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The Non-Appearance of Glides in the Hollow Verbs of Classical Arabic

0.   Assumptions on the lexicon
a. every verb is recorded with a number of consonants and a lexical vowel, on which apophony will be performed when imperfective forms are derived. In case of a sound triliteral, the representation takes the following form:
√ktb = a   "to write"
b. The lexical vowel may be either zero, i, a or u:
√Drb = ø   "to hit"
√lbs = i   "to clothe"
√ktb = a   "to write"
√kbr = u   "to be tall"
c. weak verbs are biliterals: assimilated, hollow, defective and deaf verbs possess only two consonants in the lexicon:
assimilated: √øzn = ø   to weigh out"
hollow: √løm = a
defective: √srø = u
deaf: √mød = a   "to extend"
d. in Classical Arabic, there is only one template for all measures and forms. It consists of four pairs of CV, the second of which is the so-called derivational syllable (underscored hereafter) that is accessed in case a derivation is performed (cf. Guerssel&Lowenstamm forth).
CV <u>CV</u> CV CV

1. General picture

Defective verbs: numeric situation (Chekayri & Scheer 1996)

(1)	V_2	number of verbs with		example			
		w	y	pf		ipf	
	a	230		danaw-tu	pf act 1 sg	ya-dnu-u	ipf act 3m sg	"to be close"
			118	ramay-tu	pf act 1 sg	ya-rmi-i	ipf act 3m sg	"to throw"
	i	---	132	raDiy-a	pf act 3m sg	ya-rDa-a	ipf act 3m sg	"to be very thirsty"
	u	13	---	saruw-a	pf act 3m sg	ya-sru-u	ipf act 3m sg	"to be distinguished"
		total: 493						

(2)   Apophonic Path

ø ==> I ==> A ==> U ==> U

Derivation of a sound verb: the Derivational Syllable (DS) hosts C1
(3)   Pf. kataba "write"   ipf. ya-ktubu

```
C   V   C   V   C   V   C   V          C   V   C   V   C   V   C   V
|   |       |   |   |   |   |          |   |   |       |   |   |   |
k   a       t   a   b   a              y   a   k       t   u   b   u
```
apophony

Derivation of an assimilated verb: no need to open the DS

(4) Pf. wazan-a "to weigh out"   ipf. ya-zin-u

apophony

```
     C  V  C  V  C  V  C  V          C  V  C  V  C  V  C  V
     |  |           |  |  |  |        |  |           |  |  |  |
     w  a        z  a  n  a           y  a        z  i  n  u
```

apophony
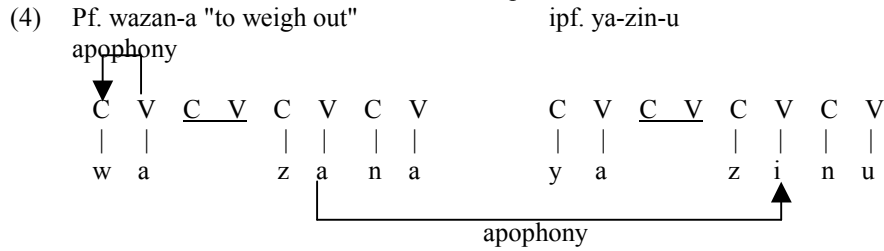
2. Conjugation of defective verbs

(5) unattested sequences in Classical Arabic
   a. any hiatus
   b. super long vowels *iii, *uuu, *aaa
   c. *uwC, *iyC
   d. *uy, *iw
   e. *Vyu, *Vyi, *Vyuu, *Vyii
   f. *Vwu, *Vwi, *Vwuu, *Vwii

(6) hiatus-resolution in defective verbs

morphological output $/V_{lex}/$ = [ ] + V_{suff}			glide-creation	resolution if unattested	example				identification of the verb
ø	a	a	*aya	aa	rama + a	ramaa	pf act sg 3m		$\sqrt{rm}$ = ø-i
i	i	a	iya	--	raDi + a	raDiya	pf act sg 3m		$\sqrt{rD}$ = i-a
a	a	a	*awa	aa	dana + a	danaa	pf act sg 3m		$\sqrt{dn}$ = a-u
u	u	a	uwa	--	saru + a	saruwa	pf act sg 3m		$\sqrt{sr}$ = u-u
ø	a	u	*ayu	predic.: aa	there is no suffix –u in pf act				
i	i	u	*iyu	ii	?a-rmi + u	?a-rmii	imp act. sg 1		$\sqrt{rm}$ = ø-i
a	a	u	*awu	aa	?a-nha + u	?a-nhaa	imp act. sg 1		$\sqrt{nh}$ = a-a
u	u	u	*uwu	uu	?a-dnu + u	?a-dnuu	ipf act. sg 1		$\sqrt{dn}$ = a-u
ø	a	i	*ayi	predic.: aa	there is no personal suffix –i				
i	i	i	*iyi	predic: ii	there is no personal suffix –i				
a	a	i	*awi	predic.: aa	there is no personal suffix –i				
u	u	i	*uwi	predic.: uu	there is no personal suffix –i				

