Analysis of the development of the syllables of the Old Czech language

Radek Čech - Markéta Ziková - Martin Březina - Pavel Kosek

(Masaryk University)

Acknowledgment

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Aims

- identification of syllables in the Old Czech
- a tool for an automatic parsing
- syllabic vs. non-syllabic liquids in Czech
- octosylab in Old Czech
- a development of syllabic vs. non-syllabic liquids

Identification of syllables in the Old Czech

- each sound – sonorant properties

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son-level	phon-class	phon-subclass	example[2]
7	V	low and mid vowels	slz**a**, jil**e**m
6	V	high vowels	**u**dat**i**
5	R	glides	**j**ablko
4	R	liquids	v**l**na, b**r**at**r**
3	R	nasals	jile**m**, **n**esl
2	T	fricatives	**v**lna, **s**l**z**a
1	T	plosives	**b**ra**t**r

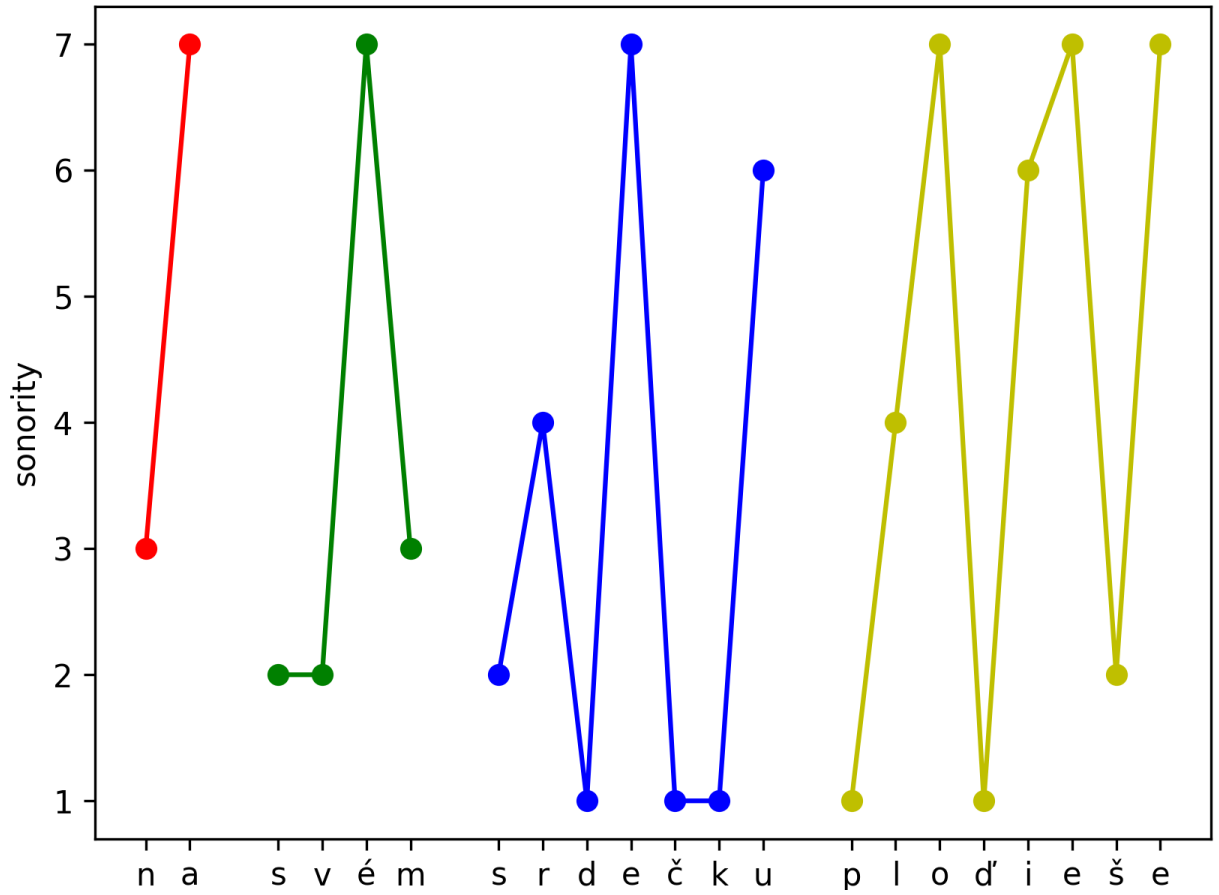
Identification of syllables in the Old Czech

