

Some Notes on Implosive Consonants in Nyangatom

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Abstract

Nyangatom is a member of the Teso-Turkana cluster within the Eastern-Nilotic group of languages (Vossen 1982) and is spoken in Ethiopia, in the lower Omo valley, by approximately 25,000 speakers (CSA 2008). While there is a detailed description on the Turkana variety spoken in Kenya (Heine 1980, Dimmendaal 1983) there are few grammatical sketches on the Nyangatom variety (Dimmendaal (2007) and Kadanya & Schroder (2011)) spoken in Ethiopia.

The status of implosives in the Teso-Turkana group in general and in Nyangatom in particular has not been investigated more clearly and different authors have reached different conclusions in the past. Heine (1980), for instance, recorded implosives as having a phonemic status in Turkana while Dimmendaal (1983) has described implosives in Turkana as variants of their voiced counterparts. In Nyangatom the grammatical sketches published so far have not identified implosive consonants as phonemes of the language. The current contribution gives a preliminary phonological analysis of implosives in Nyangatom with some comparative-historical notes and claim that implosives are full-fledged phonemes in Nyangatom and the opposition is between voiceless stops and implosives while the voiced stops are virtually absent from the phonological system.

1 Introduction

Nyangatom belongs to the Teso- Turkana dialect cluster that consists of four major groups and spread over four East African countries, namely, the Nyangatom in Ethiopia, the Toposa in Southern Sudan, the Turkana in Kenya, and the Karamojong in North Eastern Uganda. The Nyangatom, also known as Bume and number around 25,000 (CSA 2008), inhabit the south-western corner of Ethiopia, the Lower Omo Valley. Linguistically the cluster is classified under the Eastern Nilotic group within the Nilo-Saharan family (Vossen 1982).

Implosives are generally rare consonants and found in about 10 percent of the world's languages, mainly in west Africa (Maddieson 1984). Implosives are not uncommon in East African languages either. They are recorded in Eastern Nilotic languages (Dimmendaal 1988), Surmic languages (Moges 2001), Omotic languages, for example, Malle (Azeb 2001), Aari, Hamar, Dime, Kara (Moges 2015), and in some Cushitic languages such as Konso (Black 1973; Ongaye 2013).

So far very little has been done on the grammar of Nyangatom spoken in Ethiopia. Dimmendaal (2007) and Kadanya & Schroder (2011) are among the grammatical sketches published on the language while there exists detailed descriptions on the Turkana variety spoken in Kenya (Heine 1980; Dimmendaal 1983). There is a comparative-historical discussion on Teso and Karamojong varieties in the context of Eastern Nilotic linguistic and historical reconstructions made by Vossen (1982: 178-184). The sources the author used for Teso were Tucker & Bryan (1966: 448) and his own data while the data for Karamojong were based on Koehler's 200-word-list. Otherwise, there are no detailed linguistic descriptions on Toposa and Karamojong varieties spoken in South Sudan and Uganda respectively.

Concerning the status of implosive consonants within the Turkana-Teso cluster, there are different conclusions made in earlier descriptions. Heine (1980) identifies the whole set of implosives /**b**, **d**, **j**, **g**/ in Turkana, as quoted in Vossen (1982), whereas Dimmendaal (1983), in his *Turkana Grammar*, states that implosives or glottalized consonants occur in Turkana only when voiced stops /**b**, **d**, and **g**/ are optionally glottalized in syllable-initial position, which implies that implosives in Turkana occur at the phonetic level as variants of the voiced stop consonants. Our data shows that in Nyangatom while the voiced stops are virtually absent from the inventory of consonants, implosives (glottalized consonants) occur as full-fledged phonemes.

The objective of the current contribution is, therefore, to present a preliminary phonological description of implosives in Nyangatom variety with comparative-historical notes.

2 A brief description of stops and implosives

Nyangatom makes a two-way contrast among the stop consonants and the opposition is happened to be between voiceless stops and voiced implosives as shown in Table 1 below. The voiced stops are literally absent from the system and found in our data only in three lexical items out of 300 basic lexical items: **é-dómé** 'a kind of tree'; **é-kúdó-r** 'door'; **á-déré** 'calabash (utensil made of half of a large, round calabash)'. Whether these are cases of borrowings is not clear at this stage.

