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Russian Expressive Derivation: a Network Morphology Account

ANDREW HIPPISELY

Introduction

STUDIES in Russian morphology¹ make a distinction between inflectional morphology (*slovoizmenenie*) and derivational morphology or word-formation (*slovoobrazovanie*). This is because in Russian, as in many languages, inflectional and derivational operations differ from one another in a number of ways. Indeed, exactly what counts as prototypical inflection and prototypical derivation is addressed by Dressler² who lists twenty criteria, and discussed by Scalise³ amongst others. Relevant to this discussion is the observation that in inflection the word-class does not change. For example, the different inflections of the noun base *komnat(a)* 'room' show changes in case and number

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¹ See for example *Russkaja grammatika* vol. 1, ed. N. Ju. Švedova *et al.*, Moscow, 1980 (hereafter *Russkaja grammatika*).

Note that the following abbreviations appear in the text: affect=affectionate, aug=augmentative, dat=dative, decl=declension, dim=diminutive, fem=feminine, gen=genitive, inst=instrumental, loc=locative, masc=male, mor=morphology (inflectional morphology in the context), neut=neuter, NM=Network Morphology, nom=nominative, pejor=pejorative, pl=plural, sem=semantic, sg=singular, syn=syntactic. DATR is not an abbreviated form.

² W. U. Dressler, 'Prototypical Differences Between Inflection and Derivation', *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung*, 42, 1989, pp. 3–10.

³ S. Scalise, *Generative Morphology*, Dordrecht, 1986, pp. 102–15 (hereafter *Generative Morphology*).

information, but never alter the fact that the base is a noun. Another characteristic of inflection is that the gender and animacy of the base, its morphosyntactic features, are not altered. Taking *komnat(a)* again, the fact it is inanimate and feminine remains constant throughout its various inflections. By contrast, derivation often results in a change in word-class, and always a change in morphosyntactic features. An example of the first point is the derivation of the noun *šum*⁴ 'noise' to the adjective *šumn(ij)*. As an example of the second consider the derivation of *pomošč* 'help' > *pomoščnik* 'helper' where though there is no change in word-class, there is a difference in meaning with the derivative being assigned the semantic feature +agent.⁵

Problems with such an approach emerge, of course, where an inflectional operation takes on a prototypically derivational aspect, or vice versa. One area of Russian morphology which presents this kind of difficulty is expressive derivation, that is, derivation that lends a diminutive, augmentative, pejorative or affectionate shade of meaning to the base. This is because, though it is derivation, it has characteristics that are prototypically associated with inflection. For example, it displays the inflectional characteristic of preserving word-class, since only nouns derive expressive nouns, and also the inflectional characteristic of not altering the morphosyntactic features, such as animacy and gender.

The relevant Russian data is approached within the framework of Network Morphology, a theory of morphology based on default inheritance and represented in the lexical knowledge representation language DATR.⁶ In Russian, expressive stems are built with a choice of rival suffixes. Moreover, the declensional class of the deriving word may be changed in expressive derivation. Our account must, therefore,

⁴ Note that Russian forms throughout are basically in phonological transcription, and not in transliteration, where soft consonants are marked with an acute '. For motivation behind the transcription I use here, see G. Corbett and N. Fraser, 'Network Morphology: A DATR Account of Russian Nominal Inflection', *Journal of Linguistics*, 29, 1993, pp. 113–42 (114) (hereafter 'Network Morphology').

⁵ This point is also made by Scalise (*Generative Morphology*, p. 564) who cites the derivation of man > manhood where, though the word-class is preserved, the semantic feature in the deriving word +count is changed, and the new feature +abstract is introduced in the derivative. Scalise uses the fact that syntactic features are always changed in derivation to suggest that it is really syntactic category that is always changed, since though in some cases the word class of the input might be that of the output, as in man > manhood, none the less '... it is reasonable to assume the suffix has changed the entire list of information attached to the base'.

⁶ For the development of NM, see 'Network Morphology'; D. Brown and A. Hippisley, 'Conflict in Russian Genitive Plural Assignment: A Solution Represented in DATR', *Journal of Slavic Linguistics*, 2, 1994, 1, pp. 48–76; and N. Fraser and G. Corbett 'Gender, Animacy, and Declensional Class Assignment: a Unified Account for Russian', in *Yearbook of Morphology 1994*, ed. Geert Booij and Jaap van Marle, Dordrecht, 1995, pp. 123–50 (hereafter 'Gender, Animacy and Declensional Class Assignment'). DATR will be discussed in section 2.

be able to express the mechanisms at work that assign the correct expressive stem, and the correct declensional class. In presenting this account, the aim is to show three things about expressive derivation. First, how we can view as hierarchically arranged statements the following correspondences: expressive function and the expressive suffix that realizes it; expressive suffix and the kind of stem it is constrained to attach to; the declensional class of the deriving stem and the declensional class of the expressively derived stem. Second, we aim to show that expressively derived words must be allowed to inherit from the deriving word morphosyntactic features such as gender and animacy, unlike with prototypical derivation. And third, that the 'expressive hierarchy' actually refers to information inherited from the deriving word in order to derive the correct stem, and assign it the correct declensional class.

