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A grammar of Tadaksahak a northern Songhay language of Mali
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2. Phonological Structure

2.1 Syllable Structure

In this section we describe the basic syllable patterns observed. In a word almost all consonants can occur in almost all positions. We do not give specifications here but discuss the restrictions under 2.2.3.

Tadaksahak has the following syllable structures:

(1) *Syllable structure*

open syllables	closed syllables
CV	CVC
CVV	CVCC

In word-initial position, the onset may be absent, and vowel-initial syllables occur, e.g. *íiləs* 'tongue', *ákrar* 'ram'. Doubly closed syllables only occur in word-final position and always contain the feminine singular suffix *-t* as their final element, e.g. *tadábert* 'pigeon' (see 3.2.2). Long vowels only occur in non-final open syllables.

2.2 Consonants

2.2.1 Inventory of phonemes

There are 32 consonantal phonemes. The whole series of the alveolar consonants also appears pharyngealized. This feature is marked by a dot under the consonant. The signs are the orthographic representations used in this work. *c* and *j* represent [tʃ] and [dʒ] respectively, *y* represents [j] and *r* [r]. On the table below, the letter 'v' indicates voicing, '-v' stands for voiceless and '+v' for voiced.

(2) Consonants

	Labial		Alveolar		Pharyngeal -ized		Palatal		Velar		Pharyngeal		Laryngeal
	-v	+v	-v	+v	-v	+v	-v	+v	-v	+v	-v	+v	
Stops		<i>b</i>	<i>t</i>	<i>d</i>	<i>ʔ</i>	<i>ɖ</i>	<i>c</i>	<i>j</i>	<i>k</i>	<i>g</i>	<i>q</i>		
Fricatives	<i>f</i>		<i>s</i>	<i>z</i>	<i>ʃ</i>	<i>ʒ</i>	<i>ʃ</i>	<i>ʒ</i>	<i>x</i>	<i>ɣ</i>	<i>ħ</i>	<i>ʕ</i>	<i>h</i>
Glides		<i>w</i>						<i>y</i>					
Laterals			<i>l</i>		<i>ɭ</i>								
Taps			<i>r</i>		<i>ɾ</i>								
Nasals		<i>m</i>	<i>n</i>		<i>ɳ</i>				<i>ŋ</i>				

2.2.2 Evidence for Consonantal Contrasts

Here are some examples of the different contrasting environments for the consonants as word initial, syllable initial, intervocalic, and syllable final where this position is possible. Contrast between same place of articulation with different voicing and adjacent points of articulation are given.

(3) Contrasts with consonants

C		gloss		gloss
b/m	<i>báy</i>	to know	<i>máy</i>	to own
	<i>bún</i>	to die	<i>mún</i>	to throw out
	<i>abáktaw</i>	old cushion	<i>amáktaɾ</i>	leaving the well
	<i>áblay</i>	chunk of earth	<i>ámlay</i>	meat (kind of)
	<i>alzíb</i>	pocket	<i>ajím</i>	thousand
b/f	<i>bér</i>	to be big	<i>fér</i>	to open
	<i>bún</i>	to die	<i>fún</i>	to pierce
	<i>ʒiibúitan</i>	dirt (pl)	<i>jíifatan</i>	corpses
	<i>ábram</i>	white turban	<i>áfraw</i>	feather / wing
	<i>ʃéʔəb</i>	to put on a belt	<i>ʃéʔef</i>	to spit
b/d	<i>báy</i>	to know	<i>dáy</i>	to buy
	<i>bíibi</i>	to be black	<i>biidí</i>	bone

	<i>yibrár</i>	to be bad	<i>yídray</i>	to be decorated
	<i>yírkəb</i>	to pull	<i>yínkəd</i>	to sneak to
d/t	<i>dudú</i>	to pour	<i>tudú</i>	to respond
	<i>bídaw</i>	canister	<i>lítam</i>	turban (kind of)
	<i>átri</i>	star	<i>ádri</i>	crack in skin
	<i>yífəd</i>	to borrow (s.th.)	<i>yíbet</i>	to snatch
d/ð	<i>déləg</i>	to decorate	<i>ðələm</i>	to accuse unjustly
	<i>éedag</i>	place	<i>éedag</i>	herb, sp.
	<i>adágar</i>	part	<i>aðagał</i>	father-in-law
	<i>anáfad</i>	tobacco pouch	<i>aŋáfəð</i>	infection
d/j	<i>jinjí</i>	neck	<i>diŋgá</i>	forgetfulness
	<i>tadábert</i>	pigeon	<i>tajábert</i>	fonio, sp.
	<i>cindí</i>	part	<i>cinjí</i>	rain
g/k	<i>guná</i>	to see	<i>kuná</i>	to find
	<i>guurú</i>	metal	<i>kuurú</i>	leather / skin
	<i>yígbəs</i>	to wear	<i>yíkbəl</i>	support
	<i>létəg</i>	waistcloth	<i>şətək</i>	to point
		heaviness		
g/j	<i>geení</i>	head louse	<i>jeejí</i>	to hang up
	<i>gíman</i>	to be good	<i>jinán</i>	luggage
	<i>ígitan</i>	elevations (pl)	<i>ijiiman</i>	thousands (pl)
g/ɣ	<i>gáafa</i>	crime	<i>ɣáafaf</i>	striped polecat
	<i>áagar</i>	tree, sp.	<i>áayar</i>	straw, sp.
	<i>agírid</i>	granary	<i>ayíri</i>	white spot (on dog)
	<i>yírgəm</i>	to be upset	<i>yírɣəm</i>	to warn
	<i>yáhag</i>	to last	<i>yáhay</i>	to ransack
q/k	<i>qóq</i>	to be dry	<i>kós</i>	to cut
	<i>ləqəm</i>	to strengthen	<i>ləkəm</i>	following (n)
	<i>yíqbəl</i>	to fulfill prayer	<i>yíkbəl</i>	to support
	<i>abáaleq</i>	dust	<i>t(a)séelək</i>	young woman
k/c	<i>karáy</i>	ball	<i>caráy</i>	friend
	<i>keedí</i>	be on	<i>ceedí</i>	spoon
	<i>arkílla</i>	mosquito net	<i>arcíni</i>	hyena
	<i>sékiyki</i>	try in vain	<i>təgmací</i>	alphabet
f/h	<i>fánfi</i>	pump	<i>hánfi</i>	dog
	<i>alfáydat</i>	importance	<i>səlhá</i>	make cry
	<i>ífayan</i>	edges	<i>ihayan</i>	descendants

s/z	<i>sérgæg</i>	to join (string)	<i>zérgəz</i>	to walk fast
	<i>ayázar</i>	jumping on (n)	<i>ayázar</i>	pond
	<i>tásləft</i>	ax (kind of)	<i>tázləft</i>	eagle, sp.
	<i>íblis</i>	devil	<i>ágliz</i>	left over (n)
s/ʃ	<i>séryəd</i>	to appease	<i>féryəf</i>	to facilitate
	<i>ássaɣal</i>	fonio, sp.	<i>áffaɣal</i>	work (n)
	<i>təskənt</i>	excrement (k.o.)	<i>tífkənt</i>	greeting
	<i>afáɣas</i>	tortoise	<i>féryəf</i>	to facilitate
s/ʂ	<i>sədəd</i>	to support	<i>şədəş</i>	to hit
	<i>íssakan</i>	nests (bird)	<i>íşşakan</i>	songs
	<i>səbəş</i>	to exhaust	<i>yíbbəş</i>	to chew
z/ʒ	<i>zézəl</i>	to drive	<i>ʒízil</i>	to draw water
	<i>tamázaq</i>	dispute	<i>tamáazaq</i>	Tamasheq
z/ẓ	<i>éezaw</i>	heron, sp.	<i>éeza</i>	grass, sp.
	<i>yízgæg</i>	to play around	<i>yízgæg</i>	to make accept
	<i>yízlæg</i>	to carry on shoulder	<i>yízlæg</i>	to search for (lost animal)
x/ɣ	<i>xúruuru</i>	to have large holes	<i>yúruuru</i>	to rustle (dry leaves)
	<i>axárɣar</i>	tearing apart (n)	<i>ayáɣar</i>	barren plain
	<i>yíxrək</i>	to lose one's way	<i>yíɣres</i>	to cut straight
	<i>yímsax</i>	to sniff (water)	<i>yínsay</i>	to whistle
x/ħ	<i>xátim</i>	pers. name	<i>ħád</i>	pers. name
	<i>axáruk</i>	creation	<i>aħákam</i>	reign (n)
	<i>yíxdəm</i>	to work	<i>láħdas</i>	lentils
	<i>yímsax</i>	to sniff (water)	<i>assáħ</i>	strength
ħ/ʕ	<i>alħál</i>	custom	<i>alʕár</i>	refusal
	<i>aláaħit</i>	wooden tablet	<i>aláʕan</i>	curse (n)
ħ/h	<i>ħáaǰi</i>	bone (kind of)	<i>hánǰi</i>	dog
	<i>talmáħa</i>	toy mat	<i>tasáhart</i>	lid (pot)
	<i>alħál</i>	custom	<i>álham</i>	anger (n)
w/b	<i>wá</i>	to be healed	<i>bá</i>	IMP(perative) particle
	<i>áwwa</i>	pers. name	<i>ábba</i>	daddy (voc.)
	<i>ṭáw</i>	to reach	<i>dáb</i>	to cover
w/y	<i>wáy</i>	woman	<i>yáy</i>	to be fresh

