

Formation of the imperfections in Archi: two-level micromorphology

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Archi

- Nakh-Dagestanian (North-East Caucasian), Lezgian
- spoken in a conglomeration of closely situated villages in the highlands of Dagestan, Russian Federation
- about 1300 speakers, but the number is dwindling



Archi verbal system

Verbs: stative and dynamic

Statives: closed class, one stem, limited number of non-finite forms

Dynamic verbs: simple and complex

Simple verbs: closed class of 164 verbs

Complex verbs: open class, lexical part + simple verb

Simple dynamic verb:

4 stems (and imperative):

Table 1. Simple dynamic verbs, verbal stems:

	PERFECTIVE	IMPERFECTIVE	POTENTIAL	INFINITIVE	IMPERATIVE
'cool down'	o ^ɾ rču	o ^ɾ rču-r	o ^ɾ rču-qi	o ^ɾ rča-s	o ^ɾ rča
'divide'	q ^ɾ o	q ^ɾ a-r	q ^ɾ o-qi	q ^ɾ a-s	q ^ɾ a
'soften'	a:q ^ɾ u	a<r>q ^ɾ u-r	a:q ^ɾ u-qi	a:q ^ɾ a-s	a:q ^ɾ a

PFV, IPFV and POT can be used as independent words and as stems, i.e. serve as morphological bases for other forms (converbs, participles, mood forms)

Production of imperfectives

The perfective stem is the least complex form; the imperfective is produced from it. Some verbs form the imperfective just by adding suffix *-r* to the perfective stem:

(1) Type 1: suffix *-r* only: 18

perfective stem	imperfective stem	meaning
akɔ̃u	akɔ̃u-r	see
k'a	k'a-r	die
arsɔ̃u	arsɔ̃u-r	crumble
herq ^ɤ u	herq ^ɤ u-r	go
erχ ^ɤ u	erχ ^ɤ u-r	scoop
kɬo	kɬo-r	give

(2) Verbs of Type 1:

cv	VCv	cvCcv
k'a	ák:u	babc'u
kʈo	árs:u	babχ:ʰu
ko	érχ:ʰu	barhu
χo	írk:u	dabʈu
	óʰrču	darq'u
	órs:u	dubqu
		gobχ:u
		heʰrř:u

Some verbs form the imperfective by *-r* and a stem vowel change:

(3) Type 1a: suffix *-r* and vowel change: 21

perfective stem	imperfective stem	meaning
co	ca-r	praise
q'ʰo	q'ʰa-r	divide
χ:o	χ:a-r	get up
χošo	χaša-r	tear
sesu	sesa-r	roast (grain)
dubʰ:u	dubʰ:a-r	sew

(4) Verbs of type 1a:

cv	cvcv(cv)
co	boq' ^ɸ ó
c'o	dubɬ:ú
čo	q'oc'ó
gu	sák:u
kɬ'u	sésu
k'u	χošó
ɬ:o	goróχ:u
q' ^ɸ o	
q'u	
s:o	
so	
tu	
χ:o	
χ' ^ɸ o	

Some verbs form imperfectives by employing a circumfix <r>-r:

(5) Type 2: formation of the imperfective by circumfix only: 42 out of 164

perfective stem	imperfective stem	meaning
a:q'ʰu	a<r>q'ʰu-r	soften
eʰč̣u	eʰ<r>č̣u-r	sharpen
oʰ:u	o<r>ʰ:u-r	be silent
deχ:ʰu	de<r>χ:ʰu-r	grind
ja:hu	ja<r>hu-r	winnnow
ʰ:oχʰu	ʰ:o<r>χʰu-r	mix

The infix <r> can never realise the imperfective by itself, it has to do it in combination with the suffix -r.

(6) Verbs of type 2:

Vcv		cVcv
á:q'ʰu	éʰu	búkʰu
á:ʰʂu	éq:ʰu	cáq'ʰu
á:tu	ésu	cók'u
áč'u	éχ:u	dákʰu
ák'u	éχu	dáq'ʰu
át:i	óc:ʰu	déχ:ʰu
át'u	ók:u	dóku
áχ:u	ókʰu	gáχ:ʰu
áχ'ʰu	óʰ:u	g ^w áq:ʰu
éʰč'u	óq:ʰu	já:hu
éʰhu	óʰʂu	já:χ'ʰu
ékʰu	ót:u	kʰ'ókʰ'u
ékʰ'u		ʰ:óχ'ʰu
éku		χ ^w ét:u
ék'u		

