Epenthesis in Serbo-Croatian neuter noun inflection

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Introduction

- SC neuter nouns inflect similarly to masculine nouns – consonant-final stems receive largely the same case endings:

	‘institute’		‘village’	
	MASCULINE		NEUTER	
	SG.	PL.	SG.	PL.
NOM.	zavod	zavod-i	sel-o	sel-a
GEN.	zavod-a	zavod-a:	sel-a	sel-a:
DAT.- LOC.	zavod-u	zavod-ima	sel-u	sel-ima
ACC.	zavod	zavod-e	sel-o	sel-a
VOC.	zavod-e	zavod-i	sel-o	sel-a
INS.	zavod-om	zavod-ima	sel-om	sel-ima

Introduction

- Every suffix-initial *-o* changes to *-e* after C[cor, -ant] consonants:

  j, ʎ, ɲ, dʑ, tɕ, dʒ, ʧ, ʒ, ʃ + ts

‘village’

	SG.	PL.
NOM.	sel-o	sel-a
GEN.	sel-a	sel-a:
DAT.- LOC.	sel-u	sel-ima
ACC.	sel-o	sel-a
VOC.	sel-o	sel-a
INS.	sel-om	sel-ima

	MASCULINE	
INS.	zavod-om	zavod-ima

‘field’

SG.	PL.
poʎ-e	poʎ-a
poʎ-a	poʎ-a:
poʎ-u	poʎ-ima
poʎ-e	poʎ-a
poʎ-e	poʎ-a
poʎ-em	poʎ-ima

MASCULINE	
ʧekitɕ-em	ʧekitɕ-ima

Introduction

- However, a significant number of neuter nouns inflect by the following pattern; no case ending in nom., extra consonant (absent from nom.) in the oblique cases:

	SG.	PL.
NOM.	uʒe	*irregular (collective nouns are used to express plurality)*
GEN.	uʒe-t-a	
DAT.- LOC.	uʒe-t-u	
ACC.	uʒe	
VOC.	uʒe	
INS.	uʒe-t-om	

SG.	PL.
ime	ime-n-a
ime-n-a	ime-n-a:
ime-n-u	ime-n-ima
ime	ime-n-a
ime	ime-n-a
ime-n-om	ime-n-ima

Introduction

- Vowel-final or consonant-final stems?
- Epenthesis, stem extension, or truncation?
  a) uʒe, uʒe-t-a, … => vowel-final stem; ***t*** is inserted
  b) uʒeʇ, uʒet-a … => ***t***-final stem, truncation in the nom.sg.
  c) uʒ-e, uʒ-et-a, … => consonant-final stem, *-e* as the nom.sg. suffix; ***-et*** is inserted between the stem and the case suffix

- Šljivić-Šimšić (1984) gives a review of the approaches assumed in the literature up to then

Introduction

- These are all (potentially) problematic:

  a) if we assume they form a separate class => *unpredictable* stem allomorphy
  b) motivation unclear; how to restrict it only to the pertinent cases?
  c) we would have two different nom.sg. suffixes, *o* and *e*, with no way of predicting their distribution – nor that of the stem extenders.

Introduction

- Listed stem allomorphs?
  - *uʒe* and *uʒet* are listed

  - *t* in a large number of different nouns; *n* if nom. ends in *-me*
    ⇒ predictable contexts

- This paper: **morphologically conditioned consonant insertion**

Generalization

- SC stems are normally C-final; those that are not are repaired via consonant insertion

  → **if another suffix follows immediately**

otherwise the word is vowel-final (bare stem) and considered well-formed (CV syllable structure)

/tele + ji/	[teletɕi] ‘calf-like’	vs.	/koz + ji/	[kozji] ‘goat-like’
/sirtɕe + ni/	[sirtɕetni] ‘acetic’	vs.	/plod + ni/	[plodni] ‘fertile’
/ime + ski/	[imenski] ‘nominal’	vs.	/sport + ski/	[sportski] ‘sporty’

Environments

- uʒe ‘rope’, ʤule ‘cannonball’, june ‘heifer’, ʒdrebe ‘foal’, unuʧe ‘grandchild’, bure ‘barrel’, jaje ‘egg’, dete ‘child’, prase ‘piglet’… ⟹ t

- ime ‘name’, seme ‘seed’, teme ‘top of head’, pleme ‘tribe’, rame ‘shoulder’, sleme ‘top of roof’, vreme ‘time’, breme ‘burden’… ⟹ n

- **[t] is default** in neuter noun inflection, occurring after stems that have a number of different consonants preceding the stem-final [e]; **[n] is inserted after stems that end in [me]**.

