Argument Encoding in Slovene: A Distributed Morphology Analysis of Slovene Noun Declension

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Abstract

In this paper, I give an analysis of Slovene noun declension within the framework of Distributed Morphology. To adequately account for the data, I decompose case, number and declension classes into more primitive features. Furthermore, I employ the process of impoverishment to capture the systematic properties of Slovene noun declension. The insertion of markers in the respective insertion contexts follows the subset and the specificity principles. I assume one rule which readjusts the results of impoverishment and vocabulary insertion. Finally, in the last section, I briefly outline and reject an alternative approach to the data, one that makes reference to what might be considered residues of former theme vowels.

1. Introduction

In this paper, I will be concerned with the encoding of arguments in Slovene. More specifically, I will look at Slovene noun declension and analyse it within the framework of Distributed Morphology (DM).

As regards noun declension, Slovene is an interesting language to look at in several respects. Thus, Slovene noun declension exhibits both what Müller (2005) calls 'intra-paradigmatic' as well as 'trans-paradigmatic' syncretism. That is, one both finds situations in which a single marker is used for two or more cases as well as that a single marker is shared by two or more declension classes. In order to account for the syncretism phenomena, I will make use of the concepts of FEATURE DECOMPOSITION and UNDERSPECIFICATION. That is, both case and number, as well as declension classes will be further decomposed into more primitive features. Underspecification of individual features allows the reference by individual vocabulary items to natural classes of cases, numbers and inflection classes. However, I will also make use of the α-NOTATION in the specification of vocabulary items, to ac-

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count for syncretism that cannot be captured by genuine underspecification (and thus reference to natural classes) alone.

In addition to the above mentioned types of syncretism, Slovene noun declension exhibits a number of general properties, which seem to be very systematic. To adequately capture these systematic properties, the process of IMPOVERISHMENT will be employed.

The paper is structured as follows. In section 2, I will give a general overview of Slovene noun declension. Section 3 comprises the background assumptions for the analysis as well as the analysis of the Slovene noun declension itself. Section 4, in which I will also address potential problems with the analysis presented, concludes the paper.

2. Slovene Noun Declension

Slovene has six cases (nominative, genitive, dative, accusative, locative and instrumental) and three numbers (singular, dual, plural). Nouns are inflected by adding suffixes to their stems. Four declension classes are traditionally differentiated: Feminine -a, Feminine -ø, Masculine and Neuter declensions.[1][2] Table 3 gives an example noun for each declension class.[3]

The majority of nouns in the feminine -a class have a stem which in NOM ends in the vowel -a. Apart from a few exceptions, nouns in this class are feminine. Looking at the diachronic development of Slovene, it is clear that this class is a descendant of the Indo-European a-declension, as it was adopted into Proto-Slavonic. Already in Proto-Slavonic, the theme vowel -a had been lost in most cases. Note, however, that apart from the NOM sg., it can still be seen in the endings for LOC dl./pl. -*ah*, DAT/INST dl. -*ama*, DAT pl. -*am* and INST pl. -*ami*.

[1]It should be acknowledged that Slovene has a number of exceptional nouns which exhibit a declension different from those captured in the four major classes. However, their number is small and I will therefore ignore them in the present analysis, which is supposed to capture the generalisations that hold for the majority of Slovene nouns.

[2]Note also that Slovene nouns exhibit one of three possible accent patterns; either accent is invariably on the stem, invariably on the ending or it varies. Whether an inflectional ending receives stress bears on its realisation. However, for reasons of space, I will ignore this issue, assuming that it could be easily incorporated into the present analysis.

[3]In the DAT and INST cases, nouns are obligatorily preceded by the prepositions *pri* and *z/s*, respectively. However, for reasons of simplicity, I will omit to state them throughout this paper.

