stands out among the Indo-European languages due to the fact that it has a mobile accentual paradigm in which forms of a single grammatical paradigm alternate between initial stress and end stress (as exemplified by the Russian nominative vs. accusative noun singular: *skovorodá ~ skóvorodu* 'frying pan' and the verbal plural vs. feminine singular of the past tense: *náčali ~ načalá* 'begin' etc.). Balto-Slavic is often compared to Greek and Vedic, in which oxytonic (end-stressed) forms generally correspond to the Balto-Slavic mobiles. Scholars have long attempted to answer the question of which type reflects the original Indo-European situation and which is an innovation—oxytonic or mobile. The Moscow School has often left the question unanswered, referring to the Proto-Indo-European accentual paradigm in question as "mobile-oxytonic", which covers both Balto-Slavic and Greek-Vedic bases. Some recent Moscow interpretations hint at mobility being the original Proto-Indo-European pattern, but this seems unlikely in view of the fact that the initial ~ end mobility of Balto-Slavic only occurs in that branch. Olander's 2009 monograph offers one of the first phonological explanations for the origin of Balto-Slavic mobility (2009: 155–56), which he calls the "Mobility Law". He assumes that there was a retraction from the final mora of oxytonic forms to the first syllable in specific phonological circumstances. This has direct relevance to Jasanoff's book, since the entire final half of the book (chapters 4, 5, and 6) is devoted to refuting Olander's Mobility Law and proposing another phonological interpretation of how mobility came to exist in Balto-Slavic.

Simply put, Jasanoff's thesis and the main thrust of the book derive from Saussure's original assumption that the internal syllable retraction from the second to first syllable in consonantal stems (e.g., in the Lithuanian *r*-stem *dùkterį* < **duktērin* 'daughter', 118) analogically led to the mobile paradigms. Saussure was very hesitant about calling this an actual sound law, but Jasanoff's thesis is that this was really a true sound law (118). As a new sound law, Jasanoff refers to it with the combined name "Saussure-Pedersen's Law" (118), in recognition of Saussure's original observation (1922: 533) of the retraction

and Pedersen's 1933 interpretation of it as creating a new initial ~ final accentual type. However, there is an important second part of Jasanoff's thesis on the origin of Balto-Slavic accentual mobility. Retraction from a **medial** syllable in a three-syllable word can produce a new initial ~ final accentual paradigm, where final stresses remain in place. However, in a four-syllable word things get more complicated. Retraction from the third to the second syllable would produce a pattern that never came into existence as such. Therefore, Jasanoff proposes a companion to the Saussure-Pedersen Law (SPL), which he calls the Proto-Vasil'ev-Dolobko Law (Proto-VDL, 128), which automatically converted retracted stresses to oxytones in tetrasyllabic words with mobility (i.e., many four-syllable words became end-stressed).

After establishing SPL and Proto-VDL as the main engines of his innovative Balto-Slavic mobility process in chapter 4, Jasanoff analyzes a copious number of nominal and verbal forms in chapters 5 and 6, respectively. It turns out that many forms do not follow the proposed sound law and have been subject to analogical changes. This appeal to analogical change is not only true of Jasanoff, of course. As first described by Illič-Svityč, the accentual evolution of masculine nouns is replete with analogical processes in which nonacute barytones become mobile instead of oxytonic (e.g., **zǫbъ* 'tooth'), neuters change to masculines (e.g., **dvorъ* 'courtyard'), and oxytones do not become mobile but become barytones, subject to the Dybo Law (e.g., **pero* 'feather'); cf. Illič-Svityč 1963: 109–40; 1979: 94–123 and page 165 of Jasanoff's book.

Jasanoff points out that many of Olander's sound laws were also subject to the same issue of analogical, rather than phonological, change and he compares his and Olander's solutions to a large number of accentological problems. In the end, we are left with the impression that these are interesting competing theories, but each with phonological rules that often do not apply and yield to analogical generalizations. Thus, much accentological work dealing with the transition from Proto-Indo-European to Proto-Balto-Slavic still appears to be a work in progress, awaiting a final determination in the future as to whether unassailable phonological rules will ever explain how Proto-Indo-European oxytonesis evolved into the mobile accentual paradigms of Balto-Slavic.