-me stems

- stems end in *-me*, *n* is epenthesized
- Closed, unproductive class?

  Yes, but still follows a rule!

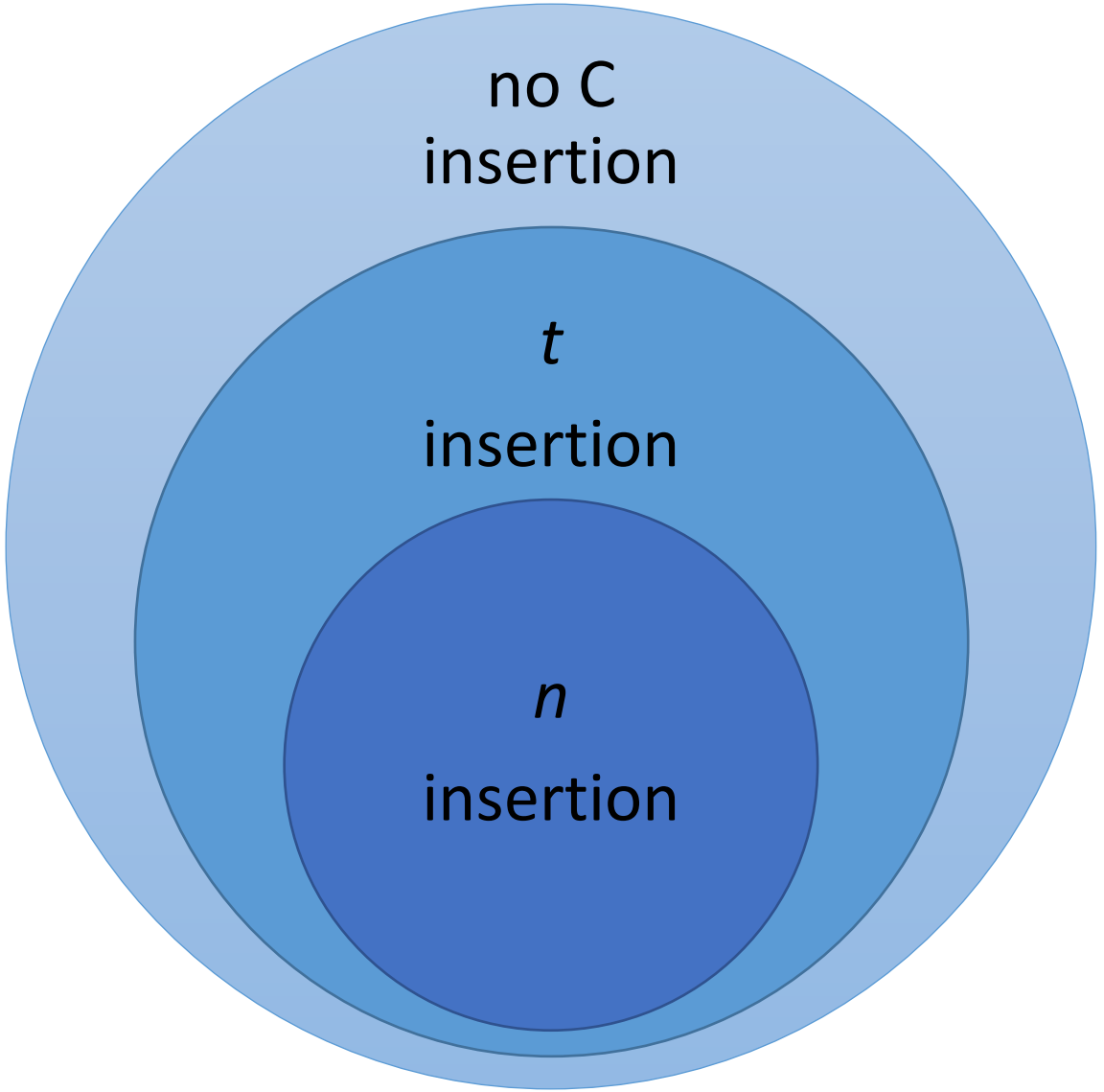
- *Irregular rules* (Yang 2016): **V → ɔ** (buy – bought, catch – caught,…)
  - finite list (*bring, buy, catch, fight, seek, teach, think*)
  - formed by rule-based computation (rather than word association)
  - corroborated by rule frequency and child acquisition data
  - **application of the more specific rule first, if possible; otherwise, general**

Exceptions?

- *krme, dugme*; Turkish loanwords (*ename, kezme,…*)
  - *krmeta, dugmeta, enameta, kezmeta…*
- ~ 7 such words

- => *exceptional-case default* (Aronoff 2013, Brown and Hippisley 2012)

Lexical exceptions to a rule tend to abide by the more general rule (i.e. *t* epenthesis instead of *n* epenthesis)


no C
insertion
t
insertion
n
insertion

Listed stem allomorphs?

