

Apophonic activity in the formation of some nominal plurals in Iraqw

Tobias SCHEER
Philippe SEGERAL

Université PARIS 7
2 place Jussieu, 75005 PARIS
tobias.scheer@linguist.jussieu.fr
philippe.segeral@linguist.jussieu.fr

A. Ablaut in Cushitic [see APPLEYARD-92, HETZRON-69, COHEN-72, COHEN-74...]

[1]	Somali :	Past 3MS	Pres. 3MS
	<i>yiqiin know</i>	<i>yiqiin[n-ay]</i>	<i>yaqaan[n-aa]</i>

B. Apophonic theory

a) Classical Arabic [GUERSSSEL-LOWENSTAMM-forth.]

[2]	α. Data (Form I):	Perfective	Imperfective
		labis	ya-lbas
		katāb	ya-ktūb
		ḍarab	ya-ḍrib
		kabur	ya-kbur

[3]	β. opacity (i) + polarity (ii) :		
	i-	perf.	i a u
		imperf.	a i u
	ii-		a i u
		a → i	
		i → a	

[4]	γ. Guerssel-Lowenstamm's proposal :		
	katāb	ya-ktūb	a → u
	ḍarab	ya-ḍrib	X → i
			where X = zero

[5]	δ. thus non-opaque / non-polar derivational system :		
	∅ ⇒ i	ḍarab	⇒ yaḍrib
	i ⇒ a	labis	⇒ yalbas
	a ⇒ u	katāb	⇒ yaktūb
	u ⇒ u	kabur	⇒ yakbur

[6]	ε. apophonic path :		
	∅ ⇒ i ⇒ a ⇒ u ⇒ u		

b) Generalized apophonic theory [SEGERAL-SCHEER-forth. , SEGERAL-95]

[7] α. Proposal 1 : the apophonic path is formally and substantially universal

[8] β. Proposal 2 : apophony operates over Elements, not over segments

∅ ⇒ I ⇒ A ⇒ U ⇒ U

[9]	c) example : modern German ("strong" verbs)		
		PRES	PRET
	[singen <i>sing</i>]	zuŋ-ə	zəŋ
		I° ⇒	A+ ⇒
	[helfen <i>help</i>]	hɛlf-ə	gə-hɛlf-ən
		I° ⇒	A+ ⇒
		A+ ⇒	A+ ⇒

C. Iraqw : plural of nouns [MOUS-93]

[10]

Data [MOUS-93]

	M	F	N	sing.	pl.	meaning
1	•-----	-----> -e		fura	fur-e	toothbrush
2	•-----	-----> -ʔe		ʔum-aŋʔ	ʔum-ʔe	abscess
3	•-----	-----> -aawe		gurta	gurt-aawe	male goat
4	•-----	-----	-----> -maʔ	saqaan	saqaan-maʔ	earring
		•-----	-----> -maʔ	ʃaroot	ʃaroot-maʔ	leather bag
5	•-----	-----	-----> -ʔi	ʃawtu	ʃawti-ʔi	monkey
6a	•-----	-----	-----> -eeri	hampa	hamp-eeri	wing
b	•-----	-----	-----> <ee>i	digma	dig-ee-m-i	boundary
		•-----	-----> <ee>i	durmi	dur-ee-m-i	stomach
7		•-----	-----> -du	kʷaʔeema	kʷaʔeema-du	case, affair
8		•-----	-----> -u	fooxa	fox-u	hole, window
9		•-----	-----> -aʔ	diifsa	difs-aʔ	finger
10		•-----	-----> -iyaʔ	kura (ʔi)	kur-iyaʔ	rectum
11		•-----	-----> -o	ʔaʔa	ʔaʔ-0	fire
12a		•-----	-----> -eemo	daangi	dang-eemo	twin
	•-----	-----	-----> -eemo	gayu	gay-eemo	subsidiary dish
b		•-----	-----> <ee>o	barsi	bar-ee-s-o	grass, luck
	•-----	-----	-----> <ee>o	hafto	haft-ee-t-o	mat
13		• o ↓		basori	basoro	pearl millet
14		• a ↓		muquʔi	muquʔa	iron, metal

* with stem-vowel shortening

E. Case of plurals (13) and (14)

[11]

a) examples [MOUS-93]

i > a (14)			i > o (13)		
ʔafeeni	ʔafeena	courtyard	ʃaytiʔi	ʃaytoʔo	maize
ʃurfi	ʃurfa	lizard	basori	basoro	pearl millet
daktani	daktana	fool	gilʔi	gilʔo	charcoal
ʔilali	ʔilala	post of bed	gugi	gugo	windpipe
ʔʷaʔati	ʔʷaʔata	gazelle	hibambi	hibambo	spider
harkonki	harkonka	owl	loʔi	loʔo	leaf
koonki	koonka	hen	marʔi	marʔo	cave
ʔamaxupi	ʔamaxupa	frog	neewi	neewo	thread
nanagi	nanaga	worm	gani	gano	clitoris
ʔanʔi	ʔanʔa	palm	ʔsʷirʔi	ʔsʷirʔo	bird
qanhi	qanha	egg	ʔaxari	ʔaxaro	phlegm

b) three facts :

[12]

α. plurals (13) and (14) come from homogeneously ending singulars :

(13) : plural in a ; all singulars in i

(14) : plural in o ; all singulars in i

None of the other plural types (1 to 12) has homogeneous singular.

