

Serbo-Croatian

Rule interaction

LING 451/551 Winter 2011

These data from Serbo-Croatian have been simplified in two ways, to make the problem more manageable. Vowel length is omitted, and some stresses are omitted. The language has both underlying stresses whose position cannot be predicted – these are not marked in the transcriptions – and a predictable “mobile” stress which is assigned by rule – these are the stresses indicated here. Your analysis should account for how stress is assigned in those words marked with a rule-governed stress: you should not try to write a rule that predicts *whether* a word has a stress assigned by rule versus an underlying stress. Ignore the stress of words with no stress mark (other parts of the phonology of such words must be accounted for). Past-tense verbs all have the same general past-tense suffix, and the difference between masculine, feminine and neuter past-tense involves the same suffixes as are used to mark gender in adjectives.

Adjectival data

<i>Masc</i>	<i>Fem</i>	<i>Neut</i>	<i>Pl</i>	
mlád	mladá	mladó	mladí	'young'
túp	tupá	tupó	tupí	'blunt'
blág	blagá	blagó	blagí	'mild'
grúb	grubá	grubó	grubí	'coarse'
béo	belá	beló	belí	'white'
veseo	vesela	veselo	veseli	'gay'
debéo	debelá	debeló	debelí	'fat'
mío	milá	miló	milí	'dear'
zelén	zelená	zelenó	zelení	'green'
kradén	kradená	kradenó	kradení	'stolen'
dalék	daleká	dalekó	dalekí	'far'
visók	visoká	visokó	visokí	'high'
dubók	duboká	dubokó	dubokí	'deep'

križan	križana	križano	križani	'cross'
sunčan	sunčana	sunčano	sunčani	'sunny'
svečan	svečana	svečano	svečani	'formal'
bogat	bogata	bogato	bogati	'rich'
rapav	rapava	rapavo	rapavi	'rough'
yásan	yasná	yasnó	yasní	'clear'
vážan	važná	važnó	važní	'important'
sítan	sitná	sitnó	sitní	'tiny'
ledan	ledna	ledno	ledni	'frozen'
tának	tanká	tankó	tankí	'slim'
kráta	kratká	kratkó	kratkí	'short'
blíza	bliská	bliskó	bliskí	'close'
úzak	uská	uskó	uskí	'narrow'
dóbar	dobrá	dobró	dobrí	'kind'
óštar	oštrá	oštró	oštrí	'sharp'
bodar	bodra	bodro	bodri	'alert'
ustao	ustala	ustalo	ustali	'tired'
múkao	muklá	mukló	muklí	'hoarse'
óbao	oblá	obló	oblí	'plump'
pódao	podlá	podló	podlí	'base'

Verb data

<i>1sg pres</i>	<i>Masc past</i>	<i>Fem past</i>	<i>Neut past</i>	
tepém	tépao	teplá	tepló	'wander'
skubém	skúbao	skublá	skubló	'tear'
tresém	trésao	treslá	tresló	'shake'
vezém	vézao	vezlá	vezló	'lead'

Morphology

- Stems
- Suffixes (easy ones)
 - Fem: -a
 - Neut: -o
 - Plural: -i
 - 1 person sing.: -em

What about the masculine and past tense?

- Masculine forms end in either
 - C (non-alternating)
 - or
 - [o] (but always ~ [l])
- “Past-tense verbs all have the same general past-tense suffix.”
 - [ao] (~ [l] in alternant forms of the same verb)
- Set these aside for now until more of the phonology is understood.

Alternations to be accounted for

- $\forall \sim \forall$
- $l \sim o$
- $a \sim 0$
- $s \sim z$

What to tackle first?

