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The Stress of Russian Nouns in *-ик* and *-ица**

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1. Introduction

This article presents a computational basis for a default position of stress in Russian nouns with the final sequence *-ик* or *-иц(а)* and their variants (e.g. the suffixes *-ник*, *-овица*, etc.). The position of stress in all such words is classified as root, stem, or final (desinential) and tallied. The results of the examination suggest that stress in Russian derived nouns functions to define the boundary between the root and suffix. The presence of a phonological factor in what traditionally has been seen as a strictly morphological phenomenon in the modern language is also indicated. This investigation supports conclusions made by Shapiro (1986) and experimental work by Crosswhite et al. (2003) and Lavitskaya et al. (2014) which show that stress in Russian nouns is essentially tied to the final stressable stem syllable.

In his remarkable *От праславянской акцентуации к русской* (1985), A. A. Zaliznjak concludes his observations on Russian accentual evolution with three noteworthy statements. In the first (382), he maintains that an earlier system, where the stress of derived words depended on the stress of the deriving partners, evolved into the current system, where the stress of derived words is determined by their own morphological make-up, including the totality of words that bear a given affix (совокупность слов с определенным аффиксом), essentially a "product-oriented" process as defined by Bybee et al. (1982, 285). Analyzing dictionary entries spanning 300 years, Lagerberg (1994, 140) found independent support for this assertion. The characterization of modern Russian stress as morphologically based is well accepted (cf. particularly Red'kin 1971, Garde 1965, 37, Fedjanina 1976, Shapiro 1986, 185, 190, 197, who also focuses on pragmatic (semiotic)

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factors, and Brown et al. 1996, 87, who conclude that both morphological and phonological pressures are involved, and generative models, such as Halle 1975, 107, Melvold 1989, 16, and Chew 2003). However, Zaliznjak's focus on the "totality" of words with a particular suffix suggests the need for a complete accounting of words with given suffixes, as opposed to formulating rules based on a sampling of words with a variety of suffixes. This is particularly fitting given the more recent discoveries by Ševa et al. (2009, 241) that phonological/orthographic cues can be highly accurate in predicting stress.

However, having determined the source of stress in modern Russian, Zaliznjak (386) is not sanguine about the possibility of developing a single fundamental rule (базисное правило) for locating stress in any given word. He states that, given the complexities of inflectional and derivational morphology, any attempt to formulate it would be pointless (нецелесообразно). He then states (387) that the ideal for derived words would be for stress to be based completely on the accentual characteristics of suffixes. But, because accentual relics remain in the language, this ideal has not been reached. Nevertheless, Crosswhite et al. (2003, 151) postulated the existence of a default location for stress in Russian based on the results of an experiment where native speakers of Russian were asked to stress contextually bound nonce words. The results of this experiment led the authors to conclude (157) that "the default position for stress is the right stem edge". Lavitskaya et al. conducted experiments on acronyms and novel words that lacked morphological information. The focus of these experiments were indeclinable nonce words and acronyms, i.e. words that are essentially equivalent to traditionally termed "fixed stress" nouns, where stress is fixed throughout the paradigm. Their investigation "consistently revealed the following stress pattern for Russian: final stress in consonant final words, penultimate stress in vowel-final words" (379). These authors define "final" stress as those words which, when declined, retain stress on the final vowel of the stem (375). This matches Crosswhite's definition of "stem final" as "the last syllable of the stem, i.e. the ultima in words without inflections and ... the penult in words with inflections" (151).

The present article seeks to address the need suggested by Zaliznjak for a complete calculation of the stress characteristics of suffixes, focusing here on all words ending in the sequence *-иц(а)* and *-ик* and so to test Crosswhite's and Lavitskaya's assertions regarding the location of a default stress position. Given the high rate of agreement in their results (stem final stress in 80% and 79%/82% of responses, respectively), we hypothesize that the results of the analysis here will show that the stem final syllable plays an overwhelmingly important role in the position of word stress in a large corpus of actually occurring words.

Nouns in *-иц(а)* and *-ик* are likely targets for testing for a fundamental stress postulate. Together they form close to five thousand words in Russian, according to the Zaliznjak (1977) data base. In addition they make up five percent of the most frequently used nouns in Russian as reported by the Russian National Corpus data base (www.ruscorpora.ru). Finally nouns with the final sequence *-иц(а)* and *-ик* have representatives in all the fixed stress patterns found in Russian, so they provide a broad sample for examination in number, frequency of use, and variation in stress. Searches were performed on a digitized version of the Zaliznjak data base via the DOS find/filter command.

Since stress in Russian is often morphologically conditioned, one challenge to its analysis is that the juncture between root and suffix may be ambiguous in words with compound

suffixes (Kuznecova and Efremova 1986, 7), henceforth KE. For example the word *черни́льница* 'ink-pot' could be analyzed as *черни́ль-ниц-а*, with a constituent structure: *чернильн-* 'ink' + *ниц* - *а*. Alternatively, its constituent structure could be *черн* 'black' + *ильниц-а*. Halle and Kiparsky (1981) showed that the addition of a suffix to a root can create a new constituent (or "fused root" in Townsend's (1968, 30-34) nomenclature) and, without endorsing the need for cyclical rules, that notion is adopted here.

