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**Marker productivity, structural preferences and frequency:  
Observations about morphological change in Slavonic languages\***

*0. Introductory considerations*

Frequency of linguistic units is the one and only indicator of linguistic change. Only by a comparison of frequency data at a point in time  $n$  and another point in time  $n + x$  can it be shown that a unit A is productive and a “competing” unit B is non-productive or even receding, if not lost. The question that arises and the general question to be discussed in this study is whether frequency is more than a mere indicator of change. Does it influence linguistic change?

Some relations between the frequency of linguistic units and their form are well known (compare the inversely proportional relation between the length of linguistic units and their token frequency as one of the implications of Zipf’s law). Furthermore, there seem to be some relations between the frequency of linguistic units on the one hand and their cognitive (in a broad sense) relevance and their form on the other hand that suggest themselves almost intuitively – at least to a spectator within “western linguistics” – becoming thus widely addressed topics in the literature on linguistic change: Cognitively low complexity should correlate with high frequency and an (in one or another respect) economic way of formal expression etc. Nonetheless some questions connected with these relations have not been discussed to a sufficient extent:

(A) Often enough there is a lack of differentiation between aspects of type frequency and aspects of token frequency. At first sight there seems to be a natural convergence between type and token frequency: a fact of linguistic form, such as an inflectional desinence should be (apparently) more frequently used (token frequency) when we find it with a large number of corresponding stems (type frequency). But on

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the other hand, it is clear that token frequency of lexical units varies and this often correlates with different “semiotic behaviour” of high and low frequency units: Lexical units (stems) with low token frequency (which of course make up the vast majority of the lexicon) tend to be grammatically encoded following very widespread encoding patterns and taking desinences with a high type frequency, e. g. desinences to be found with the vast majority of other (at least semantically and / or phonologically similarly structured) stems. In other words, low token frequency of lexical items usually correlates with high type frequency of their inflectional markers. Desinences with a low type frequency on the other side tend to be found with stems with a high token frequency (cf. 2.). The extreme case of the correlation of formal rareness and high token frequency is the low type frequency of suppletion patterns in contrast to the high token frequency of suppletion forms.

(B) Often enough no attention is paid to the role of frequency in expanding phenomena on the one side and phenomena that undergo distributional restriction on the other. It should be taken into consideration that token frequency of lexical items (or stems) might play a different role in an early phase of a given instance of change than in a late phase of that change. For example, it has often been observed that high frequency stems are conservative in the sense that they (or rather a certain subset of them) are the last stems to take part in a given development of simplification of inflectional patterns (mainly generalizations of certain desinences) or that they even completely resist that development, thus becoming niches of archaic formal diversity. But if it holds generally that high frequency items should have a formally diversified representation for semiotic reasons, could they (or, again, a certain subgroup) not even trigger an innovation, so to say, in order to become formally distinct from comparable stems, maybe in the same inflectional classes, that have a lower frequency?

(C) There is the question of the dependency of (token) frequency of linguistic units on facts and developments in the extralinguistic world. Above all lexical, but also derivational and to a smaller degree even inflectional items may become frequent or infrequent as a result of various phenomena of extralinguistic change<sup>1</sup>. If in addition the in-

<sup>1</sup> Take for example the rise in (token) frequency of the German suffix *-in* as in

versely proportional relation between element length and frequency holds generally, then, as claimed by Mańczak (1993), a change in frequency should result in the long run in a change in length, such as by an irregular change in sound structure that affects length or by attracting a shorter desinence. An expansion of this new form or formal pattern by analogy to less frequent but in some respect structurally similar units may follow. Obviously frequency then can have some impact on the direction of change. But of course this does not yet shed much light on our central question whether and (if yes) why at a certain stage of development one inflectional marker (or pattern) becomes productive while a competing one loses productivity.

(D) Should “frequency linguistics” be treated as a subarea of the linguistics of speech acts (cf. Werner 1989: 42)? Whether one or the other of two to some extent competing markers or patterns is selected in a given, concrete act of communication by an individual somewhere in history may be dependent on several extralinguistic factors and is thus not accessible to historical linguistic analysis (cf. Menzel 1998: 134f.). Nonetheless there are two groups of maxims of communication that Keller (1994: 95ff.) has called static or dynamic maxims respectively, hence maxims diametrically opposed to each other. The first of these two groups is best represented by its typical submaxim: “Talk like the others talk! Talk in such a way that you do not attract attention!” (p. 100) – the second group accordingly by: “Talk in such a way that you are noticed!” (p. 101) and the corresponding general maxim “Do not talk like the others talk”. It seems to be obvious that the last maxims, the dynamic ones are “innovative” and the first ones, the static maxims are<sup>2</sup> “conservative”.

Do these “maxims” really provide explanations for linguistic change or are they trivial classificatory observations of speech behaviour? Things are by no means clear when we transfer these “syn-

*Student* (male student) - *Studentin* (female student) due to the success of the feminist movement. In politically very correct speech the suffix *-in* may even serve as a means to derive feminine nouns from neuter ones (which would affect even type frequency): *An die Mitgliederinnen und Mitglieder ...* (so recently in an official paper of a German university that we prefer not to name) from *das Mitglied* ‘member’.

<sup>2</sup> This general formulation is not a direct quotation from Keller (1994), but it can easily be extrapolated from the corresponding specific ones on p. 101.

chronic" communication maxims, which are principally connected to varying sociolinguistic contexts, to the diachronic axis of historical development. Here they may even be misleading: Suppose that a speaker tries to demonstrate that he does not talk like most of his "progressive" contemporaries do. Instead he prefers to emphasize his belonging to some "old" (but rather small) establishment or elite following the main "dynamic maxim": "Do not talk as most of the others do". It is quite obvious that he will then rather tend to stick to older, conservative patterns of structure and / or norm or at least avoid new patterns. So Keller's dynamic communication maxim may also go together with conservatism on the axis of time.

Furthermore one may argue that it is adults that tend in some sociolinguistic contexts to dynamic maxims of speech performance, whereas children on the basis of their inclinations to imitate adults rather tend to follow the static ones (of course without complete success). This of course does not fit at first sight to the fact that a given language changes "from generation to generation" and it fits even less to the cliché – held by many linguists – that children are the basic reason for this change from generation to generation. But anyhow, without intending to state that change generally starts in the speech of children, there are at least some instances where tendencies in the speech of children and long-term tendencies of historical development do coincide: In an early phase of Slavonic (see 2.1. for details) the vast majority of noun stems took a zero-desinence in the genitive plural of nouns. This zero-desinence has been replaced more and more by non-zero-desinences, to a different degree in different Slavonic languages, in some completely (e. g. Sorbian). In such languages where the zero-desinence has survived at least in some (but by no means small) inflectional classes of nouns, it tends to be systematically replaced by a non-normative non-zero-desinence in the speech of children. On the other hand, there are phenomena of change that obviously are not supported by tendencies in the speech of children, but clearly stem from the speech of adults, maybe even specific groups of adults. Section 2.4. offers a discussion of a marker that turned productive although it is obviously avoided in the speech of children but used frequently in some special groups of adults.

Further and even more important questions that arise against this background about the phenomenon of productivity – especially marker productivity – are: Firstly, are there structural or cognitive or

semiotic preferences for such instances of change, preferences that make a desinence A more productive than a desinence B? Secondly, in which way are preferences or maxims of communication linked with diachronic change in norm and system (cf. Coseriu 1958 / 1974: 46 ff.)? To what extent is the speech of children in this context different from the speech of adults? Which role is played by pragmatic or sociolinguistic facts? Thirdly, is token and / or type frequency more than a mere indicator of change in the sense that a given marker or inflectional class has to be considered productive when we find it more often at a time  $n + x$  compared with a time  $n$ ? Can frequency be a catalyst of change? Is high frequency, as often stated, generally a barrier for change and low frequency a facilitator? Can (high or low) frequency (of any given units) determine the direction of change? Fourthly, is there some kind of interaction between these three possible sources of change?

We do not expect to be able to give exhaustive answers to these questions. On the other hand, the following discussion, which is mainly based on material from Slavonic languages, may shed – as we hope – some light on them. Section 1 presents a more detailed account of the role of frequency in morphological (inflectional) change. Section 2 contains four case studies of the interaction of frequency and structural preferences in inflexion.

### 1. *Frequency and morphological productivity: some comments upon the state of the art*

A traditional point of view in the context of the question of "frequency and change" has been formulated by Mańczak (e. g. 1980: 37). He notes the following three implications of frequency:

- I. Entrenchment: What is heard and said more frequently is better kept in mind than that, which is said or heard more seldom.
- II. Shortness: Linguistic elements that are used rather frequently tend to be shorter than those that are used rather infrequently.
- III. Differentiation: Linguistic elements that are used frequently tend to be formally more differentiated than those that are used infrequently.

Shortness (the above-mentioned implication of Zipf's law) is of lit-

the interest for our discussion, unlike Entrenchment and Differentiation. Differentiation, by the way, has a somewhat different status than Entrenchment. Differentiation may be at least partially a consequence of Entrenchment: For example, if several paradigms or subparadigms are simplified to one, but some high frequency stems preserve the old desinences, the result of course is that these highly frequent lexemes show a more differentiated formal pattern than low frequency ones. The question, whether a stronger degree of formal differentiation of units with high frequency can be achieved other than in this "conservative way" will be a central point in the following discussion. First we will concentrate on Entrenchment. Entrenchment is mainly cited as a reason for formal conservatism: Linguistic units with a high token frequency tend to remain unchanged, whereas those that are used less frequently more readily undergo change. Mańczak (1980: 40ff.) gives as an example the more frequent forms of present tense and of singular number compared with the less frequent ones of other tenses and other numbers, i. e. here the token frequency of categories or subcategories (grammemes) are principally considered on the basis of occurrences of these forms. And indeed if we compare for example inflectional patterns of verbs in modern Slavonic languages like Russian or Polish with their historical predecessors, one can state that the paradigms of the present tense (apart from minor modifications, several of which are caused by regular sound change) have been more or less preserved as they were several centuries ago, whereas other tenses have been changed radically. Of course this is not only a fact of change in inflectional form, but a fact of a general restructuring of the category of tense as such: Old past tenses like imperfect and aorist have been lost<sup>3</sup>, while a new preterite tense has developed out of the old perfect, which turned from former analytic to synthetic structure by the loss of the auxiliary (Russian) or the incorporation of the auxiliary into the participle form (Polish)<sup>4</sup>, while preserving its analytic character in other

<sup>3</sup> They are still alive in Bulgarian and Macedonian and, to a far lesser extent, in Serbian and Croatian.

<sup>4</sup> At the moment this development in Polish is in a final phase. The relics of the auxiliary of the 1st and 2nd person plural have preserved some degree of positional independence, e. g. (somewhat archaic) *Kiedyśmy byli w Krakowie, ...* or (already more common) *Kiedy byliśmy w Krakowie, ...* 'as we were in Cra-

Slavonic languages like Serbian or Croatian. Furthermore the category of verbal aspect has been established.