Table 1: Plosives in Nyangatom

	Bilabials	Alveolars	Palatals	Velars
Voiceless Stops	p	t	ʈ	k
Voiced Implosives	ɓ	ɗ	ɟ	ɠ

Nyangatom has, therefore, the full series of implosives articulated at four places of articulation: bilabial, alveolar (apical), palatal and velar. The following minimal and near minimal pairs illustrate the phonemic contrast between voiceless stops and voiced implosives.

Table 2: Minimal and sub-minimal pairs

- taɓ	'tobacco'
- tap	'porridge (made of sorghum)'
- pɛj	'one'
- ɓej	'Balanites Orbiculus'
- pón	'lip'
- ɓɔŋ	'afternoon'
- tam-	'Crested guinea fowl'
- ɗam	'brain'
- tɪr	'fish, particular type'
- ɗɪr	'Oryx Beisa'
- ʈɔj-	'sack made of goat's skin'
- ɟul-	'fur/wool'
- ʈók	'fruit/nut'
- ɟom	'mat'
- muɟɪ	'sister-in-law'
- muɟ-	'food'
- ɟúlú	'pot'
- kuru	'rain'
- kɔwan	'wind'
- ɟowa	'power'
- kəkər	'egg'
- ɟɔɟɔŋ	'force'

Among the implosives, the bilabial and apical implosives are the most frequent ones, whereas the palatal and velar implosives occur less frequently. Some minimal and near minimal pairs among the implosive consonants are given in Table 3 below.

Table 3: Minimal and sub-minimal pairs between implosives consonants

- ɓol	'fish, particular type'
- ɗol	'apron, leather apron'
- ɗɪɗ	'spleen'
- ɗáɓ	'tobacco'
- ɗokor	'scorpion (generic)'
- ɓəkər	'decorated leather apron'
been	'yesterday'
ɗaan	'all'

Distribution of implosives

All implosive consonants occur at all positions within a root, i.e. root initially, medially and finally as shown in Table 4 below.

Table 4: Distribution of implosive consonants

	Root-initially		Root-medially		Root-finally	
ɓ	- ɓol	'fish, particular type'	- ɗáɓɪɪ	'break'	- ɗáɓ-	'tobacco'
	- ɓéj	'a kind of bird'	- ɓolíból	'dewlap, of ox'	- kaɓ-	'bow'
	- ɓɪtí	'short spear'	- ɗɒɗɒ-	'sword'		
ɗ	- ɗilat	'wolf'	- ɗudók	'blind'	- ɗíɗ-	'spleen'
	- ɗis	'cloud'	- ɗadó	'tail (of a cow)'		
	- ɗɛkɛ	'disease'	- ɗede	'house wine'		
ɟ	- ɟul-	'fur/wool'	- ɟajɛp	'tongue'	- kuɟ	'God'
	- ɟeme	'wound'			- muɟ-	'food'
					- keɟ-	'leg/foot'
ɠ	- ɠɛ	'local beer'	- ɠɠɛs	'illness'		
	- ɠúlú	'pot'	- ɠɠɠɛr	'finger nail'		
	- ɠɔwa	'power'	- ɠɠɠɠ	'force'		

The bilabial and apical implosives are most frequent and the palatal and velar implosives are less frequent in our data; the least frequent implosive is happened to be the velar one. The absence of the velar implosive consonant at root final position, as can be seen on Table 4 above, could possibly be due to the limited data at hand.

The occurrence of implosives at root final position is interesting when compared to the distribution of implosives in the Turkana variety. According to Dimmendaal (1983:9), in Turkana "the voiced obstruents /b/, /d/, /j/ and /g/ are optionally glottalized in syllable

initial position. In syllable final position, all obstruents are realized as unreleased stops". The examples given for Turkana by Dimmendaal are given in Table 5 below with their counterparts in Nyangatom variety.

