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1. Introduction

Abu Jinuk is a Kordofan Nubian language mainly spoken in the northwestern Nuba Mountains of Sudan. Kordofan Nubian is a branch of the Nubian language family. According to Rilly,[1] Nubian belongs to the northern East Sudanic subgroup which is part of the East Sudanic branch of the Nilo-Saharan phylum.

According to the Sultan of the Abu Jinuk tribe, the population in 2010 was 5,896 of whom 3,556 speakers live in the Nuba Mountains and 2,340 are scattered in different towns of Sudan.[2] According to the informants, the people call themselves and their language [d̪ɛkla] meaning "the great grandfather." The Arabic term "Abu Jinuk," by which they are known in linguistic literature, is the name of their mountain. By the non-Arab neighboring groups, the Abu Jinuk people are called [ɛlɛk], which means "the explorers."

Abu Jinuk is an undescribed language. No linguistic studies have been devoted to the phonology of this language. Therefore, examining the consonant system of Abu Jinuk is thought to be the first linguistic investigation of this language. However, a few phonetic and phonological sketches of closely related Kordofan Nubian languages have been carried out by Ibrahim and Huttenga, Alaki and Norton, and Hellwig and Schneider-Blum. These studies establish the phonological system of Tagle,[3] Kadaru-Kurtala,[4] and Tabaq,[5] respectively. The consonant systems of these genetically closely re-

1 Rilly, *Le méroïtique et sa famille linguistique*.
2 Personal communication, summer 2013.
3 Tagle is a Kordofan Nubian language which is spoken on the Jibaal as Sitta, the six hills, in the northeastern part of the Nuba Mountains. The other five related dialects are Kafir, Kadaru, Kurtala, Kuldaji, and Dabatna. See Ibrahim & Huttenga, "The Phoneme System of Tagle, a Kordofan Nubian Language," p. 99.
4 Alaki & Norton, "Kadaru and Kurtala Phonemes."
5 Hellwig & Schneider-Blum, "Tabaq: In a State of Flux." Tabaq is spoken in the western part of the Nuba Mountains.

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lated languages share several characteristics. These shared features and the specific features in which the consonant systems deviate from each other will be addressed in section 5. However, Tabaq will not be included in the comparison since its consonant system is only cursorily described by Hellwig and Schneider-Blum, as their article is mainly devoted to the vowel system.

The main aim of the present study is to provide a basic description of the consonant system of the Abu Jinuk language, i.e. to identify the consonantal phonemes and their allophones. The identification of phonemes and allophones is tested by establishing minimal pairs, i.e. pairs of lexemes which only differ in one phonological feature. Moreover, investigating the distribution of the consonants in word-initial, word-final, and intervocalic position gives additional evidence of their phonemic status.

The present study is based on more than 300 words collected by myself during the years 2013 and 2014 in Khartoum, Sudan. The data were elicited from two native speakers of Abu Jinuk, Salih Ali, 65 and Himeidan Azrag, 66 years old. The elicited words were recorded and transferred into the computer as audio files and finally transcribed. The present paper is the beginning of a research project which will be continued at the University of Cologne.

The paper will be organized as follows. In section 2 the consonant inventory is addressed. In section 3 the focus is on the consonant system. The consonant sequences are considered in section 4. In section 5 we will compare the similarities and differences between the consonant systems of Abu Jinuk and those of Tagle and Kadaru-Kur-

