Phonology of Dagik

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The Masakin Dagik (Arabic: 'thin') live in and around the town of Reikka, south of the road between Kadugli and Talodi, Southern Kordofan. Their language falls in the Talodi sub-family of Niger-Kordofanian. It appears to be distinct from the Masakin language, known locally as 'Dara'. Within Dagik there are eleven clans: seven of which are said to speak "quietly", two "strongly", and two "slowly". My work is based on the dominant "quiet" section.

My notes are based on a phonetic wordlist of 178 words; nouns, adjectives and pronouns ('List 1', Orthography Development Workshop), and the same wordlist written 'psycholinguistically'. I include comments relating my findings to orthography development where appropriate. I also used the notes of Schadeburg(1981) on the language of 'Dengebu' - the name given by his language helper who was a member of the Dagik tribe. Items elicited for the same gloss in my data and his are extremely similar. From an academic point of view, this phonology is a suggestion in need of checking. However, it is hoped that the use of psycholinguistic and various phonetic data combined with growing field experience with the Talodi sub-family will produce a meaningful educated guess.

A. Segments

1.Sonorants

	m	n̪	n	ŋ
			l	
			r~r	
			j	w

There is little difficulty here. All of these occur intervocalically and, except [l], word initially. In the psycholinguistic list, all of them are differentiated without difficulty. I recorded some examples of lengthening word medially:

(1) [kɛ́n:ú] 'scorpion'

(2) [jɛ́l:o] 'one'

Length was not distinguished in the psycholinguistic list. This may well be an oversight in an effort to capture sound *quality* (cf. the plosives), but this could be checked further.

A word-final ŋ appears frequently in the psycholinguistic list. This corresponds phonetically to a light [ŋ], [kˇ], or a lifting of the back of the tongue towards the velum ([ɣ]), which appear to be free variants. If an orthography were to include {ng} (in order to avoid special characters for typing and computer work), this would be rather cumbersome for such a light sound in the word-final position, so one suggestion would be to use a symbol such as an apostrophe {'} word finally, as others are using for word-final glottal stops.

2.Obstruents

word initially	p~b	t̪~d̪~ð	t~d	k~g~ɣ
intervocalically	b~ß	d̪~ð	ɾ	g~ɣ
	p:	t̪:	t:	k:
			s	
			s~z	
			ts	

Here, a complementary distribution seems likely in voicing, with voicelessness in lengthened segments. Schadeburg's data(1981:61) confirms this view. The voicing or voicelessness of plosives in consonant clusters may be seen in the examples in 3. below: voiced in a sequence with a nasal, voiceless with a flap.

There is no [d] intervocalically; its place is taken by [ɾ] (to be distinguished from [r]). The alveolar fricative occurs, ocassionally voiced intervocalically. Intervocalic [ts] is {s} in the psycholinguistic list, and may be a realisation of /s/ or of long /s:/.

Nowhere are consonants doubled in the psycholinguistic list. In fact, heavy over-differentiation is used with different graphemes, covering virtually all the phonetic sounds listed above. It is apparent that the writer was oblivious to length in an effort to capture sound quality. However, in doing so:

1) Redundantly, differences were captured which occur in free variation.

2) Use of "voiced" and "voiceless" graphemes was thoroughly inconsistent with the voicing of plosives:

(3) {təəgŋ} for [təgəŋ~təɣəŋ] 'hair', but

(4) {səkəŋ} for [ségéŋ~sə́ɣéŋ] 'leg'

Exposure to English had taught the writer the appropriate graphemes, but he had not begun to distinguish voicing accurately in his own language. Hence, (ignoring length) he *introduced* each grapheme into his writing for a distinct phonetic sound he could identify, but, over an extended time, he would use a grapheme for other sounds within the phoneme to which that original sound belonged. However, [ɾ] was consistently written as {r}. The recommended solution is the phonemic one: reduce the mass of graphemes to only one for each place of articulation, doubling for the long voiceless sounds.

Some psycholinguistic words used {j}, claimed to represent the palatal plosive [ɟ], but in practice this letter was pronounced as the approximant [j]. It probably represents a recent loss from the phonemic inventory and is not an expected orthgraphic need.

3.Consonant Clusters

Word medially there is [mb], [n̪d̪], [nd], [ŋg],
[ɾn], [ɾt], [ɾk],
[bᵊn], [pɾ]

Some other cases of sequences including a flap could be checked to decide whether open transitions constitute a vowel between consonants or not.

Word initially there is [tɾ], [gɾ], and [nᵊr~dr]. The latter variation displays a process considered under Morphology C2.

4.Vowels

My wordlist has the vocoids i,ɪ,e,ɛ, a,ɜ,ə, ɔ,o,u. It is suggested that the vowel phonemes are as follows:

i		u
e		o
ɛ	ɜ	ɔ
	a	

Some of the vocoids do not match the cardinal vowel qualities these symbols often represent, and because of that the wordlist may clean up bearing in mind the following. The /ɛ/ is realised as raised [ɛ̝], perhaps halfway between cardinal [e] and [ɛ]. The /e/ is then also raised [e̝], perhaps at a height equidistant between the [ɛ̝] and [i]. A similar situation exists with the back vowels: /ɔ/ is [ɔ̝], halfway between [o] and [ɔ], /o/ is slightly raised [o̝]. Schadeburg(1981:62) also recorded three front and three back vowels.