	fem. -a 'book'	fem. -ø 'thought'	masc. 'painter'	neut. 'town'
NOM sg.	knjíga	mísel	pótnik	mésto
ACC sg.	knjígo	mísel	pótnika	mésto
GEN sg.	knjíge	mísli	pótnika	mésta
LOC sg.	knjígi	mísli	pótniku	méstu
DAT sg.	knjígi	mísli	pótniku	méstu
INST sg.	knjígo	míslijo	pótnikom	méstom
NOM dl.	knjígi	mísli	pótnika	mésti
ACC dl.	knjígi	mísli	pótnika	mésti
GEN dl.	knjíg	mísli	pótnikov	mést
LOC dl.	knjígah	míslih	pótnikih	méstih
DAT dl.	knjígama	míslima	pótnikoma	méstoma
INST dl.	knjígama	míslima	pótnikoma	méstoma
NOM pl.	knjíge	mísli	pótniki	mésti
ACC pl.	knjíge	mísli	pótnike	mésti
GEN pl.	knjíg	mísli	pótnikov	mést
LOC pl.	knjígah	míslih	pótnikih	méstih
DAT pl.	knjígam	míslim	pótnikom	méstom
INST pl.	knjígami	míslimi	pótniki	mésti

Table 3. Slovene Noun Declension Classes

A few general observations that can be made for this class are: (a) in the singular, LOC and DAT coincide; (b) in the dual, NOM and ACC coincide, as do DAT and INST; (c) GEN and LOC dl. coincide with GEN and LOC pl., respectively; (d) in the plural, NOM and ACC coincide.

Nouns in the feminine -ø class are feminine also, but have a stem which in NOM ends in a consonant. Note that in NOM, these nouns cannot be differentiated from masculine nouns, which typically end in a consonant as well. Diachronically, this class goes back to the Indo-European i-declension class, as it was adopted into Proto-Slavonic. Similarly to the a-declension, in some cases the theme vowel -i was lost. However, again, it can still be seen in the endings for LOC dl./pl. *-ih*, DAT/INST dl. *-ima*, DAT pl. *-im* and INST pl. *-mi*[4].

Similar general observations as for the feminine -a class can be made for

[4]Looking at the example noun given in Table 3, the ending for INST pl. is *-imi* rather than *-mi*. However, the majority of nouns in this class do have *-mi* in the INST pl. Thus, I will assume that in the case of 'mísel', the additional [i] is inserted between stem and inflectional ending for phonological reasons.

this class: (a) in the singular, GEN, LOC and DAT coincide, as do NOM and ACC; (b) in the dual, NOM, ACC and GEN coincide, as do DAT and INST; (c) in the plural, NOM, ACC and GEN coincide; (d) NOM, ACC, GEN and LOC dl. coincide with NOM, ACC, GEN and LOC pl., respectively.

Nouns in the masculine declension class are masculine and also (usually) have a stem which ends in a consonant. Diachronically, this class descended from the Indo-European o-declension, as it was adopted into Proto-Slavonic. As before, in some cases the theme vowel -o was lost, in others it can still be seen, namely, in the endings for INST sg. -*om*, DAT/INST dl. -*oma* and for DAT pl. -*om*. This declension class is the only one that makes a difference between nouns that denote animate beings and such that denote inanimate objects. Thus, whereas for animate nouns ACC = GEN, for inanimate nouns ACC = NOM.

As before, a few general observations can be made: (a) in the singular, LOC and DAT coincide, as do NOM and ACC (except in cases of animate nouns, where ACC = GEN, as mentioned above); (b) in the dual, NOM and ACC coincide, as do DAT and INST; (c) GEN and LOC dl. coincide with GEN and LOC pl., respectively; (d) in the plural, NOM and INST coincide.

Nouns in the neuter declension class are neuter and have a stem which ends either in -o or -e. Similarly to the masculine, the neuter declension class is a descendant of the Indo-European o-declension. The same general observations made for the masculine also hold for the neuter declension class, with an additional case of syncretism: NOM pl. = ACC pl.

Table 4 lists the inflection endings for Slovene noun declension, disconnected from the stems they attach to[5]. As already noted, there are a number of syncretisms. Thus, although theoretically, Slovene could have as many as 72 inflection endings, it employs only 18. Furthermore, there is both intra-paradigmatic as well as trans-paradigmatic syncretism. For example, in the fem. -ø declension, the marker -*i* is used in NOM, ACC and GEN dl. as well as pl. However, it is also employed in the fem. -a, masculine and neuter declension classes.

In addition to syncretisms in terms of individual inflection markers, there are some general recurring patterns that hold across declension classes. Thus, for all four declension classes it is the case that GEN and LOC dl. = GEN and LOC pl., respectively. Furthermore, for all four declension classes, LOC sg. = DAT sg., as well as DAT dl. = INST dl. With the exception of the fem. -a and the masc. class in the sg. and pl., respectively, NOM = ACC.