The morphological approach used here is grounded in principles of cognitive linguistics, particularly as presented in Taylor (2002) and Bybee (2003). These suggest that usage-based generalizations emerge upon interaction of a speaker with the language. Suffixed words are related to words from which they were derived and to other similarly suffixed words and speakers may discern these relationships. However, in the usage-based approach employed here once a word is generated it becomes an independent entity and its peculiarities (e.g., stress idiosyncrasies) will be analyzed based on the independent nature of the word. While it may be likely that B was historically derived from A, it is possible for a speaker to learn and use B before having learned A. Thus, in this analysis what the speaker knows about B bears little relation to A. (In any event, in the realm of stress, referring to A as the source of the stress of B leaves open the question of the source of stress in A.) While speakers may well make connections between derivationally related forms it is assumed here that the lexicon contains discrete units which may or may not be interrelated phonetically, semantically, and grammatically, but which are independent of each other and available for use by the speaker without being derived. (See Ognienko 1914, 23 for an early discussion of the accentual independence of morphologically related words.) Using quantitative measurements of stress data on this basis allows for a rigorous determination of what, if anything, is the "norm."

Russian words reflect four stress types or configurations: three fixed stress patterns and one non-fixed or mobile pattern (Fedjanina 1976 and others):

(1) Fixed root stress: stress is located on the same *root* vowel throughout the declensional paradigm of the given word: initial (*ка́федра* 'department') or not final *подберёзовик* 'brown mushroom'). Root stress is compatible with suffixation: *ку́рица* (*ку́р-иц-а)* 'chicken'.

(2) Fixed stem stress: stress is on the final stressable stem vowel throughout the declensional paradigm: on the final stem vowel of a non-suffixed word (*бума́га* 'paper'), the first vowel of a suffix if it is vowel-initial (*лис-и́ц-а* 'vixen', *крас-а́виц-а* 'beauty'). If a suffix begins with a consonant or otherwise never bears stress then the first vowel that precedes the suffix is stressed (*вто́р-ник* 'Tuesday').

(3) Fixed end stress (does not occur in words with the suffix *-иц(а)*): stress is on the desinence throughout except in the nom sg masc which has no desinence (*пиро́г*, *пирога́* (gen sg) 'pastry') and a few fem nouns which also lack a desinence in the gen pl (*острога́, остро́г* (gen pl) 'lance').

(4) Mobile stress: stress moves around in the paradigm in a mostly predictable way—no nouns in *-ик*, or *-ица* have mobile stress.

Since the first three patterns are always fixed, that is, stress remains on the same vowel throughout the word's paradigm, we will abbreviate these terms to, for example, "root stress" (as opposed to "fixed root stress"), etc.

The term "default stress" will indicate which syllable is expected to have stress in any given word. This definition differs somewhat from that of some treatments (e.g. Melvold 1989, 16), which state that default is activated only in the absence of inherently stressed morphemes. Here default is defined not as a dynamic aspect of language, but as the location of stress most often encountered in relation to a) a given suffix, b) a given grammatical category or sub-category (masculine, 1st conjugation, 2nd declension, etc.), or c) Russian word-stress in general. Default is the expected or predicted position of stress in any given word. If stress is not default it is exceptional (i.e. it must be learned (Shapiro 1986, 183), except when stress is part of a morphophonemic rule, e.g. *перечита́ть – перечи́тывать* 'reread').

2. The structure of nouns in -иц(а)

Zaliznjak (1977) lists 1,315 nouns whose final predesinential segment contains the sequence *–иц(а)* (see Table 2). All but two of these nouns contain a suffix. KE do not list *таблица* 'table' or *вица* 'withe' as having a suffix. Both these words have stress on the final vowel of the stem: *табли́ца* and *ви́ца*. The remainder of nouns in *-иц-* contains one of nineteen suffixes all of which have the sequence *-иц-* in common (see Table 3).

Suffixes may be monosyllabic (simple): *-иц*, *-лиц*, *-ниц*, *-чиц*, for example, or they may be multisyllabic (compound): *-авиц*, *-овиц*, *-евиц*, *-тельниц-*, for example. Townsend (1968, 33-34) shows that suffixes may "fuse" with each other leading to the existence in the language of autonomous "composite" suffixes.

Special mention must be made regarding the suffixes *-овиц-а*, *-евиц-а*, *-ениц-а*, and *-енниц-а*, that is, suffixes whose initial segment is -о- or -е-. While these are compound suffixes in the sense that they are multisyllabic, they all act like simple suffixes. The initial syllable of these suffixes, *-(ов)иц*, *-(ев)иц*, *-(е)ниц*, *-(ен)ниц*, appears to be invisible to stress: stress does not fall on the initial syllable of these suffixes. Instead, stress appears to be determined by the composition of the suffix without the initial syllable. This statement results from the analysis of data presented in Table 1.

	Root stress	Stem stress	Stem stress (anomalous)
(ов)иц-а	10	11	0
(ев)иц-а	0	7	0
(е)ниц-а	5	17	3
(ен)ниц-а	0	37	0
Total words (percent)	15 (17%)	72 (80%)	3 (3%)

Table 1: the stress of words in *-(ов)ица*, *-(ев)ица*, *-(е)ница*, *-(ен)ница* in Zaliznjak 1977

The following examples are illustrative of how stress will be counted in this analysis.

Root stress: *берёзовица* 'birch beer', *пу́говица* 'button', *заусе́ница* 'hangnail'. (Note the first listed word is certainly related to *берёзовый* 'birch', but no similar adjectives correspond to the final two. The fact that *берёзовый* exists suggests that it is the source of the stress in *берёзовица*. In this analysis this historical connection is not significant. Instead, we are

interested in determining if there is a single most likely synchronic focus for word stress in just these words.) According to the definition of default given above, stress should fall on the suffix *-иц* in these words, e.g. **берез-(ов)и́ц-а* (the suffix *-иц* is vowel-initial). Since it does not these words are counted as having root stress.