[13]

β. both (13) and (14) have the same singular ending : i

[14]

γ. plurals (13) and (14) do not show "polarity of gender" (that is the contrast of gender between singular and plural forms) which is the common rule in Iraqw [and more generally in Cushitic languages] nominal pl. formation :

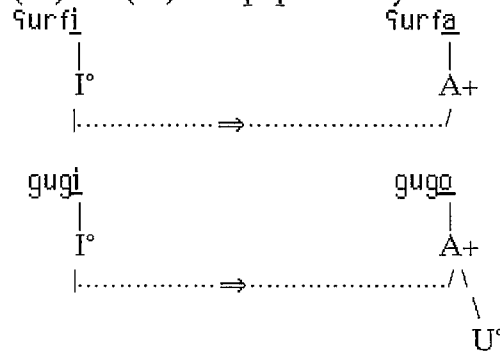
(13) / (14) : sing. FEM → plur. FEM

All other plural types (1 to 12) display "polarity of gender".

[15]

c) hypothesis :

Plurals (13) and (14) are apophonically derived according to [8]



F. Gender polarity

a) Facts :

[16]

α . Singular and plural forms always contrast in gender (see tableau [10]).

β . Nominal suffixes are provided with inherent gender :



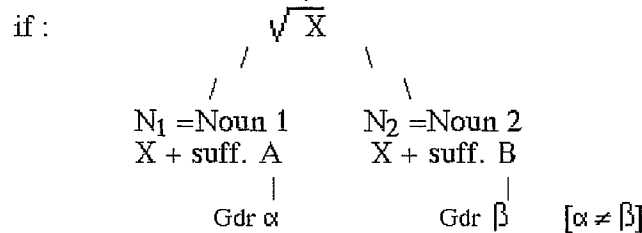
b) Hypothesis :

[17]

α . Number is not a lexical category.

β . It derives from the gender contrast of two different suffixes attached to the same nominal radical, that is :

[18]



then :

[19]

N_1 and N_2 are related with respect to the category of number (*i. e.* one is necessarily the singular and the other the plural).

γ . that makes the following predictions :

[20]

- i. there must be a way to correctly detect which noun is singular and which one is plural
- ii. this detection must rely on the gender polarity
- iii. between the different genders there must exist a set of univocal relations -and some gender combinations must be excluded.

[21]

δ . six logically possible gender combinations = possible pairs (N_1, N_2) :

- a. $M \rightarrow F$
- b. $F \rightarrow M$
- c. $M \rightarrow N$
- d. $N \rightarrow M$
- e. $F \rightarrow N$
- f. $N \rightarrow F$

c) observations :

[22]

α . existing pairs (see tableau [10]) :

SING.		PLUR.	
M	\rightarrow	F	a.
M	\rightarrow	N	c.
F	\rightarrow	N	e.

[23]

β . do not occur :

- * $F \rightarrow M$ (b)
- * $N \rightarrow M$ (d)
- * $N \rightarrow F$ (f)

in other words : no masculine plural, no neuter singular suffixes.

[NOTA : only very few exceptions exist (see MOUS-93 : 50-59)].

[24] d) Iraqw gender network :

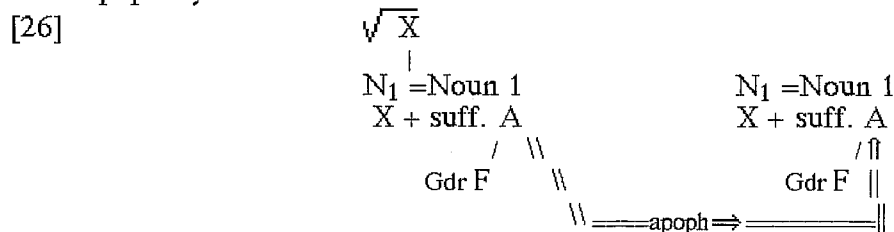


G. F → F case : Plurals (13) and (14) (see E).

a) why does F → F exist but not *M → M, *N → N ?

[25] F is the only gender which can be both singular and plural.

b) F → F is not excluded by the form of the gender network, but it does not allow the opposition of number. In that case another number marking vector is requested : apophony.



