

- Diakonoff, 175-186. LINCOM Studies in Afro-Asiatic Linguistics 14. Munich: Lingcom.
- RETSÖ, Jan 1984. *Diathesis in the Semitic languages: A Comparative Morphological Study*. Studies in Semitic Languages and Linguistics. Leiden: Brill.
- SCHENKEL, Wolfgang 1985. Zur Verbalflexion der Pyramidentexte. Review article of Allen 1984. *Bibliotheca Orientalis* 42, 481-494.
- SCHENKEL, Wolfgang 2004. Das *šm(.w)=f*-Passiv, Perfekt vs. Futur, nach dem Zeugnis der Sargtexte. *Zeitschrift für Ägyptische Sprache und Altertumskunde* 131, 173-188.
- SETHE, Kurt 1899. *Das ägyptische Verbum im Altaegyptischen, Neuägyptischen und Koptischen*, 2 vols., vol. II: Formenlehre und Syntax der Verbalformen. Leipzig: J.C. Hinrichs'sche Buchhandlung.
- SETHE, Kurt 1922. *Die Altägyptischen Pyramidentexte*. Vol III: Kritischer Apparat, Beschreibung der Inschriften, Konkordanz der Texte. Leipzig: J.C. Hinrichs'sche Buchhandlung.
- SIEWIERSKA, Anna 1984. *The Passive*. A Comparative Linguistic Analysis. London: Croom Helm.
- TILL, Walter C. 1928. Achmimisches. *Zeitschrift für Ägyptische Sprache und Altertumskunde* 63, 144-149.
- VYICHL, Werner 1983. *Dictionnaire étymologique de la langue Copte*. Leuven: Peeters.

Klaus Wedekind

SIL Nairobi and Cologne University, Cologne

BEJA PHONOLOGY: AN UPDATE

Introduction

This paper does two things: (1) It summarizes, in terms of a systematic phonology, what has been published in earlier grammars – from Almkvist 1884 to Morin 1995. (2) It draws attention to items which have received only scanty attention in previous studies – such as the relation between the Beja phonology and other aspects of the language: orthography, morphology, dialect variation, or metre.

Hopefully, the summary will facilitate the interpretation of pre-systematic data in the early publications. For instance, it can be helpful to realize that what Roper transcribes as "e" usually is, in terms of a systematic phonology, the long "e:" (which again is the morpho-phonological counterpart of the short "i"). Or it may be helpful to realize that what Reinisch transcribes as "i" often is a dialectal variant of short "a" or "u". The reason is that in southern dialects, vowels tend to be reduced to "i" which Reinisch and Roper often transcribe as schewa.¹

For this paper, the Atman dialect of Beja is the basis of the presentation, and it serves as the point of reference where data from other dialects are adduced.

The Phoneme Inventory

The Beja phoneme inventory is summarized in tables I and II. For every phoneme, the orthographic symbol has been given in <orthographic> brackets.

¹ Regularities such as these have already been suspected by Zaborski even on the basis of early, deficient transcriptions. E.g. see Zaborski's notes on discrepancies between the various sources, as far as nominal plurals are concerned (1986).

Items in [] square brackets, such as [ŋ], are phonetic variants: they do not have the status of phonemes.

Items in () parentheses, such as (z), are marginal phonemes – they are either phonemes which were integrated late, or they still are limited to loan words. Among the "marginal" phonemes, the ejective [t'] should be noted: It is a monosegmental retroflex plosive which has not been reported in earlier descriptions.

Items in { } wavy brackets, such as {t}, belong to the morpho-phonological family of retroflex-palatal sounds.

Items with asterisks, such as <gh>* and <kh>* are rarely used. The reason is that countryside people do not pronounce the Arabic loan sounds [y] or [x]. The plosives [g] and [k] are used instead.

Table I: Consonants

	labial	dento-alveolar	retroflex	palatal	labio-velar	velar	glottal
plosives, voiceless		t <t>	{t} <th>		k ^w <kw>	k <k>	ʔ <ʔ>
ejective			(t')				
plosives, voiced	b 	d <d>	{d} <dh>		g ^w <gw>	g <g>	
lateral		l <l>					
trill		r <r>					
nasals	m <m>	n <n>				[ŋ]<n>	
fricatives, voiceless	f <f>	s <s>		{ʃ} <sh>		(x) <kh>*	h <h>
fricatives, voiced		(z) <z>				(y) <gh>*	
affricates, voiced		(dʒ) <j>					
semi-vowels	w <w>			j <y>			

Evidence for the Genesis of Ejectives

The sequence [tʔ] – i.e. voiceless retroflex plosive plus glottal stop – has a variant pronunciation which is a retroflex ejective [t'], as in [ba:mo:t'at'ina, t'at'a:] "Don't quarrel! Sit down!". This ejective pronunciation may be due to influences from Tigre or Tigrigna, and it is not common with many speakers. But there is no doubt about the identity of this sound, and its pronunciation consistently replaces the sequence voiceless retroflex plosive plus glottal stop.

