

# Asymmetric variation\*

Péter Rebrus – Péter Szigetvári – Miklós Törkenczy

rebrus@nytud.hu, tork@nytud.hu, szigetvari@elte.hu

Research Institute for Linguistics, Hungarian Academy of Sciences (MTA)

Eötvös Loránd University (ELTE), Budapest

## plan

- 1 background: harmonic variation
- 2 background: yod variation
- 3 the problem: asymmetry in variation
- 4 the analysis: paradigm uniformity

## 1 background: harmonic variation

### 1.1 categorical behaviour

- harmonic vowels:  
B = u u: o o: α a: F = y y: ø ø: ε e:
- Front and Back suffix allomorphs for all harmonically alternating suffixes:  
[[B]B] bor-nαk 'wine-DAT'  
[[F]F] řor-nεk 'beer-DAT'

### 1.2 variation: phonological shape underdetermines harmonic behaviour

- zone of variation can be characterised phonologically, e.g. [Bε]-stems
- vacillation and lexical variation, three classes:
  - *indifferent*: vacillation hotεl-nαk% nεk
  - *cultural*: F-preference pαmflet-nεk
  - *familiar*: B-preference hαver-nαk

### 1.3 harmonic consistency

- harmonic behaviour is consistent throughout the paradigm of a stem: stable F or B or variable harmony within the paradigm
- *familiar* [Bε]-stems: near-categorical B-harmony with V-initial suffixes:

hαver- <b>ok</b> /*εk	'pal-PL'
mαtek- <b>ot</b> /*εt	'maths-ACC'
kolεs- <b>om</b> /*εm	'student dorm-Poss.1Sg'
fαter- <b>od</b> /*εd	'dad-Poss.2Sg'
krαpek- <b>u</b> ηk/*yηk	'dude-Poss.1Pl.'

## 2 background: yod variation

### 2.1 Y-suffixes: j ~ Ø alternation in possessive suffixes (+harmonic alternations α~ε, u~y):

- Yful allomorphs, e.g. V-final stems:

'Poss.3Sg'	'Poss.3Pl'	
kαpu- <b>ja</b>	kαpu- <b>juk</b>	'gate'
sø:lø:- <b>jε</b>	sø:lø:- <b>jyk</b>	'vine'
- Yless allomorphs, e.g. sibilant-final stems:

'Poss.3Sg'	'Poss.3Pl'	
kos- <b>α</b>	kos- <b>uk</b>	'dirt'
hø:ř- <b>ε</b>	hø:ř- <b>yk</b>	'hero'

### 2.2 variation: phonological shape underdetermines Yfulness:

- zone of variation: other C-final stems
- vacillation and lexical variation:

'Poss.3Sg'	'Poss.3Pl'	
Yless: jog- <b>α</b>	jog- <b>uk</b>	'right'
se:k- <b>ε</b>	se:k- <b>yk</b>	'chair'
Yful: tag- <b>ja</b>	tag- <b>juk</b>	'member'
pe:k- <b>jε</b>	pe:k- <b>jyk</b>	'baker'
vacillation: vira:g- <b>(j)α</b>	vira:g- <b>(j)uk</b>	'flower'
liter- <b>(j)ε</b>	liter- <b>(j)yk</b>	'litre'

### • determining factors:

- phonology:
  - *sibilant/palatal-final* ⇒ **Yless**
  - *front stems* ⇒ **Yless** (tendency)
  - V-final ⇒ Yful
  - CC-final ⇒ Yful
- morphology:
  - *lowering stems* ⇒ **Yless** (tendency)
  - derived stems ⇒ Yless (tendency)
- lexical:
  - *recent loans* ⇒ **Yful** (tendency)
  - frequent stems ⇒ Yless (tendency)

## 3 the problem

### 3.1 orthogonality hypothesis: harmonic variation and yod-variation are independent in terms of phonological content and conditioning predictions:

- variation in 1 dimension ⇒ 2 allomorphs
- variations in 2 dimensions ⇒ 4 allomorphs

### 3.2 attested types

(i) stem is variable in 2 dimensions, 4 allomorphs

hotel- <b>jyk</b>	hotel- <b>juk</b>	'hotel-Poss.3Pl'
hotel- <b>yk</b>	hotel- <b>uk</b>	

(ii) 1 dimension, 2 allomorphs:

*notεs- <b>jyk</b>	*notεs- <b>juk</b>	'notebook-Poss.3Pl'
notεs- <b>yk</b>	notεs- <b>uk</b>	

*notεs- <b>jε</b>	*notεs- <b>ja</b>	'notebook-Poss.3Sg'
notεs- <b>ε</b>	notεs- <b>α</b>	

(iii) 2 dimensions, 3 allomorphs:

hotel- <b>jε</b>	hotel- <b>ja</b>	'hotel-Poss.3Sg'
hotel- <b>ε</b>	*hotel- <b>α</b>	

(iv) 2 dimensions, 3 or 2 allomorphs:

hαver- <b>jyk</b>	hαver- <b>juk</b>	'pal-Poss.3Pl'
*hαver- <b>yk</b>	hαver- <b>uk</b>	

hαver- <b>jε</b>	hαver- <b>ja</b>	'pal-Poss.3Sg'
*hαver- <b>ε</b>	*hαver- <b>α</b>	

statistics: Google search: 36 "non-familiar" stems

(i) Poss.3Pl (24.3k tokens)

