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# HOW LEXICAL CONSERVATISM CAN LEAD TO PARADIGM GAPS

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The goals of this paper are twofold. First, I provide empirical generalizations regarding paradigmatic gaps in the Russian genitive plurals. Second, I propose an analysis of these facts in terms of inviolable lexical conservatism conditions. The main idea behind Lexical Conservatism is that speakers are hesitant introducing forms that would create a new allomorph of an existent morpheme. I reject an alternative hypothesis based on vowel neutralization and consider predictions of Lexical conservatism for the rest of the Russian nominal paradigm. Additionally a survey with native speakers is used to provide further evidence for the claims made.

## 1. INTRODUCTION

The topic of this paper concerns a peculiar phenomenon of grammatical failure – absence of output. This phenomenon is often termed "ineffability" or, if failure occurs in the morphological domain (i.e. some lexical items lack particular derivational or inflectional forms), it is sometimes referred to as the phenomenon of "paradigm gaps". The lack of inflectional forms is particularly striking given that inflection, being obligatory, is more robust than derivation. Understanding the reasons behind paradigm gaps might shed light on many questions, including those concerning how grammatical structure is learned. Despite its appeal, this topic has been relatively understudied. (See however Fanselow and Fery, 2002 for an overview of this phenomenon and a number of examples from variety of languages.)

Many speculations about the reasons behind paradigm gaps have been proposed in the literature; they include homophony avoidance, morphological blocking, phonotactic restrictions, semantic incongruity, and others. It could very well be that different cases of ineffability involve different explanations, and a careful investigation of each individual case is required before making any attempts at a unified account.

In this paper, I examine paradigm gaps in the Russian genitive plural. The ineffability of certain genitive plural forms in Russian is notorious and has even left its trace in the literature. A short humoristic story by the famous Russian writer Zoschenko derives much of its humor from characters' inability to write a request for five fire-pokers (*kocherga*), which is one of the words with an ineffable genitive plural. I propose that there are two different kinds of gaps warranting two different explanations. For a small set of nouns, gaps are due to an irreparable phonotactic problem. And for another group of nouns gaps arise as a result of speakers' unwillingness to introduce novel allomorphs of existing lexical items into the lexicon. I provide an account of

gaps using Orgun and Sprouse (1999) modification of Optimality Theory (Prince and Smolensky, 1993) and a notion of Lexical Conservatism (Steriade, 1994). I also evaluate my account against the data from a survey with native speakers that confirms the status of certain lexical items as ineffable and provides further evidence for the notion of lexical conservatism. Finally, I examine possible problems for this account and predictions Lexical Conservatism makes elsewhere in the nominal paradigm.

## 2. BACKGROUND

The earliest attempt to deal with the problem of ineffability is due to Halle (1973), who proposed that "accidental lexical gaps" be marked [-lex. insertion] in the Filter component of the grammar. Albright (2003) points out that this strategy is not very satisfying for several reasons. First of all, when one examines the individual cases of ineffability more closely, they do not appear to be accidental[1] and thus referring to them as such is simply not revealing. Secondly, it is not clear how one would ever learn that a particular form was marked [-lexical insertion]. The only way to do so would be to rely on negative evidence to infer that some forms do not exist. Perhaps for frequent words one could memorize that certain forms do not exist since an absence of some inflectional form would become very obvious in such a case. However, infrequent and archaic words often have ineffable forms as well. Despite that, native speakers are typically able to inflect infrequent or even novel words, and only in some cases ineffability arises. This suggests something systematic -- if native speakers can differentiate between the rules which can easily and productively apply to infrequent words, and those that cannot, we would like this to be captured by the grammar.

Ineffability presents a serious challenge for Optimality Theory (Prince and Smolensky, 1993), since in classical OT the constraint ranking will inevitably determine which candidate is optimal and therefore should be the output of the grammar. To circumvent this problem, Prince and Smolensky proposed to include a "null parse" into the candidate set. The null parse candidate (in other words, no output) violates no Markedness or Faithfulness constraints except for a special constraint MPARSE[2]. The result of such stipulation is that any constraint ranked above MPARSE becomes inviolable in the grammar as a whole. The null parse candidate wins whenever all other rival candidates violate some constraint ranked above MPARSE. Orgun and Sprouse (1999) consider a few cases of paradigm gaps and argue that the MPARSE approach fails to account for them. This is largely due to the fact that the cost of ranking any constraint above MPARSE is very high – it means that this constraint is now forever prevented from interacting with any other

[1] If lexical gaps were completely accidental, we would expect different lexical items to have gaps in different slots within the paradigm. However generally gaps occur in a specific slot(s) (for instance 1person singular for some Russian verbs). Moreover the affected slots are often associated with some morpho-phonemic alternations, thus it can often be predicted where the gaps are more likely to occur.