[5]As mentioned above, in the ACC sg., masculine inanimate nouns end in -ø, whereas animate nouns end in -a

	fem. -a	fem. -ø	masc.	neut.
NOM sg.	-a	-ø	-ø	-o
ACC sg.	-o	-ø	-ø/-a	-o
GEN sg.	-e	-i	-a	-a
LOC sg.	-i	-i	-u	-u
DAT sg.	-i	-i	-u	-u
INST sg.	-o	-jo	-om	-om
NOM dl.	-i	-i	-a	-i
ACC dl.	-i	-i	-a	-i
GEN dl.	-ø	-i	-ov	-ø
LOC dl.	-ah	-ih	-ih	-ih
DAT dl.	-ama	-ima	-oma	-oma
INST dl.	-ama	-ima	-oma	-oma
NOM pl.	-e	-i	-i	-a
ACC pl.	-e	-i	-e	-a
GEN pl.	-ø	-i	-ov	-ø
LOC pl.	-ah	-ih	-ih	-ih
DAT pl.	-am	-im	-om	-om
INST pl.	-ami	-imi	-i	-i

Table 4. Noun declension endings

With respect to the declension of both masculine and neuter nouns for the cases LOC, DAT and INST, note that it is the same in all numbers, as well as in the GEN sg. Moreover, similarly to the masculine declension class, a number of neuter nouns take the suffix *-ov* in GEN dl./pl. Considering that fact, the above generalisation can be extended to the GEN case as well.

It should be noted that the inflection markers as they are given in Table 4 presuppose the adoption of the traditional assumption according to which in those cases where the theme vowel remained, it was reanalysed as being part of the respective inflectional ending. However, this assumption is not inevitable. Thus, it is equally possible to assume that in those cases where the theme vowel remained, it was reanalysed as an inflectional ending in its own right. However, for reasons that I will give in the final section of this paper, I decided not pursue this line.

3. Analysis

3.1. Background Assumptions

In order to carry out my analysis of Slovene noun declension, there are a few background assumptions which I will take to hold. These concern the classification of case, number and declension classes into natural classes, the underspecification of vocabulary items as well as syntactic insertion contexts, the order of insertion of vocabulary items and their characterisation as such.

Thus, I will assume that the standard cases (NOM, ACC, GEN, etc.) can be further decomposed into more primitive features. Following Müller (2004), who gives a DM analysis for Russian noun declension, I will use the features [±sub(ject)], [±gov(erned)] and [±obl(ique)] to decompose the cases in Slovene (cf. Table 5).

	[sub]	[gov]	[obl]
NOM	+	-	-
ACC	-	+	-
GEN	+	+	+
LOC	-	-	+
DAT	-	+	+
INST	+	-	+

Table 5. Classification of cases

The same holds for number and declension classes. Thus, I use the features [±singular] and [±plural] to classify the three numbers in Slovene (Table 6).

	[singular]	[plural]
sg.	+	-
dl.	-	-
pl.	-	+

Table 6. Classification of numbers

To classify the declension classes, the features [±fem.] and [±masc.] are not sufficient. On the one hand, there are two feminine declension classes. On the other hand, although the majority of nouns do, not all nouns in the respective declension classes necessarily have the gender that gives the declension class its name. Therefore, I will use the abstract features [±x] and [±y] to classify the four declension classes (Table 7).

Vocabulary items may be underspecified with regard to individual fea-

	[x]	[y]
fem. -a	-	+
fem. -ø	+	+
masc.	-	-
neut.	+	-

Table 7. Classification of declension classes

tures and thus apply in more than one insertion context. Furthermore, for the specification of the vocabulary items, I will make use of the α-NOTATION[6], which allows the insertion of a single marker into two or more insertion contexts that have opposite values for one or more features. To ensure the correct insertion of vocabulary items into syntactic structures, I will assume the Subset Principle ((1)) and the Specificity Principle ((2)) to hold.

(1) *Subset Principle*
A vocabulary item V is inserted into a functional morpheme F iff (a) and (b) hold:
   a. The insertion context of V is a subset of the set of the morpho-syntactic features of F
   b. V is the most specific vocabulary item that satisfies (i)

(2) *Specificity Principle*
A vocabulary item V_i is more specific than a vocabulary item V_j iff there is a feature class $\Im$ such that (a) and (b) hold:
   a. The insertion context of V_i has more features in $\Im$ than the insertion context of V_j.
   b. There is no higher-ranked feature class $\Im$' such that the insertion contexts of V_i and V_j have a different number of features in $\Im$'.

