The morphophonology of Russian declensions

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Outline

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Russian SG declension

	-o	-C	*-ǐ*	*-ǐ*	*-a*
	N	M	M/N	F	F
NOM	božestv-ó	stól	pút^{j}	ból^{j}	čert-á
ACC	[αhuman]	[αanim]	NOM		čert-ú
GEN	božestv-á	stol-á	put-í	ból^{j}-i	čert-ɨ́
DAT	božestv-ú	stol-ú	put-í	ból^{j}-i	čert-é
LOC	božestv-é	stol-é	put-í	ból^{j}-i	čert-é
INS	božestv-óm	stol-óm	put^{j}-óm	ból^{j}-ju	čert-ój(u)

Introduction

- Declension classes
  - A property of lexical and functional items (N, A, Dem ...)
  - No syntactic effect (unlike GENDER; henceforth γ)
  - Determine the choice of items' case endings

Russian SG nouns - syncretisms

	-o	-C	*-ĭ*	*-ĭ*	*-a*
	N	M	M/N	F	F
NOM	božestv-ó	stól	pút^{j}	ból^{j}	čert-á
ACC	[αhuman]	[αanim]	NOM		čert-ú
GEN	božestv-á	stol-á	put-í	ból^{j}-i	čert-ɨ́
DAT	božestv-ú	stol-ú	put-í	ból^{j}-i	čert-é
LOC	božestv-é	stol-é	put-í	ból^{j}-i	čert-é
INS	božestv-óm	stol-óm	put^{j}-óm	ból^{j}-ju	čert-ój(u)

Russian SG inanimate nouns - syncretisms

	-o	-C	*-ǐ*	*-ǐ*	*-a*
	N	M	M/N	F	F
NOM	božestv-ó	stól	pútʲ	bólʲ	čert-á
ACC		NOM[1]			čert-ú
GEN	božestv-á	stol-á	put-í	bólʲ-i	čert-ɨ́
DAT	božestv-ú	stol-ú	put-í	bólʲ-i	čert-é
LOC	božestv-é	stol-é	put-í	bólʲ-i	čert-é
INS	božestv-óm	stol-óm	putʲ-óm	bólʲ-ju	čert-ój(u)

[1] We are simplifying the ACC syncretism.

Russian SG inanimate nouns - predictable γ

- C-declension $\Rightarrow$ M
- *a*-declension $\Rightarrow$ F
  - Except if male denoting
- *o*-declension $\Rightarrow$ N (very few semantic exceptions)
- *ǐ*-declension $\Rightarrow$ F
  - Exceptions: 11/12 N and 1 M nouns

The nature of declension classes

- Diacritics on N
  - Accidental/Elsewhere syncretisms
  - No other use/effect
  - Unintelligible alphabet
- This talk: reduction to syntax & phonology
  - Cf. Spaelti (2004), Emonds and Spaelti (2005), Lampitelli and Ulfsbjiorninn (2023)

The nature of declension classes

- Declension class as an epiphenomenon
  - Halle (1994): VI rules and 'decl' diacritic
  - Nesset (1994), Müller (2004a,b), Alexiadou and Müller 2008: two abstract features, $[\pm\alpha]$ and $[\pm\beta]$
  - Privizentseva (2023): $[\alpha]$ is F
  - Caha (2021): declension class as the root size

The nature of declension classes

- Müller (2008)
  - Introduced to handle the syncretismsn
  - As arbitrary as the declension class feature
  - No independent motivation for $[\alpha]$ and $[\beta]$

	$+\alpha$	$-\alpha$
$-\beta$	C-declension: *stol* ‘table.M’	*ǐ*-declension: *bol*^{j} ‘pain.F’
$+\beta$	*o*-declension: *božestvó* ‘deity.N’	*a*-declension: *čertá* ‘line.F’

The nature of declension classes

- Privizentseva (2023)
  - $[\alpha]$ = [F]
  - No independent motivation for $[\pm\beta]$

	$-$F	$+$F
$-\beta$	C-declension: *stol* ‘table.M’	*ǐ*-declension: *bol*^{j} ‘pain.F’
$+\beta$	*o*-declension: *božestvó* ‘deity.N’	*a*-declension: *čertá* ‘line.F’

Aims of this talk

- No need for declension-specific diacritics
- Müller (2008)'s and Privizentseva (2023)'s $[\pm\beta]$ = shape of the last V slot of the stem
- Syncretic patterns are due to
  - The γ value of the stem
  - The shape of the final V slot of the stem
  - The shape of κ endings

Outline

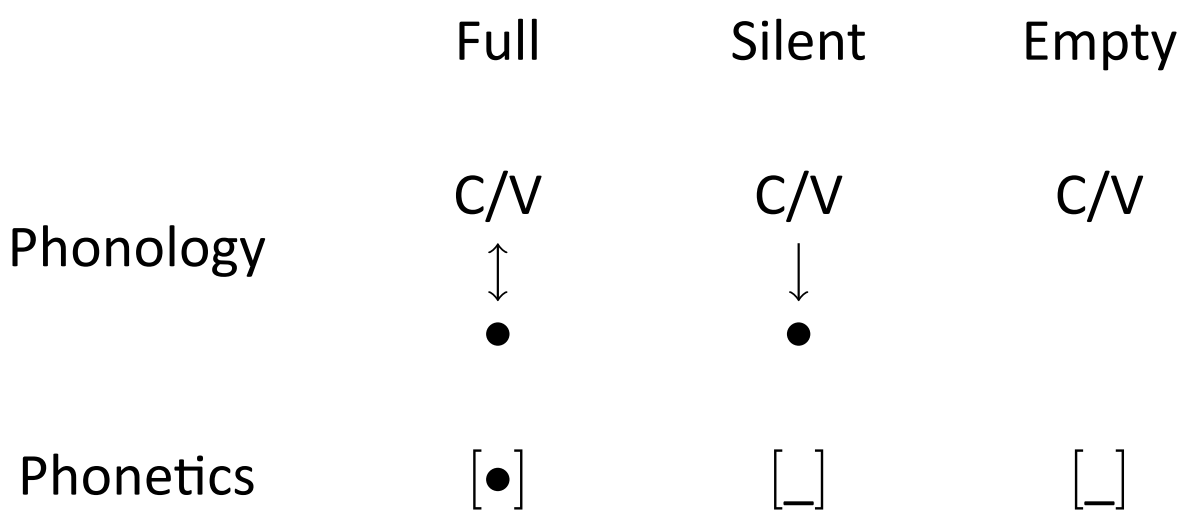
Assumptions - DM-ish

- Stems are categorized $\Rightarrow$ they may include derivational morphology (not inflection; Acquaviva 2008, Kučerová & Szczegielniak 2018)
  - They may contain γ (and NUM) information
  - If γ heads its own projection, it does so high in the N fseq
- Declensional endings consist of NUM and K
  - NUM is sensitive to stem's γ
  - K is sensitive to γ and NUM
- γ percolates upwards
  - It values K's $[\gamma]$

