Haverük fotela vs. haveruk fotele.
Miért hiányoznak egyes birtokos toldalékváltozatok?

Rebrus Péter
Törkenczy Miklós
Szigetvári Péter

MTA NYTI
2017. 03. 28.

(1) Variation in the Possessive

a. Singular possessee

possessor	paːr ‘pair’	kaːr ‘damage’	tor ‘wake’
3sg	paːr**ja**	kaːr**a**	tor**a** % tor**ja**
3pl	paːr**juk**	kaːr**uk**	tor**uk** % tor**juk**

b. Plural possessee

possessor	paːr ‘pair’	kaːr ‘damage’	tor ‘wake’
1sg	paːr**ja**im	kaːr**a**imsg	tor**a**im % tor**ja**im
2sg	paːr**ja**id	kaːr**a**id	tor**a**id % tor**ja**id
3sg	paːr**ja**i	kaːr**a**i	tor**a**i % tor**ja**i
1pl	paːr**ja**ink	kaːr**a**ink	tor**a**ink % tor**ja**ink
2pl	paːr**ja**itok	kaːr**a**itok	tor**a**itok % tor**ja**itok
3pl	paːr**ja**ik	kaːr**a**ik	tor**a**ik % tor**ja**ik

(2) The phonological conditioning of possessive Y-allomorphs

	stem-final segment(s)	behaviour	examples (3SG.POSS)
a.	V	yodful	*kɑpu-ɑ, kɑpu-**jɑ** ‘gate’
b.	$C_{[palatal]}$	yodless	laːɲ-**ɑ**, *laːɲ-jɑ ‘daughter’
c.	$C_{[sibilant]}$	yodless	koʃ-**ɑ**, *koʃ-jɑ ‘ram’
d.	$VC_{[nonpalatal,nonsibilant]}$	variation	*paːr-ɑ, paːr-**jɑ** ‘pair’ kaːr-**ɑ**, *kaːr-jɑ ‘damage’ tor-**ɑ**, tor-**jɑ** ‘wake’
e.	$CC_{[nonpalatal,nonsibilant]}$	mainly yodful	*domb-ɑ, domb-**jɑ** ‘hill’

(5) Uniformity of the suffix-initial vowel in the paradigms of back and front unrounded stems

backness & height of the suffix-initial vowel:		**a. back & mid** (back non-lowering stems)	**b. back & low** (back lowering stems)	**c. front & low** (front unrounded stems)
Non-possessive	Plural	kɑr-o̲k, tor-o̲k	fɑl-ɑ̲k	pɛr-ɛ̲k
	Adjz	kɑr-o̲ʃ, tor-o̲ʃ	fɑl-ɑ̲ʃ	pɛr-ɛ̲ʃ
	Verbz	kɑr-o̲l, tor-o̲l	fɑl-ɑ̲z	pɛr-ɛ̲l
Possessive	1sg	kɑr-o̲m, tor-o̲m	fɑl-ɑ̲m	pɛr-ɛ̲m
	2sg	kɑr-o̲d, tor-o̲d	fɑl-ɑ̲d	pɛr-ɛ̲d
	3sg	kɑr-j̲ɑ̲ | kar-ɑ̲ tor-j̲ɑ̲ % tor-ɑ̲	fɑl-ɑ̲	pɛr-ɛ̲
uniformity with 3sg		**no / no**	**yes**	**yes**
		‘arm | choir’ ‘wake’	‘wall’	‘trial’

(3) Paradigm Uniformity in Suffix Vowel (PU-V)[11]

Suffix-initial vowels agree in quality within the paradigm of a stem.

(4) Analogical Support of Suffix Vowel (AS-V)

Given a choice of suffix allomorphs, prefer the one(s) that result in PU-V.

(6) Morph-Syllable Alignment (M-σ Align)

In a suffixed “novel” stem, align the right edge of the stem with a syllable boundary.

(7) Analogical Support of Suffix Consonant (AS-C)

Given a choice of suffix allomorphs, prefer the one(s) that result in M-σ Align.