- All [s]~[z] forms exhibit [a]~0 but not vice versa.
 - analyze [s]~[z] last
- Often other rules refer to stress
 - analyze first

Stress placement

- Observation
 - predictable stress found in 2 types of forms
 - stress placement only
 - ‘young’: mlád, mladá, mladó, mladí
 - other alternating segment
 - ‘white’: béo, belá, beló, belí
- First study stress placement in forms with no other alternation
 - why: other alternations may obscure basic stress pattern

Stress placement

- In forms with no other alternating segments, stress placed on word final vowel
 - $V \rightarrow \check{V} / ___ C_0\#$
- Variable number of word-final Cs
 - 0: [mladó]
 - 1: [zelén]

[i] ~ [o]

- ‘white’: béo, belá, beló, belí
- Other forms like ‘white’ with no alternation other than stress
 - ‘gay’, ‘fat’, ‘dear’, ‘tired’
- Distribution

[i]

___V

[o]

___#

[l] ~ [o] directionality

- Suppose /l/ (L-vocalization)
 - then /l/ → [o] / ____ #
- Suppose /o/ (O-consonantalization)
 - then /o/ → [l] / ____ V

Rule interaction likely

- When overlap in
 - structural description (including focus) (as in Squamish)
 - structural change + structural description (as in Votic, Klamath)
- Check for forms showing crucial ordering relationship
- Stress placement SD ($VC_0\#$)
 - $V \rightarrow \check{V} / ___ C_0\#$
- L-vocalization SC ($o\#$)
 - $// \rightarrow [o] / ___ \#$

Stress placement precedes I-vocalization

/bel/

stress placement

é

I vocalization

o

[béo]

/bel/

I vocalization

o

stress placement

ó

*[beó]

Masculine, revisited

- If [o]~[l] is //, then
 - [béo], [belá], [beló], [belí] is
 - /bel/, /bel-a/, /bel-o/, /bel-i/
- no suffix in masculine

[a] ~ 0

- ‘clear’: [yásan], [yasná], [yasnó], [yasní]
- Forms with same and no other alternation (other than stress)
 - ‘important’, ‘tiny’, ‘frozen’, ‘slim’, ‘short’, ‘close’, ‘narrow’, ‘kind’, ‘sharp’, ‘alert’

[a] ~ 0 distribution

[a]	0
s__n#	s__nV
ž__n#	ž__nV
t__n#	t__nV
d__n#	d__nV
b__r#	b__rV
t__r#	t__rV
d__r#	d__rV
n__k#	n__kV
t__k#	t__kV

[a]	0
C__C#	C__CV

[a]~0 directionality

Suppose /a/

then /a/ → 0 /C__CV

Suppose 0

then 0 → [a] /C__C#

- Forms with non-alternating [a] in penult (e.g. [križana] ‘cross’ (fem.)) indicate no deletion

What is the past tense suffix?

- Past tense masculine forms contain outputs of both l-vocalization, a-epenthesis
 - [tépaɔ] ‘wandered’ (masc.)
- Past tense feminine and neuter forms contain [l]
 - [teplá] ‘wandered’ (fem.)
 - [tepló] ‘wandered’ (neut.)
- Past tense suffix must be -/l/

[s] ~ [z]

- ‘close’: [blízak], [bliská], [bliskó], [bliskí]
– also [a]~0
- Other forms with same (and no other) alternations
– ‘narrow’
- Distribution
- [s] [z]
___k ___a

[s]~[z] directionality

- Suppose /s/
 - Then /s/ → [z] / ___ V
- Suppose /z/
 - Then /z/ → [s] / ___ k (other vls obst?)
- Predictions about non-alternating forms
 - [tresém] ‘shake’ (1 sg. pres.)
 - ___[e] vs. [a]? not likely. also [yásan]
- z-Devoicing: /z/ → [s] / ___ k (or more general versions of this rule)

Rule summary

- stress: $V \rightarrow \check{V} / ___ C_0\#$
- L-vocalization: $/l/ \rightarrow [o] / ___ \#$
- [a]-epenthesis: $0 \rightarrow [a] / C___ C\#$
- z-Devoicing: $/z/ \rightarrow [s] / ___ k$