- segmental inventory of 14th–16th century

son-level	segments	graphemes
7	/a a: e e: o o:/	a á e ě é o ó
6	/i i: u u:/[4]	i y í ý u ú ů
5	/j/	j
4	/r l/	r r’ l l’
3	/m n ɲ/	m n ň
2	/f v s z ʃ ʒ ɾ̝ x ɦ/	f v s z š ž ř ch h
1	/p b t d t͡s t͡ʃ c ɟ k g/	p b t d c č ť ď k g

Sonority sequencing principle

- number of syllables = number of nuclei = number of sonority peaks



Parser

- https://github.com/cechradek/analysis_of_syllables_in_old_czech/blob/main/02SLABIKA_sonoritni_profily.py

Other tools / scripts

- number of peaks in a verse
- proportion of x-peak verses
- identification of verse s with R-peaks
- …

Emergence of syllabic liquids

	historical Czech
brother	bra$_{\sigma}$tr
mind	my$_{\sigma}$sl
blood, GEN.SG	krve$_{\sigma}$
tear	slza$_{\sigma}$

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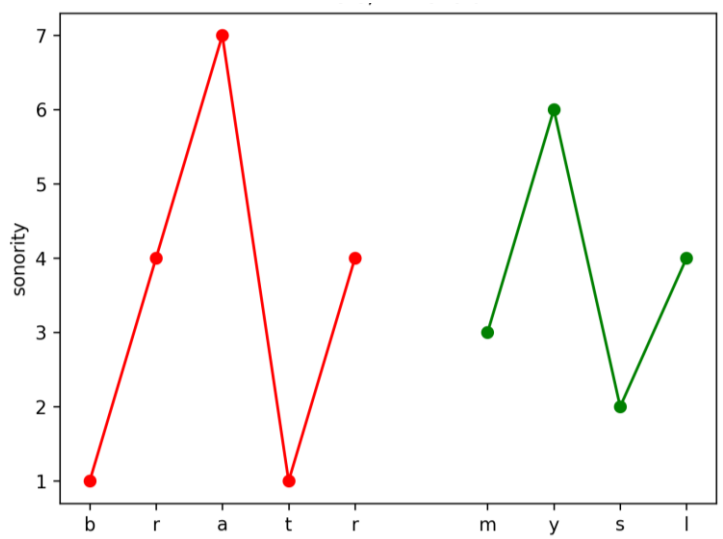

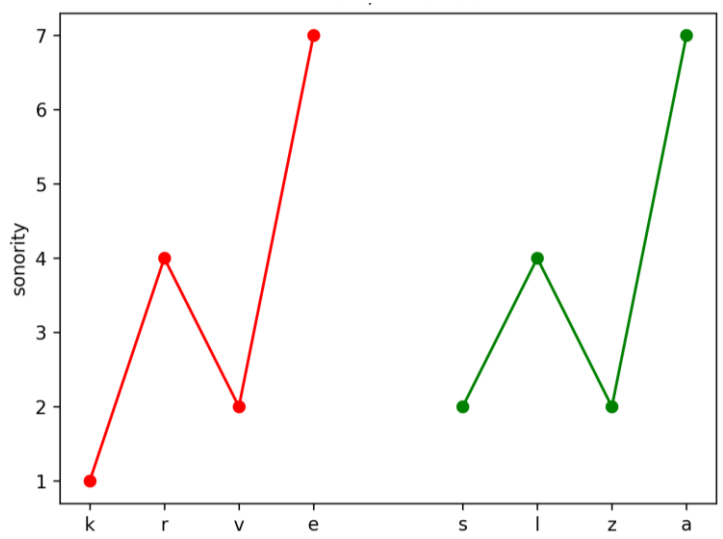

Emergence of syllabic liquids

	historical Czech		contemporary Czech
brother	$bra_{\sigma}tr$	⇨	$bra_{\sigma}tr_{\sigma}$
mind	$my_{\sigma}sl$	⇨	$my_{\sigma}sl_{\sigma}$
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CL# ⇨ CL_{σ}#

