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Western Sisaala – Phonological alternations in plural formation

Introduction

This paper provides an original phonological analysis of some of the plural noun formations of Western Sisaala. Western Sisaala has several noun classes. The classes are distinguished by the suffixes used to form the singular and plural. Moran (2006) tentatively identifies a few noun classes. In this squib, I discuss a subset of the plural forms attested in the language. Many of these forms are similar but I distinguish three different classes of plurals and describe the associated strategies and phonological processes involved in the derivation of these forms.

The remainder of this paper begins with some brief background on Western Sisaala and its tentatively identified noun classes. Then I present the examples of the data that I discuss in the analysis. The analysis section is a presentation of the three distinct classes of plural morphemes that I have identified, the alternations of each plural morpheme and the phonological processes that account for the data. I conclude this paper with a brief discussion of the main points of the analysis.

Background

Western Sisaala (ssl), called Issalo by its speakers, is a language of Africa, spoken in and around Lambussie in Upper West region of Ghana. It is believed that Western Sisaala is spoken by fewer than 10,000 people. Western Sisaala is classified by Ethnologue (Gordon 2005) as a Niger-Congo language, specifically Gur family, Western Grusi branch. It is closely related to

Sisaala Tumulung in the Sisaala language complex but the two languages are not mutually intelligible.

The data used in this analysis were collected in Lambussie, by Steve Moran, during the summer of 2003¹. Until then, Western Sisaala was an undocumented language. Steve Moran has generously made his full database of more than 3000 entries available to me for this phonological analysis.

Noun Classes

As is typical of African languages in the area, Western Sisaala appears to have many noun classes distinguished by singular and plural formation strategies. McGill et al. (1999) document 5 noun classes with 14 subclasses in Sisaala-Pasaale, a related language also spoken in the Upper West region of Ghana. Four noun classes of Western Sisaala have been preliminarily identified and described in Moran (2006). The singular and plural formation strategies identified by Moran are listed in Table 1. Within these classes there are also numerous variations involving vowel quality and/or tone.

	Singular	Plural	
Class 1:	∅	-wa	(suffix)
Class 2:	∅	´	(high tone on final syllable)
Class 3:	-a	-e	
	-a	(-n-) -e	(epenthesized nasal plus suffix)
	-a	-se	
Class 4:	VV	V	(shortened long vowel)
	CC	C	(de-geminated approximant)

Table 1: Preliminary noun classes (Moran 2006)

¹ The purpose of the research in Moran (2006) was to provide a linguistic description that would facilitate the development of a writing system for the language.

My analysis suggests that there is additional variation in Class 3, or that Class 3 does not truly represent a coherent class. Either way, there are several phonological alternations apparent in the data and I address a number of those in this paper.

Data

The data in Table 2, classified by plural suffix form, illustrate the plural formation strategies and phonological processes I discuss in my analysis.

Suffix	ex.	Singular	Plural	singular gloss
[-se]	a.	kaka	kakse	'snake'
	b.	ɕe	ɕese	'crab'
	c.	tʃana	tʃanse	'moon'
[-si]	d.	mabí	mabisi	'step mother'
	e.	tʃune	tʃunsi	'shadow'
	f.	tʃanbinnu	tʃanbinsi	'dark moon'
[-sé]	g.	tʃá	tʃásé	'broom'
	h.	va	vasé	'dog'
	i.	nátásúli	nátásúsé	'shoe'
	j.	towɔ	tosé	'tobacco'
	k.	koŋkoŋɔ	koŋkoŋsé	'coconut'
[-ne]	l.	fuo	fuone	'stream'
	m.	tie	tiene	'land'
	n.	tuwo	tune	'tree'
[-nse]	o.	basá	banse	'sitting stool'
	p.	jese	jense	'salt'
	q.	gogɔso	gogɔnse	'rag'

Table 2: Representative examples of the data

Analysis

My analysis indicates that there are only three plural strategies represented in Table 2 and that the remaining plural suffixes observed are phonological alternations. I will refer to these strategies as Class-sE, Class-sé and Class-ne. The forms related to Class sE and possibly Class sé

are included in Moran's Class 3, described in Table 1. Although this paper is not concerned with defining noun classes, I demonstrate below that the plural formation strategies that characterize Class sE and Class sé are distinct. It is, however, probable that these three classes divide into multiple subclasses based on the formation of the singular but I do not address the issues of singular noun formation in this paper. In the next three sections, I specify the alternations and the phonological rules that account for plural formation in each of Class-sE, Class-sé and Class-ne.

Class-sE

Plurals in Class-sE are formed by suffixation of the morpheme /-sE/ where E represents a tense (+ATR) front vowel² that is underlyingly unspecified for height. The morpheme /-sE/ has two alternations: [-se] and [-si]. These two alternations result from height assimilation of the vowel in the suffix to the preceding vowel. If the preceding vowel is [+high] the suffix takes the form [-si], if [-high] it takes the form [-se]. This can be formalized with the rule in (1).

$$(1) \quad \text{Vowel Assimilation Rule (VA):} \quad \begin{bmatrix} +ATR \\ -back \end{bmatrix} \rightarrow [\alpha^{v} high] / [\alpha^{v} high] (C)(C) + C \text{ ___}$$

Example f, in Table 2, illustrates an additional phonological process that simplifies a consonant cluster consisting of a geminate followed by a consonant by reducing the geminate to a single segment. This can be formalized as in (2).

$$(2) \quad \text{Geminate Deletion Rule (GD):} \quad GG \rightarrow G / \text{ ___ } C$$

² Western Sisaala has four front vowels, two lax (-ATR), [i] and [e], and two tense (+ATR), [i] and [e].