Examples of stem stress are: *косови́ца* 'mowing time', *огневи́ца* 'fever', *му́ченица* 'martyr', and *ли́ственница* 'larch'. In the first two words, stress is on the vowel-initial suffix, e.g. кос-*(ов)и́ц-а*. The latter two examples show that stress can be characterized as stem stress even though it falls on the root: *му́ч-(е)ниц-а*, *ли́ств-(ен)ниц-а*); in both instances the suffix is consonant-initial. Stress is on the final stressable stem vowel (the root being part of the stem). Again, related forms exist for some of these words (though certainly not for all): *огнево́й* 'fiery', *ли́ства* 'foliage'. Speakers may make a phonetic and semantic connection between related words (or they may not), but for the purpose of this computation, each word exists independently from the other and is, therefore, analyzed independently.

The three anomalous stem stress words are *сушени́ца* 'cudweed', *учени́ца* 'pupil', *соучени́ца* 'classmate'. The suffix *-(е)ниц-* is consonant-initial and, therefore, it is expected that stress will fall on the vowel preceding the suffix. Since the suffix is stressed, this represents an anomalous (stem) stress according to the definitions given in section 1.

Root stress words bear stress on a root syllable in defiance of any default considerations. These stressed root syllables correspond to so-called stress-attracting "strong" or "dominant" syllables that are discussed in numerous works on Russian accentuation as in Halle (1975, 107), Garde (1976, 120), Zaliznjak (1985, 36-37), Melvold (1989, 50). In the present analysis, however, there is no dynamic which deletes stress from one syllable or "attracts" it from some place to the root syllable. Instead, the speaker learns the word with a certain syllable more pronounced. In some words, stress on a root syllable co-occurs with an unstressable suffix (the suffix is never or is rarely stressed), which case, as indicated above, will be counted as stem stress. This happens when stress is located on a final root syllable, such as in *пле́нница* (*пле́н-ниц-а*) 'prisoner', where stress is not on the final stem syllable because its suffix begins with a consonant. In this case, root stress and stem stress are equivalent: stress is on the root syllable, which is the first syllable preceding the consonant-initial suffix—a stem stress location. Since root stress is by its nature random—there is no way to predict whether or not a word will have root stress from the synchronic phonetic or morphophonemic makeup of the word itself—and since we are interested in characterizing stress position through a predictive mechanism and in making that mechanism as encompassing as possible, we will term stress that is both root stress and stem stress as stem stress. Thus, *пле́нница*, though certainly showing stress on the root, is counted as a stem stress noun since the location of stress is *predictable* through the stem stress generalization (stress normally occurs on the first vowel preceding a consonant-initial suffix), whereas as root stress it is *unpredictable*. The same is true for the suffixes *-(е)ниц-а* and *-(ен)ница*: *тре́звенница* 'teetotaller', *уто́пленница* 'drowned woman'.

Stem stress words have stress on the suffix: *кос(ов)и́ца, огн(ев)и́ца,* or on the syllable immediately preceding the suffix if it begins with a consonant: *му́ч(е)ница, ли́ств(ен)ница*. We will adopt the convention of placing parentheses around syllables that are invisible to stress.

Anomalous stress occurs only with stem stress: in a relatively small number of words a suffix that begins with a consonant is stressed. We will term this "stem stress (anomalous)." For words with anomalous stem stress it is possible that the suffix is held as part of the root, consequently forming a normal stem stress noun: instead of *суш-(е)ни́ц-а* (with anomalous stem stress) this word could be analyzed as *сушен-и́ца-а* (with normal stem stress).

As suggested by the preceding, morphological structure is critical to determining stress categorization. For example, the noun *лече́бница* 'clinic' could be construed as *лече́бн-иц-а* in which case it would be categorized as having root stress. This is reasonable especially in view of the presence in the language of *лече́бный* 'medical' where the -н- is an adjective forming suffix; thus *лече́бн-ый* > *лече́бн-иц-а*. However, ample evidence suggests that, in fact, *лече́бный* is not the derivational source of *лече́бница*, but rather the obsolete word *лечба* 'treatment', making *лече́б-ниц-а* 'place for getting treatment' equivalent to other nouns with the suffix -ниц-а meaning 'place' (*ры́бница* 'a place for keeping fish', *гри́дница* 'quarters for bodyguard (*гридь*)', *ме́льница* 'mill (place for grinding)', *ча́йница* 'vessel for keeping dry tea', and many others—see Townsend 1968, 191). This also illustrates the dangers of using derivation for finding the source of stress in any given modern word. The source may no longer be present in the language but a cousin might easily be seized upon as the source resulting, as with *лечебный*, in an inaccurate analysis. However in the view explored here, words exist independently of each other and stress is characterized solely on the basis of the word itself without reference to other putative derivational connections.

3. The stress of nouns in -иц(а)

Zaliznjak (1985) divides words in *-иц(а)* into two categories. In the first, the suffix is added to a stem copying the stress of the deriving word. Thus, *рука́в* (end stress—gen sg *рукава́* 'sleeve') > *рукави́ца* 'mitten', *ма́стер* (with shifting stress, cf. nom pl *мастера́* 'master') > *мастери́ца* 'master', *больно́й* > *больни́ца* 'hospital', including diminutive/affectionate words: *сестра́* 'sister' > *сестри́ца* 'little sister'. In the second category the suffix is substituted for a suffix of the deriving word while copying its stress: *проводни́к* > *проводни́ца* 'guide', *краса́вец* > *краса́вица* 'beauty'. Speakers probably do make these connections and once they are established they likely reinforce the stress of related words. Lexical relationships, however, are not critical to this strictly quantitative investigation.

All of the derived words just listed are illustrative of stem stress: *рукав-и́ц-* (fused root, see section 1), *мастер-и́ц-*, *больн-и́ц-* (fused root), *сестр-и́ц-*, *провод-ни́ц-* (stem stress – anomalous), *крас-а́виц-* (vowel initial suffix).

The distribution of stress for all words ending in *-иц(а)* as listed in Zaliznjak (1977) is reported in Table 2.

