1. INTRODUCTION

Affix ordering in terms of restrictions on affix combinations is a central issue in morphological theory. However, the topic is not very popular in Slavic linguistics and it seems appropriate therefore to provide a more comprehensive introduction than is customary.

One expects that all affixes in a given language should be able to combine with one another. There are, however, severe restrictions on possible affix combinations. Unfortunately, a precise and universal mechanism governing affix order has not been identified thus far, despite a number of (typological, phonological, syntactic, semantic, psycholinguistic, and morphological) attempts.

Research on typologically unrelated languages reveals some general tendencies, e.g. inflectional suffixes follow derivational affixes (Greenberg 1968); cross-linguistically, aspect suffixes precede tense suffixes in the verb form (Bybee 1985), etc. Yet the most influential proposal in regard to affix order is perhaps that of the theory of Level (Stratal) Ordering (incorporated into Lexical Phonology and Morphology). According to the stratal ordering (Siegel 1974, Kiparsky 1982, Mohanan 1986, Giegerich 1999, among others), affixes can be divided into various lexical levels (strata) that, phonologically and morphologically, interact in complex ways. The stratal approach distributes English suffixes and prefixes into two levels: class I and class II. This distribution is explained by observations such as: class I affixes...
frequently attack to bound roots and tend to be phonologically less transparent than class II affixes; class I affixes cause stress shifts, resyllabification, and other mor-
phonological alternations, whereas class II affixes do not; class I affixes are less productive and less semantically transparent than class II affixes; class I affixes do not occur outside class II affixes. According to this interpretation, affixes always combine so as to attach to affixes of the same or a lower stratum, thus ruling out other possible combinations.

On the syntactic side, it is assumed that morphology ‘mirrors’ syntax and that this principle determines the order of morphemes (Baker 1985). Semantic ap-
proaches argue that semantic relevance (Blevs 1985) and semantic scope (Rice 2000) govern affix order. Psycholinguistic approaches argue that psycholinguistic properties such as ‘easily parable’ (cf. class II affixes of Lexical morphology) and ‘difficult to parse’ (cf. class I affixes above) are responsible for affix order (Hay 2003). Finally, approaches that I refer to as ‘morphological’ look to restrictions
encoded either in the base (of an affiliation change), in the affix itself, or in both (cf. Plag 1996).
Recent research on affix ordering involves the notion of closing suffixes (Nida 1949; Szmyrnack 2000; Aronoff – Fuhrhop 2002). Closing suffixes ‘close’ the word to additional suffixation. Clearly, in languages with sets of derivational and inflec-
tional suffixes, derivational and inflectional closing suffixes should be acknowled-
ged (cf. Aronoff – Fuhrhop 2002). A well-known example of a closing deriva-
tional suffix from the literature is the German
suffix
(Wellmann 1975: 109),
chic Slavic languages exhibit a set of relatively equally well-established Movierung suffixes. Thus it is proposed herein that analysis of instances of Movierung from
Note, however, that there is a significant distinction between German and Slavic Movierung in regard to its formal expression and Movierung in Slavic can be for-
malized realized either by an overt suffix that seems to be derivational (the default case parallel to the German Movierung by -e, e.g. Bg. niluć ‘teacher’ – FEM vilica-a or by addition of inflection only, i.e. without an overt Movierung suffix (e.g. Cr. bratlićuć ‘cousin’ – FEM bratlićuća; suđuć ‘teacher’ – FEM suđuća, suprug ‘husband’ – suprug-a ‘wife’, Bg. suprug ‘husband’ – suprug-a ‘wife’, R. suprug ‘husband’ – suprug-a ‘wife’, etc.). Significantly, whereas over 90% of Ger-
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chic Slavic languages exhibit a set of relatively equally well-established Movierung suffixes. Thus it is proposed herein that analysis of instances of Movierung from
Slavic (primarily from Bulgarian and Russian) may establish: 1) whether Movierung is closing due to the (modification nature of the) semantic change it causes and if so, 2) whether the closing character of Movierung is exceptionless. In this way, the mechanism of closing suffusion may be determined. The remainder of the paper is structured as follows: section 2 introduces the Prototype Theory (PT), which serves as a theoretical framework for the discussion; section 3, with the help of PT, defines the prototypical form of the Slavic word; section 4 establishes the closing (by default) character of Slavic Movierung suffixes; section 5 addresses instances where Movierung suffixes are not closing and explains the existence of such exceptions; section 6 explores a typological explanation of the results obtained in the paper up to that point; and section 7 summarizes the main ideas of the paper and draws conclusions.