Cardinal vowels:	i	e	ɛ	u	o	ɔ
Dagik vowels:	i	e̝	ɛ̝	u	o̝	ɔ̝

In the psycholinguistic list, {i,u} are used for /i,u/, {e,o} for /ɛ,ɔ/. No additional graphemes have been used to distinguish /e/ and /o/, but it cannot clearly be said that any grapheme already mentioned was actually used consistently for either of these.

There appear to be two central vowels as shown in the following words:

(5) [nágáŋ] 'guts'

(6) [nɜgɜŋ] 'hair'

Further checking with and/or discussion between members of different clans may help decide whether instances of [ə] belong to the /ɜ/ phoneme or are reduced forms of other phonemes (including /a/).

It appears that /ɜ/ can be realised slightly advanced towards the front: [ɜ̟], not to be confused with [ɛ]. An important contrast in my data is:

(7) [n̪é̝rɛ̝] 'woods'

(8) [n̪ɜ̟ré̝] 'honey'

The first vowel in 'honey' may sometimes sound advanced, but less so than the second vowel and less so than the vowels in 'woods', so is taken to be a free variant of the /ɜ/ phoneme.

The distinction between /ɜ/ and /a/ may be re-checked, but it seems likely that the fronting effect, an apparent strengthening of the vowel not based on any conditioning environment, would operate on a distinctive mid-central vowel rather than on an open central vowel which had already been reduced.

This effect probably accounts for more uses of [ɛ] in my wordlist and in the data of Schadeburg. Compare:

(9) [sɛ́gɛ́ŋ~sɛ́gɛ́ŋ, n̪ágɛ́ŋ], [sɛ́gɛ́ŋ, n̪égɛ́ŋ] (Schadeburg 1981:32))

}? /sɛ́gɛ́ŋ, n̪ágɛ́ŋ/ 'leg, legs'

In another example, a vowel was fronted when the word was elicited as a whole, and central when elicited syllable by syllable. This may be a useful technique in further checking:

(10) [sɛrəmo], [sə rə mo] 'chin'

I frequently recorded length in word initial open syllables, eg

(11) [sî:gî] 'eye'.

It does not occur in word initial closed syllables except in a single-syllabled example ending in a glide:

(12) [sá:î] 'head'.

The /ɜ/ phoneme does not lengthen, however, in which case length may exceptionally be deferred to the second syllable if it is open:

(13) [səga:rəŋ] 'sesame'

It is clear that CVC.CV(C) words do not have lengthened vowels, but that CV.CV(C) words do have the first vowel lengthened, as in (11). Further work would clarify the situation for all other word shapes, but it seems likely that vowel length occurs predictably and need not be written, unlike consonant length, so that

(14) [kɛ́:nú] 'ear'

and example (1) are only distinguished by single n versus double n.

B. Tone and Stress

In my list there are three distinctions in pitch, but most words were then EITHER a combination of mids and lows, OR all high. So I suspect that some 'mid's are in fact high tones. Phonetic lowering of word-final tones may also be occuring. Schadeburg(1981:63) records two tones. In this write-up, high tone is written.

No tone pairs occur in the wordlist, but (6) vs. (9), and the following examples, demonstrate some tone contrast:

(15) [kɛ́bî] 'meats'

(16) [kó:bi] 'feather',

(17) [kɜ́bú] 'charcoal'

18) [kɛ́bu] 'fence',

(19) [n̪áttú] 'spears'

(20) [náttu] 'dung'

It is expected that there are two phonemic tones functioning lexically but with a low load.

Stress is not written elsewhere in this write-up, but was recorded in the wordlist independently from length. Its phonetic characteristics are not immediately clear. In a clear majority of words, that stress is on the penultimate syllable. All of the exceptions are with stress on the final syllable. Some of these were recorded in free variation:

(21) [ˈkáːwî~káːˈwî] 'claw'

At this stage, it seems most probable that stress is not phonemic and defaults to the penultimate syllable. Tentative explanation can be offered for some, but not all, of the exceptions. Examples suggest that the final syllable may attract stress if it has a dental nasal, a flap or an alveolar affricate at its onset, or if the word final consonant is an alveolar (whereas usually it is velar):

(22) [woˈn̪ɛ] 'pebble'

(23) [t̪u:bəˈrəŋ] 'horn'

(24) [gɛ́tˈse] 'nose'

(25) [kámˈbul] 'louse'

One possible explanation is that stress was applied in these environments to emphase unusual features of the sound system.