Change within the inflectional paradigms of nouns has less affected the overall organization. But, of course, the dual number – the most rarely used one – has widely disappeared<sup>5</sup> and a category of animacy or "personality" has appeared (for the latter phenomenon see 2.3.). Leaving aside the dual number, it is beyond doubt that the plural forms have undergone many more changes, such as the complete loss of inflectional class distinctions in the "semantic" or "peripheral cases" dative, instrumental and locative (and the preservation of these formal case distinctions) in languages like Russian and Polish or – the other way round – the loss of formal differentiation of exactly these cases (and the preservation of at least two inflectional plural subparadigms within these cases) in Literary Serbian or Croatian. Within these general tendencies of change some stems with high frequency (rather of a subjective than of an objective character) have furthermore preserved their old forms and desinences like the Russian forms of instrumental plural *ljud'mi* 'people' and *det'mi* 'children', instead of the otherwise generalized new forms with the desinence *-ami* (cf. 2.2. for details). Another example is the dative singular masculine on *-u* with some Polish lexemes like *ojciec* 'father', *brat* 'brother' and some others, while elsewhere we find *-owi*. Sometimes these "conservative elements" display other affinities, apart from frequency: as to phonological structure or semantic content. A very clear instance of a semantic bond between such lexemes is the isolated survival of the old desinence *-'ech* of the locative plural in Polish with country names like *w Niemczech, we Włoszech, na Węgrzech* 'in Germany, Italy, Hungary', all pluralia tantum and all denoting rather important neighbour countries. With nouns like these it is of course the locative which is the most frequently used case and thus it is not just the frequency of the nouns themselves but equally the frequency of the locative context that produce the conserving effect.

cow', with *-śmy* attached either to the conjunction *kiedy* or to the former participle *byli*. With the forms of the 1st and 2nd person singular today only the latter possibility is given. (Forms of 3rd person singular and plural have lost the auxiliary.)

<sup>5</sup> It is still found in Sorbian and Slovene. As to the question of the loss of dual paradigms in Slavonic languages see Menzel (1999a).

So there seems to be a lot of evidence that high frequency (here of forms with certain categorial values) works like a shield against change and consequently against highly productive markers and / or patterns of productive inflectional classes. This "effect" of high frequency units may be called "conservative-intransitive". By "conservative" is naturally meant that some old state is being preserved. By "intransitive", that only high frequency items (categories or lexical stems) themselves are considered, not their possible impact on low frequency ones: nothing passes (*transit*) from a source to a target.

But Entrenchment has innovative or, as we prefer to say, "transitive" aspects as well: For example Mańczak (1980: 47) cites the case of the forms of the present tense of the Polish verb *być* 'to be'. Compare this paradigm with the Old Slavonic one:

Old Church Slavonic	1 <sup>st</sup> sg.	<i>jesmь</i>	<i>jestem</i>	- Polish
	2 <sup>nd</sup>	<i>jesi</i>	<i>jestes</i>	
	3 <sup>rd</sup>	<i>jestь</i>	<i>jest</i>	
	1 <sup>st</sup> pl.	<i>jesmь</i>	<i>jestesmy</i>	
	2 <sup>nd</sup>	<i>jeste</i>	<i>jestescie</i>	
	3 <sup>rd</sup>	<i>sotь</i>	<i>sa</i>	

Details aside, the Polish paradigm obviously has been regularized, taking the form of the 3rd person singular (which is considered the most frequent one) as the new stem for all forms except the suppletive 3rd person plural<sup>6</sup>. So it looks as if high frequency elements, i. e. their formal characteristics, may become active, i. e. productive, of course without being changed themselves. Such an "effect" of high frequency may be called "conservative-exporting": It not only preserves a high frequency element's form, but it expands it to less frequent elements. For the latter, of course, this is an innovation.

The term "exporting" is used here because something is exported from a frequent source to less frequent targets. In the example just discussed, it is a stem or, to be precise, something that has been rein-

<sup>6</sup> Of course, the phonological distance of the form of the 3<sup>rd</sup> person plural to the form expanded is much bigger than the distance between the latter and the forms changed; cf. Bybee (1985: 88f., 118f.) for the relevance of such circumstances and for the question of the psychological relations between suppletive forms.

terpreted as a stem<sup>7</sup> most obviously under the "assistance" of the paradigm of the past tense (itself a former analytic perfect): *byl-em, byl-es, byl-Ø* 'I was, you were (both male-masculine), he was'. In other cases it can be an ending that passes from highly frequent lexical units to less frequent ones. One clear instance of such a development in Slavonic inflectional morphology is the expansion of the desinence *-m* of the 1<sup>st</sup> person singular of only five highly frequent verbs (forming the so-called athematic class of conjugation); namely *dati, věděti, jasti, iměti, byti* 'to give, to know, to eat, to have, to be' (all noted by their Old Church Slavonic infinitives) to other verbs of other inflectional classes (the "thematic" ones) with a lower frequency in some Slavonic languages: cf. Old Church Slavonic *jambь* vs. *čitajō* and the analogical Modern Russian *em* vs. *čitaju*, but Polish *jem* and *czytam*, all: 'I eat / am eating - I read / am reading'. Of course, this is not to argue that high frequency of the source paradigms is the primary reason for the expansion of the desinence *-m* (cf. also the discussion in Janda 1996: 79ff.).

The same behaviour of units with high token frequency, conservative-exporting and conservative-intransitive, can be deduced from Mayerthaler's (1981: 4f.) principles of Natural Morphology, especially from his "heuristic sources of markedness values". Taking as given that unmarked units are normally the frequent ones ("source 9"), then, firstly, "source 10" equals more or less the "conservative-exporting effect" of high frequency: "In analogical change normally the unmarked [= the more frequent] form defeats the marked [= the less frequent one]", and "source 11" equals more or less "conservative-intransitive effect" of high frequency: "Abolition of marked constellations occurs preferably in marked [= less frequent] categories", in other words: "formal irregularities [being themselves marked encoding constellations] tend to occur in unmarked categories".

The question arises which of the two, frequency or markedness, being inversely related to each other, is the decisive one. For Mańczak, who does not bother about any markedness constellations, it is (token) frequency<sup>8</sup>, for Mayerthaler it is markedness, taking frequency (without differentiation between type and token frequency)

<sup>7</sup> The new stem *jest-* in the above example is a contraction of the old stem *jes-* and the former desinence *-t(ь)*.

<sup>8</sup> The relation of type and token frequency is not discussed by Mańczak.

as an inversely proportional epiphenomenon of markedness. Be that as it may, both would agree that high frequency correlates with stable and expanding encoding.

Similar is the position of Wurzel (1984; 1994), who confines himself to statements about the role of type frequency. On a general scale his main achievement is the addition of language specific aspects of "markedness" or rather of language specific "normality" to the "universal" framework of Natural Morphology, developed by Mayerthaler (1981). Language specific normality of inflectional patterns, markers, etc. is of course nothing else than predominance in the system, i. e. high type frequency in the sense of the number of stems or stem classes that show these patterns or markers. Following Wurzel (1984: 125 ff.), in case of conflict, "normal" structural patterns or markers (i. e. such with high type frequency) tend to expand and the corresponding "non-normal" ones tend to retreat, which (apart from neglecting token frequency) is more or less the same standpoint as Mańczak's and Mayerthaler's on both the conservative-intransitive and conservative-exporting effect of high frequency. Productive markers should be accordingly those that are widespread among lexical stems, i. e. that have a high type frequency: "the rich ones become even richer".

There are several problems connected with this point of view, which concentrates mainly on the "conservative" - intransitive and exporting - effects of high frequency:

Firstly, markedness values (universal and language specific) can be calculated on different layers, which according to the theory of Natural Morphology are ordered hierarchically (cf. Wurzel 1984: 211 ff.). In general it is assumed that language specific preference layers overrule the universal ones. As is well known, there may be conflicts between these layers. A certain phenomenon may be marked on one layer and unmarked on the other (cf. Wurzel 1998: 61 ff.). The above mentioned zero-desinence in the genitive plural of nouns in Slavonic languages is a semiotically marked means of encoding on the universal scale, since it is a counter-iconic marker in the overall context of non-zero-desinences in the genitive singular and the nominative plural and even in a large number of instances of the nominative singular (cf. 2.1.). But at a given point in time, the zero-desinence in genitive plural was the most normal, absolutely predominant desinence (i. e. in terms of type frequency) in the corre-

sponding inflectional systems. Why did the non-zero-desinences become productive in all Slavonic languages? Did universal markedness, contrary to the general assumption, overrule language specific normality, and if so, why? Or is this due to the fact that among those few stems that took a non-zero-desinence, before the latter became productive, many had a high token frequency?

Secondly, the above-mentioned, widely accepted "conservative-intransitive" and "conservative-exporting" effects of high frequency or unmarkedness (naturalness) has explanatory force only for (relatively) frequent inflectional phenomena that were already frequent before. The more interesting question is whether infrequent structural phenomena in (inflectional) morphology - infrequent in terms of type frequency - can become frequent, i. e. productive due to an inner morphological motivation. This question has not been mentioned explicitly by Mayerthaler and Mańczak, but it is answered negatively by Wurzel (1984: 109 et passim), who states that system-defining structural features in inflectional morphology can be modified only by phenomena of change with a motivation external to morphology, i. e. by phenomena of phonetic-phonological or syntactic change.

Thirdly, in connection with Mańczak's statement III and Mayerthaler's "source 11", i. e. that (semantically or functionally) unmarked and frequent contexts or categories show more formal differentiation or even irregularities than marked ones, it may be asked whether this is simply due to the fact that marked contexts are more prone to undergo formal regularization or even simplification. Or can frequent and unmarked contexts or categories gain a higher degree of differentiation (or irregularity) "out of themselves"?

There is some evidence that the latter may be the case: Russian has a so-called free and mobile word accent (in contrast e. g. to Czech and Polish). It may fall on any syllable of the wordforms and may vary within the forms of single paradigms and subparadigms (e. g. singular and plural). The shift of the stress correlates with considerable modifications of the phonetic quality of the vowels due to the reduction phenomena of *akanje* and *ikanje*<sup>10</sup>. This means that para-

<sup>9</sup> Cf. as well Greenberg (1966: 27).

<sup>10</sup> The term "*akanje*" refers to the neutralization of /a/ and /o/ in unstressed syllables. In initial position or after hard (not palatal or palatalized) consonants, directly before the stressed syllable, we find an [a]-like phonetic realization [ʌ]

digms with variation of the stressed syllable are more differentiated on the expression plane than those with stable stress on one of the syllables: cf. the nominative singular *stol* 'table', [stol] and its genitive singular *stolá*, [stała] as an example of an akanje-alternation within the stem versus the corresponding pair *mol* 'pier', [mol] vs. *móla*, [moła], which lacks such an alternation due to stable stress on the stem. When it comes to frequency there are two interesting facts (cf. Mustajoki 1981): First, in terms of type frequency stress variation is a rather rare phenomenon: e. g. 92% of all noun paradigms show stable stress. Second, in terms of token frequency stress is strongly correlated with high frequency lexemes. Even more important than these "synchronic facts" are the diachronic observations in Hentschel (1990: 70f.), who showed that nouns that switched from fixed stress to mobile stress in the last few centuries had a significantly higher token frequency than those that switched from mobile to fixed stress. This clearly indicates that units with a high frequency may even "actively" tend to a more diversified formal representation.