2. PROTOTYPES IN MORPHOLOGY

In keeping with the fundamental principles of Cognitive Grammar, I believe that linguistic categories are based on prototypes. For a definition of prototype I assume, with Langacker (1987), that “[a] prototype is a typical instance of a category, and other elements are assimilated to the category on the basis of their perceived resemblance to the prototype; there are degrees of membership based on degrees of similarity” (Langacker 1987: 371).

The notion of prototype informs my definition of the two main domains of morphology, namely derivation and inflection. In other words, I understand derivation and inflection as constituting a continuum situated between the poles of prototypical derivation and prototypical inflection (Dressler 1989). In one respect, derivation and inflection constitute a continuum and in another respect, they are distinct (cf. Andersson 1982; Perlmutter 1988; Beard 1995). This understanding is supported by analysis of the diachronic development of Slavic, wherein a tendency towards specialization of suffixes as either derivational or inflectional is established (cf. Manova 2005), as well as by the human mind’s perception of reality. Thus, the fact that colours constitute a continuum (the so called colour spectrum) does not mean that we cannot distinguish between different colour shades. On the contrary, the mind tends to define in-between instances (imagine, for example, a shade between red [X] and orange [Y]) as either [X] or [Y] and not as [X–Y].

Perhaps the most significant distinction between prototypical derivation and prototypical inflection is in regard to word-class change. Prototypical derivation is word-class-changing, e.g. R. V rabot-at → work, R. rabot-nik → worker, whereas prototypical inflection is word-class-preserving, e.g. R. N NOM SG kniga → book → N GEN SG knigi. Consequently, pairs such as Bg. N gradina → garden → N gradina-ar → garden-es, relating two different lexemes but without word-class change, represent non-prototypical derivation. As discussed in Manova (2005), I distinguish between non-prototypical derivation and non-prototypical inflection in an inflecting fusional language according to the way in which a category relates to the in-
flection class system of the respective language, i.e. non-prototypical inflection is al-
ways related either with a particular inflectional class or with phonologically com-
plementary classes (thus identifiable inflectionally), whereas the output of non-pro-
typical derivation change is dispersed within a language’s inflectional system and
cannot be identified inflectionally (and therefore has derivational status). These defi-
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ries of noun diminutives and Morsering in Russian. Russian uses the following suf-
fices for derivation of noun diminutives: -c-e, -c-o,-c-e, -d-a, -k-a, -n-a, -i-tel-sk-a-
komnata, mesto, kost’; and the following set of suffixes for formation of females
from males: -d-a, -c-a, -i-tel-sk-a, -n-a, -lo, -ka, -ka, -k-a, -i-tel-sk-a, -n-a, -k-a. It is also
well-known that depending on their phonological properties Russian nouns inflect in
accordance with four (major) inflection patterns (classes) - that of zakon ‘law’, kom-
 trata ‘room’, mesto ‘place’, or kom ‘home’ (cf. Corbett 1991: 56). In other words, a
Russian noun diminutive can belong to one of three inflection classes, namely za-
kom, komnata or mesto, whereas Russian females derived from males inflect accord-
gen to the komnata-type only (and therefore constitute [non-prototypical] inflection).
I further rely on the notion of prototype for the classification of morphological forms.
When using a morphological word, one has some expectations about its (pro-
typical) structure: derivational suffixes follow the root, whereas inflectional suf-
fixes are outside derivational suffixes, since thematic markers serve ‘to predict’ the
set of inflection suffixes of a leseme, thematic material is expected to precede the
deflection, etc. On the basis of such expectations, I put forward a morphological
construct that I call a prototypical form of the Slavic word and that is defined in the
next section.