C. Morphology and Morphophonemics

Many, but not all, of the nouns display a noun class system characteristic of the Kordofanian family. Within two-class genders, the number - singular or plural - is determined by the word initial consonant. Some of the genders, listed with the two classes and sample glosses, are:

t̪-/r-	mouth, tongue, horn, sheep
ŋ-/n̪-	foot, skin, bird, dog, fish
s-/n̪-	leg, hand
s-/m-	bone, chest, chin, tail, egg, sesame, dove, star, mountain
s-/k-	belly, breast, eye, neck, tooth
p-/k-	tree
p-/∅-	drum, lyre
p-/w-	person, man, woman
k-/w-	ear, scorpion, moon
k-/n-	knee, nose, wing, lake, name
t-/n-	hair, bull, crocodile, fly, dung

I was faithfully given a word or phrase for 'singular' and 'plural' even among expected mass nouns such as liquids. The glosses of such elicitations are questionable, as are some apparently unorthodox pairs of noun class prefixes elicited for some of them.

Kinship terms form their plural with a suffix:

(26) [kənî:bi, kənî:bi-je] 'mother, mother and aunts'

Nouns not elicited as following the noun class system include:

(27) [t̪ɔ[ɔ, t̪ɔ[ɔ-ke] 'back, backs'

(28) [jonɔmɔg-o, jonɔmɔg-ak:-o] 'thigh, thighs'

Some elicitations in the form of noun phrases demonstrate agreement in the consonant prefix between a noun and its modifying phrase:

(29) [ja j-o salija] 'animal of the forest'

(30) [waj w-o salija] 'buffalo' (lit. 'cow of the forest')

Some phonological processes are associated with this system.

1. Vowel Reduction

In some cases, the stem-initial vowel was elicited as reduced in the plural. Particularly apparent was reduction of [o] after r-. Some examples of apparent reduction of [u] may be a hearing error for [o], since other examples of [u] do not reduce.

o → ə / r_ eg(31) [t̪oŋga, rəŋga] 'sheep'

In another example, the word medial consonant lengthens in the plural to compensate a reduction in the first syllable (- the reduction does not occur in Schadeburg's data(1981:20)):

(32) [sa:rəŋ] 'belly' [gərrəŋ] 'bellies'

2. Excresence

In a few examples, a process is apparent involving the word initial consonant itself. Without a phonemic voicing contrast, singular and plural are virtually neutralised in this example, though in the plural the [d] is in fact always voiced.

(33) [trátsəŋ] 'fly' [nᵊrátsəŋ~drátsəŋ] 'flies'

'Excresence' (Antilla 1972: 67) is the appearance of a new sound in a specific phonetic environment. Here, in the sequence of homorganic nasal and flap, if the transition between is close, the velum is raised before the tongue tip is taken away from the alveolar ridge, which is precisely to say that a transitional [d] is articulated:

nr → ndr (33a) nratsəŋ → ndrátsəŋ

This is already attested in Tira (Watters 1993: 68). However, the [n] is now omitted in order to avoid a triple cluster at the syllable onset - so in practice the velum is never opened at all.

n → ∅ / $_CC (33b) ndrátsəŋ → drátsəŋ

It appears that the n is psycholinguistically relevant since it continues to be written in the psycholinguistic list, eg {nArAssŋ} for 'flies' (33). It is also grammatically relevant since such nouns fall in the t-/n- and g-/n- genders; a plural [d-] prefix does not generally occur.

In one case, prenasalisation remains, in order to carry a low tone before a following high tone:

(34) [nəré~ⁿdré] 'stools'

The writing of two free variant alternatives needs to be avoided, and it is preferable that the underlying form is written, especially since it already appears to be relevant to the writer.

Summary

I expect the list of phonemes to be:

Consonants: /p p: t̪ t̪: t t: k k: s s: m m: n̪ n̪: n n: ŋ ŋ: l l: r r: j w/

Vowels: /i e ɛ ɜ a ɔ o u/

Tone: high /´/, low /`/

Not every long nasal phoneme is attested in the wordlist but subsequent discovery of them all would not be surprising. Further study could focus on the following:

- The phonemic status of [ts].
- Open transitions between consonant and flap.
- Vowel length in words of three or more syllables.
- Exceptions to the default of stress on the penultimate syllable.
- Compilation of a list of noun genders, and account made for stem initial vowel changes
- Semantics associated with the genders, and meanings of classes elicited for English mass nouns
- Verb elicitation, eg 'List 2'
- Any grammatical uses of tone

The wordlist could generally be cleaned up particularly in vowels and tones. Some work also needs to be done using Arabic to check meanings of elicitations before a sensible dictionary can be started.

The segments listed may form the basis for the alphabet, and lengthened consonant phonemes may be represented by doubling letters. It may be that the case of the retroflex flap (under the /t/ phoneme) will meet with a call for continued over-differentiation, but this would mean agreeing an appropriate letter. Anyhow, letters need to be set for t̪,n̪,ŋ and 3 vowels additional to the Roman symbols already used.

In the cases of vowel reduction and excresence, it seems preferable to encourage writers to continue to use underlying forms. This will avoid the writing of free variants, and the shape of the noun stem will be preserved. It is to be expected that reading will be easier if the rest of the word remains the same when the first letter that is seen can vary according to number.

Tone was not written is the psycholinguistic list, so the need for marking it could be assessed. As mentioned in B., the lexical load on tone is low.

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