[2] MPARSE is similar to RealizeMorph and requires that every morpheme be parsed by the grammar.

constraints in the grammar. Orgun and Sprouse propose an alternative approach, which also uses a notion of inviolable constraints. In their system, inviolable constraints are located in a separate component of the grammar called CONTROL. Every winner from the main part of the grammar (EVAL in the standard OT) is then submitted to the CONTROL component. If it violates any of the constraints contained in there, it is excluded and the gap is predicted. Thus, the grammar consists of constraints that are allowed to interact with each other (even if some of them are in practice inviolable) – those are in EVAL – and, the inherently inviolable constraints that are responsible for paradigm gaps[3]. This system also provides an answer to the question of why native speakers can often offer a guess as to what the form of an ineffable word would be, if it existed. The answer is: they know what the output of EVAL is.

This approach seems to be particularly applicable in cases when phonological factors are involved in explaining the gaps. I will provide an account of the genitive plural gaps using the OT framework with Orgun and Sprouse's amendment, CONTROL. Most of my data could also be accounted for by using the MPARSE theory, except perhaps a small group of nouns. However, the main focus of this paper is not in arguing for a particular theoretical instantiation of Optimality Theory, especially since both CONTROL and MPARSE versions of OT are quite similar to one another. Instead I focus on understanding the reasons behind the gaps in the Russian genitive plurals. I will propose that the gaps are due in some cases to an inviolable phonotactic constraint and in others to an output-output faithfulness constraint on the stress pattern. However, this latter constraint has to be formulated as a "lexical conservatism" condition (Steriade, 1994). Lexical conservatism is a hypothesis that, all else being equal, speakers do not like to introduce novel allomorphs of already existing lexical items. Steriade (1994) shows how this principle guides the stress shift in English derived adjectives and the choice of an appropriate adjective in liaison contexts in French. This hypothesis relies on certain assumptions, which I discuss in section 5.3.1.

## 3. SOME DETAILS OF RUSSIAN GRAMMAR

This section provides background information on some aspects of Russian phonology and morphology that will become relevant in the analysis of the gaps.

### *3.1. Stress*

Stress in Russian is unpredictable and mobile. It can fall either on the stem or on the ending (I refer to these conditions *stem-stress* and *end-stress* respectively). Some nouns can have a different stress pattern in the singular vs. plural cases, and yet others still a different pattern in

[3] See Orgun and Sprouse (1999) for more details and a proposal of a learning strategy based on "weak negative evidence" that could learn which constraints belong in CONTROL and which belong in EVAL.

the nominative plural vs. all other (oblique) plural cases. A summary of all main stress patterns is given below.

Table 1 Main stress patterns

| **sg** / **pl** | **stem** | **ending** | |
|---|---|---|---|
| **stem** | S – S<br>*kárt-a – kárt-y* "map"<br>n.sg. n.pl. | S – E<br>*górod – gorod-á* "city"<br>n.sg. n.pl | S – SE<br>*zúb – zúb-y ; zub-ámi* "tooth"<br>n.sg n.pl ; inst.pl. |
| **ending** | E – S<br>*vin-ó – vín-a* "wine"<br>n.sg. n.pl. | E – E<br>*ochk-ó – ochk-í* "point"<br>n.sg. n.pl. | E – SE<br>*gub-á – gúb-y ; gubámi* "lip"<br>n.sg n.pl ; inst.pl. |

Although this stress system is quite complicated, 91% of all nouns belong to the S-S type (nouns that are always stressed on the stem), and 7% belong to the E-E type (nouns that are always stress on the ending) (Fedianina,1982). All other stress types can be thought of as irregular, although they include some very frequent nouns, as is typically the case with irregulars.

### *3.2. Vowel Reduction*

Without going into the details of the vowel reduction process in Russian, I direct your attention to the following facts. [4] Vowels 'a' and 'o' neutralize in unstressed environments after plain, non-palatalized consonants.

(1) Examples of the 'a'/'o' neutralization:

/samá/ [samá] "myself" (fem)
/somá/ [samá] "cat-fish" (gen.sg.)

Vowels 'a', 'e' and 'i' neutralize in unstressed environments after palatalized consonants.

(2) Examples of the 'a'/'e'/'i' neutralization:

/ʲesá/ [ʲɪsá] "woods" (nom.pl)
/ʲisá/ [ʲɪsá] "fox" (nom.sg)
/pʲatá/ [pʲɪtá] "heel" (nom.sg)

Vowel 'u' never neutralizes with any other vowel and is never itself a product of vowel reduction.