When it comes to the question of productivity of inflectional markers, this suggests that a certain less frequent or infrequent desinence may become productive, starting with frequent categories and / or frequent lexical stems. But here frequent categories and / or frequent lexical stems are not sources of an innovation, as it was the case in the examples of the conservative-exporting effect of high frequency discussed above. They are targets that are among the first to undergo a change: "early targets". In other words, frequent units in certain circumstances would have an inclination to be changed in some formal respect before less frequent ones. Such an inclination of highly frequent units we would like to call the "innovative-importing" effect of high token frequency. The term "importing" is used because frequent units acquire some formal trait from outside, from less frequent units or units that are at least not frequent. The "innovative-importing" effect would be at first sight contradictory to the "conservative-intransitive" effect and thus to Mańczak's intuitively convincing observation above cited on Entrenchement: "What is heard and

instead of [a] or [o]. "Ikanje" means the neutralization of /a/, /o/, /e/ and /i/ in unstressed syllables after soft (palatal) consonants and their corresponding [i]-like phonetic realization [ɨ].

said more frequently is better kept in mind than that which is said or heard more seldom." One might then think of an intuitively equally "convincing", but opposite formula: "What is heard and said (too) often, tends to be changed."

But of course there must be more than such rather naive beliefs: If it holds that "more or less natural boils down to more or less easy to the human brain [...]" and that "In a way the former is simply a metaphor of the latter [...]" (Mayerthaler 1987: 27), then it does not seem to be far-fetched that for frequent categories or lexical items it might be cognitively or semiotically easier if they develop a formally differentiated (maybe even irregular) representation: It has often been stated that it might be more economical or easier for highly frequent lexical units to "store" all their forms separately than to derive them from a more abstract representation by some dynamic principle, by general rules. This is the question of economy in mnemotechnical handling. And further, as to economy in perception, a form *q* of a given paradigm may, on the basis of such separate, holistic storage, be identified more quickly if either the difference of this form *q* to other forms *r*, *s*, ... is not only based on a difference in the desinences but on other features like stress and segmental quality, or if forms of high frequency units have some other special characteristics (cf. Hentschel 1990).

So far the psychology of cognition has not delivered much insight that can be directly taken advantage of in linguistic research on morphological change<sup>11</sup>. Does a desinence that turns productive become "easier" for the human mind? And if so, in which respect? So the question why certain markers become productive must for the moment be tackled mainly on the grounds of structural preferences or structural markedness models on the one hand and aspects of frequency on the other. Additionally, where possible, different maxims of speech performance and different sociolinguistic settings should be taken into consideration as well<sup>12</sup>.

<sup>11</sup> Insofar Fenk-Oczlon's (1991) attempt to explain structural unmarkedness and markedness as a consequence of high or low frequency, i. e. to present the former as an epiphenomenon of the latter, does not solve the problem of hen and egg and nothing is gained in this respect when we compare this attempt with Mayerthaler's, Wurzel's or Mańczak's conception.

<sup>12</sup> Recently Baayen (1992; 1993; 1997) has tried to develop a formula based on



The following pages contain a discussion of several instances of change in the inflectional systems of Slavonic languages<sup>13</sup>, phenomena of change where a marker with an initially limited and sometimes even extremely low type frequency turned productive. Markers like the ones to be discussed could not have gained productivity on grounds of language-specific normality (predominance in the system) in terms of the number of stems they initially occurred with. The question to be asked accordingly explores which other reasons - cognitive, semiotic or language specific structural reasons - can be observed and what role was played by token frequency, i. e. token frequency of the few lexical stems that initially took the markers in question and of the stems that finally took them over by some sort of analogical inflectional change. The first two instances (2.1. and 2.2.) demonstrate a generalization of a desinence from one inflectional class (or two of them) to others for a given morphological case. The third example (2.3.) consists in an expansion of a desinence from one case to another in one (or more) given inflectional class(es). Finally (2.4.) there is a discussion of how a new marker was established for a specific combination of case, number, and gender, which was obviously "imported" at this position in the system from three sources: from combinations of, firstly, the same case with the same number of a different gender, secondly, the same case and different number of the same gender, thirdly, the same case and a different number and a different gender.

frequency parameters that is supposed to predict productivity or unproductivity of markers. For a critical discussion see van Marle (1992).

<sup>13</sup> In our discussion of inflectional morphology of nouns, Slavonic languages like Bulgarian and Macedonian are of course not considered, because of their loss of morphological case distinctions. So when we talk on the following pages about "all Slavonic languages" our considerations concentrate on all Slavonic languages with morphological case distinctions. Furthermore the discussion will be largely limited to the "morphological facts" in the literary (standard) variants of these languages. Things in dialects are sometimes very different.

## 2. Four "case" studies

### 2.1. Genitive plural of nouns, especially masculines

As has already been mentioned in the preceding section, due to phonological change the genitive plural of most inflectional classes of nouns (amongst them the most extensive ones by far) and the vast majority of noun lexemes in Slavonic languages some eight or nine centuries ago showed a desinence consisting of a reduced back (-ъ) or front vowel (-ь), which was subsequently lost in some positions, amongst them the final position (the so-called loss of the jer)<sup>14</sup>. So these endings turned into a zero-desinence by regular sound change. Cf. the following partial paradigms from Old Church Slavonic (OCS), Old Russian (ORuss) after the loss of the jer-vowel-sounds, and Contemporary Standard Russian (CSR) for declensional classes with special relevance for our discussion:

Inflectional Class	Case	OCS	ORuss	CSR
<i>o</i> -declension	nom. sg.	<i>rab-ъ</i>	<i>rabъ</i>	<i>rab-∅</i>
(masculine)	gen. sg.	<i>rab-a</i>	<i>rab-a</i>	<i>rab-a</i>
'slave'	nom. pl.	<i>rab-i</i>	<i>rab-i</i>	<i>rab-y</i>
	gen. pl.	<i>rab-ъ</i>	<i>rabъ</i>	<i>rab-ov</i>
<i>u</i> -declension	nom. sg.	<i>vol-ъ</i>	<i>volъ</i>	<i>vol-∅</i>
'ox'	gen. sg.	<i>vol-u</i>	<i>vol-u/-a</i>	<i>vol-a</i>
	nom. pl.	<i>vol-ove</i>	<i>vol-ove/-i/-y</i>	<i>vol-y</i>
	gen. pl.	<i>vol-ovъ</i>	<i>vol-ovъ [-of]</i>	<i>vol-ov</i>

<sup>14</sup> Apart from the fact that, firstly, these vowels are generally considered to be quantitatively reduced and, secondly, that one of them has a front and the other a back articulation, the phonetic quality of these vowels is unimportant for our discussion. But it should be noted that the jer letters *ъ* / *ь* have been used even after the loss of the jer vowel-sounds, not only in Old Russian but, though in a different manner, in Contemporary Russian as well. Here they do not possess any sound value of their own but rather signal certain qualities of the preceding consonants, which we can leave aside.

Inflectional Class	Case	OCS	ORuss	CSR
<i>o</i> -declension	nom. sg.	<i>mest-o</i>	<i>mest-o</i>	<i>mest-o</i>
(neuter)	gen. sg.	<i>mest-a</i>	<i>mest-a</i>	<i>mest-a</i>
'place'	nom. pl.	<i>mest-a</i>	<i>mest-a</i>	<i>mest-a</i>
	gen. pl.	<i>mest-ъ</i>	<i>mestъ</i>	<i>mest-∅</i>
<i>a</i> -declension	nom. sg.	<i>ryb-a</i>	<i>ryb-a</i>	<i>ryb-a</i>
'fish'	gen. sg.	<i>ryb-y</i>	<i>ryb-y</i>	<i>ryb-y</i>
	nom. pl.	<i>ryb-y</i>	<i>ryb-y</i>	<i>ryb-y</i>
	gen. pl.	<i>ryb-ъ</i>	<i>rybъ</i>	<i>ryb-∅</i>
<i>i</i> -declension	nom. sg.	<i>kost-ъ</i>	<i>kostъ</i>	<i>kost'-∅</i>
(feminine)	gen. sg.	<i>kost-i</i>	<i>kost-i</i>	<i>kost-i</i>
'bone'	nom. pl.	<i>kost-i</i>	<i>kost-i</i>	<i>kost-i</i>
	gen. pl.	<i>kost-ьjъ</i>	<i>kost-ьjъ</i> [-ej]	<i>kost-ej</i>

When we compare genitive plural forms with nominative singular forms, i. e. with the base form in terms of which the lexeme is stored (cf. Wurzel 1984: 53 ff.), this means a non-iconic, homonymic constellation for the vast majority of masculine nouns (cf. Old Russian *rabъ*, 'slave' for both, genitive plural and nominative singular). In comparison to the nominative singular of feminine and neuter nouns the zero-desinence in genitive plural yields a counter-iconic (but of course formally differentiated, i. e. heteronymic) constellation, because here the nominative singular has non-zero-markers (cf. Russian *ryba* - *ryb* 'fish', *mesto* - *mest* 'place' for nominative singular and genitive plural respectively). (Feminine nouns with a zero-desinence in nominative singular, those of the so-called *i*-declension, regularly took a non-zero-desinence in genitive plural, which later turned productive in many Slavonic languages, expanding to other declensional classes - cf. Russian *kost'* - *kosteј* 'bone'.) The relation of the genitive plural with a zero-desinence to the forms of genitive singular and nominative plural, which both took non-zero-desinences everywhere, was generally counter-iconic (and thus heteronymic).

The zero-desinence in the genitive plural has lost much ground in

every Slavonic language in the course of development. It has been either generally replaced by a non-zero-desinence, as in Serbian and Croatian or the two Sorbian languages, or it has been contextually restricted, as, for instance, in Russian and Polish<sup>15</sup>. First of all, the non-iconic, i. e. homonymic relation of genitive plural towards nominative singular has largely vanished. Thus masculine nouns were the first to show this change historically and synchronically show the most far reaching results in modern Slavonic languages.

Laskowski (1985: 72) interprets this fact in communicative terms hinting at a therapeutic process connected with a Communicative Efficiency Principle. This equals an implicit allusion to the need for formal differentiation between an attributive noun (here in the genitive plural) and its lexical head (here with subject function, taking the nominative singular). Of course, there is evidence that a simple differentiation of the nominal attribute and its lexical head on grounds of only position is not a preferred solution in the process of change of Indo-European languages (cf. Plank 1979: 622). But the problem with Laskowski's interpretation is why it should hold for the syncretism between nominative singular and genitive plural, which indeed has widely vanished, but not for the syncretism of nominative plural and genitive singular, which has always been common for many inflectional classes in Slavonic (and other Indo-European languages). The latter syncretism is not only stable in Slavonic inflectional systems of nouns but it even tends to expand (cf. Hentschel 1991: 40 ff.).