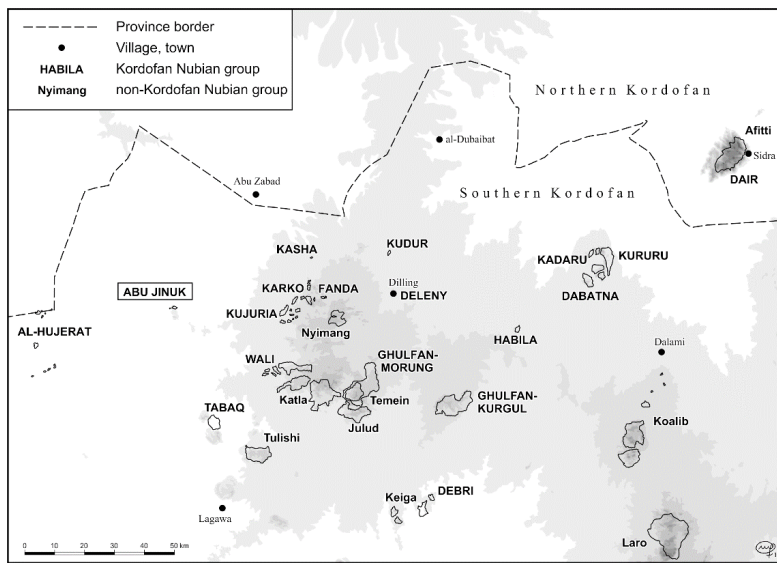

Figure 1. Location of Abu Jinuk (Monika Feinen, Institute of African Studies, University of Cologne, 2012)

tala. The findings of the current study and suggestions for future studies are summarized in section 6.

2. The consonant inventory

Abu Jinuk has 26 consonants. They may be divided into two major classes, obstruents and sonorants. The former class includes stops and fricatives and the latter includes nasals and approximants (consisting of liquids and glides).

Obstruents are classified into three groups: stops, fricatives and affricates. In Abu Jinuk, in the class of obstruents there are only stops and fricatives. The stops are voiceless and voiced. The group of voiceless stops includes the dental [t̪], the retroflex [ʈ], the labialized retroflex [ʈʷ], the velar [k], and the labialized velar [kʷ]. The group of voiced stops comprises the bilabial [b], the dental [d̪], the retroflex [ɖ], the labialized retroflex [ɖʷ], the palatal [ɟ], the velar [g], and the labialized velar [gʷ]. The group of fricatives comprises only three consonants: the labiodental [f], the palatal [ʃ], and the glottal [h].

Sonorants include nasals, approximants, and vowels. The group of nasal consonants in Abu Jinuk comprises the bilabial [m], the alveolar [n], the palatal [ɲ], the velar [ŋ], and the labialized velar [ŋʷ]. Approximants comprise liquids and glides. The former includes the alveolar trill [r], the retroflex [ɽ], the alveolar [l],and the velarized [ɬ]. The latter is represented by the bilabial glide [w] and the palatal glide [j]. All these consonants are listed in table 1 below according to their place and manner of articulation.[6]

		lab.	lab.-dent.	dent.	alv.	retr.	pal.	vel.	glott.
stop	**vl**			t̪		ʈ, ʈʷ		k, kʷ	
	vd	b		d̪		ɖ, ɖʷ	ɟ	g, gʷ	
fric.	**vl**		f				ʃ		h
nasal	**vd**	m			n		ɲ	ŋ, ŋʷ	
liquid	**vd**				r	ɽ			
lateral	**vd**				l, ɬ				
glide	**vd**	w					j		

Table 1. Consonant inventory

Table 1 shows that the consonant inventory is characterized by eight places of articulation: labial, labiodental, dental, alveolar, retroflex, palatal, velar, and glottal. The table illustrates all the consonantal

6 Abbreviations: ADJ– adjective; alv.– alveolar; Ar.– Arabic; dent. – dental; fric. – fricative; glott. – glottal; inter-voc. – intervocalic; lab. – labial; lab.-dent. – labiodental; pal. – palatal; PL – plural; retr. – retroflex; vd. – voiced; vel. – velar; vl. – voiceless; w.-final – word-final; w.-initial – word-initial.

sounds that can be heard in the language. However, not all of these sounds are phonemes in the language. To decide whether these sounds are phonemic, we have to check them in different positions of words. Moreover, the minimal pair criterion will be applied in order to give further evidence of the phonemic status of the consonants in table 1.

