Sonority thresholds and phonological change: Presonorant Lengthening in BCMS revisited

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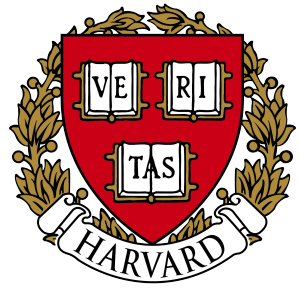


Roadmap

Presonorant Lengthening (PSL)

In Bosnian/Croatian/Montenegrin/Serbian (BCMS),
/VR$_\sigma$/ $\rightarrow$ [V:R$_\sigma$]

(1)	a.	lo.vac	'hunter.NOM.SG'
		lo:v.ci	'hunter.NOM.PL'
	b.	bu.ga.rin	'male Bulgarian.NOM.SG'
		bu.ga:r.ka	'female Bulgarian.NOM.SG'
	c.	kli.nac	'kid.NOM.SG'
		kli:n.ci	'kid.NOM.PL'

Zec 1988, 2002; Kapović 2015

Standard BCMS

Standard BCMS: PSL **sensitive to morphological structure** (Zec 2002):

1. DERIVED ENVIRONMENT EFFECT: only at morpheme junctures (2);
2. SENSITIVITY TO CLASS AFFILIATION: only before certain suffixes (3).

(2)

a.	lov	'hunt(ing).NOM.SG'
b.	loːv-c-i	'hunt-er-NOM.PL'

(3)

a.	bu.ga.rin	'male Bulgarian.NOM.SG'
b.	bu.gaːr-k-a	'Bulgarian-F-NOM.SG'
c.	bu.gar-skiː	'Bulgarian-ADJ.NOM.SG.M'

Life cycle of PSL

Grobnik (Istria, Croatia): PSL is fully phonological (Kapović 2015: 557)

(4)

Standard BCMS	Grobnik	Gloss
'al.ko.hol	'aːl.ko.hoːl	'alcohol'
kom.'pju.ter	koːm.'pju.teːr	'computer'

Life cycle of sound processes (Bermúdez-Otero 2007, 2020)

PSL has reached different stages across different dialects of BCMS:

- PHASE 2 PROCESS (Grobnik): regular, entirely governed by the phonological grammar
- PHASE 3 PROCESS (Standard BCMS): sensitive to morphological structure

PSL as compensatory lengthening

Traditional account: PSL as compensatory lengthening (CL) triggered by the loss of a Late Common Slavic (LCS) yer vowel in the following syllable

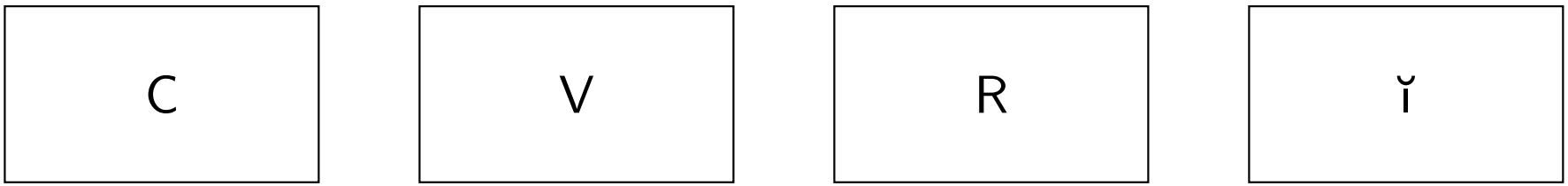
(5) a. *lovĭci lo:vci 'hunter.NOM.PL'