Jakobson (1957), concentrating on Russian, has previously expressed the opinion that the widespread loss of the zero-desinence in the genitive plural of masculine nouns has to do with a "historical tendency" to differentiate between genitive plural and nominative singular taking advantage of one zero-desinence, i. e. to allow just one zero-desinence in the paradigm. In case of conflict, this would be that of the nominative singular as the unmarked value. This comes - as we think - nearer to the decisive point, because it aims at a paradigmatic, morphology-based explication and not at a syntagmatic, syntactic one. But, as was already noticed by Kiparsky (1967: 54), it contradicts the expansion of non-zero-desinences in the genitive plural into the paradigms of feminine and neuter gender in Russian.

<sup>15</sup> For details cf. Breu (1988).

In these paradigms the form of the genitive plural has been the only one with a zero-desinence. Nevertheless, the tendency for this zero-desinence to disappear can be observed here too. As far as Russian is concerned, the latter development is admittedly still a limited phenomenon. But firstly this is different in other Slavonic languages (cf. the above-mentioned instances of generalizations of non-zero-desinences in all genders), and secondly there is some evidence that in Russian the expansion of the non-zero-desinence /-of/ from masculine gender, where it had already been common for several centuries, to feminine gender in the 17<sup>th</sup> and 18<sup>th</sup> centuries may have been stopped by the intervention of normative grammars (cf. Kiparsky 1967: 93). Interesting in this respect is furthermore the inclination of Russian children to expand /-of/ to feminine and neuter gender<sup>16</sup> and the fact that non-zero-desinences in feminine and neuter gender obviously had much better success in languages with a rather restricted importance of normative grammars like the two Sorbian languages and Byelorussian or Kashubian<sup>17</sup>.

In any case, masculine nouns in all Slavonic languages expanded non-zero desinences much earlier than feminine or neuter ones. This is due to the fact that within masculine paradigms there were two decisive factors favouring the abolition of the zero-desinence in genitive plural (and consequently the syncretism of nominative singular and genitive plural), whereas in neuter and feminine paradigms there was just one of them. The added factor in masculine nouns is of course connected with the syncretism of genitive plural and nominative singular. Change in the inflectional system of Russian shows a general tendency to harmonize (simplify and standardize) distinction-syncretism-patterns<sup>18</sup> in inflectional classes (cf. Hentschel 1991). Within the masculine (so-called) *o-* / *jo-* stems, without any doubt the most extensive inflectional class (cf. Fraser & Corbett 1995:

<sup>16</sup> Cf. Smoczyńska's report (1985: 630) on the avoidance of counter-iconic inflectional patterns in first language acquisition of Polish.

<sup>17</sup> It is unimportant here whether Kashubian has to be regarded a separate language or a dialect of Polish.

<sup>18</sup> We prefer this rather clumsy term instead of the more elegant "differentiation pattern" because the latter may get not only a neutral reading, including syncretisms, but a specific reading, excluding syncretisms, too. So in the following discussion the term "distinction-syncretism-pattern" is hyperonymic to "distinction pattern" and "syncretism pattern".

135f.), there were several such patterns that were absent in all other inflectional classes. One of them was the syncretism of nominative singular and genitive plural discussed above, others were the syncretism between accusative plural and instrumental plural in the *o-* stems and between the nominative plural and the instrumental plural in the *jo-* stems. These unusual patterns have largely disappeared, namely by a change of the desinence in the more marked and less frequent (in terms of token frequency) grammatical constellation: the genitive plural and the instrumental plural respectively. So the decisive point is a language-specific one, connected with "normality", i. e. with type frequency. What counts is obviously less the absolute number of stems – the number of *o-* / *jo-* stems on the one side and the number of the stems from all other inflectional classes on the other side. Although we do not possess any reliable general word counts for Slavonic languages in the first centuries of this millenium (in spite of the valuable accounts of token frequency in Meščerskij 1974 and Meščerskij & Gerd 1977), the overall impression for anyone acquainted with older states of these languages is that *o-* / *jo-* stems more or less equal in number stems from all other inflectional classes if not outnumber them. What seems to be decisive is the number of inflectional classes. In other words, if lexemes from several inflectional classes, taking at least partially different endings, show different forms in two (or more) given syntactic contexts (here contexts requiring nominative singular and genitive plural), then (if there are no further complications of some semantic sort) forms from only one remaining inflectional class with at that point equal forms in exactly these contexts should assimilate to the majority of classes "developing" different forms too. Or the other way round: If all but one class show in such contexts equal forms, then that should switch from different forms to equal ones too. This holds at least when among this majority of other inflectional classes there is at least one stable and substantial class, as was the case with the Slavonic *a-* stems (see below), containing in its vast majority nouns of feminine gender, and probably as well with the feminine nouns of the *i-* stems.

This means that the change in the masculine nouns from zero- to non-zero-desinence(s) has nothing to do with communicative or syntactic transparency but with learnability: If the lexemes of most classes show either a formal differentiation or syncretism of forms in two (or more) given syntactic contexts, then a remaining class should

assimilate to that pattern, too. Thus in spite of such a syntagmatic trigger, the motivation for this change can be called a paradigmatic one<sup>19</sup>.

Apart from harmonization of distinction-syncretism-patterns, there has been a second general tendency which for Russian has been described by authors like Andersen (1980: 39 ff.): Counter-iconic relations between singular and the corresponding plural forms have been widely lost<sup>20</sup>. Andersen underlines that there are without doubt specific motivations for the single instances of change, which took place at different points of time. But if we take the widespread loss of counter-iconic semiotic constellations seriously, it is hard to believe that a general development from counter-iconic to iconic and often maximally iconic constellations is due to chance. In other words, apart from other "motivations" or at least "prerequisites" for the single changes (see below), the avoidance of counter-iconic semiotic representations of distinctions on the "content plane" (in a broader sense) has to be considered a motivating factor itself. It is this factor that has obviously been playing a decisive role in the abolition of the zero-desinence in feminine and neuter gender<sup>21</sup> and which was a co-factor for the earlier change in the masculine nouns. This indicates

<sup>19</sup> It may furthermore be the case, as presupposed by Breu (1988: 253), that it is on merely paradigmatic grounds "especially inconvenient" when there is a syncretism between one oblique case form (apart from the accusative) and the basic form. This would be an added explanation for the widespread loss of the syncretism between nominative singular and genitive plural in opposition to the stability of the syncretism of nominative plural and genitive singular, but would have to be demonstrated on a larger scale. So at the moment, our explanation in terms of standardization of differentiation patterns seems to be favourable, because the change from nominative singular = genitive plural to nominative singular ≠ genitive plural is one of several instances for this development.

<sup>20</sup> For a rare instance of the opposite development, the emergence of a specific counter-iconic constellation in the dative singular of Polish masculine nouns, see Menzel (2001).

<sup>21</sup> To a certain degree, but differently in various Slavonic languages, a further general tendency, the abolition of gender distinctions and inflectional classes in the plural (most widely achieved in dative, instrumental and locative plural of North Slavonic languages) may have influenced this change. But in consideration of the fact that many of the Slavonic languages still preserve the traditional two non-zero-desinences in the genitive plural (Russian /-of/ and /-ej/) this is obviously a tertiary consideration.

clearly that universal semiotic preferences (or factors of system-independent naturalness) may play a role in productivity as well, in contradiction to Wurzel's (1984: 211 et passim) view.

Besides these two basic factors – the last-mentioned universally semiotic one with relevance for all genders and the previously mentioned language specific one – there were other prerequisites for the change(s). The most important "subchange" in the abolition of zero-desinences in genitive plural was (apart from the rather specific development in Serbian and Croatian, cf. Skok 1931) the expansion of the ancient desinence *-ovъ*. We will concentrate on this phenomenon in Russian, where this old desinence has turned by sound change into /-of/. This desinence stems from another inflectional class with (from the "very beginning") an extremely limited number of masculine lexemes – the so-called *u*-stems, if we compare this class to the "competing", extensive one of the masculine *o*-stems. Differences in inflectional class tend to be connected to semantic or phonological (in stem and / or basic form) characteristics of lexemes, of course for mnemonic reasons or reasons of learnability (cf. Wurzel 1984: 117 ff.). The main difference between masculine *o*- and *u*-stems in prehistoric times was at an early point of time of course the theme vowel, which later was reinterpreted as a part of the desinences. Whereas differences in several desinences of non-basic inflectional forms of *o*- and *u*-stems lasted until historical times, the formal difference between the corresponding basic forms of the nominative singular of the two classes had vanished by regular sound change by the time of the first written documents. So finally there was no extra-morphological mnemonic link (no semantic and no phonological difference as to stem and basic form) for the distribution of the two sets of desinences. What took place was not a complete inflectional assimilation of the few *u*-stems to the far larger group of *o*-stems but rather a blend between the two formerly distinct inflectional classes. In other words, it was not only the desinences of the *o*-stems that have survived but often enough the endings of the *u*-stems have survived as well (with partially different results in various Slavonic languages), which was mostly accompanied by some sort of redistribution of corresponding desinences from the two classes on the basis of semantic or phonological criteria. In the 10<sup>th</sup> / 11<sup>th</sup> centuries there were not more than a few dozen lexemes, which allow a description as ancient *u*-stems. Amongst them there was a substantial number of

lexemes for which it does not seem far-fetched to expect a rather (at least subjective) high token frequency: e. g. *domъ* 'house', *synъ* 'son', *medъ* 'honey' and others. So obviously the desinences of the *u*-class, among them the genitive plural on *-ovъ*, survived mainly due to the high token frequency of several *u*-stems: the conservative-intransitive effect of high token frequency seems to be confirmed<sup>22</sup>.

The first of some further questions that arise is whether the comparatively large number of nouns with a high token frequency amongst the *u*-stems can have played a directly active role for the expansion of their desinences as well: the conservative-exporting effect of high frequency? This seems very doubtful: There were definitely many more nouns with a comparable high token frequency in the *o*-stems and of course, as has already been mentioned, the type frequency of *o*-stems was enormously higher so that "the power of the input" (cf. Mayerthaler 1981: 135) was clearly in favour of the desinences of the *o*-stems, amongst others the zero-desinence in the genitive plural of masculine nouns, and not of the successful *-ovъ* or */-of/*.

The second question is whether from confirmations of the "conservative-intransitive" aspect of high token frequency of lexemes it can follow that a specific change obligatorily starts with infrequent lexemes. If yes, this would mean for the phenomenon discussed, that highly frequent *o*-stems should generally retain their zero-desinence.