CLC ⇨ $CL_{\sigma}C$

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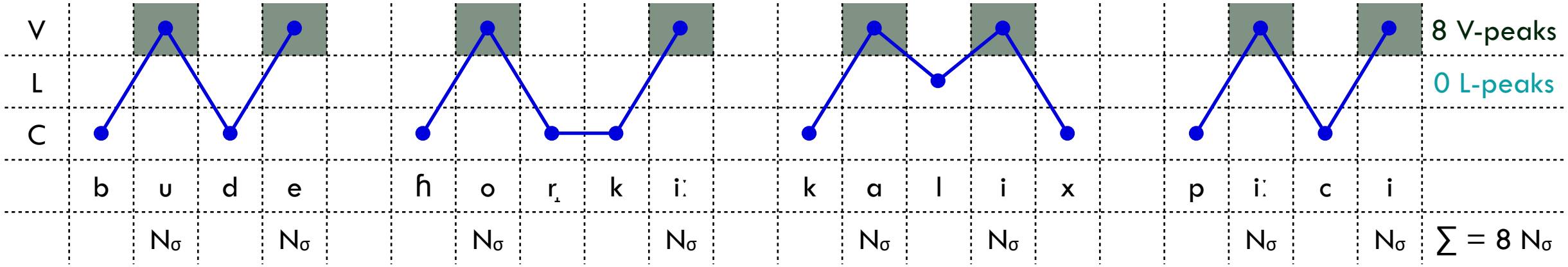
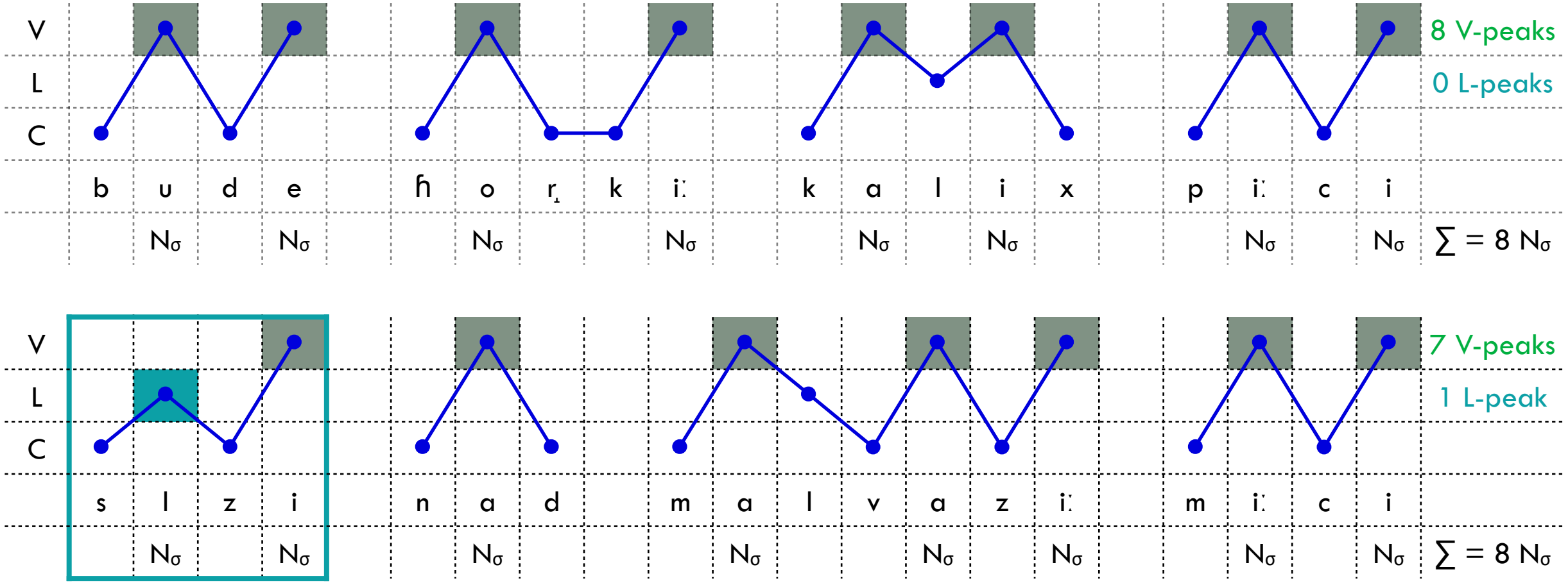
$$\sum (8 \text{ syllable}) = \sum (8 \text{ nucleus}) = \sum (8 \text{ sonority peaks})$$