[4] For more details on vowel reduction see Jones and Ward, 1969.

### *3.3. Genitive Plural Allormophy*

There are three genitive plural allomorphs in Russian: -/ov/, -/ej/ and -/ø/. The details of their distribution are quite complex (see Pertsova, 2004). However, a great majority of nouns can be said to obey the following generalization (due to Jakobson, 1984):

i) If the nominative singular ending is null, then the genitive plural will be overt (i.e. either -/ej/ or -/ov/ depending on the palatalization of the stem-final consonant).

ii) If the nominative singular ending is overt, then the genitive plural will be -/ø/.

One exception to the second condition above consists of nouns that have both end-stress in the plural oblique cases and a palatalized stem-final consonant. Because they require a docking site for stress, they take an overt ending -/ej/ instead of the expected –/ø/ (see example (3a)). However, the end-stressed nouns that don't have a palatalized stem-final consonant do not take an overt ending. Instead, they select the -/ø/ allomorph and their stress consequently shifts to the stem (see example (3b)). Interestingly, it is a subset of precisely this group of nouns that have gaps in the genitive plural.

| | | | | |
|---|---|---|---|---|
| (3) | a. *mor$^{j}$-á* (nom.pl) | *mor$^{j}$-ámi* (instr.pl) | ***mor$^{j}$-éj*** (gen.pl) | "sea" |
| | b. *mest-á* (nom.pl) | *mest-ámi* (instr.pl) | ***mést-ø*** (gen.pl) | "place" |

Summarizing so far, all nouns whose genitive plural forms are ineffable have a plain stem-final consonant, require stress on the ending in the plural oblique cases and are expected to select a null genitive plural allomorph.

## 4. OT ACCOUNT OF ALLOMORPHY

For an extensive OT analysis of genitive plural allomorphy see Pertsova (2004). Here I will only briefly introduce the constraints relevant for nouns in (3). The fact that nouns having an overt ending in the nom.sg. generally prefer the null genitive plural allomorph (Jakobson's generalization), can be captured by the higher ranking of the exponent constraint GEN.PL=Ø relative to the other constraints specifying the realization of the genitive plural, GEN.PL=EJ and GEN.PL=OV. The choice between the two overt allomorphs is determined by the AGR (BACK) constraint, which forces segments to agree with respect to the tongue backness. So -/ej/ will follow stems that end in palatalized consonants, while -/ov/ will follow stems that end in plain consonants. The surfacing of the zero genitive plural allomorph in nouns such as (3) is blocked by the constraint on faithfulness to the underlying stress pattern: ID-IO(STRESS). In other words,

this constraint has to outrank GEN.PL=Ø, so that nouns like those in (3 a) can have an overt genitive plural allomorph. These rankings are demonstrated below.

(4) ID-IO(STRESS) >> GEN.PL = Ø

| **EVAL**<br>mor$^{j}$ + gen.pl.; stress: S-E<br>"sea" | AGR (BACK) | ID-IO (STRESS) | GEN.PL = Ø | GEN.PL = OV | GEN.PL = EJ |
|---|---|---|---|---|---|
| mór$^{j}$-ø | | *! | | * | * |
| mor$^{j}$-óv | *! | | * | | * |
| ☞mor$^{j}$-éj | | | * | * | |

To account for nouns like *mést-o* in (3 b), I use an additional constraint encoding the fact that the ending -/ov/ occurs only with masculine nouns (*OV/[-MASC]). This noun cannot have an overt ending -/ov/ because it is not a masculine noun, and it cannot have the ending -/ej/ because its stem does not end in a palatalized consonant. So it ends up selecting the zero allomorph paying the cost of shifting the stress to the stem and violating the faithfulness constraint. This is shown in (5).

(5) *OV/[-MASC] >> ID-IO(STRESS)

| **EVAL**<br>mest + gen.pl, stress: S-E<br>"place, seat" | AGR (BACK) | *OV/ [-MASC] | ID-IO (STRESS) | GEN.PL = Ø | GEN.PL = OV | GEN.PL = EJ |
|---|---|---|---|---|---|---|
| ☞mést-ø | | | * | | * | * |
| mest-óv | | *! | | * | | * |
| mest-éj | *! | | | * | * | |

As I mentioned in the previous section, the nouns that have ineffable genitive plurals belong to the same type of nouns as *mést-o*. That is their stem ends in a hard consonant, they have stress on the ending in the oblique plural cases and they are non-masculine. The question is why such nouns, unlike *mést-o,* do not select a null genitive plural allomorph, i.e. why isn't the genitive plural of *fat-a* ("veil") – *fat* or of *mecht-a* ("dream") – *mecht*? The remainder of this paper attempts to provide an answer to this question.