3. THE PROTOTYPICAL FORM OF THE SLAVIC WORD
Slavic languages are of the inflecting-fusional type and make a clear distinction
between derivational and inflectional suffixes (cf. Skalicka 1979). Based on this
typological feature as well as on the universal principle of constructional iconicity
(-addition of semantics means addition of form) and the notion of prototype (as de-
defined in the previous section), I assume for a Slavic word, a generalized structure
involving the following slots (Manova 2005, 2006):

(2) (PREFIX)-BASE-(DERIVATIONAL SUFF)-(THEMATIC MARKER)-(INFLEC-
TIONAL SUFF)

Clearly, prototypical derivation takes place in the derivational slot of the word, whereas
prototypical inflection occupies the inflection word slot. TMs are recog-
nized only in verbal morphology, where they have inflectional status (cf. the discus-
sion in Manova 2006). The TM slot can be occupied by a single suffix only, which
is not true of derivation and inflection suffix slots, which can host more than one
suffix, e.g. Bg. u-tel-sk-a ‘teacher’s-FEM-DEF’, with two derivational suffixes
(+tel-sk-a) and two inflectional suffixes (+a-ia).

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suffix, e.g. Bg. u-tel-sk-a ‘teacher’s-FEM-DEF’, with two derivational suffixes
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In some Slavic languages (e.g. Bulgarian), both non-prototypical derivation (e.g. noun diminutivization) and non-prototypical inflection (e.g. Movierung) use, in contrast to prototypical derivation and inflection, either the inflectional or the derivational slot of the word (Manova 2002, 2005). Consider the following examples of noun diminutivization:

(3) a. Bg. FEM krug-a-hu 'hook' → DIM FEM krug-a-Ø → DIM NEUT krug-e
b. Bg. Makr. znj-a 'man' → DIM NEUT znj-e
c. Bg. Makr. zov-a-Ø 'man' → DIM NEUT zov-e

In such instances, -e and -Ø are seen as derivational whereas -a is seen as an inflectional suffix. The same holds true in cases of non-prototypical inflection (Manova 2005), illustrated with the following examples of Movierung from Bulgarian:

(4a) učit'el 'teacher' → FEM učit-el-k-a
(4b) sprov. 'husband' → FEM sprov-el-a 'wife'

Note that non-prototypical inflection tends to prefer the derivational slot of the word, as seen in the following examples from Bulgarian, in which the suffix -a(-ja) replaces a suffix in the derivational word slot:

(5) bar-ec-Ø 'father' → FEM bar-ec-j-a
sn-bir-Ø-Ø 'Sorban' → FEM sn-bir-ja

It should be mentioned that formation of females from males by addition of inflection only is entirely unproductive in Slavic (cf. Manova 2002). In the oldest Slavic texts, in one and the same source, one finds parallel forms such as rab-a and rab-Ø, both meaning 'slave-FEM, servant-FEM', and derived from the masculine noun raba 'slave, servant' (cf. SJS). Therefore, it is difficult to establish which type of expression, that derived with a special gender suffix or that formed by addition of the inflection -a, is diachronically older. Note, however, that the suffix -yni does not terminate in -a, as is usual for the rule of Movierung in some of the modern Slavic languages, e.g. in an older stage of the diachronic development of Slavic, Movierung formations were distributed between the phonologically complementary (hard vs. soft) -a and -ja stems, which means that Movierung slightly deviated from non-prototypical inflection towards non-prototypical derivation. This situation is still preserved in some of the Slavic languages. Consider:

(6) P. bič 'God' → FEM bičha
Ca. Šub. bič 'God' → FEM bičha

Compare now the forms in (6) with Bg. bog 'God' → FEM boginja, R. bog 'God' → FEM boginja. Note that in Bulgarian and Russian, nouns terminating in -a and -ja belong to the same inflectional class (cf. e.g. Corbett 1991: 36). In other words, Movierung is not precisely the same category in all Slavic languages, which results in slightly different behavior of Movierung suffixes when closing suffixation is concerned (cf. footnote 10).

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4. SLAVIC MOVIERUNG SUFFIXES ARE CLOSING (BY DEFAULT)

As mentioned in section 1, German Movierung suffix -in is closing, and more than 90% of all Movierung formations in German are derived through the attachment of this suffix. In other words, the fact that the suffix -in is closing is enough to determine German Movierung as closing in general. Although Slavic languages are richer in Movierung suffixes, Slavic Movierung suffixes seem to be closing as well (though see the next section). The closing character of two Slavic suffixes, the Bulgarian -a and the Russian -a, is illustrated below, but this test can be applied to every Movierung suffix.

