

STELA MANOVA (WIEN)

An input-oriented approach to inflection class assignment illustrated with Bulgarian nominal inflection¹

This paper deals with inflection class assignment within input-oriented morphology (section I). After a definition of the basic theoretical concepts (section II) used in the discussion, the inflectional categories of Bulgarian nominal morphology are presented (section III). Section IV gives a brief explanation of the notion morphological organization and serves as an introduction to sections V and VI where semantic and formal (phonological and morphological) criteria for classification of Bulgarian nominal inflection are tackled. Section VII exemplifies an input-oriented model of Bulgarian declensional classes. The final section VIII summarizes the results of the application of the newly-suggested approach and draws conclusions.²

I. INTRODUCTION

We speak of inflectional classes if a language expresses inflectional properties in more than one way. As for a definition of inflectional class, in the literature, inflectional class is usually identified as a set of all words/lexemes selecting the same inflection (cf. Wurzel 1984, Aronoff 1994; Dressler 2003³).

Inflection class assignment is a kind of data organization. The way we organize a set of elements can vary according to task, environment, audience, etc., since all these govern the choice of criteria for the classification of the material we have. In regard to inflection class assignment, different studies on inflectional morphology also operate with different criteria. This means different systems (and numbers) of inflectional classes in one and the same language in different authors. Compare, for example for Russian verbs, Isačenko (1982) and Dressler & Gagarina (1999). Whereas Isačenko (1982) connects the thema-

¹ This paper is part of project P – 10366 supported by a research grant from the Austrian National Bank and supervised by Professor H. Miklas. A version of the paper was presented at the Annual Meeting of the Linguistics Association of Austria, 6-8 December, 2003, University of Vienna.

² Abbreviations: AUG – augmentative, C – consonant, DEF – definite form, DIM – diminutive, FEM – feminine, MASC – masculine, NEUT – neuter, SG – singular, PL – plural, PRES – present, LW – loanword.

³ In Dressler (2003), the definition of inflectional class is further specified with the condition for the same morphonological generalizations in all paradigms constituting an inflectional class (microclass in his framework).

tic marker of the infinitive with the present inflection of the verb and defines 10 inflectional classes, Dressler & Gagarina (1999) take as a basis for their classification “the correlation between the (open) stem (OS) of the infinitive and the close stem (CS) of the present/future (1. Sg.)” (p. 757), and thus come to a system of 29 verbal classes.

From the theoretical point of view, Isačenko (1982) represents input-oriented morphology based first on the phonological make-up of the infinitive (the input) and then on the inflection added, while Dressler & Gagarina (1999) use output-oriented morphology. For the model of Isačenko, in order to determine the inflectional class of a verb, it is often enough to know the termination of the infinitive. He distinguishes between five productive and five unproductive verbal classes, the productive ones defined as follows (INFINITIVE, 1 SG PRES, 3 SG PRES): class 1: *-(j)at'*, *-(j)aju*, *-(j)aet*; class 2: *-et'*, *-eju*, *-eet*; class 3: *-ovat'*, *-uju*, *-uet* & *-evat'*, *-(j)uju*, *-(j)uet*; class 4: *-nut'*, *-nu*, *-net/-nēt*; class 5: *-it'*, *-(j)u*, *-it*. This model is easy to use, since here the present tense inflection can be predicted on the basis of the thematic maker of the infinitive (*-a-*, *-e-*, *-ova-*, etc.). In contrast, if we wish to apply the classification criterion by Dressler & Gagarina (1999), we first need the output form (1 SG PRES according to the authors), then we have to compare it with the input (infinitive) – in order to see the relation between the stem of the output (the present stem / “close stem”) and that of the input (the infinitive stem / “open stem”), and only afterwards we will be able to establish the inflectional class of a given verb. Consider the definitions of two of the three major classes (macroclases in the terminology of Dressler & Gagarina 1999): 1) “OS (open stem) ends in a vowel (V) vs. CS (close stem) has consonant (C) addition to the OS”; 2) “OS ends in V vs. CS without this V”. Such a method has two disadvantages: it neglects the present thematic markers of Russian verbs which are inflection (i.e. constitutive feature for inflection class assignment) and it requires a proficiency level in Russian.

In regard to Bulgarian nominal inflection, an example of an input-oriented morphological rule is the statement ‘all nouns with singular forms terminating in *-a* take the plural suffix *-i*’. By contrast, an example of output-oriented morphology will be the rule ‘Bulgarian nominal inflection possesses the following productive plural suffixes: *-i*, *-ove*, *-a*, *-ta*’, because here only the output is specified. Rules of the second type are the usual ones in morphological descriptions for native speakers, since due to their language-competence, native speakers can distinguish between correct and incorrect forms and thus always produce correct ones only. Output-oriented rules are not suitable for non-native speakers, as they have a less reliable intuition than native speakers for existing and non-existing forms and with an output-oriented rule non-native speakers can produce only forms which they already know. Put differently,

output-oriented-morphology is a bad choice for language-learning purposes⁴ and for language processing.

The present paper is the first presentation of a project on Bulgarian morphology which has the ambition to suggest morphological description relevant for native speakers as well as for non-native speakers, and even for persons with no competence in Bulgarian at all. This can be managed only within input-oriented morphology with rules based on general knowledge and/or elementary linguistic competence. Such rules are of two types: semantic and formal. An example of a semantic rule is the hypothetical rule 'all ethnics have, let us say, *-i* plural', whereas formal rules can be illustrated with the already-mentioned rule 'all words with singular forms terminating in *-a* take the plural suffix *-i*'. Such formal and semantic rules are easily accessible, due the fact that everybody has an idea of what 'ethnics' or 'singular' means and can judge whether a word terminates in *-a*. Formal rules can also involve elementary linguistic competence, e.g. distinguishing between vowels and consonants, between monosyllabic and polysyllabic words, or making a decision whether a word terminates in a given morpheme (segment).