## 5. GAPS IN THE RUSSIAN GENITIVE PLURAL

### *5.1. Phonotactic Gaps*

There are two different kinds of ineffable genitive plurals in Russian which are differentiated in the Zaliznyak's morphological dictionary by remarks "gen.pl. does not exist" and "gen.pl. is awkward". The comment of the first sort applies only to a few nouns, such as *dn-ó* ("bottom"), *mgl-á* ("haze"), *mzd-á* ("bribe", archaic) and a couple of others. Observe that all these nouns have something in common, namely their stems are entirely consonantal. If they were to have a genitive plural form with a null ending, it would be unpronounceable given that there is no general repair strategy in Russian for consonant clusters[5]. Thus, the gaps in words like *dn-ó* are due solely to the phonotactic illformedness of the potential genitive plural forms. I will call the inviolable phonotactic constraint in question *NOVOWEL:

(6) *NOVOWEL -- every phonological word must contain at least one vowel.

This constraint must be placed in the CONTROL component of the grammar in order to account for the appearance of gaps. In Tableau 3, the second from the top candidate, dVn-ø, is the epenthetic candidate, where V stands for any epenthetic vowel in any position. This candidate violates DEP(V), which is crucially ranked above GEN.PL=Ø and *CC. Based on this ranking, the candidate that wins in EVAL is *dn*. Since *dn* does not contain a vowel, it is eliminated in CONTROL (which is indicated by the scissors symbol), and the grammar has no output.

(7) Final Ranking

| **EVAL**<br>dn-ó (n.sg), E-E "bottom" | AGR (BACK) | DEP (V) | *OV/ [-MASC] | ID-IO (STRESS) | GEN.PL = Ø | GEN.PL = OV | GEN.PL = EJ | *CC |
|---|---|---|---|---|---|---|---|---|
| ☞ dn-ø | | | | * | | * | * | * |
| dVn-ø | | *! | | * | | * | * | |
| dn-óv | | | *! | | * | | * | * |
| dn-éj | *! | | | | * | * | | * |
| **CONTROL** | *NOVOWEL | | | | | | | |
| ✂ dn-ø | *! | | | | | | | |

[5] One possible candidate for such a repair strategy are the so-called "fleeting vowels", the vowels 'o' and 'e' which alternate with zero in certain words. Fleeting vowels are realizations of the old Slavic high-mid vowels, jers, that dropped out in many environments creating consonant clusters in Slavic. These vowels are synchronically analyzed as epenthetic in some Slavic languages (Gorecka 1988; Czaykowska-Higgins 1988). However, it has been argued that such an analysis is unattainable for Russian (Yearley 1995) since the quality of the fleeting vowels and their location are not always predictable.

### *5.2. Non Phonotactic Gaps*

Let us now consider the gaps that are indicated in the dictionary by the remark "gen. pl. form is awkward". These nouns cannot be explained in terms of phonotactic illicitness, since their stems are pronounceable and are often among the most unmarked words in Russian. Take for example words like *fat-á* ("veil") or *yul-á* ("weasel"). At first glance, it is unclear why the corresponding genitive plural forms *fat* and *yul,* which are phonotactically perfectly normal, are avoided by the native speakers. Closer observation reveals that all nouns that have "awkward" genitive plural forms are of the E-E stress type, i.e. not only they have end-stress in oblique plural cases (as we have established in section 3.3), but they also have end-stress in all singular cases. In contrast, nouns that have stress in oblique plural cases but stem-stress in at least one other form in the paradigm do not have gaps. Consider examples below.

(8)

| | **nom.sg** | **nom.pl.** | **dat.pl** | **gen.pl.** | **gloss** | **stress pattern** |
|---|---|---|---|---|---|---|
| a) | ruk-á | rúk-i | ruk-ám | ruk-ø | "hand" | E-SE |
| b) | dél-o | del-á | del-ám | del-ø | "task" | S-E |
| c) | fat-á | fat-í | fat-ám | *? | "veil" | E-E |
| d) | mecht-á | mecht-í | mecht-ám | *? | "dream" | E-E |

The word "hand" has stem-stress in the nominative plural, and "task" has stem-stress in all singular cases – these words do not have gaps in the genitive plural. This data might lead one to think that the reason why words like c) and d) have gaps, is related to the uncertainty people feel about the underlying quality of the stem-vowels. Recall, that many vowels in Russian neutralize in unstressed environments. With words like a) and b) speakers have some evidence about the quality of the stem vowel from the stem-stressed allomorphs. But with the E-E type nouns no such evidence is available. For instance, having heard only the unstressed allomorph of the stem "veil", speakers might be uncertain as to whether the stressed variant should be *fat* or *fot*. As a result, they would refrain from producing this form. Similar "uncertainty" explanations have been used before to account for paradigmatic gaps in the Spanish verbal paradigm (Albright, 2003) and in the Greek genitive plurals (Sims, 2005). However, this proposal predicts that all words that have gaps in the genitive plural should contain one of the neutralizing vowels in the stem, i.e. any of the vowels except for the vowel 'u' (see section 3.2).