H. Broken plurals : Plurals (6) and (12) in [10]

[27] a) data (from MOUS-93 and MOUS-forth.)

(6a) - e e r i			(12a) - e e m o		
ʒur-u	ʒur-eeri	<i>force</i>	lam-a	lam-eemo	<i>lie</i>
ħamp-a	ħamp-eeri	<i>wing</i>	dang-i	dang-eemo	<i>twins</i>
tiit-a	tiit-eeri	<i>figus Thoningii</i>	kaŋk-i	kaŋk-eemo	<i>corner</i>
ʒunʈʰ-a	ʒunʈʰ-eeri	<i>cheek</i>	ʈʰʰaw-i	ʈʰʰab-eemo	<i>lake</i>
ʈaar-a	ʈaar-eeri	<i>armpit</i>	naan-ú	naan-eemo	<i>subsidiary dish</i>
gurungur-a	gurungur-eeri	<i>knee</i>	ʈan-ú	ʈan-eemo	<i>python</i>
ħam-aŋʷ	ħam-eeri	<i>leather strips</i>	ʔay-a	ʔay-eemo	<i>land</i>
ʒar-mo	ʒar-eeri	<i>lump, calf of leg</i>	gay-u	gay-eemo	<i>other side</i>
			ʒaar-u	ʒaar-eemo	<i>breakfast</i>
			ʔat-u	ʔat-eemo	<i>brain</i>
			kint-u	kint-eemo	<i>bush</i>
			xad-ay	xad-eemo	<i>place of worship</i>
			dand-a	dand-eemo	<i>back, top</i>
(6b) < e e > C ₃ i			(12b) < e e > C ₃ o		
digm-a	dig-ee-m-i	<i>boundary</i>	ʒantan-i	ʒant-ee-n-o	<i>anthill</i>
duʔum-a	duʔ-ee-m-i	<i>leopard</i>	bars-i	bar-ee-s-o	<i>bundle of grass</i>
fuq[u]n-o	fuq-ee-n-i	<i>nail</i>	gaʒaw-i	gaʒ-ee-w-o	<i>calabash</i>
garm-o	gar-ee-m-i	<i>tree</i>	ħalm-i	ħal-ee-m-o	<i>branch</i>
ħuʈʰm-o	ħuʈʰ-ee-m-i	<i>small belt</i>	maħ[a]t-i	maħ-ee-t-o	<i>shadow</i>
kurm-o	kur-ee-m-i	<i>hoe</i>	map[a]r-i	map-ee-r-o	<i>ditch</i>
ʔuh[u]m-o	ʔuh-ee-m-i	<i>column, pillar</i>	naʒan-i	naʒ-ee-n-o	<i>penis</i>
xaarm-o	xaar-ee-m-i	<i>horn, tusk</i>	qatn-i	qat-ee-n-o	<i>bed</i>
diq[a]m-a	diq-ee-m-i	<i>fence for cattle</i>	qawr-i	qaw-ee-r-o	<i>baby</i>
durm-i	dur-ee-m-i	<i>stomach</i>	ʈʰʰaʒaf-i	ʈʰʰaʒ-ee-f-o	<i>kitchen</i>
kʷaal-oʔo	kʷaʔ-ee-l-i	<i>widow</i>	ʈʰʰahas-a	ʈʰʰah-ee-s-o	<i>rain pool</i>
wakr-i	wak-ee-r-i	<i>chin</i>	wakr-i	wak-ee-r-o	<i>chin</i>
			baʔas-a	baʔ-ee-s-o	<i>bushbuck</i>
			darm-a	dar-ee-m-o	<i>wilderness</i>
			ħaft-a	ħaf-ee-t-o	<i>mat</i>
			naʒáʈ	naʒ-ee-ʈ-o	<i>gums, palate</i>
			ʈsʰaʒat-mo	ʈsʰaʒ-ee-t-o	<i>calf</i>
			mugúl	mug-ee-l-o	<i>collar bone</i>
			ʈsʰiʈsʰin-i	ʈsʰiʈsʰ-ee-n-o	<i>point</i>

ʕaysan-i	ʕays-ee-n-o	lie, slander
qawtan-i	qawt-ee-n-o	grazing land
marʔaf-mo	marʔ-ee-f-o	relative
darqaf-i	darq-ee-f-o	scale

b) Homorganic NCs occupy one position

[28] α. exhaustive syllable inventory :

CV CVC CVNC *CVCC
 CVV CVVC CVVNC *CVVCC
 generalization : only two syllable types : CV(V) CV(V)C

[29] β. coda restrictions / possible codas [MOUS-93 : 25]

∅, C, C^w, NC_[hom.], NC^w_[hom.] but *CC / *CC^w
 generalization : no branching codas

c) Broken plural template :