Stress location	Number of words	Percent of corpus
Root stress	189	13%
Stem stress	1161	82%
Stem stress (anomalous)	60	4%
Total	1410	

Table 2: Stress distribution of all nouns ending in *-иц(а)*

Eighty-two percent of all words ending in the sequence *-иц-* have fixed stem stress as defined in section 1. Tables 4 and 5 report on the location of stress by suffix. There are 19 distinct suffixes whose final sequence is *-иц(а).* Nearly all of these are compound suffixes. In order to simplify the presentation these suffixes are categorized according to the nature of the initial syllable: vowel- or consonant-initial, as represented in Table 3. It may seem artificial to characterize compound suffixes by their initial syllable, but by characterizing words according to their initial sequence we are able to focus on the vowel- or consonant-initial dichotomy.

Vowel-initial sequence		Consonant-initial sequence	
-иц-	*-аниц-*	*-ниц-*	*-ливиц-*[3]
-(ов)иц-[1]	*-яниц-*	*-(е)ниц-*[1]	*-(тель)ниц-*[2]
-(ев)иц-[1]	*-овщиц-*	*-(ен)ниц-*[1]	*-чиц-*
-авиц-	*-(ир)овщиц-*[2]	*-льниц-*	*-щиц-*
-явиц-		*-лиц-*	*-льщиц-*

Table 3: Categorization of words ending *-иц(а).* Notes: [1] discussion in section 2, [2] the initial syllable of this compound suffix does not occur under stress, [3]*-лив-иц-а* (see KE 703)

Table 4 reports on words whose final sequence begins with a vowel, i.e. in words with a suffix from the first two columns listed above. Table 5 reports on stress in words whose final suffix begins with a consonant.

	-ица	*-(ов)ица*[1]	*-авица*[2]	*-аница*[3]	total
Root stress	108	10	0	1	119 (47%)
Stem stress	111	19	4	2	136 (53%)
Stem stress (anomalous)	0	0	0	0	0
Total	219	29	4	3	255

Table 4: Stress distribution of words whose post root syllable begins with a vowel. Notes: [1] discussion in section 2, [2]includes *-явица*, [3]- includes *-яница*

These data suggest no preference for stem stress or root stress with the vowel-initial suffix *-ица*. Commentary follows for each stress category.

Root stress

Examples from each category are: *ку́р-ица* ‘chicken’, *лу́к-овица* ‘bulb’, and *селі́тряница* ‘saltpetrous compost’. These words appear to have root stress in the absence of any phonological or morphological trigger, suggesting that their stress location is acquired with usage and not reinforced by any emergent rule.

Two root stress nouns (one with the suffix *-ица* and one with *-лица*) are instructive of how suffixed nouns are structured in this approach: *пи́галица* ‘lapwing’, *па́далица* ‘fallen fruit’. The constituent structure of these words appears to be *пи́гал-иц-а* and *па́да-лиц-а*, both with stress on the root. Stress in the former derived historically from a now lost *пи́гол* where the root was onomatopoeic for the sound made by this bird (Šanskij and Bobrova 2004). The latter noun refers to fruit or grain that has fallen onto the ground, or to sprouts of grain grown from such. A relationship between this word and the verb *па́дать* ‘to fall’ most probably exists and may inform a secondary meaning of the word, but the noun itself is all noun, it cannot be used as a verb in any way. Thus the *-л-* seen in the suffix of this

word is not held to be a marker of past tense but a component of the nominal suffix. It is, therefore, counted below with other consonant-initial suffixes.

Stem stress

In the case of vowel-initial suffixes, stress is located on the suffix itself. In nouns with simple suffixes stress is found on the stem final syllable: *гран-и́ца* 'border', *част-и́ца* 'particle', *дев-и́ца* 'maiden', *шелк-(ов)и́ца* 'mulberry tree'. The latter example shows that stress does not always copy that of a derivational partner: compare *шёлковый* 'silk' (the mulberry is favored by silk worms). In nouns with compound suffixes, stress is on the initial vowel of the suffix: *крас-а́вица* 'beauty', *тряс-а́вица* 'fever'.

Five words in this category highlight an important inconsistency in the proposed analysis. We have assumed that the morphological structure of nouns derived from verbs contain a fused root: *па́да-лица*. What is the morphological structure of words derived from adjectives? The stress in the following words suggests that the adjectival suffix, like verbal suffixes, should be considered a part of a fused root: *багрян-и́ц-а* 'purpura', *власян-и́ц-а* 'hair shirt', *водян-и́ц-а* 'crowberry', *торфян-и́ца* 'turf specialist', and *зарян-и́ца* 'dawn (poetical)', otherwise stress would erroneously be expected to fall on the vowel-initial compound suffix *-яница*. However, we will see below that the adjectival suffix -н- must be part of the compound suffix *-ниц-*. One solution would be to suggest that vowel initial suffixes from verbs and adjectives become components of fused roots, while consonant initial suffixes become components of fused suffixes. A further complexity comes from *заряни́ца* for which there is no adjectival partner. We assume that this word is structured *заря-ни́ца* with anomalous stem stress.

If words with a vowel-initial suffix ending in *-иц(а)* do not lend much credibility to the default stress generalization, Table 5, which reports the incidence of stress among words whose final component begins with a consonant, presents substantial support for it.

	-ница[1]	*-(тель)ница*	*-лица*	*-чица*	*-щица*[2]	total
Root stress	30	7	1	0	32	70 (6%)
Stem stress	454	144	12	93	322	1,025 (89%)
Stem stress (anom)	39	0	2	0	19	60 (5%)
Total	523	151	15	93	373	1,155

Table 5: Stress distribution of words whose final suffix begins with a consonant. Notes: [1] includes all six suffixes listed in the third column in Table 3, [2] includes *-льщица, -(ир)овщица*

Nearly nine out of ten of words with final consonant initial suffixes ending in *-иц(а)* have stem stress.