3. The consonant system

Having described the consonant inventory, we now turn to the question whether all consonants have phonemic status, i.e. the aim is to identify the phonemes and their allophones. The phonemic distinctions are checked via the distribution of consonants within a word and, perhaps more importantly, through the criterion of minimal pairs. Phonemes, according to Crystal,[7] are the smallest units in the sound system of a language which are established on the grounds that substitution of one for the other can cause a change in meaning. In English, for instance, the two sounds /f/ and /v/ are considered to be phonemes because they contrast in identical environment in words like, *fat* and *vat,* or *fine* and *vine*. The property of contrast is, thus, the crucial principle that is used to establish phonemes in a language.

Allophones, on the other hand, are sets of sounds that do not change the meaning of a word; they are all very similar to another and they occur in phonetic contexts different from one another. For example, the phoneme /l/ in English has two allophones, namely the "clear" [l] (as in *lead*) and the "dark" [ɬ][8] (as in *feel*). Unlike phonemes, however, substituting the clear [l], for example, for the dark [ɬ] does not create a difference in meaning, i.e. [l] and [ɬ] do not contrast. Allophones are thus predictable in their distribution and they must not overlap.

Phonemic distinctions in a language are checked via pairs of words called minimal pairs. Minimal pairs are two words which differ in meaning when only one sound is changed, enabling linguists to determine whether the sounds belong to different phonemes. For example, the contrast between *bat* and *pat* would establish /b/ and /p/ as different phonemes in English. Finding a minimal pair or near minimal pair for two sounds constitutes a proof that the sounds in question must belong to different phonemes.

3.1. Distribution of consonants in a word

Not all consonants may occur in any position of an Abu Jinuk word. Rather there are restrictions on their distribution. The data in table

7 Crystal, *An Encyclopedic Dictionary of Language and Languages*, p. 298.
8 The technical linguistic term for this consonant is "velarized liquid."

2 shows the distribution of the consonants in word-initial, intervocalic and word-final position. A broken dash indicates that the consonant is not attested in that position. The consonants are organized according to the manner and place of articulation.

Table 2. The distribution of consonants within words

	word-initial	gloss	intervocalic	gloss	word-final	gloss
t̪	t̪ɛɛ	girl	ʊt̪ɪ	water	–	
t	tiʃa	five	koto	man	–	
tʷ	tʷaa	frog	–		–	
k	kut̪u	knee	ikʊ	fire	–	
kʷ	kʷaɬɛ	meat	–		–	
b	bɛlɛ	sesame	ʊbɛ	fish PL	ɪd̪ɪnd̪ab	guest
d̪	d̪ʊld̪ʊ	tooth	d̪ɪgɪd̪ʊ	gingiva	–	
d	doo	throat	kodo	anus	–	
dʷ	dʷajdʷaj	type of tree	–		–	
ɮ	ɮaɬadʊ	type of porridge	t̪ɪɮʊ	oil	–	
g	got̪ʊ	big	kogad̪ʊ	foot	–	
gʷ	gʷat̪ɛ	big PL	–		–	
f	faa	summer	gʊfʊ	type of tree (Ar. *ǧimmayz*)	–	
ʃ	ʃalmɛ	beard	baʃɛ	harvest	–	
h	hɔkɛ	knife	–		–	
m	–		kʊmʊ	leg	t̪ɪɪt̪am	pigeon
n	–		ʃʊnɛ	fingernail PL	biin	strong
ɲ	–		kʊɲʊ	face	kʊt̪aɲ	type of tree
ŋ	–		ɪŋɪlɛ	needle	t̪at̪aŋ	type of pot
l	–		kʊlʊ	stick	d̪ɛɛl	leopard
ɬ	–		kaɬad̪d̪a	seven	–	
r	–		arɛ	rain	ir	sea
ɾ	–		kaɾʊ	lizard	–	
w	walgɛ	hunter	ɪwʊ	tail	aw	grandmother
j	–		kʊjɪd̪ʊ	bone	dʷajdʷaj	type of tree

The word dʷajdʷaj in table 2 is a reduplicated form, i.e. the root dʷaj is repeated. Due to this reduplication process, the labialized stop [dʷ] in the second part of the word is not considered to be an intervocalic consonant. Accordingly, we exclude it from the group of consonants that are admitted in intervocalic position.