In section 1 the relevant data on Russian expressive derivation is discussed. In section 2 NM and the DATR formalism are introduced. In section 3 a first NM account of the data is presented. Certain data are found to be problematic for the analysis, and section 4 shows how a slight modification in the analysis not only accounts for these data, but how the new analysis is corroborated by the situation in another area of Russian derivational morphology with inflectional characteristics, namely possessive adjectives.

1. *Russian expressive derivation*

Our discussion is restricted to expressive derivation of nouns, though in Russian expressive adjectives are also possible.⁷ Before discussing the various expressive stems, and the declensional class of an expressive derivative, note that Russian nouns are grouped into four declensional classes.⁸ Each declensional class is associated with one of three genders: class I with masculine, for example *topor* 'axe'; feminine with classes II, for example, *rabot(a)* 'work', and III, for example, *krovat'* 'bed'; and class IV with neuter, for example, *okn(o)*.

⁷ For example, *m'il(ij)* 'sweet' > *m'ilen'k(ij)*. (See also in B. V. Bratus, *Formation and Expressive Use of Diminutives* (Studies in the Modern Russian Language, 6), Cambridge, 1969, p. 53, where it is questioned whether verbs too can derive expressive verbs, for example, 'on, znaj, poxoxat'ivaet' ('he just chuckles away to himself') where the suffix *-iva* denotes expressiveness. Note that its normal function is to derive imperfectives from prefixed perfectives).

⁸ For a detailed argument in favour of four declensions in Russian, see G. Corbett, 'Gender in Russian: an Account of Gender Specification and its Relation to Declensional Class', *Russian Linguistics*, 6, 1982, 2, pp. 197–232. Basically, with four classes gender is derivable from a combination of semantic and morphological information which is required in the lexical characterization of nouns for other reasons. As will be seen, this approach is crucial to the analysis presented here.

STEM OF EXPRESSIVE DERIVATIVE

In Russian expressive derivation, syntactic category is preserved, that is, only nouns derive diminutive nouns. For this reason, suffixes can be arranged according to the class of the noun to which they attach. The data given in table 1 are taken from Stankiewicz,⁹ and show the expressive categories Diminutive, Augmentative, Affectionate, and Pejorative, and the suffixes that realize them. Vowels in round brackets denote the inflection for the nominative singular.¹⁰

TABLE 1. Expressive suffixes grouped according to declensional class of the base

		Class I		Class IV		Class II		Class III	
		dom 'house' topor 'axe'		ok#n(o) 'window' zolut(o) 'gold'		kn'ig(a) 'book' rabot(a) 'work'		šinel' 'overcoat' krovat' 'bed'	
		stem	suffix	stem	suffix	stem	suffix	stem	suffix
Dim.	dom-	ik	ok#n-	#c(o)	kn'iz-	#k(a)	šinel'-	#k(a)	
	topor-	ik	zolut-	#c(o)	rabot-	#k(a)	krovat'-	#k(a)	
Aug.	dom-	išč(o)	ok#n-	išč(o)	kn'iz-	išč(a)	*	*	
	topor-	išč(o)	*	*	*	*	krovat'-	išč(a)	
Affect.	*	*	okoš-	oč#k(o)	kniž-	oč#k(a)	šinel'-	oč#k(a)	
	topor-	čik	*	*	*	*	*	*	
Pejor.	dom-	iš#k(o)	*	*	*	*	šinel'-	iš#k(a)	
	topor-	iš#k(o)	zolut'-	iš#k(o)	rabot-	iš#k(a)	krovat'-	iš#k(a)	

It should be noted that in order to avoid complicated questions about the data which are not relevant to our discussion, table 1 should be seen as a simplification of the actual meaning the suffix adds to the base. The meaning depends on lexical, textual, and pragmatic factors,

⁹ E. Stankiewicz, *Declension and Gradation of Russian Substantives*, The Hague, 1968 (hereafter *Declension and Gradation*).

¹⁰ The symbol # denotes the so-called mobile vowel which surfaces as /o/ (and /e/ in unstressed position) in certain environments. (Exactly which environments is not important in our analysis.) Note also that hard (velarized) consonants become soft (palatal) before expressive suffixes beginning /i/, and that /g/ in the stem *kn'ig-* 'book' is palatalized when preceding any of the expressive suffixes, and alternates with /ž/ in accordance with the First Palatalization of Velars. The * denotes the fact that a suffix does not attach to the stem in question. Note finally that /n/ alternates with /š/ in the affectionate of *okn(o)*. The 'alternation' /n/ > /š/ seems to be restricted to the expressive derivation of class IV bases (*Declension and Gradation*, p. 123).

as discussed by Volek.¹¹ Moreover, table 1 does not cover all the expressive suffixes, but only productive suffixes of the first degree.¹²

From table 1 it can be seen that the diminutive and affectionate formatives distinguish declensional class, whereas the augmentative and pejorative formatives do not. Thus for the diminutive, class I stems take *-ik*, class IV stems *-#c*, and classes II and III stems *-#k*. And for the affectionate only, class I is distinguished from the other classes: *-čik* attaches to class I noun stems, and *-oč#k* to stems belonging to classes II, III and IV. This is represented in table 2.