(7)

situations that meet the Template Satisfaction Principle for C3		
a. $V2= V_{suff}$: --> V2V2 pf act 1sg /dana-a/ --> [danaa] "approach"	b. $V2\neq V_{suff}$, V2-Gl-V_{suff}, is not permitted --> V2V2 ipf act 1sg /?a-nha-u/ --> [?a-nhaa] "advise sb to do sth"	c. $V2\neq V_{suff}$, V2-Gl-V_{suff}, is permitted pf act 3m sg /saru-a/ --> [saruwa] "leave, go" apophony

a.
```
C₁ V C V C₂ V₂ C₃ V₃
|  |          |  |        |
C₁ a       C₂ V₂      V_suff
```

b.
```
C₁ V C V C₂ V₂ C₃ V₃
|  |          |  ↗       
C₁ a       C₂ V₂      V_suff
```

c.
```
                        apophony
C₁ V C V C₂ V₂ C₃ V₃
|  |          |  |  |  |
C₁ a       C₂ V₂ Gl V_suff
```

d. C-initial suffix, V2-Gl-C is permitted pf act 1sg /rama-tu/ --> [ramay-tu] "throw" apophony	e. C-initial suffix, V2-Gl-C is not permitted --> V2V2C pf act 1sg /saru-tu/ --> *[saruu-tu], [saruu-tu] "leave, go"

d.
```
                  apophony
C₁ V C V C₂ V₂ C₃ V₃ - C V
|  |          |  |  |       | |
C₁ a       C₂ V₂ Gl     C V
```

e.
```
C₁ V C V C₂ V₂ C₃ V₃ - C V
|  |          |  ↗         | |
C₁ a       C₂ V₂        C V
```

(8)   conclusion: apophonic glide-creation occurs for two reasons
        a. in order to break up a hiatus
        b. in order to fill in an orphan consonantal position of the template (Template Satisfaction)

3. Hollow verbs: general picture

(9)

class	number of verbs with		example		traditional	gloss
	w	y	pf 1st sg	ipf 1st sg		
1		203	sir-tu	?a-siir-u	sayira	
2 a		015	hib-tu	?a-haab-u	hayiba	
b	016		xif-tu	?a-xaaf-u	xawifa	
3	262		lum-tu	?a-luum-u	lawama	
4	001		Tul-tu	?a-Tuul-u	Tawula	
5	052		Hawira	ya-Hwaru	Hawira	
6		022	gayida	ya-gyadu	gayida	
	331	240				
	total	571				

(10)   Underlying melody provided by morphology

	active		passive	
	V1	V2	V1	V2
Pf	A	Vlex	U	I
Ipf	ø	apoph [Vlex]	ø	A

4. Conjugation of hollow verbs

(11) # Perfective Active V_1=A, V_2=lexical

class			1	2	3	4	5	6
			√syr	√xwf	√lwm	√Twl	√Hwr	√gyd
sg	1	katab-tu	sirtu	xiftu	lumtu	Tultu	Hawirtu	gayidtu
	2 m	-ta	sirta	xifta	lumta	Tulta	Hawirta	gayidta
	2 f	-ti	sirti	xifti	lumti	Tulti	Hawirti	gayidti
	3 m	-a	saara	xaafa	laama	Taala	Hawira	gayida
	3 f	-at	saarat	xaafat	laamat	Taalat	Hawirat	gayidat
du	2	-tumaa	sirtumaa	xiftumaa	lumtumaa	Tultumaa	Hawirtumaa	gayidtumaa
	3 m	-aa	saaraa	xaafaa	laamaa	Taalaa	Hawiraa	gayidaa
	3 f	-ataa	saarataa	xaafataa	laamataa	Taalataa	Hawirataa	gayidataa
pl	1	-naa	sirnaa	xifnaa	lumnaa	Tulnaa	Hawirnaa	gayidnaa
	2 m	-tum	sirtum	xiftum	lumtum	Tultum	Hawirtum	gayidtum
	2 f	-tunna	sirtunna	xiftunna	lumtunna	Tultunna	Hawirtunna	gayidtunna
	3 m	-uu	saaruu	xaafuu	laamuu	Taaluu	Hawiruu	gayiduu
	3 f	-na	sirna	xifna	lumna	Tulna	Hawirna	gayidna

