

A typology of suppletion: the evidence from Slavonic*

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Suppletion is complex and varied. It is a boundary phenomenon, for our coming to an understanding of the notion ‘possible word’, and is therefore potentially significant for progress in psycholinguistics (Carstairs-McCarthy 1994: 4410). Essential work on definitions has been done by Mel’čuk (1994, summarized 2000), but as yet we are some way from having an overall typology. This paper proposes an outline typology, with examples which demonstrate the importance of Slavonic data for constructing and further developing such a typology.

According to Mel’čuk (1994: 358) ‘For the signs X and Y to be suppletive their semantic correlation should be maximally regular, while their formal correlation is maximally irregular.’ An example is Russian *čelovek* ‘person’, plural *ljud-i*, where the semantic relation of singular to plural is regular while the formal relation of stems is highly irregular.¹ Starting from Mel’čuk’s definition, we shall focus on the clearest instances of suppletion. We shall concentrate on the area where we find maximally regular semantic correlations, namely inflection (unlike Mel’čuk who allows for suppletion in both inflection and derivation). In respect of the formal correlation, we shall take instances of ‘full’ suppletion, where the formal (phonological) correlation is minimal, rather than including here ‘partial’ suppletion, (where forms of varying degrees of irregularity are taken into account).²

Some investigators, including Mel’čuk, allow for affixal suppletion; for them, the dative singular markers *-u* and *-e* of Russian are suppletive, as are the stems of *rebenok* and *det-i*. This view depends on a lexical approach to morphology, which treats affixes and stems as rather similar (Stump 2001: 1-3). In inferential approaches to morphology, which are relatively current among Slavists, and are exemplified in Network Morphology among other theories (Corbett and Fraser 1993, 2000), stems and affixes have different statuses. In these frameworks it makes less sense to discuss suppletion in relation to affixes.

We will explore the typological space of suppletion in a systematic way by examining six key criteria. We shall move from lexeme-internal to lexeme external issues (§§1-6). We shall then tackle some boundary phenomena, which not all linguists would

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¹ As is so often the case with suppletion, there is an additional complication with this item; this is discussed in §4.

² See Johnson (1972) for discussion of semi-suppletive aspectual pairs.

include under suppletion (§7), and then discuss the importance of Slavonic for further progress towards a full typology of suppletion (§8). In the conclusion we reflect on the unusual nature of the typology of suppletion, and how this sheds light on ‘possible words’.

1 The distribution of suppletive forms within a lexeme

We first ask how the suppletive forms fit into a paradigm. There are two issues: the main one, discussed here, is the distribution of the different forms over the cells of the paradigm. The question of the function within the cell is discussed in §2.

We begin with a familiar type of example: Russian has *rebenok* ‘child’ and *det-i* ‘children’. We need to specify where each stem is used. An obvious analysis would be that the suppletive forms are distributed according to the grammatical category of number. One suppletive form is found with the value ‘singular’, and one with the value ‘plural’.

An alternative analysis would claim that the suppletive forms are distributed according to an established morphological pattern for Russian nouns. For a substantial minority of Russian nouns there are two stems; examples are given in Table 1 (for more discussion see Corbett 2000a: 139-142).

type	singular	plural	gloss
augment in the singular	tatar in	tatar-y	Tatar
augment in the plural	brat	brat' j -a	brother
augment in both	xoz jain	xoz jaev -a	landlord
consonant alternation	sosed d	sosed d -i	neighbour

Table 1: Some types of Russian noun with different stems³

The stems are distinguished by augments, and in the case of *sosed* ‘neighbour’, *sosed-i* ‘neighbours’ by an unexpected alternation (hard ~ soft) of consonant. Table 1 shows that there is an established morphological pattern. We could then argue that *rebenok* ~ *det-i* follows this pattern; the difference is that while the other items have formally related stems, in the suppletive example there is no such formal relation.