TABLE 2. Correspondence of declensional class and expressive stem

Function	Class I	Classes IV	Classes IV + III
Dim.	-ik	-#c	-#k
Aug.	-išč	-išč	-išč
Affect.	-čik	-oč#k	-oč#k
Pejor.	-iř#k	-iř#k	-iř#k

DECLENSIONAL CLASS OF EXPRESSIVE DERIVATIVE

In table 1 it can be seen from the nominative singular ending that the declensional class of the deriving noun is usually preserved in expressive derivation. Thus the class I noun *dom* derives the diminutive *dom'ik* which also belongs to class I. Declensional class is preserved for class II nouns, for example, *rabot(a) > rabotk(a)* (dim), and class IV nouns, for example *okn(o) > oknec(o)* (dim). Yet, declensional class of deriving form and expressively derived form do not always match up. The instances where declensional class is not preserved in expressive derivation can be outlined. Table 3 shows that there is a 'switch' from class III to II for every expressive category, for example, the class III noun *krovat'* derives the class II diminutive *krovatk(a)*.

In addition to the classes discussed at the beginning of this section, we could argue for a fifth class (class V), to which belong all indeclinable nouns.¹³ For example, *pal'to* 'coat'. Now when *pal'to* derives an

¹¹ B. Volek, *Emotive Signs in Language and Semantic Functioning of Derived Nouns in Russian* (Linguistic & Literary Studies in Eastern Europe, vol. 24), Amsterdam, 1987, p. 56 where he says 'The meaning of the suffixes is influenced by the character of the base stem to which they adhere (lexical factor), the broader linguistic content in which they appear (textual factor) and their relationship to the units of the discourse situation (pragmatic factor).'

¹² Stankiewicz (*Declension and Gradation*) shows how suffixes correspond not only to an expressive category, but also to a degree of expressiveness within that category. Thus for example he cites as a second-degree augmentative the suffix *-in*, in *rib'in(a)* (from *rib(a)* 'fish'). A suffix of the second degree will add an affectionate tone to the noun. However, degrees of expressiveness are not our concern.

¹³ In this respect, the approach in 'Animacy and Declensional Class Assignment' is followed. This approach is discussed in section 4.

TABLE 3. Declensional class change from III to II

FUNCTION	BASE Class III	SUFFIX	DERIVATIVE Class II
Dim.	krovat'	-#k	krovat'#k(a)
Aug.	krovat'	-išč	krovat'išč(a)
Affect.	krovat'	-oč#k	*
Pejor.	krovat'	-iš#k	krovat'iš#k(a)

expressive word, it becomes declinable according to class IV (see examples in Zaliznjak).¹⁴ In this sense, we could say that in expressive derivation class V nouns switch to class IV. This is shown in table 4.¹⁵

TABLE 4. Declensional class change from V to IV

FUNCTION	BASE Class V	SUFFIX	DERIVATIVE Class IV
Dim.	pal't[o]	-#c	pal't#c(o)
Aug.	pal't[o]	-išč	pal't'išč(o)
Affect.	pal't[o]	-oč#k	*
Pejor.	pal't[o]	-iš#k	pal't'iš#k(o)

So far we have seen how declensional class is switched in every expressive category. However, there are switches that are limited to only certain categories. One instance is class I nouns, such as *dom*, where there is a switch to class IV in the augmentative and pejorative only. This is shown in table 5.

TABLE 5. Class change in augmentative and pejorative of *dom*

FUNCTION	BASE class I (Ø)	SUFFIX	DERIVATIVE	
			class I (Ø)	class IV (o)
Dim.	dom	-ik	dom'ik	*
Aug.	dom	-išč	*	dom'išč(o)
Pejor.	dom	-iš#k	*	dom'iš#k(o)

Lastly, it should be noted that there is a declensional class switch dependent on the semantic feature of animacy of the deriving stem. This is the case with class I nouns which derive a pejorative. From

¹⁴ A. A. Zaliznjak, *Grammatičeskij slovar' russkogo jazyka*, Moscow, 1977, p. 524.

¹⁵ Note that the final vowel of *pal'to* is not enclosed by brackets, but square brackets. The final vowel should, therefore, not be interpreted as an inflectional formative, but as an element that undergoes truncation in derivation. Thus the augmentative of *pal't[o]* is *pal't'išč(o)*.

table 5, it was seen that they switch to class IV. However, if the deriving stem is animate, for example, *brat* 'brother', the switch will be to class II, as shown in table 6.

TABLE 6. Change of declensional class from I to II for animate nouns

FUNCTION	BASE		SUFFIX		DERIVATIVE	
	Class I		Class I		Class IV	Class II
Pejor.	dom	*	-iš#k	*	dom'iš#k(o)	*
	*	brat		*	*	brat'iš#k(a)

SYNTACTIC GENDER OF EXPRESSIVE DERIVATIVE

Stump¹⁶ defines true expressive morphology as being 'transparent with respect to some morphosyntactic feature', in other words gender. Thus he notes that the diminutive derivation of French *la souris* (feminine) 'mouse' > *le sourisseau* (masculine) 'little mouse' is not really expressive since gender has clearly not been preserved. In Russian, gender can be deduced from declensional class, as seen from the examples at the beginning of this section. The question therefore arises whether change in declensional class, as outlined above, will involve a concomitant switch in gender, showing that syntactic gender has not been preserved, as in the French example above. For example, does the masculine class I noun *dom* not only switch to class IV when it derives an augmentative (see table 5), but also 'take on' the gender associated with class IV, that is, neuter? In fact it turns out that syntactic gender is always inherited as illustrated by the agreement of the adjective in the phrases in [1] to [3]. (Note that examples of Russian phrases will be labelled by square brackets, to distinguish them from all other examples which will be labelled by round brackets.)