Despite being part of the consonant inventory, the labialized velar [ŋʷ] is not included in tables 2 and 3 due to the fact that unlike all examples in table 2, [ŋʷ] is only attested in compound nouns as documented, for instance, in kʊlʊŋʷaʃɛ *"asiida* plate."[9] Its occurrence is triggered by the genitive marker /n/ which adopts the place of articulation of the following consonant and causes it to become voiced. For this reason the compound noun kʊlʊ–n–kʷaʃɛ is realized as kʊlʊŋʷaʃɛ.

Table 3 summarizes the distribution of consonants in word-initial, intervocalic, and word-final position. The plus indicates the presence of a consonant in a certain position, and the minus indicates the absence of a consonant in that position.

Table 3. Distribution of consonants

	word-initial	intervocalic	word-final
t̪	+	+	–
ʈ	+	+	–
tʷ	+	–	–
k	+	+	–
kʷ	+	–	–
b	+	+	+
d̪	+	+	–
ɖ	+	+	–
ɖʷ	+	–	–
ɟ	+	+	–
g	+	+	–
gʷ	+	–	–
f	+	+	–
ʃ	+	+	–
h	+	–	–
m	–	+	+
n	–	+	+
ɲ	–	+	+
ŋ	–	+	+
l	–	+	+
ɬ	–	+	–
r	–	+	+
ɾ	–	+	–
w	+	+	+
j	–	+	+

Tables 2 and 3 show that except for the labialized stops [tʷ, kʷ, ɖʷ, gʷ] and the fricative [h], all the consonants are admitted in intervocalic position. The nasals [m, n, ɲ, ŋ], the liquids [l, r] and [ɾ],

9 *Asiida* is the Arabic term for a thick porridge made from the flour of sorghum or millet.

and the glide [j] do not occur word-initially. One noteworthy feature in Abu Jinuk is that sonorant consonants, with the exception of the glide [w], tend not to appear in the word-initial position, whereas obstruents (stops and fricatives) are admitted in that position. The word-final position is most frequently occupied by sonorants (vowels, nasals, and liquids). However, vowels are more frequent than nasals and liquids in that position. The only consonants that are admitted in all positions within the word are the stop [b] and glide [w].

Two sounds are said to be in complementary distribution when the environment in which they occur is mutually exclusive, i.e. their environment is never the same. It appears from the distribution of consonants in tables 2 and 3 that [f] and [h] are in complementary distribution. Before the half-open back vowel [ɔ] and the nearly closed back vowel [ʊ], word-initial /f/ is realized as voiceless glottal fricative [h], e.g. hɔkɛ "knife," hʊʊ "tree." Elsewhere, it is realized as voiceless labiodental fricative [f], e.g. fɛɟɛ "forest," faa "summer," fɪgɪɟʊ "liver," and gʊfʊ "type of tree." Since [f] is more frequent, we may conclude that /f/ is considered to be the phoneme and it has two allophones as follows:

/f/ → [h] / __ [ɔ] and [ʊ], otherwise [f]

The stops [ʈ, k, ɖ, g] may be labialized, as attested in ʈʷaa "frog," kʷaɟɛ "meat," iʃʊnɖʷaʈ̈ɛ "hand front" and gʷaʈ̈ɛ "big PL," respectively. The labialized [ɖʷ] in the word iʃʊnɖʷaʈ̈ɛ is provoked by the genitive marker /n/, that is, after /n/ the voiceless labialized obstruent [ʈʷ] is realized as voiced labialized [ɖʷ]. The same is true for the voiceless [kʷ] that is realized as voiced [ŋʷ], as attested in kʊlʊŋʷaʃɛ "*asiida* plate," as mentioned above. The phonemic status of these labialized obstruents, however, is problematic and requires more investigation, because the question whether they should be analyzed as sequences of phonemes or as one phoneme remains unanswered.

The distribution of the retroflex flap [ɾ] is very restricted. It only occurs in intervocalic position. This sound seems to be a realization of the consonant sequence /lɖ̈/. For example, kalɖ̈ʊ [kaɾʊ] "lizard," kɔlɖ̈ʊ [kɔɾʊ] "eye," ɪlɖ̈ʊ [ɪɾʊ] "woman." Since the occurrence of this sound is predictable and its distribution is restricted, it is not considered as a phoneme.