Checking the dictionary, I found that out of 25 words with "awkward" genitive plurals, 8 are monosyllabic stems with '*u*' as the only stem vowel. This fact goes against the Uncertainty Hypothesis put forth above because '*u*' does not neutralized in unstressed positions. Therefore, there should be no difficulty in determining its quality. To confirm that the words marked in the dictionary as awkward, in particular the ones with the 'u' stems, were indeed felt by native speakers to have ineffable genitive plurals, I conducted a small survey described in the next sub-section.

### *5.2.1. Survey of 'a/o' Stems vs. 'u' Stems*

Ten native speakers of Russian (ages 20 – 30), living in Russia, participated in this survey via e-mail. They were given various real words of Russian in the nominative singular form and were asked to write down the genitive plural form by filling in the blank in the following structure:

(9) one veil (nom.sg.) - many __?__ (gen.pl.)

The survey contained 17 target words – those that were indicated in the dictionary as "awkward", and 8 fillers. Among all target items, seven had 'u' as their stem vowel and ten had the unstressed 'a'. The fillers were matched for frequency with the target items, so the absense of gaps in the filler items cannot be attributed to the fact that they are more frequent. Overall, the survey confirmed that all words marked in the dictionary as defective, were indeed difficult for native speakers as opposed to the filler items. This difficulty was evident in the following types of responses: people simply did not fill in the blank or used a different related form instead. Sometimes they would also incorrectly select the overt genitive plural ending *-/ov/* instead of the null ending, while they never did so with the filler nouns[6]. Other times they would write: "I don't know", "I'm not sure" or "This form does not exist". I counted all such responses as "gap" responses. The percentages of gap responses for all tokens are summarized in Table 2.

Table 2 Results of Survey 1

| Total # of responses | 'u' stems (70 responses) | 'a/o' stems (100 responses) | filler stems (80 responses) |
|---|---|---|---|
| % of 'gap' responses | 35% | 41% | 2% |

As the reader can see, this survey shows that both types of ineffable nouns were prone to gap responses in contrast to the filler nouns. Although native speakers had more difficulty with the potentially neutralized 'a/o' stems compared to the 'u' stems, the Uncertainty Hypothesis has no means of accounting for a very high proportion of "gap" responses for the 'u' stems (recall that one does not need to undo the vowel reduction for these nouns). I conclude that although determining the underlying quality of the vowel might have some effect on the production of genitive plurals, it cannot be a sole factor responsible for the paradigm gaps.

[6] There is a chance that selection of the wrong allomorph could also be due to a general inability to predict the genitive plural allomorph distribution for rare nouns (see Pertsova 2004). However, at least some of these responses are likely to result in avoidance of producing a "suboptimal" form or providing no response.

### *5.3. Seeking an alternative*

In this section I propose an alternative explanation for the non-phonotactic gaps in the genitive plural. I suggest that native speakers, in general, dislike shifting stress to the stem in words that they have never seen stem-stressed before. This proposal is similar in spirit to the hypothesis formulated in Steriade under the name of Lexical Conservatism. This hypothesis states that people do not like to introduce new allomorphs into their language. More specifically, people tend to be conservative in "fixing" markedness violations at the cost of producing novel allomorphs. For instance, when forming an *–able* adjective from *démonstrate*, English speakers will shift the stress to improve the LAPSE violation -- *demónstrable* -- because they are aware of the form with the same stress pattern, i.e. *demónstrative*. But when it comes to *chállenge*, nobody will shift the stress to attain the better stressed *challéngable* because there is no allomorph of this word with the stress on the second syllable.