Perfective Passive V_1=U, V_2= I

class			1	2	3	4	5	6
			√syr	√xwf	√lwm	√Twl	√Hwr	√gyd
sg	1	kutib-tu	surtu	xuftu	limtu	--	--	--
	2 m	-ta	surta	xufta	limta	--	--	--
	2 f	-ti	surti	xufti	limti	--	--	--
	3 m	-a	siira	xiifa	liima	--	--	--
	3 f	-at	siirat	xiifat	liimat	--	--	--
du	2	-tumaa	surtumaa	xuftumaa	limtumaa	--	--	--
	3 m	-aa	siiraa	xiifaa	liimaa	--	--	--
	3 f	-ataa	siirataa	xiifataa	liimataa	--	--	--
pl	1	-naa	surnaa	xufnaa	limnaa	--	--	--
	2 m	-tum	surtum	xuftum	limtum	--	--	--
	2 f	-tunna	surtunna	xuftunna	limtunna	--	--	--
	3 m	-uu	siiruu	xiifuu	liimuu	--	--	--
	3 f	-na	surna	xufna	limna	--	--	--

Imperfective Active — V$_1$=ø, V$_2$= apophonic on V$_2$ pf, active

	class		1 √syr	2 √xwf	3 √lwm	4 √Twl	5 √Hwr	6 √gyd
sg	1	?a-ktub-u	?a-siiru	?a-xaafu	?a-luumu	?a-Tuulu	?a-Hwaru	?a-gyadu
	2 m	-u	ta-siiru	ta-xaafu	ta-luumu	ta-Tuulu	ta-Hwaru	ta-gyadu
	2 f	-iina	ta-siiriina	ta-xaafiina	ta-luumiina	ta-Tuuliina	ta-Hwariina	ta-gyadiina
	3 m	-u	ya-siiru	ya-xaafu	ya-luumu	ya-Tuulu	ya-Hwaru	ya-gyadu
	3 f	-u	ta-siiru	ta-xaafu	ta-luumu	ta-Tuulu	ta-Hwaru	ta-gyadu
du	2	-aani	ta-siiraani	ta-xaafaani	ta-luumaani	ta-Tuulaani	ta-Hwaraani	ta-gyadaani
	3 m	-aani	ya-siiraani	ya-xaafaani	ya-luumaani	ya-Tuulaani	ya-Hwaraani	ya-gyadaani
	3 f	-aani	ta-siiraani	ta-xaafaani	ta-luumaani	ta-Tuulaani	ta-Hwaraani	ta-gyadaani
pl	1	-u	na-siiru	na-xaafu	na-luumu	na-Tuulu	na-Hwaru	na-gyadu
	2 m	-uuna	ta-siiruuna	ta-xaafuuna	ta-luumuuna	ta-Tuuluuna	ta-Hwaruuna	ta-gyaduuna
	2 f	-na	ta-sirna	ta-xafna	ta-lumna	ta-Tulna	ta-Hwarna	ta-gyadna
	3 m	-uuna	ya-siiruuna	ya-xaafuuna	ya-luumuuna	ya-Tuuluuna	ya-Hwaruuna	ya-gyaduuna
	3 f	-na	ya-sirna	ya-xafna	ya-lumna	ya-Tulna	ya-Hwarna	ya-gyadna

Imperfective Passive — V$_1$= ø, V$_2$= A (=apophonic on [[V$_2$ pf, passive] = I])

	class		1 √syr	2 √xwf	3 √lwm	4 √Twl	5 √Hwr	6 √gyd
sg	1	?u-ktab-u	?u-saaru	?u-xaafu	?u-laamu	--	--	--
	2 m	-u	tu-saaru	tu-xaafu	tu-laamu	--	--	--
	2 f	-iina	tu-saariina	tu-xaafiina	tu-laamiina	--	--	--
	3 m	-u	yu-saaru	yu-xaafu	yu-laamu	--	--	--
	3 f	-u	tu-saaru	tu-xaafu	tu-laamu	--	--	--
du	2	-aani	tu-saaraani	tu-xaafaani	tu-laamaani	--	--	--
	3 m	-aani	yu-saaraani	yu-xaafaani	yu-laamaani	--	--	--
	3 f	-aani	tu-saaraani	tu-xaafaani	tu-laamaani	--	--	--
pl	1	-u	nu-saaru	nu-xaafu	nu-laamu	--	--	--
	2 m	-uuna	tu-saaruuna	tu-xaafuuna	tu-laamuuna	--	--	--
	2 f	-na	tu-sarna	tu-xafna	tu-lamna	--	--	--
	3 m	-uuna	yu-sarna	yu-xafna	yu-laamuuna	--	--	--
	3 f	-na	yu-sarna	yu-xafna	yu-lamna	--	--	--