(7) By *profesor* 'female professor' → *profesor-ka* 'female professor'

R. *profesor* → *profesor-ka*

Consider now the following examples of adjectivization, verbalization and diminutivization, i.e. all possible productive derivational rules applicable to noun bases:

Adjectivization:

(8a) By *profesor* → ADJ professor-ö

R. *profesor* → ADJ professor-ö

but

(8b) By *profesor-ka* → ADJ ö

R. *profesor-ka* → ADJ ö

Verbalization5:

(9a) By *profesor* → V professor-strum

R. *profesor* → V professor-strum

but

(9b) By *profesor-ka* → V ö

R. *profesor-ka* → V ö

Diminutivization:

(10a) By *profesor* → DIM professor-e

R. *profesor* → DIM professor-e

5 Except on modern German uses for Movierung also -e, -e, -e, -e and -e (dialectal, North German), formations with these suffixes, however, often have or double or allow addition of -e, e.g. Baron-e and Baron-in, as well as Prime-e-in (cf. Wellmann 1975: 107 f). Note that according to the Russian Academy Grammar (1980: 270), *profesor* 'female professor's' should be an existing form, parallel to *direktoršin*, both meaning 'being a professor'. In the RNC, there is only one single occurrence of a diminutive from *profesor* – *profesorstvo*, Google could find 25 pages in Russian where *profesorstvo* is used, as well as seven with *profescope* (Search results from 12.07.07.).
5. EXCEPTIONS AND WHAT THEY REVEAL ABOUT THE NATURE OF CLOSING SUFFIXATION

It should be mentioned here that there is a typological distinction between English (without productive Movierung) and German/Bulgarian/Russian, and English Movierung suffixes are not closing (examples from Hay – Plag 2004):

(10b) Bg. profeso̱r-ka → DIM a
R. profeso̱r-ka → DIM a

It should be mentioned here that there is a typological distinction between English (without productive Movierung) and German/Bulgarian/Russian, and English Movierung suffixes are not closing (examples from Hay – Plag 2004):

(11) E. prince → princes → princecead
princechep
princenhood
princely
princeless

Note that the closing character of the Slavic Movierung suffixes is not due to coincidences with other suffixes, but to Movierung itself, i.e. if a Movierung suffix has a homophous derivational suffix, the latter is not closing, as can be seen in the following examples:

(12) Bg. profeso̱r- professor → professor-ka a female professor
Bgt. profeso̱r- to take a picture → -ka a photographers
R. profeso̱r- professor → profeso̱r-ka a female professor
R. mel-it* to mill → mel-ici-a a mill

Adjectivization:

(13) Bg. snim-k-ov → ADD a
R. snim-k-ov → ADD a
R. propodavatel-nci-a → ADD a

Diminutivization:

(14) Bg. snim-k-a → DIM a
R. snim-k-a → DIM a
R. mel-nci-a → DIM a
R. propodavatel-nci-a → ADD a

In sum, Bulgarian and Russian Movierung suffixes are, like the German Movierung suffix -in, closing (generally speaking, see the next section). Tests with homophous derivational suffixes show that the closing character of the Bulgarian and Russian suffixes used for derivation of females from males is due to the semantic meaning Movierung.

5. EXCEPTIONS AND WHAT THEY REVEAL ABOUT THE NATURE OF CLOSING SUFFIXATION

Slavic Movierung suffixes are not exclusively closing and exhibit a number of exceptions. It should be noted that failure to account adequately for exceptions is the most severe criticism levied against Aronoff & Falfullop 2002 who have offered

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6 Note that some of the German Movierung suffixes are not closing either, e.g. Printesz-ch (cf. Wellmann 1975: 111).