(1) $\text{STEM}_{[\alpha\text{F}]}\text{-NUM}_{[\alpha\text{F}]}\text{-K}_{[\alpha\text{F}]}$

Assumptions - Turbidity Theory

- Two kinds of association lines
  - Projection ↓
    - What C/V slot a segment belongs to
  - Pronunciation ↑
    - What C/V slot a segment is pronounced in



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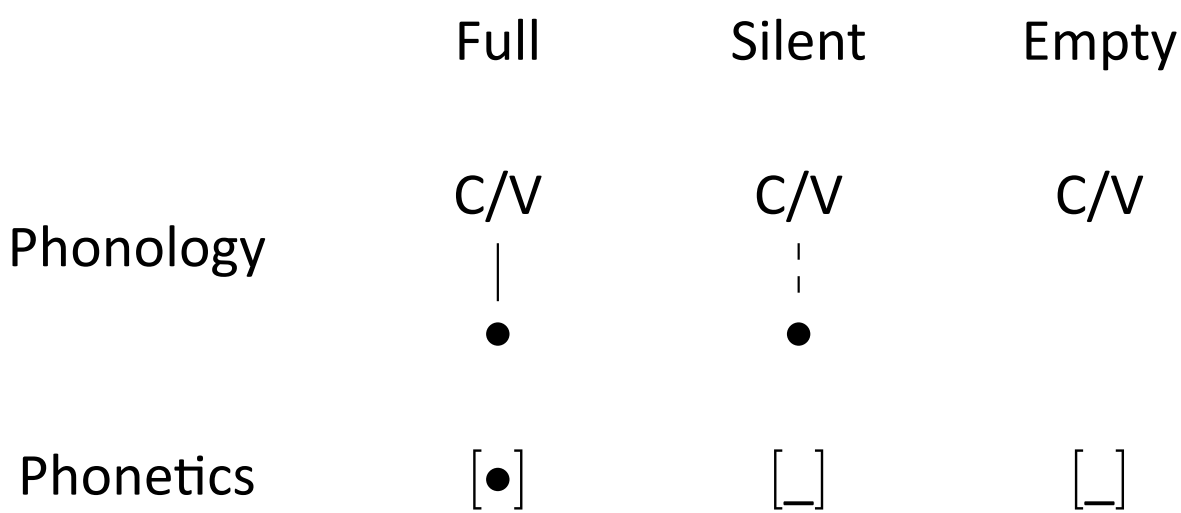
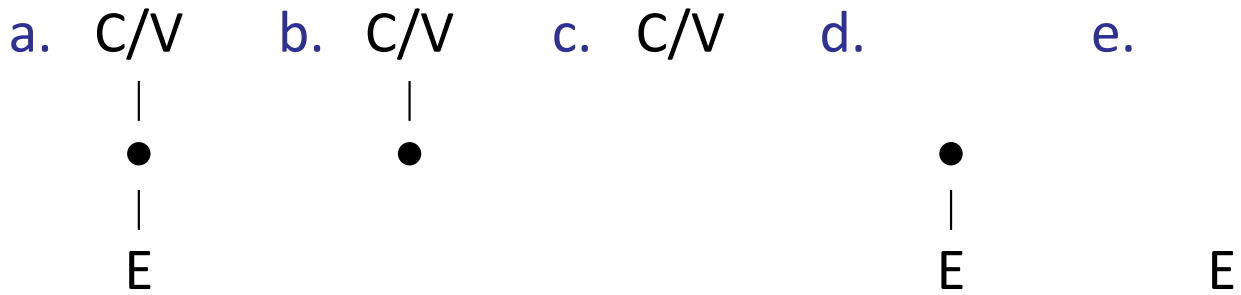


Assumptions - rooted CV

- Template typology[2]

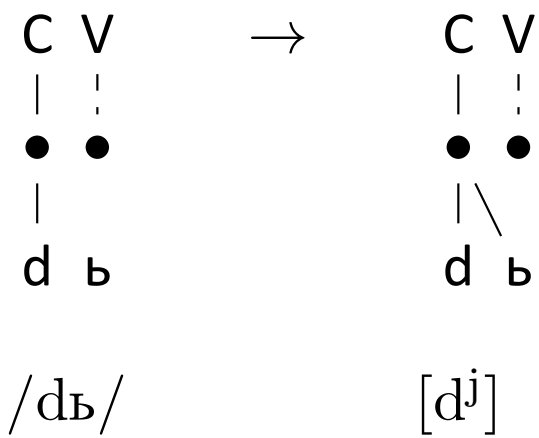


- Segments are sets of elements associated to a root node
- If not associated to a C/V slot, segments do not surface
- If not associated to a root node, elements do not surface

[2] We disregard other possible options because they are irrelevant here.