Table 5: Some examples from Turkana and Nyangatom

Turkana data	Nyangatom data	Gloss
a-tubwa [a.tu.bwa]	a-tubwa	'plate'
ε-dula [ε.dʊ.la]	ε-dʊla	'granary'
e-jom-u [e.jo.mu]	e-jom-u	'mat'
ε-gɪlar [ε.gɪ.la']	ε-gɪla	'wild potato'
ε-tɪd [ε.tɪd']	e-tɪd'	'spleen'

As can be gathered from the data in Table 5 above, in Nyangatom implosives occur in both syllable-initial and syllable final positions as in **daan** 'all'; **tede** 'house wine'; **a-ko-moj** 'food' and **e-tɪd'** 'spleen'.

Concerning the distribution of implosives within a word, Greenberg (1970) generalizes that word-final implosives do not occur across languages. In Nyangatom root-final implosives do occur and in some cases word-final implosives also occur. Hence, Nyangatom does not confirm to this general tendency across languages. In some neighboring languages of the Aroid group such as Hamar, Kara, Aari and Dime (Moges 2015) and in Cushitic Konso (Black 1973, Ongaye 2013) the occurrence of word-final implosives is a widespread phenomenon.

Clustering

Clustering of consonants do occur in Nyangatom but it is limited to syllable initial positions and a combination of any consonant with one of the two glides /w/ and /j/. A similar observation has been made in Turkana and Dimmendaal (1983:12) further notes that "A sequence of consonant plus glide does not constitute a single phoneme, as (1) such sequences occur only syllable initially, (2) sequences of consonant plus glide may consist of any consonant in combination with either of the two glides, and (3) each of the consonants and each of the vowels may occur on their own". This description holds true for Nyangatom as well. Implosives therefore cluster with glides at syllable-initial positions as in **-tubwa** 'plate'.

Greenberg (1970:131) states that clustering of implosives with other consonants is unlikely, particularly when a nasal is involved. In contrast to Greenberg's generalizations, clustering of implosives with other consonants (glides) is common in Nyangatom in which case clusters involving both egressive and ingressive directions of air flow may occur at syllable initial positions.

3 Implicational universals

Other implicational universals that concerns implosives, and the hierarchy of the places of articulation of implosives, discussed in (Greenberg (1970), Sherman (1975), Maddieson (1984) include, among others:

- (a) Preferences regarding point of articulation: implosives tend to have front articulation and the bilabial is clearly the favored place of articulation
- (b) As compared to non-implosive dental stops, implosives are very often retracted to alveolar or alveo-palatal position and are consistently apical.
- (c) The implicational order: labial, post-alveolar, palatal and velar for implosives; If a language has one implosive, it is **ɓ**; if they are two they are **ɓ** and **ɗ** (the most common pattern); if they are three they are **ɓ**, **ɗ**, and **ɟ**; and if four they are **ɓ**, **ɗ**, **ɟ** and **ɠ**.

These generalizations, and others, have been confirmed in a count conducted by Stanford Phonology Archive, as summarized in Javkin (1977: 31), although some counter examples from Mayan languages were also reported by Campbell (1973).

Generally, Nyangatom does confirm to these general tendencies across languages as the front articulated implosives /**ɓ**/ and /**ɗ**/ are more frequent and productive in their occurrence as compared to the back articulated implosives /**ɟ**/ and /**ɠ**/. Furthermore, as compared to the alveolar voiceless stop /**t**/, the implosive counterpart /**ɗ**/ is more apical in its articulation.

4 Comparative-historical notes

From an areal linguistics perspective, there are a number of languages in the region where implosives are happened to be part of the phonemic inventories of those languages. Within the Cushitic family Konso is unique in having the full series of implosives and implosive consonants contrast with voiceless stops; and hence voiced stops are absent from the phonemic inventory of Konso (Ongaye 2013). Other Cushitic languages spoken further to the north such as Sidamma, Oromiffa and Kefinooonoo have either both the bilabial and apical implosives or only the apical one (Mous 2012; Azeb 2012). The neighboring languages spoken in the lower Omo valley such as the Surmic languages, Koegu, Mursi, Tirma-Chai, and Baalesi (Moges 2001) and the Omotic languages Hamar, Kara, Dime and Aari (Moges 2015) do have implosive consonants in their phonemic inventories and these languages have been in contact with Nyangatom either due to geographical proximity or due to socio-cultural reasons.