	<i>yaawén</i>	female camels	<i>yaayén</i>	freshness, pl
	<i>aryén</i>	water	<i>arwén</i>	men
	<i>yáy</i>	freshness	<i>yáw</i>	female camel
l/d	<i>lébək</i>	being skinny (n)	<i>débət</i>	to be able to
	<i>ámlay</i>	fatless meat	<i>ámday</i>	giraffe
	<i>yél</i>	green grass	<i>yéd</i>	to return
l/r	<i>yílmaɣ</i>	to dive	<i>yírmaɣ</i>	to be afraid
	<i>yíɣləf</i>	to entrust to	<i>yíɣrəf</i>	to span (drum)
	<i>téefalt</i>	coin	<i>téefart</i>	recompense
	<i>ázwal</i>	mark	<i>ázwar</i>	jujube fruit
l/!	<i>laabú</i>	clay	<i>labás</i>	to be dangerous
	<i>éelab</i>	pit (kind of)	<i>éelaw</i>	elephant
r/d	<i>riiba</i>	profit (n)	<i>díidi</i>	to trample
	<i>təricin</i>	saddles (k.o.)	<i>tədican</i>	tent posts
	<i>áwwur</i>	shield (kind of)	<i>áwwud</i>	boil (n)
r/ɣ	<i>báara</i>	to be (in)	<i>báaya</i>	to want / to love
	<i>ayəri</i>	white spot (dog)	<i>ayəyi</i>	crevice
	<i>ámrar</i>	rope (kind of)	<i>ámɣar</i>	old person
r/ɾ	<i>yíkrəm</i>	to fold	<i>yíkrəm</i>	to rest (animals)
	<i>ahára</i>	potassium	<i>éefara</i>	wind from south
	<i>abákar</i>	young ram	<i>fákar</i>	to reveal
m/n	<i>maaní</i>	grease	<i>náani</i>	here (it) is!
	<i>takámmart</i>	cheese	<i>takánnart</i>	forehead
	<i>adími</i>	antelope, sp.	<i>adínit</i>	world
	<i>eeɣám</i>	fat (kind of)	<i>éefan</i>	tooth
m/w	<i>mənəyət</i>	to wither	<i>wənənəg</i>	to walk about
	<i>alámes</i>	chick, sp.	<i>aláweg</i>	branch (kind of)
	<i>áyɾəm</i>	town	<i>áyraw</i>	yoke (kind of)
n/ŋ	<i>na</i>	to give	<i>ŋa</i>	to eat
	<i>kaŋ</i>	to fall	<i>kan</i>	to be sweet
n/ŋ	<i>ánna</i>	mom (vocative)	<i>áaŋa</i>	shrub, sp.
	<i>yaníd</i>	to have a fever	<i>yaŋəŋ</i>	to be trained (camel)

2.2.3 Distributional Restrictions

In the following subsections we discuss distributional restrictions of the different consonants. A type of consonant found 'in all positions'

means that the positions ‘word initial, syllable initial, intervocalic, syllable final and word final’ are attested in our data. Consonant sequences are also discussed for the position ‘syllable final’.

2.2.3.1 Labials *b* and *f*

/b/ and /f/ occur in all positions but in mono-morphemic lexemes /b/ is never found preceding voiceless stops (/t/, /k/, /q/). The voiceless fricatives /s/, /x/ and /h/ are found following /b/.

The voiceless/voiced distinction of the labials is realized as /b/ versus /f/. This is evident from the IMPERF prefix *b-* that assimilates in voicing to *f-* if the following C of the verb root is voiceless. Examples are found under (3.1.4.2).

Loanwords from e.g. French beginning with /p/ are regularly reinterpreted and pronounced *f* by speakers who do not know French, e.g. Fr. *porte-monnaie* ‘purse’ becomes *fartəməani*, and Fr. *projet* ‘project’ is pronounced *faróze*.

2.2.3.2 Plosives

The only plosives that have restrictions in distribution are the affricates *c* [tʃ] and *j* [dʒ]. We have no evidence of them in word-final or syllable-final position, except when they are part of a geminated consonant, as for example in *hijji* ‘piston’. The following examples illustrate alternations in which /c/ in syllable initial position before a front vowel alternates with /k/ before a back vowel or in syllable final position.

(4) Alternations between /c, j/ and /k, g/

<i>irkána</i>	hyenas	<i>arcíni</i>	hyena
<i>kúrukud</i>	to have shame	<i>takařacet</i>	shame
<i>húgu</i>	tent / house	<i>híjen</i>	tents / camp
<i>gá</i>	self	<i>jén</i>	selves
<i>təzəkwin</i>	storms	<i>táazice</i>	storm
<i>ihəktan</i>	tent awnings	<i>aháacet</i>	tent awning
<i>yígmək</i>	to spell (word)	<i>təgmaci</i>	alphabet

Further examples are under 3.2.3.1.1. with the plural morpheme.

/c/ and /j/ are restricted in their distribution at the lexical level. In stems, they do not occur preceding the back vowels /u/ and /o/. However, in actual speech, due to vowel deletion, /c/ and /j/ may appear before back vowels, e.g. the noun *ciji* 'night' can be followed by the demonstrative *óoda* 'this' meaning 'the night in question'. The rules for final vowel deletion lead to an allowed pronunciation [ci'dʒo:da]. However, there exists another noun 'tonight' *cigóoda* composed of similar elements but frozen to an expression that is pronounced [ci'go:da].

2.2.3.3 Fricatives

In this group the sibilants (/s/, /ʃ/, /z/, /ʒ/, /ʃ/ and /ʒ/) have a status of their own. Sibilant harmony is discussed further under 2.4.1.4.

Fricatives are attested in all positions. Only *ʃ* and *h* do not occur word finally. This may be due to corpus limitations.

2.2.3.4 Nasals

We have evidence of all nasals in all positions. *m* is stable, whatever the following consonant.

(5) Examples with /m/

<i>mân</i>	name
<i>amánana</i>	fish
<i>ámɣar</i>	old person
<i>aṭṭáram</i>	west

n and *ɲ* assimilate with the place of articulation of the following *C*. For more details see 2.4.1.1.

(6) Examples with /n/

<i>nín</i>	to drink
<i>ándi</i>	you (pl)
<i>anáf</i>	high grass
<i>aɣíiwan</i>	tent camp
<i>ṇákaɾɟaf</i>	to wriggle
<i>ánayna</i>	little bell
<i>yíɲɟəb</i>	throw an arrow
<i>éewan</i>	shrub, sp.

ŋ only occurs in a few lexical items. In syllable-final position it is pronounced [ŋg].

(7) *Examples with /ŋ/*

<i>ŋa</i>	to eat
<i>amássaŋŋa</i>	cook (person)
<i>tiŋlist</i> [tɪŋ'list]	English
<i>kánŋ</i> [kæŋg]	to fall

2.2.3.5 *Liquids*

The liquid / is found in all positions.

(8) *Examples with //*

<i>lém</i>	to twist
<i>yíli</i>	to leave
<i>álkas</i>	(tea) glass
<i>áɣlal</i>	portable trough

We have not found any examples of the pharyngealized liquid / in syllable-final position except as part of a geminate.

(9) *Examples with //*

<i>lábub</i>	clay
<i>béṣṣalli</i>	onion
<i>éelab</i>	pit, sp.

2.2.3.6 *Taps*

r is rarely found word-initially. There is a clear preference by the speakers to add a vowel before the flap. The French word 'radio' is taken over as *aragó*.

(10) *Examples with /r/ and /r/*

<i>ríiba</i>	benefit (< Arabic)
<i>aráday</i>	old goat
<i>argán</i>	male camel
<i>ábrug</i>	resin (kind of)
<i>báarar</i>	child
<i>ríiri</i>	to expand (tent)

<i>fərfər</i>	to rub foot on camel's neck
<i>yikrəm</i>	to rest
<i>fákar</i>	to reveal

Long *r* is pronounced as a trill, e.g., *báarar* ['bæ:rar] / *barrén* [ba'ren] 'child / children'.

2.2.3.7 Glides *y* and *w*

Both are found in all environments and can be geminated.

(11) Examples with /w/ and /y/

<i>wa</i>	to heal
<i>awíci</i>	bracelet
<i>Awwa</i>	personal name
<i>áwrum</i>	pit of jujube
<i>waw</i>	to curse
<i>yaw</i>	female camel
<i>ayyár</i>	moon / month
<i>yaynáy</i>	to be new
<i>caráy</i>	friend

2.2.4 Consonant clusters

2.2.4.1 Word initial clusters

The word initial cluster 'nasal' + 'C' that is allowed in Mainstream Songhay is not found in Tadaksahak. The Songhay word /nda/ 'and / with' is pronounced *ənda* 'and / with' in Tadaksahak.

Other word initial clusters are not allowed either. When necessary, an epenthetic vowel is added preceding the cluster. This is for example the case in clauses with verbs that have no pronoun enclitic, as in indefinite relative clauses, e.g., *surgóy əb-dút* 'a woman (who is) pounding'

Loans from languages with initial consonant clusters are resyllabified to conform to the system, e.g., *baruwét* 'wheelbarrow' < French: 'brouette' [bruet] or *faróze* 'project (n)' < French: 'projet' [proʒɛ].

2.2.4.2 *Clusters with different consonants*

Word-internal clusters with different consonants are very frequent. Basically all consonants can follow each other. Only very few combinations are not attested (see also Nicolăi 1979). One partial restriction of /b/ is discussed in 2.2.3.1 while clusters with /c/ and /j/ are discussed in 2.2.3.2.