Again following Müller (2004), I will assume that the specificity hierarchy for the features that characterise a vocabulary item is as follows:

(3) number $\gg$ class $\gg$ case

However, underspecification does not only apply to vocabulary items, but may also be a feature of the syntactic insertion context. This is due to the process of IMPOVERISHMENT, which reduces the complexity of the insertion context for VIs, thus constituting a 'retreat to the general case'.

[6]Cf. Alexiadou and Müller (2005), where the notion is used for a DM analysis of Greek noun inflection.

Impoverishment rules capture particularly well the general properties a language's inflection system exhibits.

3.2. Impoverishment

For Slovene noun inflection, I assume the impoverishment rules in ((4)). Similarly to the insertion of vocabulary items, impoverishment rules apply in order of specificity. Thus rule (1) being the most specific, applies first. It ensures that nouns with [+anim] will have the same ending in the ACC that they have in the GEN. That is, even if Slovene had a specific marker for the ACC sg., which had among its feature specifications [-sub, +gov -obl], this marker could no longer be inserted, since the impoverishment rule (1) has reduced the feature specification of the relevant insertion context.

(4) Impoverishment Rules

a. [+sg. -pl. -x -y -sub +gov -obl +anim] → [+sg. -pl. -x -y +gov +anim]
b. [-sg. -pl. +sub +gov +obl] → [-sg. +sub +gov +obl]
c. [-sg. -pl. -sub -gov +obl] → [-sg. -sub -gov +obl]
d. [+sg. -pl. -sub -gov +obl] → [+sg. -pl. -sub +obl]
e. [-sg. -pl. -sub +gov -obl] → [-sg. -pl. -obl]
f. [-sg. -y -sub -gov +obl] → [-sg. -sub -gov +obl]
g. [+x -y +obl] → [-y +obl]
h. [+x -sub +gov -obl] → [+x -obl]

Rule (2) and (3) make it impossible for a marker with dual specifications to get inserted in the respective dual contexts[7]. That is, they ensure that in GEN and LOC dl. contexts, the same marker will be inserted as in the respective pl. contexts. Rule (4) ensures that LOC sg. is marked by the same

[7]An analysis in terms of impoverishment of the fact that potential GEN and LOC dl. markers are prevented from insertion in the respective contexts, increases in credibility, if one considers the development of Slovene from Proto-Slavonic. Thus, in Proto-Slavonic, the GEN and LOC dl. contexts were marked by a specific ending; *-u* in the case of fem. -a, masc. and neuter declension classes and the marker *-ьjь* for the fem. -ø class, namely *-ih*. The respective pl. contexts in the individual declension classes, however, were marked by endings, which later developed into those found today for GEN and LOC dl. as well as pl. contexts (fem. -a GEN pl. *-ъ* and LOC pl. *-axъ*; fem. -ø GEN pl. *ьjь* and LOC pl. *ьxь*; masc. and neut. LOC pl. *ěxъ* and GEN pl. *-ov*, which was adopted from the u-declension class.). Thus, although there used to be special markers for the GEN and LOC dl. contexts in Slovene, at some point, they were prevented from applying due to an impoverishment of the insertion context.

ending as is DAT sg. Rule (5) accounts for the fact that for each declension class, in dl. contexts, NOM and ACC receive the same marker. As we have seen in Table (4), in the LOC dl./pl., masculine and neuter declension classes take the same marker as the feminine -ø class. This is what rule (6) accounts for. Rule (7) is responsible for the fact that in all [+obl] cases, the difference between masculine and neuter declension classes is neutralised[8]. Finally, rule (8) ensures that nouns of the fem. ø and neuter declension classes, respectively, receive the same marker in ACC as they do in NOM. Thus, the application of impoverishment rules yields reduced specifications for some of the insertion contexts for vocabulary items.

3.3. Vocabulary Insertion

What follows is the list of vocabulary items with their specifications. They are ordered by specificity and no extrinsic ordering is necessary.