Assumptions - final ь of *ǐ*-declension

- /ь/ as (a sort of) yer
  - |I| floating PAL element in a projected root node
  - It gets *pronounced* on the leftmost available •, and
  - on its • if not governed/if stressed



Outline

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Overview

- The $\sqrt{}$-final V comes in various shapes

	stem-final V
o-declension	∅
C-declension	∅
a-declension	∅
ǐ-declension	¬∅ (ь)
(most) indeclinables[3]	¬∅

[3] The gender of the hypernym and the stem-final vowel affect GENDER assignment (Magomedova et al 2024)

Overview

- NUM comes in various shapes, which depend on $[\gamma]$

	SG^4
N	o
M	$\varnothing$
F	a

[4] x = full C/V, ^{x} = floating material

Overview

- NUM comes in various shapes, which depend on $[\gamma]$

	SG[4]
N	*o*
M	∅
F	*a*

- Floating SG exponents surface only if
  - the stem-final V is empty, and
  - they are not followed by another vowel

[4] *x* = full C/V, ^{x} = floating material

Overview

- NUM comes in various shapes, which depend on $[\gamma]$

	SG[4]
N	*o*
M	∅
F	*a*

- Floating SG exponents surface only if
  - the stem-final V is empty, and
  - they are not followed by another vowel
- No overt SG exponent on *ǐ*-nouns
- nor on ¬NOM nouns

[4] *x* = full C/V, ^{x} = floating material

Overview

- K comes in various shapes, which depend on [γ.NUM]

	-F.SG	+F.SG
NOM	∅	∅
ACC	∅	*u*
GEN	*a*	*i*
DAT	*u*	CV *i*
LOC	*e*	CV *i*
INS	*om*	*o j u*

Overview

- κ comes in various shapes, which depend on [γ.NUM]

	-F.SG	+F.SG
NOM	∅	∅
ACC	∅	*u*
GEN	*a*	*i*
DAT	*u*	CV *i*
LOC	*e*	CV *i*
INS	*om*	*oju*

- Floating κ exponents surface if
  - the stem-final V is empty and
  - SG exponents are ∅ (M) or floating (N/F)
  - hence, floating κ exponents do not surface on *ǐ*-nouns
- Non-floating κ exponents always surface (+F.GEN/DAT/LOC, INS)

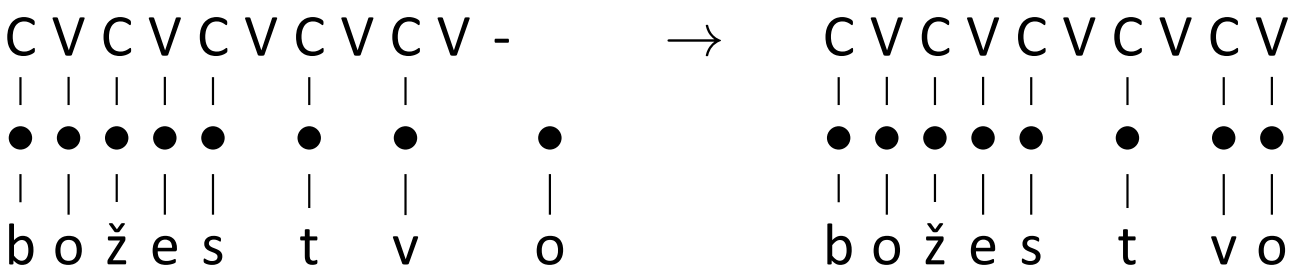
Outline

Syncretisms

	-o	-C	*-ǐ*	*-ǐ*	*-a*
	N	M	M/N	F	F
NOM	božestv-ó	stól	pút^{j}	ból^{j}	čert-á
ACC	božestv-ó	stól	pút^{j}	ból^{j}	čert-ú
GEN	božestv-á	stol-á	put-í	ból^{j}-i	čert-í
DAT	božestv-ú	stol-ú	put-í	ból^{j}-i	čert-é
LOC	božestv-é	stol-é	put-í	ból^{j}-i	čert-é
INS	božestv-óm	stol-óm	put^{j}-óm	ból^{j}-ju	čert-ój(u)

	N
NOM	božestv-ó
ACC	božestv-ó

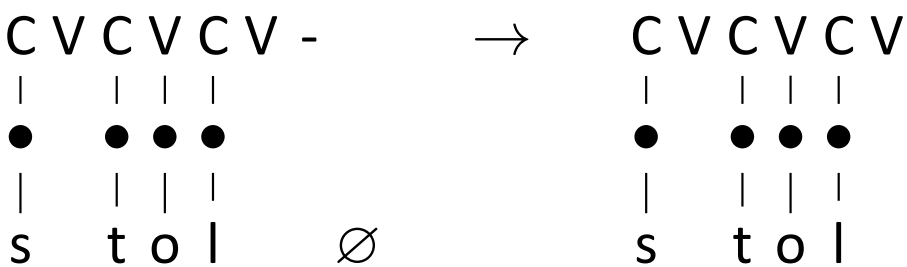
- $\sqrt{\text{BOŽESTV}}_{[N]}$
- $\text{SG}_{[N]} \Leftrightarrow o^5$
- $\text{NOM/ACC}_{[SG]} \Leftrightarrow \varnothing$



[5] For legibility reasons, in VI rules, we do not represent floating material by means of superscript characters.

	M
NOM	stól
ACC	stól

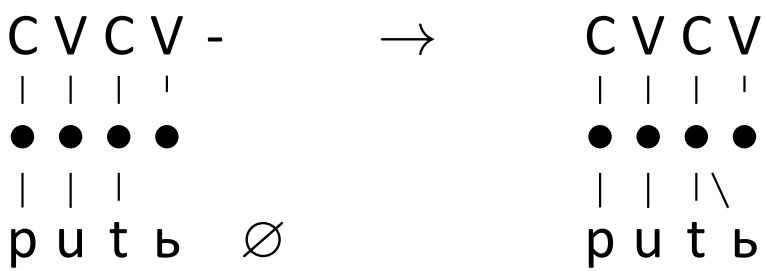
- $\sqrt{\text{STOL}}_{[M]}$
- $\text{SG}_{[M]} \Leftrightarrow \varnothing$
- $\text{NOM/ACC}_{[SG]} \Leftrightarrow \varnothing$



$\sqrt{C(V)}_{[-F]}$

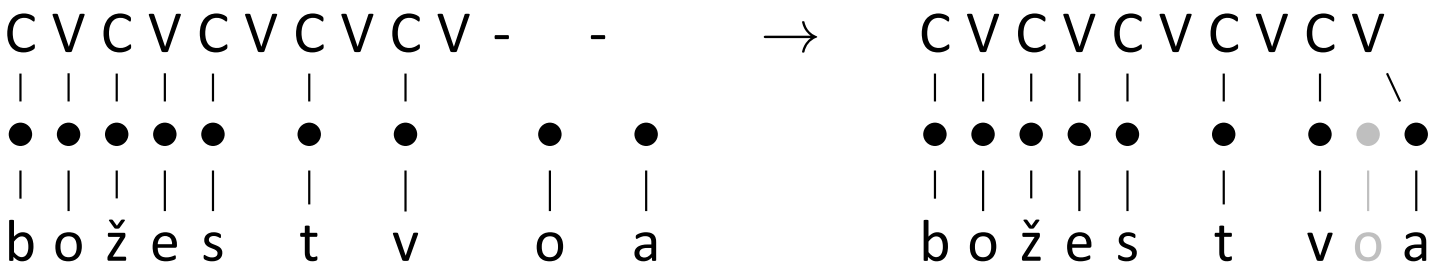
	M	M/N
NOM	stól	pút^{j}
ACC	stól	pút^{j}