b. *kosĭci kosci 'mower.NOM.PL' not **ko:sci

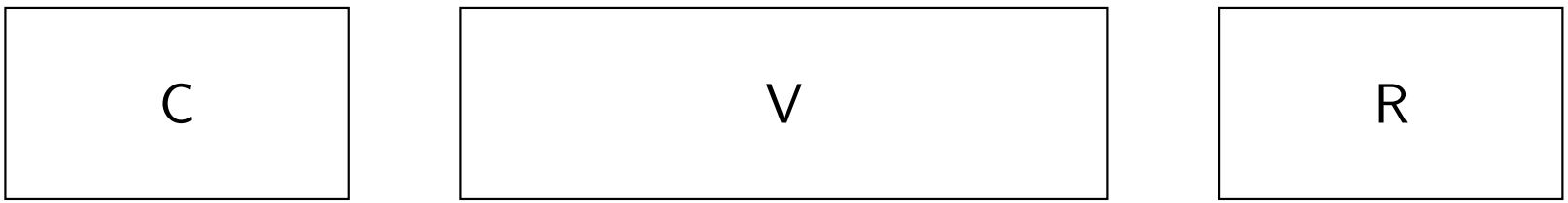
- Across the Slavic languages, vowel lengthening following yer loss often sensitive to **the sonority profile of the intervening consonant**; cf. (5-a) vs (5-b)
- Sonority-sensitive vowel lengthening in Slavic usually considered CL; **critical assessment lacking** (cf. Scheer 2017)

CL account: PSL in *C_0VRV

LCS:



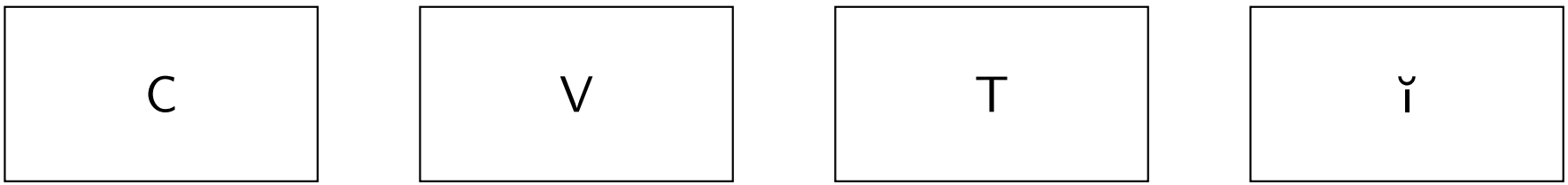
BCMS:



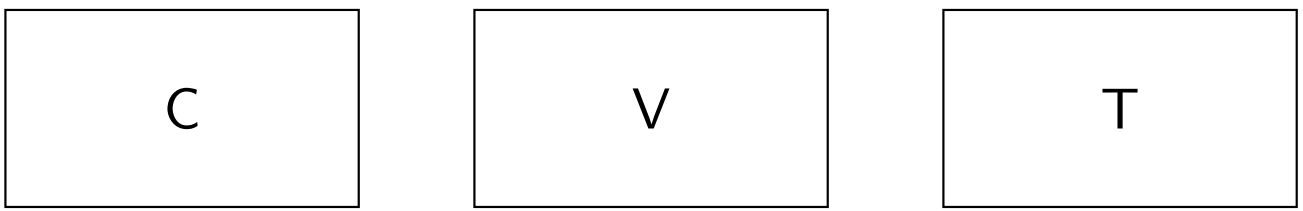
C = any consonant
V = any vowel
R = any sonorant

CL account: No PSL in *C_0VTV

LCS:



BCMS:



C = any consonant
V = any vowel
T = any obstruent

Kavitskaya (2002)'s phonologization approach

> Assuming the standard story for PSL, the mora-based account of CL (Hayes 1989) struggles with the sonority effect.

Kavitskaya 2002 (§4.2–§4.4): CL carried out in two phases:

1. Phase 1: **non-contrastive, phonetic length** in the target vowel;
   - Gradient phonetic effect ⇒ CVR longer than CVT
   - More elaborate scales possible (e.g., manner and voice in West/East Slavic, Friulian...)
2. Phase 2: **Phonologization**
   - Given gradient length effects at Phase 1, languages may choose to impose cutoff points at different points in the continuum

Today's talk

- **Majority view**: PSL *directly* triggered by the loss of LCS yers; exact mechanism varies across different accounts (Timberlake 1983a,b; Kavitskaya 2002)
- **Minority view**: PSL **not** directly triggered by yer loss (Belić 1958)
- **This talk**:
  1. CL account inconsistent with relative chronology
  2. **novel account**: PSL due to large-scale prosodic change in Early BCMS

Relative Chronology

- Yer Loss took place in the disintegrating phase of LCS
- Early written monuments (10th/11th century) attest the loss of weak yers (Shevelov 1964: 458–459)
- Shared by all Slavic languages
  - Polabian?