As for the theoretical framework of this paper, it is situated within a revised version of Natural Morphology (Dressler et al. 1987, for inflectional morphology Wurzel 1984 [1989]; Dressler 1997) based on Manova (2003). In regard to Bulgarian nominal inflection, this contribution elaborates on Manova & Dressler (2001). However, owing to the specific orientation of the present investigation including also suitability for language-learning purposes, here, in contrast to Manova & Dressler (2001), a significant reduction of the number of the inflectional classes is made, on the basis of eliminating the criterion of morphological uniformity of an inflectional class. This decision is motivated by the mere fact that morphological changes affect the whole morphological system of a language, i.e. since the same morphological rules operate in inflection, derivation and compounding, in case of a full morphological investigation of a language, as the project on Bulgarian morphology is, morphological rules can (and should) be discussed in detail only once.

II. TERMINOLOGY

A *basic form* of a word is the least marked form in its paradigm from which all other forms can be derived. The basic form of a Bulgarian noun is its singular indefinite form which coincides with the citation form (the form listed in dictionaries) of a noun. The fact is seen as an argument in favour of input-oriented morphology, since having the basic form of a noun in a dictionary and following the approach suggested in this paper, one can easily produce all inflectional forms of the respective noun.

⁴ Isačenko (1982: 221) also motivates his choice of scheme of inflectional classes with its appropriateness for language learning.

Morphological rules are realizations of the following *morphological techniques* (cf. Manova 2003; see also Dressler et al. 1987):

- (1) Addition: $X \rightarrow X + Y$
- (2) Substitution: $X + Y \rightarrow X + Z$
- (3) Modification: $X \rightarrow X'$
- (4) Conversion: $X \rightarrow X$
- (5) Subtraction: $X + Y \rightarrow X$

For the purposes of this paper, we will define *inflectional class* as a set of all existing basic forms of words (in our case a set of all basic forms of nouns) which exhibit certain formal and/or semantic similarities and share the same inflectional paradigm (including the inflection of basic forms). This usually implies the use of a single morphological technique, except in cases of phonological or morphonological modifications such as, e.g. *stol* 'chair' \rightarrow PL *stolóve* with a stress change or *učeník* 'pupil' \rightarrow PL *učenic-i* with a palatalization, both modified after the addition of plural suffixes.

III. BULGARIAN NOMINAL INFLECTION

Modern Bulgarian possesses the following inflectional categories:

1. Three genders (MASC, FEM, NEUT) which are not morphologically expressed by rule, but manifested in syntactic agreement:

dobăr máž 'good man'
good-MASC man-MASC

dobr-a žen-a 'good woman'
good-FEM woman-FEM

dobr-o nešt-o 'good thing'
good-NEUT thing-NEUT

As can be seen from these examples, Bulgarian gender agreement represents to a great extent alliterative concord (on alliterative concord, see Corbett 1991: 117-119). The tendency toward alliterative concord can also be observed within the singular definite nominal phrase where Bulgarian inflects for definiteness the first constituent of the phrase (i.e. the adjective), thus *dobrijatø mážø* 'the good man', *dobr-a-ta žen-a* 'the good woman', *dobr-o-to nešt-o* 'the good thing'.

2. Two numbers (SG & PL), and the category of count plural (count PL), the latter only with masculine non-humans terminating in consonants. Count PL is used after cardinal numerals. For example:

stol 'chair' \rightarrow PL *stol-ove*, *mnogo stol-ove* (PL) 'many chairs',
however, *pet stol-a* (count PL) 'five chairs'

kotarak 'Tom-cat' → PL *kotarac-i*, *dva kotarak-a* (count PL) 'two Tom-cats'

The category of count plural is still productive, and loanwords which satisfy the above-mentioned criteria also have count forms:

mač 'match' → PL *mač-ove*, count PL *mač-a*

kompjutăr 'computer' → PL *kompjutr-i*, count PL *kompjutăr-a*

Of course, the condition for non-humans holds for loanwords as well, e.g. *student* 'student' → PL *student-i*, count PL **student-a*.

3. The category of definiteness expressed by an affix in postposition, as is typical for Balkan languages:

MASC SG *stol* 'chair' → SG DEF *stol-ăt* for subject and predicative positions and *stol-a* for objects, direct as well as indirect, PL *stol-ove* → PL DEF *stol-ove-te*.

FEM SG *žena* 'woman' → SG DEF *žena-ta*, PL *žen-i* → PL DEF *žen-i-te*

NEUT SG *selo* 'village' → SG DEF *selo-to*, PL *sel-a* → PL DEF *sel-a-ta*

To sum up, the full inflectional paradigm of a Bulgarian noun consists of the following forms: SG, SG DEF, PL, PL DEF. This means that all nouns which show the same inflection for the expression of these categories belong to the same inflectional class.