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7 Note that some of the German Movierung suffixes are not closing either, e.g. Printesz-ch (cf. Wellmann 1975: 111).
the only systematic explanation of closing suffocation (and negative restrictions on affix order in general) in morphological theory thus far. Unfortunately, the problem with exceptions, though undoubtedly of particular importance to the theoretical potential of the idea of closing suffocation, has been left open – by Aronoff & Fudhep as well as by their opponents. Therefore in this section, we focus on exceptions from the closing character of Movierung in order to establish whether they occur by chance (i.e. are unclassifiable and thus undermine the idea of systematically occurring closing suffocation) or systematically in a way that is telling regarding the nature of the closing suffocation. The discussion is supported by diminutivization data from Bulgarian, since in this language diminutivization is extremely productive, much more productive than adjectivization and verbalization (and more productive than in Russian, as we could see above), which thus increases the likelihood of finding exceptions.

Besides the inflection -e, Bulgarian possesses the following Movierung suffixes:

(15) -e- (<stg. uželča > non-ščelo’ (‘actor’)) -e- (<stg. uželča > non-ščelo’ (‘actor’)) -e- (<stg. uželča > non-ščelo’ (‘actor’)) -e- (<stg. uželča > non-ščelo’ (‘actor’))

Diminutivization in Bulgarian uses: -e- (<stg. uželča > non-ščelo’ (‘actor’)) -e- (<stg. uželča > non-ščelo’ (‘actor’)) -e- (<stg. uželča > non-ščelo’ (‘actor’)) -e- (<stg. uželča > non-ščelo’ (‘actor’))

A) Females derived from males without a suffix in the derivational word slot:

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-occur by chance (i.e. are unclassifiable and thus undermine the idea of systematization). The discussion is supported by diminutivization data from Bulgarian, since in this language diminutivization is extremely productive, much more productive than adjectivization and verbalization (and more productive than in Russian, as we could see above), which thus increases the likelihood of finding exceptions.

Since diminutives are extremely productive, they are not (or are only seldom) listed in dictionaries, therefore I decided to use as evidence Google. All Google results cited in this section are from 19.08.2007.

Here one should also consider the in-between instances from ‘first witness’ → FEM kam-a(-a) (but also kam-i-o-a) → DIM kam-i-o-a (Google - 147 occurrences) and želismat ‘godfather’ → FEM želismatica → DI T želismatiku (Google – 18 oc-

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closures). I classify these examples as in-between because kamčika and kralkščica can also be seen as denoting children, cf. the discussion in C3 below.

B) Female that are basic nouns (i.e. not derived from males):

B1) Suppletion požel ‘cocker’ – holokš-k-a ‘hen’ → DMB holokš–k-a (cf. the adjective holokš–k-a ‘hen’)


B2) Females that are basic nouns, i.e. the males are derived from the females (semantically) and not vice versa, as in the case in Mirgol–ko ‘goose’ → DMB guli–k-a (cf. guli–k-a = DMB guli–k-a where guli is the semantically unmarked member).

B2) Females derived with foreign Movierung suffixes:

C2) Females derived with foreign Movierung suffixes:

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C3) Nouns for children derived from ethnics:

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6. TOWARDS A TYPOLOGICAL EXPLANATION OF THE RESULTS OBTAINED

Slavic languages represent the inflecting-fusional type that makes a clear distinction between derivational and inflectional suffixes and for which gender is a type-specific category (Dressler 1985). Further, the strongly inflecting Slavic languages (in contrast to the less inflecting German) allow for derivational and inflectional realizations of non-prototypical inflection such as gender in terms of Movierung. Thus, females derived from males are either of the type \([X \times \text{GENDER SUFF} + \text{INF SUFF}]\) or of the type \([X \times \text{INF SUFF}]\), the former being the default expression of Movierung in Slavic. Movierung is, however, not exactly the same category in all Slavic languages—in some languages (e.g. Bulgarian and Russian), Movierung formations are related to a particular inflectional class, whereas in other Slavic languages (e.g. Czech and Polish), Movierung formations enter two phonologically complementary inflectional classes (they are thus less clear instances of non-prototypical inflection than Movierung formations in Bulgarian and Russian) and allow either productive attainment of the possessive adjective suffix -\(\text{ab}^{\text{e}}\) or

Note that some native speakers see the derivation \(\text{včela} \rightarrow \text{včelo} \rightarrow \text{včela} \rightarrow \text{včelina} \rightarrow \text{včelina} \rightarrow \text{včelina} \rightarrow \text{včelina}\) as possible. Google, however, could find no single use of \(\text{včelina}\).