-( <b>j</b> )yk	-( <b>j</b> )uk	
23.21%	3.85%	Yful
72.52%	0.42%	Yless

(iii) Poss.3Sg (1624k tokens)

-( <b>j</b> )ε	-( <b>j</b> )α	
4.13%	1.08%	Yful
94.80%	0.004%	Yless

(iv) 6 "familiar" stems: Poss.3Pl (16.0k tokens);

-( <b>j</b> )yk	-( <b>j</b> )uk	
0.93%	98.83%	Yful
0.04%	0.20%	Yless

(iv) 6 "familiar" stems: Poss.3Sg (245.8k tokens)

-( <b>j</b> )ε	-( <b>j</b> )α	
0.48%	99.51%	Yful
0.001%	0.0004%	Yless

## 3.4 questions:

- 1 why do we not find 4 forms in 3Sg and why is the -α (Yless back) form missing? (iii)
- 2 why is the -α form not missing when there are no Yful forms? (ii)
- 3 why do forms that are variable in both dimensions behave differently when the suffix vowel is u~y vs. α~ε? (i) vs. (iii)
- 4 why do forms behave differently when the suffix vowel is u~y vs. when it is α~ε and why is the -α form missing? (iv)

## 4 analysis

4.1 paradigm uniformity: identical sound strings in a paradigm support each other

4.2 paradigm classes: mid / low linking vowel

	<i>mid back</i> kar 'arm, choir'	<i>low back</i> fal 'wall'	<i>(low) front</i> per 'trial'
Plural	kar- <b>ok</b>	fal- <b>ak</b>	per- <b>εk</b>
Adjz	kar- <b>oř</b>	fal- <b>ař</b>	per- <b>εř</b>
Verbz	kar- <b>ol</b>	fal- <b>az</b>	per- <b>εl</b>
...	...	...	...
Poss.1Sg	kar- <b>om</b>	fal- <b>am</b>	per- <b>εm</b>
Poss.2Sg	kar- <b>od</b>	fal- <b>ad</b>	per- <b>εd</b>
Poss.2Pl	kar- <b>otok</b>	fal- <b>atok</b>	per- <b>εtek</b>
Poss.3Sg	kar-α   kar-ja variation	fal- <b>α</b> Yless	per- <b>ε</b> Yless
uniformity	no	yes	yes

4.3 sequential uniformity (SU): in variation we select a string supported by identical strings in the paradigm (thereby enhancing uniformity)

- facilitates **Yless allomorph** of Y-suffixes for low back stems and front stems in general
- is neutral wrt the selection of Y-allomorphs for back non-low stems ⇒ **variation**

### what causes the asymmetry?

asymmetric **vowel inventory** (there is no short front mid vowel **e**)

⇒ asymmetric **paradigm classes**

⇒ asymmetric **supporting** of Yless allomorphs

⇒ asymmetry in **variation**

4.4 explanation: [Bε]-stems are (a) loans & therefore also (b) not lowering stems

⇒ Yful forms are facilitated and  
⇒ Yless -α forms have no paradigmatic support

question 1: \*hotεl-α

- since hotel is non-lowering \*hotεl-α has no paradigmatic support
- hotεl-ε does have paradigmatic support – for front stems no difference btw lowering and non-lowering
- hotεl-ja & hotεl-jε have equal paradigmatic support (none), but recent loans facilitate Yful forms

question 2: \*notεs-jε, \*notεs-ja

- Yful forms are out because of markedness (and have no paradigmatic support)
- notεs-ε has paradigmatic support
- notεs-α has no paradigmatic support, but is facilitated by harmonic consistency (cf. 1.3)

question 3: hotεl-(j)yk, hotεl-(j)uk

- both hotεl-yk, hotεl-uk have paradigmatic support from Poss.1Pl hotεl-yηk, hotεl-uηk
- hotεl-juk & hotεl-jyk have no paradigmatic support, but recent loans facilitate Yful forms

question 4: \*hαver-ε, \*hαver-α \*hαver-yk

- "familiar" Bε-stems are harmonically variable only with C-initial suffixes, V-initial suffixes have B-preference ⇒ \*hαver-ε, \*hαver-yk (but hαver-jε, hαver-jyk)
- Yful forms have no paradigmatic support, but recent loans facilitate yodful forms
- \*hαver-α has no paradigmatic support, but
- hαver-uk does have paradigmatic support from Poss.1Pl hαver-uηk

bonus question: back sibilant/palatal-final recent loans, e.g. řtruts:-α 'ostrich-Poss.3Sg'

- recent loans facilitate Yful forms, but Yful forms are out because of markedness (\*-ja) and
- Yless back forms in -α are not supported because recent loans are non-lowering
- nevertheless: řtruts:-α is licit because defective paradigms are avoided: NoGap

\* This work has been supported by National Scientific Grant NKFI-119863 'Experimental and theoretical investigations of vowel harmony patterns'.