Of the above-cited morphological techniques, for the expression of plural, Bulgarian uses addition (*učitel* 'teacher' → PL *učitel-i*), substitution (*masa* 'table' → PL *mas-i*) and subtraction (*bălgarin* 'a Bulgarian' → *bălgari*). Definiteness is always expressed by addition only (*učitel* → *učitel-jat*, *masa* → *masa-ta*, *bălgarin* → *bălgarin-ăt*, PL *učiteli* → *učiteli-te*, *masi* → *masi-te*, *bălgari* → *bălgari-te*). Bulgarian has no plurals of the type G. *Lehrer* 'teacher' → *die Lehrer*, *Apfel* 'apple' → *die Äpfel*. In other words, all categories of Bulgarian nominal inflection are overtly marked in a highly iconic way, except the plural of ethnics in *-in* formed after a subtractive rule. In the whole system there is a single case of suppletion *čovek* 'human being' → *xora*, however sometimes also *čovec-i*, the latter stylistically marked as colloquial and expressive.

IV. MORPHOLOGICAL ORGANIZATION

Under morphological organization I understand any organization of morphological data which follows given, either semantic or formal criteria, or a certain combination of both. Due to the fact that the semantics of inflectional categories is more abstract and relational than that of derivational categories, formal criteria are usually applied to inflectional data, whereas for derivation, semantic criteria are more typical. An example of semantic organization of de-

derivational data is the well-known traditional division of nouns into *nomina agentis*, *nomina instrumenti*, *nomina actoris*, etc. Note that this division classifies the output of a derivational change and is therefore output-oriented. A rule of the type 'all words derived by the suffix *-tel*' are nouns' is an example of a formal rule in derivation, also output-oriented.

The discussion below explores possible semantic (section V) and formal (section VI) criteria for data organization in inflection.

V. SEMANTIC CRITERIA

Since output of derivation serves as input of inflection, in this section we will try to establish whether semantic criteria organizing derivational output can be used for inflection class assignment (i.e. for inflectional input). First, we will see whether it is possible that semantic groups such as *nomina agentis*, *nomina instrumenti*, *nomina loci*, etc. include only nouns belonging to the same inflectional class. Let us consider the following examples (SG, SG DEF → PL, PL DEF):

Nomina agentis:

pekar 'baker', *pekar-jat* → *pekar-i*, *pekar-i-te*
mrānkal-o 'grumbling person', *mrānkal-o-to* → *mrānkal-a*, *mrānkal-a-ta*
zabravan 'chuckle-head', *zabravan-āt* → *zabravan-ovci*, *zabravan-ovci-te*
mārmorko 'grouser', *mārmorko-to* → *mārmorko-vci*, *mārmorko-vci-te*, etc.

Nomina instrumenti:

xladilnik 'refrigerator', *xladilnik-āt* → *xladilnic-i*, *xladilnic-i-te*
ostrilk-a 'pencil sharpener', *ostrilk-a-ta* → *ostrilk-i*, *ostrilk-i-te*
smetal-o 'abacus', *smetal-o-to* → *smetal-a*, *smetal-a-ta*, etc.

Nomina loci:

čitaln-ja 'reading room', *čitaln-ja-ta* → *čitaln-i*, *čitaln-i-te*
letišt-e 'airport', *letišt-e-to* → *letišt-a*, *letišt-a-ta*
umivalnik 'washbasin', *umivalnik-āt* → *umivalnic-i*, *umivalnic-i-te*, etc.

As can be seen from these instances, semantically-related derivations can be built with different derivational suffixes, the latter select different inflectional suffixes by rule, and thus allot nouns into different inflectional classes. Of course, Bulgarian (cf. Radeva 1991) also has other semantic groups in derivation, but their members belong to different inflectional classes as well.

In fact, such behaviour of derivation is in consonance with its prototypical properties. If derived nouns enter only one inflectional class, the derivational meaning they carry could have been expressed by inflection class assignment, i.e. inflectionally. However, if a category is expressed inflectionally, it is inflectional and not derivational. Nevertheless, since derivation and inflection constitute a cline, we can expect that the output of borderline derivational cate-

gories such as diminutives or augmentatives (called also non-prototypical derivation, because no word-class change takes place, cf. Dressler 1989) could belong to the same inflectional class. Moreover Old Church Slavic had one inflectional class (-*ęt*- stems) comprising only nouns denoting offspring of animals to which some linguists assign also all Old Bulgarian diminutives (cf. Georgiev 1985). However, in the morphological system of modern Bulgarian the status of diminutives has changed, and now neither diminutives nor augmentatives form inflectional classes of their own, as can be seen from the following examples:

Diminutives:

kniga 'book'

knižk-a, knižk-a-ta → *knižk-i, knižk-i-te*

knižle, knižle-to → *knižle-ta, knižle-ta-ta*

Augmentatives:

máž 'man'

mážišt-e, mážište-to → *mážišt-a, mážišt-a-ta*

mážag-a, mážag-a-ta → *mážag-i, mážag-i-te*

Looking for semantic criteria for inflection class assignment, one inevitably comes to the category of gender which is traditionally thought as cognitive and therefore semantically-organized (cf. Corbett 1991; Doleschal 1993). The clearest case of a cognitive rule for gender assignment is when gender reflects sex, i.e. all males are masculine and all females feminine. In accordance with this rule, one could expect that at least nouns denoting persons with the same sex would take the same inflection. Unfortunately, in modern Bulgarian even this simple rule does not hold. Consider the following examples of male humans:

MASC *máž* 'man', *máž-ăt* → *máž-e, máž-e-te*

MASC *gospod-in* 'Mister', *gospod-in-ăt* → *gospod-a, gospod-a-ta*

MASC *ricar* 'knight', *ricar-jat* → *ricar-i, ricar-i-te*

MASC *djado* 'grandfather', *djado-to* → *djado-vci, djado-vci-te*

MASC *bašt-a* 'father', *bašt-a-ta* → *bašt-i, bašt-i-te*

Surprisingly to some extent, even in cases of the same final segments, nouns denoting males belong to different inflectional classes:

MASC *djado* 'grandfather', *djado-to* → *djado-vci, djado-vci-te*

MASC & NEUT⁵ *pikol-o* 'piccolo', *pikol-o-to* → *pikol-a, pikol-a-ta*

However, the semantic criterion involving the natural sex of an animate noun can successfully be used for females:

⁵ Note that different dictionaries assign different genders (either masculine or neuter, or both) to LWs denoting male humans and terminating in *-o*, *-e* or other vowels (e.g. *dendi*, *guru*).