Jasanoff gives credit to Jakobson's groundbreaking 1963 paper for its application of the concept of *enclinomena*—accentless words—to Slavic linguistics (25). However, there are other brilliant concepts in Jakobson's paper that are contradicted by certain theses of the book. One prominent example of this is the nature of the neoacute stress in Slavic. The author refers to the neoacute (234) as "a special rising accent, the neoacute, which came to characterize AP b in the same way that the acute accent characterized AP a". This is at odds with Jakobson's statement that "the so-called neoacute did not constitute a third prosodic unit, phonologically opposed to the old rising and falling tone, in any one of these dialects". Jakobson showed that in every Slavic dialect there

could be no more than one rising pitch accent from the old acute and neoacute and that the old acute could either lose its rising pitch or merge with the neoacute, but it could not constitute a second rising pitch. If the author does not agree with Jakobson, one would have expected some discussion, rather than the statement that the neoacute is a "special rising accent". What I also miss in this book is any mention of Jakobson's brilliant interpretation (1929, 2018) of how Slavic accent evolved on the basis of systemic choices in favor of either vocalic tonality (the Slavic southwest) or consonantal tonality (the Slavic northeast), but this is probably due to the fact that the book stops at the point of Proto-Slavic.

This book may serve a useful purpose for Slavic scholars who wish to become more knowledgeable about Indo-European and its relation to Balto-Slavic. It is definitely not an easy introduction to the field and should be read together with an introduction to Indo-European linguistics and the comparable accentological volumes by such scholars as Dybo, Stang, Olander, and Kortlandt, since each accentologist takes a critical look at the works of others and only this approach can elucidate the lasting discoveries and separate the wheat from the chaff.

I would like to point out two misprints in the dates of publications. On page 62, footnote 65 refers to Stang 1967, but it should be corrected to 1966. On page 163, footnote 91 refers to Dybo and Nikolaev 1978, but it should be 1998. The book would benefit from a topic and author index. It now only has a word index. Curiously, the electronic edition allows any word or phrase to be searched, but the hard copy edition does not.

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Ekaterina A. Lyutikova. *Struktura imennoj gruppy v bezartiklevom jazyke* [Structure of the Noun Phrase in an articleless language]. Moscow: Jazyki slavjanskoj kul'tury, 2018. 438 pp.

Reviewed by Nerea Madariaga[1]

This book represents a milestone in an academic life largely dedicated to the formal and comparative-typological study of the noun phrase in diverse natural languages. As Professor Lyutikova acknowledges in the introduction, this book is a compilation of many of the data and results of her productive and fruitful career, paying special attention to those phenomena related to the nominal domain, recently gathered together in her post-doctoral (habilitation) thesis.[2]

In this work, the author argues in favor of a unified micro-parametric account for the differences between NPs in languages with articles and articleless languages. More specifically, she provides arguments in favor of a lexical parametrization of the D category (cf. the Borer-Chomsky Conjecture), in the sense that articleless languages **do** have a real, albeit silent, D head, whereas in languages with articles D is lexically realized. Her hypothesis is grounded in certain ideas that are well-established in the field, such as the categorial status and semantic interpretation of NPs and the universality of the syntax-semantic interface (the syntactic representation of the semantic types).

The book is organized according to the following structure. There is a brief introduction. Then, the main chapters of the book (chapters 1 to 4) follow, each dedicated to one "big" topic concerning the nominal domain in formal syntax. These chapters acquaint the reader with the author's arguments in favor of a unified account of D in all natural languages, despite the absence of overt articles in some of them. In addition to the partial conclusions given at

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[2] Throughout the text of this review, I adopt the spelling of the name the author herself employs when she publishes in English, even though it deviates from the transliteration of Russian according to *JSL* style.

the end of each chapter, there is a final short conclusion at the end, followed by a list of abbreviations, references, and languages mentioned in the book.

In the Introduction (9–21), the author defines two ways of examining linguistic variation, the typological and the generative frameworks, highlighting the differences between the two approaches and arguing in favor of the notion of parameter as a way to account for the linguistic diversity, restricting it at the same time. The global cross-linguistic situation and distribution of articleless languages vs. languages with articles is described, together with the most relevant hypotheses on the topic: (A) Szabolcsi's (1987) DP-hypothesis that every NP has an extended functional projection realized as D and (B) Bošković's (2008) proposal that articleless languages lack the D category and have only NP. Throughout the subsequent chapters, Lyutikova pursues the former hypothesis, showing that even articleless languages do project a DP-level the same as languages with articles.