- $\sqrt{STOL}_{[M]}/\sqrt{PUTЬ}_{[M]}$
- $SG_{[M]} \Leftrightarrow \varnothing$
- $NOM/ACC_{[SG]} \Leftrightarrow \varnothing$



	N
GEN	božestv-á
DAT	božestv-ú
LOC	božestv-é

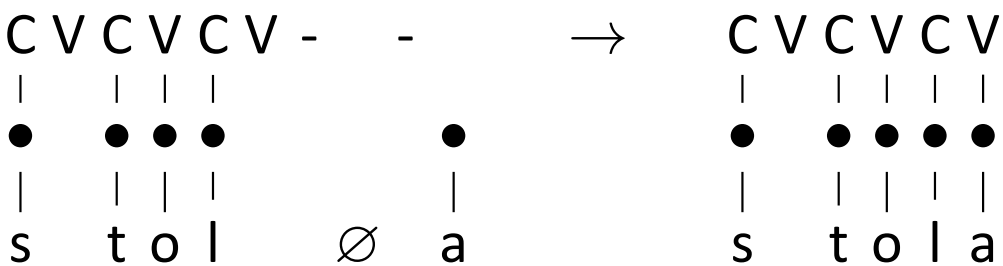
- $\sqrt{\text{BOŽESTV}}_{[N]}$
- $\text{SG}_{[N]} \Leftrightarrow o$
- $\text{GEN}_{[SG]}/\text{DAT}_{[SG]}/\text{LOC}_{[SG]} \Leftrightarrow a/u/e$
- The first of two floating segments drops (Jakobson 1958/1984)



$\sqrt{C\_}_{[-F]}$

	N	M
GEN	božestv-á	stol-á
DAT	božestv-ú	stol-ú
LOC	božestv-é	stol-é

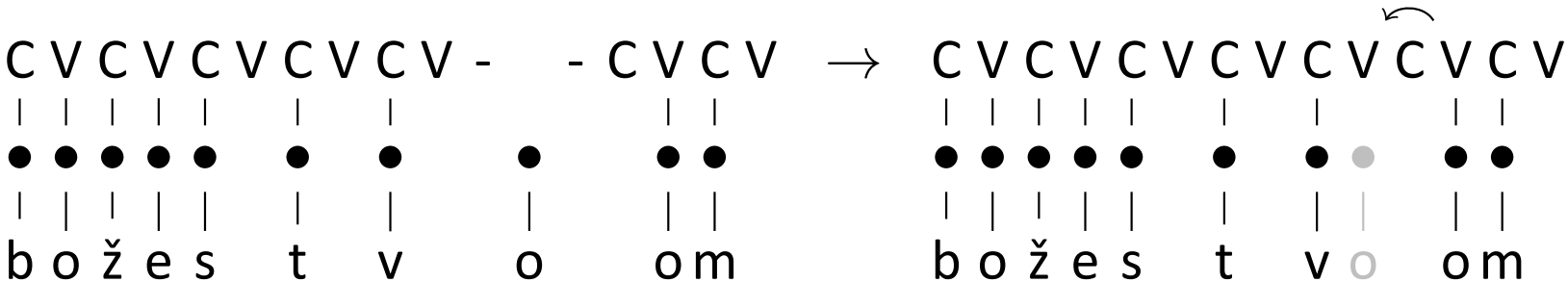
- $\sqrt{\text{BOŽESTV}}_{[N]}/\sqrt{\text{STOL}}_{[M]}$
- $\text{SG}_{[N]} \Leftrightarrow o/\text{SG}_{[M]} \Leftrightarrow \varnothing$
- $\text{GEN}_{[SG]}/\text{DAT}_{[SG]}/\text{LOC}_{[SG]} \Leftrightarrow a/u/e$



$\sqrt{C\_}_{[-F]}$

	N	M
INS	božestv-óm	stol-óm

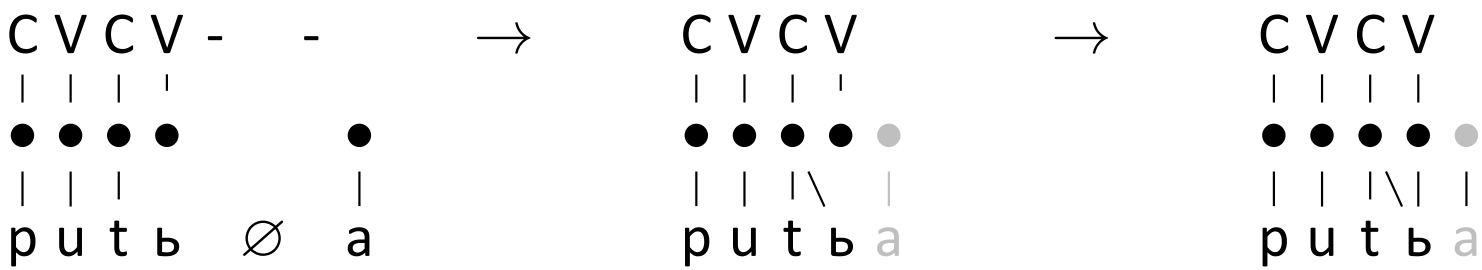
- $\sqrt{\text{BOŽESTV}}_{[N]}/\sqrt{\text{STOL}}_{[M]}$
- $\text{SG}_{[N]} \Leftrightarrow o/\text{SG}_{[M]} \Leftrightarrow \varnothing$
- $\text{INS}_{[SG]} \Leftrightarrow om$



$\sqrt{\text{C(V)}}_{[-F]}$

	N	M	M/N
GEN	božestv-á	stol-á	put-í
DAT	božestv-ú	stol-ú	put-í
LOC	božestv-é	stol-é	put-í