(8) Variation in the harmonic behaviour of Bɛ stems

		a. back preference	**b. front preference**	**c. no preference** (vacillation)
C-initial suffix	DAT	matɛk-n̲ɑ̲k ʔmatɛk-n̲ɛ̲k	ʔ*kontsɛrt-n̲ɑ̲k kontsɛrt-n̲ɛ̲k	fotɛl-n̲ɑ̲k fotɛl-n̲ɛ̲k
	SUBL	matɛk-r̲ɑ̲ ʔmatɛk-r̲ɛ̲	ʔ*kontsɛrt-r̲ɑ̲ kontsɛrt-r̲ɛ̲	fotɛl-r̲ɑ̲ fotɛl-r̲ɛ̲
V-initial suffix	PLUR	matɛk-o̲k *matɛk-ɛ̲k	ʔ*kontsɛrt-o̲k kontsɛrt-ɛ̲k	fotɛl-o̲k fotɛl-ɛ̲k
	1SG. POSS	matɛk-o̲m *matɛk-ɛ̲m	ʔ*kontsɛrt-o̲m kontsɛrt-ɛ̲m	fotɛl-o̲m fotɛl-ɛ̲m
		'maths'	'concert'	'armchair'

(9) Harmonic Consistency in Affix (HC-Affix)

All the harmonic suffixes have identical harmonic values (F, B or F/B) within the paradigm of a stem.

(10) Analogical Support: Harmonic Value (AS-H)

Given a choice of harmonic suffix allomorphs, prefer the one(s) that result in HC-Affix.

Paradigmatic constraints on analogical support

AS-V and AS-H

intraparadigmatic uniformity constraints, which compare some property of the forms of a subparadigm candidate with that of other forms of the paradigm of a specific stem

AS-C

interparadigmatic constraint which compares forms of the candidate subparadigm of a given stem with forms of the corresponding subparadigms of other stems that belong to the same stem class

(12) Variation in yodfulness and variation in harmony are orthogonal

		Yodfulness	
		out of ZV (Yless)	in ZV
Harmony	out of ZV (back)	koʃ-uk	tor-juk % tor-uk
	in ZV	notɛs-yk % notɛs-uk	hotɛl-jyk % hotɛl-yk % hotɛl-juk % hotɛl-uk

(15) Variation in yodfulness and variation in harmony in 3SG.POSS are *not* orthogonal

		Yodfulness	
		out of ZV (Yless)	in ZV
Harmony	out of ZV (back)	koʃ-ɑ	tor-jɑ % tor-ɑ
	in ZV	notɛs-ɛ % notɛs-ɑ	hotɛl-jɛ % hotɛl-jɑ % hotɛl-ɛ / ***hotɛl-ɑ**

A. Trivially, there is no variation and only one form (and suffix alternant) is possible if a given stem is outside the zone of variation in both dimensions (e.g. 3SG.POSS: **koʃ-ɑ, *koʃ-jɑ, *koʃ-jɛ, *koʃ-ɛ** ; 3PL.POSS: **koʃ-uk, *koʃ-juk *koʃ-jyk, *koʃ-yk**).

B. Two forms (and suffix alternants) are predicted to vacillate when a given stem is within the zone of variation in one dimension and outside the zone of variation in the other. There may be variation in yodfulness, but not in harmony (e.g. 3SG.POSS: **tor-jɑ, tor-ɑ, *tor-jɛ, *tor-ɛ**; 3PL.POSS: **tor-juk, tor-uk, *tor-jyk, *tor-yk**) or variation in harmony but not in yodfulness (e.g. 3SG.POSS: ***notɛs-jɑ, *notɛs-jɛ, notɛs-ɑ, notɛs-ɛ**; 3PL.POSS: ***notɛs-juk, *notɛs-jyk, notɛs-uk notɛs-yk**).

C. Four forms (and suffix alternants) are predicted to occur in vacillation when the stem is within the zone of variation in both dimensions: yodful and yodless back and front alternants of Y-suffixes are expected to occur with the relevant stems. As opposed to (A) and (B) above there is an interesting asymmetry here between the 3pl POSS (whose suffix vowel is high **u~y** and the other Y-suffixes (whose suffix vowel is low **ɑ~ɛ**). The prediction is borne out for the 3pl POSS as

(18) Questions

i. With a stem that is variable in both dimensions why do we *not* find four alternative forms when the suffix vowel is low and why is it the **-ɑ** (i.e. the yodless back) form that is missing? (cf. (11))

ii. Why is the -ɑ form *not* missing when there are no yodful forms? (cf. 12)

iii. When a stem is variable in both dimensions why do forms behave differently when the suffix vowel is **u~y** vs. when it is **ɑ~ɛ**? ((10) vs. (11))