In terms of phonological universals, the existence of a mono-segmental Beja ejective [t'] where there "should be", or "has been", the sequence of two sounds [tʔ] is of theoretical interest: It does suggest a natural avenue for the genesis of new ejectives.²

Table II: Vowels

	front short	long	central short	long	back short	long
high	i <i>	i: <ii>			u <u>	u: <uu>
mid		e: <ee>				o: <oo>
low			a <a>	a: <aa>		

No evidence for short mid vowels

The vowel chart shows that for mid vowels ee oo there is no contrast between short and long vowels. Mohammed Adaroob Mohammed³ was the first to insist (correctly) that there are no short mid vowels. Others used to posit both long and short mid vowels; even the large text corpus in the thesis of Mohammed Adaroob Ohaj transcribes short e and o, but only by way of typing errors.⁴

² It should be noted that the retroflex sounds in the East Cushitic languages are implosives (with the physiological limit on voicing which is typical for implosives). The voiceless ejectives of East Cushitic languages are not retroflex.

³ Mohammed Adaroob Mohammed 1999: 4

⁴ Mohammed Adaroob Ohaj 1971: passim, Hudson 1976: passim, Morin 1995: 24.

Phonemes and Transcription

Data in this article will be transcribed with the orthographic symbols of table I above. It should be noted that most of them are the same as the IPA symbols. The exceptions are given here below.

Present Transcription	IPA	Definition
j	d ^j	alveo-dental affricate with alveo-palatal release
y	j	palatal semi-consonant
a i u (bold letters)	'a	pitch-accent, musical beat
' (apostrophe)	ʔ	glottal stop
dh, th	ɖ, ʈ	retroflex plosives
sh	ʃ	palatal grooved fricative, slightly retroflexed

The official writing system

Table III below provides an alphabetical list of the letters in the official Eritrean orthography for Beja which uses Latin letters.⁵ The orthographic symbols and IPA values are presented along with illustrations from the Atman dialect.

Concerning the orthographic representation, three features should be noted: (1) As usual, long vowels and geminated consonants are represented by double letters. (2) The family of "retroflex-palatal" sounds, i.e. [ɖ, ʈ, ʃ] is represented by digraphs involving the letters "h", i.e. <dh, th, sh>, and (3) A "silent e" serves to distinguish these digraphs from the respective clusters with "h", namely <dh, th, sh> from <d+h, t+h, s+h>. The clusters are written as <deh, teh, seh>. These three clusters are actually quite frequent in Beja – even in word initial position.

In the examples below, pitch-accent has been transcribed with bold vowels. The official writing system does not mark pitch-accent, because tests have shown that normal context makes it predictable – even where singular and plural are distinguished by pitch-accent alone.

⁵ Cf. also Wedekind 1999. The textbooks for Beja schools are published in this orthography. It was developed and tested at the Ministry of Education, Asmara, 1999 to 2002. There also are several versions of Arabic writing systems for this language.

Table III: IPA values and orthography illustrations

IPA Value	Orthogr. Symbol	Orthographic example	Gloss
ʔ	'	m'at	women
a / a:	a / aa	ama / aamaa / faar	ride! / devour! / flower
b	b	baas	burial
d	d	daat	container
dh	deh = d+h	dehay	people
ɖ	dh	dhaw	thicket
e:	ee	een	these
f	f	faas	axe
g	g	gaal	one
ɣ	g, gh	gamiit, ghamiit	wheat (cf. Ar.)
g ^w	gw	gwad	with
h	h	haaf	belly
i / i:	i / ii	ibari / iibiri / fiir	has / had / face
dj	j	jaar	shoo!
k	k	kaam	camel
x	k, kh	kaas, khaas	special (cf. Ar.)
kh	keh	baruukehan	you-then
k ^w	kw	kwaat	sister
l	l	laaw	burning
m	m	maan	shaving
n	n	naat	something
o:	oo	oon / foor	this / fleeing
r	r	raat	question
s	s	saab	skinning
sh	seh = s+h	sehaal	sharpness
ʃ	sh	shaat	meat
t	t	taan	these F.
th	teh = t+h	tehaa!	touch!
ʈ	th	th'ath'aa!	sit down!
u / u:	u / uu	uraa! / uuraaw / fuur	bury! / the other / heat
w	w	waak	cutting
j	y	yaas	dog

Suprasegmentals: Pitch-accent and length (gemination)

The suprasegmentals are (1) pitch-accent and (2) length – i.e. vowel length and consonant gemination. There also are the intonational pitch movements which characterize non-tonal languages.

Like other Cushitic languages, Beja need not be analyzed as a tone language. The analysis in terms of pitch-accent seems preferable both for reasons of economy and adequacy: In Beja – as in other pitch-accent languages – not the relative pitch but the "accent" or "stress" is the dominant force.⁶ Since this has been a controversial issue, it should be noted that with the possible exception of Daasenech,⁷ the evidence now is that Cushitic languages should preferably be analyzed as stress or pitch-accent languages. This includes Beja which usually still is classified as "North Cushitic"⁸

Intonational pitch contours are a pragmatic feature of phonological utterances and will not be presented in detail.

Pitch-accent and intonation

As an inherent lexical property, every Beja morpheme has its proper "pitch-accent" placement. Therefore, with the exception of certain unstressed affixes, every morpheme has at least one syllable which carries the "pitch-accent"; i.e. this particular syllable is "louder" and of "higher pitch" than the other(s). Like the neighbouring East Cushitic languages Afar or Saho, pitch and accent go together, and the "pitch" – although it is conditioned by the accent placement – is not "secondary" in the sense that it can be disregarded. Beja is not a "stress" language.