2.2.4.3 *Long consonants*

All consonants can be geminated, with the exception of /ɣ/, /h/ /ʃ/ and /ħ/. Long consonants are analyzed as a succession of two identical consonants. We give here a few minimal pairs:

(12) *Minimal pairs with long consonants*

lexeme	gloss	lexeme	gloss
<i>yili</i>	to go out	<i>yilli</i>	to soar (bird)
<i>iməḍan</i>	pastures	<i>iməḍḍan</i>	tears
<i>təbbət</i>	to be stolen	<i>təbbbət</i>	to knock
<i>yínəṣ</i>	to hobble, (one-sided)	<i>yínṇəṣ</i>	to pull away (with teeth)
<i>albána</i>	sickness (kind of)	<i>albánna</i>	bricklayer
<i>hijén</i>	camp	<i>hijjén</i>	pistons
<i>yízəʃ</i>	to pay	<i>yízẏəʃ</i>	to stretch out
<i>iháran</i>	herds (small animals)	<i>iharran</i>	lions
<i>baarén</i>	horses	<i>barrén</i>	children

Consonantal length is independent of stress, as shown in the table below.

(13) *Long consonants and stress*

lexeme	gloss	CV pattern with stress
<i>áyalla</i>	wall	́.VCVC.CV
<i>mammaní</i>	odor, perfume	CVC.CVC.́V
<i>hillí</i>	horn	CVC.ĆV
<i>hurrú</i>	to look for	
<i>korrá</i>	heat	

2.2.4.4 Word-final clusters

The only clusters allowed word-finally contain the consonant /t/ as their last element. This consonant consists of the second part of the discontinuous morpheme *t(a)-...-t* ('feminine / diminutive / nominalizer'). See (3.2.2.1.1) for details.

(14) *Word final consonant clusters with /-t/*

<i>talánkawt</i>	tail
<i>tadáryalt</i>	blind person
<i>tabáyort</i>	riches
<i>tabáremt</i>	reed, sp.

2.3 Vowels

2.3.1 Inventory of Vowels

The following chart lists the main phonetic realizations found in Tadaksahak vowels.

(15) *Vowel chart (phonetic)*

	<i>short</i>			<i>long</i>	
<i>high</i>	<i>i</i>		<i>u</i>	<i>i:</i>	<i>u:</i>
<i>high lowered</i>	<i>ɪ</i>				
<i>mid-high</i>	<i>e</i>	<i>ə</i>	<i>o</i>		<i>o:</i>
<i>mid-low</i>	<i>ɛ</i>	<i>ʌ</i>	<i>ɔ</i>	<i>ɛ:</i>	<i>ɔ:</i>
<i>low</i>	<i>æ</i>	<i>e / a / ɑ</i>		<i>æ:</i>	<i>a:</i>

As will be shown below, these can be analyzed as realizations of the following vowel phonemes:

(16) *Vowel chart (phonemic)*

	<i>short</i>			<i>long</i>	
<i>high</i>	<i>i</i>		<i>u</i>	<i>ii</i>	<i>uu</i>
<i>mid-high</i>	<i>e</i>	<i>ə</i>	<i>o</i>	<i>ee</i>	<i>oo</i>
<i>low</i>		<i>a</i>		<i>aa</i>	

2.3.2 Evidence of Vocalic Contrasts

The vocalic contrasts are proven by the following examples of stressed vowels in similar environment. When no stressed vowels were attested, unstressed vowels are presented. The first section contrasts short vowels with each other.

(17) Short vowel contrast

V	lexeme	gloss	lexeme	gloss
i/e	<i>danjí</i>	charcoal	<i>danjé</i>	silence
	<i>bí</i>	yesterday	<i>be</i>	on (PP)
	<i>dis</i>	to leave alone	<i>les</i>	make dirty
i/ə	<i>dis</i>	to leave alone	<i>dézdəz</i>	to castrate (kind of)
	<i>áabit</i>	chaff, sp.	<i>éebət</i>	taking quickly (n)
	<i>alíkaf</i>	horse saddle	<i>iláktan</i>	branches
	<i>affífit</i>	rope (saddle)	<i>dégəffət</i>	to give a light hit
	<i>táddabit</i>	night without moon	<i>kérəbət</i>	be joined
i/a	<i>ígazan</i>	cheeks	<i>agázaw</i>	cheek
	<i>ízzay</i>	son / fruit	<i>ázanzo</i>	milk (kind of)
	<i>alíkaf</i>	horse saddle	<i>alákat</i>	twig
	<i>didá</i>	to walk	<i>tabá</i>	to taste
i/u	<i>dis</i>	to leave alone	<i>tus</i>	to erase
	<i>hiná</i>	to cook	<i>hunán</i>	to leave
	<i>didá</i>	to walk	<i>dudú</i>	to flow
i/o	<i>dis</i>	to leave alone	<i>dos</i>	to touch
	<i>ayéyi</i>	crevice	<i>anóyo</i>	sickness of skin
e/ə	<i>tafáyert</i>	oval receptacle	<i>tayéeyərt</i>	dried wood
	<i>tadábert</i>	pigeon	<i>támbərt</i>	grazing in the night (n)
e/a	<i>həw</i>	to cry	<i>háv</i>	to attach
	<i>ténada</i>	fever	<i>tanáfrit</i>	suffering
e/u	<i>fér</i>	to open	<i>fúr</i>	to throw

e/o	<i>lés</i>	to make dirty	<i>dós</i>	to touch
ə/a	<i>lébək</i>	meager (n)	<i>téffak</i>	tomorrow
	<i>téffak</i>	tomorrow	<i>táafart</i>	rope (kind of)
ə/u	<i>tənəfas</i>	sprinklings	<i>tənúfas</i>	stories
	<i>kərtəba</i>	trousers	<i>tugúdu</i>	tree, wood
ə/o	<i>ségən</i>	to kneel down	<i>sóyon</i>	to hobble (knee)
	<i>dəzdəz</i>	to castrate (kind of)	<i>dós</i>	to touch
	<i>téga</i>	to be taken	<i>toogá</i>	T-shirt
a/u	<i>áylal</i>	portable trough	<i>áyul</i>	eternity
	<i>zaná</i>	to churn (milk)	<i>zurú</i>	to run
	<i>guná</i>	to see	<i>hunú</i>	to leave
a/o	<i>tarákat</i>	shrub, sp.	<i>taródayt</i>	fruit, sp.
	<i>agádod</i>	old waterskin	<i>akóko</i>	tree, sp.
	<i>báq</i>	to break	<i>qóq</i>	to be dry
	<i>amáyo</i>	part of the turban	<i>anóyo</i>	skin disease
	<i>zará</i>	lizard, sp.	<i>borá</i>	person
u/o	<i>tús</i>	to erase	<i>dós</i>	to touch
	<i>guná</i>	sight	<i>borá</i>	person
	<i>yúhu</i>	to be born	<i>yóru</i>	to be worn
	<i>kurúkuru</i>	to burn	<i>korókoray</i>	to be very white

The evidence for short /e/ is relatively weak since there are only few lexemes with /e/ on the whole, and /e/ is especially rare in open syllables. Consider the examples below under /ee/.

(18) Long vowel contrasts

V		gloss		gloss
i/ii	<i>íbatan</i>	chaff, sp.	<i>íibatan</i>	losses
	<i>ízzay</i>	son	<i>íizi</i>	fly
	<i>ikádan</i>	fireplace	<i>íikaran</i>	puppies
	<i>cijí</i>	night	<i>ciidí</i>	salt

e/ee	<i>ténada</i>	fever	<i>téeraya</i>	sweat
	<i>təzárcetan</i>	rolled leather strings	<i>kéreeri</i>	to be hanging
ee/aa	<i>ilánjezan</i>	drums (kind of)	<i>tadágeera</i>	cheese racks
	<i>éenar</i>	antelope, sp.	<i>áanar</i>	eyebrow
	<i>éeyar</i>	cooking pot	<i>áayar</i>	straw of cram-cram
	<i>heebú</i>	market	<i>haabú</i>	hair
a/aa	<i>tabá</i>	to taste	<i>táaba</i>	tobacco
	<i>áyaba</i>	bit	<i>áyaata</i>	monitor lizard
	<i>tamázaq</i>	dispute	<i>tamáazaq</i>	Tamasheq
	<i>abánaw</i>	grass, sp.	<i>abáaleq</i>	dust
aa/oo	<i>áarab</i>	Arab	<i>óorag</i>	flame
	<i>baají</i>	waterbag	<i>boojí</i>	ashes
	<i>abáaleq</i>	dust	<i>abóoray</i>	date fruit
	<i>áyaata</i>	monitor lizard	<i>áyoora</i>	1-3am
u/uu	<i>imúṇas</i>	camels	<i>imúuṇas</i>	hobbled animals
	<i>hunú</i>	leaving (n)	<i>huurú</i>	fire
	<i>búkut</i>	to pound	<i>búuyu</i>	working together (n)
uu/oo	<i>guná</i>	sight	<i>guurú</i>	iron
	<i>úuray</i>	gold	<i>óorag</i>	flame
	<i>huurú</i>	fire	<i>tooká</i>	ashes (kind of)
	<i>amúuder</i>	animal	<i>abóoray</i>	date fruit
	<i>arúuru</i>	back (body part)	<i>aróoko</i>	saddle (kind of)
o/oo	<i>borá</i>	person	<i>booráy</i>	giraffe
	<i>takóṭayt</i>	cow hump	<i>takóokayt</i>	fruit (doum tree)
	<i>akóko</i>	tree, sp.	<i>aróoko</i>	luggage saddle
	<i>koká</i>	baobab powder	<i>tóodat</i>	humid soil

With the mid vowel /o/ - /oo/, the evidence for a phonemic length contrast is rather weak. In open syllables the long mid vowels are much more frequent than their short counterparts. In addition to the forms given above, one may cite the following cases: *igórizən* 'black solution'; *tafógit* 'metal point of sheath'; *sogá* 'to indicate', *borá* 'person'; *izámolan* 'marks of recognition'; *komáami* '(walk) with bent neck (camel)'.