- [1] gromadn-ij riž-ij dom'išč-o
 huge-MASC/NOM/SG rust-MASC/NOM/SG house-
 MASC/NOM/SG
 'the huge red-brown house'
 (Čexov, *Svetlaja ličnost'*)

- [2] ja v'izu bur-ij dom'išk-o
 I see-PRESENT brown-MASC/NOM/SG house-
 MASC/NOM/SG
 'I see the brown house'
 (Gor'kij, *V ljudjax*)

¹⁶ G. Stump, 'How Peculiar is Evaluative Morphology?', *Journal of Linguistics*, 29, 1993, pp. 1-36 (1).

Defaults capture in an elegant way the general and the exceptional situation. Facts which are general, but not exceptionless, are stated as default at a higher node. The nominative plural is generally formed with the inflection *-i*, as in *zakoni* 'laws', *komnati* 'rooms', and *kost'i* 'bones'. But the nominative plural of class IV nouns is in *-a*, for example, *v'ina* 'wines'. To capture the fact that *-i* is the general situation, we put this information at NOUN. We can then 'override' the default when necessary, namely at N_IV (that is, class IV), by substituting the default value with an alternative value. This approach captures the view of declensional classes as distinct entities, but also as members of the more general class of nouns. By extension, lexical entries themselves are represented by nodes at the bottom of the hierarchy, inheriting generalizations but also serving as residues for all idiosyncratic information.

Note that a default approach enables one to set up an intermediary node N_O in order to store information common to some declensional classes, but not others: N_I and N_IV share a number of inflections. This common information is pulled out and stated at N_O from which N_I and N_IV inherit. Only the places where they differ, that is, the nominative singular and nominative plural, need be stated at the respective nodes.

THE LEXICAL KNOWLEDGE REPRESENTATION LANGUAGE DATR

In order to make linguistic analyses such as the one outlined above more explicit and rigorous, and to verify the predictions it makes, it is necessary for the analysis to be formalized. Default hierarchies, such as the one represented in figure 1, can be expressed in formalisms designed to represent lexical knowledge, such as DATR which was developed by Evans and Gazdar.¹⁹ The advantage of DATR is that it was designed with default hierarchies in mind, and also that it can be run on a computer thus allowing the theorist to test claims and predictions simply by checking what is generated by the computer. All NM accounts are formalized in DATR, including this one. However, only a small part of the analysis will be presented in DATR code here.²⁰ For a detailed discussion on the DATR language, the reader is referred to the *DATR Papers*.²¹

¹⁹ R. Evans and G. Gazdar, 'Inference in DATR' in *Proceedings of the 4th Conference of the European Chapter of the Association for Computational Linguistics*, Manchester, 1989, pp. 66–71.

²⁰ The interested reader should note that the full DATR representation of the analysis is available from the author on request.

²¹ *The DATR Papers*, ed. R. Evans and G. Gazdar, Brighton, 1990 (University of Sussex Cognitive Science Research Paper, CSRP 139).

3. *A first NM account of Russian expressive derivation*

The various suffixes used to denote expressive categories and the type of stem they attach to can be arranged in terms of a hierarchy. The 'expressive hierarchy' will state the relationship between the expressive suffix and the noun to which it attaches. It will also state what declensional class the expressive noun will be assigned to. It is shown that for these two aims to be met, it is crucial for the expressive hierarchy to have access to information stored at an inflectional hierarchy similar to the one described in section 2 (pp. 208–09). Firstly, the means of capturing generalizations in the derivation of expressive stems is explored.

EXPRESSIVE STEMS

As shown in table 2, expressive suffixes can be assigned to three groups distinguishable by the diminutive category. It can be recalled that each declensional class is associated with a gender. This means at each class information about gender can be stored. With this in mind, table 2 becomes a classification of expressive suffixes according to gender, which is in fact what Stankiewicz argues.²² This can be arranged hierarchically, as in figure 2. The nodes MASC STEM, NEUT STEM, FEM STEM in the expressive hierarchy correspond to the three genders. All classes share augmentative and pejorative suffixes, so these are stated once only at MASC STEM, and are by default inherited directly by FEM STEM and indirectly by NEUT STEM. Where FEM STEM diverges from MASC STEM, that is, in the diminutive and affectionate, the more specific information will have to be stated at FEM STEM. In this way, for the diminutive and affectionate suffixes the inheritance from MASC STEM of *-ik* and *-čik* is overridden. NEUT STEM behaves in exactly the same way as FEM STEM, so it is arranged to inherit what FEM STEM inherits from MASC STEM, and what it overrides. Apart, that is, from the diminutive suffix *-c* which must be stated at NEUT STEM.

The DATR representation of figure 2 is given where (1) expresses the MASC STEM node, (2) the FEM STEM node, and (3) the NEUT STEM node. Most of the information regarding suffixation is stated at (1), that is, four lines, and the least at (3), that is, only one line. (1a) states that the masculine diminutive stem corresponds to the concatenation of *_ik* to the base of the lexical entry that is being queried. In the same way (1b, c, d) state the values for augmentative, affectionate and pejorative masculine stems respectively.