Chapter 1 (23–125) deals with the structure of DP. The author shows that certain properties of the DP-layer in languages with articles are also met in articleless languages. First she explains the arguments supporting hypothesis (B) above, based on Left Branch Extraction, semantic types, and the "adjectival" nature of potential D-elements in articleless languages and immediately rejects them in favor of her own hypothesis (A). Further, she offers extensive arguments in favor of hypothesis (A), based on the landing position of elements undergoing inversion, the interpretation of possessives according to their position, the distribution of whole DPs vs. smaller phrases (NP/QP) in articleless languages, and the "barrier" properties of DPs, as compared to "penetrability" effects of smaller NPs, in accordance with Pereltsvaig's (2006) hypothesis on Small Nominals. These effects are illustrated with data that range from island and extraction properties in Russian idioms to properties of argumental completive clauses in Ossetian, another articleless language. For example, rarer combinations of light verbs plus deverbal nouns in Russian (e.g., *zaslužit' prava* 'deserve rights') behave as DPs in languages with articles, evidencing a rich functional structure in Russian nominal phrases, whereas other more frequent or natural combinations show the properties of smaller NPs (e.g., *imet' prava* 'have rights').

In chapter 2 (127–92), Lyutikova offers a detailed analysis of the properties and landing positions of possessors in the structure of NP, showing that possessors behave similarly in articleless languages and languages with articles. For example, the positions of at least some possessors must be located within a functional layer over NP (DP and nP). The specific distribution of possessors is then shown to depend on the type of possessor and the specific language, rather than on the presence or absence of articles in it.

Convincing arguments are further provided with the help of a detailed analysis of two phenomena in articleless languages: Russian genitive constructions and Tatar *izafet* constructions. First, Lyutikova analyses a Tatar pos-

sessive pattern (the so-called third *izafet* construction), which displays case marking and agreement properties that equate them to DPs rather than to bare NPs, evidencing a DP-layer in this articleless language too. Then, she focuses on the types, cooccurrence, and available positions of genitive phrases in Russian NPs. She concludes that their behavior varies from type to type. First, genitive external arguments and possessors in languages like English behave similarly to their Russian analogues, as well as Russian possessive pronouns and adjectives (forms like *mamin*, *Petino*), and are arguably located at some projection of D. Second, genitive complements (internal arguments) are shown to correspond to diverse structures. Third, low possessors probably correspond to some intermediate lexical head (rather than D) that the author calls "small n", which accounts for their linearization and case marking properties.

Chapter 3 (193–298) accounts for the featural make-up and linear order of NP, on the assumption of a hierarchically ordered structure within it. The author does this by proposing a rich structure accounting for every position available in Russian NPs. First, she gives evidence in favor of several intermediate functional heads, such as Num(ber) and Measure/Classifier, arguing for the more likely positions of numerals and number morphology in this structure. Then, she considers the role of phi-features, case, and agreement, as well as the categories of number and gender, and their (dis)agreement patterns, and concludes that an (un)specified Num head, which is higher than Q, determines the presence or absence of agreement on the verbal form. As for gender agreement, it is defined even higher, in the DP projection.

Further, Lyutikova connects the linear order of elements and their syntactic position in the structure, adopting Svenonius's (2008) approach of a "moderate" cartographic structure for DPs. The author reviews first the Russian literary-language construction, which consists of the inversion of elements within the NP (*pravila èti* 'these rules', lit. 'rules these', *varen'je klubničnoe* 'strawberry jam', lit. 'jam strawberry'), including Approximative Inversion (*let vosem'* 'approximately eight years', lit. 'years eight'). By analyzing the available types of inversion in Russian, the author shows a contrast between inversion in NPs lacking a higher functional layer and in those displaying a DP-layer. Some types of inversion (Approximative Inversion and inversion with respect to "high" elements, such as demonstratives, possessive adjectives, and possessive pronouns) evidence the existence of more than one position above N, pointing to a rich functional structure of NP in Russian. Then, the author considers the position and scope of adjectival operators, such as superlatives, ordinal adjectives, and *edinstvennyj* 'unique, only one', as well as Q-raising, examining data from Russian and Chinese. Along these lines, she finds evidence from articleless languages suggesting an ordered hierarchical series of layers within nominal phrases, each of which is responsible (from innermost to outermost layer) for the lexical, quantificational, and referential properties

of the NP. In these languages the different elements included in a NP are related to one or another layer in a similar way as in languages with articles. To cite an example, left-peripheral elements in articleless languages prevent Q-raising, just as articles in languages with articles do, confirming the fact that DPs can behave as islands for movement (definiteness islands) in articleless languages too.