Accent placement correlates with the syllable structure and the morphological class of a morpheme, but in the section on morpho-phonology (below) it will be shown that the accent can be moved to the left or right of its "inherent" lexical placement.

⁶ On Cushitic languages being non-tonal vs. Omotic or Nilo-Saharan languages being tonal see Wedekind 1983: 31, Wedekind 1985: 110, Wedekind 1990: 53-54, and Ashenafi & Wedekind 1990: 352. Cf. Wedekind 1994: 4 on tonogenesis from non-tonal Cushitic loans.

⁷ Personal communication, Steve Pillinger, who also allows for a two tone analysis of Daasenech.

⁸ Incidentally this also is true for Central Cushitic or "Agaw", and East Cushitic – both HEC and LEC including Somali, Oromo or Boraana, where phonetic pitch is predictable from phonemic stress and morpheme shape. It does not include former "West Cushitic": All Omotic languages so far analyzed are tonal. This includes Wolaytta, formerly analyzed as a stress language (personal communication, Bruce Adams and Azeb Amha).

In this paper, pitch-accent will be transcribed with bold vowel letters. In the official orthography it is not represented. For Beja, pitch-accent mainly functions on the morphological level, but there also are some lexical differences (not minimal pairs), as the examples show.

IPA	Transcr.	Examples	
'a / a	a / a	hadhaab / hadhaab	lions / lion (morphological)
'a / a	a / a	ani / anaa	I / hey you! (lexical)

As far as intonation of (1) non-final phrases and (2) Y/N questions is concerned, they are characterized by rising contours on the last stressed syllables. As far as the intonation of (3) information questions is concerned, they are characterized by higher intonational pitch on the stressed syllables of the particular interrogative pronouns, but there is no utterance final rise.

In short: Intonation offers no surprises because in this regard, Beja largely behaves like other non-tonal languages.

Vowel length

Vowel length distinguishes large numbers of lexical items. Its contrastive function in word final position is reduced, as will be explained in the morpho-phonological section below. The role of vowel length in the plural morphology has been summarized

IPA	Transcr.	Examples	
a / a:	a / aa	yam / yaam	water / belly (lexical)
a / a:	a / aa	yas / yaas	dogs / dog (morphological)
i / i:	i / ii	fiiir / fir-	face / to sew (lexical)

Consonant gemination

Long or geminated consonants are, in most cases, the result of morphological mergers, such as the assimilation of prefixes to verb stems. However, there are a few lexical contrasts both in loan words and in original Beja morphemes.

IPA	Transcr.	Examples	
s:	ss	kiss'aa (< kit-s'aa)	you don't sit (assimilated)
s / s:	s / ss	asa / assaa	arise! / do! (lexical)

Syllable and Word Patterns

As far as syllable patterns are concerned, Hudson (1976: 98) has already provided an elegant formula for the general syllable structure which is (C) (H) V(V) (C) (t). More specifically, Beja has 18 word initial and 12 non-initial patterns, and they have very different distributions and frequencies.⁹ It is not surprising that open syllables of the pattern consonant plus vowel, i.e. "CV" should be the most frequent syllable type. It is a surprise, however, that in closed syllables the 2nd coda consonant must be "t" (more about this below).

So far this gives 3 patterns, all of which are comparatively frequent: CV, CVC, and CVCT, as in *na*, *tak*, *lamt* "thing, man, soup". Less frequent are the corresponding syllables with long vowels, abbreviated as "VV".¹⁰ This gives 3 additional syllable patterns: CVV, CVVC, and CVVCT, as in *tuu-*, *been*, *diint*, "the-, that, thorn". Word initial syllables may drop the glottal onset. The additional patterns of initial syllables therefore are V, VC, VCT, VVC, and VVCT, as in *a.ni*, *ar*, *awt*, *aab*, *aabt* "I, boys, honey, who M, who F".

The onset consonant may be followed by "h" or "hamzah", i.e. a glottal fricative or glottal stop – both will be abbreviated as "H". This adds another set of patterns, namely CHV, CHVV, CHVCT, CHVVCT, as in *t'a*, *m'aa*, *mhay*, *lhayt*, *n'aayt* "now, come!, three, tomorrow, goat". In terms of dialect differences, it should be noted that it is this last set of syllable patterns which causes one of the systematic differences between northern and southern dialects of Beja: For instance, what is pronounced as CHV in one dialect, may be pronounced as CVH (or CVHV) in other dialects, e.g. *s'a*, *sa'*, *sa'a* "sit! masculine sg."

Syllable patterns: Interference of linguistic levels

It is remarkable that Beja has only one complex type of onset (with "H" as the 2nd consonant), and only one complex type of coda (with "t" as the 2nd consonant).

Actually, both of these "exceptional" syllable patterns can be explained as "interference" from different linguistic levels, which disturbs the balance of

the simple, universally most acceptable phonological patterns CV and CVC: (1) Syllable clusters with "H" are explained by interference from the phonological level of the word – where "glottalization" is a suprasegmental feature distributed over the entire word.¹¹ (2) Syllable clusters with "t" are explained by interference from the morpho-syntax – where "feminine" is a morphological feature distributed over the entire NP.