²² *Declension and Gradation*.

MASC_STEM

dim = ik
 aug = išč
 affect = čik
 pejor = išk



FEM_STEM

dim = k
 affect = očk



NEUT_STEM

dim = c

Figure 2. Expressive stem hierarchy

(1) MASC_STEM:

- a. <dim> == “<base all>”_ik
- b. <aug> == “<base all>”_išč
- c. <affect> == “<base all>”_čik
- d. <pejor> == “<base all>”_išk.

In (2a) it is stated that suffixes already stated at MASC_STEM will be inherited by the node that handles the derivation of feminine stems. Yet (2b, c) override the paths <dim> and <affect> at MASC_STEM with more specific information, _k and _očk. In this way we capture the distinction between the expressive derivation of masculine and feminine stems, as well as the similarity. In (3a) we represent the fact that the derivation of neuter stems is stated in the same way as that of feminine stems (3a); except in the case of the diminutive, where the suffix _c is attached to the base (3b) rather than _k (2b).

(2) FEM_STEM:

- a. <> == MASC_STEM
- b. <dim> == “<base all>”_ik
- c. <affect> == “<base all>”_očk.

(3) NEUT_STEM:

- a. <> == FEM_STEM
- b. <dim> == “<base all>”_c.

Having set up the expressive hierarchy, the question now is how the inflectional and expressive hierarchies relate in such a way as to ensure that expressive diminutives inherit the correct suffix. The derivation of *topor* > *topor'ik* (table 1) can be considered as an example. It is necessary to ensure that *topor* inherits from MASC STEM, and not for example from NEUT STEM, which would yield incorrect **toporec*. This is done by stating that the link between the two hierarchies is the value for gender. Thus in the inflectional hierarchy *topor* will inherit from N I (see figure 1) and hence be associated with masculine gender. This will relate *topor* to MASC STEM, where the suffix *-ik* is inherited, and hence the diminutive *topor'ik*. Furthermore, because it is the value for gender in the inflectional hierarchy that is made available in the expressive hierarchy, the analysis is also able to account for the fact that the gender of an expressively derived word is taken from the deriving word (as shown in [1] to [3]). Thus the preservation of gender in expressive derivation appears to play a role in the selection of the appropriate suffix.

DECLENSIONAL CLASS

The issue of declensional class assignment of an expressive derivative is addressed in two steps. The first step is to have the value for gender assign the declensional class, the same way it was used to select the appropriate suffix. The switch from class V to class IV (table 4), and class III to II (table 3) can be considered. If it is assumed that the generalization that nouns belonging to class V, that is, the indeclinable class, are neuter,²³ the switch in class from *pal'to* (class V) to *pal'teco* (class IV) can be accounted for by marking the fact that neuter derivatives will by default inherit from class IV in the expressive hierarchy. Since class V nouns are associated with neuter gender, their expressive derivatives will be assigned declensional class IV. It can now be recalled that class III is associated with feminine gender. The change from class III to II in expressive derivation, for example *krovat'* > *krovatk(a)* (table 3) is handled in the same way, where in the expressive hierarchy it is stated that all nouns of feminine gender are assigned declensional class II.

The problem now arises of how to represent the fact that the declensional class of an expressive derivative may depend on the expressive category of the derivative, as discussed in relation to Table 5. There it could be seen that class I nouns change to class IV if the expressive category is pejorative, or augmentative (otherwise they remain the same). To capture this it is said that by default expressively

²³ This claim will be discussed in detail in section 4 below.

derived masculines inherit from N_I ; however, if the expressive category is augmentative or pejorative they inherit the declensional class of pejorative and augmentative neuter nouns. This is represented in figure 3 where $DECL_MASC$ and $DECL_NEUT$ denote nodes in the expressive hierarchy which refer an expressively derived noun to the appropriate declensional class in the inflectional hierarchy. At $DECL_MASC$ augmentatives and pejoratives override the generalization that expressives with masculine gender inherit from N_I , and inherit rather from $DECL_NEUT$. This will mean that their inflections end up being inherited from N_IV .

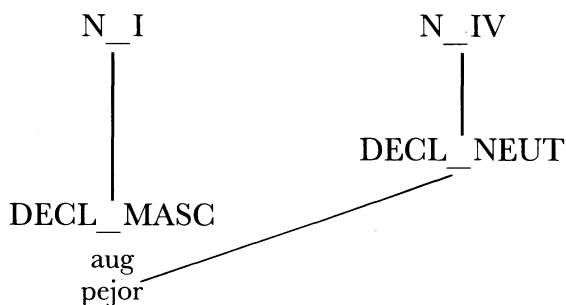


Figure 3. Declensional class assignment for masculine augmentatives and pejoratives

Finally, it was noted in table 6 that some masculine pejoratives do not inherit from N_IV , rather they inherit from N_II . Such nouns are characterized by having the morphosyntactic feature +animate. As discussed above, expressive derivation preserves morphosyntactic features, so it would be expected that animate nouns would derive animate expressive nouns. Because the value for animacy is therefore still available, a node **PEJORATIVE** in the expressive hierarchy is set up to handle masculine pejoratives. At **PEJORATIVE** it is stated that if the noun has the semantic feature +animate it will inherit from feminine pejoratives, and if +animate from neuter pejoratives, as shown in figure 4.