In chapter 4 (299–382) Lyutikova deals with the relationship between semantics and the position of relative clauses in Russian. She shows that their interpretation must be attributed to a functional layer that is responsible for referential phenomena and corresponds to the DP-layer in languages with articles. The scope effects obtained in relative clauses also evidence a contrast between elements located at the NP-(NumP)-layers, which can be interpreted in the main or relative clause, and elements in the left-periphery of the phrase (DP-layer), which are interpreted only in the main clause. Based on arguments from binding, intensional vs. restrictive readings, the availability of determiners, and idioms, Lyutikova argues for a raising analysis of the N head in restrictive relative clauses. She establishes that their properties are quite similar in English and Russian, as well as in other languages, in the sense that the presence of a DP-layer is necessary to account for the interpretation of determiners and strong Qs related to the N head, or the availability of restrictive relative clauses themselves (cf. also Kayne 1994). As for appositional relative clauses, Lyutikova demonstrates that, as was proposed for languages with articles, these are generated in articleless languages after every other modifier or quantifier has merged (i.e., they are adjoined to DP), which explains, for example, why, unlike restrictive relative clauses (adjoined lower), appositive relative clauses do not display binding effects.

Evaluation

Lyutikova's book represents an ambitious (and successful) enterprise to settle the discussion on the existence or absence of a D category in articleless languages, a debate initiated in Slavistics by Progovac 1998. Some years ago this was a very controversial issue, articulated in lively debates between opponents and defenders of the availability of DP in articleless languages. The topic became especially hot in the realm of Slavic languages in the early 2000s; one of the most famous debates, witnessed by me, took place during the FDSL conference in Potsdam in 2005 between the leading representatives of both views: Željko Bošković, against the existence of DP in articleless languages (Bošković 2005), and Asya Pereltsvaig, in favor of it (Pereltsvaig 2006).

Afterwards, it seems that scholars have been unraveling the conundrum little by little in favor of Progovac's view, judging by the number and variety of recent publications in Slavic linguistics in favor of the DP-hypothesis in articleless languages (Caruso 2011, 2012 and Stanković 2017 on Serbo-Croatian;

Ljutikova 2015 and Pereltsvaig 2007, 2013 mostly on Russian; Veselovská 2014 on Czech; Linde-Usiekniewicz and Rutkowski 2007 on Polish, etc.), as compared to the non-DP hypothesis (Bošković 2008, 2009; Bošković and Gajewski 2011; Despić 2013; Petrović 2011 mostly on Serbo-Croatian). Further, studies on articleless languages other than Slavic almost unanimously support the existence of a DP-layer in these languages; cf. Tatar (Lyutikova and Pereltsvaig 2015, 2016), Ossetian (Erschler 2019), Turkic languages (Türker 2019),[3] East Asian (Park 2008), West Greenlandic (Manlove 2015), Latin (Giusti and Iovino 2016), Bengali (Syed and Simpson 2017), Estonian (Norris 2018), etc. Thus it looks like aside from Serbo-Croatian, most authors are leaning toward some version of a universal DP hypothesis. In any case, we can say that Lyutikova's present work puts the cherry on the cake of this discussion, not only as far as Russian is concerned but also with regard to other articleless languages such as Tatar and Ossetian.

As a formalist, but also professor of a department famous for its longtime and productive typological research (the OTiPL / Theoretical and Applied Linguistics Department at MGU), the author adopts a "mixed" generative-comparative approach in her book. Here Lyutikova goes through aspects that had been neglected in her previous monograph on noun phrases (Ljutikova 2017), which focused mainly on case phenomena. Hence, the present book complements the previous one, providing us with a fully articulated formal-comparative analysis of the NP domain in natural languages (especially Russian). Along with the arguments in favor of a DP-layer in articleless languages, the author accounts for many other collateral cross-linguistic differences that surface in the nominal domain by means of a microparametric analysis of variation, in compliance with the goals of recent comparative studies on microvariation within the generative minimalist framework (most notably, since Kayne 2005). Along these lines, the author pursues a unified formal-typological approach, casting doubt on the traditional idea that typological studies must necessarily be associated to functionalist accounts rather than to formal / generative views on languages.