octosyllable: 8 V-peaks



L-peak in 8peak verse ⇒ syllabic L_σ

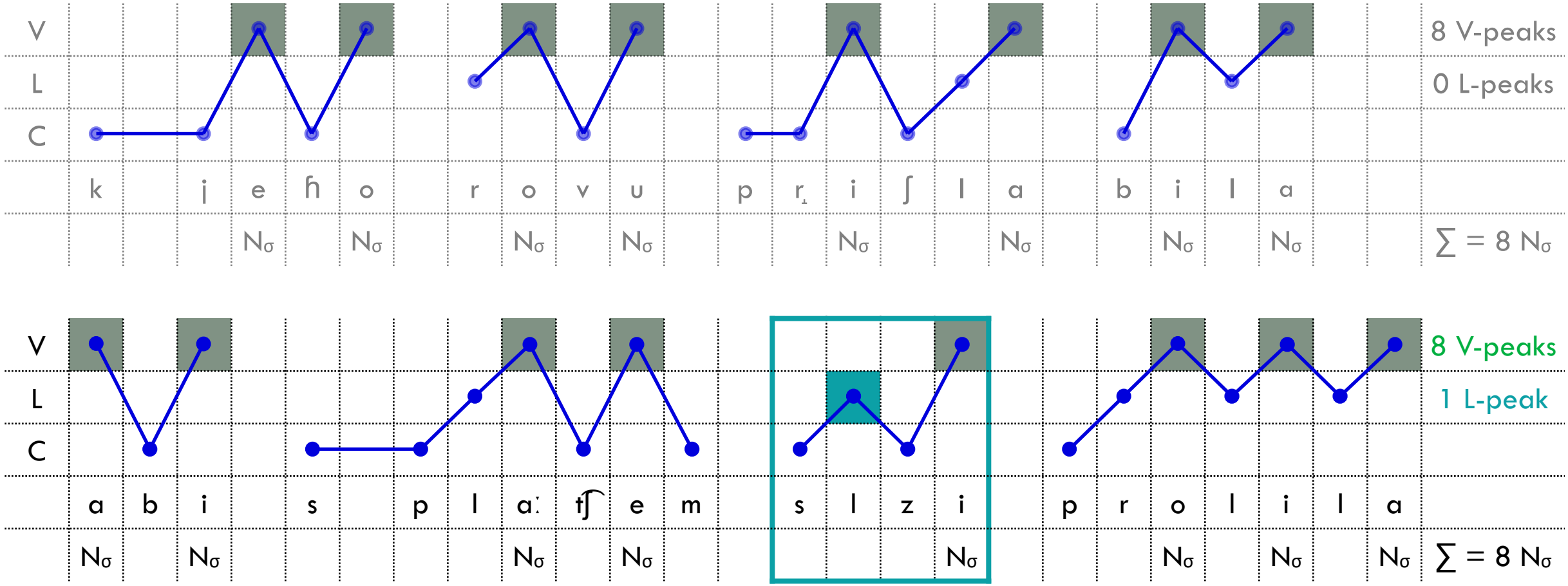
bisyllabic *sl$_\sigma$zi$_\sigma$* ‘tears‘ (2/2 16th century)



‘he will drink a bitter cup// crying tears over the beer‘

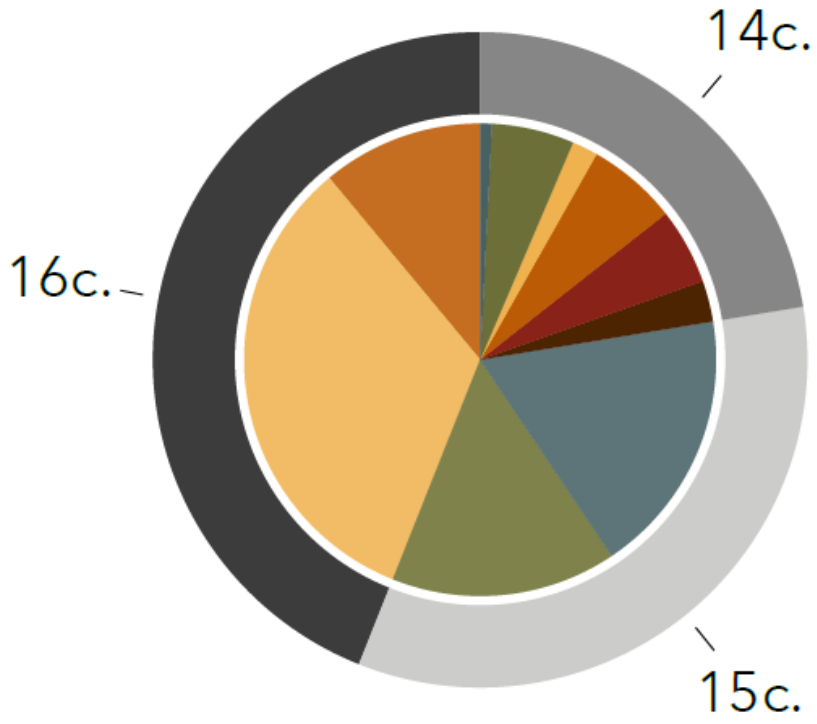
L-peak in 9peak verse ⇒ non-syllabic L

monosyllabic *slzi*$_{\sigma}$ ‘tears‘ (2/2 14th century)