<sup>22</sup> It should be noticed that the zero-desinence has by no means vanished completely from the genitive plural of Russian masculines. Apart from some rather specific instances there is a considerable set of nouns that usually occur in plural number, e. g. *volosy* 'hair'. At least three groups with certain semantic characteristics can be singled out: firstly nouns for paired referents like *glaza* 'eyes', *sapogi* 'boots'; secondly, nouns that are widely restricted to occurrences in the context of numerals, like (genitive plural) *puđ* '40 pounds', *vatt* 'watt'; thirdly nouns for ethnic, national or social groups or soldiers and groups of soldiers which besides share some derivational properties (cf. e. g. Kiparsky 1967: 51f.). We will not comment on this ecological niche of the masculine zero-desinence in detail but confine ourselves to two hints: firstly, the genitive plural of these nouns is generally more frequent than the nominative singular; secondly, there is often no homonymy between nominative singular and genitive plural in spite of the shared zero-desinence. The latter is due to the fact that the singular stem of a subset of the third group mentioned above is derived from the plural stem by the suffix */-in-/:* cf. the nominative singular of *krest'janin* 'peasant' and *graždjanin* 'citizen' with the corresponding genitive plural *krest'jan*, *graždjan*.

There is evidence that this is not the case: In the first written documents there were already *o*-stems with undoubtedly high frequency that took a non-zero-desinence: e. g. *grechъ* 'sin', *gradъ*<sup>23</sup> 'town', *plodъ* 'fruit', *dvorъ* 'court, yard', *rublъ* 'ruble', *konъ* 'horse'. This confirms the "innovative-importing" effect of high token frequency of stems: In Hentschel (1992) we have presented data that suggest that high frequency lexemes can not only retain old inflectional patterns or desinences in the final phase of an instance of change. In addition, they can also be among the first ones to show an innovation if they share some structural, semantic or sociolinguistic characteristics with other lexemes whose inflectional behaviour they start to acquire: Here we can only hint at the fact that as all attested *u*-stems were monosyllabic, the first *o*-stems to acquire the non-zero-desinence were usually monosyllabic as well. So high token frequency (of a class of A lexemes) alone is by no means an obstacle to growing productivity of formerly rare markers (from a class of B lexemes).

## 2.2. Instrumental plural of nouns (and other peripheral cases in the plural)

It has already been mentioned in the introductory remarks that many Slavonic languages have considerably simplified the formal representations of the three peripheral cases of the dative, instrumental and locative (cf. Andersen 1969)<sup>24</sup>. Apart from Serbian and Croatian, where the differences between the three cases have vanished completely, leaving the distinction of two inflectional (partial) classes on *-ama* and *-ima*, the change always resulted in a loss of the formal differences between inflectional classes and thus in a loss of all overt differences between genders in these case-number-combinations of noun forms<sup>25</sup>.

<sup>23</sup> Some of these elements (like the first two) are clearly connected with Church Slavonic with its origins in the South Slavonic / Balkanic areas. Church Slavonic served as the "high", written variant in the quasi-diglossic situation in East Slavonic ("Russian") territory.

<sup>24</sup> An older state with remainders of the traditional formal differences between inflectional classes has been preserved in languages like Slovene, Czech and, to a lesser degree, Slovak.

<sup>25</sup> This development was preceded in these languages by the loss of the old tri-

	Case	o-decl. 'slave'	a-decl. 'fish'	i-decl. 'creature'	jo-decl. 'physi- cian'	u-decl. 'son'
OCS	dat. pl.	<i>rab-omъ</i>	<i>ryb-amъ</i>	<i>tvar-ьmъ</i>	<i>vrač-emъ</i>	<i>syn-ьmъ</i>
	instr. pl.	<i>rab-y</i> (= acc.pl.)	<i>ryb-ami</i>	<i>tvar-ьmi</i>	<i>vrač-i</i> (= nom.pl.)	<i>syn-ьmi</i>
	loc. pl.	<i>rab-ѣхъ</i>	<i>ryb-axъ</i>	<i>tvar-ьхъ</i>	<i>vrač-ixъ</i>	<i>syn-ьхъ</i>
	dat./ instr. du.	<i>rab-oma</i>	<i>ryb-ama</i>	<i>tvar-ьma</i>	<i>vrač-ema</i>	<i>syn-ьma</i>
CSR	Case	o-decl.	a-decl.	i-decl.	jo-decl.	u-decl.
	dat. pl.	<i>rab-am</i>	<i>ryb-am</i>	/tvar'- am/	<i>vrač-am</i>	<i>syn-am</i> <sup>26</sup>
	instr. pl.	<i>rab-ami</i>	<i>ryb-ami</i>	/tvar'- am'i/	<i>vrač-ami</i>	<i>syn-ami</i>
	loc. pl.	<i>rab-ax</i>	<i>ryb-ax</i>	/tvar'-ax/	<i>vrač-ax</i>	<i>syn-ax</i>
Serb./ Croat.	Case	o-decl.	a-decl.	i-decl.		
	dat. pl.	<i>rabov-</i>				
	instr. pl. loc. pl.	<i>ima</i> <sup>27</sup>	<i>rib-ama</i>	<i>tvar-ima</i>		

partite gender distinction in plural forms. It is revealing in this context that the languages with the strongest differentiation of inflectional classes (and thus indirectly genders) in the peripheral cases of nouns (i. e. of potential controllers of agreement) in the plural (Czech, Serbian / Croatian) have preserved the formal distinction of masculine, feminine, and neuter gender in the plural on the whole, i. e. with the main targets of agreement, with adjectival forms. Given the functional primacy of (syntactic) reference tracking by formal agreement for gender (cf. Corbett 1991: 320ff.) it would be uneconomical to differentiate the controllers of gender agreement more than the targets of agreement (cf. Rzepka 1985: 185 for data from Polish in this respect). This "adjectival" phenomenon, which is obviously one of the prerequisites for the formal changes in the peripheral cases of nouns, cannot be further commented upon in this paper, but cf. Menzel (2002).

<sup>26</sup> Today archaic and mostly replaced by *synov'jam*, *synov'jami* etc. with the same desinences.

<sup>27</sup> The plural stem of most Serbian and Croatian monosyllabic masculines is derived by a formans *-ov-* from the singular stem.

The following discussion concentrates on the development<sup>28</sup>, as it is represented by Russian (CSR) in the above table.

Probably most striking is the fact that mostly desinences of the ancient *a-* / *ja-* stems have expanded, i. e. desinences from an inflectional class that in the vast majority of cases was feminine<sup>29</sup>. The only counter-example is the marker /-om/ as the generalized marker of the dative plural in Polish with its origin in the former *o-* stems<sup>30</sup>. In some respects the expansion of these "feminine" desinences (in Contemporary Russian /-am, -am'i, -ax/) shows parallels to the expansion of non-zero-desinences in the genitive plural. Firstly, it consists of a spread of a desinence from a smaller subset of inflectional classes (here only one) to a larger one (here to all others). Secondly, the "source" class was not predominant (in terms of the number of lexemes it contains). These two points are mere observational facts. The following factors can be understood as motivations for the change. Thirdly, as for the instrumental plural of the *o-* / *jo-* stems, a crucial role was played by the uncommon syncretism between accusative and instrumental plural (*o-* stems) and nominative and instrumental plural (*jo-* stems) of the masculine nouns. There was no such syncretism in the corresponding neuter paradigms although the same desinences occurred in their forms of instrumental plural (/ -i/ and /-i/, or, if we presuppose their phonological fusion, just /-i/). The lack of this syncretism was due to the fact that (almost all) neuter nouns in nominative and accusative plural had the desinence /-a/. At least in Polish it is clear that the morphological independence of the instrumental plural delayed the disappearance of the old desinence(s): Here it was the masculine gender that first changed to /-am'i/ and /-m'i/. One of the triggers of the development was thus again the harmonization of distinction-syncretism-patterns. Fourthly, in the instrumental plural the expansion of the correspond-

<sup>28</sup> For the development in Serbian and Croatian cf. Gvozdanović (1991, 1997).

<sup>29</sup> There used to be several dozen masculine nouns denoting male persons in this inflection class. In some languages like Russian they have preserved their "feminine" declension pattern (sometimes misleadingly called "morphological gender" in contrast to "real", syntactic gender in terms of agreement classes). In other languages they have more or less assimilated to other masculines nouns (cf. footnote 37, below).

<sup>30</sup> There has been a discussion on the etymology of this marker (cf. Rzepka 1985: 202ff.), but today the above statement seems to be justified.

ing desinence /-am<sup>(l)</sup>i/<sup>31</sup> was in most contexts a turn to a maximally iconic formal relation between singular and plural forms. This is most obvious for the above-mentioned desinences /-i/ and /-i/ in the *o-* / *jo-* stems, which, in terms of type and token frequency, had been the predominant desinences before the change took place. Their relation to the /Vm/-desinences in the instrumental singular was counter-iconic. This changed into a maximally iconic relation, when /-i/ and /-i/ were replaced by /-am<sup>(l)</sup>i/. But also in other contexts the effect is clear: "Merely" iconic constellations, with two-segmental desinences in instrumental singular and a two-segmental desinence /-m<sup>(l)</sup>i/ in instrumental plural (from *-bmi* / *-bmi* by sound change of the loss of the jers *-b-* / *-b-*), have widely vanished as well. The desinence /-am<sup>(l)</sup>i/ thus has not only replaced the *-* in more than one respect – weird endings /-i/ and /-i/ but the much better one /-m<sup>(l)</sup>i/ as well. The decisive advantage of /-am<sup>(l)</sup>i/ over /-m<sup>(l)</sup>i/, which has survived only with very few stems like Polish *ludźmi* 'people' or *dziećmi* 'children'<sup>32</sup>, seems to be the plus in iconicity within the semiotic relation between instrumental singular and instrumental plural. By /-am<sup>(l)</sup>i/ as the marker for the latter a maximally iconic relation is achieved.

But on the other hand, there are of course differences between the process of the expansion of non-zero-desinences in the genitive plural and the expansion of the desinence /-am<sup>(l)</sup>i/ in the instrumental plural or the corresponding desinences in dative and locative plural.

<sup>31</sup> Note that in languages like Polish and others [m<sup>l</sup>] (not only in this ending) has to be seen as a positional variant of /m/, in again others as an independent phoneme /m<sup>l</sup>/.

<sup>32</sup> In part there may have been still other motivations in specific languages for the levelling of inflectional classes in peripheral cases as e. g., firstly, a latent tendency to agglutinative signalling of plural number within nouns in Russian by a segment /-a-/; secondly, the parallelism of /-am/, /-am<sup>(l)</sup>i/, /-ax/ within nouns to the earlier established /-im/, /-im<sup>(l)</sup>i/, /-ix/ or /-im/, /-im<sup>(l)</sup>i/, /-ix/ within adjectival paradigms (cf. Thomas 1973). (These two arguments will be discussed in some detail in 2.4.) Thirdly, the fact that there was no allomorphy in the desinences /-am/, /-am<sup>(l)</sup>i/, /-ax/ of the *a-* / *ja-* stems, whereas in other inflectional classes there were variants, cf. in Old or Middle Polish *-'ech*, *-och*, *-ich* in the locative plural of masculine nouns. Fourthly, /-m<sup>(l)</sup>i/ is a formally marked desinence in the sense that it is the only nominal desinence beginning with a consonant. The last two observations do not have to be discussed here.