Word patterns: Exhaustive lists

Table IV presents all syllable and word patterns. Given the lack of recent phonological data, it was considered useful to include an exhaustive list of examples and to allow for some redundancy. It will be seen that there are some limitations on the syllable patterns which are not captured in the above formula.

Table IV: Examples of word patterns

Examples for Word Initial Syllables		
He went	V (never alone)	<u>i</u> .bi
What is held	VC	<u>ab</u> .kaab
Five and	VCT	<u>ayt</u> .wa
Who is he?	VV	<u>aa</u> .bu
Who are you M?	VVC	<u>aab</u> .wa
Who? F and	VVCT	<u>aabt</u> .wa
You M Obj.	CV (never alone)	<u>ba</u> .rook
She started	CVC	<u>yak</u> .ta
Even Saturday	CVCt	<u>sabt</u> .han
Your M father	CVV	<u>baa</u> .book
She deceived	CVVC	<u>soob</u> .ta
A certain tree (terminalia F) and	CVVCT	<u>daaft</u> .wa
Punish! M him	CHV	<u>lha</u> .sa
Even the sea	CHVC	<u>bhar</u> .han
Tomorrow and	CHVCT	<u>lhayt</u> .wa
Come! Pl.	CHVV	<u>m'aa</u> .na
Even medicine	CHVVC	<u>mheel</u> .han
Licking and	CHVVCT	<u>lhuust</u> .wa

⁹ On syllable and morpheme structure see also par. 2.1, pp. 98-102 in Hudson 1976.

¹⁰ The "VV" is meant to indicate one long vowel. Beja has no diphthongs. sequences of two different vowels e.g. where a stem vowel is followed by a suffix vowel, will always be split up either by "y" (front vowels) or by "w" (back vowels).

¹¹ On "h" as a suprasegmental feature of pronoun words, see Wedekind 2003.

Examples for Word Medial Syllables

Seize! M	CV	a.bi.ka
Shoo away!	CVC	a.lan.doo.yaa
Marriageable girl and	CVCt	aa.girt.wa
Go! Pl	CVV	gii.gaa.na
You M and	CVVC	ba.rook.wa
Queen and	CVVCt	aa.miirt.wa
You M let lick	CHV	tis.lha.sa
You P let lick	CHVC	ti.lhas.na
Eight F and	CHVCt	a.su.mhayt.wa
You M ride	CHVV	tin.d'ii.ma
Thursday and	CHVVC	ar.b'aat.wa
The heat and	CHVVt	im.b'uuyt.wa

Examples for Word Final Syllables

Seize! M	CV	a.bi.ka
Young man (marriage age)	CVC	aa.gir
Young woman (marriage age)	CVCt	aa.girt
Go! M	CVV	gii.gaa
Desert	CVVC	ma.laal
Queen	CVVCt	da.gwaayt
Now	CHV	oon.d'a
The sea (Obj.)	CHVC	oo.bhar
Eight F	CHVCt	a.su.mhayt
Bring! M	CHVV	haa.m'aa
Thursday	CHVVC	ar.b'aat
Who F gets up	CHVVt	teet.b'iirt

Integration of Loan Phonemes

For loan words, the main source languages are Arabic and Tigre. Depending on the speaker, foreign sounds will either be maintained or they will be substituted by Beja phonemes. Likewise, foreign syllable patterns will be adjusted to those of Beja.

So for non-sophisticated speakers, the pronunciation of loan words is largely predictable from the phoneme and syllable inventories of Beja (Cf. tables I, II and V).

Table V: Arabic phonemes and Beja substitutes

Sound	Example	Orthographic Representation
ث becomes t	as in "Tuesday"	talaata
ح becomes h	as in "hello!"	marhaba
خ is x or becomes k or h	as in "Al Khartum; Thursday"	Ookhartuum / Ookartuum / hamiist
ج is j or becomes g	as in "trader, Guinee"	taajir / gineehi
ذ becomes d	as in "call to prayer!"	addanaa (adaan)
ز is z or becomes d	as in "banana, table"	mooz / tarabeeda
ص becomes s	as in "juice"	asiir
ض becomes d	as in "be angry!"	gadabaa
ط becomes t	as in "develop!"	tawwaraa
ظ becomes z or d	as in "noon"	dehuur, zehuur
ع becomes ' or zero	as in "the juice, juice"	w'asiir, asiir
غ is ɣ or becomes g	as in "east"	sharigh sharig (Beja: oomha)
ق becomes k or g	as in "hotel"	funduk, fundug
ك is k or becomes k ^w	as in "on you Pl."	alaykwum

Dialect Variations

As has been said above, the Atman variety of Beja serves as the basis for data of this article. It is mainly spoken north of Port Sudan, but also by large numbers of people in Port Sudan and Suakin. For a phonological study, the Atman dialect offers the advantage of being on the conservative side: It seems to have preserved a richer set of phonemes than southern or western varieties (Hadendowa, Beni Amir), and a richer set of pitch-accent distinctions than the northern variety (Bishaari).