In sum, exceptions to the closing character of Movierung seem numerous at first sight, but they occur systematically and are explained easily. Actually, none of the exceptions cited above undermines the idea of systematic closing suffusion but only demonstrates: a) that the mechanism of closing suffusion is more complex than just distributing the suffixes of a particular language into two groups—‘closing’ and ‘non-closing’, and b) that factors such as semantics (cf. C1, C3 and C4) and morphological structure (cf. A, B, and C2) of the base are of particular importance for the proper functioning of closing suffusion analysis.

Termination in the same segment (phonological coincidence whether due to diastratic reasons or not) is irrelevant to closing suffusion if the phonologically coinciding segments do not represent a suffixed morphomatic unit (i.e. a suffixed morph-phrase).

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diminutivization). Of the two types of realization of Movierung in Slavic, however, only that using the derivational suffix slot of the word is closing\(^{11}\) (in the sense that nouns derived in this way cannot serve as bases for adjectivization, verbalization and diminutivization). This result is a logical one – if material from the derivational suffix slot closes the word for the addition of further suffixation, an empty derivational slot cannot have such properties. Intuitively, if in the derivational suffix slot there is a suffix homophonous with a Movierung suffix, the former is not closing, which thus gives rise to questions about the morphological status of Movierung suffixes. The non-closing character of prototypically derivational suffixes may be seen as further evidence for the non-derivational (i.e. inflectional) character of Movierung suffixes (recall the discussion in sections 2 and 3 above). Moreover, it can be established that there are only a few nouns for female animals (derived with the addition of a suffix in the derivational slot) that allow diminutivization (plus a few lexicalizations and a few nouns derived with foreign suffixes). However, Movierung with ‘animals’ bases differ from Movierung with ‘persons’ bases as animals exhibit both MASC → FEM and FEM → MASC direction of derivation, i.e. Movierung with animals is much more derivational than Movierung with persons, which is always only MASC → FEM. Thus, the exceptions established in the previous section further support the correctness of the claim about (non-protootypical) inflectional character of Movierung, i.e. it is the inflectional status of Movierung that blocks the addition of derivational suffixes. Further, if a language does not relate Movierung to a single inflection class due to typological reasons (as is the case of English), in such a language, Movierung is not closing. If the rule of Movierung is related to two phonologically complementary inflection classes, as is the case in some Slavic languages, Movierung allows (productive) addition of the possessive adjective suffix -in and, according to some native speakers, diminutivization\(^{12}\), and it thus seems that the closing character of Movierung suffixes might be doubted (though cf. footnote 8).

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Movierung (primarily in Bulgarian and Russian) has been analyzed in regard to closing suffixation and the (prototypical) structure of the Slavic word. Slavic Movierung is a clear case of a non-prototypical category, in the sense that Movierung changes allow for derivational and inflectional realizations. Movierung, however, is not exactly the same in all Slavic languages, i.e. in some languages, it is a clear case of non-prototypical inflection, whereas in other languages, it, since related to two (though phonologically complementary) inflection classes, deviates from non-prototypical inflection towards non-prototypical derivation. Moreover, Movierung with persons differs from Movierung with animals (the latter tends to non-prototypical derivation, whereas the former to non-prototypical inflection). Of the two types of expression of Movierung only that with a suffix in the derivational slot (i.e. parallel to the German -in formations) is closing in the languages discussed in the sense that after Movierung suffixes adjectivization, verbalization and diminutivization (the most productive derivational rules with noun bases) are either impossible or restricted in a specific way (e.g. the possessive adjective suffix -in can attach after Movierung suffixes). An exact analysis of the exceptions of closing character of Movierung found in Bulgarian has shown that they are semantically and morphotactically definable. Closing semantics is defined via its morphotactics (only females derived from human males with a suffix in the derivational word slot cannot serve as bases for further derivations), and closing morphotactics is defined via its semantics (in case of homophonic suffixes and final segments, semantics determines the −/− closing character of a suffix/segment). −/− foreign is also a relevant criterion for the establishing of a closing suffix −/− foreign Movierung suffixes are not closing. The closing character of overt Movierung suffixes is explained easily if seen as a result of the inflectional character of Movierung.

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