Yat Change

- The early BCMS vowel *ě (yat) does not persist in present-day BCMS.
  - ♣ Gallipoli Serbian (Ivić 1957): *ě survives as the mid closed front vowel
- The reflex of *ě differs across dialects:
  1. Western: *ě → *i* ⇔ IKAVIAN
  2. Eastern: *ě → *e* ⇔ EKAVIAN
  3. Southern: *ě → *je* or *ije* ⇔ JEKAVIAN

Jekavian dialects

Quantity-sensitive reflex of *ě:

1. *ě → je (monosyllabic reflex)
2. *ěː→ ije (disyllabic reflex)

(6) Short *ě

a.	*pěsma	→	pjesma	'song.NOM.SG'
b.	*věrovati	→	vjerovati	'believe.INF'
c.	*lěkaːr	→	ljekaːr	'doctor.NOM.SG'

(7) Long *ě

a.	*mlěːko	→	mlijeko	'milk.NOM.SG'
b.	*plěːn	→	plijen	'prey.NOM.SG'
c.	*lěːk	→	lijek	'medication.NOM.SG'

PSL and Yat Change

Originally short *ě subject to PSL treated as **short** for Yat Change

(8)

a.	*sěnĭka	→	sjeːnka,	'shadow.NOM.SG'
b.	*viděvŭši	→	vidjeːvši	'see.PTCP.PST.ACT'
c.	*priměrĭci	→	primjeːrci	'example.NOM.PL'

- not ***sijenka*, ***vidijevši*, ***primijerci*

Scenario 1:

1. PSL: **sěnka* → **sěːnka*
2. Yat Change: **sěːnka* → *sijenka* ✗

Scenario 2:

1. Yat Change: **sěnka* → **sjenka*
2. PSL: **sjenka* → *sjeːnka* ✓

Relative chronology

- Yer loss: 10th/11th century
- Yat change (Jekavian): 14th century (Belić 1958)
- PSL posterior to Yat Change

⇒ **at least 300 years between Yer loss and PSL**

Challenge to Kavitskaya 2002's phonologization scenario: non-contrastive length, invisible to the sound change (**phonetics**) and regular phonological processes of the language (**phonology**) predicted to have been faithfully transmitted for at least 3 centuries (≈ 12 generations)

Proposal: a two-step change

STEP 1A: Yer loss → (re)introduction of C_0VC

(9) a. LCS syllable inventory
$\{C_0V\}$
b. Early BCMS syllable inventory
$\{C_0V, C_0VC\}$

⇒ **What did Early BCMS do to codas**? (→ MORAFICATION)?

Proposal

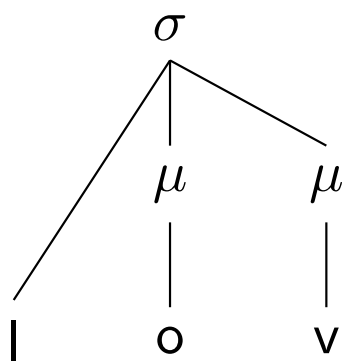
STEP 1B: emergence of coda weight

- **coda sonorants (but not obstruents) weight-contributing in Early BCMS**

(10) Early BCMS moraic segments
{V,R}, *{T}

$\Rightarrow$ $C_0VR = 2\mu$, $C_0VT = 1\mu$

(11)