- FEM *žen-a* 'woman', *žen-a-ta* → *žen-i*, *ženi-te*
 FEM *sāprug-a* 'wife', *sāprug-a-ta* → *sāprug-i*, *sāprug-i-te*
 FEM *bab-a* 'grandmother', *bab-a-ta* → *bab-i*, *bab-i-te*
 FEM *lel-ja* 'aunt', *lel-ja-ta* → *lel-i*, *lel-i-te*
 FEM *učitelk-a* 'female teacher', *učitelk-a-ta* → *učitelk-i*, *učitelk-i-te*
 FEM *lāvic-a* 'lioness', *lāvic-a-ta* → *lāvic-i*, *lāvic-i-te*

Except for this class of females, it seems that there exists no clear semantic criterion on which an inflectional class could be organized. Therefore now we will use another strategy: neglecting gender, we will group nouns denoting humans (indigenous words, loanwords, diminutives and augmentatives) according to their termination.

Indigenous words:

- FEM *žen-a* 'woman', *žen-a-ta* → *žen-i*, *žen-i-te*
 MASC *bašt-a* 'father', *bašt-a-ta* → *bašt-i*, *bašt-i-te*

Loanwords:

- MASC *paš-a* 'pasha', *paš-a-ta* → *paš-i*, *paš-i-te*
 MASC *pap-a* 'pope', *pap-a-ta* → *pap-i*, *pap-i-te*

Diminutives and augmentatives:

- MASC *žen-a* 'woman' → DIM FEM *ženičk-a*, *ženičk-a-ta* → *ženičk-i*, *ženičk-i-te*
 MASC *máž* 'man' → AUG MASC *mážag-a*, *mážag-a-ta* → *mážag-i*, *mážag-i-te*

For these nouns, we can formulate the following rule: all nouns terminating in *-a* are inflected for number after a substitution of their final *-a* with the suffix *-i* and for definiteness after the addition of the definite articles *-ta* and *-te* for singular and plural respectively.

A similar observation can be made for nouns in *-e*:

Indigenous words:

- NEUT *momče* 'boy', *momče-to* → *momče-ta*, *momče-ta-ta*
 NEUT *momiče* 'girl', *momiče-to* → *momiče-ta*, *momiče-ta-ta*

Loanwords:

- MASC *ataše* 'attaché', *ataše-to* → *ataše-ta*, *ataše-ta-ta*
 MASC & NEUT *krupie* 'croupier', *krupie-to* → *krupie-ta*, *krupie-ta-ta*
 MASC & NEUT *kjure* 'Catholic priest', *kjure-to* → *kjure-ta*, *kjure-ta-ta*

Diminutives and augmentatives:

- MASC *máž* 'man' → DIM NEUT *mážle*, *mážle-to* → *mážle-ta*, *mážle-ta-ta*
 FEM *žen-a* 'woman' → DIM NEUT *ženče*, *ženče-to* → PL *ženče-ta*, *ženče-ta-ta*

The examples of nouns in *-a* and *-e* undoubtedly show that substantives with different sex (gender respectively) but with the same termination belong to the same inflectional class. It seems that for inflection class assignment in Bulgarian, the termination of the noun is more important than its gender. It should be noted that this observation challenges the traditionally gender-oriented system of inflectional classes that can be found in all sources on Bulgarian morphology written by native as well as by foreign linguists (cf. basic sources on Bulgarian morphology such as Andrejčin 1978; Maslov 1981, Andrejčin et al. 1983, Scatton 1984; Stojanov 1994; Feuillet 1996; Hauge 1999; Radeva et al. 2003), the only exception being an article on gender and declensional class in Bulgarian by Manova & Dressler (2001).

A group of words which are of significant importance for the morphology of any language are loanwords. The way(s) in which loanwords are integrated into the inflectional system of a language is/are essential evidence for the organization of the inflectional system of this language. Since the above-cited examples of nouns in *-a* and *-e* include loanwords and due to lack of space, I will not give any new instances of inflected loanwords. It seems that only *pikolo* is problematic for the assumption of the termination of a noun as a main criterion for inflection class assignment in modern Bulgarian. However, compare the inflectional forms of *pikolo* with those of *ogledalo* 'mirror' and *kino* 'cinema', all ending in *-o*:

SG *pikol-o* 'piccolo', *pikol-o-to* → *pikol-a*, *pikol-a-ta*

SG *ogledal-o* 'mirror', *ogledal-o-to* → *ogledal-a*, *ogledal-a-ta*

SG *kin-o* 'cinema', *kin-o-to* → *kin-a*, *kin-a-ta*

Such examples lead us to the next section.

VI. FORMAL CRITERIA

Formal criteria are phonological or morphological by nature.

Phonological criteria have to do with the phonological make-up of a noun (e.g. whether a noun ends in a vowel or in a consonant, or whether it is monosyllabic or polysyllabic).