(5) Vocabulary Items

a. /-jo/ ↔ [+sg. -pl. +x +y +sub -gov +obl]
b. /-e_1/ ↔ [-sg. +pl. -x -y -sub +gov -obl]
c. /-e_2/ ↔ [+sg. -pl. -x +y +sub +gov +obl]
d. /-am/ ↔ [-sg. +pl. -x +y -sub +gov +obl]
e. /-im/ ↔ [-sg. +pl. +x +y -sub +gov +obl]
f. /-ami/ ↔ [-sg. +pl. -x +y +sub -gov +obl]
g. /-mi/ ↔ [-sg. +pl. +x +y +sub -gov +obl]
h. /-ima/ ↔ [-sg. -pl. +x +y αsub -αgov +obl]
i. /-ama/ ↔ [-sg. -pl. -x +y αsub -αgov +obl]
j. /-o_1/ ↔ [+sg. -pl. -x +y αsub -αgov αobl]
k. /-o_2/ ↔ [+sg. -pl. +x -y -obl]
l. /-a_1/ ↔ [+sg. -pl. -x +y -obl]
m. /-e_3/ ↔ [-sg. +pl. -x +y -obl]
n. /-$ø_1$/ ↔ [+sg. -pl. αx αy -obl]
o. /-oma/ ↔ [-sg. -pl. -y αsub -αgov +obl]
p. /-u/ ↔ [+sg. -pl. -y -sub +obl]
q. /-a_2/ ↔ [+sg. -pl. -y +gov]
r. /-a_3/ ↔ [-sg. αpl. αx -y -obl]
s. /-om/ ↔ [αsg. -αpl. -y αsub -αgov +obl]

[8]This, of course, leads to a general insertion of the genitive dl./pl. marker -*ov* for both masc. and neut. declension classes. But see below for a way to handle this.

t. /-ah/ ↔ [-sg. -x +y -sub -gov +obl]
u. /-ø$_2$/ ↔ [-x +y +sub +gov +obl]
v. /-ov/ ↔ [-y +sub +gov +obl]
w. /-ih/ ↔ [-sg. -sub -gov +obl]
x. /-i/ ↔ [ ]

Table 8 gives the insertion contexts after impoverishment for all declension classes, number and cases, together with the vocabulary item that matches the respective context(s). In the following, I will discuss the Vocabulary Insertion for each inflectional ending.

Vocabulary items (1-7) are fully specified and thus get inserted first. Moreover, due to their full specification, they each allow insertion in one context only. Thus, *-jo* is inserted in INST sg. of the fem. -ø class; -e_1 in ACC pl. of the masc. class; -e_2 in GEN sg. of the fem. -a class; *-am* and *-im* in DAT pl. and *-ami* and *-mi* in INST pl. of the fem. -a and -ø class, respectively.

The α-notation in the specification of the next two vocabulary items *-ima* and *-ama* makes them applicable to both DAT dl. as well as INST pl. insertion contexts[9]. Thus, *-ima* is inserted in the respective contexts in the fem. -ø class, whereas *-ama* is inserted in the same contexts in the fem. -a class. Similar remarks can be made for -o_1, which is inserted both in ACC sg. and INST sg. in the fem. -a class.

The specifications of the next three vocabulary items (11-13) exhibit the first genuine underspecification, making reference to natural classes of cases. That is, their case specification is underspecified insofar as only one feature is given ([-obl]), thus referring to the natural class of cases which have that feature (NOM and ACC). Due to the underspecification of the case features, they are less specific than the preceding vocabulary items. However, keeping the hierarchy of features in mind, these three vocabulary items are still more specific than the vocabulary items to come. Note that although in principle the vocabulary item -a_1 could be inserted both in NOM sg. as well as ACC sg. contexts in the fem. -a class, the fact that the vocabulary item -o_1 is more specific prevents -a_1 from being inserted in the NOM sg. context. There is

[9]As already mentioned above, α may be replaced either by - or +, thus the case specification [αsub -αgov +obl] can be fully specified as both [-sub +gov +obl] (DAT) and [+sub -gov +obl] (INST). Similarly, the case specification [αsub -αgov αobl] can be fully specified as both [-sub +gov -obl] (ACC) as well as [+sub -gov +obl] (INST). In terms of specificity, features that have as their values α/-α are less specific than the same features with a ± value. Thus, although the vocabulary items in (8-10) have the full range of features present in their specification, they are 'lower-ranked', or less specific than those in (1-7).