Other Beja dialects differ from Atman in systematic ways, and the differences are limited to certain phonological features and certain lexical items (especially loan words). However, given the mobility of the nomadic life style, these differences do not present any communication problem. This is true in spite of the two international borders which cut across the Beja language area. The existing differences have been strongly emphasized in the first analyses of the language (Almkvist, Reinisch), but they play a minor role even in written communication.

The ways in which the other dialects may differ from the Atman dialect are the following:

(1) Instead of pronouns with a word final "h",¹² pronouns with a word final "s" may be used (in the North or West); e.g. barooh > baroos "**him**", bareeh > barees "**them**".

(2) Instead of initial "b", the consonant "m" may be used (in various areas or by individuals); e.g. badhamt > madhamt "**mat**", Bariyam > Miriyam "**Mary**".

(3) Instead of short "a" or "u", unstressed, very short "i" may be used (in various areas); e.g. naat-u > naat-i "**thing-is**".

(4) Instead of short "i" or "u", the short vowel "a" may be used (in the North or South); e.g. ani > ana "**I**", hinin > hanin "**we**" (Beni Amir), or iru > ura "**yesterday**" (Bishaari), kiiki > kiika "**It is not**".

(5) Instead of short "u", the short vowel "i" may be used in certain verbs (in Bishaari or Beni Amir areas); e.g. usha > isha "**leave!**", kaabaru > kaabari "**I don't have**".

(6) Instead of articles with short "i" or "u", the form with long "oo, ee" may be used (in the North); e.g. tutakat > tootakat "**the-woman (Obj.)**".

(7) Instead of demonstratives which assimilate to the article, like oot-tu- "**this-the**", the basic forms of the demonstratives may be used (in Bishaari or Beni Amir areas); e.g. oot-tu'oor > toon tu'oor "**this the-girl (Obj.)**".

(8) Instead of shortening or deleting vowels before h and hamzah, the full vowels may be used (Bishaari, Beni Amir), e.g. ka'areeyan > kaa'areeyan "**I don't like (it)**", or kahariw > kaahariw "**I don't want**".

(9) Instead of h or hamzah which follows a consonant and precedes a vowel, the h or hamzah may follow the vowel (Bishaari, Beni Amir); e.g. kal'a > kala' "**bell**". See the section on syllable patterns, above.

(10) Instead of indicating the "plural" by shifting the stress towards the beginning of the word, the same stress/accent pattern may be used for singular and plural nouns (in Bishaari), e.g. hadhaab / hadhaab > hadhaab / hadhaab "**lion Sg., lions Pl.**".

(11) Instead of Arabic loan words, Tigre loan words may be used (in the South); e.g. gaamuus (Arabic) > agaba (Tigre) "**buffalo**".

(12) Instead of Arabic loan words, original Beja words may be used (in Bishaari, or rural areas); e.g. faas > m'ooma "**axe**".

¹² This "h" is present even when it is articulated very weakly. Witness the preservation of word final long "oo, ee" which – except for onomatopoeic words – are not found in word final position.

Table VI summarizes the main types of dialect correspondences.

Table VI: Types of dialect correspondences

Correspondence		Example		Gloss
Atman	other	Atman	other	
1 h	> s	barooh	> baroos	him, them
2 b	> m	badhamt	> madhamt	mat
3 -tu	> -ti	naatu; hineebu	> naati; haneebi	thing-is, ours-is
4 i	> a	hinin; ani	> hanin; ana	we; I
5 u	> I	kaabaru; usha!	> kaabari; isha!	I don't have; leave!
6 tu-	> too-	tutakat	> tootakat	the-woman (Obj.)
7 tt	> n t	oottu'oor	> toon tuu'oor	this the-girl (Obj.)
8 a-h	> aa-h	kahariw	> kaahariw	I don't want
9 C'a	> Ca'	kal'a	> kala'	bell
10 plural stress shift	> no stress shift	hadhaab	> hadhaab	lions (Pl.)
11 Arabic	> Tigre	gaamuus	> agaba	buffalo
12 Arabic	> Beja	faas	> m'ooma, ma'ooma	axe

Morpho-Phonological Relations

Interactions of the morphology with the phonology¹³ are particularly frequent with the following affixes: article prefixes, demonstrative prefixes, and person / tense affixes of verbs. The following examples represent all types of changes that have been observed when affixes and roots come together.

On the left hand side of the arrow ">", the basic, "unchanged" form of the affixes and the roots are given. On the right hand side of the arrow, the result of the change is shown.

Pitch-accent

Briefly, the main morpho-phonological rules concerning pitch-accent are as follows:¹⁴

¹³ On phonological rules, see also par. 1.2, pp. 46 in Almkvist 1884 vol. 1, and par. 1.2 in Reinisch 1893 vol. 3

¹⁴ On "accent" see also par. 1.2.3, pp. 97 ff. in Reinisch 1893 vol.3, par. 1.3, pp. 55 ff. in Almkvist 1884 vol. 1, par. 25 in Roper 1928, and par. 2.4, pp. 98-102 in Hudson 1976.

- (1) Every "morpheme" or "word root" comes with its inherent "pitch-accent". I.e., pitch-accent is part of the root just as the meaning, the gender, or the consonants are part of it.
- (2) If a word includes suffixes, (only) the suffix on the right will be articulated. In poetic metre, this rule is flexible.
- (3) If a monosyllabic noun has the long article prefix, the prefix attracts the accent.
- (4) Nominal plurals will move the accent toward the beginning of the word, by one syllable. Verb participles are subject to this rule just like other nominals. In the Bishaari dialect, this rule does not apply.