Imperative — V$_1$= ø, V$_2$=apophonic on V$_2$ pf, Active

	class		1 √syr	2 √xwf	3 √lwm	4 √Twl	5 √Hwr	6 √gyd
sg	2 m	?u-ktub-ø	sir	xaf	lum	Tul	?iHwar	?igyad
	2 f	-ii	siirii	xaafii	luumii	Tuulii	?iHwarii	?igyadii
du	2	-aa	siiraa	xaafaa	luumaa	Tuulaa	?iHwaraa	?igyadaa
pl	2 m	-uu	siiruu	xaafuu	luumuu	Tuuluu	?iHwaruu	?igyaduu
	2 f	-na	sirna	xafna	lumna	Tulna	?iHwarna	?igyadna

5. Identification of the lexical vowel

(12) a. hollow verbs possess one single vowel within the template.
  b. this vowel is short iff the suffix begins with a consonant; it is long iff the suffix is vowel-initial.
  c. classes 5 Hawira and 6 gayida stand astray: they disobey both a) and b) in that they always host two distinct vowels within the template, and are completely insensitive to the kind of suffix added. In sum, they behave exactly like a sound triliteral. We will discard these two classes from the discussion for the time being, and come back to them in section 5.2.

5.1. Vowel-length: Closed Syllable Shortening

(13)

$$V_{root} / \_\_ C \left\{ \begin{array}{c} C \\ \# \end{array} \right\}$$

$$VV_{root} / \_\_ CV$$

(14) spreading impossible in closed syllables: V2 fails to be licensed
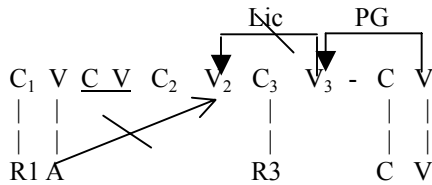
spreading possible in open syllables: V2 is licensed
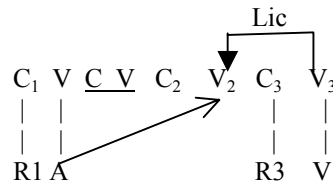
e.g. *saar-tu

e.g. saar-a

(15)
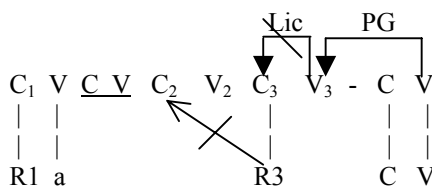
e.g. *madd-tu
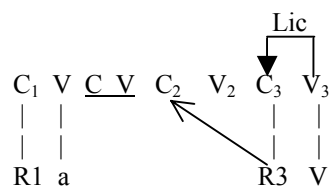
e.g. madd-a

5.2. Who is who ?

(16)

identification of Vlex is overt in all cases but hollow verbs									
sound		assimilated		defective		deaf		pf V2	ipf V2	Vlex
pf	ipf	pf	ipf	pf	ipf	pf	ipf			
Daraba	ya-Dribu	wabata	ya-bitu	ramaa	ya-rmii	darara	ya-driru	a	i	ø
labisa	ya-lbasu	wabiša	ya-bašu	raDiya	ya-rDaa	danina	ya-dnanu	i	a	i
kataba	ya-ktubu	waDa?a	ya-wDu?u	danaa	ya-dnuu	madadtu	ya-mdudu	a	u	a
kabura	ya-kburu	waxuša	ya-xušu	saruwa	ya-sruu	ħabuba	ya-ħbubu	u	u	u

(17) hollow verbs

		suffix -V						suffix –C					
	melody	1	2	3	4	5	6	1	2	3	4	5	6
		√sr	√xf	√lm	√Tl	√Hwr=i-a	√gyd=i-a	√sr	√xf	√lm	√Tl	√Hwr=i-a	√gyd=i-a
pf act	A – Vlex	aa	aa	aa	aa	i	i	i	i	u	u	i	i
pf pass	U – I	ii	ii	ii	--	--	--	u	u	u	--	--	--
ipf act	ø – Vlex	ii	aa	uu	uu	a	a	i	a	u	u	a	a
ipf pass	ø - A	aa	aa	aa	--	--	--	a	a	a	--	--	--