It is hard to separate out the two analyses ((a) suppletion follows the grammatical category or (b) suppletion follows the morphological stem pattern), since the distribution of stems often follows grammatical categories, as in our example. However, we do find instances where stems are distributed not according to a grammatical category. Instead, their distribution is purely morphological, or ‘morphomic’, to use Aronoff’s (1994: 22-29) term. For an example of suppletion unambiguously following this type of distribution we consider the Polish verb *być* ‘be’ in the present tense:

³ There are of course other stem patterns, as shown for instance by *mat'* ‘mother’, but there are no corresponding suppletive nouns.

	singular	plural
first	jestem	jesteśmy
second	jesteś	jesteście
third	jest	są

Table 2: Present tense of Polish *być* ‘be’

Here we find a suppletive relation between the third plural and all the remaining cells (Rothstein 1993: 717; Itkin 2002). This pattern cannot, of course, be defined just by person, nor by number. The same distribution is found with other verbs, where there is an irregular stem alternation, as with *wiedzieć* ‘know’:

	singular	plural
first	wiem	wiemy
second	wiesz	wiecie
third	wie	wiedzą

Table 3: Present tense of Polish *wiedzieć* ‘know’

This verb is one of several with this pattern (it is not the only pattern: others have first singular and third plural opposed to the others). These Polish data show that the distribution can follow a morphological pattern, rather than a pattern based on a straightforward category opposition. This type of distribution is well attested in Romance, see particularly Aski (1995), who talks of patterns of alternations or ‘templates’, and who follows earlier work by Matthews (1981), Vincent (1988: 297-298) and Maiden (1992: 306-307).⁴

Since we have one clear example following a morphological pattern, and one which is ambiguous (either based on category values or following a morphological pattern) we should ask if there are instances where the distribution of suppletive forms depends on category values and not on a morphological pattern of stem distribution. There is such a case in Slavonic, namely the Slovene noun *človek* ‘man, person’. (The example is complicated by a second interesting factor; at this stage we consider only the nominative and accusative forms: we return to the full paradigm in §3 below.)

	SINGULAR	DUAL	PLURAL
NOM	človek	človeka	ljudje
ACC	človeka	človeka	ljudi

Table 4: Slovene *človek* ‘man, person’ (Priestly 1993: 401), direct cases

⁴ Carstairs-McCarthy (1994: 4410) suggests that the distribution will be (morpho)syntactic or phonological. Romance examples like Italian *va(d)- ~ and-* ‘go’ can be treated as phonological, rather than as in the treatment above, the suppletion being determined by the stress (*va(d)-* is found where the stem is stressed). However, such cases can also be treated as morphological patterns. However, this Polish example is morphological in nature and is not analysable in phonological terms. Hence we need to recognize morphological patterns as a possible determiner for the distribution of suppletive stems, and it is not clear whether we need also to recognize phonological determination.

There are several Slovene nouns with two stems, but the normal pattern for these is as follows:

	SINGULAR	DUAL	PLURAL
NOM	grad	gradova	gradovi
ACC	grad	gradova	gradove

Table 5: Paradigm of Slovene *grad* ‘castle’ (Priestly 1993: 402), direct cases

These nouns split singular from dual and plural. The noun *človek* ‘man, person’ does not follow this pattern. It follows a unique pattern, with plural split from singular and dual (the genitive and locative are discussed below). This does not match a morphological stem pattern in the language, but it does correspond to a distinction within a category. This means that the three possibilities for the distribution of suppletive forms which we have discussed are all found in Slavonic:

1. following the morphological pattern of stems (Polish *być* ‘be’)
2. following a grammatical category value which does not match a stem pattern (Slovene *človek* ‘man, person’)
3. undecidable between 1 and 2, that is, describable in either way (Russian *rebenok* ~ *det-i*).