The word *gwhara* "thief" may illustrate how these rules apply. The inherent lexical pitch-accent is on the first syllable.

(1) Thief Sg. (Root)	<i>gwhara</i>
(2) Thief Sg. M.Object	<i>gwharaab</i>
(3) Thieves Pl. M.Object	<i>gwharaab</i>

Insertion and deletion

Note: In the following section about "addition" or "deletion", it is possible to argue in two ways: Either (1) one starts from forms like *t-* "she", *s-* "cause to", *dilb-* "trade" etc., in which case some vowels need to be "added", or (2) one starts from forms like *ti-*, *si-*, *dilib-* etc., in which case vowels need to be "deleted". The result is the same. This depends on what kind of a lexicon one prefers to assume.¹⁵ The following section allows for both approaches.

Insertion of word initial i

If 2 consonants (other than *h* or *hamzah*) are in word initial position, they will be split up by the vowel *i*.

<i>t- diy -a > tidiya</i>	you M. say
<i>t- s- dawil -a > tisdawila</i>	cause to be close

Insertion of word medial i

If 3 consonants (other than *h* or *hamzah*) follow each other anywhere, they will be split up by the vowel *i*.

¹⁵ A short Beja dictionary for the hand of teachers is in preparation. It will list the "surface" forms with article and schewa mobile, i.e. the actual "citation" forms.

<i>k- t- diya > kitdiya</i>	you M. don't say
<i>t- s- dawil -a > tisdawila</i>	cause to be close

Deletion of word medial i

If *i* has no stress and no CC neighbours, it may be deleted.

<i>a- dilib > adlib</i>	I traded
<i>hariw -aab > harwaab</i>	being wanted / having wanted

Deletion of word medial a

If the sound "a" in the verb suffixes *-a* "you M. Subj." or *-na* "you Pl. Subj." is followed by other verb suffixes, the "a" may be deleted. (This rule does not apply in all dialects.)

<i>tikatiya -eek > tikatiyeek</i>	if you M. are
<i>tikatiina -eek > tikatiineek</i>	if you Pl. are

Shortening

The rules about shortening do not apply in all dialects.

Shortening of initial VV

The long vowels *aa*, *ee*, *ii*, *oo*, *uu* in unstressed definite articles will be shortened to *i* or *u*, in particular *aa*, *ee*, *ii* > *i*; and *oo*, *uu* > *u*.

<i>aa- bissa > ibissa</i>	the cats M.
<i>tuu- takat > tutakat</i>	the woman
<i>tee- tarabeedaa-ya > titarabeedaaya</i>	the tables

Shortening of final VV

The long vowels *ee* or *oo* in word final position will be shortened: *ee* > *i*, *oo* > *u*

<i>deet -oo > deetu</i>	my mother
<i>i- bhal -ee > ibhali</i>	my words

Shortening of VV before glottals

The long vowels aa, ii, or uu, when followed by h or by hamzah, will be shortened: aa > a, ii > i, uu > u

ii- hiriw > ihiriw	I had wanted
baa- 'abiik -a > ba'abiika	don't seize!

Assimilation and dissimilation

With certain affixes, there is "assimilation" or "dissimilation".¹⁶

Assimilation of n etc. before plosives

If m or n are followed by a dental or labial consonant, they will "assimilate" to the consonant:

ada -n- liib > adalliib	I trade
a -n- biir > ambiir	I snatch

Assimilation of t etc. before h or hamzah

If t or k are followed by h or hamzah, they will be "softened" to d or g.

ee- t- 'iim > eed'iim	I ride
oon- t- 'aab > oond'aab	this the-time, now

Assimilation of s to sh before dh or th

If s is attached to a root with dh or th or sh, it will "assimilate" to sh.

i- si- shalik > ishiishalik	he caused to be small
i- si- dhan > ishidhhan	he caused to live

Assimilation of t etc. before dentals

If the verb prefix t- "2nd Ps. Subject" is followed by d or r or s of the verb, it will assimilate to the next sound. But before -k, the k- itself will become t.

¹⁶ On assimilation in verb paradigms, see also paragraphs 180-181 in Roper 1928 and Wedekind and Abuzaynab forth.

kit- di > kiddi	she doesn't say
kit- kan > kittan	she doesn't know

Assimilation of i to u near w

If i or u are next to gw or kw or w, the underlying sound still is i, but it is pronounced as u. So for short vowels the difference between i and u is neutralized, as in kwi [k^wu], gwi [g^wu].

k ^w ibira > [k ^w ubira]	he went down
k ^w ihi > [k ^w uhi]	the egg

Dissimilation of i before glottals

If a person prefix i is followed by h or hamzah, the prefix will change to yi- or y-. Actually, this change is an areal feature which also characterizes unrelated languages such as Tigre.

i- 'abik > i'ibik, y'ibik (indi)	he will hold (Future)
i- hariw > yihariw, yhariw	he wanted

Dissimilation of i or u before glottals

If articles with (i) i or (u) u in prefixes are followed by h or hamzah, they may be reduced to y(i) or w(u).