Root stress

Root stress appears to be a normal if marginal part of the accentual landscape of Russian. Some roots are always or almost always stressed. Examples with each suffix are: *пе́реч-ница* 'pepper-pot', *иссле́дователь-ница* 'researcher', *па́да-лица* 'fallen fruit', *му́сор-щица* 'garbage worker'. The root *перец-* or its variants *переч-, перц, перч* (KE 243) occurs in 20 words in which stress is on the initial syllable 16 times, the root *мусор* occurs in nine words, always stressed. The presence or absence of any suffix has nothing to do with the stress of these

words. However, root syllables that are next to a suffix may have stress on the root because the suffix itself is not stressable, e.g., *лёт-чиц-а* 'pilot', *заговóр-щиц-а* 'conspirator', etc. Words of this type are categorized as stem stress in this analysis since stress is still situated on the stem (the root being a component of the stem) next to the regulating suffix. The same is true of the stem stress words in *-лица*: *страда́лица* 'martyr', *скита́лица* 'wanderer', (according to Vinogradov (1998, 638) from OCS *скитаться*), *владе́лица* 'owner', *уме́лица* 'expert' (all with stem stress—stress is on the stem final stressable vowel). As with *па́далица* and its related *па́дать*, the word *уме́лица* seems clearly related to *уме́ть* 'know how' but in this analysis of stress, this relationship is not significant. The fact that stress marks the juncture of root and suffix (Shapiro 1986, 190) *уме́-лиц-а* is significant.

Stem stress

Eighty-two percent of all words with the suffix *-иц(а)* have stem stress (Table 2). An overwhelming proportion of these are made up of words containing a suffix that begins with a consonant (Table 5). In these words, stress appears adjacent to the suffix on the root portion of the stem marking the intersection of root and suffix. Examples from each category are: *творóжница* 'cottage cheese dish', *покупа́тельница* 'purchaser', *корми́лица* 'nurse', *вкла́дчица* 'depositor', *боле́льщица* 'fan', *вербóвщица* 'recruiting agent'.

The largest portion of stem stress nouns in *-иц(а)* has the suffix *-ниц(а)*, making it structurally similar to other suffixes, eg. *-чиц(а)*, *-щиц(а)*. While there is certainly a robust synchronic relationship between *волше́бный* 'magical', *волше́бник* 'magician', and *волше́бница* 'magician (fem.)' this relationship is not critical to the present computation of stress. All these words have (default) stem stress.

Thirteen words in *-ениц(а)* are analyzed as having stem stress falling on the root (e.g., *свояче́ница* 'sister-in-law', *тру́ж*ениц-а 'worker'), due to the unstressed nature of the initial vowel of this suffix: *свояч-(е)ниц-а*. Note root stress in a few words where the sequence -ен- is part of the root, not the suffix: *заусе́ница* 'hangnail', *пяде́ница* 'Processionaria' (type of caterpillar/moth; cf. English 'inch-worm'), *веретён-ица* 'slow worm' (cf. *пяде́нь* 'inch', *веретенó* 'axle', and KE (369) for усен-).

The initial syllable of the compound suffix *-енниц(а)* is similarly unstressed: *тре́зв-енница* 'teetotaler', *ро́д-ственница* 'relative', etc. Nouns whose final sequence is *-(оч)ница* have fused with the suffix *-ниц(а)* triggering an allomorphic selection of the palatal variant of roots: *ша́почница* 'milliner'. Seven words, however, have stress on the suffix, e.g. *песóчница* 'sand-box', *чесóчница* 'garlic press'. The position of stress in these derived words can be related to the declension class of the stem to which the suffix is attached. The fleeting vowel in second declension stems is unstressable: -/к- (cf. *ша́пка* 'hat', gen pl *ша́пок*), thus *ша́п(оч)-ница*. The fleeting vowel in first declension nouns ending in -/к-, however, is stressable: *песóк* 'sand', thus *чесóч-ница*. This somewhat ungainly solution allows us to categorize both types of nouns as having stem stress. While this solution does not focus on the stress of derivational sources to account for stress in the derived forms (the reference is to declension class, not stress location in the source) it does make reference to a derivational source. This implies that when only one partner is known, say *ша́почница*, then this must be analyzed as root stress. However, as soon as *шапка* is learned and related to

ша́почница its stress can be analyzed as stem stress based on the consonant initial nature of the suffix.

Stem stress (anomalous)

Sixty nouns in *-ниц(а)* and *-щиц(а)* have stress on the suffix, e.g. *продавщи́ца* 'saleswoman', *власяни́ца* 'hair shirt', *ночни́ца* 'bat', *клеветни́ца* 'slanderer', *поясни́ца* 'small of the back' (cf. *по́яс* 'belt'), *темни́ца* 'dungeon'. These are words that Zaliznjak characterizes as having additive or substitutive suffixes. Thus, the stress of *продавщи́ца* was based on and is reinforced by that of *продавщи́к* 'salesman', which, in turn, evidently owes its stress to *продава́ть* 'to sell' with final stem stress. However, only 29 of the 60 nouns are related to words with "final stress," e.g., *крепостни́ца - крепостно́й*. The other nouns in this category lack a connection to other finally stressed words: *должни́ца* 'debtor', *снежни́ца* 'pool from melted snow', etc. Furthermore, a number of nouns in *-иц(а)* with stem stress are closely connected to words with final stress, e.g., *насле́дница* 'inheritor' - *наследи́ть* 'inherit', *кочёвница* 'nomad' - *кочево́й* 'nomadic', *затво́рница* 'hermit' - *затвори́ть* 'close up', etc. It may be that the anomalous stress position in each of these nouns must be explained on an idiosyncratic basis, such as through a semantic connection (a number of these words refer to a container or place: *гробни́ца* 'sepulcher', *пороховни́ца* 'powder flask', *божни́ца* 'chapel', *глазни́ца* 'eye-socket', *дойни́ца* 'milk pail', *темни́ца* 'dungeon'.) But a general synchronic explanation for these accentually anomalous nouns is wanting.