In the previous summary of the book, we already drew the reader's attention to the profusion and variety of aspects analyzed within the nominal domain: not only the elements to which everyone pays attention in the literature, such as adjective and genitive phrases, but also other elements very necessary for understanding the structure of NP, like demonstratives, non-genitive possessors, relative clauses, word order inversions, etc. As for the linguistic levels included in the monograph, besides morphosyntactic data, Lyutikova also takes into account semantic and informational aspects of NP phenomena.

The book has a very clear internal logic and is structured according to it. Lyutikova first posits problems, then states available hypotheses, and finally

[3] With the exception of Bošković and Şener 2014 on Turkish.

gives arguments in favor of the most suitable explanation for every phenomenon described. In this way, collecting one-by-one simple arguments as well as very ingenious findings from every aspect of the structure and properties of NPs, the author creates a huge tower of building blocks out of the overwhelming evidence she provides in favor of a hierarchically-ordered rich structure above NP in articleless languages.

Unfortunately for a great part of its potential audience, the book is written in Russian. Nevertheless, it is welcome in the field of generative linguistics, as it can reach a wide public in Russian-speaking countries, in which some people can still be reluctant to read in English. There are just a few previous Russian books in this field (most notably, Testelec 2001; Graščenkov 2015, 2018; Ljutikova and Cimmerling 2016; Ljutikova 2017), so we can say that this work contributes to filling a gap in the generative literature written in Russian. The increasing publication of formal works in Russian will soon become necessary, as scholars educated in formal approaches to linguistics become more and more numerous in Moscow universities. Supporters of generative approaches, most notably linguists teaching at the Russian State University for Humanities, Moscow Pedagogical Institute, and Moscow State University, regularly organize conferences and specialized seminars and have the possibility to train students in formal frameworks. More recently, several linguists at the Higher Schools of Economics (the "Vyshka"), mostly trained, at least partially, outside Russia, are familiar with this approach.

The scarcity of generative monographs written in Russian can be the main reason for the–let us call it–double nature of Lyutikova's book. On the one hand, it is a highly specialized volume, as we have already explained. On the other hand, it leads the Russian-speaking reader on a complete trip through the history of the main generative traditions, discussing how the basic (and not so basic) concepts have been defined, revised, and refined over the years. Notions such as tree formation, merge, movement, raising, c-command, binding, linear word order / linearization, headedness and head-direction, adjunction vs. complementation, levels of representation, islands, cross-over, quantifier raising, null categories, pied piping, etc., are introduced and discussed entirely in Russian.

This is perhaps why the book ended up being a little too long for a generative work, 438 pages, a length more commonly found in the Russian-speaking literature. The wish to give a complete and very detailed account of every phenomenon can make the reader lose the point of the facts that are being discussed at certain moments. It is true, however, that some pages later the author always picks up the main discussion again and relates the phenomenon discussed to the need of having a functional layer in some NPs. This happened to me a couple of times. For example, the long description of Mel'čuk's (1995) "Smysl ↔ tekst" ('sense—text') theory in Section 1.2, in order to introduce later the very interesting data about common and uncommon combi-

nations of light verbs and deverbal nouns, seemed superfluous to me. The long discussion about the case-marking possibilities of nominal elements in infinitive clauses in Section 2.2.2 is happily resolved later by summarizing the relevant findings in Table 1.5 immediately followed by the return to the main argument: how the contrasts found in these structures imply the presence or absence of DP, when a noun takes as its complement an infinitive clause including a NP coreferent with some argument in the main clause. Finally, too long and detailed explanations of basic and to a great extent tangential issues, such as the mechanisms of *wh*-movement and null operators in English (section 4.2.1), are often discarded in favor of more recent explanatory hypotheses, more convenient for showing the presence of DP in articleless languages. This sort of excursus is, however, useful for reaching those Russian-speaking scholars not trained in generative linguistics.