(19) Prototypical stem classes and their properties in their 3rd possessive subparadigms

e.g.(variants: 3SG-3PL)	harmony	sib./pal.#	lowering	novel	familiar	3SG.POSS <je e ja a>	3PL.POSS <jük ük juk uk>
a. tor	B	–	–	–	–	0 0 1 1	0 0 1 1
b. koʃ	B	+	–	–	–	0 0 0 1	0 0 0 1
c. fɑl/hɑʃ	B	–/+	+	–	–	0 0 0 1	0 0 0 1
d. pɛr/keːʃ	F	–/+	X	–	–	0 1 0 0	0 1 0 0
e. blog (1-2)	B	–	–	+	–	0 0 1 0	0 0 **1** 1
f. koːʧ	B	+	–	+	–	0 0 0 1	0 0 0 1
g. tɛg (2-2)	F	–	X	+	–	**1** 1 0 0	**1** 1 0 0
h. bɛʤː	F	+	X	+	–	0 1 0 0	0 1 0 0
i. fotɛl (3-4)	F/B	–	–	+	–	1 **1** 1 0	1 **1** 1 1
j. notɛs (2-2)	F/B	+	–	+	–	0 **1** 0 1	0 **1** 0 1
k. hɑvɛr (2-3)	F/B	–	–	+	+	1 0 **1** 0	1 0 **1** 1
l. kolɛs (2-2)	F/B	+	–	+	+	0 1 0 **1**	0 1 0 **1**
constraints	**AS-H**	***Sib+j**	**AS-V**	**AS-C**	**AS-V**		

(20) Relative frequencies of possessive variants (Google search)

e. 3PL. this stem:	*blog-jyk 0%	*blog-yk 0%	blog-juk **92.1%**	blog-uk 7.9%
g. 3SG. this stem:	tɛg-jɛ **91.5%**	tɛg-ɛ 8.5%	*tɛg-jɑ 0%	*tɛg-ɑ 0%
i1. 3SG. this type:	fotɛl-jɛ 4.2%	fotɛl-ɛ **93.9%**	fotɛl-jɑ 1.8%	*fotɛl-ɑ 0.004%
i2. 3PL. this type:	fotɛl-jyk 23.6%	fotɛl-yk **71.3%**	fotɛl-juk 4.7%	fotɛl-uk 0.4%
j. 3SG. this stem:	*notɛs-jɛ 0.008%	notɛs-ɛ **89.3%**	*notɛs-jɑ 0.008%	notɛs-ɑ 10.7%
k1. 3SG. this type:	havɛr-jɛ 0.5%	*havɛr-ɛ 0.012%	havɛr-jɑ **99.5%**	*havɛr-ɑ 0.004%
k2. 3PL. this type:	havɛr-jyk 0.9%	*havɛr-yk 0.044%	havɛr-juk **98.8%**	havɛr-uk 0.2%
l. 3PL. this stem:	*kolɛs-jyk 0%	kolɛs-yk 4.9%	*kolɛs-juk 0%	kolɛs-uk **95.1%**

Analysis

Like "classical" OT (Prince & Smolensky 1993/2004)

- competing candidates
- ranked set of constraints

Unlike "classical" OT

- candidates
  - not an infinite number by Gen (Archangeli and Pulleyblank 2015)
  - (sub)paradigms, not individual form
  - the logically possible (sub)paradigms of forms resulting from the combination of one, more than one, all or none of the available affix allomorphs with the relevant stem (4 forms: 2^4=16 subparadigm)
- constraints
  - not part of UG but language-specific generalisations over (sets of) surface forms
  - evaluate each member of the candidate paradigm and the violations are added up (McCarthy 2005)
  - strict interpretation: a candidate paradigm is penalised by a constraint *Z* (and *Z* is violated) if the candidate paradigm
    i. contains a form that is not facilitated by *Z* or
    ii. does not contain a form that is facilitated by *Z*

(21a) 3SG.POSS subparadigm of non-sibilant/palatal-final **Bɛ** stems

fotɛl + {jɛ,ɛ,jɑ,ɑ}		**AS-H** (1 1)	**AS-C** & **AS-V** (1010)+(0100)=(1110)
☞fotɛl-jɛ, -ɛ, -jɑ	(1110)		
fotɛl-jɛ, -ɛ, -jɑ, -ɑ	(1111)		* (111**1**)
fotɛl-jɛ, -jɑ	(1010)		* (1**0**10)
fotɛl-ɛ, -jɑ	(0110)		* (**0**110)
fotɛl-jɛ, -ɛ, -ɑ	(1101)		** (11**01**)
fotɛl-jɛ, -jɑ, -ɑ	(1011)		** (1**011**)
fotɛl-ɛ, -jɑ, -ɑ	(0111)		** (**0**111)
fotɛl-jɛ, -ɑ	(1001)		*** (1**001**)
fotɛl-ɛ, -ɑ	(0101)		*** (**0**1**01**)
fotɛl-jɛ, -ɛ	(1100)	* (11**00**)	* (11**0**0)
fotɛl-jɛ	(1000)	* (10**00**)	** (1**00**0)
fotɛl-ɛ	(0100)	* (01**00**)	** (**0**1**0**0)
fotɛl-jɑ	(0010)	* (**00**10)	** (**00**10)
fotɛl-jɑ, -ɑ	(0011)	* (**00**11)	*** (**0011**)
fotɛl-ɑ	(0011)	* (**00**01)	**** (**0001**)
(no form)	(0000)	** (**0000**)	*** (**000**0)