The velarized liquid [ɬ] is attested in two words in the available data. It is found only in the intervocalic position preceded and followed by the open vowel [a], e.g. kaɬaɖ̈ɖ̈a "seven," ɟaɬaɖʊ "type of porridge." Due to its predictable occurrence, we consider [ɬ] as an allophone of /l/. More data is needed in order to check the allophonic status of [ɬ].

Despite being attested in intervocalic and word-final positions, the palatal glide [j] is not established as a phoneme. That is due to its predictable occurrence. In the available data, the glide [j] occurs in a specific environment where the low front vowel [a] or the nearly closed back vowel [ʊ] is followed by the high front vowel [ɪ], for instance, aɪ̪tʊ [ajɪ̪tʊ] "cheek" and kʊɪd̪ʊ [kʊjɪd̪ʊ] "bone."

The bilabial glide [w] is attested word-initially in words like wɛɛd̪a "nine," walgɛ "hunter," and wʊlɛ "near." It is also found in intervocalic position, for instance in ɪwʊ "tail" and awɛ "grandmother PL." It is attested word-finally in only one word in the available data, aw "grandmother." Its occurrence is not predictable; therefore, it constitutes a phoneme.

Having described the Abu Jinuk consonants and their distribution within a word, one may draw the conclusion that Abu Jinuk has 17 consonantal phonemes, as illustrated in table 4 below.

Table 4. Consonant phonemes

		lab.	lab.-dent.	dent.	alv.	retr.	pal.	vel.
stop	**vl**			t̪		ʈ		k
	vd	b		d̪		ɖ	ɟ	g
fricative	**vl**		f				ʃ	
nasal	**vd**	m			n		ɲ	ŋ
liquid	**vd**				r			
lateral	**vd**				l			
glide	**vd**	w						

Table 4 shows that the phonemic consonant system includes three voiceless stops /t̪, ʈ, k/, five voiced stops /b, d̪, ɖ, ɟ, g/, two fricatives /f, ʃ/, and four nasals /m, n, ɲ, ŋ/, in addition to the liquids /r/ and /l/ and the glide /w/. As mentioned before, the phonemic status of some consonants is not well established and further investigation is needed.

We can divide the phonemes according to their distribution within a word into the following three groups:

- Word-initial, intervocalic and word-final: /b, w/
- Word-initial, intervocalic: /t̪, ʈ, k, d̪, ɖ, ɟ, g, f, ʃ/
- Intervocalic, word-final: /m, n, ɲ, ŋ, r, l/

To give further evidence of the phonemic status of the Abu Jinuk consonants, minimal or near minimal pairs are listed in table 5 below.

Table 5. Minimal pairs

(near) minimal contrast		**gloss**		**gloss**
/f/ : /ʃ/	faa	summer	ʃaa	thing

(near) minimal contrast		gloss		gloss
/k/ : /g/	kʊʊ	house	gʊʊ	placenta
/l/ : /n/	ʃʊlɛ	pot	ʃʊnɛ	fingernail PL
/b/ : /m/	ʊbɛ	fish PL	ʊmɛ	type of tree PL
/ɲ/ : /ɟ/	kʷaɲɛ	building	kʷaɟɛ	meat
/ɲ/ : /ŋ/	t̪uɲu	thigh	t̪uŋu	ring
/m/ : /ɲ/	kʊmʊ	leg	kʊɲʊ	face
/m/ : /ŋ/	kʊmʊ	leg	kʊŋʊ	snake
/r/ : /l/	karɛ	floor	kalɛ	eyes

The minimal pairs shown in table 5 indicate that there is a contrast of consonants in identical environments, as exemplified above. Therefore, each of these contrasting consonants will be considered to be a distinct phoneme. Finally, one may draw the conclusion that the identification of these consonants in different positions within a word and the minimal pairs give evidence to their phonemic status.