(18) result of identification

class 1	class 2	class 3	class 4
√sr = ø-i	√xf = i-a	√lm = a-u	√Tl = u-u

(19) mysteries
 a. why does Vlex=/ø/ surface as pf [i] instead of [a] as in all other verb classes?
 b. why does Vlex=/a/ surface as pf [u] instead of [a] as in all other verb classes?
 c. ==> there seems to be an absolute ban against [a] in pf act.

(20) equations to be solved: input-hiatuses and their result on the surface

	melody	class 1 $\sqrt{sr}$=ø-i			class 2 $\sqrt{xf}$=i-a			class 3 $\sqrt{lm}$=a-u			class 4 $\sqrt{Tl}$=u-u		
		/ /	[V]–C	[VV]–V	/ /	[V]–C	[VV]–V	/ /	[V]–C	[VV]-V	/ /	[V]–C	[VV]-V
pf act	A – V$_{lex}$	a+ø =	i	aa	a+i =	i	aa	a+a =	u	aa	a+u =	u	aa
pf pass	U – I	u+i =	u	ii	u+i =	u	ii	u+i =	i	ii	u+i =	--	--
ipf act	ø – V$_{lex}$	ø+i =	i	ii	ø+a =	a	aa	ø+u =	u	uu	ø+u =	u	uu
ipf pass	ø – A	ø+a =	a	aa	ø+a =	a	aa	ø+a =	a	aa	ø+a =	--	--

6. Resolution of hollow hiatuses: the easier part

(21) again: hiatus-resolution in defective verbs

morphological output /V$_{lex}$ / = [ ] + V$_{suff}$			glide-creation	resolution if unattested	example				identification of the verb
ø	a	a	*aya	aa	rama + a	ramaa	pf act. sg 3m	$\sqrt{rm}$ = ø-i
i	i	a	iya	--	raDi + a	raDiya	pf act. sg 3m	$\sqrt{rD}$ = i-a
a	a	a	*awa	aa	dana + a	danaa	pf act. sg 3m	$\sqrt{dn}$ = a-u
u	u	a	uwa	--	saru + a	saruwa	pf act. sg 3m	$\sqrt{sr}$ = u-u
ø	a	u	*ayu	predic.: aa	there is no suffix –u in pf act			
i	i	u	*iyu	ii	?a-rmi + u	?a-rmii	imp act. sg 1	$\sqrt{rm}$ = ø-i
a	a	u	*awu	aa	?a-nha + u	?a-nhaa	imp act. sg 1	$\sqrt{nh}$ = a-a
u	u	u	*uwu	uu	?a-dnu + u	?a-dnuu	ipf act. sg 1	$\sqrt{dn}$ = a-u
ø	a	i	*ayi	predic.: aa	there is no personal suffix –i			
i	i	i	*iyi	predic: ii	there is no personal suffix –i			
a	a	i	*awi	predic.: aa	there is no personal suffix –i			
u	u	i	*uwi	predic.: uu	there is no personal suffix –i			

(22) generalization
    a sequence Vx - Glide -Vy that is not allowed for comes out as VxVx.

6.1. Straightforward cases: imperfective V1 = ø, no hiatus obtains

(23) the result is simply V2 (short or long)

	melody	suffix –V				suffix –C			
		1 $\sqrt{sr}$=ø-i	2 $\sqrt{xf}$=i-a	3 $\sqrt{lm}$=a-u	4 $\sqrt{Tl}$=u-u	1 $\sqrt{sr}$=ø-i	2 $\sqrt{xf}$=i-a	3 $\sqrt{lm}$=a-u	4 $\sqrt{Tl}$=u-u
ipf act	ø – Vlex	ii	aa	uu	uu	i	a	u	u
ipf pass	ø - A	aa	aa	aa	--	a	a	a	--