2.3.3 Vowel Realizations

Pharyngealized consonants, as well as uvular and pharyngeal consonants (*x*, *ɣ*, *q*, *ʕ* and *ħ*) influence the realizations of the vowels. This is most evident in the case of /a/. In a word with a pharyngealized consonant, it is lowered and retracted to be realized [ɑ], e.g. [enéfɛd] 'tobacco pouch' <> [ɑnáfɑd] 'infection'.

Similarly, /i/ is lowered	to [ɪ] or [e]
/e/	to [ɛ]
/a/	to [ɑ]
/o/	to [ɔ]
/u/	to [ʊ]
/ə/	to [ʌ]

The vowel /a/ shows the widest range of realizations. For more details see under 'Influence of palatals on /a/' (2.3.3.1) and examples in the texts. On the whole, unstressed vowels tend to be pronounced as more central and lax so that their quality is not always clear in rapid speech. Yet asking the speaker to slow down will render full Vs where schwa was perceived beforehand.

Examples:

[bæ:rər]	<i>baarar</i>	'child'
[ɔ:də]	<i>ooda</i>	'this'

Nicolai (1979a:342) comments on this fact saying that "Il semble que l'importance et la netteté de réalisation des unités du système consonantique soient corrélatives d'une certaine labilité dans les réalisations des phonèmes vocaliques..."

The realization of schwa is strongly dependent on the phonetic context, e.g. *ní-m-s-é-lə-i* [nɪm'sɪlɪ] 'that you make them follow'.

The same speaker may pronounce the same utterance with different V qualities. A request to repeat will often produce a different V 'color' in slower speech. The following example is given in rapid speech: *i-b-údu-an* [i'bədʷan] 'they assembled there'.

The least conspicuous environment for good quality vowels is word or utterance final in open syllables where the realizations are short and plain, i.e., with no possible variation.

2.3.3.1 Palatals preceding and following /a/

The palatal phonemes /c/, /j/ and /y/ (Y) have a strong influence on the realization of a following /a/ in a closed syllable of a monosyllabic root. The phonetic difference between /a/ and /e/ is neutralized in this position, and are realized [ɛ].

(19) Neutralisation of /a/

/YaC/, /YeC/ → [YɛC]

The underlying /a/ reappears when the addition of a morpheme allows the syllable to be opened. Notice that in all examples below also the rule 'long V shortening in closed syllable' (see 2.4.1.9) is in effect. Consider the following:

(20) Realization of /a/ following palatal Cs

singular	plural		gloss
[jɛw]	[ja:'wɛn]	<i>yáw</i>	'female camel'
[tʃɛw]	[tʃa:'wɛn]	<i>cáw</i>	'call'
[dʒɛw]	[dʒa:'wɛn]	<i>jáw</i>	'help'

Compare, with underlying /e/: *héw* 'wind': singular [hɛw], plural [hɛ:'wan].

A syllable that is closed by /y/ also neutralizes the phonetic realization of /a/, i.e. /Cay/ → [Cɛy]. The following examples show that this rule pertains both to words with a Songhay and to words with a Tamasheq background.

(21) *Realization of /a/ preceding /y/ (Songhay cognates)*

singular	plural		gloss
['zɛj]	[za:'jɛn]	<i>záy</i>	'theft'
['jɛj]	[ja:'jɛn]	<i>yáy</i>	'freshness'

Etymologically Tamasheq nouns also follow the rule that /a/ is pronounced [ɛ] when followed by /y/. The following examples show the nominalization pattern /aCaCaC/ for two verbs with three consonants in the root. 'to fill' has a final /y/ in the root that provokes the different pronunciation of /a/.

(22) *Realization of /a/ preceding /y/ (Tamasheq cognates)*

noun	phonetic	verb	gloss
<i>aḍánay</i>	[a'ḍanɛj]	< <i>ḍénɛy</i>	action of filling
<i>adálag</i>	[e'deɫɛg]	< <i>déɫəg</i>	decoration

2.3.4 Vowel Distribution

There are some restrictions on the occurrence of vowels according to the syllable type they are found in, and their position in the word.

In the first place, long vowels only occur in non-final open syllables. In closed syllables and in word-final position, only short vowels are allowed.

In the second place, schwa cannot occur word-finally.

As shown in the following chart, there are hardly any restrictions on combinations of vowel qualities in one word. One remarks gaps as concerns the combination of two mid vowels (/e/, /o/). As the mid vowels are relatively rare, this may be accidental. The combination /u/ - /o/ is only found in two borrowings from French, *fúrno* 'brazier' (< 'fourneau') and *bússol* 'compass' (< 'boussole'). The combination /o/ - /o/ is only attested in borrowings from sedentary Mainstream Songhay: *róogo* 'yams', a food not traditionally planted by the nomads, *sóoro* 'storey' (unknown for tents), also *góoro* 'cola nut' is not part of the nomadic culture.

(23) Possible combinations of V_1 and V_2 in words

$V_2 \backslash V_1$	<i>i</i>	<i>e</i>	<i>a</i>	<i>ə</i>	<i>o</i>	<i>u</i>
<i>i</i>	<i>ciidí</i> salt	<i>hillén</i> horns	<i>didá</i> walk	<i>íiləs</i> tongue	<i>ibóoraɣa</i> <i>n</i> fruits, sp.	<i>ʃíʃu</i> make drink
<i>e</i>	<i>feejí</i> sheep		<i>ténada</i> fever	<i>ayéeyər</i> dried meat		<i>éesu</i> bull
<i>a</i>	<i>baarí</i> horse	<i>danjé</i> silence	<i>qaará</i> <i>n</i> study	<i>ahégəg</i> pilgrimage	<i>agóogis</i> braid (kind of)	<i>abútu</i> navel
<i>ə</i>	<i>mətti</i> change	<i>bəllen</i> wrestle	<i>kərtəb</i> <i>a</i> trousers	<i>dəbət</i> be able	<i>səfoɣfoɣ</i> to click	<i>agərəfu</i> kneeling
<i>o</i>	<i>boofi</i> ashes	<i>borén</i> people	<i>goorá</i> sit	<i>zərbəba</i> fruit, sp.	<i>góoro</i> cola nut	<i>óoruf</i> acacia, sp.
<i>u</i>	<i>wulíiwu</i> <i>li</i> carry sth. by two	<i>áagud</i> <i>er</i> eagle, sp.	<i>túurag</i> <i>at</i> permissi on	<i>wulétwulət</i> bend in the wind	<i>fúrno</i> brazier/grill	<i>gussú</i> hole

2.4 Sound rules

2.4.1 Consonants

2.4.1.1 Assimilation of place of articulation of /n/

/n/ regularly assimilates with the point of articulation of the immediately following C. This rule applies inside a lexeme as well as between words in a phrase or clause. Consider the following examples with assimilated forms in the verb stem and forms without assimilation in the corresponding verbal nouns.

(24) Assimilation of /n/ within lexeme

phonetic	verb stem	verbal noun	gloss
[ʃimbaɣ]	<i>yínbaɣ</i>	<i>anábaɣ</i>	hit on the cheek

['jɪmfay]	<i>yínfay</i>	<i>anáfay</i>	provide
['jɪntəz]	<i>yíntəz</i>	<i>anátaɹ</i>	pull strongly
[jɪŋ'kaɖ]	<i>yinkáɖ</i>	<i>anákaɖ</i>	circumcise

This assimilation rule is also in force at word boundaries. The GEN(itive) postposition *n* is a good illustration

(25) *Assimilation of genitive n over word boundaries*

possessive pronoun + noun	gloss
<i>ayə-m báarar</i>	my child
<i>ayá-m farká</i>	my donkey
<i>ayə-n táŋgud</i>	my girl
<i>ayá-n caráy</i>	my friend
<i>ayá-n karfú</i>	my rope
<i>ayá-n way</i>	my wife
<i>ayá-n qaarán</i>	my studies

2.4.1.2 *Nasalization in the vicinity of /n/*

When followed by a sibilant, /n/ is mostly realized as nasalization of the preceding vowel, e.g.

(26) *Nasalization when /n/ precedes a sibilant*

phonetic		gloss
['yĩːʃi]	<i>yínʃi</i>	to beg
[a'ʁɑfĩːʃa]	<i>ayáŋfɪŋʃa</i>	bone (kind of)
['gɔːʃi]	<i>gónʃi</i>	snake
['maĩːzarnat]	<i>mánzarnat</i>	bright green leather
[a'tæĩːʒi]	<i>atánʒi</i>	snack

2.4.1.3 *Devoicing of voiced fricatives*

Due to regressive assimilation, voiced fricatives are devoiced when followed by a voiceless consonant, cf. the following examples with /ɣ/.