The model as it stands builds a word's expressive stem and assigns it a declensional class, both on the basis of the gender inherited from the deriving word. The problems with such an approach come when a word is found whose gender does not match up with the expressive stem and declensional class. Moreover, this is precisely what does occur with a number of words. Clearly in light of this kind of data, the analysis will have to be rethought. It is, however, shown in the following section how one key change in the model will correctly account for these examples.

- [6] *moj* *rodn-oj* *d'ad'-a*
 my-MASC/NOM/SG own-MASC/NOM/SG uncle-
 MASC/NOM/SG
 'my own uncle'

One approach to *d'ad'k(a)* etc. would be to state that in expressive derivation there is a generalization of declensional class such that classes II and III become generalized to class II, and classes IV and V to class IV. In this analysis class I is itself a generalized class. It would then be said that because *d'ad'(a)* belongs to class II, it is expected to inherit from the generalized declensional class II in expressive derivation. In order to derive the correct stem, it would be specified that stem formation is generalized in the same way, that is, *-k* builds diminutive stems for class II and III nouns.

The main objection to such an approach is that the relationship between classes II and III on the one hand, and IV and V on the other, appears arbitrary and says nothing about the fact that the association of one class with the other corresponds to the association of genders, that is, classes II and III nouns are feminine, and classes IV and V neuter. In the previous analysis, the association of gender on the one hand, and expressive stem and declensional class on the other, was explicit since gender was the determining factor. It would be a pity if the new analysis had to abandon this association. Clearly, if it can be found, an approach that captures this association will be better. It is claimed that there is such an approach, and that it is to be found in the way Fraser and Corbett's framework²⁵ deals with the gender assignment of nouns such as *d'ad'a*, that is, instances where there is a discrepancy between the actual gender displayed in agreement in the syntax, and the gender one would expect from the declensional class.

GENDER ASSIGNMENT RULES

In Fraser and Corbett²⁶ gender is assigned either by semantic information, or by formal information, that is, based on the declensional class a noun belongs to. Semantic assignment for gender is only possible when the noun is sex-differentiable, for example, *sin* 'son' which is male. The generalization is that male nouns will be assigned masculine gender and female nouns feminine gender. The 'semantic assignment rules for gender' are given in (4) below.

- (4) Semantic assignment rules for gender
- a. sex-differentiable nouns denoting males (humans and higher animals) are masculine
 - b. sex-differentiable nouns denoting females are feminine

²⁵ 'Gender, Animacy and Declensional Class Assignment'. This analysis draws from the work of G. Corbett, in *Gender*, Cambridge, 1991.

²⁶ 'Gender, Animacy and Declensional Class Assignment'.

For nouns that are sex-undifferentiated, however, gender is assigned morphologically, such that class I nouns are assigned masculine gender, class II and III nouns feminine, and class IV neuter. For example, the class I sex-undifferentiated noun *dom* will be assigned masculine gender. The 'morphological assignment rules for gender' are given in (5) below.

- (5) Morphological assignment rules for gender
- a. nouns of declensional class I are masculine
 - b. nouns of declensional class II and III are feminine
 - c. nouns of declensional class IV are neuter

Now with *d'ad'(a)* there is going to be a conflict between gender assigned on the basis of declensional class on the one hand, and on the basis of semantic information on the other. In the former case the value for gender will be feminine (see 5b), and in the latter case masculine (given [4a]). This conflict is resolved by stating that where semantic information is available which fits the requirement of (4), gender will be assigned semantically; otherwise it will be assigned morphologically. It is apparent that the value for gender is derivable from two places: at a node which represents (4), and at the declensional class node. Thus every lexical entry will have a value for two paths: <mor formal gender> (gender predictable by declensional class) and <syn gender> (the actual gender revealed in agreement in the syntax). By default, the values will be the same, but in cases such as *d'ad'(a)* the value for <syn gender> will be masc whereas the value for <mor formal gender> will be fem. This can be seen from the output (that is, the values generated by the theory) of *mužčin(a)* 'man' (6b, c) which, like *d'ad'(a)*, belongs to class II but which is masculine.

- (6)
- a. Mužčina: < gloss > = man.
 - b. Mužčina: < syn gender > = masc.
 - c. Mužčina: < mor formal gender > = fem.
 - d. Mužčina: < mor nom sg > = mužčin_a.
 - e. Mužčina: < syn animacy > = animate.

The fact that a lexical entry has, in theory, two values for gender, a 'syntactic' gender, and a 'formal' gender, has important implications for a reanalysis that will handle the derivation of *d'ad'(a)* type nouns, and capture the declensional class/gender association.