4. The consonant sequences

Languages often have restrictions on the sequence of consonants within a word. These restrictions vary considerably from one language to another. English, for instance, permits consonant sequences in all positions within a word. In Abu Jinuk, however, consonant sequences are not allowed word-initially[10] and word-finally. In the attested data, consonant sequences are only admitted word-medially. Table 6 shows the consonant sequences attested in Abu Jinuk.

description	consonant sequence	example	gloss
nasal+stop	nd̪	ɛnd̪ɛ	millet
	nɖ	iʃʊnɖoo	wrist
	nɟ	kɪmɪnɟa	four
	ŋk	kʊŋkʊʊl	hungry
nasal+liquid	ŋr	ʈʷaŋrɛ	type of tree
liquid+stop	ld̪	dʊld̪ʊ	tooth
	lg	walgɛ	hunter
	rʈ̪	farʈ̪ɪgɛ	maturity
	rʈ	kʊrʈʊ	close friend
liquid+nasal	lm	ʃalmɛ	beard

Table 6. Consonant sequences

10 The question whether the stops [ʈʷ, ɖʷ, kʷ, gʷ] should be considered as one phoneme or as a sequence of consonants remains unanswered so far.

description	consonant sequence	example	gloss
stop+nasal	t̪n	ʊt̪nɛ	thirst
	ɟn	aɟnɛ	a tray-like tool made from palm
stop+liquid	bl	abla	light ADJ
	gr	kʷagrɛ	scratching of the body
stop+fricative	bʃ	t̪ɛbʃɛ	adopted female child
fricative+liquid	fr	kʊfrɛ	lung

The most common consonant sequence in the attested data is the sequence of the alveolar /n/ or /l/ plus the dental /d̪/, that is, /nd̪/ and /ld̪/.

Some consonants may occur as geminates. In the available data, geminate consonants are attested in intervocalic position only. They comprise the stops /d̪d̪/, /ɟɟ/, and the lateral /ll/, as exemplified in table 7 below.

Table 7. Geminate consonants

geminate consonant	example	gloss
d̪d̪	ɪd̪d̪a	eight
ɟɟ	faɟɟɛ	far
ll	kɛllɛ	red

The gemination of the consonants /ll/ and /ɟɟ/is used to express intensity and exaggeration, for instance, faɟɛ means "far" but faɟɟɛ means "quite far."

5. Comparison of the consonant systems of Abu Jinuk, Tagle, and Kadaru-Kurtala

In this section the similarities and differences between the consonant systems of Abu Jinuk, Tagle, and Kadaru-Kurtala are compared. The comparison will consider the distribution of consonants within words and the phoneme status in the three languages. Consonant sequences and geminate consonants will also be taken into account.

First, we will compare the consonant systems of Tagle and Abu Jinuk. According to Ibrahim and Huttenga,[11] the consonant inventory of Tagle comprises 24 consonants, out of which 17 are identified as phonemes. These are /b, t̪, d̪, t, d, k, g, ʃ, dʒ,[12] m, n, ɲ, ŋ, l, r, w, j/.

11 Ibrahim & Huttenga, "The Phoneme System of Tagle, a Kordofan Nubian Language," pp. 99–113.

12 In their consonant chart, Ibrahim & Huttenga do not use the IPA symbol [ɟ] for the voiced palatal stop. Instead, they use the symbol [dʒ] which is the IPA symbol representing a post-alveolar affricate.

The remaining consonants, [p, f, h, s, ç, ɾ, ɽ] do not have phonemic status, either due to the fact that some are rare in the language, as in the case of [p, f, h, s], or because some are analyzed as allophones, as in the case of [ç, ɾ, ɽ]. The first, [ç], is an allophone of /ʃ/ and the other two, [ɾ] and [ɽ], are allophones of /r/. Comparing the consonant system of Tagle to that of Abu Jinuk, one may conclude that the two languages share the same consonant phonemes with only few exceptions. First, the alveolar stops /t/ and /d/ in Tagle correspond to the retroflex stops[13] /ʈ/ and /ɖ/ in Abu Jinuk. Second, whereas /f/ is proved to be a phoneme in Abu Jinuk, it occurs only rarely in Tagle. Finally, the glide [j] does not have a phonemic status in Abu Jinuk whereas it is analyzed as a distinct phoneme in Tagle.