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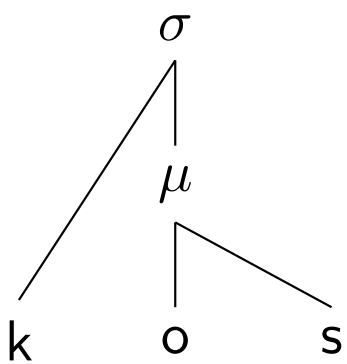


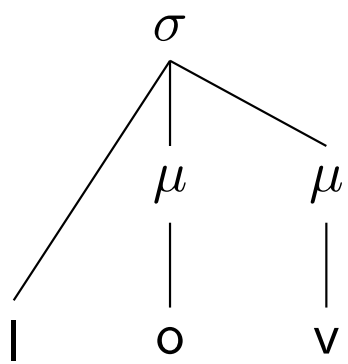
Proposal

STEP 2: Elimination of coda weight

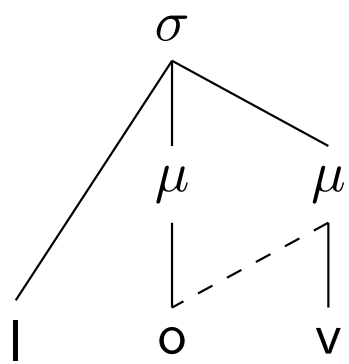
(13) Later BCMS weight criterion
{V}, *{R,T}

⇒ Change in the sonority threshold forced MORA-SHARING (Broselow, Chen, and Huffman 1997):

(14) BCMS 1



(15) BCMS 2



Proposal

The proposed analysis takes care of:

1. relatively late emergence of PSL ($\rightarrow$ RELATIVE CHRONOLOGY)
2. weight criterion of early BCMS ($\rightarrow$ INDEPENDENT MOTIVATION)
3. correlation between PSL and other sound changes in BCMS between 13th and 15th centuries ($\rightarrow$ BROAD PICTURE)

Bimoraic VR in Early BCMS

- Circularity? Evidence for heavy C_0VR in Early BCMS?
- Claim: Early BCMS **inherited** weight criterion from LCS (← Proto-Balto-Slavic)
- Evidence:
  1. Treatment of PIE syllabic liquids
  2. South Slavic liquid metahtesis

PIE syllabic sonorants

PIE	PBS	LCS	BCMS
*r̥(H)	*ir/ur (2μ)	*ĭr/ŭr (2μ)	r̩(ː)
*l̥(H)	*il/ul (2μ)	*ĭl/ŭl (2μ)	u(ː)
*m̥(H)	*im/um (2μ)	*ẽ/õ (2μ)	e(ː)/u(ː)
*n̥(H)	*in/un (2μ)	*ẽ/õ (2μ)	e(ː)/u(ː)

TABLE 1. PIE syllabic sonorants in PBS, LCS, and BCMS

- Very late into LCS, yer+liquid rhymes count as **bimoraic**
- Evidence: the LCS acute accent, which is restricted to heavy syllables, freely occurs in syllables with a yer+liquid rhyme (cf. Dybo 1981; Jasanoff 2017)
- VR rhymes also heavy in modern Lithuanian (Kenstowicz 1971; Blevins 1993):
  1. contour tone assignment (Blevins 1993);
  2. ban on VVR rhymes (Zec 1995; Morén 2003) = *3μ

$\Rightarrow$ heavy VR **inherited from Proto-Balto-Slavic** (PBS)

Liquid Metathesis + Lengthening

- In dialectal LCS, *CeRC/CoRC undergoes metathesis, which is accompanied by vowel lengthening ($\rightarrow$ *CRe:C/ *CRa:C)
  - South Slavic and Czech-Slovak

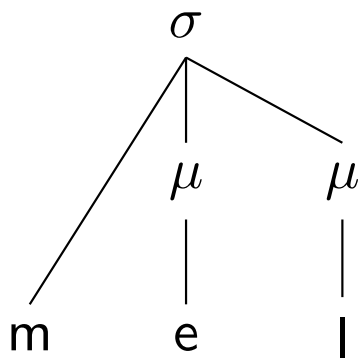
(16)

a.	*melko	$\rightarrow$	*mle:ko	'milk.NOM.SG'
b.	*gordŭ	$\rightarrow$	*gra:dŭ	'town.NOM.SG'
c.	*berza	$\rightarrow$	*bre:za	'birch.NOM.SG'