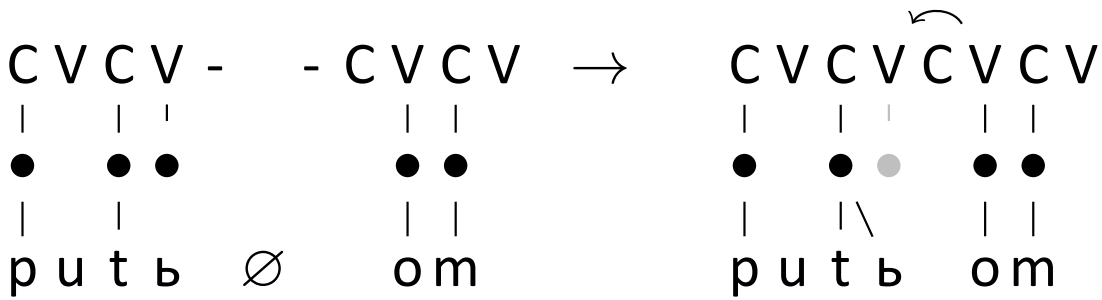
- $\sqrt{\text{BOŽESTV}}_{[N]}/\sqrt{\text{STOL}}_{[M]}/\sqrt{\text{PUTЬ}}_{[M]}$
- $\text{SG}_{[N]} \Leftrightarrow o/\text{SG}_{[M]} \Leftrightarrow \varnothing$
- $\text{GEN}_{[SG]}/\text{DAT}_{[SG]}/\text{LOC}_{[SG]} \Leftrightarrow a/u/e$
- Stress licenses the pronunciation of ь $\Rightarrow /$ь$/ \rightarrow [\text{i}]$
  - See INF $/\text{nes'tь}/ \rightarrow [\text{n}^{\text{j}}\text{es'ti}]$



$\sqrt{C(V)}_{[-F]}$

	N	M	M/N
INS	božestv-óm	stol-óm	put^{j}-óm

- $\sqrt{\text{BOŽESTV}}_{[N]}/\sqrt{\text{STOL}}_{[M]}/\sqrt{\text{PUTЬ}}_{[M]}$
- $\text{SG}_{[N]} \Leftrightarrow o/\text{SG}_{[M]} \Leftrightarrow \varnothing$
- $\text{INS}_{[SG]} \Leftrightarrow om$



$\sqrt{C(V)}_{[-F]}$ - surface-based syncretism

	Phonology	$\sqrt{C\_}$		$\sqrt{CV}$
Morphosyntax			-F	
GEN	*a*	božestv-á	stol-á	put-í
DAT	*u*	božestv-ú	stol-ú	put-í
LOC	*e*	božestv-é	stol-é	put-í
INS	*om*	božestv-óm	stol-óm	put^{j}-óm

- Phonology
  - $\sqrt{C\_}$ *vs* $\sqrt{CV}$ & *floating* vs *non-floating* K exponent
- Morphosyntax
  - $GEN_{[SG]}/DAT_{[SG]}/LOC_{[SG]} \Leftrightarrow$ *a*/*u*/*e* in *o*/C-declension
  - $GEN_{[SG]}/DAT_{[SG]}/LOC_{[SG]} \Leftrightarrow$ *í* in *ǐ*-declension
  - $INS_{[SG]} \Leftrightarrow$ *om* in all [-F] declensions

$\sqrt{C(V)}_{[-F]}$ - morphosyntax-based syncretism

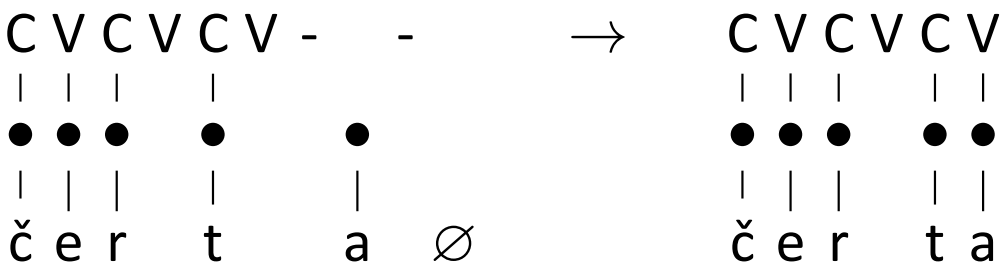
	Phonology	$\sqrt{C\_}$		$\sqrt{CV}$
Morphosyntax			-F	
GEN	*a*	božestv-á	stol-á	put-í
DAT	*u*	božestv-ú	stol-ú	put-í
LOC	*e*	božestv-é	stol-é	put-í
INS	*om*	božestv-óm	stol-óm	put^{j}-óm

- Phonology
  - $\sqrt{C\_}$ *vs* $\sqrt{CV}$ & floating *vs* non-floating K exponent
- Morphosyntax
  - $GEN_{[SG]}/DAT_{[SG]}/LOC_{[SG]} \Leftrightarrow$ *a*/*u*/*e* in *o*/C-declension
  - $GEN_{[SG]}/DAT_{[SG]}/LOC_{[SG]} \Leftrightarrow$ *í* in *ǐ*-declension
  - $INS_{[SG]} \Leftrightarrow$ *om* in all [-F] declensions

$\sqrt{C\_}_{[+F]}$

	F
NOM	čert-á

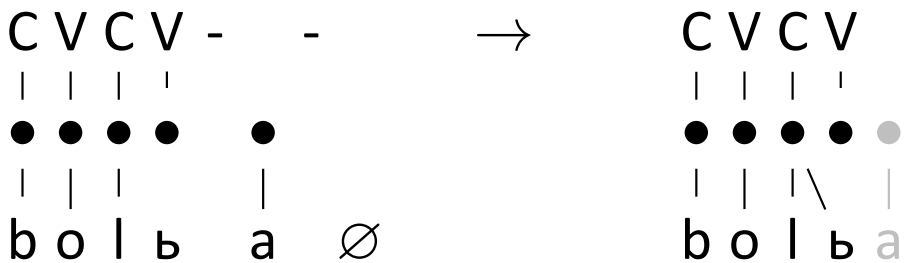
- $\sqrt{\text{ČERT}}_{[F]}$
- $\text{SG}_{[F]} \Leftrightarrow a$
- $\text{NOM}_{[SG]} \Leftrightarrow \varnothing$