Comparing structural descriptions

- | | SD | SC |
|-------------------|----------|-----------------|
| • stress: | $VC_0\#$ | $\forall C_0\#$ |
| • L-vocalization: | $l\#$ | $o\#$ |
| • [a]-epenthesis: | $CC\#$ | $CaC\#$ |
| • z-Devoicing: | zk | sk |
- Overlap in SD, including focus of rule
 - l-vocalization and a-epenthesis, a-epenthesis and z-devoicing

Comparing SD, SC

- | | SD | SC |
|-------------------|----------|--------------|
| • stress: | $VC_0\#$ | $\vee C_0\#$ |
| • L-vocalization: | $l\#$ | $o\#$ |
| • [a]-epenthesis: | $CC\#$ | $CaC\#$ |
| • z-Devoicing: | zk | sk |
- SC that meets SD of another rule (and SD did not)
 - stress and l-vocalization, stress and a-epenthesis
-

Potential rule interactions

Overlap in structural description and/or structural change:

	Acc place	l-vocal	a-epen	z-Devoicing
Acc place		SC	SC	
l-vocal			SD	
a-epen				SD
z-Devoicing				

Stress placement and I-vocalization

- Already established: stress placement precedes I-vocalization
 - [béo], *[beó] ‘white’ (masc.)

A-epenthesis and stress placement

- Potential interaction
 - stress placement SD ($VC_0\#$)
 - could overlap with
 - a-epen SC (CVC) (if $__\#$)
- Any actual forms?
 - [yásan] /yasn/ ‘clear’ (masc.)

Stress placement and a-epenthesis

- /yasn/
stress placement á
a-epenthesis a
[yásan]

/yasn/
A-epenthesis a
stress placement á
*[yasán]

I-vocalization and a-epenthesis

- Potential interaction
 - I-vocal SD (l# → o#)
 - could overlap with
 - a-eopen SD (CC → CaC) when word-final)
- Any actual forms?
 - [ustao] /ustl/ ‘tired’ (masc.)
 - [múkao] /mukl/ ‘hoarse’ (masc.)

a-epenthesis and I-vocalization

Already established: stress precedes a-open, stress precedes I-Vocalization

UR	/mukl/	UR	/mukl/
stress	ú	stress	ú
a-Epen.	a	I vocal.	o
I vocal.	o	a-Epen.	--
	[múkao]		*[múko]

a-eopen and z-devoicing

- Potential interaction
 - a-eopen SD (CC#)
 - could overlap with
 - z-devoicing SD (zk) if ___#
- Any actual forms?
 - [blízak] /blizk/ ‘close’ (masc.)

[a] epenthesis precedes /z/-devoicing

Already established: stress Placement precedes a-epenthesis

UR	/blizk/	UR	/blizk/
stress	í	stress	í
a-Epen.	a	z-devoicing	s
z-devoicing	--	a-Epen.	a
	[blízak]		*[blísak]

Underlying forms

- Adjectival stems

/mlad/ 'young'

/bogat/ 'rich'

/vesel/ 'gay'

/mil/ 'dear'

/kraden/ 'stolen'

/visok/ 'high'

/sunč/ 'sunny'

/bogat/ 'rich'

/yasn/ 'clear'

/sitn/ 'tiny'

/tank/ 'slim'

/blizk/ 'close'

/oštr/ 'sharp'

/ustal/ 'tired'

/obl/ 'plump'

/pust/ 'empty'

/bel/ 'white'

/debel/ 'fat'

/zelen/ 'green'

/dalek/ 'far'

/križan/ 'cross'

/sveč/ 'formal'

/rapav/ 'rough'

/yažn/ 'important'

/ledn/ 'frozen'

/kratk/ 'short'

/dobr/ 'kind'

/bodr/ 'alert'

/mukl/ 'hoarse'

/podl/ 'base'

– Verb stems

/tep/ 'wander'

/tres/ 'shake'

/skub/ 'tear'

/vez/ 'lead'

– Suffixes

Fem: -/a/

Neut: -/o/

Plural: -/i/

1 person sing.: -/em/

Past: -/l/

Rule ordering summary