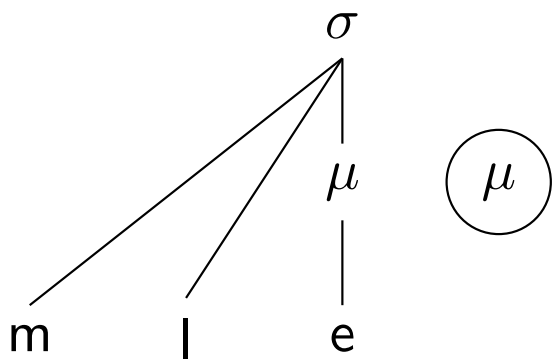
- Metathesis driven by the ban on codas, but **why lenhthening**?
- ❖ Bimoraic VR; WEIGHT CONSERVATION

Liquid Metathesis

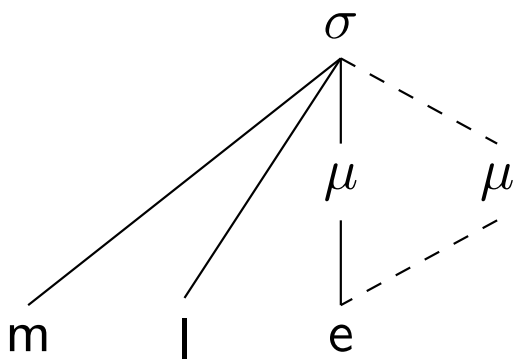
(17) LCS 1



(18) LCS 2a: Liquid Metathesis



(19) LCS 2b: Lengthening



Syllable weight in Early BCMS

- **LCS prosodic grammar**: VR rhymes are **heavy** ($= 2\mu$)
- Heavy VR likely inherited from LCS, which inherited it from PBS
- When new VR rhymes were introduced ($\leftarrow$ yer vowel loss), the existing prosodic grammar treated them the same way LCS treated *VR (**no innovation**)

$\Rightarrow$ Before PSL, BCMS had the same weight criterion that PBS and LCS had (preserved in modern Lithuanian)

Motivation for PSL

- PSL took place in response to the elimination of weightful coda sonorants (PART 2 OF THE COMPLEX PROSODIC CHANGE)
- ❖ **Why** were moraic codas eliminated in BCMS? (PART 1 OF THE CHANGE)
- **Proposal**: a series of sound changes (13th–15th centuries) radically reshaped the sonority profile of BCMS, contributing to the **raise of the language's sonority threshold**

Elimination of low-sonority syllabic segments

Early BCMS vowel inventory (post-11th century) (Belić 1958)

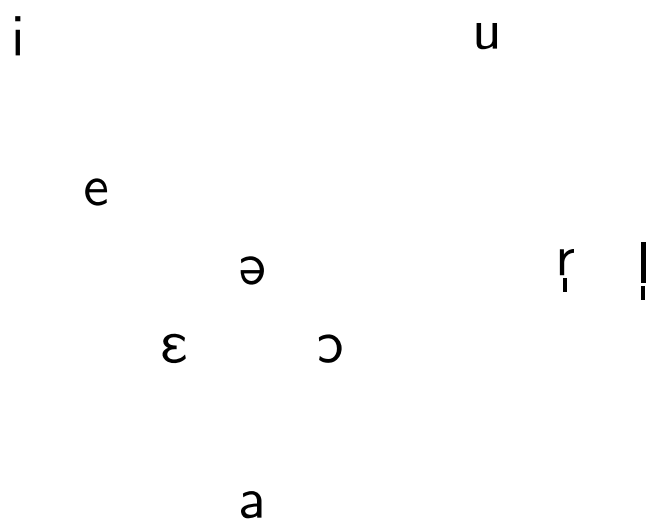


FIGURE 1. Vowel inventory of Early BCMS

Elimination of low-sonority syllabic segments

Sound changes:

(20) *ə → a

a.	*lovəc	→	lovac	'hunter.NOM.SG'
b.	*dəːn	→	daːn	'day.NOM.SG'

(21) *l̩ → u

a.	*sl̩za	→	suza	'tear.NOM.SG'
b.	*vl̩ːk	→	vuːk	'wolf.NOM.SG'

(22) *r̩ → ar (Čakavian; Hvar; Hraste 1935)

a.	*pr̩st	→	parst	'finger.NOM.SG'
b.	*dr̩vo	→	daːrvo	'tree.NOM.SG'

- [r̩] deficient in some Štokavian dialects (Ivić 1958)—**invariably short** (e.g., Dubrovnik, Ligorio 2010)

Elimination of low-sonority syllabic segments

Vowel inventory after changes (20)–(22) occurred

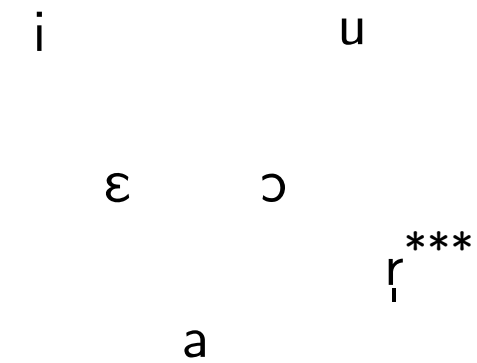


FIGURE 2. BCMS vowel inventory after 15th century

- In many Štokavian dialects, **l* → *o* in the coda:

(23)

a.	*bil	→	bio	'be.PTCP.PST.M.SG'
b.	*děl	→	deo	'part.NOM.SG'

Grammar change

- Cumulative effect of sound changes → sonority threshold raised **above the level of the eliminated low-sonority syllabic segments**
- Acstract grammar change (Kiparsky 1965)

Early BCMS threshold:

low V
mid V
high V
ə
r̩, l̩
sonorant
---
obstruent

After changes (20)–(22):

low V
mid V
high V, (r̩)
---
sonorant
obstruent

Bidirectional triggering

A BIDIRECTIONAL TRIGGERING analysis of prosodic change:

SOUND CHANGE	→	GRAMMAR CHANGE	→	SOUND CHANGE
(random)		$\mathbb{G}_1 \rightarrow \mathbb{G}_2$		(driven by $\mathbb{G}_2$)
*ə → a				VR → V:R
*ˌ → u				⇳
*ˌr → ar				$*V_{\mu}R_{\mu} \rightarrow V_{\mu\mu}R$
{...}				

"There is a consensus that sound change emerges from phonetic variation and a process of selection from among variants"

(Garrett 2014)

- Sound change **driven by phonological grammar** (Kiparsky 1995)

Contribution

1. Relative chronology: PSL not direct consequence of yer loss (contra Timberlake 1983a,b)
   → **Diagnostics for CL**?
2. Coda weight in Early BCMS = BSL (→ Lithuanian) weight criterion
   → **unified account**: correlation between PSL and the treatment of VR rhymes in Balto-Slavic/LCS
3. bidirectional triggering
   → link between PSL and vowel changes in Early BCMS
   → mechanism of prosodic change (less attention than segmental processes!)
4. sonority × prosodic structure in phonological change
   → Predominantly synchronic perspective (Zec 1988, 1995; de Lacy 2002; Morén 1999, 2003)

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Acknowledgments

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Additional evidence

Bartol Kašić, *Croatian-Italian Dictionary* (1599)

- Pag Čakavian
- No traces of PSL (Kapović 2015: 562)
- The present-day Pag dialect displays PSL (Kapović 2015, *loc. cit.*)

(24)

⟨Divòyka⟩	divoːjka	'girl.NOM.SG'
⟨pòsteglia⟩	postelja	'bed.NOM.SG'
⟨póst⟩	poːst	'fasting.NOM.SG'

In some dialects, PSL was absent until very late.