One might argue that the expansion of the non-zero-desinences in the genitive plural cannot be interpreted as an expansion of desinences from rather small inflectional classes to the most extensive one: The generally most important conditions for the differentiation of inflectional classes, a semantic criterion or a formal phonological or morphological difference in the stem or base form, had never been fulfilled or had vanished before this change took place. So that the former *o-* stems and *u-* stems (taking stems with hard final consonants), and even the forms of *jo-* stems and masculine *i-* stems (with stems on a soft final consonant) at the time of the expansion of non-zero-desinences had already merged to one inflectional class (with some subclasses and a high degree of variation of competing desinences). The process of the expansion of the non-zero-desinences and the restriction of the occurrence of the zero-desinence was thus simply a redistribution of competing desinences of one class and thus a process of developing new subclasses. This is different with the expansion of the desinences /(-am), -am<sup>(l)</sup>i, -ach/ in the peripheral cases of the plural: The inflectional class that delivered these desinences was at the outset of the process formally clearly distinct from others that took them later: not only from the most extensive inflectional class with masculine and neuter nouns in several of the Slavonic languages, but as well from the feminine *i-* stems. This formal difference consisted first of all in the shape of the basic form on /-a/ vs. endless forms or forms with endings on other vowels in the "importing" classes.

So without any doubt the endings with a lower type and token frequency have moved from one class to others, in the end superseding desinences some of which at least had had a higher type and token frequency<sup>33</sup>. Apart from the above-mentioned general semiotic advantage of /-am<sup>(l)</sup>i/-desinences in connection with iconicity, again the type frequency of a certain distinction-syncretism-pattern with accusative plural ≠ instrumental plural has obviously been decisive.

As far as the role of token frequency of lexemes is concerned, the

<sup>33</sup> Of course the plural desinences of the peripheral cases of feminine nouns were much more frequent than the non-zero-desinences in the genitive plural before the respective phases of expansion. But the fact remains that for example nouns taking from the very beginning /-am<sup>l</sup>i/ had a much lower frequency than the corresponding desinences of the instrumental plural of *o-* / *jo-* stems.

picture is again similar to the one in the context of the genitive plural. Structurally less preferable desinences have survived in some high frequency lexemes: The case of *-mi* as in Polish *luźmi, dziećmi, gośćmi* has already been mentioned; the old desinences *-y* can still be observed in an idiomatic phrase like *przed laty* 'years ago' instead of what one would expect today *przed latami*. But again on the other hand, quantitative data from the 16<sup>th</sup> century reveal that among the most frequent masculine nouns in Polish (apart from those of the *a-/ja-*stems of course) the "new" endings *-ami, -mi* were much more common among frequent masculines than among less frequent ones (cf. Hentschel 1992). So again high frequency nouns, at least under certain conditions, are more open to change than those with lower frequency. Interesting in this respect is a very specific instance of change in Polish: the Polish fem. noun *kość* 'bone' is an ancient *i-*stem and, had there been no analogical changes, today should be formed in the instrumental plural as *kości*. And indeed this is the case. But this is a rather misleading case: With *kości* the potentially inherited desinence *-mi*, i. e. *kości*, cannot be attested for centuries; there was *kości* instead. So *kości*, a high frequency noun itself, took *-mi* over again in the 19<sup>th</sup> century obviously following masculine *gość* 'guest' another high frequency noun, with which it shares not only the monosyllabic stem but a high phonological similarity. There are some other examples for this change, and almost always these nouns have a high, or at least subjectively high token frequency<sup>34</sup>.

### 2.3. The accusative plural of animate or personal nouns

All modern Slavonic languages with case morphology exhibit the so-called category of animacy. By this statement we allude primarily to the formal fact that all these languages at least for all animate masculine nouns in the singular have an accusative that is identical to the genitive, a so-called genitive-accusative. Elsewhere we observe an accusative formally identical to the nominative, i. e. a nomina-

<sup>34</sup> Whether this is the start of a near general redistribution of restricting *-ami* to stems with a hard final consonant and *-mi* to stems with a soft one, must be checked in some century to come.

tive-accusative, or a morphologically independent accusative. South Slavonic languages have restricted the category of animacy with nouns solely to the accusative singular<sup>35</sup>. The East Slavonic languages Russian and Byelorussian have generalized it to all plural paradigms. Other languages show intermediate patterns with restrictions (or variations) as to animacy or "personality" and to inflectional classes or genders (cf. Laskowski 1988). Due to the fact that this formal behaviour occurs not only with nouns but also with formally agreeing forms (e. g. of adjectives or demonstratives), these facts are today widely described as a phenomenon of gender (cf. again Laskowski 1988). The corresponding inflectional encoding of nouns thus has to be considered an overt marking of animate gender (genitive-accusative) or inanimate gender (nominative-accusative or independent accusative) with the controllers of agreement. Cf. the following table with some data from Russian:

Case	masc. anim. 'slave'	masc. inanim. 'table'	masc. anim. (on <i>-a</i> in nom.sg.) 'man (male)'	fem. anim. (formally inanim. in sg.) 'woman'	fem. inanim. 'lip'
nom. sg.	<i>ëtot rab</i>	<i>ëtot stol</i>	<i>ëtot mužčina</i>	<i>ëta ženščina</i>	<i>ëta guba</i>
gen. sg.	<i>ëtogo raba</i>	<i>ëtogo stola</i>	<i>ëtogo mužčiny</i>	<i>ëttoj ženščiny</i>	<i>ëttoj guby</i>
acc. sg.	<i>ëtogo raba</i>	<i>ëtot stol</i>	<i>ëtogo mužčinu</i>	<i>ëtu ženščinu</i>	<i>ëtu gubu</i>
nom. pl.	<i>ëti raby</i>	<i>ëti stoly</i>	<i>ëti mužčiny</i>	<i>ëti ženščiny</i>	<i>ëti guby</i>
gen. pl.	<i>ëtix rabov</i>	<i>ëtix stolov</i>	<i>ëtix mužčín</i>	<i>ëtix ženščín</i>	<i>ëtix gub</i>
acc. pl.	<i>ëtix rabov</i>	<i>ëti stoly</i>	<i>ëtix mužčín</i>	<i>ëtix ženščín</i>	<i>ëti guby</i>

<sup>35</sup> Things are similar in Czech, but on the other hand a certain expansion of the distinction of [ $\pm$  animate] (or [ $\pm$  personal]) to the nominative plural of masculine nouns like in the other West Slavonic languages can be observed (cf. Laskowski 1988).



Apart from the formal relations already commented upon, it should be noted that nouns ending on *-a* in the nominative singular do not exhibit any overt marking of animacy in singular number. But masculines of this declensional class (all animate ones) belong to a different agreement class than feminines: They belong to the same agreement class as other masculine animate nouns. Feminine nouns on *-a*, animate or inanimate, show the same formal patterns, not only as to declension, but as to agreement as well. In the plural again animate feminine nouns of the *ženščina*-type behave completely like their masculine counterparts of the *mužčina*-type.

Historically, as is today widely accepted (but cf. Klenin 1983: 13 ff.), this all started with as an instance of case variation: Certain masculine nouns denoting (male) persons (often persons with a high prestige) in direct object position began to be used in the genitive singular instead of the accusative singular<sup>36</sup>, to be precise, instead of the old nominative-accusative. So the obvious motivation is syntactic transparency, i. e. a formal distinction between subject and object case. The extension of the genitive-accusative singular to animal nouns, to plural number (in some of the Slavonic languages) and the loss of the syntactic restriction to the position of the direct object and thus the morphologization were much later developments (cf. Lasowski 1988 for details).

The fact that feminine nouns (and thus nouns denoting female persons) are not included in the new animate or personal subgender in some languages may invite a (polemic) sexist interpretation. This holds especially for languages like Polish, where nouns denoting women are in the plural grouped together into one gender with nouns denoting animals and things, in contrast to nouns denoting male persons forming the other gender (cf. Weiss 1988; 1991). Less important

<sup>36</sup> Sure enough, the genitive-accusative was from the very beginning of the tradition of Slavonic written documents at one specific place already a morphological fact: the form *kogo* of the personal (or animate) interrogative pronoun *кто* 'who'. But the stipulation of an analogous syntactic-functional motivation that led here to morphologization in pre-literate times does not seem far-fetched. On the whole the expansion and sometimes even generalization of the genitive-accusative as a morphological fact is stronger and earlier in pronouns than in nouns. Another example of this is that the genitive-accusative in anaphoric pronouns of Russian is obligatory and does not show any semantic or syntactic restriction.

as a counter-argument to such an interpretation is the fact that feminine nouns at least in the plural of East Slavonic languages do take part in the animate – inanimate distinction. Most significant is that the few masculine-personal nouns like *mužčina* in the above table (often denoting male human beings with a high prestige) of the *a*-stems, e. g. of the inflectional class consisting in the vast majority of feminine nouns, show in the singular<sup>37</sup> the same set of desinences, amongst them the morphologically independent accusative, as the feminine ones. The decisive quality blocking the expansion of the genitive-accusative to the *a*-stems (feminine and masculine) in the singular was that they had an independent accusative, and thus there was no need for a new "female distinction" of subject and object case. (The fact that nouns of the *mužčina*-type very early showed the same agreement behaviour as all other masculine personal nouns, taking genitive-like agreement targets within the noun phrase while themselves preserving the old accusative form in the singular, is due to the fact that they have obviously always belonged to the agreement class of masculine nouns, independently of genitive-marking of personal or animate direct objects<sup>38</sup>.)

In the initial phase of expansion of genitive forms in the direct object position of personal masculine nouns in the singular, another independent accusative existed in the plural of the same masculine nouns and of the vast majority of masculine nouns in general. Now in some Slavonic languages – namely in those that later expanded the genitive-accusative to at least some of the plural paradigms – we observe an (in a certain sense) opposite development: The former distinction of nominative plural and independent accusative plural was lost. The nominative plural of inanimate and in part animal

<sup>37</sup> In the plural number these former masculine *a*-stems have undergone different developments in different languages. In Polish, the plural subparadigm is completely identical to other masculine nouns and thus there is the genitive-accusative as with all other masculine nouns denoting male persons, whereas the feminine *a*-stems take the nominative-accusative. The singular subparadigm is still identical with the one of the feminine *a*-stems. In Russian, on the other hand, the masculine *a*-stems still belong to the same inflectional class as the feminine ones, but here both, masculine and feminine animate nouns, take the genitive-accusative plural.