According to Vossen (1982), implosive consonants occur in many Eastern Nilotic languages and the contrast between implosives and stops vary from one group to another. In the Bari group, for instance, stops predominantly occur while implosives such as /b/, /d/ and /j/ also occur in some languages. In the Teso-Turkana group, where detailed phonological descriptions are lacking for some of the languages such as Teso and Karimojong, no clear conclusions can be drawn on the status of implosives. In Teso, according to Vossen, the implosive /d/ alternates with /d/ in any position while the palatal implosive /j/ occurs as a phoneme. For Turkana, Heine (1980) and Dimmendaal (1983) have reached different conclusions regarding the status of implosive consonants. Heine recorded the full series of implosives as distinctive phonemes and contrastive with voiceless stops, Dimmendaal analyzed implosives as variants of the voiced stops. For Tucker & Bryan (1966), the voiced stops are normally implosives in Teso and Turkana as well as in the Lotuko group.

Hence, although the occurrence of implosives across the Eastern Nilotic languages is widespread, the status of these consonants and their evolution require an in depth analysis both within the Teso-Turkana group and beyond. Comparison of implosives in Teso-Turkana group with the neighbouring non-Nilo-Saharan languages might also shed some light on the origins of these consonants and the impact of language contact situation, and this is a subject for further investigation from both the comparative-historical and typological perspectives.

The following sample comparative data on the Teso-Turkana group might give some clue to the curious reader on the status of implosives. The data for Teso, Turkana and Karimojong were taken from Vossen's (1982: 325-446) lexical reconstructions. Vossen also gives the proto-forms for Teso-Lotuko-Maa and Eastern Nilotic languages which involve other languages within the group. The proto-forms have not been discussed here since the discussion given by Vossen goes beyond the Teso-Turkana group.

(a) 'tongue'

Turkana:	a-ŋa-jèp
Nyangatom:	á-ŋá-jép
Teso:	á-ŋà-jèp
Karimojong:	a-ŋa-dyép

(b) 'all'

Turkana:	ɗáaŋ
Nyangatom:	ɗaan
Teso:	-----
Karimojong:	ɗaɗáŋ

(c) 'cloud'

Turkana:	e-du
Nyangatom:	a-dɪs
Teso:	e-dou
Karimojong:	é-dóu

(d) 'foot/leg'

Turkana:	á-keɽ-ú
Nyangatom:	á-keɽó
Teso:	a-kèɽ-ò
Karimojong:	á-keɽ-ú

(e) 'frog'

Turkana:	a-kɪ-dɔ-dɔk
Nyangatom:	a-kɪ-dɔ-dɔk
Teso:	a-kí-dɔ-dɔk
Karimojong:	-----

(f) 'left'

Turkana:	keɽɪɛ-
Nyangatom:	keɽe-
Teso:	-----
Karimojong:	kedien

5 Conclusions

According to the preliminary analysis made in this study, Nyangatom has a full series of implosives which contrast with their voiceless stop counterparts. At least in our data, the voiced stops are absent from the phonemic inventory of Nyangatom.

From the perspective of implicational universals proposed by Greenberg (1970), Sherman (1975), Maddieson (1984), Nyangatom does respect most of the generalizations with some deviations. Nyangatom data show that implosives can cluster with glides, which is the only form of clustering for all consonants, and this may add to the list of exceptions to Greenberg's generalization on the concurrence restrictions of implosives.

As a follow-up to this study, an in-depth analysis of the nature and evolution of implosives within the Eastern Nilotic in general and the Teso-Turkana group in particular would be in order. Whether implosives are archaic features preserved in Nyangatom and other languages within the group or they are recent innovations within the Teso-Turkana group would be a question that needs to be addressed with a more comprehensive data.

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