(27) *Devoicing of /ɣ/ lexeme internal*

phonetic		verbal noun	gloss
['jɪxsər]	<i>yíysər</i>	<i>ayásar</i>	to jump down on / jumping down on
['jɪxʃɪd]	<i>yíyʃɪd</i>	<i>ayáʃad</i>	be ruined / accident

[ˈjɪxfəl] *yíyfel* *ayáfal* be locked / locking

Similarly, the element *ay-* (first person singular subject ciltic) is pronounced [ax] when preceding a Mood-Aspect-Negation morpheme starting with a voiceless consonant.

(28) *Devoicing of /y/ at morpheme break*

phonetic		morpheme	gloss
[axsə'wi]	<i>ay=sə-wí</i>	1s=NEG.IMPERF-kill	I won't kill
[axtə'wi]	<i>ay=tə-wí</i>	1s=FUT-kill	I will kill

Cf. the perfective negation *nə-*, before which *y* is retained.

[aynə'wi] *ay=nə-wí* 1s=NEG.PERF-kill I did not kill

A special case is provided by the imperfective morpheme IMPERF *b-*, which becomes a voiceless fricative /f/ when followed by a voiceless consonant. Find the examples under (3.1.4.2).

2.4.1.4 *Sibilant harmony*

We have not found mono-morphemic words that contain two different sibilants (*/s/*, */z/*, */ʃ/*, */ʒ/*, */ʂ/*, */ʐ/*). Place of articulation and voicing of these sounds are the same within the word.

(29) *Examples of sibilant harmony*

	gloss
<i>azágaz</i>	wild cat (<i>Felix silvestris</i>)
<i>ázanzo</i>	milk (kind of)
<i>áazəz</i>	vulture, sp.
<i>ažámmazra</i>	bee-eater, sp.
<i>afásas</i>	stick of <i>Calotropis procera</i>
<i>alxasáyis</i>	amulet (kind of)
<i>faşús</i>	to be light (not heavy)
<i>aşáanəş</i>	rope (kind of)
<i>áffaʃ</i>	turban (kind of)
<i>kérʃʃin</i>	to be coarse
<i>ažáazib</i>	phantom
<i>zízil</i>	to draw (water from well)

Sibilant harmony also applies to loanwords from French originally containing different sibilants. In such loans, harmony of the sibilants is regressive and the last sibilant in the word enforces the preceding sibilants, e.g. *ʃakóf* 'army bag' (< *sacoché*), *sosét* 'socks' (< *chaussettes*).

Sibilant harmony in causative derivations will be treated under (3.1.3.2.).

2.4.1.5 *Irregular loss and assimilation of /-k/*

Two frequently used verbs show irregular loss or assimilation of /k/. The first example is *yéekat* (< *yed* + *-kat*) 'to return here'. The second example is *yíkkəl* (< *yídkəl*) 'to lift up'. The original consonants are found in the verbal noun *adákal* 'elevation'.

2.4.1.6 *Optional consonant metathesis*

In a few words optional consonant metathesis has been observed. When asked about it, speakers would invariably claim that both words mean the same and either could be used.

(30) *Examples of metathesis*

<i>méyrəs</i> ~ <i>méryəs</i>	keep the character of
<i>táyrast</i> ~ <i>táryast</i>	kind of white stone found in the region of Kidal
<i>záyraf</i> ~ <i>záryaf</i>	to have big spots (for sheep, goat, camel)
<i>iráɣdan</i> ~ <i>iráydan</i>	old weak goats (sg <i>aráday</i>)
<i>táyhast</i> ~ <i>táhyast</i>	kind of camel saddle

Other words with the similar consonant combinations like *zayrí* 'day', *áyraw* 'kind of yoke', *áyram* 'town, village' *áyri* 'aborted animal' do not have variants with metathesis.

Another case of optional metathesis is found with the verb 'to respond' *wázab* which is also heard as *záwab*.

2.4.1.7 *Long consonants at morpheme boundaries*

In a number of contexts, morpho-phonological consonant lengthening takes place in intervocalic position at morpheme boundaries. It is not entirely clear what role is played by stress and both lexical stress and noun phrase intonation sometimes seem to have influence on consonant lengthening. The morphemes concerned are the genitive

n, the Mood-Aspect-Negation markers *m*- and *b*- and the particle *ag* ‘son of’. Moreover, lengthening takes place with the initial consonant of a verb in the unmarked perfective aspect.

2.4.1.7.1 *n* ‘genitive’ and *ag* ‘son of’

When the genitive marker *n* occurs in intervocalic position, this consonant is lengthened.

(31) *Intervocalic genitive n*

<i>borá nn áa-yíl</i>	‘at the right hand side of a
person GEN SG-right.side	person’
<i>húgu nn ámmas</i>	inside a tent
tent GEN interior	
<i>ayó nn a-ffóo-da</i>	that (only) one
DET GEN SG-one-DIC	

This also applies to the possessive pronouns *ní=n* ‘your’ and *í=n* ‘their’ when followed by a vowel-initial noun.

(32) *Possessive pronoun*

<i>ní=nn a-náarag</i>	your spouse
2s=GEN SG-neighbour	
<i>í=nn i-náarag-an</i>	their spouses
3p=GEN PL-neighbour-PL	

The shape of the two first person possessive pronouns prompts for other changes (2.4.2.4). *ay=n* ‘his/her/its’ and di-syllabic *andə=n* ‘your(pl)’ do not undergo lengthening.

The particle *ag* ‘son of’ used in personal names behaves the same way, i.e., /g/ is lengthened before vowel initial names, e.g., *agg Abdulay* ‘Son of Abdulay’.

2.4.1.7.2 Mood-Aspect-Negation markers and unmarked perfectives

When preceded by a vowel, the Mood-Aspect-Negation markers *b* ‘imperfective’ and *m* ‘subjunctive’ are lengthened. This is found, among others, when they are – as is normally the case – preceded by a pronoun clitic.

(33) Imperfective b- lengthened

[aɣa'b:əgməm]	<i>aɣa=bb-əgməm</i>	'I chew (tobacco)'
[ni'b:əgməm]	<i>ni=bb-əgməm</i>	'you chew (tobacco)'
[a'b:əgməm]	<i>a=bb-əgməm</i>	's/he chews (tobacco)'

(34) Subjunctive m- lengthened

[aɣa'm:əgməm]	<i>aɣa=mm- əgməm</i>	'that I chew (tobacco)'
[ni'm:əgməm]	<i>ni=mm-əgməm</i>	'that you chew (tobacco)'
[a'm:əgməm]	<i>a=mm-əgməm</i>	'that s/he chews (tobacco)'

More discussion on these morphemes is found under 3.1.4.2.

In positive perfective forms, where there is no overt Mood-Aspect-Negation marker, the initial consonant of the verb stem is lengthened under the same circumstances.

(35) Initial consonant of verb lengthened

[aɣa'd:əbətə]	<i>aɣa=ddəbət=a</i>	'I can do it'
[ni'd:əbətə]	<i>ni=ddəbət=a</i>	'you can do it'
[a'd:əbətə]	<i>a=ddəbət=a</i>	's/he can do it'
[aɣa'j:ɪbətə]	<i>aɣa=yyíbət=a</i>	'I snatched it'
[ni'j:ɪbətə]	<i>ni=yyíbət=a</i>	'you snatched it'
[a'j:ɪbətə]	<i>a=yyíbət=a</i>	's/he snatched it'

With monosyllabic stems that carry the stress on the only syllable of the verb, this lengthening appears very strongly. With very long verbal stems, and disyllabic stems with the stress on the second syllable, it appears to be less strong.

Verb stems preceded by vowel final elements, e.g. the focus marker *nə*-, the determiner *aɣo* and the question word *ci* ('what/who'), show the same effects as observed with the subject pronoun clitics.

(36) Other contexts that provoke consonant lengthening

<i>áŋga</i>	<i>nə-yyíddər=a</i>	It's him who held it.
3s.EMP	FOC=hold=3s	
<i>áŋga</i>	<i>nə=bb-əddər=a</i>	It's him/her who holds it.

3s.EMP FOC-IMPERF-hold=3s

ayo yyáhag-an

the one that lasted

DET last-ADJR

surgóy ayo bb-éddər

the woman he is married to

woman DET IMPERF-hold

cí wwí=a

Who killed him/her/it?

what/who kill=3s

cí bb-éddər=a

Who is married to her?

what/who IMPERF-hold=3s

2.4.1.8 Word-final V-shortening

In word-final position the contrast of vowel length is neutralized. The following examples illustrate this point. Adding the plural morpheme permits the realization of what could be considered an underlying long V:

(37) Word final V-shortening

V	singular	plural	gloss
I	<i>bitígi</i>	<i>bitigíitan</i>	shop (< Fr 'boutique')
	<i>háají</i>	<i>háajíitan</i>	bone (kind of)
E	<i>fəɽdəɽdé</i>	<i>fəɽdəɽdéetan</i>	bat
	<i>íizace</i>	<i>izácenan</i>	youth
A	<i>tégna</i>	<i>təgnáatin</i>	reproach
	<i>kərtéba</i>	<i>kərtébatan</i>	trousers
U	<i>heebú</i>	<i>heebúutan</i>	marketplace
	<i>bukturnú</i>	<i>bukturnútan</i>	toad
O	<i>kádago</i>	<i>kadagóotan</i>	tree, sp.
	<i>aróoko</i>	<i>aróokotan</i>	saddle (kind of)

Note that in all the examples above the stress lies on the long V, even when the singular had the stress on another V. This may have some influence on the length also.

2.4.1.9 *V-shortening in closed syllables*

Vowel length is neutralized in closed syllables. The underlying length of the vowel shows up when the plural morpheme is suffixed and the formerly final closed syllable is opened.