Besides the laborious work of explaining and evaluating other scholars' accounts, the author offers her own hypotheses and solutions to the problems that arise in the book. Lyutikova's own observations and insights underlie the thread of the argumentation; however, at least once she seems to rely too much on some other scholars' account. In Section 1 and later in 2.3, Lyutikova presents Pereltsvaig's (2006) proposal about number verbal agreement and the level of projection of quantified NPs in Russia. This proposal relates in a very restrictive way plural verbal agreement (180: *Prišli (èti) pjat' pisem*) to referential DP subjects, while default agreement on the verb (180: *Prišlo (*èti) pjat' pisem*) is exclusively tied to nonreferential bare QP subjects. However, it could perfectly well be the case that both quantified subjects display some functional / DP-layer, both null but of different natures, as we see in languages with different types of articles on top of bare NPs. This possibility would automatically solve the inconvenient fact noticed by the author on page 181 that Russian NP predicates, being non-referential (*ergo*, bare NPs), can take one of those external genitive complements which are usually assumed to be located at the DP-level (181: *Èto rabota nastojaščego mastera* 'This is the work of a real master'; *Ja ne sčitaju takoj postupok pomošč' ju druga* 'I do not consider his action as help from a friend'). In some languages with articles, NP predicates do have articles, sometimes obligatorily, which suggests that it is not a crazy idea that they can project a DP (perhaps embedded within a higher PredP projection). This DP-layer would not imply regular referentiality but some other property located at DP, for example, the ability to license discourse anaphora; cf. Spanish: *Considera sus prejuicios *(las) ideas de un genio. Incluso* las *va pregonando por ahí.* 'He considers his own prejudices as the ideas of a genius (lit. the ideas of a genius). He even proclaims them.FEM.PL (= the ideas) everywhere.' *Lo que ha hecho me parece *(la) hazaña de un héroe.* La *tendré en cuenta para el futuro.* 'What he did seems to me like the deed of a hero (lit. seems the deed). I will keep it.FEM (= the deed) in mind for the future'.

As a shortcoming of the monograph we can mention some errors or confusions in the interpretation of linguistic data at certain minor points of the argumentation. The English example on page 200, *twenty-one books*, is erroneously given as ungrammatical, while *twenty-one book* is erroneously given as grammatical; so the choice of singular or plural in English is indeed semantic, contrary to the author's words. In a similar way, probably due to a mistake in copying the examples, the readings given for the Russian examples on page 209 are switched, so that the singular agreement version *prišlo pjat' mal'čikov* 'there came.SG five boys' is rendered as distributive, while the plural agreement variant *prišli pjat' mal'čikov* 'there came.PL five boys' is given as conveying the collective reading. According to Pereltsvaig 2006, cited in the previous lines, and other native speakers of Russian, the readings are just the reverse. Finally, an English speaker I consulted considers that the examples of predicate inversion in English on page 257 such as *If only we had this funny of people back in December*, unlike the well-attested French ones *une drôle de façon* 'lit. a funny of a way' are deviant, and should be dispensed with at this part of the argumentation.

Otherwise, the rich sample of data and languages offered in the book helps the reader discover many interesting typological facts. Even within Slavic, some not so well-known facts about Russian can be easily related to those in other Slavic languages. For example, the possibility of introducing a demonstrative before a noun specified by a relative clause in Russian, which otherwise would sound very weird (348: Ta *segodnjašnjaja Moskva, kotoruju stroit Lužkov, mne sovsem ne nravitsja* 'I do not like *this/the* Moscow, which Luzhkov is building now' vs. ??Ta *segodnjašnjaja Moskva mne sovsem ne nravitsja* 'I do not like *this* present-day Moscow at all') reminded me of the same process, which is already completed in Colloquial Czech. Here, the presence of a restrictive relative clause demands the use of a semantically-bleached demonstrative, which is interpreted as a determiner (*To je* *(ta*) paní, o které jsi psala* 'This is *the* (<this) woman about whom you wrote').

To sum up, the book by Lyutikova is a lucky find for both generative scholars interested in highly specialized aspects of Russian syntax and Russian linguists of other orientations who want to be introduced to formal linguistics through the means of linguistic data that are familiar to them. Of course, this book represents a must for scholars interested in the controversy about article vs. articleless languages in general; unfortunately, they will need a good command of Russian to read this book.

I would like to finish this review by referring to the final pages of Lyutikova's book, in which she considers once again the contrast between generative and typological approaches to linguistics. To do so, she quotes Baker's (2009) joke about the risks of restricting oneself to one or another view, and endorses his advocacy of a Middle Way between the two. Taking Baker's wise warning to heart, we can safely conclude that Lyutikova's book succeeds in meeting

this Middle Way. Indeed, she analyzes a very specific, at first sight, microparameter (the article parameter) within a very specialized formal framework and at the same time she manages to guide the reader on a whole trip through the various ways of thinking, reasoning, and arguing in generative linguistics, with the help of a rich pool of data from a sample of typologically different (article and articleless) languages.

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