- Listed stem allomorphs still exist in inflection:
  - kt͡ɕi ‘daughter.NOM.SG.’ – kt͡ɕer-i ‘daughter.GEN.SG.’ / kt͡ɕer ‘daughter.NOM.SG.’
  - telo ‘body.NOM.SG.’ – teles-a ‘body.NOM.PL.’ (pej.) / tel-a ‘body.NOM.PL.’
  - podne ‘noon.NOM.SG.’ – podnev-a ‘noon.GEN.SG.’
- In other Slavic languages, i.e. Russian (Wade 2011), the *ɯʒe-* and *ime*-type nouns have been described as exhibiting (unpredictable) stem allomorphy:
  - ditja ‘child.NOM.SG.’ – det-i ‘child.NOM.PL.’
  - imja ‘name.NOM.SG.’ – imen-i ‘name.GEN.SG.’

Listed stem allomorphs?

- Identifying this kind of allomorphy in corresponding SC nouns, however, misses a broad generalization: specific segments predictably repair an illegal structure within specific morphological contexts.

- The position and quality of the inserted segments are predictable
  - The default epenthetic consonant is a coronal, preferably [t] (Broselow 1984, McCarthy and Prince 1993, Anttila 1994)
  - In an even more specific context, the segment is also [+nasal]

(… because of the preceding *m*?)

Paradigm Function Morphology

- The form of the stem apparently influences the surface form of a neuter noun, while the shared case endings indicate that all masculine and neuter nouns belong to the same inflection class.
- Main property of PFM: a **paradigm function (PF)** takes the form of a set of **realization rules**, which are organized in successive **blocks**.
- E.g.:
  - PF(<IME, σ:{gen sg}>) = <imena, σ>

Paradigm Function Morphology

- E.g.:
  - PF(<IME, σ:{gen sg}>) = <imena, σ>
- involves three successive steps:
  - a. Choosing the basic stem *ime* (Basic stem choice)
  - b. Suffixing the {gen sg} exponent *a* (Block I)
  - c. Suffixing the stem extension consonant *n* (stem formation; morphological metageneralization)

Paradigm Function Morphology

- Rules in different blocks – syntagmatic opposition
- Rules in same block – paradigmatic opposition
- Choice among rules governed by **Narrowness** ($\Longrightarrow$ Pāṇini's principle: if two rules are in competition, the rule that applies in a narrower class of cases wins).

  $\Rightarrow$ accounts for the distribution of stem extension consonants in SC: for all neuter nouns whose stem ends in a vowel, if the stem ends in -me, the epenthetic consonant is -n; otherwise it is -t.

Rules of basic stem choice

a. ***Stem***(<ZAVOD, σ:{}>) = <*zavod*, σ>

b. ***Stem***(<SELO, σ:{}>) = <*sel*, σ>

c. ***Stem***(<UŽE, σ:{}>) = <*uʒe*, σ>

d. ***Stem***(<IME, σ:{}>) = <*ime*, σ>

Rules of exponence

Block I

I1. I, $X_{N\ [CLASS\ I]}$, {nom sg n} → X*o*, if X has the form Y*C*
I2. I, $X_{N\ [CLASS\ I]}$, {acc pl m} → X*e*
I3. I, $X_{N\ [CLASS\ I]}$, {gen sg} → X*a*
I4. I, $X_{N\ [CLASS\ I]}$, {dat sg} → X*u*
I5. I, $X_{N\ [CLASS\ I]}$, {ins sg} → X*om*
I6. I, $X_{N\ [CLASS\ I]}$, {gen pl} → X*a:*
I7. I, $X_{N\ [CLASS\ I]}$, {dat pl} → X*ima*
I, X_U, {} → X [IFD]

Morphological metageneralizations

- rules that applies on whole classes of realization rules
- also account for regularities in the application of ordinary morphophonological rules (slide 25)
- *t/n* insertion would **not** be realized by a rule of exponence

(1) Where R is in Block I, (2) $\in \phi_R$.

(2) Where $RR_{n,\tau,C}(\langle X,\sigma\rangle)=\langle Y',\sigma\rangle$,

if X is a basic stem having the form W*me*, and Y is XZ,
then $\langle Y',\sigma\rangle = RR_{n,\tau,C}(\langle XnZ,\sigma\rangle)$;
if X is a basic stem having the form W*e*, and Y is XZ,
then $\langle Y',\sigma\rangle = RR_{n,\tau,C}(\langle XtZ,\sigma\rangle)$.