Since *-C*, *-(j)a*, *-o* and *-e* are all possible terminations of indigenous nouns in Bulgarian, the phonological criterion defines the following nominal classes: nouns terminating in consonants, nouns in *-a*, in *-o*, and in *-e*. Traditionally and as usual for south Slavic languages, nouns in *-C* are further subdivided into monosyllabic and polysyllabic which leads to a system of five major classes in modern Bulgarian (see table 1 below).

Morphological criteria concern the morphological structure of the noun. After a morphological criterion, all nouns derived with the same suffix belong to the same inflectional class. If we neglect the existence of morphological criteria for inflection class assignment, a polysyllabic noun such as *bălgarin* '(a) Bulgarian', which terminates in a consonant, should belong to inflectional class

2a and have the plural **bālgarini*. However, the correct plural of *bālgarin* is *bālgari* (2b), formed after a subtraction of the word-final *-n*, and it is a morphological rule (derivation with the [singulative] suffix *-in*) which distinguishes such nouns from all other polysyllabics in a consonant. The same motivates the postulation of class 2c comprising nouns with the suffix *-an* and the plural suffix *-ovci*, instead the expected suffix *-i* assigned according to the phonological criterion.

A combination of a phonological criterion (e.g. nouns consisting of more than two syllables) and a morphological criterion (e.g. derived with the suffix *-ne*) distinguishes nouns such as *sčupvane* 'breaking' (class 5b) from nouns such as *prane* 'washing, laundry' (class 5a) which are also derived with the suffix *-ne*. The two types of nouns in *-ne* in class 5a and class 5b respectively have the same definite article in the singular and in the plural, however due to their different diachronic origin, they have now different plural forms, thus *prane* 'washing, laundry', *prane-to* → *prane-ta*, *prane-ta-ta*, but *sčupvan-e* 'breaking', *sčupvane-to* → *sčupvan-ija*, *sčupvan-ija-ta*, i.e. like *stradani-e* 'suffering', *stradani-e-to* → *stradani-ja*, *stradani-ja-ta* (see 5c).

Of course, classes defined on morphological criteria can be seen as semantically organized and this because the common derivational suffix has some semantics. However, here postulation of semantically organized inflectional classes is false, since such inflectional classes include only some of the nouns with a given semantic meaning. For example, the existence of an inflectional class of ethnics in *-in* does not mean that there exist no other derived and non-derived nouns denoting ethnics. In modern Bulgarian, we also find *čex* '(a) Czech', *čex-āt* → *čex-i*, *čex-i-te* (see 1.6 in the list of exceptions), *avstrieč* '(an) Austrian', *avstrieč-āt* → *avstrijc-i*, *avstrijc-i-te* (class 2a), etc. Nevertheless, the semantic criterion can be useful in case of hesitation whether a noun is derived with a given suffix or not. For example, *sārbin* '(a) Serbian' is an ethnic noun, therefore has the subtractive plural *sārbi*, i.e. as is usual for class 2b, whereas the semantics of *ispolin* 'colossus, giant' does not fit to the semantic pattern ethnics (class 2b), thus its plural is *ispolin-i*, i.e. class 2a. The semantic contrast between *ispolin* and class 2b is due to the mere fact that the noun *ispolin* is not derived with the suffix *-in*. The same explains why *velikan* 'giant' and *pelikan* 'pelican', both terminating in *-an*, have plural forms of class 2a (*velikan-i*, *pelikan-i* respectively) instead of those of class 2c, the latter including only pejoratives with the suffixes *-an*.

VII. BULGARIAN DECLENSIONAL CLASSES

The above-cited formal and semantic criteria allotted Bulgarian nouns into 11 classes (1; 2a,b,c,d; 3; 4a,b; 5a,b,c), cf. table 1 below. Due to lack of space, each class is illustrated with a single native & LW example (if there are any). Multiple examples for a given class are shown where different terminations and genders are found; for such classes all possible terminations

and genders are exemplified. Note that LWs prove productivity (cf. Dressler 1997), therefore productive classes are only these where LWs occur. For convenience, in table 1, all productive classes are marked by 'p' and underlined. All possible morphonological changes occurring in the respective class are also noted in table 1. In the list below, a noun is given with all its forms: SG, SG DEF → PL, PL DEF. For more examples, see Manova & Dressler (2001).

Major class 1: Monosyllables in C

grad 'city, town', *grad-ăt* → *grad-ove*, *grad-ove-te*, *broj* 'issue, number, copy', *bro-jat* → *bro-eve*, *bro-eve-te*

Regardless of their termination monosyllabic LWs always take the plural suffix *-ove*:

akt, *akt-ăt* → *akt-ove*, *paj*, *paj-at* → *paj-ove*, *paj-ove-te*

Major class 2: Polysyllables in C

Class 2 a: *prozorec* 'window', *prozorec-ăt* → *prozorc-i*, *prozorc-i-te*, *učitel* 'teacher', *učitel-jat* → *učitel-i*, *učitel-i-te*

LWs: *lektor* 'lecturer', *lektor-ăt* → *lektor-i*, *lektor-i-te*

Class 2 b: *angličanin* 'Englishman', *angličanin-ăt* → *angličani*, *angličani-te*

Class 2 c: *gotovan* 'idler', *gotovan-ăt* → *gotovan-ovci*, *gotovan-ovci-te*

Class 2 d: *pesen* 'song', *pesen-ta* → *pesn-i*, *pesn-i-te*, *radost* 'joy', *radost-ta* → *radost-i*, *radost-i-te*