REANALYSIS BASED ON FORMAL GENDER

Given the theorem list in (6) of *mužčin(a)*, for a noun such as *d'ad'(a)* the syntactic gender and formal gender will be different values. As the model stands, nouns which have the value fem for the syntactic gender will build the expressive stem in *-k*, and be assigned declensional class II. If, however, instead of invoking the syntactic gender the formal gender is invoked, then words such as *d'ad'(a)* will also deliver the value

fem. Thus *d'ad'k(a)* will cease to be a problem, but would be the predicted form. (7) therefore represents the old analysis where expressive derivation is determined by syntactic gender, and (7') where it is determined by formal gender. (7) is part of the expressive hierarchy. (7a) states that the derivation of expressive stems depends on the value for syntactic gender, and (7b) that the declensional class assignment (mor denotes [inflectional] morphology) also depends on syntactic gender. (7') is similar to (7) except that the value needed to derive the stem and assign the declensional class is that of formal gender.²⁷

(7) EXPRESSIVE:

- a. <stem> = EXPRESSIVE_STEM: <<syn gender>>
- b. <mor> = EXPRESSIVE_DECL: <<syn gender>>.

(7') EXPRESSIVE:

- a. <stem> = EXPRESSIVE_STEM: <<formal gender>>
- b. <mor> = EXPRESSIVE_DECL: <<formal gender>>.

Before going on to present other evidence for an analysis represented in (7'), it is necessary to have a way of handling class V nouns if we assume (7'). These look like being a problem since (5), the formal gender assignment rule, says nothing about them.

CLASS V AND FORMAL GENDER

It was claimed that class V nouns are by default neuter. It is, however, necessary to be cautious about saying gender is formally assigned since in (5) there is no reference to gender for class V. This is because in Fraser and Corbett²⁸ class V is exceptional in that the formal gender is not stated, but evaluated depending on the semantic animacy of the lexical entry being queried, as shown in (8a). The value for animacy depends on semantic sex information: (9a, b) show respectively that male and female nouns are animate, and (9c) that undifferentiated nouns are inanimate. Now since they claim elsewhere that nouns are by default undifferentiated for semantic sex, this means that in an

²⁷ Additional evidence for this approach comes from a collection of nouns which have the same inflectional paradigm, but which do not fit into any of the noun classes discussed above. An example is *im'a* 'name'. These nouns have been traditionally associated with class III (for example see in Švedova [*Russkaja grammatika*, §§1187–90]), but because they diverge in a number of cases, namely the nominative/accusative, and instrumental in the singular, and the nominative/accusative and genitive in the plural, it would make better sense to view them as representing a separate class. Since all these nouns are neuter, gender can be predicted from their class. As gender is therefore formally assigned, that is predictable from the class, it should be possible to use it to predict expressive formation: neuter formal gender predicts class IV. This is indeed borne out by examples such as *im'a* > *imeč##k(o)*, *vrem'a* 'time' > *vrem'ěč##k(o)* etc. (Note that the diminutive stem is not in *-c* as stated in table 1, but in *-očk*, that is, the affectionate formative, which according to Stankiewicz [*Declension and Gradation*, p. 122] is characteristic of the *im'[a]* nouns.)

²⁸ 'Gender, Animacy and Declensional Class Assignment'.

indirect way nouns will also be inanimate by default. Given (8c), this means that N_V will be, in a roundabout way, neuter by default.

(8) N_V:

- a. <formal gender> = = <“<sem animacy>”>
- b. <animate> = = masc
- c. <inanimate> = = neut

(9) ANIMACY

- a. <male> = = animate
- b. <female> = = animate
- c. <undifferentiated> = = inanimate

It is not clear from Fraser and Corbett²⁹ why the formal gender at N_V is not simply stated as neuter, as we do in (8'). In fact (8') has a number of advantages. First, it maintains the difference between gender assignment rules based on semantic features, and those based on declensional class membership, whereas their approach in (8) and (9) mixes this up somewhat given that animacy is, after all, a semantic feature. Second, with (8) an animate class V noun will have to specify its animacy in the lexical entry in order to escape being assigned neuter gender. But in (9) animacy is derivable anyway from whether or not a noun has semantic sex. For class V this can be male, for example, *attaše* 'attaché'; or female, such as *led'i* 'lady'.³⁰

(8') N_V:

- <formal gender> = = neuter

This analysis, then, views formal gender, as distinguished from syntactic gender, to be crucial in expressive derivation. Such an approach would be reinforced if it were possible to find other areas of the morphology where formal gender is referred to in a similar way. There does in fact seem to be such a candidate in the formation of possessive adjectives (*prítjazhatel'noe prilagatel'noe*). Moreover, it is significant that, like expressive derivation, possessive adjective derivation

²⁹ Ibid.

³⁰ In fact, the motivation behind (8) is probably the aim to maintain ambiguity in the semantic sex of class V nouns such as *gnu* 'gnu', *šimpanze* 'chimpanzee'. For example, in a sentence such as [i], taken from V. V. Vinogradov, *Russkij jazyk*, Moscow, 1972, p. 56, the syntactic gender of *šimpanze* is feminine. In a sense, though, the ambiguity is not maintained if it is stated in (8) that animate class V nouns will be, by default, formally masculine and hence syntactically masculine. It would, however, be possible to capture ambiguity in these examples if (8') were adopted: at the lexical entry level, it would be necessary to state the semantic sex anyway, but it would be given the value 'either' and then pragmatics could take over (which Fraser and Corbett in fact seem to suggest for class I and II nouns that have indeterminate sex).