#### *5.3.1. Assumptions Behind Lexical Conservatism*

Steriade relies on the notion of "listedness" to differentiate between forms that can serve as a potential base for word-formation and those that cannot. Following Halle (1973), a "listed" form is defined as any non-hapax, non-nonce form that has been lexically recorded. According to this view, after an allomorph has been recorded into a person's mental lexicon it becomes a potential "base" for future word-formation processes (a similar view is expressed in Lieber 1982).[7] Steriade also suggests that not only allomorphs as a whole can serve as bases, but that speakers have access to parts of the allomorphs, and thus can piece together the most optimal candidate from several bases. For example, French speakers can take a final consonant of the feminine allomorph of an adjective and use it in a masculine allomorph for the purposes of providing a buffer in the hiatus environment.[8] Notice that these assumptions go against a theory in which there is only one form in the paradigm, from which all the other forms can be predicted or derived (Albright 2002).

Instead of using a categorical notion of listedness, I hypothesize that we can use type frequency in determining which allomorph is more likely to serve as a base in a given process. Less frequent allomorphs are harder to access and therefore, even if they are listed, should make for worse bases than more frequent allomorphs. For instance, coming back to the previous English example, *demónstrative* has a frequency index of 24 in the CELEX database, while *demónstrable* only of 14. Thus the former adjective serves as a base for the latter and not vice versa. Of

[7] The fact that speakers memorize all forms that they hear, of course, does not mean that they cannot also extract any generalizations based on these forms.

[8] For example, in *sot ami* ("silly friend") [sot] has the final 't' from the feminine version of the adjective *sotte* [sOt], while it still keeps the vowel quality of a masculine adjective.

course lexical frequency is only a rough measure of which forms are better bases because Lexical Conservatism theory is person-specific. In other words, what a particular individual might choose as a base in any given situation depends on what forms this particular individual has been exposed to and how efficiently he/she can access them. If someone did not know of the word *demónstrative,* or could not easily recall it, they would presumably never derive *demónstrable*.

One problem that remains unexplained by the Lexical Conservatism hypothesis is why certain processes but not others systematically invoke a lexically conservative response. For instance, final consonant devoicing in Russian applies automatically to all words. It is inconceivable that speakers would not devoice a final voiced stop even if they have not heard it devoiced in a particular word. I would like to suggest that alternations that affect morphological units are more likely to be less productive (or lexically conservative), because they involve revisions to the mental lexicon. While alternations that hold true on the string level and do not involve reference to a morpheme can be applied across the board.

### *5.4. Account of Non Phonotactic Gaps*

In this section I provide an OT analysis of the gaps which are not due to phonotactic violations. Let me first describe it in more intuitive terms and fill in some details. In brief, I propose that words like *fat-a* or *yul-a* lack the genitive plural because it would be the only form in the paradigm to receive stem stress. In the absence of other stem-stressed forms, speakers are "conservative" in the sense that even though they know what the appropriate genitive plural ending should be, they do not want to produce a new allomorph, a stressed version of the stem. Notice, that given our assumptions about lexical conservatism, this proposal accounts only for the infrequent nouns (majority of nouns that have gaps in the genitive plural). When it comes to frequent nouns, speakers most likely just memorize that these words lack genitive plural forms (similarly to Halle's proposal). However, since the frequent nouns with ineffable genitive plural have the same properties as the infrequent nouns, it is possible that the original reasons for gaps in these nouns are also related to lexical conservatism.

Thus, I assume that the inviolable constraint responsible for gaps in the genitive plural is an output-output constraint on stress uniformity. This constraint has to be stated as a lexical conservatism condition. It demands that if some syllable is stressed in one allomorph of $\mu$, the same syllable should be stressed in at least one other *listed* allomorph of $\mu$.

(10) IdentStress(LEX): every stressed syllable x in the morpheme $\mu$ has a stressed correspondent x' in some listed allomorph of $\mu$, which is identical to x.

Compare the derivations in (a) vs. (b) below. In both cases, the bare stem is the winner in EVAL, but only winner (a) survives in CONTROL since "hand" has another form in its paradigm that can serve as the base for stem-stress (see examples in (8)).

(11)

| **a**. ruk-á (n.sg), E-SE "hand" | AGR(BACK) | *OV/ [-MASC] | ID-IO(STRESS) | GEN.PL = Ø | GEN.PL = OV | GEN.PL = EJ |
|---|---|---|---|---|---|---|
| ☞ ruk-ø | | | * | | * | * |
| ruk-óv | | *! | | * | | * |
| ruk-éj | *! | | | * | * | |
| **b**. sum-á (n.sg), E-E "sack, pouch" | | | | | | |
| ☞ sum-ø | | | * | | * | * |
| sum-óv | | *! | | * | | * |
| sum-éj | *! | | | * | * | |

| **c. CONTROL** | IDENTSTRESS(LEX) |
|---|---|
| a. rúk-ø | rúk-i (nom.pl) |
| b. ✂ súm-ø | *! |

## 6. POTENTIAL PROBLEMS

Although the proposed account can handle the "awkward" gaps in the genitive plural, it remains to show that it does not make incorrect predictions elsewhere in the lexicon. For instance, this analysis makes the following predictions. First, it predicts that any end-stressed noun that expects to select a null genitive plural allomorph will instead have a gap. Second, it predicts that if some other cell in a paradigm is similar to genitive plural in requiring a different stress pattern, this cell will also be prone to gaps. In this section I examine whether these predictions are borne out.