<sup>38</sup> Xaburgaev (1990: 38f.) notes formal, feminine agreement behaviour for nouns of the *mužčina*-type for North Russian dialects.

nouns developed desinences identical with the desinence of the corresponding independent accusative and the desinence of the nominative and accusative plural of feminine nouns. Here as well, the decisive motivation seems to have been the predominance of the pattern nominative plural = accusative plural in the inflectional system. For Polish nouns this change took place in the 15<sup>th</sup> and 16<sup>th</sup> centuries. What happened later (in Polish mainly in the 17<sup>th</sup> century, for pronouns somewhat earlier) was the expansion of genitive plural forms to the accusative plural of personal and animal nouns. But in contrast to the corresponding change in the singular some centuries before, it was an independent accusative, not the nominative-accusative that was replaced by the genitive.

So obviously this change in the plural paradigm lacked the motivation of syntactic transparency and has to be treated as merely morphological. The rise and expansion of the genitive-accusative with animacy in the plural obviously took place under the influence of the corresponding singular paradigm (cf. Kucała 1978: 168). But of course, even if here, too, a certain formal pattern (the syncretism of the accusative with the genitive) was expanded from one paradigm to another, it cannot be argued that this was due to the predominance of that pattern (in terms of type frequency) in the system. The syncretism of genitive and accusative was restricted to the subparadigm of just masculine animate nouns in the singular. Further, firstly the expansion of the genitive-accusative to the plural was not an expansion from one inflectional class to another one, but from one number subparadigm to another number subparadigm<sup>39</sup>. And, secondly, there is no evidence (apart from the phenomenon discussed) that there is a preference for parallelism of distinction-syncretism-patterns in different number subparadigms of given inflectional classes.

There seem to have been two decisive points in this development: First the syncretism of nominative plural and accusative plural had already been established long before in a general process of harmonizing paradigm patterns in the plural. Within masculine nouns it was restricted to inanimacy as in the singular, from where the newly established patterns nominative ≠ accusative (genitive-accusative)

<sup>39</sup> As to the further expansion of the genitive-accusative singular to some inanimate nouns, especially in Polish, cf. Menzel (1999b).

obviously supported the pattern nominative ≠ accusative (independent accusative) in the plural, until the independent accusative was replaced by the genitive-accusative and thus the overall paradigm pattern of the plural adapted still more to the singular pattern. It is revealing that languages that did not develop a syncretism of nominative plural and accusative plural for inanimate masculine nouns generally lack the genitive-accusative plural with animate or personal nouns on the whole (Laskowski 1988: 124). The second decisive point is obviously the salience of the feature [ $\pm$  animate] (or [ $\pm$  personal]) itself. In the development of the Polish inflectional system these features have not only figured in the establishment of the category of animacy (singular) or virility (plural) but played an important role for the redistribution of "competing" desinences in the genitive singular and nominative plural of masculine nouns as well.

Given these structural motivations for the expansion of the genitive-accusative to the plural of personal nouns and to some degree to the plural of animal nouns<sup>40</sup>, it is again striking that highly frequent (personal) nouns took on the innovation more readily than low frequent ones (cf. Hentschel 1992: 54ff.). It has to be stressed that in this context things were nevertheless different than with the phenomena discussed before and the one to follow. In all other instances of change so far discussed, it can be shown that such high-frequency nouns that rapidly take over "new" desinences show some phonological, semantic or sociolinguistic (stylistic) affinity to the "exporting" nouns from other inflectional classes or paradigms. Since here in the singular all masculine animate nouns took the genitive-accusative before its expansion to the other number paradigm, further formal, semantic or sociolinguistic similarities of some subsets of masculine nouns could not play any role. This leaves just one interpretation of the fact that nouns with high token frequency most readily took over the new desinence: The more frequent the lexemes with genitive-accusative singular are, the stronger (on the background of a clear and salient semantic feature) is the pressure of using genitive-forms instead of accusative-forms in the plural as well.

<sup>40</sup> In later times the genitive-accusative plural was again restricted to nouns denoting (male) persons, see Kucała (1978: 131 ff.) for details.

#### 2.4. The nominative plural of masculine nouns on /-á/ in Russian

The last instance of change to be commented upon is maybe the most mysterious development in the inflectional system of Russian nouns. Some two or three hundred of the about 20000 masculine nouns of contemporary Standard Russian (as described in the dictionary of Zaliznjak 1977) take the desinence /-a/ in the nominative plural (and in the accusative plural, if inanimate), which then is (almost) always stressed (/ -á/). The others (apart from rare exceptions) take /-i/ (which may occur with or without stress). The marker /-á/ in the nominative plural of masculine nouns is an innovation first attested in the middle of the past millennium, with rare occurrences throughout the 16<sup>th</sup> and 17<sup>th</sup> centuries.

It is well known that old desinences are not replaced by newly “invented” ones but rather by “loans” from paradigmatic contexts that are in some respect similar. The question arises where the source for the loan can be located. For /-á/ in the nominative plural of Russian masculine nouns the following potential sources have been discussed: Firstly, the nominative plural of neuter nouns which in the vast majority have taken /-a/ (stressed and unstressed) since ancient times. Secondly, the nominative singular of some feminine collective nouns like *storoža* ‘guard’, and *bratija* (*brat’ja*) ‘brothers’ (cf. German *Gebrüder*), which have often been integrated into the paradigms of the corresponding non-collective nouns in the position of the nominative plural: singular *brat* - plural *brat’ja*. Thirdly, the nominative dual of masculine nouns (themselves from former *o-* / *jo-* stems); compare the modern nominative plural *beregá* ‘banks’, typically referring to paired referents.

Regarding all of these sources, there has been a discussion of specific problems as to their alleged “motivating role”, e. g. the difficulty of directly relating modern forms like *berega* to old forms of the dual for reasons of accent placement (cf. van Wijk 1920). The central problem, of course, with treating these “sources” or “models” as real structural motivations for the change is the question why rather marked and less frequent constellations of grammatical values like the above mentioned three should influence the less marked and more frequent grammatical value of the nominative plural masculine. In Hentschel (1989; 1991) this instance of change has been described as another one in the general development towards harmonization of

distinction-syncretism-patterns: After the disappearance (or at least strong distributional restriction) of the uncommon (for the overall system) syncretism nominative singular = genitive plural (cf. 2.1.) the expansion of /-a/ to the nominative plural of masculine nouns in Russian can be understood as an adaptation of these nouns to other inflectional classes, which show genitive singular = nominative plural. One might object here that masculine nouns taking stressed /-a/ in the nominative plural have unstressed /-a/ in the genitive singular and thus show only a syncretism on the level of segmental phonology, whereas in phonetics, due to the quantitative or qualitative reduction of unstressed vowels in the literary variant of Contemporary Russian (*akanje* – see above), we find the contrast genitive singular [ə] – nominative plural [a].

As to this objection it should be first noted that the fact of this mismatch between phonology and phonetics constitutes a problem for alternative explanations as well: Some scholars have advanced the idea that after the generalization of /-am/, /-am’i/, /-ax/ in the peripheral cases of dative, instrumental and locative, the segment /-a/ tended to be reinterpreted as a signal of plural, and the following segments as indicators of case (cf. Xaburgaev 1990: 157, 162). This of course would mean a change from flecive to agglutinative structure<sup>41</sup>. Furthermore, the implementation of an /-a-/ after the stem of nouns (especially instead of an /-i-/) would even more systematize the morphological distinction between nouns and adjectives that has been developed during the last millennium (cf. Andersen 1969, Menzel 2000 for details). Within the adjectives a similar agglutinative pattern has already been established; compare:

	adjectives	masculine nouns with nom. pl. in -á
nom. pl.	<i>vysók-i-e</i>	<i>bereg-á-Ø</i>
gen. pl.	<i>vysók-i-x</i>	<i>bereg-{óv}</i>
dat. pl.	<i>vysók-i-m</i>	<i>bereg-á-m</i>

<sup>41</sup> This would thus contradict the point promoted by Wurzel (1984), that system-defining (typologically relevant) characteristics of morphological structure can only be changed from outside of morphology.

	adjectives	masculine nouns with nom. pl. in -á
acc. pl.	<i>vysók-i-e</i>	<i>bereg-á-Ø</i>
instr. pl.	<i>vysók-i-mi</i>	<i>bereg-á-mi</i>
loc. pl.	<i>vysók-i-x</i>	<i>bereg-á-x</i>

The question that arises here is why this tendency to agglutinative structure also in the nominative plural is restricted to masculine nouns taking stressed desinences in the plural and unstressed ones in the singular. Note that there is no such restriction for the “*a*-containing” desinences in the dative, instrumental and locative plural, which occur with or without stress and with nouns with stress on a syllable in the stem or stress on the desinence in the singular as well.

An answer to the question why the /-a/ in the nominative plural of some masculine nouns of Modern Russian is always stressed seems to be possible if we consider data of frequency. It has been mentioned already by Tschizhevskij (1948) that obviously high frequency nouns tend to adopt this desinence. The figures in Hentschel (1992) conform this impression on representative statistical grounds, taking these figures for a further witness that an innovation under certain circumstances may start with highly frequent nouns (a further instance of the innovative-importing aspect of high frequency nouns). Of course, it cannot be completely ruled out that the fact of high frequency masculines preferably taking the /-á/-desinence is to some degree due to the impact of normative grammar: Throughout this century this desinence has been denounced as a “vulgarism” (cf. Kiparsky 1967: 45)<sup>42</sup>. It may well be that this fight has been to some extent successful, at least with less frequent nouns, whereas highly frequent nouns were able to resist (the conservative-intransitive aspect of high token frequency).

Sociolinguistic data nevertheless confirm the innovative-importing behaviour of high frequency masculines taking /-á/ in the nominative plural: It is well known that this desinence is much more fre-

<sup>42</sup> The same objection, by the way, can be found with early Polish Grammarians criticizing the use of *-ami* instead of *-y* in the instrumental plural of masculine nouns (cf. Rzepka 1985: 72 ff.).

quent (type and token frequency) in specific professional or social varieties of Modern Russian, and that the nouns that take *-á* generally denote objects that are rather typical for the corresponding groups; e. g. nouns that have at least a high subjective frequency in these groups: with medical staff nouns like *šprica* ‘syringes, injections’, with confectioners *torta* ‘fancy-cakes’, with draughtsmen *plana* ‘plans’ etc. (cf. Comrie & Stone 1978: 90). This sociolinguistic background explains as well that from the very beginning there were many loans which took this new desinence, loans common to certain professional groups but rather infrequent in the standard language. In addition to the older phenomena discussed before, where no sociolinguistic data is available, it is clear for this instance of inflectional change that the expansion of this desinence is accelerated (maybe even initiated) by the speech behaviour of some social or professional groups. Of course, the basic motivations for the change are immanent, structural ones: the harmonization of distinction-syncretism-patterns and a general trend to a formal differentiation of noun and adjective inflection (with, to some degree, agglutinative markers)<sup>43</sup>. But on the other hand, the /-á/ instead of the old /-i/ is a perceptually salient “violation” of the old norm. This makes sense, when we take into account that, firstly, mainly nouns denoting typical objects of the corresponding groups (and thus frequent nouns) are affected by the innovation and that, secondly, it is exactly frequent nouns that generally tend to acquire an “irregular” (or better, uncommon), diversified, or salient formal representation for reasons of speech processing (cf. chapter 1.).