It is natural to ask which categories can be involved for types 2 and 3. Slavonic provides examples of the following categories:

1. number

Number suppletion is typically found with nouns. Examples include Russian *človek* ‘person’, plural *ljud-*.⁵ Whether the personal pronouns also show suppletion for number has been disputed. Isačenko (1961: 41-42) argued that they do, and after detailed discussion the same conclusion is reached by Corbett (2000b).

2. tense

Suppletion determined by tense is found with Russian *id-* ‘go’ and *š-l-* ‘went’, and its cognates.

3. case

Case suppletion is found in the personal pronouns, for example Slovak *on-i* ‘they (nominative, masculine animate), *i-ch* ‘them (accusative); the second stem is used in all the oblique cases.

⁵ Russian children regularize this suppletion in ‘both directions’, giving both *človek* ~ *človek-i* and *ljud’* ~ *ljud-i* (Dobrova 1993). For notes on the development of this suppletion see Degtjarev (1982: 61-62).

4. comparison

The comparatives of the commonest adjectives are suppletive in Slavonic. As Mel'čuk (1994: 394) points out, the forms have changed in many instances. Surprisingly, perhaps, almost all the languages share the fact of suppletion here, as much as having cognate forms. Thus we find Czech *špatn-ý* 'bad', *hor-ší* 'worse', as compared with say Russian *plex-oj* 'bad', *xuž-e* 'worse'.

5. long form and short form adjectives

A surprising instance of suppletion is found in the long form versus short form distinction. Russian has one adjective which is suppletive in this way. The long form adjective *bol'šoj* 'large' has the short form *velik-*. Isačenko (1962: 146) calls them 'ein eigenartiges suppletives Formenpaar'. While the long form *velikij* is restricted to the meaning 'great', with *bol'šoj* 'large' having a wider range, in the short form *velik-* can take one of the meanings of *bol'šoj* (it does not have all the meanings, but such a restriction is found with other short form adjectives too, thus to the extent that *bol'šoj* has a short form it is *velik-*).

- (1) èt-i tufł-i mne velik-i
 this-PL.NOM shoe.PL.NOM 1.SG.DAT large-(SF)PL
 'these shoes are (too) big for me'

6. aspect

With aspect there is, of course, a continuing debate as to whether or not it is an inflectional category in Slavonic. Provided one accepts that it is, then there are several examples of suppletive pairs (and if one extends suppletion to derivational morphology, then these forms would certainly be counted in). Examples from Russian include: *brat'* 'take (imperfective)', *vzjat'* 'take (perfective)', *klast'* 'put lying (imperfective)', *po-ložit'* 'put lying (perfective)'; see also Nicholson (1988),⁶

2 The function of the suppletive form within the paradigm cell

In the familiar examples like Russian *čelovek* 'person', plural *ljud-*, we have suppletive stems, which function like other stems and take normal inflections (*čelovek-a*, *čelovek-u*, *ljud-i*, *ljud-ej* and so on). This is the typical type of suppletion found in Slavonic. In other instances, a suppletive form combines stem and inflection, giving an instance of 'fused exponence' (Mel'čuk discusses this in terms of 'strong megamorphs'). The distinction is between the typically Slavonic segmentable type of suppletion (see Nübling 1998: 78-79 on segmentable suppletion) and the fused exponence type. The first is seen in English *good ~ bett-er*, and the second in *bad ~ worse*. Almost all Slavonic instances of suppletion are of the segmental type; a possible Slavonic instance of the fused exponence type is discussed in §7.1.

⁶ Note that person is not listed here; it could be part of the description of the Polish present tense example, but we concluded that that was an example of a morphological pattern of stems. We have not found an instance in Slavonic where the category person is itself sufficient to determine the distribution of suppletive stems.

3 The interaction of suppletion with other morphological phenomena

Data from Slovene provide remarkably clear evidence for the way in which syncretism and suppletion interact (Plank 1994, Corbett & Fraser 1997, Evans, Brown & Corbett 2001: 215). There is a general pattern of syncretism of Slovene nouns, according to which the genitive dual is identical to the genitive plural, and the locative dual to the locative plural. This is exemplified in Table 6 (the full version of Table 5).