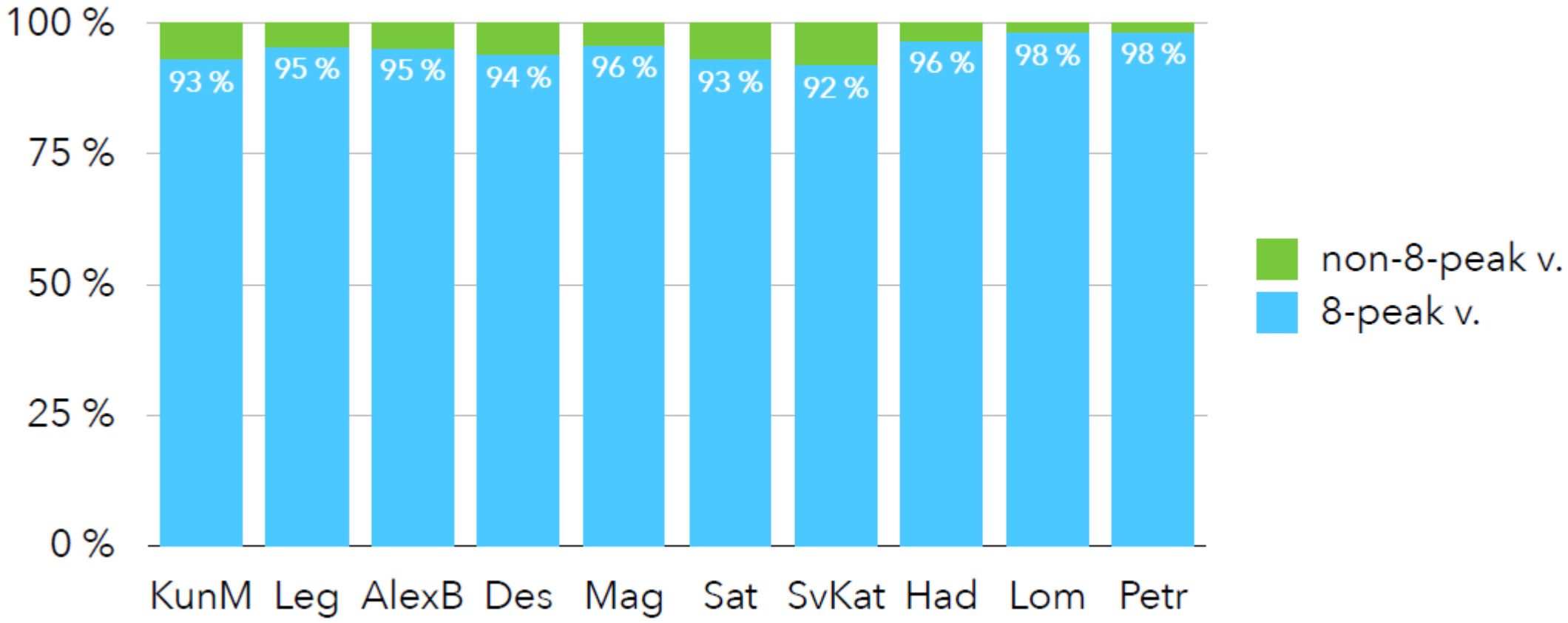
‘she has come to his grave // so she would cry tears‘