$\sqrt{C(V)}_{[+F]}$

	F	F
NOM	čert-á	ból^{j}

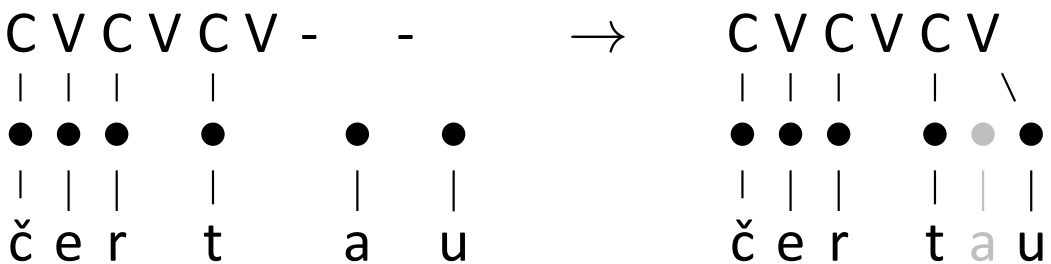
- $\sqrt{\text{ČERT}}_{[F]}/\sqrt{\text{BOLЬ}}_{[F]}$
- $\text{SG}_{[F]} \Leftrightarrow a$
- $\text{NOM}_{[SG]} \Leftrightarrow \varnothing$



$\sqrt{C\_}_{[+F]}$

	F
ACC	čert-ú

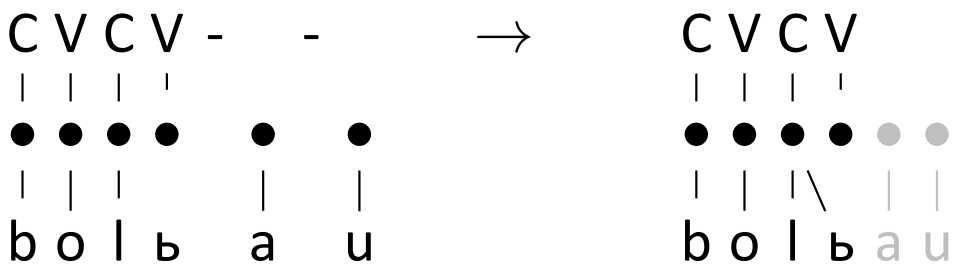
- $\sqrt{\text{ČERT}}_{[F]}$
- $\text{SG}_{[F]} \Leftrightarrow a$
- $\text{ACC}_{[F.SG]} \Leftrightarrow u$



$\sqrt{C(V)}_{[+F]}$

	F	F
ACC	čert-ú	bólʲ

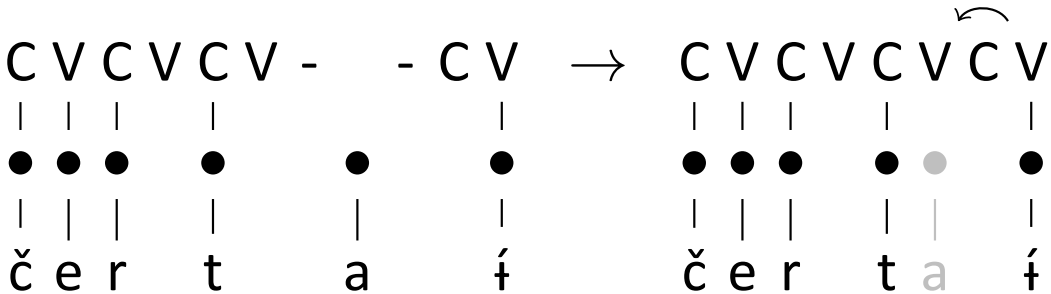
- $\sqrt{\text{ČERT}}_{[F]}/\sqrt{\text{BOLЬ}}_{[F]}$
- $\text{SG}_{[F]} \Leftrightarrow a$
- $\text{ACC}_{[F.SG]} \Leftrightarrow u$



$\sqrt{C\_}_{[+F]}$

	F
GEN	čert-ɨ́

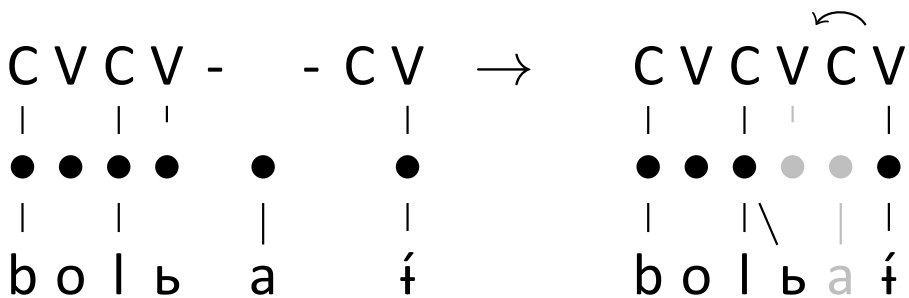
- $\sqrt{\text{ČERT}}_{[F]}$
- $\text{SG}_{[F]} \Leftrightarrow a$
- $\text{GEN}_{[F.SG]} \Leftrightarrow \acute{ɨ}$



$\sqrt{C(V)}_{[+F]}$

	F	F
GEN	čert-ʲ	bólʲ-i

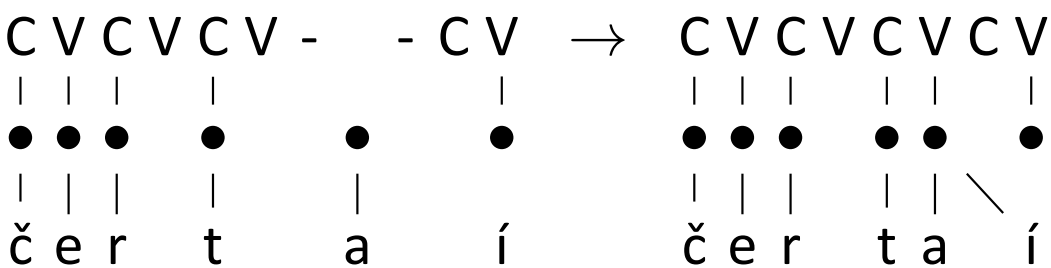
- $\sqrt{\text{ČERT}}_{[F]}/\sqrt{\text{BOLЬ}}_{[F]}$
- $\text{SG}_{[F]} \Leftrightarrow a$
- $\text{GEN}_{[F.SG]} \Leftrightarrow ʲ$