With regard to the consonant distribution within Tagle words, with the exception of /g/, all the stops are attested in the word-initial and intervocalic position. However, their occurrence in the final position varies; for instance, the alveolars /t/ and /d/ do not occur word-finally. Nasals occur word-initially, word-finally and in intervocalic position. Liquids are admitted in intervocalic and word-final position. The fact that liquids are not admitted word-initially is also true for Abu Jinuk. However, one main difference between the two languages is that nasals are never attested word-initially in Abu Jinuk whereas they do occur in that position in Tagle.

Both languages, Tagle and Abu Jinuk, share the characteristic that consonant sequences and geminate consonants are only permitted word-medially. They also share the feature that gemination is used in some cases to add emphasis, as attested by the lateral /l/ in kɛllɛ "red" and the palatal /ɟ/ in tɛɟɟɛ "green."

As for Kadaru-Kurtala, Alaki and Norton[14] list 22 consonants characterized by five places of articulation, labial, dental, alveolar, palatal, and velar. Out of these consonants, only the obstruents [t̪, t, d,[15] ʃ, ɟ, k] and the nasals [m, n, ɲ, ŋ] are attested in word-initial, intervocalic, and word-final position. The remaining consonants have limited distributions. Glides are attested in word-initial and intervocalic position. Liquids are not admitted word-initially. This is true for Abu Jinuk and Tagle, too. The fact that labialized stops occur word-initially is only true for Abu Jinuk and Kadaru-Kurtala. Ibrahim and Huttenga do not consider labialized stops either in their consonant chart or in the analysis. Finally, as in Tagle and Abu Jinuk, consonant sequences and geminate consonants are only attested in word-medial position.

13 Ibrahim & Huttenga do not describe /t/ and /d/ as retroflex stops. They rather describe /t/ and /d/ as alveolar stops.

14 Alaki & Norton, "Kadaru and Kurtala Phonemes," p. 27.

15 The alveolar consonants /t/ and /d/ in Kadaru-Kurtala correspond to the retroflex consonants /ʈ/ and /ɖ/, respectively, in Abu Jinuk.

The following tables summarize how the consonantal phonemes are distributed in the three languages.

Table 8. Distribution of stops in Abu Jinuk, Tagle, and Kadaru-Kurtala

	Abu Jinuk			Tagle			Kadaru-Kurtala		
	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final
b	+	+	+	+	+	+	+	+	–
t̪	+	+	–	+	+	+	+	+	+
d̪	+	+	–	+	+	+	–	+	+
t	–	–	–	+	+	–	+	+	+
d	–	–	–	+	+	–	+	+	+
t^w	–	–	–	–	–	–	+	–	–
ʈ	+	+	–	–	–	–	–	–	–
ɖ	+	+	–	–	–	–	–	–	–
$ʈ^w$	+	–	–	–	–	–	–	–	–
$ɖ^w$	+	–	–	–	–	–	–	–	–
k	+	+	–	+	+	+	+	+	+
g	+	+	–	–	+	+	–	+	–
k^w	+	–	–	–	–	–	+	–	–
g^w	+	–	–	–	–	–	–	–	–
ʄ	+	+	–	+	+	+	+	+	+

Table 8 shows that the three languages share nearly the same set of stops with only two exceptions. One exception is that the alveolar stops /t/ and /d/ in Tagle and Kadaru-Kurtala correspond to the retroflex stops /ʈ/ and /ɖ/, respectively, in Abu Jinuk. The other exception is that Tagle lacks the labialized stops which occur word-initially in the other two languages.

Table 9. Distribution of fricatives in Abu Jinuk, Tagle, and Kadaru-Kurtala

	Abu Jinuk			Tagle			Kadaru-Kurtala		
	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final
f	+	+	–	+	–	–	–	–	–
ʃ	+	+	–	+	+	–	+	+	+

As illustrated in table 9, the palatal /ʃ/ is documented in the three languages. However, the labiodental /f/ is analyzed as a phoneme in Abu Jinuk whereas it occurs in only few cases in Tagle. It is not attested in Kadaru-Kurtala.