Some verbs form imperfective by employing the circumfix together with the vowel change:

(7) Type 2a: circumfix and vowel change: 24

perfective stem	imperfective stem	meaning
acu	a⟨r⟩ca-r	milk
ahu	a⟨r⟩ha-r	think
oq ^ɪ a	o⟨r⟩q ^ɪ i-r	go
oχ ^ɪ a	o⟨r⟩χ ^ɪ i-r	take away
oka	o⟨r⟩ki-r	take along
caχu	ca⟨r⟩χa-r	throw

(8) Verbs of type 2a

Vcv		cVcv(cv)
á:c'u	át:u	bíjeɬ:u
ácu	áχ:ʰu	béc:ʰu
áču	áχu	bát:éš:u
ákɬu	écu	cáχu
áq:ʰu	éɬ:u	kʷášu
áqʰu	óka	χ:ʷá:k'u
árh <u>u</u>	óq:ʰa	
ás:u	óqʰa	
ásu	óχ:a	

For some verbs the formation of the imperfective involves, besides the circumfix, change of the consonant

(9) circumfix and consonant change: 9

	perfective	imperfective	meaning
Vcv	akdi	a<r>kʒi-r	leave
	eχdi	e<r>χi-r	burn
	edi	e<r>q'i-r	deliver
	odi	o<r>q'i-r	mount a horse
	osdi	o<r>ci-r	stop
cvcv(cv)	datʒi	da<r>ti-r	clear up (of weather)
	daχdi	da<r>χi-r	beat up
	k ^w ekdi	k ^w e<r>kʒi-r	spin
	k ^w ekʒišekdi	k ^w ekʒišek<r>kʒi-r	walk

Is it really (always) circumfix?

The behaviour of ⟨r⟩ in three-syllable verbs shows that there it is a suffixal rather than a prefixal infix:

(10) three-syllable verbs:

perfective	imperfective	meaning
bat:eš:u	bat:e⟨r⟩š:a-r	fulfill
bijeł:u	bije⟨r⟩ł:a-r	begin
k ^w ek:išekdi	k ^w ek:iše⟨r⟩k:i-r	walk

Some verbs form imperfectives by circumfix, reduplication and vowel change:

(11) circumfix, rdp, vowel change: 4 (non-nasal)

perfective	imperfective	
χa	χe<r>χi-r	win
ša ^f	še ^f <r>ši-r	rot
qa	qe<r>q-i-r	get cold
q ^f ak'a	q ^f ek'e<r>k'i-r	get lost

(12) Verbs where perfective and imperfective have equal morphological complexity: 15

perfective	imperfective	meaning
asni	a<r>sin	measure
ark ^w ni	ark ^w in	scrape
art'ni	art'in	gnaw
arχni	arχ:in	scatter
ba ^f kʎni	ba ^f <r>kʎin	press
da ^f šni	da ^f <r>šin	cloud up
ekʎ'ni	e<r>kʎ'in	perform ablution
eq ^w ni	e<r>q ^w in	prick
eq ^w ^f ni	e<r>q ^w ^f in	give a start

All of these verbs are historically complex verbs containing the verb *bos* 'say' in its nasalised version *-mus*, which can be seen in the infinitive

(13) Verbs with simpler imperfective stem: 12

χ ^ʰ et:é	χ ^ʰ a-r	turn over
č'e ^ʰ nné ^ʰ	č'a ^ʰ n	press
čeré	ča-r	roast
č'et:é	č'u-r	enter
jaš šet:é	jaš šú-r	be in a hurry
kɫenné	kɫan	pull
kunné	k ^w an	eat
ɬ:et:é	ɬ:a-r	paint
q'uré	q' ^w a-r	dry
š:et:é	š:u-r	take, buy
set:é	sal	boil
teré	ta-r	curdle
χullé	χ ^w al	die out

All these verbs have an irregular *infinitive* suffix *-bus* which is not considered an instantiation of the verb *bos* 'say' (Kibrik 1977: 69-70).