[i] šimpanze korm'il-a det'oniš-a
 chimpanzee-FEM feed-PAST-FEM/SG young(animal)-
 MASC/ANIM/ACC/SG
 'The chimpanzee was suckling her young'

- [10] d'ad'in-o poučenj-o
uncle-PossADJ-NEUT/NOM/SG sermon-NEUT/NOM/SG
'uncle's sermon'
Gončarov, *Obryv*
- [11] mam-a poxož-a na kukl-u
mummy-FEM/NOM/SG similar-FEM/NOM/SG to doll-
FEM/ACC/SG
a košk-a na pap'in-u
and cat-FEM/NOM/SG to daddy-PossADJ-FEM/ACC/SG
šub-u
furcoat-FEM/ACC/SG
'mummy looks like the doll, and pussy like daddy's fur-coat'
Čexov, *Griša*
- [12] kn'ažn-a rešil-a ostav'it'
princess-FEM/NOM/SG decide-PAST-FEM/SG leave-INF
mater'in dom
mother-PossADJ-MASC/ACC/SG house-MASC/ACC/SG
'The princess decided to leave her mother's house'
Leskov, *Žaxudal'j rod*

The fact that possessive adjective stem formation can be handled in the same way as expressive stem formation could be seen to validate the analysis in (7') since it can be made available to more than one area of the morphology. (7') would gain considerable significance if some sort of correspondence could be found between these two areas of morphology. Such a correspondence does indeed exist if it can be considered that, like expressive derivation, possessive adjective derivation is not prototypical derivation. Anderson³¹ views as inflection that which is relevant to the syntax. In Corbett's study of possessive adjectives in Slavonic³² it is shown that, to some degree, this is true for possessive adjectives in Russian.³³ He cites instances where the personal pronoun is controlled by the morphosyntactic features of the noun underlying it. The example he takes to illustrate this is from Trifonov's *Dolgoe proščanie* which we give in [13].

- [13] čto-nibud' o Grišin-ix del-ax:
something about Grisha-PossADJ-LOC/PL affair-LOC/PL:
iz kinostudi-i emu otvetil-i?
from film studio-FEM/SG to-him reply-PAST-PL
'something about Grisha's affairs: did they give him an answer from the film studio?'

³¹ S. R. Anderson, 'Where's Morphology?', *Linguistic Inquiry*, 13, 1982, 4, pp. 571-612 (p. 587) (hereafter 'Where's Morphology?').

³² G. Corbett, 'The Morphology/Syntax Interface: Evidence from Possessive Adjectives in Slavonic', *Language*, 1987, 63, pp. 299-345 (227-29) (hereafter 'Possessive Adjectives').

³³ In his paper all thirteen Slavonic languages are discussed in relation to possessive adjectives.

In [13], the personal pronoun *emu* refers to the noun *Griša* which underlies the possessive adjective *Grišinix*. In other words, the possessive adjective form is 'syntactically accessible'.³⁴ Corbett discusses the other Slavonic languages as well, and in the case of Upper Sorbian the possessive adjective not only controls the personal pronoun, but the relative pronoun and attributive modifier also. Thus he concludes: '... the P[ossessive]A[djective] is not opaque to syntax, but allows the underlying noun to serve as an antecedent for anaphors in a way that other derived adjectives do not'.³⁵ Thus we can view the value for formal gender determining the derivation of possessive adjectives and of expressive nouns. That both types of derivation rely on the same value is not unmotivated if it is considered that this value is inherited from the inflectional hierarchy. This would be expected for derivational processes that display inflectional characteristics, as is the situation with expressive derivation and possessive adjective derivation.

Conclusion

It has been shown how Russian expressive derivation is similar to inflection in that it preserves the word-class of the base, and morphosyntactic features such as gender and animacy. The inheritance of morphosyntactic features from the deriving noun is elegantly accounted for in a default inheritance model, such as the one presented in our NM account. This is done by specifying a 'network relation' between a hierarchy of inflectional information, and a hierarchy of expressive derivation information such that the expressive hierarchy is able to access information from the inflectional hierarchy. By accessing this information the model is able to capture in a natural way the relationship between a given stem and the expressive suffix and declensional class it inherits. This is because stem formation and declensional class assignment can be shown to depend on inflectional class information of the deriving noun, and in some cases its animacy.

The inflectional class information is what we call 'formal gender', that is, the value for gender derivable from the declensional class. This underlines the fact that the expressive hierarchy truly does access information stored in the inflectional hierarchy because it is in the inflectional hierarchy that nodes representing information about declensional class, including formal gender, are specified. Further, it would appear that this is also the case for another kind of derivation

³⁴ 'Where's Morphology?', p. 588.

³⁵ 'Possessive Adjectives', p. 340. The situation is different for the various Slavonic languages. Thus whereas possessive adjectives in Upper Sorbian control personal pronouns, relative pronouns and attributive modifiers, in Polish they only control personal pronouns, and even then most speakers do not accept such constructions (p. 314). For comparison of control possibilities between the languages, see table 1 on page 319 of Corbett's paper.

that is non-prototypical, namely the derivation of possessive adjectives. Thus the non-prototypical status of expressive derivation is captured in our model by a network relating two distinct hierarchies of information. Finally, our model is expressed in the lexical representation language DATR which, because it is computable, allows us to test that the model really does predict what it claims to predict.