	SINGULAR	DUAL	PLURAL
NOM	grad	gradova	gradovi
ACC	grad	gradova	gradove
GEN	grada/gradu ⁷	gradov	gradov
DAT	gradu	gradovoma	gradovom
INST	gradom	gradovoma	gradovi
LOC	gradu	gradovih	gradovih

Table 6: Paradigm of Slovene *grad* ‘castle’ (Priestly 1993: 402)

In such examples, the syncretism (bold) is in harmony with the stem pattern (shaded). However, in the suppletive pattern shown in Table 4, there is an apparent conflict, in that the stem pattern has the dual belonging with the singular, while the syncretism puts dual and plural together. The remarkable paradigm is given in Table 7.

	SINGULAR	DUAL	PLURAL
NOM	človek	človeka	ljudje
ACC	človeka	človeka	ljudi
GEN	človeka	ljudi	ljudi
DAT	človeku	človekoma	ljudem
INST	človekom	človekoma	ljudmi
LOC	človeku	ljudeh	ljudeh

Table 7: Slovene *človek* ‘man, person’ (Priestly 1993: 401)

In Table 7, the stem of the plural is in principle distinct from that of the dual. Thus for the genitive and locative cases, suppletion requires different stems, but syncretism requires them to be the same. As Table 7 shows, the requirement of syncretism is met, which gives rise to the surprising distribution of the stems through this particular paradigm. (It also provides an argument justifying the use of ‘rules of referral’.) Thus in terms of suppletion we can say that there are two suppletive stems, one is the normal/default stem, and the other is used for the plural. The regular syncretism, which holds for all nouns in Slovene, will account for the forms of the genitive and locative dual.

⁷ Priestly gives *grada*. The *gradu* alternative was pointed out to me by Morgan Nilsson and Janez Orešnik.

We wish to investigate further interactions with suppletion. All that we have identified involve boundary phenomena and so we postpone discussion to §7.2.

4 Alternating suppletion

In the familiar cases, suppletion is a relation between obligatory forms. However, there are complex instances where the suppletive stems may alternate. Just as other paradigms can have alternative realizations of particular cells, for example with the second genitive in Russian, or the second locative, so in instances of suppletion there can be alternating forms. A clear example is Russian *čelovek* ‘person’, plural *ljudi*. The genitive plural may be *čelovek* or *ljudej*. The conditions which determine this alternation are discussed by Bortnik (1978: 51-54): the main factor is that if the genitive is governed by a cardinal numeral and there is no attributive modifier, then *čelovek* will be used (compare *desjat’ čelovek* ‘ten people’ but *desjat’ molodyx ljudej* ‘ten young people’).

5 Overlapping suppletion

We now turn to overlapping suppletion, which is more ‘external’ to the lexeme. In examples like Russian *id- ~ š-l-* ‘go’, the suppletive stems are involved only in this lexeme and its derivatives. In overlapping suppletion (Juge 1999), a stem ‘overlaps’ with another lexeme. Here a good example is Russian *bol’š- ~ velik-* ‘large’. As noted earlier, *velik-* is the suppletive stem for the short forms of *bol’š-*. But it is also the stem for the long and short forms of *velikij* ‘great’. This is therefore an instance of overlapping suppletion; a suppletive stem overlaps with another lexical item.