b. 3PL.POSS of non-sibilant/palatal-final **Bɛ** stems

fotɛl + {jyk,yk,juk,uk}	**AS-H** (1 1)	**AS-C** & **AS-V** (1010)+(0101)=(1111)
☞fotɛl-jyk, -yk, -juk, -uk (1111)		
fotɛl-jyk, -yk, -juk (1110)		* (111**0**)
fotɛl-jyk,-yk,-uk (1110)		* (11**0**1)
fotɛl-jyk, -juk, -uk (1011)		* (1**0**11)
fotɛl-yk, -juk, -uk (0111)		* (**0**111)
fotɛl-yk, -uk (0101)		** (**0**1**0**1)
fotɛl-jyk,-uk (1001)		** (1**00**1)
fotɛl-yk,-juk (0110)		** (**0**11**0**)
fotɛl-jyk,-juk (1010)		** (1**0**1**0**)

c. 3SG/PL.POSS of sibilant/palatal-final **Bɛ** stems

notɛs + {jɛ,ɛ,jɑ,ɑ}	**AS-H** (1 1)	***Sib+j** (0.0.)	**AS-C** & **AS-V** (1010)+(0100)=(1110)
☞ notɛs-ɛ, -ɑ (0101)			*** (**0**1**0**1)
notɛs-ɛ, -jɑ (0110)		* (01**1**0)	* (**0**110)
notɛs-jɛ, -ɑ (1001)		* (**1**001)	*** (1**00**1)
notɛs-jɛ, -ɛ, -jɑ (1110)		** (**11**0)	
notɛs-jɛ,-ɛ,-jɑ,-ɑ (1111)		** (**111**)	* (111**1**)
notɛs-ɛ (0100)	* (01**00**)		** (**0**1**0**0)
notɛs-ɑ (0001)	* (**00**01)		**** (**0111**)

d. 3SG.POSS of non-sibilant/palatal-final familiar **Bɛ** stems

havɛr + {jɛ,ɛ,jɑ,ɑ}		**AS-H** (1 1)	**AS-C** & **AS-V** (1010)+(0000)=(1010)
☞havɛr-jɛ, -jɑ	(1010)		
havɛr-jɛ, -ɛ, -jɑ	(1110)		* (1**1**10)
havɛr-jɛ, -jɑ, -ɑ	(1011)		* (101**1**)
havɛr-jɛ, -ɛ, -jɑ, -ɑ	(1111)		** (1**11**1)
havɛr-ɛ, -ɑ	(0101)		**** (**0101**)
havɛr-jɑ	(0010)	* (**00**10)	* (**0**010)
havɛr-jɛ	(1000)	* (10**00**)	* (1000)
havɛr-jɛ, -ɛ	(1100)	* (11**00**)	** (1**10**0)

e. 3PL.POSS of non-sibilant/palatal-final familiar **Bɛ** stems

havɛr + {jyk,yk,juk,uk}		**AS-H** (1 1)	**AS-C** & **AS-V** (1010)+(0001)=(1011)
☞havɛr-jyk, -juk, -uk	(1011)		
havɛr-jyk, -juk	(1010)		* (101**0**)
havɛr-jyk,-yk,-juk,-uk	(1111)		* (1**1**11)
havɛr-jyk, -uk	(1001)		* (10**0**1)
havɛr-yk, -uk	(0101)		*** (**0101**)
havɛr-juk, -uk	(0011)	* (**00**11)	* (**0**011)

f. 3SG.POSS of sibilant/palatal-final familiar **Bɛ** stems

kolɛs + {jɛ,ɛ,jɑ,ɑ}		**AS-H** (1 1)	***Sib+j** (0.0.)	**AS-C** & **AS-V** (1010)+(0000)=(1010)
☞kolɛs-ɛ, -ɑ	(0101)			**** (**0101**)
kolɛs-jɛ, -jɑ	(1010)		** (**10**10)	
kolɛs-jɛ, -ɛ, -ɑ	(1101)		* (**1**101)	* (**1101**)
kolɛs-jɛ, -ɛ, -jɑ	(1110)		** (**111**0)	* (**111**0)
kolɛs-jɛ, -ɛ, -jɑ, -ɑ	(1111)		** (**111**1)	** (**111**1)
kolɛs-ɛ	(0100)	* (01**00**)		*** (**010**0)