Major class 3: Nouns terminating in -a

FEM: *kol-a* 'car', *kol-a-ta* → *kol-i*, *kol-i-te*, *lel-ja* 'aunt', *lel-ja-ta* → *lel-i*, *lel-i-te*

MASC: *bašt-a* 'father', *bašt-a-ta* → *bašt-i*, *bašt-i-te*, *sădi-ja* 'judge', *sădi-ja-ta* → *sădi-i*, *sădi-i-te*

LWs: FEM: *zal-a* 'hall', *zal-a-ta* → *zal-i*, *zal-i-te*, *organizaci-ja* 'organization', *organizaci-ja-ta* → *organizaci-i*, *organizaci-i-te*

MASC: *maxaradž-a* 'maharaja', *maxaradž-a-ta* → *maxaradž-i*, *maxaradž-i-te*

Major class 4: Nouns terminating in -o

Class 4 a: *sel-o* 'village', *sel-o-to* → *sel-a*, *sel-a-ta*

LWs: NEUT: *bjur-o* 'bureau', *bjur-o-to* → *bjur-a*, *bjur-a-ta*, *radi-o* 'radio', *radi-o-to* → *radi-a*, *radi-a-ta*

MASC: *žigol-o* 'gigolo', *žigol-o-to* → *žigol-a*, *žigol-a-ta*

Class 4 b: *djado* 'grandfather', *djado-to* → *djado-vci*, *djado-vci-te*

Major class 5: Nouns terminating in *-e* + L Ws
in *-i*, *-(j)u*

Class 5a: *pole* 'field', *pole-to* → *pole-ta*, *pole-ta-ta*, *momče* 'boy',
momče-to → *momče-ta*, *momče-ta-ta*

LWs: NEUT: *pjure* 'mash', *pjure-to* → *pjure-ta*, *pjure-ta-ta*, *taksi* 'taxi',
taksi-to → *taksi-ta*, *taksi-ta-ta*, *ragu* 'ragout', *ragu-to* → *ragu-ta*, *ragu-*
ta-ta, *intervju* 'interview', *intervju-to* → *intervju-ta*, *intervju-ta-ta*

MASC: *mosju* 'monsieur', *mosju-to* → *mosju-ta*, *mosju-ta-ta* (colloquial)

FEM: *lejdi* 'lady', *lejdi-to* → *lejdi-ta*, *lejdi-ta-ta* (colloquial)

Class 5b: *iziskvan-e* 'requirement', *iziskvan-e-to* → *iziskvan-ija*,
iziskvan-ija-ta

Class 5c: *sārc-e* 'heart', *sārc-e-to* → *sārc-a*, *sārc-a-ta*

učilišt-e 'school', *učilišt-e-to* → *učilišt-a*, *učilišt-a-ta*

izvesti-e 'news, message, information', *izvesti-e-to* → *izvesti-ja*, *izvesti-*
ja-ta

sābrani-e 'meeting, assembly', *sābrani-e-to* → *sābrani-ja*, *sābrani-jata*

Table 1 has the following exceptions numbered after the regular classes:

Note: If there is only a single noun listed, it means that the respective rule has no other exceptions. Nouns marked by an exclamation mark (!) have two different plural forms: a regular one, as usual for the respective inflectional class, and another one which constitutes an exception, e.g. I.1. *!rog* 'horn' → PL *rog-a* (exception) & *rog-ove* (class 1). Everywhere only the peculiar forms are noted, all other forms are to be built following a given rule or the pattern of the respective regular class. Addition is noted with '+' and the suffix that has to be added (e.g. *+a*), for a substitution rule, only the respective suffix is written (e.g. *-esa*).

1.1. PL *+a* [2 nouns only]: *krak* 'leg', *!rog* 'horn' (also *rogove*)

1.2. PL *+e* [5 nouns only]: *māž* 'man', *car* 'tsar', *knjaz* 'prince', *kral* 'king',
kon 'horse'

1.3. PL *+išta* [5 nouns only]: *kraj* 'end', *sān* 'dream', *kār* 'field', *!pāt* 'road'
(*pāti* 'times'), *!dvor* 'yard' (*dvori*, *dvorove*), *!kup* 'pile, heap' (*kupove*),
!plet 'hedge' (*pletove*)

1.4. *brat* 'brother' → PL *bratja*

1.5. *zet* 'brother-in-law' → PL *zet'ove*

1.6. PL *+i*: new loanwords such as *film*, *fakt* + some ethnics: *čex* 'a Czech',
šved 'a Swede'

1.7. PL *+i*, ART *+ta*: FEM: *kost* 'bone', etc. BUT *gad*, *gad-āt* / *gad*, *gad-ta*
'reptile (symbolic)' → *gad-ove*, *gad-ove-te*; *tel*, *tel-āt* / *tel*, *tel-ta* 'wire'
→ *tel-ove*, *tel-ove-te*; *prax*, *prax-āt* / *prax*, *prax-ta* 'dust, powder' →
prax-ove, *prax-ove-te* + count PL forms *tri praxa* 'three [types] of
powder'