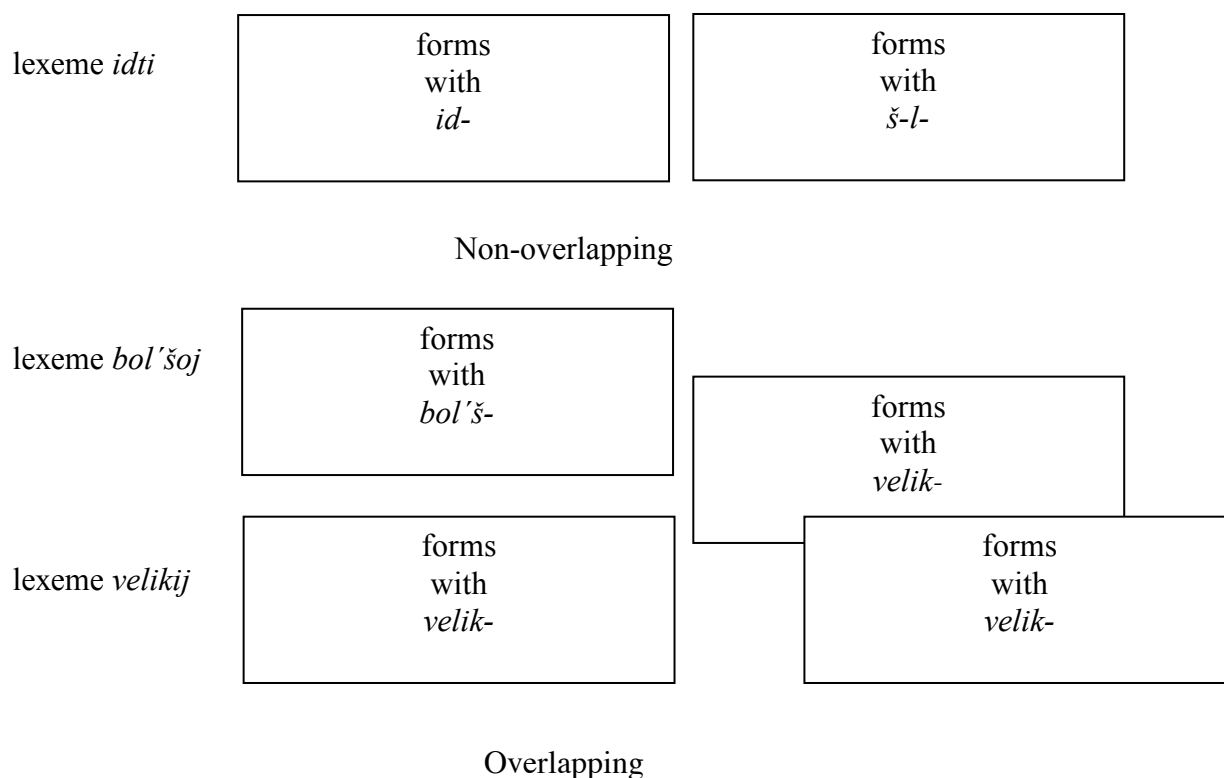


Figure 1: Overlapping suppletion

In examples like Russian *rebenok* ~ *det-* ‘child’, there are ‘remainders’ from each stem, *rebjata* and *ditja*. These have ‘gone their own way’, with semantic and stylistic accretions not shared by the related stems, which means that they no longer overlap in the manner of *velik-*.

6 The possible suppletive items

Typically in a given language few lexical items are involved in suppletion. Statistical data are now available to substantiate long-held views about the relation with frequency. The distribution of suppletion in nouns in Russian texts has been investigated in detail (Corbett, Hippisley, Brown & Marriott 2001; for details see that paper, just the relevant conclusions are given here). In order to examine the relation between frequency and irregularity, we set up a scale of irregularity, devised without reference to frequency, and treated suppletion as the limiting case of irregularity. We asked specifically whether the frequency envisaged is based on the lexeme and all its forms, or just on the irregular form(s). For the first approach, we counted how many times each lexeme occurs in the plural; we call this the ‘absolute frequency’ of a lexeme’s plural. We can then compare the absolute frequency of plural of different lexemes, regular and irregular, to see if there is a relationship between irregular plurals and their absolute frequency. We also analysed the plural by comparing it, within the lexeme, with the other available forms. For a given lexeme, we calculate the proportion of its occurrences that are specifically plural occurrences. This is the ‘relative frequency’ of the plural. We can then compare the relative frequency of the plural in lexemes where it is irregular with that in lexemes where it is regular.