	fem. -a	**fem. -ø**	**masc.**	**neut.**
NOM sg.	[+sg -pl -x +y +sub -gov -obl] **-a**	[+sg -pl +x +y +sub -gov -obl] **-ø$_1$**	[+sg -pl -x -y +sub -gov -obl] **-ø$_1$**	[+sg -pl +x -y +sub -gov -obl] **-o$_2$**
ACC sg.	[+sg -pl -x +y -sub +gov -obl] **-o$_1$**	[+sg -pl +x +y -obl] **-ø$_1$**	[+sg -pl -x -y +gov [+anim]] **-a$_2$** / [-sub +gov -obl [-anim]] **-ø$_1$**	[+sg -pl +x -y -obl] **-o$_2$**
GEN sg.	[+sg -pl -x +y +sub +gov +obl] **-e$_2$**	[+sg -pl +x +y +sub +gov +obl] **-i**	[+sg -pl -x -y +sub +gov +obl] **-a$_2$**	[+sg -pl -y +sub +gov +obl] **-a$_2$**
LOC sg.	[+sg -pl -x +y -sub +obl] **-i**	[+sg -pl +x +y -sub +obl] **-i**	[+sg -pl -x -y -sub +obl] **-u**	[+sg -pl -y -sub +obl] **-u**
DAT sg.	[+sg -pl -x +y -sub +gov +obl] **-i**	[+sg -pl +x +y -sub +gov +obl] **-i**	[+sg -pl -x -y -sub +gov +obl] **-u**	[+sg -pl -y -sub +gov +obl] **-u**
INST sg.	[+sg -pl -x +y +sub -gov +obl] **-o$_1$**	[+sg -pl +x +y +sub -gov +obl] **-jo**	[+sg -pl -x -y +sub -gov +obl] **-om**	[+sg -pl -y +sub -gov +obl] **-om**
NOM dl.	[-sg -pl -x +y +sub -gov -obl] **-i**	[-sg -pl +x +y +sub -gov -obl] **-i**	[-sg -pl -x -y +sub -gov -obl] **-a$_3$**	[-sg -pl +x -y +sub -gov -obl] **-i**
ACC dl.	[-sg -pl -x +y -obl] **-i**	[-sg -pl +x +y -obl] **-i**	[-sg -pl -x -y -obl] **-a$_3$**	[-sg -pl +x -y -obl] **-i**
GEN dl.	[-sg -x +y +sub +gov +obl] **-ø$_2$**	[-sg +x +y +sub +gov +obl] **-i**	[-sg -x -y +sub +gov +obl] **-ov**	[-sg -y +sub +gov +obl] **-ov**
LOC dl.	[-sg -x +y -sub -gov +obl] **-ah**	[-sg +x +y -sub -gov +obl] **-ih**	[-sg -x -sub -gov +obl] **-ih**	[-sg +x -sub -gov +obl] **-ih**
DAT dl.	[-sg -pl -x +y -sub +gov +obl] **-ama**	[-sg -pl +x +y -sub +gov +obl] **-(i)ma**	[-sg -pl -x -y -sub +gov +obl] **-oma**	[-sg -pl -y -sub +gov +obl] **-oma**
INST dl.	[-sg -pl -x +y +sub -gov +obl] **-ama**	[-sg -pl +x +y +sub -gov +obl] **-(i)ma**	[-sg -pl -x -y +sub -gov +obl] **-oma**	[-sg -pl -y +sub -gov +obl] **-oma**
NOM pl.	[-sg +pl -x +y +sub -gov -obl] **-e$_3$**	[-sg +pl +x +y +sub -gov -obl] **-i**	[-sg +pl -x -y +sub -gov -obl] **-i**	[-sg +pl +x -y +sub -gov -obl] **-a$_3$**
ACC pl.	[-sg +pl -x +y -sub +gov -obl] **-e$_3$**	[-sg +pl +x +y -obl] **-i**	[-sg +pl -x -y -sub +gov -obl] **-e$_1$**	[-sg +pl +x -y -obl] **-a$_3$**
GEN pl.	[-sg +pl -x +y +sub +gov +obl] **-ø$_2$**	[-sg +pl +x +y +sub +gov +obl] **-i**	[-sg +pl -x -y +sub +gov +obl] **-ov**	[-sg +pl -y +sub +gov +obl] **-ov**
LOC pl.	[-sg +pl -x +y -sub -gov +obl] **-ah**	[-sg +pl +x +y -sub -gov +obl] **-ih**	[-sg +pl -x -sub -gov +obl] **-ih**	[-sg +pl +x -sub -gov +obl] **-ih**
DAT pl.	[-sg +pl -x +y -sub +gov +obl] **-am**	[-sg +pl +x +y -sub +gov +obl] **-im**	[-sg +pl -x -y -sub +gov +obl] **-om**	[-sg +pl -y -sub +gov +obl] **-om**
INST pl.	[-sg +pl -x +y +sub -gov +obl] **-ami**	[-sg +pl +x +y +sub -gov +obl] **-mi**	[-sg +pl -x -y +sub -gov +obl] **-i**	[-sg +pl -y +sub -gov +obl] **-i**