i- 'ar > y'ar, yi'ar	the children
uu- haash > whaash, wuhaash	the land

Systematic reduction of final vowels

As was shown above, under certain conditions the contrast "short vowel / long vowel" will be neutralized (see "shortening" above).¹⁷ In previous descriptions of Beja, it has always been noted that final vowels tend to be short, and that the same vowels may be long when by affixation they are shifted into word medial position. Table VII starts from an example noted by Roper (1928). From the last

¹⁷ This is reflected in Almkvist's and Roper's complaints about the (apparent) nonchalance regarding the "correct" pronunciation of case markers by Beja speakers: The apparent disregard actually is due to (1) systematic phonological neutralization and (2) the presentation of (putative) "subjects" in the form of topics. But topics are presented in the citation case – i.e. in the accusative rather than the nominative.

lines of table VII it is obvious that this kind of "neutralization" sometimes has the result that differences between "subject" vs. "object" endings will disappear.¹⁸

Table VII: Neutralization of case distinctions

riba	hill (underlying form)
ribaa-b	hill-object (citation form)
oo-rba	the-hill (definite form)
*ree	source (underlying form)
ree-t	source-F. (citation or object form)
tuu-ri	the-source (definite, subject)
*-oo	my (underlying form)
baab-oo-wwa ...	father -my -and (word medial) ...
baab-u	father-my (word final)
baab-oo-wwa ...	my father (object) and ...
baab-uu-wwa ...	my father (subject) and ...
baab-u rhiya.	my father (subject) saw (something).
baab-u rhiya.	(someone) saw my father (object).

Linguistic Pitch-Accent and Musical Beat

The interplay of linguistic pitch-accent and musical beat is of importance both in phonology and poetic metre. The following sample is taken from a song which was performed by Mohammed Al Badri in 1990. In this song, both the linguistic pitch-accent will be indicated – based on a straightforward reading of the text – and then the musical beat will be shown – based on the musical performance.

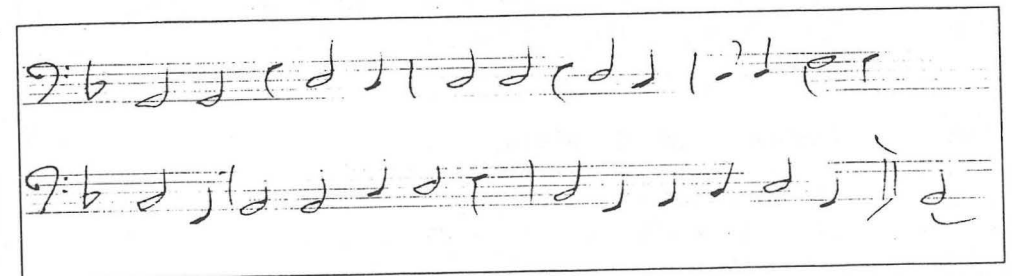
The song consists of an introduction and number of stanzas. Only the first and the last stanza will be presented, together with their refrains. Each stanza consists of a line of 10 syllables which is followed by the vowel sequence "eeyaa eeyaa", and a "refrain".

The musical metre of the song has regular bars of 8 units per bar. The rhythm, however, does not move in symmetrical sequences of 4 plus 4 beats, but in sequences of 2 plus 3 plus 3 beats. This is obvious from the transcription of the lute passages (see table VIII). The first two and a half bars accommodate

the words of the main "line", the second half of the third bar carries the nonsense syllables "eeyaa eeyaa", and the remaining bars carry the "refrain" as well as its nonsense syllables "heebeeba wheeb". Actually, the "refrain" is not the same for each stanza, but it is selected ad libitum from a set of four different refrains.

For the present purpose, the focus will be on the differences of pitch-accent and "beat" placement. A full analysis of this song, with an interlinear display of the translation, will be provided in a separate publication.¹⁹

Table VIII: Lute passages and musical beat



Sample Text

In the sample text below, each line is presented five times: (1) "phon." shows the linguistic accent, (2) "mus." shows the musical beat and the regularized number of syllables, (3) "mph." and (4) "gloss" provide a brief morphological analysis, and (5) "free" translates the gist of the poetic line.

Table IX: Song lines and refrains

first stanza	
1 phon.	Yaa, oomha oomhook kanee mhasnay. Eeyaa eeyaa.
2 mus.	Yaa, oomha oomhook kanee mhas(i)nay. Eeyaa eeyaa.
3 mph.	Yaa, oo-mha oo-mh-ook kan-ee mhas-nay. Eeyaa eeyaa.
4 gloss	Yaa, DEF-morning WH-dawns-you know-PTCP spendMorning-wePRES
5 free	Knowing that the day dawns, we stay till the morning (eeyaa ...)

¹⁸ A similar neutralization affects the differences between subject and object articles.