We tested the hypotheses on the nouns in the Uppsala corpus of Russian (see Lönngren 1993).⁸ Since we were interested in estimating proportions in different categories, we recorded only those lexemes which occur at least five times. Our dataset contains around 5440 lexemes, accounting for some 243 000 word forms from the entire one million word corpus.

Absolute frequency: There is a relation between ‘absolute plural anomaly’ (an anomalous frequency of plurals for a given lexeme) and irregularity. Below we give eight groups of nouns from the corpus divided up to match sections of our Irregularity Scale.

Group	Type of irregularity	Median plural count	Observed number of types	p-value
1	end stress plural	9	64	< 0.001
2	end stress singular	5	80	< 0.05
3	stem stress alternation	22	2	0.25
4	stem alternation	96	3	< 0.001
5	stem augment in plural	10	24	< 0.001
6	stem augment in singular	15	10	< 0.05
7	stem augment in both	14	14	< 0.05
8	suppletion	935.5	3	< 0.001

Table 8: Absolute Plural Anomaly in eight groups of nouns

A clear result is that the three nouns showing suppletion (*čelovek ~ ljud-i* ‘person(s)’, *rebenok ~ det-i* ‘child(ren)’, *god ~ (genitive plural) let* ‘year(s)’) stand out dramatically in that the plural is very frequent.

Relative frequency: We found some evidence that the frequency of occurrence of the irregular forms, and not just frequency of occurrence of the lexeme as a whole, relates to irregularity of the forms in question. However, as far as suppletion is concerned, though the median plural proportion is high, the result is not statistically significant. The difficulty is that there are so few nouns with suppletive stems (see Corbett et al. 2001 for details).

When think of the items which can be suppletive, and their frequency, we tend to think of suppletion as lexical, typically unique to an item. However, it is typically preserved in derivatives. Thus the verbs derived from Russian *idti*, like *perejti* ‘cross’, preserve the suppletion. As a result, there can be suppletive items which are not particularly frequent. For example, Russian *sverxčelovek* ‘superman’ has the plural *sverxljudi* ‘supermen’; this item does not appear in the Uppsala corpus, and it appears just once in Zazorina’s one million word corpus (Zazorina 1977). Note, however, that not all Russians are confident about all the forms (I am grateful to Marina Chumakina for establishing this).

⁸ The basic dataset created can be found at: <http://www.smg.surrey.ac.uk/projects/number-use/> (see ‘outputs’), along with a readme file.

7 Boundary phenomena

Here we consider two types of phenomena which are undoubtedly of interest, but which not all would necessarily include under suppletion.

7.1 Zero in suppletion

We naturally think of the *rebenok* ~ *det-i* type of suppletion most readily. We should also consider the possibility that one of the suppletive forms might be zero. This would certainly constitute a maximally irregular formal correlation. Consider in this light the Russian verb *byt'* 'be' (and its cognates in Ukrainian and Belarusan). We could argue that its present tense \emptyset is in a suppletive relation with past tense *byl*. However a zero stem could still take inflections. In this case we do not find inflections, rather we have an example of fused exponence (as in §2). For discussion of the forms of *byt'* see Chvany (1975: 41-42) and for its development see L'Hermitte (1978). A further characteristic is that we have another instance of alternating suppletion, since besides \emptyset we also find *est'* (and very occasionally *sut'*). Though not usually considered under suppletion, this seems to be a particularly interesting case of synchronic suppletion.