Text sample — historical Czech

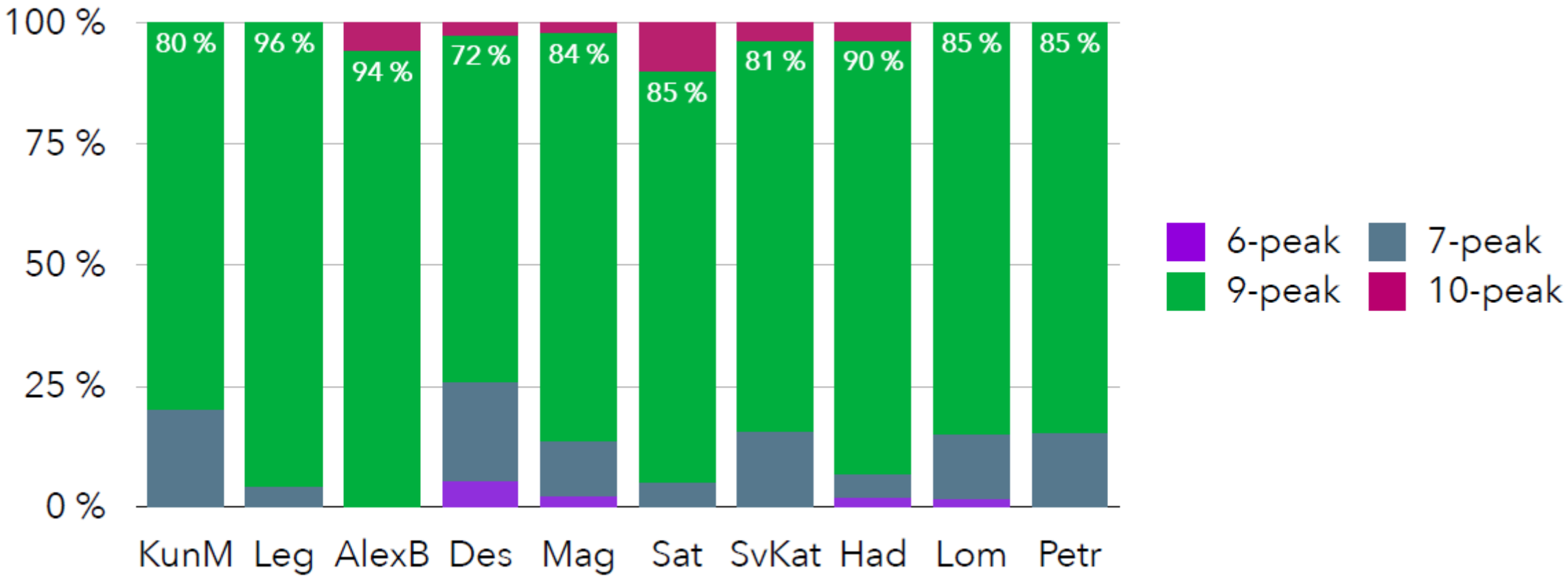


source		∑ (verses)
KUNM	*Kunhutina modlitba*	154
LEG	*Nejstarší české legendy*	1 091
ALEXB	*Alexandreida – Budějovický fragment*	342
DES	*Desatero kázanie božie*	1 197
MAG	*Pláč Marie Magdalény*	1 008
SAT	*Satiry tzv. Hradeckého rukopisu*	542
SVKAT	*Život Svaté Kateřiny*	3 518
HAD	*Hádání Prahy s Kutnou Horou*	2 989
LOM	*Instrukcí Šimona Lomnického z Budče*	6 372
PETR	*Rozmlouvání Petra Svatého s Pánem*	2 135
in total		**19 348**