Table 10. Distribution of nasals in Abu Jinuk, Tagle, and Kadaru-Kurtala

	Abu Jinuk			Tagle			Kadaru-Kurtala		
	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final
m	-	+	+	+	+	+	+	+	+
n	-	+	+	+	+	+	+	+	+

	Abu Jinuk			Tagle			Kadaru-Kurtala		
	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final
ɲ	-	+	+	+	+	+	+	+	+
ŋ	-	+	+	+	+	+	+	+	+

Although nasals are analyzed as phonemes in the three languages, one notable difference between them is that nasals[16] never occur word-initially in Abu Jinuk whereas they are admitted in that position in Tagle and Kadaru-Kurtala.

	Abu Jinuk			Tagle			Kadaru-Kurtala		
	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final
r	-	+	+	–	+	+	–	+	+
l	-	+	+	–	+	+	–	+	+

Table 11. Distribution of liquids in Abu Jinuk, Tagle, and Kadaru-Kurtala

One major characteristic shared by the three languages is that liquids are not admitted word-initially; rather they are attested in intervocalic and word-final position. Another common feature of the three languages is that liquids are mostly found as first consonants in consonant sequences.

	Abu Jinuk			Tagle			Kadaru-Kurtala		
	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final	w.-initial	inter-voc.	w.-final
w	+	+	+	+	+	–	+	+	–
j	-	+	+	–	+	–	+	+	–

Table 12. Distribution of glides in Abu Jinuk, Tagle, and Kadaru-Kurtala

Whereas both the bilabial /w/ and the palatal /j/ are analyzed as phonemes in Tagle, only /w/ is established as a phoneme in Abu Jinuk. By contrast, the phonemic status of the two glides is not yet certain in Kadaru-Kurtala.

Finally, the three languages share the characteristic that consonant sequences and geminate consonants are only admitted word-medially. However, which consonants may follow each other vary between the three languages.

16 The only example of a nasal found in word-initial position in Abu Jinuk is mɔɲʊmɔɲ which means "ant." Being the only example of initial /m/ makes it very probable that the word might have been borrowed from another language where nasals (or at least /m/) are permitted in that position.

6. Findings and suggestions

The current study has focused mainly on the consonant system of Abu Jinuk, i.e. the identification of phonemes and their allophones and the distribution of the consonants in the various positions within words. The consonant sequences and geminate consonants were also discussed. The study has also pointed out the similarities and differences between the consonant systems of Abu Jinuk, Tagle, and Kadaru-Kurtala. Since these languages are closely related, the present study has found out that, with only few exceptions, the three languages share nearly the same consonant systems. They differ in the following points. First, the labiodental /f/ is proved to be a phoneme in Abu Jinuk whereas it does not occur in Kadaru-Kurtala and it is attested in only two words in Tagle. Second, the phonemes /t/ and /d/ are described as alveolar consonants in Tagle and Kadaru-Kurtala, whereas they have a retroflex articulation in Abu Jinuk, i.e. they are realized as [ʈ] and [ɖ], respectively. Another major difference between Abu Jinuk on the one hand and Tagle and Kadaru-Kurtala on the other is that nasals are never admitted word-initially in Abu Jinuk whereas they do occur in that position in the other two languages. Finally, whereas the glides /w/ and /j/ are established as phonemes in Tagle, only the former is identified as a phoneme in Abu Jinuk. The phonemic status of the glides is not yet certain in Kadaru-Kurtala.

Moreover, the three languages share the characteristic that liquids are not permitted word-initially; consonant sequences and geminate consonants are only admitted word-medially.

Some questions still have to be answered and therefore require future investigations in Abu Jinuk. Should the labialized stops be analyzed as a sequence of two consonants or as one phoneme? Furthermore, more investigations are still needed regarding the phonemic status of some consonants, particularly the glides.

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