¹⁹ "Contrastive analyses of a Beja song", to appear in *Journal of Eritrean Studies*, issue dedicated to language and linguistics.

first refrain

1 phon.	Bitlibaabneek eeshuun. Heebēeba wheeb.
2 mus.	Bitlibaabneek eeshuun. Heebēeba wheeb.
3 mph.	Bi-t-libaabn-eek ee-shuun. Heebēeba wheeb.
4 gloss	NEG-youSG-gird-if DEF-night (heebēeba ...)
5 free	If you don't want to gird your loins (heebēeba ...)

last stanza

1 phon.	Yaa, ookwalook diina, w'eerbaayeeb. Eeyaa eeyaa.
2 mus.	Yaa, ookwalook diina, w(i)'eerbaayeeb. Eeyaa eeyaa.
3 mph.	Yaa, oo-kwal-ook diin-a! w-ee-rb-aa-yeeb. Eeyaa eeyaa.
4 gloss	Yaa, DEF-song-your sing-IMPV, WH-DEF-hill-PL-GEN (eeyaa ...)
5 free	Sing your song – sing it into the mountains! (eeyaa ...)

last refrain

1 phon.	Unadiirook s'alnhook. Heebēeba wheeb.
2 mus.	Unadiirook s'alnhook. Heebēeba wheeb.
3 mph.	U-nadiir-ook s-al-n-hook. Heebēeba wheeb.
4 gloss	DEF-peer-your CAUS-dear-PL-you. (heebēeba ...)
5 free	Your friends exalt you. (heebēeba ...)

Conclusions concerning linguistic and musical "beat".

The relation between phonological pitch-accent and musical beat can be characterized as follows:

- (1) In words where the linguistic pitch-accent falls on the root as well as on one or two of the affixes, the musical beat will select one of the accentuated syllables as candidate for the placement of the musical beat.
- (2) In words where this option does not exist, the musical beat and the linguistic pitch-accent will coincide. (Nonsense syllables don't seem to have a fixed pitch-accent.)
- (3) As far as the metre of this song is concerned, the main line always has ten syllables, and five of these will be "heavy" or "stressed". It will be noticed that in some lines, short "i" sounds are inserted into consonant clusters in order to achieve the regular number of syllables.

So the non-poetic reading is different from the "poetic" reading or the musical performance of the song text: In the musical performance, a "regularized" symmetrical pronunciation is employed.

References

- Almkvist, Herman N., 1881, *Die Bischari-Sprache in Nord-Ost Afrika*, vol. 1-2, Uppsala: Koenigliche Societaet der Wissenschaften.
- Almkvist, Herman N.; 1885; *Bishari-deutsches und deutsch-bischarisches Wörterbuch* (vol. 2), 1-113. Uppsala: Koenigliche Societaet der Wissenschaften.
- Ashenafi Tesfaye, and Klaus Wedekind. 1994. "Aspects of Omotic Tonogenesis", *Journal of Ethiopian Studies*, 27 no.2 (Dec. 1994), 1-20.
- Hudson, Richard A., 1976. "Beja", in: Marvin L. Bender (ed.), *The Non-Semitic Languages of Ethiopia*, 97-132. Carbondale.
- Mohammed Adaroob Ohaj, 1971, "Min turaath albijaa althacabaa". Thesis, Khartoum.
- Mohammed Adaroob Mohammed, 1999, "Alhuruuf", in: *Bidaawiyit*, Cairo.
- Mohammed Al Badri, 1990, *Yaa oomha and other songs accompanied by Uud*, transcription by K. Wedekind, Kassala.
- Morin, Didier, 1995, *Des paroles douces comme la soie*, Paris: Peeters.
- Reinisch, Leo, 1893, *Die Bedauesprache in Nordostafrika*, Wien: Hoelder.
- Roper, E. M., 1928, *Tu Bedawie: An Elementary Handbook for the Use of Sudan Government Officials*, Hertford: Stephen Austin.
- Wedekind, Anne and Klaus. 1991. "Which Beat Rules Beat Which?". In: Bahru Zewde, Richard Pankhurst, and Taddese Beyene, eds., *Proceedings of the 11th International Conference of Ethiopian Studies*, 749-764. Addis Ababa.
- Wedekind, Klaus, 1983. "A Six-tone Language in Ethiopia". *Journal of Ethiopian Studies* 16, 129-156.
- Wedekind, Klaus, 1985. "Thoughts when Drawing a Map of Tone Languages". *Afrikanistische Arbeitspapiere* (AAP) 1, 105-124.
- Wedekind, Klaus, 2003, "Beja Pronouns and Glides: Dialects in Search of Optima". In: Gábor Takács (ed.), *Egyptian and Semito-Hamitic (Afro-Asiatic) Studies in Memoriam Werner Vycichl*, 217-226. Leiden: Brill.
- Wedekind, Klaus and Charlotte, 1999, "Designing a Writing System: Phonological Socio-linguistic and Practical Considerations", Paper read at the First International Conference on the Beja Language, Kairo, Sept. 1999.
- Wedekind, Klaus and Charlotte, and Abuzaynab Musa, 2002, "RRG Universal verb classes vs. Beja verb classifications based on morphologies and textual functions", paper read at The 2002 Conference on Role and Reference Grammar, University of La Rioja. [University of Buffalo, RRG website publication]
- Wedekind, Klaus, and Abuzaynab Musa, forth., "Beja (Bidhaawyeet): The Verb System", to be published in: *Afrika und Übersee*.
- Zaborski, Andrzej, 1986, *The Morphology of Nominal Plural in the Cushitic Languages*, *Beitraege zur Afrikanistik*, vol. 28, Vienna.