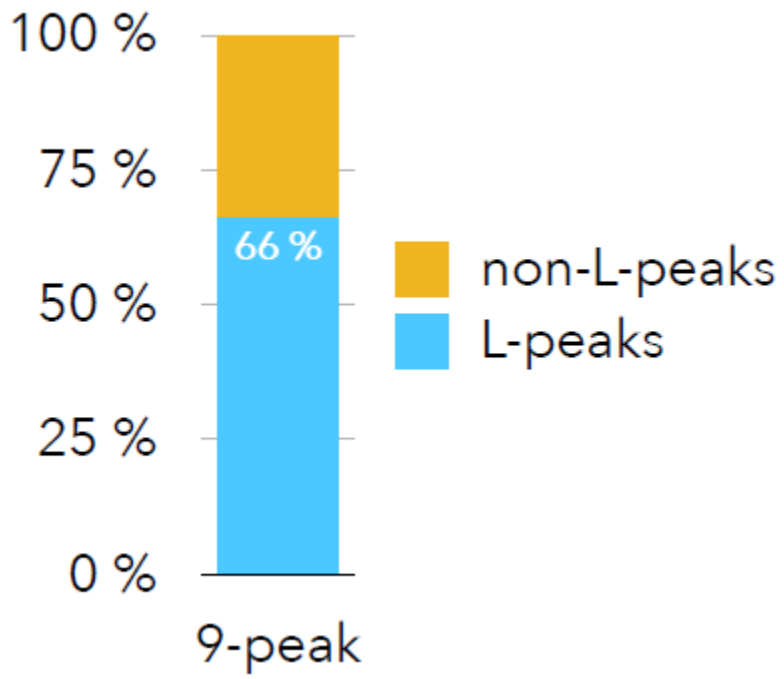
Tendency towards octosyllable



Non-8-peak verses



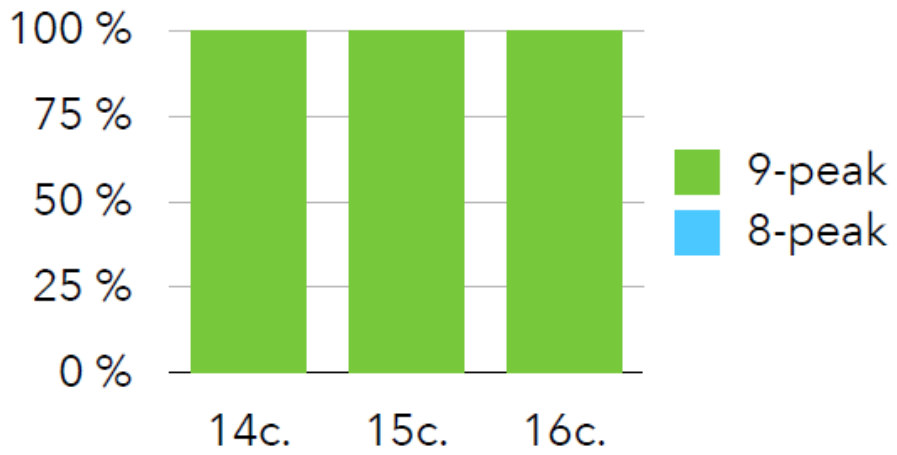
What causes the deviation from octosyllable?



Historical change (context by context)

Lnitial L-peak #LC

e.g., ***rt***y ‘lips’

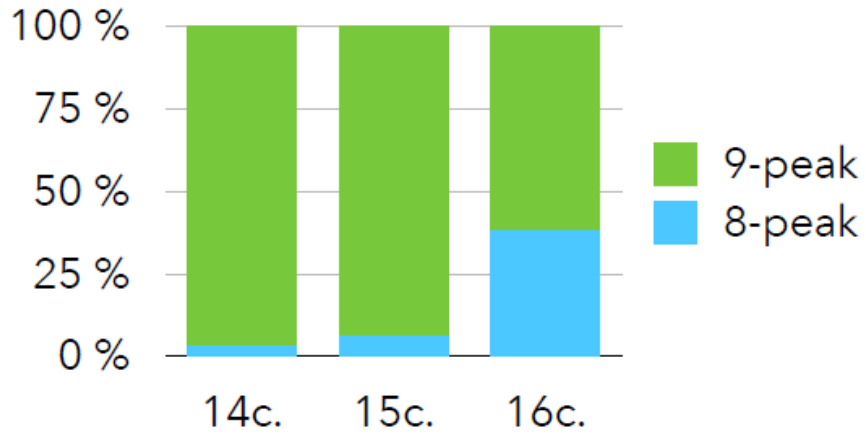


☞ distribution of #LC is limited to 9-peak verses ⇒ #LC are constantly **non**-syllabic

☞ /rty/$_{\sigma}$ = /rty/$_{\sigma}$

Final L-peak CL#

e.g., *bra**tr*** 'brother'

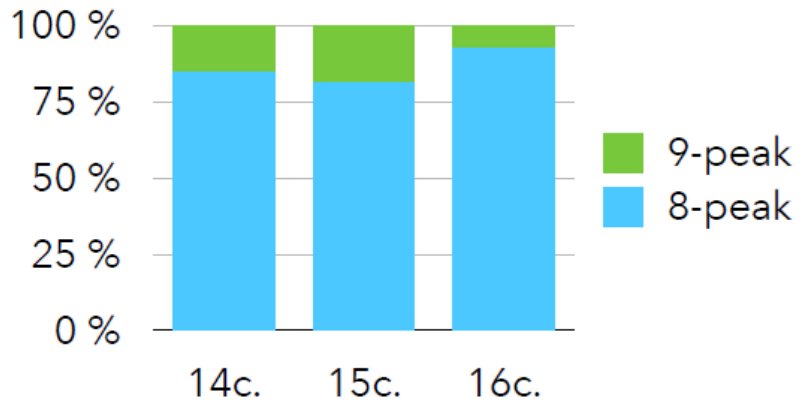


☞ shift towards syllabicity only in the 16c.

☞ /bratr/$_{\sigma}$ → /bra.tr/$_{\sigma\sigma}$

Medial L-peak CLC

e.g., ***slz****a* ‘tear,’ ***hrdi:*** ‘proud’



☞ co-existence of syllabic & non-syllabic since early 14c.