$\sqrt{C\_}_{[+F]}$

	F
DAT	čert-é
LOC	čert-é

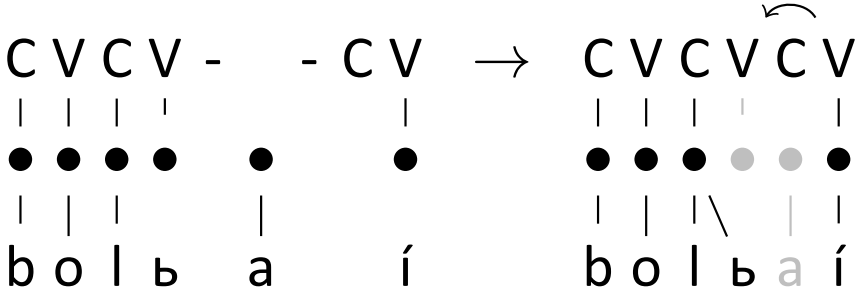
- $\sqrt{\text{ČERT}}_{[F]}$
- $\text{SG}_{[F]} \Leftrightarrow a$
- $\text{DAT}_{[F.SG]}/\text{LOC}_{[F.SG]} \Leftrightarrow í$
- *í* associates to the leftmost available •, i.e. *a*'s $\Rightarrow$ |A| + |I| = *e*



$\sqrt{\text{C(V)}}_{[+F]}$

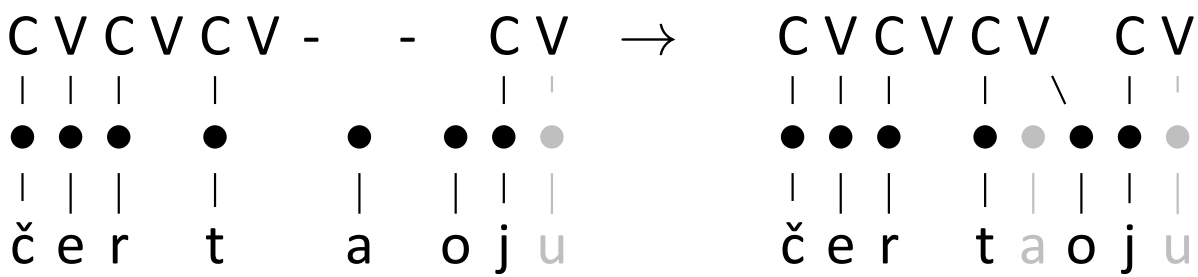
	F	F
DAT	čert-é	bólʲ-i
LOC	čert-é	bólʲ-i

- $\sqrt{\text{ČERT}}_{[F]}/\sqrt{\text{BOLЬ}}_{[F]}$
- $\text{SG}_{[F]} \Leftrightarrow a$
- $\text{DAT}_{[F.SG]}/\text{LOC}_{[F.SG]} \Leftrightarrow$ *í*
- *í* cannot associate to ь's • (NCC), nor to the one of the unpronounced *a* $\Rightarrow$ it is pronounced in its own V slot



	F
INS	čert-ój(u)

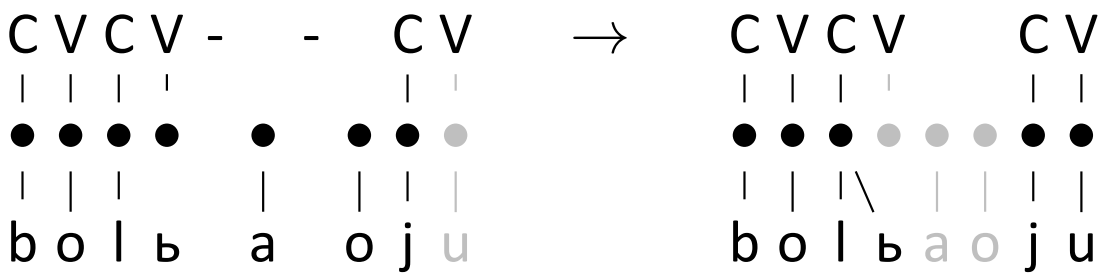
- $\sqrt{\text{ČERT}}_{[F]}$
- $\text{SG}_{[N]} \Leftrightarrow a$
- $\text{INS}_{[F.SG]} \Leftrightarrow oju$
- The last V can fail to surface if the preceding V slot is realised
  - Cf. reflexive clitics, and see Zaliznjak (1992) and Kireyev (2022)



$\sqrt{C(V)}_{[+F]}$

	F	F
INS	čert-ój(u)	bólʲ-ju

- $\sqrt{\text{ČERT}}_{[F]}/\sqrt{\text{BOLЬ}}_{[F]}$
- $\text{SG}_{[N]} \Leftrightarrow a$
- $\text{INS}_{[F.SG]} \Leftrightarrow oju$



$\sqrt{C(V)}_{[+F]}$ - surface-based syncretism

	Phonology	$\sqrt{CV}$	$\sqrt{C\_}$
Morphosyntax		+F	
NOM	∅	ból^{j}	čert-á
ACC	*u*	ból^{j}	čert-ú
GEN	*i*	ból^{j}-i	čert-í
DAT	CV^{i}	ból^{j}-i	čert-é
LOC	CV^{i}	ból^{j}-i	čert-é
INS	$^{o}j^{u}$	ból^{j}-ju	čert-ój(u)

- Phonology
  - $\sqrt{C\_}$ *vs* $\sqrt{CV}$ & ^{floating} vs *non-floating* K exponent
- Morphosyntax
  - NOM$_{[F.SG]}$/ ACC$_{[F.SG]}$/GEN$_{[F.SG]}$/INS$_{[F.SG]}$ $\Leftrightarrow$ ∅/*u*/*i*/*oju*
  - DAT/LOC$_{[F.SG]}$ $\Leftrightarrow$ *i*

$\sqrt{C(V)}_{[+F]}$ - morphosyntax-based syncretism

	Phonology	$\sqrt{CV}$	$\sqrt{C\_}$
Morphosyntax		+F	
NOM	∅	ból^{j}	čert-á
ACC	*u*	ból^{j}	čert-ú
GEN	*i*	ból^{j}-i	čert-í
DAT	CV^{i}	ból^{j}-i	čert-é
LOC	CV^{i}	ból^{j}-i	čert-é
INS	$^{o}j^{u}$	ból^{j}-ju	čert-ój(u)