By combining the data in Tables 4 and 5 we arrive at the overall summary, as reported in Table 2, of the distribution of stress in nouns in *-иц(а).* Most of the nouns with predictable stem stress is due to the fact that a large majority (89%) of words have the suffix *-ниц(а), -чиц(а)*, or *-щиц(а).* The stress locus of these nouns is consistently the first vowel of vowel-initial suffixes and on the first vowel to the left of consonant-initial suffixes. It is possible that stress in these words serves as a means for marking the juncture between semantically laden roots and the onset of a suffix.

4. The diachronic and synchronic relationship between the suffixes -ик *and* -иц(а)

The suffixes *-ик* and *-иц(а)* derive from the Common Slavic suffixes **-īk-ŭ* and **-īk-a*, respectively. In the former length was lost as was the nominative singular vocalic ending -ŭ while in addition to losing length the latter was subject to progressive palatalization: ik→ic when not followed by a labialized vowel (Shevelov 1965, 339, Townsend and Janda 1996, 80). Examples of the latter from Old Russian are: *крабица* 'basket' (cf. короб- 'box'), *криница* 'spring', and *возьница* 'driver', the latter of which forms a doublet with *возникъ* 'driver'. Zaliznjak (1985, 71-74) characterizes the suffix *-ик* as attracting stress in the presence of weak roots (слабые базовые компоненты). The focus of this article is to suggest that the system of morphemes competing for stress (Zaliznjak 1985, 36) has given way to a system where stress is an autonomous phonetic feature of independent individual words and whatever "system" exists, it exists as an emergent characteristic of a homogenous set of words. Some aspects of the older system continue to operate, in the main "dominant" roots, which account for most of the irregularities, e.g. root stress, in the modern system.

Once the suffix *-иц(а)* was established, it became autonomous, i.e., no longer a phonological construct. It was added to form diminutives: Old Russian *козица* 'little goat', (*коз-иц-а* — there is no **козик*), Modern Russian *водица* 'water (dim)', (*вод-иц-а* — there is no **водик*), *рощица* 'grove (dim)'. It is now also used to indicate "female:" *ослица* 'she-ass', *медведица* 'she-bear', *телица* 'female calf' cf. *телец* 'calf', *жилица* 'female lodger' cf. *жилец* 'lodger' or a noun having a (sometimes now very opaque) connection with the meaning of the root: *иглица* 'asparagus', *черница* 'whortleberry', *светлица* 'front room', *девица* 'spinster'. In its function of indicating "female", this suffix often forms doublets with the suffix *-ик* meaning "male": *карлик - карлица* 'dwarf', *дорожник - дорожница* 'road specialist', *собачник - собачница* 'dog-lover'. But these suffixes occur independently as well: *химик* (there is no *химица*) 'chemist', *вдовица* 'young widow' or with a connection only in the root: *половик* 'floor mat', - *половица* 'floor board', *лечебник* 'book of home cures' - *лечебница* 'clinic'. While stress is usually identical in these doublets, and we presume that the stress of the variant in *-иц(а)* mimics that of *-ик*, this relationship holds no meaning for a synchronic analysis that is only interested in uncovering generalizations regarding stress across a homogenous set of words. Similarly, we do not look for evidence among *-иц(а)* words to account for stress position in words with the suffix *-ик*.

5. The structure and stress of nouns in -ик

Zaliznjak (1977) lists 3,495 nouns whose final segment is *-ик*. Here all of these nouns will be treated as containing the sequence *-ик*, found in numerous suffixes and in international words such as *поли́тик* 'politician', *пра́ктик* 'expert', *меха́ник* 'mechanic'. In addition, homologous suffixes with distinct meanings are treated here as distinct, not polysemic. The data will show that two of three suffixes in *-ик* never bear stress and the third is incapable of independently bearing stress (discussion follows). Thus these suffixes behave accentologically in a very different way than *-иц(а)*, which is regularly stressed.

Table 6 lists the suffixes that terminate in the sequence *-ик*. The first three suffixes listed there are the semantically and accentologically distinct: *-ик* (diminutive), *-ик* (international), and *-ик* (neutral). The semantic characterizations given in parentheses represent broad categorizations only. The first two suffixes are always preceded by stress and the last always followed by stress when a desinence is present. We formally account for the observed variations in stress by suggesting that the first two suffixes are unstressable: *сто́л-ик* 'table (dim)', *меха́н-ик* while the third is stressable: *муж-и́к* 'peasant'. Since the suffixes *-ик* (diminutive) and *-ик* (international) are unstressable, stress is on the preceding syllable of the stem—the final stressable syllable of the stem.

The suffix *-ик* (neutral) is stressable: *учени́к* 'pupil', except when a desinence follows, the desinence is stressed: *ученика́* (gen sg). This is characteristic of masculine (first declension) nouns that terminate in a monosyllabic native Russian suffix in the nom sg. (This is not the case with international suffixes: *коммуни́зм, коммуни́зма* 'communism' nom sg, gen sg; *натурали́ст, натурали́ста* 'naturalist' nom sg, gen sg.) Consistent desinence stress, or "final stress", has often been described as an independent entity. Here the suffix *-ик* is held to be stressable but only when followed by a null. This more or less follows other

investigators who variously describe this suffix as "right-stressing" (Garde 1965, Zaliznjak 1985, 38).