- 1.8. ART *+ja(t)* [only the listed nouns]: *den* 'day', *zet* 'brother-in-law', *kon* 'horse', *kral* 'king', *pāt* 'road', *sān* 'dream', *car* 'tsar'
- 2a.1. *nomer* 'number, size, trick' → PL *nomera*
- 2a.2. PL *+ove* [3 nouns only]: *vjatār* 'wind' → *vetrove*, *centār* 'center' → *centrove*, *ogān* 'fire' → *ogn'ove*
- 2a.3. *!beglec* 'escapee' → PL *begālci* (*begleci*), *mārtvec* 'dead person' → PL *mārtāvci*
- 2a.4. *potomāk* 'ancestor' → PL *potomci*, *momāk* 'lad' → PL *momci*
- 2a.5. *kamāk* 'stone' → PL *kamāni*
- 2a.6. *!bodil* 'prickle, thorn, thistle' → PL *bodili* 'thistles', *bodli* 'prickles, thorns'
- 2a. 6. *!mednik* 'copper (cauldron)' → PL *menci*, *mednici*
- 2a.7. *!čovek* 'human being' → PL *xora*, sometimes also the expressive *čoveci*
- 2b.1. *gospodin* 'Mister' → PL *gospoda*
- 2b.2. *turčin* 'Turk' → PL *turci*
- 2c.1. *politikan* 'dabbler in politics, intriguer' → PL *politikani*
- 3.1. PL *-e* + palatalization [2 nouns only]: *rāka* 'hand' → *rāce*, *noga* 'foot' → *noze*
- 3.2. PL *-e* & PL *-i* [2 nouns only]: *!ovca* 'sheep', *!svinja* 'sow'
- 3.3. PL *-i* + palatalization [2 nouns only]: *vladika* 'bishop' → *vladic-i*, *patrika* 'patriarch' → *patric-i*
- 4a.1. PL *-i* + palatalization [2 nouns only]: *oko* 'eye' → *oči*, *uxo* 'ear' → *uši*
- 4a.2. PL *-i*: *životno* 'animal', *vodoraslo* 'seaweed', *nasekomo* 'insect', *delimo* 'dividend'
- 4a.3. PL *-esa* [4 nouns only]: *čudo* 'wonder', *!dārvo* 'tree, wood' → *dārvesa* (old, poetic), *dārveta* 'trees', *dārva* 'wood, firewood', *!slovo* 'word, speech' → *slovesa* 'words', *slova* 'speeches, words', *!tjalo* 'body' → *telesā* (old), *tela*
- 4a.4.1. PL *-a* & PL *-e*: *!krilo* 'wing', *!koljano* 'knie' → *kolena*, *kolene*
- 4a.4.2. *!ramo* 'shoulder' → PL *ramena*, *ramene*
- 4a.5. PL *-a* & PL *-eta* [3 nouns only]: *!kolelo* 'wheel', *!kālbo* 'sphere, ball', *!tārkalo* 'wheel, circle'
- 5a.1 *!nebe* 'sky, heaven' → PL *nebeta*, *nebesa* (poetic) 'heaven'
- 5a.2. PL *-(e)na* [7 nouns only]: *vreme* 'time, weather', *pleme* 'tribe', *seme* 'seed', *ime* 'name', *zname* 'flag', *streme* 'sturrup', *!breme* 'burden' → *bremena*, *bremeta*
- 5a.3. *!bate* 'elder brother, uncle' → PL *batevci*, *bateta* (colloquial)
- 5a.4. *dete* 'child' → PL *deca*
- 5a.5. *cvete* 'flower' → PL *cvetja*

VIII. CONCLUSION

The formal mechanism of Bulgarian nominal inflection can be represented by the general templates of the morphological techniques of addition and

substitution: $X \rightarrow X + Y$ or $X + Y \rightarrow X + Z$ (except for class 2b). While plural indefinite forms are built with the help of both techniques, definite forms, be they singular or plural, are always additive by nature.

Formal input-oriented rules can successfully allot nouns into inflectional classes in modern Bulgarian. Of all formal rules, phonological ones are of particular importance for Bulgarian nominal inflection. Such rules specify the phonological make-up of a noun and thus define five major inflectional classes: 1. monosyllables in consonants; 2. polysyllables in consonants; 3. nouns in *-a*; 4. nouns in *-o*; 5. nouns in *-e*, each with a single productive pattern. Here, in contrast to Wurzel (1989: 58), we consider the final *-a*, *-o*, *-e* of a basic form of a noun to be inflection, and therefore distinguish between classes 2d (polysyllabic in consonants) and 3 (nouns in *-a*), and between 4a (nouns in *-o*) and 5c (nouns in *-ce*, *-ište*, *-(n)ie*). The members of each pair take the same inflection, but differ in basic forms and in morphonological alternations which they allow for.

Semantic criteria are secondary and gender is important only for agreement. Of course, it is possible to suggest a gender-oriented system of inflectional classes, as all linguists, except Manova & Dressler (2001), have done so far. However, a system of inflection class assignment where gender is the main criterion is unnecessarily complicated and needs 16 instead of here-postulated 11 inflectional classes.

In fact, only unproductive classes can be seen as organized on semantic criteria (2b, 2c, 4b, 5b) and even in such cases semantics is a result of some (formal) morphological criterion/a, since semantic relations are due to derivation(s) with the same suffix(es). Moreover, semantically organized classes do not include all nouns of a given semantic group, because there also exist nouns derived with other suffixes expressing the same semantics and/or non-derived nouns which can be assigned to the respective semantic pattern.

On the other hand, semantics can be useful for establishing exceptions of regular classes. The most frequent exceptions in Bulgarian declension are pragmatically motivated and denote animal and human body parts with high token frequency (1.1; 3.1; 4a.1; 4a.4). Semantic organization can also be postulated for the exceptions in 1.2 (nouns connected with the man's status in the society), pragmatically-important animals (3.2), church titles (3.3) or for the three nouns in 4a.5 which all mean something round.

It seems that in cases of unproductive classes and isolated patterns (describable by minor rules and classified as static morphology (lists of forms) in the literature, cf. Dressler 2003) semantic clues come to remind us that we have to do with unproductive morphology.