### *6.1. Are Paradigm Gaps in the Gentive Plural Predictable?*

So far, I have proposed an account of gaps that relies on the fact that all nouns with ineffable genitive plural have end-stress throughout their paradigm. For this to be a predictive account, *all* end-stressed nouns that are supposed to select a null genitive plural allomorph should have gaps.

It turns out that this reverse dependency is not always true. There are some end-stressed nouns that do not have gaps in the genitive plural and there are some nouns of the E-SE stress type that

have a genitive plural with a different stress pattern than the one expected according to Lexical Conservatism. Examples of both types of nouns are given below:

(12) E-E and E-SE nouns with no gaps

| | **nom.sg.** | **nom.pl.** | **gen.pl** | **gloss** |
|---|---|---|---|---|
| a. | poxval-á | poxval-í | poxvál | "praise" |
| b. | kishk-á | kishk-í | kishók | "colon, gut" |
| c. | borod-á | bórod-y | boród | "beard" |
| d. | polos-á | pólos-y | polós | "stripe" |

The first two nouns in (12) always have stress on the ending except for the genitive plural form in which stress appears on the stem. The other two nouns belong to the E-SE stress pattern, however their genitive plurals have stem-stress on a different syllable than the other stem-stressed form in the paradigm, i.e. the nominative plural. In both types of nouns, the stress historically shifted to the last syllable of the stem when the old genitive plural ending dropped out. According the Lexical Conservatism hypothesis, this should not have happened, thus the nouns in (12) present a problem for my proposal.

One way out of this problem is to say that the genitive plurals of relatively frequent nouns like those in (12) are simply lexicalized. However, such explanation, although consistent with our theory, begs a question of why genitive plurals of these nouns got lexicalized in the first place while those of other frequent words like *mecht-a* ("dream") or *kras-a* ("beauty") did not?

I propose an alternative explanation. What seems to differentiate the nouns with gaps vs. the nouns in (12) is the fact that the former practically always have a monosyllabic stem. The asymmetry between monosyllabic and polysyllabic words is not uncommon in world's languages. Monosyllabic words often resist alternations and are preserved more faithfully than polysyllabic words. For example, in some languages, like in Javanese and Madurese, monosyllabic stems do not undergo nasal assimilation, a process that affects the rest of the vocabulary (Tryon, 1995). It has been noticed that monosyllabic stems in Turkish and Catalan, languages that exhibit word-final devoicing, contain extremely few underlying voiced word-final obstruents, and hence never alternate. Ussishkin and Wedel (2005) suggest that shorter words avoid alternations for processing reasons. Their observation is that most short words are in dense neighborhoods and this makes their access more difficult and slow. The presence of alternations would only make the matters worse. Of course for this theory to be verified, one would need to conclusively show that in every particular case it is indeed true that words, which avoid alternations, are in denser lexical neighborhoods. I would like to suggest an alternative possibility: people are much more lexically conservative when introducing alternations to monosyllabic stems. In particular, changing a single syllable in a monosyllabic stem is equivalent to changing a whole word. This seems like a more dramatic consequence compared to changing a syllable in a polysyllabic stem, where the rest of the word remains unaltered.

### *6.2. Does Lexical Conservatism Predict Gaps in Other Cases?*

Another issue I would like to address with regard to predictions of Lexical Conservatism is whether genitive plural is a unique case that forces retraction of stress to the stem. If there are other cases whose stress pattern is different from the rest of the paradigm, we expect that they would also be vulnerable to gaps. The nominative case provides two such possibilities. First, some nouns have a different stress pattern in the nominative plural relative to the rest of the paradigm. Such nouns belong either to the E-SE stress type (we have already seen some examples of them in 12 c) and d). Second, nominative singular, like the genitive plural, is another case where a set of nouns select a null inflection.[9] Consequently, a group of masculine end-stressed nouns also show a retraction of stress to the stem in the nominative singular. As an illustration, consider the paradigms of two such nouns below.