The suffixes *-ик* (diminutive) and *-ик* (international) are unstressable and, consequently, stress is located to the left of these suffixes, marking the juncture of root and suffix. This should not be seen as evidence for a two-tiered model of stress placement, where stress appears to be dynamically positioned. Instead, classifying words such as *сто́лик* 'table (dim)' as stem stress is a taxonomical device, which takes advantage of the fact that roots are part of a word's stem.

Similarly, international words with the suffix *-ик* (possibly starting with *Рюрик* 'Rurik') and *-тик* are categorized as stem-stress: the final stressable syllable of the stem is stressed. This essentially follows Zaliznjak (1985, 39), who refers to these suffixes as "left-stressing".

The suffix *-ик* (neutral) is incapable of independently bearing stress as just described: the vowel to the right of the fused root is stressed: *мужик-*, *грузовик-*, etc., marking the juncture of the (fused) root with the desinence. In a sense the suffix *-ик* (neutral) has no, or has lost, its semantic distinctiveness: the derived words are semantically independent of those from which they were derived.

As seen with the suffixes *-(ов)иц-а*, *-(ев)иц-а*, the compound suffixes *-овик* and *-евик* appear to contain unstressable syllables: *-(ов)ик*, *-(ев)ик* as does *-(ен)ник*. A number of suffixes have *-ик* as a final sequence.

Vowel-initial Suffix	Consonant-initial Suffix
-ик[1]	*-ник*[4]
-ик[2]	*-(ен)ник*
-ик[3]	*-чик*
-(ов)ик	*-щик*
-(ев)ик	

Table 6: Categorization of words ending in *-ик* (Zaliznjak). Notes: [1] international, e.g. *теоре́тик* 'theoretician', [2] diminutive, e.g. *хала́тик* 'robe (dim.)', [3] neutral, e.g. *стари́к* 'old timer', [4] includes *-(оч)ник, -(еч)ник*

Based on the distribution of stress in words with the suffix *-иц(а)* we expect stress to be on the initial stressable vowel of vowel initial suffixes and on the first vowel preceding consonant initial suffixes.

	ик[1] *(int)*	*ик*[2] *(dim)*	*ик*[3] *(neut)*	*-(ов/ев)ик*	total
Root stress	0	0	47	6	53 (11%)
Stem stress	151	167	0	0	318 (64%)
End stress	0	0	21	104	125 (25%)
Total	151	167	68	110	496

Table 7: Distribution of stress in words with a vowel initial suffix *–ик*

Words with a monosyllabic suffix in *-ик* are likely to have stem stress. Since the type of stress with these suffixes is in complementary distribution in relation to the semantic nature of the suffix, both stem stress (for the suffixes "diminutive" and "international") and end stress ("neutral") can be considered default.

An analysis of each category follows.

Root stress

Most nouns in this group with root stress are technical words: *чернозо́бик* 'dunlin' (has a black belly), *ры́жик* 'saffron milk cap', *су́слик* 'gopher', *горо́ховик* '*bruchus pisorum* (pea beetle)', *подберёзовик* 'brown mushroom'. A few can be found in the Russian National Corpus list of high frequency words, e.g. *кро́лик* 'rabbit', (though Černyx 1993, 445 shows this word is a borrowing from Polish, it probably would not satisfy any definition of an international word), *ве́ник* 'besom', *жу́лик* 'petty thief', *ма́терик* 'continent'. Only 11% of nouns in *-ик* (and just 4% in *-ник*—see Table 8) have root stress. It appears that root stress is fairly rare in words with these suffixes. This suggests that while some morphemes are "dominant" in regard to stress location, as suggested by Zaliznjak and others, their numbers are limited to the degree that they can be learned. Stress is not attracted to these roots from some other syllable nor dynamically placed on the root by rule. These words are held in the lexicon with constant root stress, that is to say, learned with a root vowel slightly longer than the first.

Stem stress

A greater number of words in this category have stem stress, but this is due to the fact that all these words have either the suffix *-ик* (international) or *-ик* (diminutive), neither of which is ever stressed; thus, stress falls on the nearest stressable vowel. In this case it is the root vowel: *антибио́тик* 'antibiotic', *синоптик* 'meteorologist', *до́мик* 'cabin', *каранда́шик* 'pencil (dim.)'. The absence of any noun with root stress (with the possible single exception of ка́устик 'caustic soda') in these two groups suggests that the presence of the semantically distinct suffix plays a role in defining the location of stress in these words. This conclusion is supported by pairs such as *со́кол* 'falcon' - *соко́лик* (dim.), *су́дарь* 'sir' - *суда́рик* (dim/affectionate), *во́лос* 'hair' - *воло́сик* (dim). It is easy to see why some analyses hold the suffix *-ик* (dim.) to be "left-stressing". In the present analysis the suffix is classified as unstressable and words with the suffix categorized as having stress on the final (stressable) vowel of the stem.

End stress

Only a very few nouns (21) in *-ик* have end stress; examples: *мужи́к* 'peasant', *стари́к* 'old-timer', *тупи́к* 'dead-end', *пятери́к* 'A-student'. On the other hand, a fairly large number of nouns ending in *-(ов)/(ев)ик* have end stress. However, considering that only four of these words are found in the RNC high frequency list (*грузови́к* 'truck', *фронтови́к* 'front-line soldier', *штурмови́к* 'assault plane', *большеви́к* 'bolshevik') this generalization, while covering a fair amount of total words, is limited in practicality.

An analysis of the suffixes in *-ник* yields somewhat more useful generalizations.

6. Nouns with the suffix -ник, -щик, -чик

Based on what we have observed so far, we expect that the most likely place of stress location in words whose final syllable begins with a consonant will be on the vowel immediately preceding the suffix. As indicated in Table 8, that is what we find.