References

- Andrejčin 1978: Ljubomir Andrejčin, *Osnovna bālgarska gramatika*, Sofija
- Andrejčin – Asenova – Georgieva 1983: Ljubomir Andrejčin – Petja Asenova – Elena Georgieva et alii, *Gramatika na sāvremennija bālgarski knižoven ezik. Tom II. Morfologija*, Sofija
- Aronoff 1994: Mark Aronoff, *Morphology by Itself: Stems and Inflectional Classes* (= Linguistic Inquiry Monograph 22), Cambridge MA
- Corbett 1991: Greville G. Corbett, *Gender*, Cambridge
- Doleschal 1993: Ursula Doleschal, *Genus als grammatische und textlinguistische Kategorie: Eine kognitiv-funktionalistische Untersuchung des Russischen*, Unpublished doctoral dissertation, University of Vienna
- Dressler 1989: Wolfgang U. Dressler, *Prototypical differences between inflection and derivation*, *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung* 42, 3-10
- Dressler 1997: Wolfgang U. Dressler, *On Productivity and Potentiality in Inflectional Morphology*, CLASNET Working Papers 7, 2-22
- Dressler 2003: Wolfgang U. Dressler, *Latin static morphology and paradigm families*, in: Brigitte L. M. Bauer, & Georges-Jean Pinault, *A Festschrift für Werner Winter on the Occasion of his 80th Birthday*, Berlin, 87-99
- Dressler – Mayerthaler – Panagl – Wurzel 1987: Wolfgang U. Dressler – Willi Mayerthaler – Oswald Panagl – Wolfgang U. Wurzel, *Leitmotifs in Natural Morphology*, Amsterdam
- Dressler – Gagarina 1999: Wolfgang U. Dressler – Natalija V. Gagarina, *Basic questions in establishing the verb classes of contemporary Russian*, in: L. Fleishman et al. (eds.), *Essays in Poetics, Literary History and Linguistics. Presented to V. V. Ivanov on the Occasion of His Seventieth Birthday*, Moscow, 754-760
- Feuillet 1996: Jack Feuillet, *Grammaire synchronique du bulgare*, Paris
- Georgiev 1985: Vladimir Georgiev, *Preosmisleni padežni formi*, in: Vladimir Georgiev, *Problemi na bālgarskija ezik*, Sofija, 164-168
- Hauge 1999: Kjetil Rā. Hauge, *A Short Grammar of Contemporary Bulgarian*, Bloomington, Ind.
- Isačenko 1982: A. V. Isačenko, *Die russische Sprache der Gegenwart. Formenlehre*, 4 Auflage, München
- Manova 2003: Stela Manova, *Conversion and Subtraction in Bulgarian, Russian and Serbo-Croatian*, PhD Thesis, University of Vienna
- Manova – Dressler 2001: Stela Manova – Wolfgang U. Dressler, *Gender and declensional class in Bulgarian*, *Wiener Linguistische Gazette* 67-69, 45-81
- Maslov 1981: Jurij S. Maslov, *Grammatika bolgarskogo jazyka*, Moskva
- Radeva 1991: Vasilka Radeva, *Slovoobrazovaneto v bālgarskija knižoven ezik*, Sofija
- Radeva – Walter – Penčev – Comati 2003: Vasilka Radeva – Hilmar Walter – Jordan Penčev – Sigrun Comati, *Bulgarische Grammatik: Morphologisch-syntaktische Grundzüge*, Hamburg
- Scatton 1984: Earnest A. Scatton, *A Reference Grammar of Modern Bulgarian*, Columbus, Ohio
- Stojanov 1993: Stojan Stojanov, *Gramatika na bālgarskija knižoven ezik*, Sofija
- Wurzel 1984: Wolfgang U. Wurzel, *Flexionsmorphologie und Natürlichkeit: ein Beitrag zur morphologischen Theoriebildung* (= *Studia Grammatica*, 21), Berlin (English translation: *Inflectional Morphology and Naturalness*, Dordrecht 1989)

	in -C*						3. in -(j)a	4. in -o		5. in -e	
	1. mono-syllables		2. polysyllables					4a.	4b.*	5a.*	5b.
SG	1. -C	2a. P	2b. -in	2c. -an	2d. simplex words & -ost/-est FEM	3. -(j)a	4a. -o	4b.* -o	5a.* -e + LWs in i, -(j)u	5b. -ne	5c. -ce, -ište -(n)ie
Gender	MASC (& FEM: see Exceptions)	MASC	MASC	MASC	MASC pejoratives	FEM & MASC	NEUT & MASC	MASC humans: relatives, pejoratives, hypocoristics	NEUT, MASC, FEM	NEUT deverbals nouns (more than two syllables)	NEUT
ART SG	+-ät / after -j -jat	+-ät / after -j, -tel, -ar +-jat	+-ät	+-ät	+tä	+ta	+to	+to	+to	+to	+to
Morphological changes	1) ja : c alternation 2) Metathesis				ja : e alternation						
PL	+ove / after -j +eve	+i	-i (Subtraction of the suffix-final -n)	+ovci	+i	-i	-a	+vci	+ta	-ija	-(j)a (*ja → -ija)
Morphological changes	1) ja : c alternation 2) Metathesis	1) Palatalization: B, k, x → z, c, s 2) Elision				ja : c alternation	ja : e alternation				
ART PL	+te	+te	+te	+te	+te	+te	+ta	+te	+ta	+ta	+ta

P = productive inflectional class

* = zero-inflected input (SG)