Table 8. Insertion Contexts and Vocabulary Insertion

no such competition in the case of -o_2 and -e_3, thus, the former is inserted both in NOM and ACC sg. neut. class contexts, whereas the latter is inserted in NOM and ACC pl. fem. -a class contexts.

Vocabulary item -$\emptyset_1$, in turn, is less specific than those in (11-13) due to the α-notation for its class feature specification. Thus, it gets inserted both in the fem. -a class and masc. class in NOM and ACC sg. contexts. However, in the case of ACC sg. of the masc. declension class, -$\emptyset_1$ only gets inserted if the feature [-anim] is among the feature specification of the abstract morpheme. If, in contrast, the abstract morpheme has the feature [+anim], this will trigger impoverishment rule 1, which reduces the insertion context from [+sg. -pl. -x -y -sub +gov -obl] to [+sg. -pl. -x -y +gov], thus preventing -$\emptyset_1$ from application[10].

The next vocabulary item -*oma* is underspecified for declension class, and thus gets used in the relevant contexts of both the masc. and neut. declension classes. Moreover, captured by the α-notation, it applies both in the relevant DAT dl. as well as INST dl. contexts.

Vocabulary item -*u* is underspecified both for case as well as declension class. Thus, it can be inserted both in LOC and DAT sg. contexts in declension classes masc. and neut.

Similarly, vocabulary item -a_2 may in principle be inserted in both masc. and neut. classes in all sg. contexts that exhibit the feature [+gov], i.e., ACC, GEN and DAT sg. However, it is prevented from insertion in the neut. ACC sg. context due to earlier insertion of the more specific marker o_2. Furthermore, it cannot be inserted in the relevant DAT sg. contexts, since the more specific marker -*u* has already been inserted. Thus, -a_2 can only be inserted in masc. and neut. GEN sg. contexts, as well as the masc. ACC sg. context, in those cases where that context also has the [+anim] feature.

The next vocabulary item is particularly interesting in that its distribution varies both across numbers as well as declension classes. Again, this can be captured by making use of the α-notation. Thus, -a_3 can be inserted both in [-sg. +pl. +x -y -obl] as well as [-sg. -pl. -x -y -obl] contexts.

In the specification of -*om*, α-notation is used both for the number as well as the case features, making it applicable both in INST sg. as well as DAT pl. contexts in the masc. and neut. declension classes. However, although α-notation is heavily made use of in the specification of -*om*, according to the feature hierarchy, this vocabulary item is still more specific than -*ah*, for which α-notation is not necessary at all. Thus, -*ah* may be inserted in

[10]In this case vocabulary item -a_2, more on which below, has the relevant feature specification and will be inserted instead.

fem. -a class LOC dl. and pl. contexts. Similarly, -$ø_2$ is inserted in fem. -a class GEN dl. and pl. contexts. Although it could in principle be inserted in GEN sg. of the fem. class as well, this is prevented by the earlier insertion of the more specific marker e_2.

The next vocabulary item *-ov* is underspecified both for number as well as declension class, thus being in principle applicable for all masc. and neut. GEN contexts. However in the relevant GEN sg. contexts, the more specific marker *-u* has already been inserted, thus preventing the insertion of *-ov* in those cases.