(14) circumfix, rdp, vowel change: 7 out of 164 (nasal)

perfective	imperfective	meaning
s:enné	s:éms:in	melt
c'enné	c'émc:'in	sift
kunné	kúkin	gorge, devour
ɬ:unné	ɬ:wémɬi:n	flee
q'ɬunné	q'w'émq'ɬin	count
š:e'nné'ɬ	š'é'émš'in	mix knead
χ:enné	χ:émχ'in	knit

Realisation of agreement

Archi verbs agree in gender and number (GN) with their absolutes. All the examples above were shown in the form of fourth gender singular which has zero marking, but the other three genders employ the overt GN affixes: prefixes and infixes:

(1) Verbal agreement

Prefixes

	SG	PL
I	w-	b-
II	d-	
III	b-	∅
IV	∅	

Infixes

	SG	PL
I	<w>	
II	<r>	
III		<∅>
IV	<∅>	

Verb agreement: morphological types

(2) Prefixal agreement: *acu* 'milk'

	PERFECTIVE		IMPERFECTIVE		INFINITIVE		IMPERATIVE	
	SG	PL	SG	PL	SG	PL	SG	PL
I	UWCU	b-acu	w-a<r>ca-r	b-a<r>ca-r	w-aca-s	b-aca-s	w-aca	b-aca
II	d-acu		d-a<r>ca-r		d-aca-s		d-aca	
III	b-acu	acu	b-a<r>ca-r	a<r>ca-r	b-aca-s	aca-s	b-aca	aca
IV	acu		a<r>ca-r		aca-s		aca	

(3) Infixal agreement: caχas 'throw'

	PERFECTIVE		IMPERFECTIVE		INFINITIVE		IMPERATIVE	
	SG	PL	SG	PL	SG	PL	SG	PL
I	cu<w>χu	caχu	ca<w>χa-r	caχa-r	ca<w>χa-s	caχa	ca<w>χa	caχa
II	ca<r>χu		ca<r>χa-r		ca<r>χa-s		ca<r>χa	
III	caχu	caχu	caχa-r	ca<r>χa-r	caχa-s	caχa	caχa	caχa
IV	caχu		ca<r>χa-r		caχa-s		caχa	

(4) Mixed agreement *aχas* ‘lie down’

	PERFECTIVE		IMPERFECTIVE		INFINITIVE		IMPERATIVE	
	SG	PL	SG	PL	SG	PL	SG	PL
I	a<w>χu	aχu	w -a<r>χa-r	b -a<r>χa-r	a<w>χa-s	aχa-s	w -aχa	b -aχa
II	a<r>χu		d -a<r>χa-r		a<r>χa-s		d -aχa	
III	aχu	aχu	b -a<r>χa-r	a<r>χa-r	aχa-s	aχa-s	b -aχa	aχa
IV	aχu		a<r>χa-r		aχa-s		aχa	

The verbal agreement infixes demonstrate typologically unusual behaviour: infixation in Archi is ‘frivolous’, that is, it is not phonologically conditioned (Yu 2007: 41-42)
 (Chumakina & Corbett 2015).

Gender infixes in the imperfective

(5) caχas 'drop', imperfective

	SG	PL
I	ca⟨w⟩χa-r	ca⟨b⟩χa-r
II	ca⟨r⟩χa-r	
III	ca⟨b⟩χa-r	ca⟨r⟩χa-r
IV	ca⟨r⟩χa-r	

The gender-number infixes ⟨w⟩ in gender I and ⟨b⟩ in gender III clearly replace part of the circumfix

And this indicates that the same happens in gender II

(6) Verbs marking agreement by infix: consonant-initial, non-monosyllabic, 19:

caq ^ɸ u	fill	ja:χ ^ɸ u	dig
caχu	throw	k ^w ašu	must
ca:k'u	piss	k ^w ek:išekdi	walk
dakɬu	cover, shut	k ^w ekdi	spin
daq: ^ɸ u	lockup	ɬ:ox ^ɸ u	mix
daχdi	beat up	q'i'jdi	sit
daχ: ^ɸ u	grind	q ^w ekni	flay
gaχ: ^ɸ u	take off	sak: ^ɸ u	look
gorox: ^ɸ u	roll	χ: ^w a:k'u	search
g ^w aq: ^ɸ u	gather		

Archi imperfective formation conforms to both micromorphology hypotheses as formulated by Stump (2017):

- The realisation of the imperfective by the circumfix is an instance of affix-oriented formulation: In the most adequate description of a language's morphology, an affix may be **morphologically complex**, i.e., a combination of other affixes.

- The placement of the overt GN marker is an instance of rule-oriented formulation, as the inflected form is a **result of a conflation of two rules of affixation**, the placement and the choice of the aspectual marker and the placement of the gender-number marker.

References

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