Furthermore it seems to be the case that members of the professional or social groups mentioned do not only use the new forms in /-á/ for communication inside the group, but with other members of the Russian speech community as well, signalling thus some sort of “insiderness”. So obviously this innovation correlates with a dynamic communication maxim: “Do not talk like the others talk!” (Cf. again section 1.) Against this sociolinguistic background the question of why /-a/ in the nominative plural masculine is (almost) always stressed gets a “natural” answer. The extended use of /-á/ instead of

<sup>43</sup> Data from dialectology reporting that /-a/ is even being taken over by feminine nouns suggest that the latter is getting more important (cf. Kolesov 1990: 99).

/-i/ is also a signal of demarcation of the use from a larger group and of the user's affiliation to a smaller one, i. e. an expressive tool, the use of which (at least with nouns allowing both desinences) is connected with some degree of consciousness. Thus it would not make any sense if the new marker /-á/ were used in an unstressed position, because due to phonetic reduction the auditory distance of the reduced /-a/ to the competing reduced /-i/ would be extremely minimal (cf. Hentschel 1996).

This interpretation is in line with reports from dialectology that /-a/ as a marker of nominative plural masculine is especially successful in dialects that do not have the form of vowel reduction (akanje) mentioned above and that /-a/ can also be found in unstressed position in these dialects (cf. Vasilev 1980; Kolesov 1990: 99). So obviously system-immanent and sociolinguistic factors interact in a rather complex way, but in the same direction. (Whether this is a necessary condition for an inflectional change to take place must be left to future investigation.) Nevertheless, it is clear that in a later phase of the change, the more the new desinence expands, the sociolinguistic implications will retreat to the background and finally vanish.

Last but not least, this phenomenon sheds more light on the question why not all highly frequent masculine nouns take part in the innovation from the very beginning. Apart from the factor of typicality for certain social and professional groups just discussed, there are obviously phonological and / or semantic affinities connected with the three sources or models for /-á/ in nominative plural masculine. It is significant that among those masculine nouns, which take /-á/ in the literary variant, many show similarities to those constellations mentioned at the beginning of (2.4.): Firstly, the reinterpretation of the nominative singular feminine *storoža* 'the guard' to nominative plural masculine of *storož* 'guardian' was obviously the model for examples like *doktora*, *professora* also denoting male human beings with a specific social or professional function. Secondly, many of the Russian masculine nouns with /-á/ in the nominative plural denote objects that are generally encountered in pairs: old Slavonic words like *roga* 'horns', *boka* 'sides', *berega* 'banks' as well as loans from the last centuries like *obšlaga* 'cuffs', *šenkelja* 'legs' (in the context of horse riding) and others. In spite of the probability that the forms with the stress on the desinence cannot be regarded as direct conti-

nuations of dual forms, the factor of paired occurrence clearly seems to favour the expansion of /-a/ (cf. Iordanskij 1960: 62 ff.). Furthermore, we find the development of new so-called count forms with stress on the ending in former "dual contexts": *dva šagá* 'two steps' in contrast to genitive singular (and former nominative dual) *šága*. The nominative plural neuter *vorota* (with penultimate stress) also denotes objects that occurred in pairs. So even this lexeme can be regarded as an analogical pattern. Thirdly, Worth (1983) observed that many of the masculine nouns with /-á/ in the nominative plural show a genuine (inherited) pleophonic<sup>44</sup> stem as, for example Russian *bereg*, 'bank, shore' and *gorod*, 'town, city' (but cf. the loan *grad* from South Slavonic in *Leningrad*, 'Lenintown') or a new, pseudopleophonic one (*večer* 'evening', *špěsel* 'plug'). Pleophonic forms were common among all three sources, cf. *berega* - nominative dual masculine, *storoža* - nominative singular feminine and *vorota* - nominative plural neuter and they were among the first with /-á/ in the nominative plural masculine, with *goroda*, seemingly the very first such form attested. High frequency and (rather) loose phonological, semantic and sociolinguistic affinity favoured the expansion of /-á/ in the nominative plural of masculine nouns without determining it absolutely. Other nouns that share these affinities retain the old /-i/ like *polog* '(bed-)curtains', as do nouns without those affinities, and still others show /-i/ in the literary variant of Russian and /-á/ in colloquial ones, like *volos* 'hair'.

### 3. Conclusions

The previous pages contain a discussion of four instances of change in the inflectional morphology of some Slavonic languages,

<sup>44</sup> One of the general traits of the historical development of phonology in Slavonic languages is the so-called metathesis of liquids: /Vr/ or /Vl/ to /rV/ or /lV/. Cf. German *Berg* 'mountain' with Serbian *breg* 'mountain, bank, shore' or Czech *břeh* 'bank, shore'. In East Slavonic languages, a second vowel has occurred, yielding the sequences /VrV/ or /VlV/ as for example in Russian *bereg*. In slavistics this is usually called pleophony. Furthermore, it should be noted that the input vowels to these changes were *e* and *o*, the output vowels *e*, *o* and *a*, i. e. non-high vowels.

where desinences which before had been more or less infrequent (both in terms of token and type frequency), turned productive and in three of four cases have even become predominant. The central question was whether this can be explained on grounds of structural factors of morphology itself (be they of an universal semiotic character or of system-immanent nature) or on grounds of frequency relations. One partial answer to this question has been clear from the very beginning by the choice of phenomena, where infrequent (or less frequent) turned into (more) frequent ones: Neither the type frequency of the desinences discussed in terms of the lexical stems that they occurred with, nor their token frequency can be considered as motivations for the changes that have been described. In the four instances it was always less frequent desinences that superseded initially more frequent ones.

What obviously does play a role is the token frequency of single lexemes. But it seems to be a rather minor role: Firstly, some highly frequent lexemes are without doubt predestined to take over the role of the last resort for vanishing desinences. We have mentioned as an example the desinence *-mi* in the instrumental plural in languages like Russian or Polish withstanding the expansion of the competing ending *-ami* in some high frequency lexemes. Often enough these lexemes display in addition some more or less obvious affinities apart from frequency, either of phonological structure or of semantic content (cf. 2.1. and 2.2.). (Nevertheless, other lexemes with similar features of that kind may have turned to the new desinence.) This is the well known "preserving" effect of high token frequency, which we have called the "conservative-intransitive" one. But it should be noted that this effect has so far only been observed for changes in their final phase, with some fossilized forms.

In earlier phases of specific changes, in contrast, we have been able to demonstrate an "innovative-importing" effect of high token frequency of lexemes. An extremely clear example was discussed in 2.4.: The expansion of the desinence */-á/* in the nominative plural masculine of Russian, which has so far reached just several hundred lexemes in the standard language. The fact that preferably high frequency nouns undergo this change nicely correlates with a "dynamic strategy of communication" in the sense of Keller's "do not talk like most others do"; since the innovative */-á/* is extremely successful within special social or professional groups for nouns denoting typi-

cal objects of these groups. Against this sociolinguistic background it makes sense in terms of semiotics that the new desinence is preferably used with highly frequent nouns: Already von der Gabelentz (1901: 241) emphasized that often the near, the familiar and the frequent requires a "drastic expression". But here as well, as with the "conservative-intransitive" effect of high token frequency of nouns, it is not just high frequency that characterizes the corresponding nouns. Here as well, these nouns mostly share some phonological and / or semantic features, namely with the sources from which the new desinence for the nominative plural masculine was "borrowed". These facts show a striving for "secondary remotivations" in processes that rearrange the inflectional system, which can be taken as further evidence for the decisive importance structural implications have in ongoing diachronic changes. The "innovative-importing" effect of the high token frequency of lexemes has not only been attested for changes with such a specific sociolinguistic setting. It seems to have played a role in the other, older instances of inflectional changes discussed, where the sociolinguistic background is unclear. Further research is needed to clarify whether things are different in changes like the expansion of */-á/* in the nominative plural masculine of Russian nouns, which apart from the sociolinguistic implication does not get support by preferences in the speech of children, and changes like the generalization of the desinence *-овъ* (or its younger phonological successors) within the genitive plural masculine (and in some languages even its expansion into feminine and neuter paradigms), which has clear parallels in the language of children.

Be that as it may, highly frequent lexemes seem to be not only the last resort for vanishing desinences but also the bridge-head for desinences to become expansive in a new area as well: Highly frequent lexemes with certain phonological, semantic or sociolinguistic traits form the vanguard, others which lack these traits but possess others, form the rear-guard, which needs further investigation as well. But in none of the discussed phenomena was high token frequency of lexemes decisive for the direction of change.

Of equally minor importance for the direction of change, i. e. for the question which of two (or more) competing desinences will be the "winner", seems to be the token frequency of "grammatical meanings". A desinence can be expanded from a less frequent bun-

dle of "grammatical meanings" to a more frequent one: from feminine plural to masculine plural (2.2.), from genitive plural masculine to accusative plural masculine (2.3.), from nominative plural neuter to nominative plural masculine or from nominative dual masculine to nominative plural masculine (2.4.). This is of course due to the fact that these more restricted bundles of grammatical meanings are by no means motivations for the changes to take place but just "models" or "sources". Endings that are new in some paradigmatic positions are as a rule not entirely new to the system but are taken from another paradigmatic context: There always seems to be a certain affinity between the "source" bundle of grammatical meanings and the "target" bundle of grammatical meanings. In the above mentioned instances this affinity consists mostly in an overlap of one or more grammatical meanings.

Influence on the direction of change seems to have – at least with the four phenomena discussed – the type frequency of a rather abstract, system-immanent structural trait: All four phenomena imply a harmonization of distinction-syncretism-patterns. Three of them (2.1., 2.2. and 2.4.) consist of an adaptation of by far the most extensive inflectional class of Slavonic nouns (which has at least as many lexemes as all other inflectional classes of nouns together) to an distinction-syncretism-pattern that had already been shared before by most other inflectional classes. Of course, these predominant abstract patterns correspond in different inflectional classes to at least partially different sets of desinences. But what was important for the change to take place was not primarily the shape of the desinence. Decisive was whether a given desinence was compatible with the predominant pattern, and if it was, then it was able to replace a so far predominant one, even if it itself was very much less frequent than the desinence to be replaced. It is here that we observe the "conservative-exporting" effect of high type frequency in the sense that an already dominant structural trait expands even more. But often enough the compatibility with the predominant distinction-syncretism-pattern was not the only plus that has made a formerly infrequent desinence superior to a formerly frequent one. The phenomena discussed suggest that there were always other aspects for the formerly rare desinence to become productive. Apart from some further specific motivations that made them superior, all expansions of formerly less frequent desinences either promoted a higher degree

of constructional iconicity or did not conflict with constructional iconicity. So it was these structural preferences, universal-semiotic and system-immanent ones, that in the long run were decisive for the direction of change.

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