- Phonology
  - $\sqrt{C\_}$ *vs* $\sqrt{CV}$ & *floating* vs *non-floating* K exponent
- Morphosyntax
  - NOM$_{[F.SG]}$/ ACC$_{[F.SG]}$/GEN$_{[F.SG]}$/INS$_{[F.SG]}$ ⇔ ∅/*u*/*i*/*oju*
  - DAT/LOC$_{[F.SG]}$⇔ *i*

Outline

Conclusion

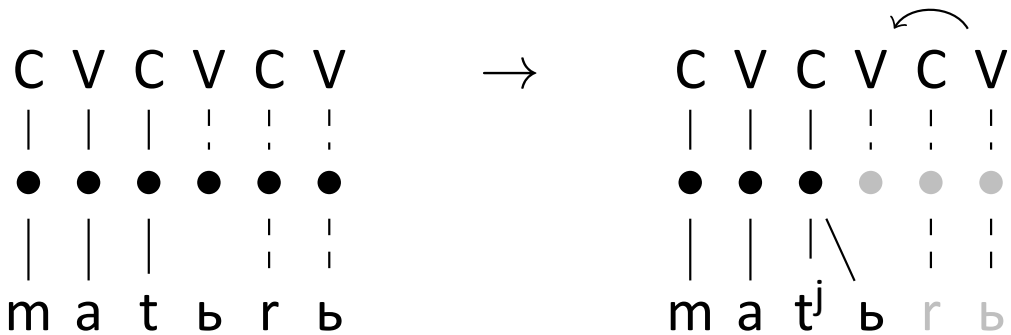
This analysis shows that if we focus on the **abstract (morpho-)phonological representations**, we can

- uncover new, **simpler** syncretism patterns
- attain a **formal description** of these patterns that requires
- **less** and **simpler VIs**, and highlights
- the difference between **phonology-** and **morphosyntax-based syncretisms**

Outline

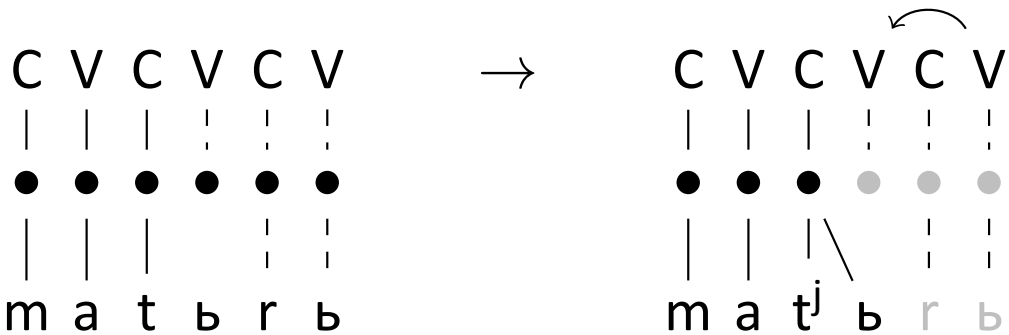
Floating consonants with ь-declension nouns

- /matьrь/ → [mat^{j}]

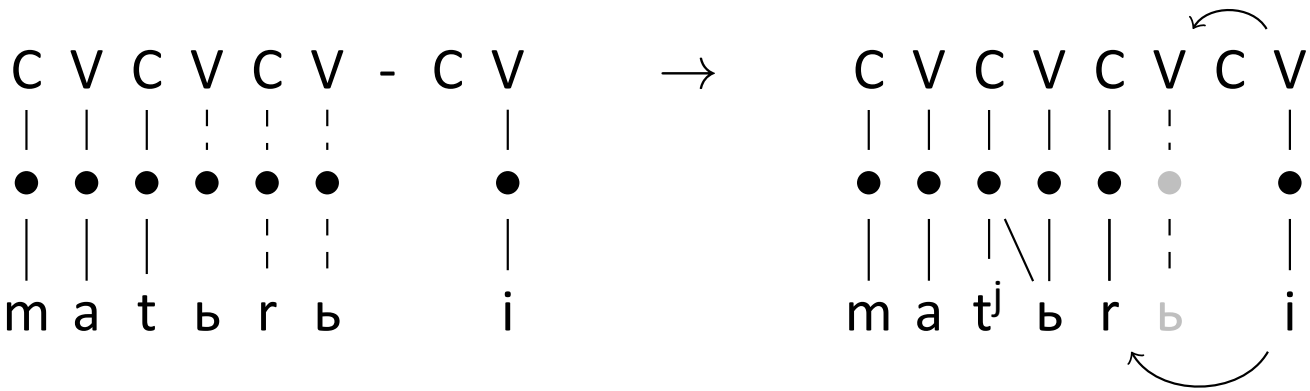


Floating consonants with ь-declension nouns

- /matьrь/ → [mat^{j}]

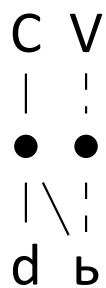


- /matьrь/ - /i/.GEN → [ˈmat^{j}ɪrɪ]



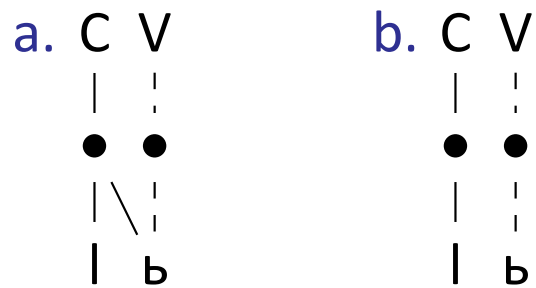
Alternative representation of ь - I

- The final V projects a root node, which projects an |I| element
- |I| is pronounced on the preceding root node
  - The pronunciation association belongs to the UR



Alternative representation of ъ - I

- Cf. *postelʲ* ∼ *postelʲka* vs *butɨlʲ* ∼ *butɨlka*: in the latter
  - if ъ is ungoverned, the preceding C slot is palatalised
  - if ъ is governed, the preceding C slot is not palatalised
- Two different UR representations
  a. *postelʲ*
  b. *butɨlʲ*
     - Phonological computation accounts for regressive palatalisation



Alternative II

- Deficient segment
  - |I| element with no root node
  - Parasitic on other *pronounced* root nodes