(38) *V-shortening in closed syllables*

singular	plural	gloss
<i>tafágít</i>	<i>təfágiitan</i>	metal point of sheath
<i>ajím</i>	<i>ijíiman</i>	a thousand
<i>aláteḍ</i>	<i>iláteedaṇ</i>	rib / side
<i>aháacet</i>	<i>iháceetan</i>	tent awning
<i>tadágat</i>	<i>tədəgaatin</i>	place of pasture
<i>abákaḍ</i>	<i>ibákaadan</i>	sin

Some rare occurrences of long vowels in closed syllables can be explained as due to consonant elisions. Often the lost consonant reappears in a morphologically changed form.

(39) *Long vowels in closed syllables*

lexeme	gloss	plural	Tamasheq cognate
<i>abóoy</i>	water skin	<i>ibíyay</i>	(< W: abäyoŋ/ibəyay)
<i>aníl</i>	ostrich	<i>iníyal</i>	(< W: anil/inəyal)
<i>akáat</i>	mistletoe, sp.	<i>akáwat</i>	(< W: akăwăt) variant of the same

2.4.1.10 *Vowel contractions*

There are several cases of vowel contractions over word or morpheme boundaries. We will illustrate this in the following section in situations with a) verb and pronoun enclitic; b) suffixes on verbs; c) plural morphemes on nouns; d) noun and demonstrative; e) V-initial nouns preceded by V-final words.

The overall rule of vowel contractions is as follows:

(40) *Vowel contraction rule*

$$V_1\# + V_2 \rightarrow V_2$$

The outcome of the contraction is a short vowel when V_2 is short and a long vowel when V_2 is long. We will treat the different occurrences in detail and then make some amendments to this first general rule.

2.4.1.10.1 Verb and pronoun enclitic

The most regular and frequent elision happens at the end of V-final verbs when personal pronouns follow the verb. In this case, the final V of the first word is dropped.

- (41) a) *a-ddumb(ú)=a.* [ad:um'ba]
 3s=cut=3s
 he killed it.
- b) *a-ddumb(ú) áari hé.* [ad:um'bæ:ri'he]
 3s=cut 1p thing
 he killed something for us.
- c) *a-ddumb(ú) íi-se feejí* [ad:um'bi:s(ə)fɛ:'dʒi]
 3s=cut 3p=DAT sheep
 he killed a sheep for them.

In the transcription in this work we will write the dropped final V in brackets.

Verbs that drop the last vowel all have a Songhay background.

(42) *Verbs dropping final /u/*

Tadak	gloss	Songhay (KCH)
<i>dudú</i>	to pour	door
<i>hunú</i>	to leave from	hun
<i>tunú</i>	to get up	tun
<i>hurru</i>	to look for	wir
<i>dumbú</i>	to cut	dumbu
<i>gunú</i>	to guide (animal)	gurje
<i>húuru</i>	to enter	huru/a (KS)
<i>zumbú</i>	to get down	zumbu (KS)
<i>zurú</i>	to run	zuru (KS)

/u/-final Verbs of Tamasheq origin seem to have an underlying /w/ that is normally realized as /u/. These verbs do not drop the last vowel when followed by a pronoun, but change it into a glide before the pronoun.

- (43) *a=b-fúgu* *áa=ka* [ab'fugu^wa:ka]
 3s=IMPERF-look.down 3s=LOC
 s/he looks down on it.

The following verbs behave the same way:

- (44) *Tamasheq cognates surfacing /w/*

Tadaksahak	gloss	Tamasheq (W)
<i>fífu</i>	to make drink	ǰǰwu
<i>fídu</i>	to assemble	ǰíðew
<i>fúgu (he) ka</i>	to look down on (sth.)	ǰugu (WW)
<i>súku</i>	to light (fire)	suku (WW)

Parallel to the back vowel /u/, the front vowel /i/ behaves differently according to etymology. Songhay cognates drop the final /i/ while Tamasheq cognates surface a semi-vowel /y/ when a pronoun follows.

- (45) *Verbs dropping final /i/*

Tadak	gloss	Songhay (KCH)
<i>keedí</i>	to mount (animal)	kaar
<i>yéeri</i>	to vomit	yeer
<i>diní</i>	to take	din
<i>jeejí</i>	to hang	deejí

- (46) *Tamasheq cognates surfacing /y/*

Tadak	gloss	Tamasheq (W)
<i>yířzi</i>	to stick sth. into	əřzəy
<i>yíyli</i>	to go / turn around	əyləy
<i>yínṣi</i>	to beg	aṇsəy
<i>yílbi</i>	to take out of	əlbəy

Final /e/ and /o/ on verbs are so rare that not many observations can be reported for these vowels. See below for *mó* 'hear' (other items: *babó* 'be numerous', *sotóro* 'drop regularly').

Verb-final /a/ is dropped both in verbs of Songhay and in verbs of Tamasheq origin. For example, when the plural clitic =i is added to these verbs the final /a/ is dropped. The stress of the final syllable of the verb is carried over to the pronoun enclitic, e.g.

- (47) a=kkun(á)=i s/he found them.
 a=ʒʒil(á)=i he cleaned them (wells) out

(48) *Verbs dropping final /a/*

Tadak	gloss	etymology
<i>guná</i>	to see (s.b.)	KCH: guna
<i>habá</i>	to harvest (wild grass)	KCH: haabu 'gather'
<i>báaya</i>	to want / to love	KCH: baa
<i>hiná</i>	to cook	KCH: hina
<i>kuná</i>	to find	KCH: kumna 'pick up'
<i>ɲá</i>	to eat	KCH: ɲaa
<i>yeezá</i>	to skin (animal)	W: azu 'to skin'
<i>yismá</i>	to clean (intestines)	W: asəṃ 'clean by rubbing'
<i>zaaná</i>	to churn (butter)	D: əss-unda 'churn'
		W: azənu 'calabash to churn butter'
<i>ʒilá</i>	to clean out (well)	D: əšla 'clean out (well)'

One notes, however, one complication, When the second element is the enclitic =a 'he/she/it', forms with and without the enclitic are pronounced differently. The forms without the enclitic have a final unreleased glottal stop, while those with the enclitic don't, cf.

- (49) a=ddá[ad:æʔ] it is done!

a=ddá=a [ad:æ] s/he did it.

In a running text it is not easy always to hear the 3s pronoun. In some of our transcriptions we note the possibly present pronoun in brackets with a question mark (=a?).

2.4.1.10.1.1 *Monosyllabic stems*

Vowel-final monosyllabic verbs present different behavior as to their final vowel when followed by a vowel-initial element. Note that all these verbs have a Songhay background. In a first group, the vowel is deleted according to the general rule. This is found in three verbs, *da* 'to do', *ɲa* 'to eat', *na* 'to give', and *ci* 'to say', e.g.

(50) *Deletion of final -a in na 'to give'*

	verb + 1s	+3s
phonetic	[an:a'ɣaj...]	[a'n:æ:s(e)...]
	<i>a-nn(a) aɣáy</i>	<i>a-nn(a) áa-s(e)</i>
morphemes	3s=give 1s.IO	3s=give 3s=DAT
gloss	s/he gave me...	s/he gave him...

(51) *Deletion of final -i in ci 'to say'*

	verb + 1s	+3s
phonetic	[ac:a'ɣaj]	[a'c:æ:s(e)]
	<i>a-cci aɣáy</i>	<i>a-cci áa-se</i>
morphemes	3s=say 1s.IO	3s=say 3s=DAT
gloss	s/he said to me	s/he said to him

In a second group, all concerning *i*-final verbs, the vowel is maintained and a palatal glide is inserted. This concerns the verbs *wi* 'to kill', *ɜ́i* 'to kick', and *fi* + PRN *ka* 'to be lost to somebody'.

(52) *No deletion of final -i in ɜ́i 'to kick'*

	verb + 1s	+3s
phonetic	[a'ɜ́:i'a'ɣaj]	[aɜ́:i:'a]
	<i>a-ɜ́ɜ́í aɣáy</i>	<i>a-ɜ́ɜ́í-á</i>
morphemes	3s=kick 1s	3s=kick=3s
gloss	s/he kicked me	s/he kicked him

Finally, the verb *mo* 'to hear' keeps its vowel in all contexts except with the 3p pronoun *i*, e.g.

(53) Treatment of final -o in mo 'to hear'

	verb + 1s	+ 2s
phonetic	am:o'ɣaj	a'm:o:na
	a=mmo (a)ɣáy	a=mmó (a)na
morphemes	3s=hear 1s	3s=hear 2s.DAT
gloss	s/he heard me	s/he heard you
	+3s	+3p
phonetic	a'm:o:s(e)	a'm:i:s(e)
	a=mmó (aa)=s(e)	a=mm(ó) ii=s(e)
morphemes	3s=hear 3s=DAT	3s=hear 3p=DAT
gloss	s/he heard him	s/he heard them

It will be shown later (2.4.1.10.5) that /o/ also overrides vowels of other morphemes.

2.4.1.10.2 Noun and demonstratives *asénda*, *áyda*, *adí*, *óda*

Following the general rules of vowel-coalescence, vowel-final nouns that are followed by one of the determiners beginning with a vowel regularly lose their final vowel in favor of the vowel of the determiner.

(54) *lizac(e) asénda zá, ayo dđəřəş ay=n hawrú...*
[i:zaʈʃa'sɛndə...]

youth DEM.FAR LC DET spice 3s=GEN meal...
so that young man who spiced his meal...