( 13 )

| | **sg. ("lion")** | **pl.** | **sg. ("table")** | **pl.** |
|---|---|---|---|---|
| N. | lʲéf-ø | lʲv-í | stól-ø | stal-í |
| G. | lʲv-á | lʲv-óf | stal-á | stal-óf |
| D. | lʲv-ú | lʲv-ám | stal-ú | stal-ám |
| A. | lʲv-á | lʲv-óf | stal-ø | stal-í |
| I. | lʲv-óm | lʲv-ámi | stal-óm | stal-ámi |
| L. | lʲv-é | lʲv-áx | stal-é | stal-á |

The question is why are gaps unattested in the nominative cases? These cases violate the inviolable lexical conservatism condition by having a different stress placement and therefore should be predicted to be ineffable.

I conjecture that the absence of gaps in the nominative reflects the fact that nominative forms are never derived on-line but are recalled from the memory. Nominative singular in particular, being the most common case in Russian, the citation form and the first form learned and overgeneralized by children (Babyonyshev 1993), has to be one of the earliest and the most frequent listed forms. A child would have to go through a very unusual sequence of events to learn a word without knowing its nominative singular.

Nominative plural is somewhat less common than nominative singular and in fact, native speakers do experience uncertainty with respect to infrequent nouns in the nominative plural (personal experience). However, gaps in the nominative plural are unattested because speakers are not *forced* to stress the stem, since the nominative plural ending is always overt (unlike the

[9] Historically, the null endings in both gen.pl. and nom.sg. come from the "jer" vowels (see footnote 5) which used to bear the stress, making the paradigms much more uniform than they currently are.

genitive plural or nominative singular). Therefore, if speakers are unsure about the nominative plural stress of an infrequent noun, they always have the conservative option, i.e. stressing the ending. The fact that E-SE stress type is rare and all nouns that have this stress patters are very frequent can be seen as an indirect support of the Lexical Conservatism. If infrequent nouns belonged to this type – they would presumably quickly level out to the E-E stress-pattern assuming that in cases of uncertainty speakers would not want to deviate from the dominant stress pattern of the paradigm. Thus Lexical Conservatism condition perhaps could serve as one way to implement the proposal of why infrequent words tend to be regular, while frequent words are often irregular (Bybee 1995).

## 7. CONCLUSION

To summarize, I hope to have shown that some gaps in the genitive plural of Russian nouns are due to the inviolable phonotactic restriction that requires every word to have at least one vowel, and others are due to an inviolable Lexical Conservatism constraint on stress uniformity. An alternative hypothesis based on uncertainty of undoing vowel reduction was rejected since the survey with native speakers confirmed the ineffable status of the nouns with 'u'. Such nouns could not pose any uncertainty with regard to vowel reduction, since 'u' does not neutralize in Russian.

Lexical Conservatism, a hypothesis about how speakers generalize with respect to infrequent but listed lexical items, is hypothesized to be responsible for paradigm gaps. According to this hypothesis, speakers use listed allomorphs as bases for derivation of new forms. When no appropriate allomorph satisfying certain phonological and morphological requirements exists, speakers will avoid producing a derived form by introducing a new allomorph. Since frequent forms are not derived is this way, they are unaffected by lexical conservatism.

Lexical Conservatism raises several interesting questions that have certain implications for the theory of bases and underlying representations. It suggests that underlying representations do not exist as abstract objects and that there need not be a unique base from which all the forms in the paradigm are derived. Rather, speakers can use all listed allomorphs of a particular word as an input to derive the non-listed forms. However, as I mentioned before, this hypothesis seems to go against the fact that certain alternations are very productive and applied by speakers automatically to all forms in the language. Of course, in an OT framework we can rank conservatism conditions any way we want, so it is possible to model a case when some process is conservative while another is not. But this would not capture the apparent regularity: phonological and phonotactic alternations that hold true at the level of strings are robust and productive, while alternations that affect morphological units are not as productive. I leave it to further research to investigate this question in more depth.

# APPENDIX A

*Stimuli*

Target Items

a/o

1. bashka "head", coll
2. chadra "chador"
3. fata "veil"
4. kazna "treasury", old
5. kajma "border"
6. kocherga "fire-pocker"
7. korchma "tavern", old
8. mol'ba "plea"
9. taxta a type of a couch
10. balda "idiot", coll

u

11. duga "arc"
12. konura "dog-house"
13. xurma "persimmon"
14. suma "pouch", old
15. duda "pipe", coll
16. br'uzga a squeamish person
17. kuma "god-mother" old
18. yula "weasel"

Fillers

19. bojkot "boycott"
20. bestoloch "muddle-head"
21. xr'ash "cartilage"
22. kartuz "poweder bag"
23. kur'jer "courier"
24. altyn old type of money
25. bob'or "beaver"
26. geroj "hero"

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