☞ CLC descends from 2 etymologicaly different structures

Medial L-peak CLC: inherited vs. shifted

only selected roots

1. **inherited syllabic $CL_{\sigma}C$:**
   - *√krm, √hrd, √mlk, √mrz*

2. **shifted syllabic CLC:**
   - *√slz, √krv, √krst, √plt, √plv, √hlt*

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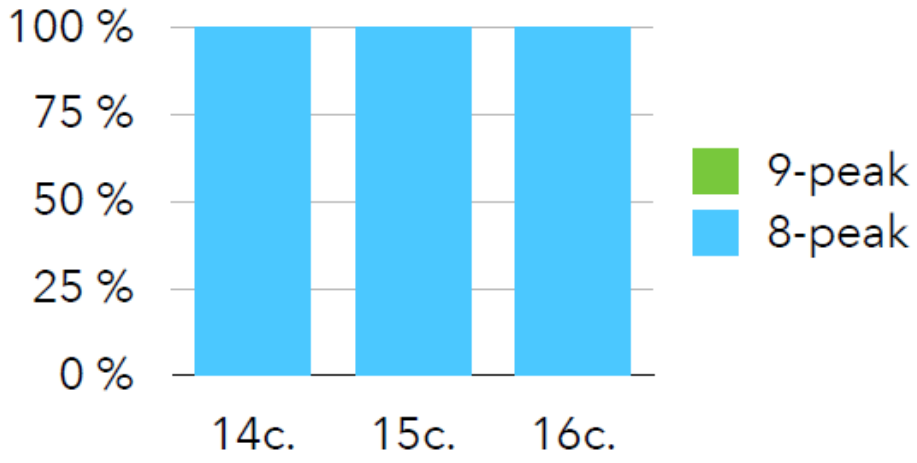
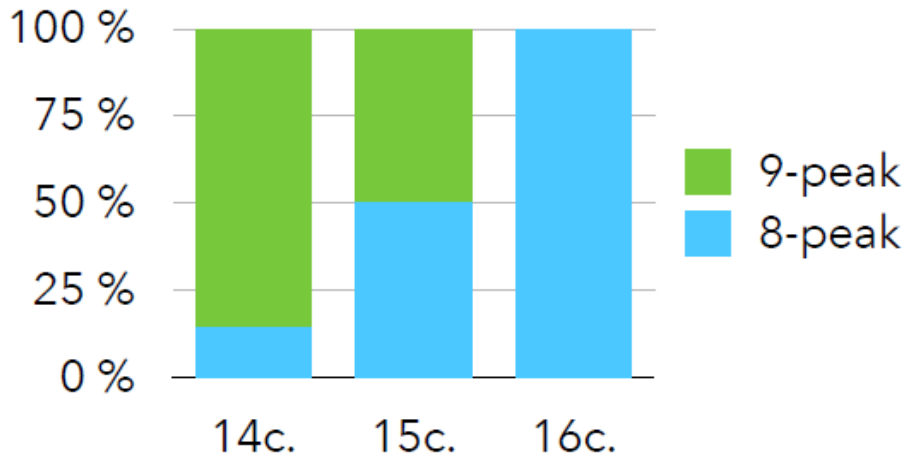


☞ inherited syllabic CL$_{\sigma}$C stay syllabic

☞ /hr.di:/$_{\sigma\sigma}$ = /hr.di:/$_{\sigma\sigma}$ 'proud'

2. **shifted syllabic CLC:**
   - *√slz, √krv, √krst, √plt, √plv, √hlt*

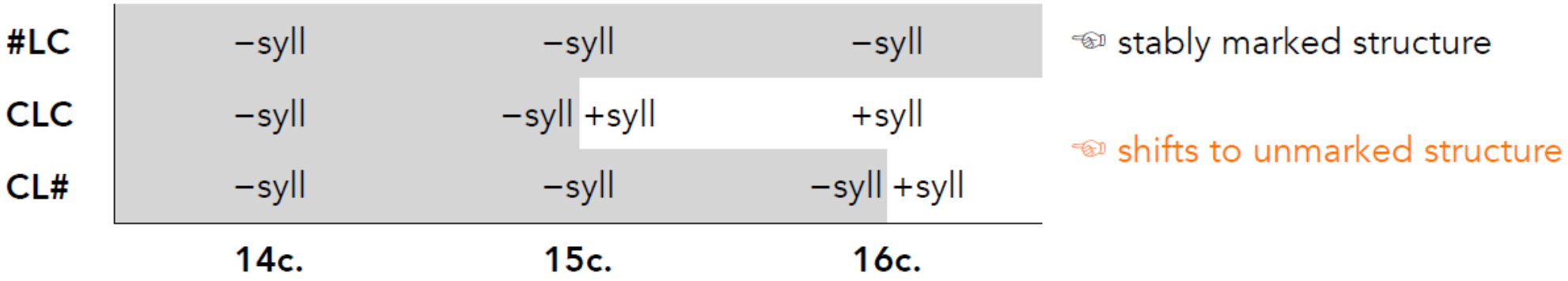


☞ shifted CLC turn syllabic during the 15c. & 16c.

☞ /slza/$_{\sigma}$ → /sl.za/$_{\sigma\sigma}$

Summary:
development of syllabic vs. non-syllabic liquids

evolution of **marked** (~ non-syllabic) liquids



Further research

- extension of the sample under study
- application of statistical tests
- analysis of syllable properties
  - inventory
  - distribution

Thank you!