"The set of plural formations, <ee>_i, -eeri, <ee>_o, -eemo, all result in words of a similar shape." [MOUS-foth. : 8]

Our proposal : one unique template for Broken plurals :

[30] R₁ V₁ R₂ ee C_x - i/o

where C_x = R₃ if the noun is a trilateral

C_x = r/m if the noun is a biliteral

[31] d) Radical consonants : complementary distribution

• trilateral → <ee>R₃ i / <ee>R₃ o [(6b) and (12b)]

• biliteral → -ee r i / -ee m o [(6a) and (12a)]

(6a)

ʕ	r	
ħ	mp	
t	t	
ʕ	ntʕ'	
ʕ	r	
*g	r	
ħ	m	
ʕ	r	

(12a)

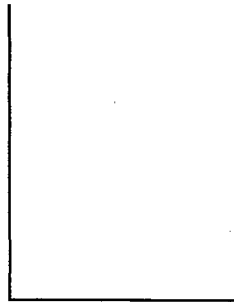
l	m	
d	ng	
k	nk	
tʕ'	w	
n	n	
ʕ	n	
ʔ	y	
g	y	
ʕ	r	
ʔ	t	
k	nt	
x	d	
d	nd	

(6b)

d	g	m
d	ʔ	m
f	q	n
g	r	m
ħ	tʕ'	m
k	r	m
ʔ	h	m
x	r	m
d	q	m
d	r	m
k ^w	ʔ	l
w	k	r

(12b)

ʕ	nt	n
b	r	s
g	ʕ	w
ħ	l	m
m	ħ	t
m	p	r
n	ʕ	n
q	t	n
q	w	r
tʕ'	ʕ	f
tʕ'	ħ	s
w	k	r
b	ʔ	s
d	r	m
ħ	f	t



	n	ɣ	ɸ
	ts'	ɣ	t
	m	g	l
	ts'	ts'	n
**	ɣ	y	s
**	q	w	t
**	m	r	ʔ
**	d	r	q

* reduplicated biliteral

** quadriliteral nouns [note sonorant (glide or liquid) in R₂]

[32]

e) V₂ = /ø/ in all cases

α. three possibilities (surface) [Nota : CVCV interpretative frame (LOWENSTAMM-1995)]

- ø

- V₂ = a : epenthetic v. "very short a or shwa" (MOUS-93 : 28)

- V₂ = V₁ : harmonic v.

[33]

β. distribution

	Ø	Epenthetic vowel	Harmonic vowel
<u>bilit.</u>	<u>all</u>		
	diɣama	diɣama	duʔuma
	gaɣmo	ɣaysani	fuquno
	huʔiɣmo	qawtani	ʔuhumo
	kuɣmo	marʔafmo	mugú
	xaarɣmo	darqafi	ts'iʔs'jni
	duɣmi	ɣantani	mahati ←
	wakari		naɣani ←
<u>trilit.</u>	baɣsi		ʔa'aɣafi ←
	halami		ʔa'ahasa ←
	qatani		baʔasa ←
	qawari		naɣaʔ ←
	wakari		ts'aɣatmo ←
	darɣma		k'a(ʔ)al-oʔo ←
	hafata		gaʔawi ←
			mapari ←

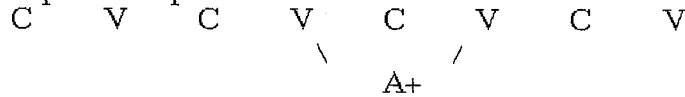
NOTA : in the rightmost column the harmonic cases with V₂ = a are evidenced (aligned left). Indeed it remains doubtful whether this a is epenthetic or harmonic. Notice however that the case of duʔuma advocates a harmonic origin of V₂ when R₂ is a guttural [←] (guttural transparency).

[34]

f) underlying /ø/ in V₂ is the apophonic origin of the palatality (I element) in the morpheme ee, according to apophonic path [8]: ø ⇒ I

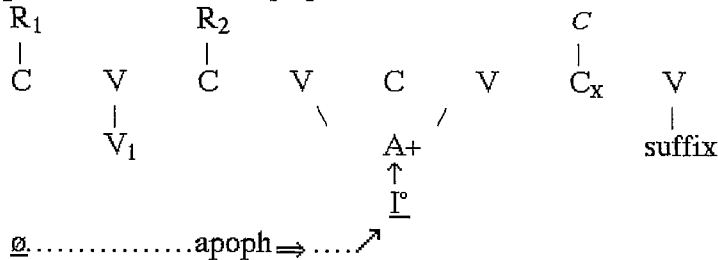
[35]

g) broken plural template



[36]

h) apophonic derivation of [ee]



[37] Nota : the missing consonant in the case of biliterals is :
[r] if the suffix is -i
[m] if the suffix is -o

The created consonants can be viewed as the product of their respective suffix (see SCHEER-95).

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