(55) *andə=gguná gand(a) áyda... [gan'dɛjdə]*
2p=see land DEM.PROX
you(pl) see this land (here)...(56) *ní=yy-igrá h(e) adí? [ha'di]*
2s=understand thing ANA
do you understand this?(57) *...ízac(e) adí a=şşót-kat... [i:zaʈʃa'di]*
youth ANA 3s=jump-VEN
...this youth jumped...(58) *a=báara guss(ú) óda. [gu's:o:də]*
3s=be hole DEM.NEAR
he is in this hole.

2.4.1.10.3 Vowel-initial words preceded by vowel-final words

Final vowel-elision happens constantly where vowels meet each other at word boundaries.

To illustrate just a short utterance said by a visiting person:

- (59) [iʒwar'tʃidʒa'd:æ? / ha'dizaxtəjid'wa'hidʒɛn]
 iʒwar cíj(i) a-ddá h(e) adí z(a) ay-tə-yidwá hīj-en
 almost night 3s=do thing ANA LC 1s=FUT-return camp-PL
 it is almost night, so I will return home.

Unless there is a short pause as in this example to mark the end of the first statement, final vowels are dropped in many places: noun + conjugated verb; discourse particle + conjugated verb. In this utterance, two lexemes are recognized only by a single consonant that is left in the realization.

There seems to be a hierarchy higher than word level that rules over the rhythm of utterances. We have not studied this topic to a degree that we could give firm indications of rules that govern.

2.4.1.10.4 Exceptions

There are two words in the language that do not follow above rules of elision. One of them is the DET *ayo*. Final /o/ always overrides the following vowel when it is part of the same noun phrase, e.g.

- (60) *zamá aarú ayo (a)yda a-ttén* [ʔæʷa'yojdə]
 after man DET DEM.PROX 3s=arrive
 after this man (here) arrived...

When *ayo* is the last element of a NP, as before relative clauses, the following pronouns keep their initial vowel and the final /o/ sound is also produced. In that case, a glide is inserted between the two words, e.g.

- (61) *áffayal ayo a-mmáy nin ka a-bbén.* [ʔayoʷa'm:ɛj]
 work DET 3s=have 2s LOC 3s=be.finished
 the work he has for you is finished.

The other word with exceptional behavior is *he* 'thing', which keeps its final vowel when it is in subject position or when it occurs in a heavily marked head of a noun phrase. In this case the second vowel is deleted. Consider below examples.

- (62) *hé (a)-ssínnihil áa=se kuná.*
 ['he:'s:ɪn:ɪhɪ'læ:seku'na]
 thing 3s=be.much 3s=DAT find.NV
 he was very ill (*he* is used here as a euphemism for
 sickness)
- (63) *he (a)ɣ(o) óoda zá... [he'yo:də'za...]*
 thing DET DEM.NEAR LC
 so, this...

Yet consider the occurrence in (56) above, where the whole noun phrase is almost pronominal in its character, and where the regular vowel contraction takes place.

2.4.1.10.5 Suffixes on verbs

There are two vowel-initial suffixes which appear on verbs, These are the adjectivizer AJDZR *-an* and the directional allative ALL *-an*. We will treat their influence on the verb-final vowels one by one.

An /i/ preceding the suffixes is not dropped; instead a semivowel [j] appears between the basis and the suffix. One reason for this behavior could be the fact that some of the verb roots have an underlying final consonant *-y#* which is realized as V (see 'Final V-shortening rule'). Etymologically many, but not all, of these can be traced to Tamasheq roots with final /y/. Adding a V-initial morpheme allows this final C to be realized.

(64) *final -i*

Tadak	with suffix	gloss	etymology
<i>jí</i>	<i>jíjjiyán</i>	be lost / lost	SonKS: jii
<i>háaʃi</i>	<i>háaʃiyan</i>	to look there	?
<i>máɬɬi</i>	<i>máɬɬiyán</i>	to change	TamW: măɬɬăy
<i>yíɣli</i>	<i>yíɣliyan</i>	to turn around (there)	TamW: əɣləy

The only exception we have in our data is the verb *keení* 'to sleep' (KCH: /kani/). In its meaning 'to sleep away from home' it is realized *keenán* (< keení+-an).

Verbs of Songhay origin with final /u/ normally drop their final vowel before the vowel of the suffix. Verbs of Tamsheq origin often have an

underlying final /-w/ that reappears when the V-initial morpheme is added.

(65) *final -u*

Tadak	with suffix	gloss	etymology
<i>hunú</i>	<i>hunán</i>	leave from there	KCH: hun
<i>húuru</i>	<i>húuran</i>	enter there	KS: huru/a
<i>kukú</i>	<i>kukán</i>	long (adjective)	KCH: kuu
<i>múnsu</i>	<i>munsuwan</i>	be nourished	W: mǎnsǎw
<i>yóru</i>	<i>yoɾuwan</i>	be used (clothes)	W: əɾəw
<i>yísku</i>	<i>yískuwan</i>	be dried up	W: əsɬəw
<i>yúhu</i>	<i>yuhuwan</i>	be born	W: ihu

In the case of *a*-final verbs, the two vowels are coalesced:

(66) *final -a*

Tadak	with suffix	gloss	Songhay KCH
<i>ceená</i>	<i>ceenán</i>	be small / small	ciina
<i>díngá</i>	<i>díngán</i>	forgetfulness / to forget	dinaa

The rare verbs that end in /o/ have different behavior (see also 2.4.1.10.1.1).

(67) *final -o*

Tadak	with suffix	gloss	Songhay KCH
<i>babó</i>	<i>babón</i>	'be numerous/many'	bobo 'much'
<i>kó(y)</i>	<i>kón ~ koyán</i>	'to leave there'	koy
<i>mó</i>	<i>monán</i>	'to hear there'	mom

2.4.1.10.6 Plural morphemes on nouns

The plural morpheme *-en*, which is used with nouns of Songhay origin, causes regular deletion of a stem-final vowel, e.g.

(68) *plural morpheme -en*

noun + PL	realization	gloss
-----------	-------------	-------

noun + PL	realization	gloss
<i>borá + en</i>	<i>borén</i>	'person / people'
<i>huuwá + en</i>	<i>huuwén</i>	'milk / kinds of milk'
<i>tugúdu + en</i>	<i>tugúden</i>	'tree sg/pl'
<i>bundú + en</i>	<i>bundén</i>	'stick sg/pl'
<i>hamborí + en</i>	<i>hamborén</i>	'mortar sg/pl'
<i>biidí + en</i>	<i>biidén</i>	'bone general sg/pl'

This process of adding the plural morpheme brings about additional changes to the last consonant of the stem. In many, but not all, nouns with a velar /k/ or /g/, the velar is changed to a palatal before the suffix *-en* (cf. also 2.2.3.2) e.g.

(69) *alternation k/g with c/j*

noun + PL	realization	gloss
<i>hiṅká + en</i>	<i>hiṅkén</i>	'two, sg/pl'
<i>gungú + en</i>	<i>gungén</i>	'belly sg/pl'
<i>tungú + en</i>	<i>tungén</i>	'turban (kind of) sg/pl'
<i>farká + en</i>	<i>farcén</i>	'donkey sg/pl'
<i>baṅgú + en</i>	<i>baṅjén</i>	'well sg/pl'
<i>aṅgú + en</i>	<i>aṅjén</i>	'place (general) sg/pl'
<i>haṅgá + en</i>	<i>haṅjén</i>	'ear sg/pl'

2.4.1.11 /ay/ < /a/

In the first element of a compound (mainly numerals), word-final /a/ is changed to /ay/. As shown below, this does only concern /a/-final elements, in C-final 'fifty' an epenthetic schwa is inserted.

(70) <i>iffá + tamerwin</i> seven + ten.PL	>	<i>ifféy-tamerwin</i> 'seventy'
<i>taasá + tamerwin</i> nine + ten.PL	>	<i>tašéy-tamerwin</i> 'ninety'
<i>fammúf + tamerwin</i> five + ten.PL	>	<i>fammúf-ə-tamerwin</i> 'fifty'

When the enclitic *a-* 'he/she' joins the genitive *n*, /a/ becomes [ɛy].

- (71) $a + n$ > $ay=n$ 'his, her'
3s + GEN

2.4.2 Resyllabification

There are several environments in the language that lead to resyllabification. The most frequent is adding the plural morpheme, then there are conjugations and also some possessive contexts demand it. The following illustrates the different environments.

2.4.2.1 Plurals

Adding morphemes to a stem (e.g. plural) may lead to restructuring of the word.

(72) Plurals

singular	plural	gloss
<i>aarú + en</i>	<i>arwén</i>	man/men
<i>éelaw + an</i>	<i>élwan</i>	elephant/s
<i>íiləs + an</i>	<i>ílsan</i>	tong/s
<i>báarar + en</i>	<i>bárren</i>	child/children

2.4.2.2 2s combinations

A restructuring of syllables also happens in contexts where morphemes are joined together. Resyllabification takes place when *ní=* '2s' combines with MAN markers of the shape CV- with a voiceless initial consonant. '2s' is then realized *ən=*.

- (73) $ən=sə-báy=a$
2s=NEG.IMPERF-know=3s
don't you know it?

When the imperative particle *wa ~ ba* precedes this construction, the schwa is deleted.

- (74) $wá-(ə)n=sə-d(a)$ *ayáy* [*wansəda'ɣaj...*]
IMP-2S=NEG.IMPERF-do 1s.IO
don't do to me...

Apparently, a sequence of four CV syllables is not allowed in a word. The presence of the consonant /n/ is enough to identify the 2s pronoun.