7.2 Interaction with anti-periphrasis

There is more to be said about the special nature of *byt'*. First we need the notion of anti-periphrasis (Haspelmath 2000: 657-659). The idea is as follows. Where we normally find an inflected form, but in some instances find the cell filled instead using an additional word, we speak of 'analytic' or 'periphrastic'⁹ forms. Thus we have *pišu* 'write' and *pisal* 'wrote' as inflected forms, but *budu pisat'* 'will write' as a periphrastic form. What then of the opposite situation? Suppose that in most circumstances we have two words, but for a few cases we find one. This is the phenomenon for which Haspelmath suggests the term 'anti-periphrasis'. An example is found with Russian *byt'*. Consider the negative: verbs, like other elements, are negated with *ne*. But for the negative of *byt'* we have *net*. This is an anti-periphrastic form, which is partially suppletive. A second example, which is fully suppletive, is *možno* 'it is permitted' with negative *ne-l'zja* 'it is not permitted' (Mel'čuk 1994: 395, 406).

The unusual behaviour of *byt'* is in accord with universals suggested by Ferguson (1972: 109-110), that (where 'Ex' and 'Cop' indicate lexical items with existential or copular function:

'If an Ex or Cop is grammatically unique, i.e., lacks criterial features of any major word class in the language, it will tend to have a grammatically unique negative, i.e., the negative will not be formed the way other negatives in the language are formed.' (Ferguson's Hypothesis 7)

This is certainly true of Russian.

⁹ 'Periphrasis' is used largely for discussing the verbal system, as Haspelmath points out, but there is no necessity to restrict the term in this way.

‘If Ex and Cop are lexically separate in the present tense, they tend to share a single past tense.’ (Ferguson’s Hypothesis 8)

This is true in that past *byl* corresponds both to \emptyset and to *est*’.

‘The negative of past tense forms of Ex and/or Cop tends to be more regular in formation than the present-tense negative.’ (Ferguson’s Hypothesis 9)

Again, though highly irregular, Russian *byl*’ follows a general trend for comparable verbs.

8 The special importance of Slavonic

As we have seen, Slavonic presents a wide range of types of suppletion. It has instances of most of the types in our typology (which was constructed on the basis of what is found generally, not just in Slavonic). It also has some particularly complex instances of suppletion, which either involve different criteria from the typology or show interesting interactions with other morphological phenomena. Furthermore we find cognate items which are suppletive in the different Slavonic languages, but which are not suppletive in quite the same way. For taking the research further, Slavonic has increasingly good tools available, notably frequency dictionaries and electronic corpora.

9 Conclusion

Our typology has proved unusual: some parts of it have few examples and several instances seem to fit with difficulty (thus Russian *rebenok* ~ *det-i* make up a suppletive pair but there are remnant forms in addition). This gives an overall impression that there is a lot of typological machinery covering relatively few examples, and even then somewhat inexactly. In part this is simply because there are relatively few instances of suppletion, and so we cannot expect numerous examples for the cells of our typology. More importantly, we are dealing with the extreme of irregularity, where morphological irregularity meets the idiosyncratic behaviour of individual lexical items. At the more regular end we find instances like Russian *id-* ~ *š-l-* ‘go/went’, which behave like a normal lexical item, apart from having suppletive stems. At the other end we have seen items which require unique specification of some part of their behaviour, as in the case of Russian *čelovek* ~ *ljud-i* ‘person(s)’. In case we should be tempted to believe that there is nothing that holds the phenomenon of suppletion together, we should recall the Slavonic comparatives for the most common adjectives: while the stems have changed in different Slavonic languages, the suppletive relationship between positive and comparative has been maintained. And so, far from being a minor morphological irregularity, suppletion is a promising window on the notion ‘possible word’. We have analysed some items which objectively seem rather unlikely as possible words, and yet their unusual status is typically the result of a combination of factors, each of which is a part of our typology and each of which we can find separately in less surprising items. We have therefore made progress towards a full typology of suppletion, and have demonstrated that Slavonic data are of continuing importance for this research.

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