(24) ipf act melody: ø-aopoph[Vlex]
    consonant-initial suffix: no spreading   vowel-initial suffix: spreading onto V1

```
         Lic        PG                                    Lic
        ┌──────┐  ┌────┐                              ┌──────┐
C₁ V₁ C V  C₂  V₂ C₃  V₃ - C  V          C₁ V₁ C V  C₂  V₂ C₃  V₃
   |                 |        | |            |                 |  |
   |                 |        | |            |                 |  |
R1 ø     class 1  i R3       C V         R1 ø     class 1  i R3  V
         class 2  a                               class 2  a
         class 3  u                               class 3  u
         class 4  u                               class 4  u
```
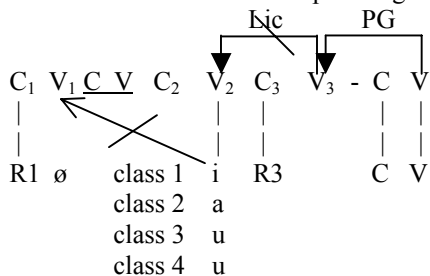
    result: sir-tu, xaf-tu, lum-tu, Tul-tu ipf act 1sg   result: siir-u, xaaf-u, luum-u, Tuul-u ipf act 3m sg
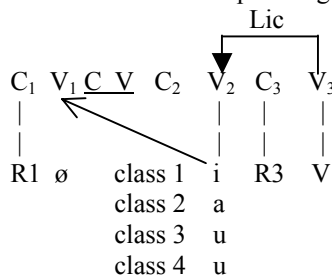
(25) ipf pass melody: ø-a   vowel-initial suffix: spreading onto V1
      consonant-initial suffix: no spreading
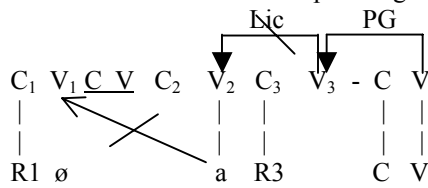
      result: sar-tu, xaf-tu, lam-tu, Tal-tu ipf pass 1sg   result: saar-u, xaaf-u, laam-u, Taal-u   ipf pass 3m sg
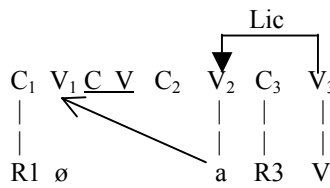
6.2. Perfective Passive and the *ʔišmaam*

(26)

	melody	suffix –V				suffix –C			
		1 √sr=ø-i	2 √xf=i-a	3 √lm=a-u	4 √Tl=u-u	1 √sr=ø-i	2 √xf=i-a	3 √lm=a-u	4 √Tl=u-u
pf pass	U – I	ii	ii	ii	--	u	u	i	--
prediction	U – I	uu	uu	uu	--	u	u	u	--

(27) result against predictions, but:
      a. attested pronounciations:
          [uu] - [u]
          [ii] - [i]
          [yy] - [y] (sic)   *ʔišmaam*
      b. [u] is suspicious for 1 √sr=ø-i, 2 √xf=i-a
          1,2 are intransitives and verbes d'état (walk etc.)
          where do the paradigm that are given by all grammars originate in? Authors never quote their sources,
          or if they do, these are secondary, i.e. Arabic Grammarians. Absence of evidence from actual Classical
          Arabic texts.
      c. functional suspicion
          if 1 √sr=ø-i, 2 √xf=i-a had [i] instead of [u], they would be homophonous with pf act forms:
          sir-tu, xif-tu etc.
          if there is a functional issue, who introduced it? The language or an obscure grammarian who believed
          that all forms should be distinct for the sake of better understanding?

6.3. Why long perfective actives show invariably [aa]

(28)

	melody	suffix -V				suffix –C			
		1 √sr=ø-i	2 √xf=i-a	3 √lm=a-u	4 √Tl=u-u	1 √sr=ø-i	2 √xf=i-a	3 √lm=a-u	4 √Tl=u-u
pf act	A – Vlex	aa	aa	aa	aa	i	i	u	u

(29) identical lexical ingredients produce different results according to length: complete (long) vs. partial
      (short) neutralization
      a. it is tempting to interpret the invariable [aa] as the lengthened active A.
      b. this is the wrong track; [aa] is the result of variable processes.