The last but one marker *-ih* is fully specified only for case and not at all specified for declension class. Thus, in principle it is applicable in the LOC contexts of all four declension classes in dl. and pl. However, its applicaton is reduced to the GEN dl. and pl. of fem. -ø, masc. and neut. declension classes by the fact that the more specific marker *-ah* has already been inserted in the LOC dl. and pl. contexts of the fem. -a class.

Finally, the last marker *-i* has no specifications whatsoever, thus constituting the 'Elsewhere marker'. It gets inserted in all those contexts in which the more specific markers could not get inserted.

3.4. Readjustment

Comparing the inserted vocabulary items in Table 8 with the actual inflectional endings listed in Table 4 one can see that they do not yet completely match. That is, the process of vocabulary insertion has inserted a marker in a context where it does not actually occur. Thus, recall that in order to capture the fact that the masc. and neut. declension classes, with the exception of GEN dl./pl., have the same markers in all oblique cases, I have assumed an impoverishment rule to this end. As a consequence, in the neut. declension class, the marker *-ov* will obligatorily be inserted in the GEN dl./pl. contexts, although there is a large number of neuter nouns which have a zero ending in this case. In order to accurately capture this fact, I assume the readjustment rule in (6), which makes reference to a set of nouns that undergo this rule and which deletes the ending *-ov* in the relevant cases.

(6) Readjustment Rule
-ov $\rightarrow$ ø /[-sg. -y +sub +gov +obl] X + $\_$,
where X = {poljê, srcé, mésto, ...}

4. Conclusion

4.1. General Remarks

To account for the distribution of the 18 inflectional markers, I assumed 24 distinct vocabulary items. That is, for the markers -a, -e, -o and -ø I have to assume homonymy. Thus, not all instances of syncretism can be accounted for as being systematic.

Similarly, the impoverishment rules I postulated are not as general as one might wish them to be. Thus, although the feminine -ø and neuter declension classes exhibit ACC = NOM in the sg. as well, as do fem. -a, fem. -ø and neuter in the pl., rule (5) cannot be generalised to apply in all three number contexts. Reducing the feature specification [-sub +gov -obl] to [-obl] would make it impossible to insert the ACC sg. marker *-o* of the feminine -a declension class and would prevent the insertion of the ACC sg. [+anim] marker *-a* as well as the ACC pl. marker *-e* of the masculine class.

Although impoverishment is supposed to capture more general properties of a language's inflection system, the resulting reduced insertion contexts are redundant in the specification of the vocabulary items, which are underspecified as well. That is, apart from rule (1), actually none of them is vital for a correct insertion of the vocabulary items. However, I would still like to assume them, as they capture what seem to be systematic generalisations that hold for Slovene noun declension and, more importantly, which hold across different declension classes and individual markers.

4.2. Alternative Approach

As mentioned above, an alternative approach may be possible to account for the residues of what used to be theme vowels of the individual declension classes in Indo-European. That is, one might not necessarily want to assume that the theme vowels were reanalysed as belonging to the respective inflectional endings. Rather, they may have been reanalysed as inflectional endings in their own right. Thus, looking at their distribution, they could be taken to have a specification that includes an [+obl] feature, a [-sg.] feature, as well as the respective declension class features: [-x +y] for *-a*, [-y] for *-o* and completely underspecified declension class features for *-i* [ ], to account for the fact that it can also occur in the relevant masc./neut. LOC contexts. Such an approach would allow a uniform treatment across declension classes of the inflectional endings for LOC dl./pl. as *-h*, DAT and INST dl. as *-ma*, DAT pl. as *-m* and for INST pl. of the fem. -a and -ø declension

classes as *-mi*. However, there is a price for this kind of subanalysis, which I did not want to pay. For instance, one would have to ensure that the inflectional endings -a, -i and -o are suffixed to the respective stems first. Thus, either one assumes something like rule blocks which apply in succession, or, alternatively, one could make use of the concept of SECONDARY EXPONENCE[11]. Still, in addition, one would need a number of readjustment rules to account for the circumstances in which one of the (former theme) vowels is expected but does not occur (cf. Halle's 1992 analysis of Latvian noun declension). However, my main objection to this kind of analysis is the fact that it would have to be much more complex than the one I have given above, while assuming even more homonymies than my analysis has to accept.

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[11] Having said that, Weisser (2006) in his analysis of Croatian employs a different method altogether, treating parts of certain inflectional endings as being the result of readjustment rules that apply after the actual vocabulary insertion has already taken place.

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