The complementizer *sa* behaves in the same way when it precedes

words beginning with a voiceless initial consonant such as *kəlá* 'once' in the following example.

- (75) *tanéfust əs kəla aɣ=nə-mó (aa)=se*
 story COMP once 1s=NEG.PERF-hear 3s=DAT
 a story that I have never heard of.

2.4.2.3 Compound numbers

Resyllabification also takes place in compound numerals, which may be due to the same constraint as above. Cf. the following example, in which four open syllables would follow each other. A short vowel is inserted between the two number units to allow proper pronunciation in slow speed.

- (76) *Resyllabification 'thirty'*
- | | |
|------------------------|----------------------------|
| phonetic | [ˈkɑɾɔtəˈmɛɾwɪŋ] |
| underlying/slow speech | <i>kaaɾáɔ-[ə]-təméɾwɪŋ</i> |
| morphemes | three-ten.PL |
| gloss | thirty |

The speakers do not seem to be conscious of this process. When they repeat slowly, they have no resyllabification. But as soon as the same person uses the word in a running conversation the resyllabified form is used.

2.4.2.4 Possessive pronouns

The 1s and 1p possessive pronouns *aɣa=n* (1s=GEN) 'my' and *arə=n* (1p=GEN) 'our' are resyllabified when they precede a noun with an initial vowel. The second vowel in the pronoun is dropped and the genitive *n* forms a syllable with the following vowel of the lexeme.

- (77) *Resyllabification in possessive pronouns*
- | pronunciation | morphemes | gloss |
|----------------------|------------------------|----------------------------|
| <i>[aɣnaˈna:rag]</i> | <i>aɣ(a)=n anáarag</i> | my neighbor /
my spouse |
| <i>[aɣniˈðu:lin]</i> | <i>aɣ(a)=n idúulin</i> | my in-laws |
| <i>[arnalˈmæn]</i> | <i>ar(ə)=n almán</i> | our herd |
| <i>[arˈniɣidan]</i> | <i>ar(ə)=n íyidan</i> | our kids (goat) |

The other possessive pronouns have a monosyllabic shape (*ni=n* 2s, *ay=n* 3s, *i=n* 3p) and do therefore not behave this way. *andə=n* (2p=GEN) 'your pl' has already a closed syllable and cannot be shortened by dropping the last V.

2.5 Stress

Tadaksahak shows clear evidence of lexical stress (cf. also Nicolai 1980). A stressed syllable is realized with a higher pitch and more powerful air stream than an unstressed syllable. Words with four and more syllables may also carry a secondary stress on another syllable.

Stress is lexical and unpredictable. Every lexical item has at least one syllable that carries the stress. Pronoun enclitics and grammatical morphemes may or may not have inherent stress.

Long vowels do not obligatorily carry the stress. However, when a long vowel is present, the stressed syllable can only be one syllable removed from it.

The speakers are aware of word stress and use this feature to create riddles by putting the stress on the wrong syllable to cause the hearer to misunderstand the utterance.

Over an utterance different rules are applicable than over the single word, i.e., the lexical stress may shift to some other syllable.

There are some stress patterns that are frequent and new imported vocabulary often follows such established patterns. Some morphemes provoke stress pattern changes when they join roots, e.g. causative *S(V)*- and derivator *t(a)*-...-*t*. We will discuss these stress changes in the morphology part of this work.

2.5.1 Stress in disyllabic words

In disyllabic words all stress patterns are possible. There is no influence of syllable shape on the possible stress patterns, e.g.

(78) Stress in (C)VC.CV words

<i>farká</i>	donkey	<i>gánda</i>	ground, earth
<i>kullú</i>	all	<i>gónfí</i>	snake
<i>dumbú</i>	to cut	<i>múgru</i>	to get built
<i>yidwá</i>	to return in afternoon	<i>yífri</i>	to feel

	<i>igdá ~ iddá</i>	because	<i>ágli</i>	ruminated grass
			<i>áwsa</i>	gall
(79)	<i>Stress in (C)V.V.CV words</i>			
	<i>feejí</i>	sheep	<i>íini</i>	color
	<i>baarí</i>	horse	<i>óoda</i>	this
	<i>maará</i>	ten		
(80)	<i>Stress in (C)V.CV words</i>			
	<i>adí</i>	ANA (1 item)	<i>ána</i>	for you
			<i>ígi</i>	deed (2 items)
(81)	<i>Stress in (C)VC.CVC words</i>			
	<i>farkák</i>	to be fine/thin	<i>tábsit</i>	acacia flowers
	<i>katkót</i>	to simmer	<i>zálgat</i>	left hand side
	<i>harkúk</i>	always	<i>rúmsut</i>	to desire meat
	<i>kandín</i>	in the past	<i>wánjin</i>	to refuse
	<i>argán</i>	camel	<i>áhwar</i>	decoration (kind of)
	<i>alxér</i>	peace	<i>ádbug</i>	aardvark
(82)	<i>Stress in (C)V.V.CVC words</i>			
	<i>kaaṛád</i>	three	<i>áanut</i>	stick to make fire
	<i>qaarán</i>	to study	<i>áadal</i>	wild cat, sp.
(83)	<i>Stress in (C)V.CVC words</i>			
	<i>ahún</i>	hold it!	<i>áhuḍ</i>	wind (kind of)
	<i>agúd</i>	moment	<i>báləq</i>	to be dusty
	<i>cijín</i>	last night	<i>bídaw</i>	canister
	<i>bəkáw</i>	jinn	<i>gédəm</i>	be upside down

2.5.2 Words with three syllables

In words with three syllables stress may be on any of the three syllables, e.g.

(84)	<i>Initial stress</i>		
	<i>hánaka</i>	unidentified item	
	<i>túhuya</i>	camel's hump	

<i>hédəði</i>	to be swollen
<i>ágala</i>	south
<i>áanibo</i>	child born out of wedlock
<i>éesawa</i>	attention, readiness
<i>áyaata</i>	monitor lizard
<i>áyaatir</i>	dried clay ground
<i>áadanan</i>	guts
<i>ágarŋo</i>	croup
<i>táfadla</i>	wart
<i>tánaflit</i>	wellness
<i>álanŋkam</i>	place behind (on animal)
<i>kérwəli</i>	to cling to
<i>bérzəkum</i>	to be wrapped up

Words with three syllables and a long initial vowel are rare. They always carry stress on the first syllable.

(85) *medial stress*

<i>tugúdu</i>	tree, wood
<i>bakáti</i>	packet (< English)
<i>yafáta</i>	to be in a clinch
<i>abútu</i>	navel
<i>adácel</i>	palm of hand
<i>yazúurag</i>	to be left free (animal)
<i>azámar</i>	lamb
<i>aláaku</i>	dirty water
<i>tayíiwa</i>	ashes (kind of)
<i>tabárda</i>	blanket (kind of)
<i>asílgí</i>	tobacco pouch (kind of)
<i>tabírjít</i>	ring (kind of)
<i>tadáamil</i>	interest
<i>abárkot</i>	stomach (kind of)

(86) *final stress*

<i>mududú</i>	porridge (kind of)
<i>aragó</i>	radio (< French)

<i>adagíg</i>	crystallic powder
<i>ajeráw</i>	river / the River (Niger)
<i>hamborí</i>	mortar
<i>bukturú</i>	toad
<i>jinjirí</i>	to pray
<i>taŋgarí</i>	to lie
<i>kalkatáw</i>	corn

This stress pattern is the least frequent observed among the trisyllabic words.

2.5.3 Words with four and more syllables

The last syllable of a word with four syllables never carries the stress, the first only very rarely, e.g.

(87) words with four syllables

<i>mákkabani</i>	tree sp.
<i>abúgara</i>	gazelle sp.
<i>akásamba</i>	pit (kind of)
<i>akáskaabu</i>	ring (kind of)
<i>tawaláqan</i>	bone (kind of)
<i>amungúlu</i>	powder (kind of)
<i>aɣarzábbi</i>	acacia sp.
<i>taŋgalóoti</i>	barrel
<i>aməsyérrət</i>	part of intestines
<i>ɣərəŋɣərət</i>	to hit off its stem (cram-cram)

The following list shows words with four syllables derived from verb stems or words with the feminine/diminutive marker (*t*...-*t*), e.g.

(88) words with four syllables (multi-morphemic)

<i>amənóokal</i>	king	(< <i>ménəkəl</i> to be king)
<i>amadáɣal</i>	blind person	(< <i>dáɣal</i> to be blind)
<i>tawénənəst</i>	dizziness	
<i>tatéwəqət</i>	spot (of dirt)	
<i>tatuŋúrut</i>	part of bed	
<i>tasəkérkərt</i>	awl (kind of)	(< <i>kérkər</i> to part (hair))

<i>tazanábat</i>	ewe having given birth twice in one year
<i>tatanáqayt</i>	point in scripture
~ <i>tatanáqit</i>	

(89) words with five syllables

<i>akayáŋkaya</i>	basket (kind of)
<i>anafárafá</i>	crazy person (< <i>firif-it</i> to be crazy)
<i>tamazazáydart</i>	patient woman (< <i>zézaydər</i> to be patient)
<i>amandáraso</i> ~	plant sp.
<i>amandárasal</i>	
<i>almukárkada</i>	tea (kind of) (<Arabic)
<i>akawkáwajka</i>	woodpecker sp.
<i>aragáyrabay</i>	stick of tent (kind of)
<i>abalibáli</i>	sheep breed

Words with five syllables only carry stress on the penultimate or the ante-penultimate syllable.