(30)

	melody	class 1 √sr=ø-i		class 2 √xf=i-a		class 3 √lm=a-u		class 4 √Tl=u-u	
		/ /	[VV] –V	/ /	[VV] –V	/ /	[VV] -V	/ /	[VV] -V
pf act	A – V$_{lex}$	a+ø =	aa	a+i =	aa	a+a =	aa	a+u =	aa

(31) class 1, √sr=ø-i
no hiatus: [aa] is the lengthened active A
pf act V-initial suffix class 1, melody: A-Vlex, i.e. A-ø

```
                      Lic
                   ┌──┴──┐
                   ▼     │
C₁  V  C̲ ̲V̲   C₂   V₂   C₃  V₃
|   |             |    |   |
|   |             |    |   |
R1  A             ø    R3  V
```
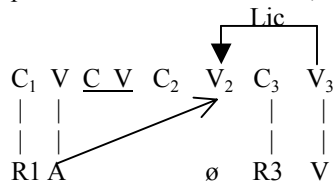
result: saar-a   pf act 3m sg

(32) classes 2-4, √xf=i-a, √lm=a-u, √Tl=u-u
regular hiatus-resolution:
class 1 /ayi/ --> [aa]
class 2 /awa/ --> [aa]
class 3 /awu/ --> [aa]
pf act V-initial suffix classes 2-4, melody: A-Vlex

```
                      Lic
                   ┌──┴──┐
                   ▼     │
C₁  V₁ C̲ ̲V̲   C₂   V₂   C₃  V₃
|                 |    |   |
|                 |    |   |
R1  a    class 2  i    R3  V
         class 3  a
         class 3  u
```
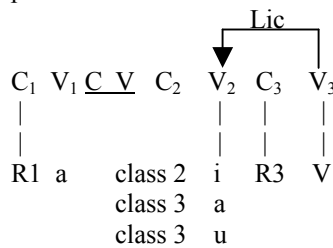
result: xaaf-a, laam-a, Taal-a   pf act 3m sg

7. Resolution of hollow hiatuses: the mysteriously reduced vocalic inventory of short perfective active forms

(33)

	melody	suffix -V				suffix −C			
		1	2	3	4	1	2	3	4
		√sr=ø-i	√xf=i-a	√lm=a-u	√Tl=u-u	√sr=ø-i	√xf=i-a	√lm=a-u	√Tl=u-u
pf act	A – Vlex	aa	aa	aa	aa	i	i	u	u

(34) solution
what we see is not Vlex itself, but the vocalized Glide that has been created upon Vlex.
Why?

7.1. Direct association of A-Glide-Vlex: class 1

(35) no solution for V2: ungoverned and unlicensed, may not receive content through spreading.
pf act C-initial suffix class 1, melody: A-Vlex, i.e. A-ø

```
              PG          PG
           ┌──┐  ┌─────┐
           ▼  ╲  ▼     │
C₁  V  C̲ ̲V̲   C₂   V₂   C₃   V₃  -  C   V
|                |    |           |   |
R1  a            ø    R3          C   V
```
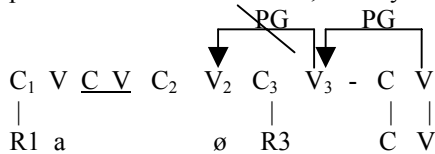
result: *saar-tu   pf act 1sg

(36) reason for apophonic glide-creation: Template Satisfaction of C2
but V2 seeks identification
==> conflict between the ECP and the Template Satisfaction Principle (TSP)
pf act C-initial suffix class 1, melody: A-Vlex, i.e. A-ø

```
                    PG          PG
C₁  V  C V  C₂   V₂  C₃   V₃  -  C  V
    |   ___   ↑↗          |        |  |
    R1  a    y <-- ø      R3       C  V
```
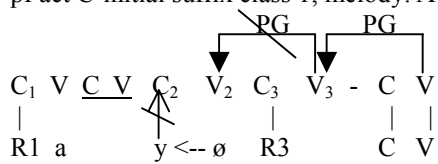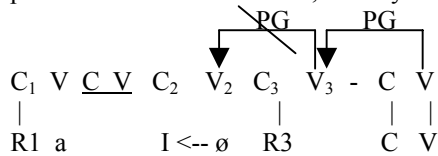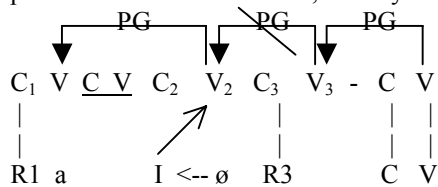
result: *sayr-tu   pf act 1sg

(37) apophony does not create glides (this is shorthand), but phonological Elements
pf act C-initial suffix class 1, melody: A-Vlex, i.e. A-ø

```
                    PG          PG
C₁  V  C V   C₂  V₂  C₃   V₃  -  C  V
    |                |            |  |
    R1  a       I <-- ø   R3      C  V
```