Rules of referral

- Model syncretism – explicitly relate the realization of one cell to that of another cell

03. 0, $X_{N[CLASS\ I]}$, σ:{nom sg} → Y, where [0 : <X, σ/{acc sg}>] = <Y, σ>
04. 0, $X_{N[CLASS\ I]}$, σ:{nom sg} → Y, where [0 : <X, σ/{voc sg}>] = <Y, σ>

I8. I, $X_{N[CLASS\ I]}$, σ:{acc pl m} → Y, where [I : <X, σ/{voc sg m}>] = <Y, σ>
I9. I, $X_{N[CLASS\ I]}$, σ:{gen sg anim} → Y, where [I : <X, σ/{acc sg}>] = <Y, σ>
I10. I, $X_{N[CLASS\ I]}$, σ:{nom sg inanim} → Y, where [I: <X,σ/{acc sg}>] = <Y,σ>
I11. I, X_N, σ:{gen sg} → Y, where [I : <X, σ/{nom pl}>] = <Y, σ>
I12. I, X_N, σ:{dat pl} → Y, where [I : <X, σ/{ins pl}>] = <Y, σ>
I13. I, X_N, σ:{dat} → Y, where [I : <X, σ/{loc}>] = <Y, σ>
I14. I, X_N, σ:{nom} → Y, where [I : <X, σ/{acc}>] = <Y, σ>
I15. I, X_N, σ:{nom} → Y, where [I : <X, σ/{voc}>] = <Y, σ>

Morphophonological rules (ϕ_R)

a. Suffix-initial *o* mutates to *e* when adjacent to stem-final palatal consonants (*j, ʎ, ɲ, ʧ, ʤ, ʨ, ʥ, ʃ, ʒ*), consonant clusters *ʃt* and *ʒd*, and the consonant *ʦ*, in words that do not have *e* in the stem-final syllable.

b. A long vowel in the suffix lengthens the previous syllable – short accented syllables become long accented syllables, unaccented syllables gain post-accent length.

c. When adjacent to suffix-initial *e*, stem-final *k*, *g* and *x* alternate with *ʧ*, *ʒ* and *ʃ*, respectively.

d. When adjacent to suffix-initial *e*, stem-final *ʦ* alternates with *ʧ*.

e. When adjacent to suffix-initial *i*, stem-final velar consonants *k*, *g* and *x*, which are not part of stem-final consonant clusters *ʦk, ʧk, ʨk, zg, sx*, alternate with *ʦ*, *z* and *s*, respectively.

Morphological metageneralizations

a. For any rule R, rule (a) $\in \phi_R$.
b. Where R is in block I, (b,e) $\in \phi_R$.
c. (c,d) $\in \phi_{I8}$.

Conclusions

- A means to avoid stipulating listed stems – assuming unpredictable stem allomorphs would basically reduce the phenomenon to an accident
- Assuming non-canonical epenthesis enables us to express the generalizations explicitly and overtly
- With PFM, we can account for the data in a very direct and parsimonious way
- The approach outlined here can be extended to any realizational framework that uses ordered rules.

Selected references

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	Stem in N/A/V sg.	Total	Remarks
1.	-*b*	13	(11 are Turkish borrowings)
2.	-*č*	342	(subdivided by the final stem consonant before the derivation suffix -č-; within each group —by specific alternations)
3.	-*ć*	6	(5 are Turkish borrowings)
4.	-*dž*	7	(6 are Turkish borrowings)
5.	-*k*	1	(Turkish borrowing)
6.	-*l*	10	(only 1-2 foreign)
7.	-*m*	7	(ca. 50/50)
8.	-*n*	9	(ca. 50/50)
9.	-*p*-	5	(ca. 50/50)
10.	-*r*-	12	(2-3 of foreign origin)
11.	-*s*-	2	
12.	-*š*-	6	(ca. 50/50)
13.	-*t*-	7	(ca. 50/50)
14.	-*v*-	1	(foreign
15.	-*z*-	5	(4 are Turkish)
16.	-*ž*-	2	

(Šljivić-Šimšić 1984)

Alternative approaches?

- Does the problem rather lie in the nom.sg. – deletion of stem-final C (Marković 2013b, Brozović 2006)? (uzet, uzet-a …)

+ tempting – greater degree of morphological regularity (all stems C-final)
- how to restrict it only to the pertinent cases?
- how to motivate that kind of deletion?

- Are all stems C-final with stem extenders (Šljivić-Šimšić 1984)?

+ stem extenders *-en / -et* behave similarly to long plural *-ov / -ev*
- two **different** nom.sg. suffixes, *-o* and *-e*