	-ник	*-(ен)ник*	*-щик*	*-чик*	total
Root stress	130	0	75	6	211 (7%)
Stem stress	1,303	34	761	436	2,534 (87%)
End stress	111	0	63	1	175 (6%)
Total	1,544	34	899	443	2,920

Table 8: Distribution of stress in nouns in *-ник, -щик, -чик*

Stem stress in this category appears to be unexceptional. Analyses by category follow.

Root stress

Though a fairly large number of root stress nouns (211) occurs here only three turn up in the RNC high frequency list: *воспи́танник* 'pupil', *па́мятник* 'monument', and *пра́порщик* 'ensign', and a few others occur occasionally: *я́бедник* 'snitch', *му́ченик* 'martyr'. Most root stress nouns in *-щик* and *-чик* are specialty words e.g., *ла́мповщик* 'lamp-maker, lamp-repairer', *вы́борщик* 'person allowed to vote in a many-tiered election', *сла́вильщик* 'panegyrist'. Why do only these words have root stress while most have (default) stem stress? The stressed syllable stands out because it is stressed in a non-default location. But more to the point, all these words have counterparts where stress is on the root: *воспи́танный* 'well brought up', *па́мятный* 'memorable', *я́беда* 'slander', etc. Dybo (1981, 184) showed that when these words were derived they copied the stress of the deriving forms which was inherited from earlier historical forms. The paucity of frequently used words in this category suggests that these are, indeed, exceptional forms whose stress is a function of each word's lexical composition. Speakers know the stress of these words because the word is held in the lexicon in a stressed format. The existence of a default stress location does not imply or deny a process that assigns stress to syllables. Such a process may well exist as, for example, in accentual analogical leveling, but that topic is outside the bounds of this strictly quantitative account.

Stem stress

We have proposed that stress falls to the left of suffixes whose initial component is a consonant. This is most clearly shown in this group of words. Similarly, suffixes whose initial syllable is unstressable, for example *-(ен)ник*, have stress on the first vowel preceding the suffix.

Nearly nine out of ten words ending in the sequence *-ник, -чик*, or *-щик* have stem stress: stress is seen on the syllable immediately preceding the suffix (or on the penultimate syllable in the case of *-(оч)ник, -(еч)ник* and *-(ен)ник).* This is in line with what was observed earlier: stress tends be on the final stressable syllable of the stem. A few high frequency examples from the RNC are: *куста́рник* 'shrubs', *волше́бник* 'magician', *защи́тник*

'protector', *напа́рник* 'partner', *ро́дственник* 'relation', *носи́льщик* 'porter', *ма́льчик* 'boy'. The suffix *-чик* is productive of diminutive forms (Townsend 1968, 197). It is always preceded by stress, as we saw with the suffix *-ик* (diminutive). It differs from -чик which forms agentive or objective nouns, e.g. *перево́дчик* 'translator', *счётчик* 'meter', but as all reflect stem stress they are not separated here as was done for the three suffixes *-ик* which are accentologically diverse.

End stress

About half (55/111) of end stress nouns in -ни́к have a corresponding end stress adjective in -ной: *лесни́к* 'forester' - *лесно́й* 'forest' (adj), *мясни́к* 'butcher' - *мясно́й* 'meat' (adj) and nearly all of these (51/55) are animate nouns. Half of all nouns in -ни́к have no corresponding adjective in -ной, but many are derivationally related to other words that have end stress in at least some forms: *голосни́к* 'resonator' cf. *голоса́* 'voices', *золотни́к* 'slide valve' cf. *золото́й* 'golden', *шутни́к* 'joker' cf. *шут* 'jester' and these may be animate or inanimate. In a sense these end stress nouns are similar to the stem stress anomalous nouns examined earlier, where the suffix is stressed in spite of an evident default position.

7. Usage

A substantial majority of words in *-ица* (82% — see Table 2) and *-ик* (83% — Tables 7 and 8) have stem stress: either the vowel of a vowel-initial suffix is stressed, or, if the suffix begins with a consonant or is unstressable, stress is located on the vowel immediately preceding the suffix. This is the location of stress for 4,014 of 4,826 words. The results of this computational analysis are extremely close to those achieved by Crosswhite et al. (2003), who studied the stress of nonce words and found 80% stem final stress, and Lavitskaja et al. (2014), who studied novel place names and acronyms and found 79% and 82% stem final stress, respectively. It appears that in regard to words with these suffixes, a fundamental postulate for stress position can be stated: stress is correlated with the stem final stressable vowel. This is the expected, or default, location for stress in these words. Root stress, anomalous stem stress, and end stress nouns represent historical holdovers. Preliminary investigations show a similar or greater affinity of stress for the stem final position in other suffixes: *′-ка* (91%), *′-ья* (80%), *-е́ль* (90%), *-у́ха* (90%), *-а́ть* (87%), *′-ничать* (91%), *′-ствовать* (98%), *′-Сый* (81%), *′-тельский* (96%), *′-чатый* (92%), *′-тель* (96%), *-и́н* (95%).

While it is likely that speakers make stress associations between derivationally related words, it has not been shown that these associations are diagnostic for the position of stress in any given word. Zaliznjak (1985, 383-5) has suggested that stress tendencies in derived words in modern Russian are more the result of the pressure of the stress position from a totality of words with a given suffix or suffixes rather than a combination of interrelated rules. Half a lifetime ago Michael Shapiro (1986, 197) wrote of the Russian system of stress, "This study has established [...] the primacy of the stem and its final syllable [...] Stress positions itself on this syllable in the nom sg when the word is semantically, morphologically, or morphophonemically marked, which is where it stays throughout the paradigm." The results of the computational analysis presented here substantiate the claims of both these authors.

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