(38) 1) apophony is triggered because of the TSP
2) its result is attached to V2
3) ECP over TSP, the template remains unsatisfied
pf act C-initial suffix class 1, melody: A-Vlex, i.e. A-ø

```
          PG          PG          PG
C₁  V  C V  C₂   V₂  C₃   V₃  -  C  V
    |                |            |  |
    |                |            |  |
    R1  a      I <-- ø    R3      C  V
```

result: sir-tu   pf act 1sg

7.2. Direct association of A-Glide-Vlex: classes 2-4

(39) 1) apophony is triggered in order to prevent the hiatus
2) its result is attached to V2
3) ECP over TSP, the template remains unsatisfied
pf act C-initial suffix classes 2-4, melody: A-Vlex

```
                    PG          PG
C₁  V₁ C V  C₂   V₂  C₃   V₃  -  C  V
    |                |            |  |
    R1  a       I <-- i   R3      C  V    class 2
        a       U <-- a                   class 3
        a       U <-- u                   class 4
```
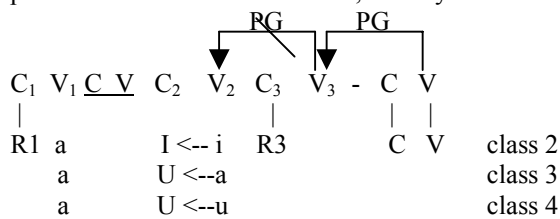
result: xif-tu, lum-tu, Tul-tu   pf act 1sg

(40) pf act C-initial suffix classes 2-4, melody: A-Vlex

```
              PG          PG        PG
        ┌────────┐  ┌─────────┐  ┌──────┐
        │        ▼  │         ▼  │      │
        ▼        ▼  ▼         ▼  ▼      │
  C₁  V₁  C  V   C₂    V₂   C₃   V₃  -  C   V
  |   |              ↗            |      |   |
  |   |             /             |      |   |
  R1  a           I <-- i        R3     C   V      class 2
      a           U <- -a                         class 3
      a           U <-- u                         class 4
```
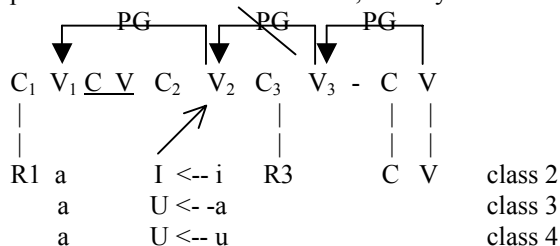
result: xif-tu, lum-tu, Tul-tu   pf act 1sg

8. Summary and evaluation

(41)   our analysis relies on
   a. The particular view of the lexicon we use
   b. The computational part of what occurs to these lexical ingredients when phonology is performed
   c. ==> complete absence of any reference specific to weak verbs. The only pecularity of weak verbs is their lexical identity as biliterals. The same phonology that applies elsewhere in the Grammar of Classical Arabic, and only this phonology, produces the effects observed on weak verbs.
   d. it appeals to no device that has been created for the mere purpose of the data that have been analyzed. The set of weak verbs, which is usually viewed as highly exceptional, is not particular at all: performing regular phonology that operates in other languages and elsewhere in Classical Arabic is enough to derive all forms. The only thing that makes weak verbs different from their sound mates is that fact that they are one consonant short.

(42)   assumptions on phonological processes

		scope	relevant references
a.	apophonic theory: ø --> I --> A --> U --> U	universal	Guerssel & Lowenstamm (1994), Ségéral (1995), Ségéral & Scheer (1998), Ségéral (in press)
b.	Empty Category Principle, Proper Government and Licensing	universal	Kaye et al. (1990), Harris (1994), Scheer (1998a,b,1999)
c.	Template Satisfaction Principle (defectives)	universal	McCarthy (1979)
d.	Nuclei have precedence over Onsets	universal	
e.	Closed Syllable Shortening	active in a wide variety of languages	cf. any textbook
f.	apophonic Glide-creation in order to break up hiatuses	Classical Arabic	Chekayri & Scheer (in press)
g.	apophonic Glide-creation in order to satisfy the Template	Classical Arabic	Chekayri & Scheer (in press)
h.	*#CC	Classical Arabic	observational fact
i.	*hiatus	Classical Arabic	observational fact
j.	resolution of V-Gl-V sequences: some are allowed for, others are not, cf. (21)	Classical Arabic	Chekayri & Scheer (in press)
k.	how truncation works: V1+V2 are resolved as V1V1 if V2 is short, as V2V2 if V2 is long	Classical Arabic	Chekayri & Scheer (in press)

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