The following derivation illustrates how these rules account for words like examples a-f, in

Table 2.

gloss	‘snakes’	‘crabs’	‘moons’	‘step mothers’	‘shadows’	‘dark moons’
UR ³	/kak + se/	/ɕe + se/	/tʃan + se/	/mabí + se/	/tʃun + se/	/tʃanbinn + se/
VA	--	--	--	mabísi	tʃunsi	tʃanbinnsi
GD	--	--	--	--	--	tʃanbinsi
	[kakse]	[ɕese]	[tʃanse]	[mabisi] ⁴	[tʃunsi]	[tʃanbinsi]

Class-sé

Plurals in Class-sé are formed by suffixation of the morpheme /-sé/ (^H/se/). The acute accent represents a high tone. The underlying vowel in this plural morpheme is not unspecified for height and does not assimilate to qualities of other vowels, seemingly always occurring as [-sé] as illustrated by example i, in Table 2: The final vowel in [nátàsúsé] does not assimilate to the preceding high vowel.

In addition, examples i and j illustrate that the suffixation triggers deletion of morpheme final approximants. If the final syllable preceding the morpheme /-sé/ underlyingly ends in an approximant, a consonant cluster of the type approximant + s is formed when the suffix is added. However, according to Moran (2006) and confirmed by analysis of the data, non-

³ Final vowels in singular forms result from the interaction between underlying forms, singular morpheme suffixation and phonological processes. The details of this process are complicated and beyond the scope of this paper.

⁴ The loss of the high tone is unaccounted for in this analysis.

geminate consonant clusters are severely restricted in Western Sisaala; only /b,t,k,g/ or /s/ followed by /w/ or /r/ are attested. In addition, Moran (2006) states that only geminates or nasals are allowed in codas.

Since approximants are more sonorous than the fricative /s/, by the Sonority Sequencing Principle (SSP), an approximant + s cluster would never make a well-formed onset. Therefore, since an approximant is disallowed as a coda in Western Sisaala, it becomes a stray consonant when the suffix is appended. This stray consonant is handled by deletion. Examples i and j, in Table 2, illustrate this deletion of [l] and [w], respectively⁵. The rule in (3) states the generalization that approximants are deleted before another consonant. The suffixation feeds this deletion rule.

(3) Stray Approximant Deletion Rule (SAD):
$$\left[\begin{array}{l} +son \\ +cont \\ +cor \end{array} \right] \rightarrow \emptyset / \text{---} C$$

The following illustrates the derivation of plurals like examples g-j, in Table 2.

gloss	‘brooms’	‘dogs’	‘shoes’	‘tobaccos’
UR	/tʃá + sé/	/va + sé/	/nátásúl + sé/	/tɔw + sé/
SAD	--	--	nátásúsé	tɔsé
	[tʃásé]	[vasé]	[nátàsúsé] ⁶	[tɔsé]

Class-ne

The Class-ne plural morpheme is underlyingly /-ne/. It has two forms in the data, [-ne] and [-

⁵ There is also evidence for [r] deletion. /r/ is described in Moran (2006) as an alveolar flap.

⁶ The tone change is not accounted for in this analysis.

[nɛ], but /-ne/ occurs only once in the data as [-nɛ] and it is not clear what might account for the vowel quality difference. Therefore I will not distinguish these forms here. There are also plural nouns that end in [ni] but these forms do not appear to be related to this /-ne/ suffix, as the [n] seems to be part of the noun morpheme, not the suffix.

The plural forms that end in [nse] (Table 2, o-q) look at first blush as though they might be Class-sE forms. However, I have concluded that these forms actually belong to Class-ne. These plural forms always correspond to singular forms that end in [sV]. Assuming that the final V is a singular suffix, these forms all end in /s/ underlyingly. Given that, the suffixation of /-ne/ creates an /s+n/ cluster. [sn] clusters are disallowed in Western Sisaala. This conflict with cluster constraints is resolved through metathesis. The /s/ and /n/ reverse to create a well-formed onset [s] and a well-formed coda [n]. This rule is relatively informally defined in (4). The metathesis is feed by the suffixation of the /-ne/ morpheme.⁷

(4) Metathesis (MT): /s/+ /n/ → [ns]

The following illustrates the derivation of plurals like the remaining examples in Table 2.

gloss	‘stream’	‘tree’	‘salt’	‘rag’
UR	/fuo + ne/	/tuw + ne/	/jɛs + ne/	/gogɔs + ne/
ACD:	--	tune	--	--
MT:	--	--	jɛnse	gogɔnse
	[fuone]	[tunɛ] ⁸	[jɛnse]	[gogɔnse]

Conclusion

⁷ I have not listed [nse] as an official alternation of [-ne] since it combines segments from the suffix and the noun morpheme, although this surface form is derived from the /-ne/ morpheme.

⁸ See discussion of [nɛ] above.

In this analysis there are basically two kinds of phonological processes, assimilation and phonotactic constraint resolution. The assimilation takes the form of vowel height assimilation of underlyingly underspecified vowels. Phonotactic constraints are resolved in two ways. The first is deletion of stray consonants generated in geminant-consonant and most consonant-consonant clusters. The second is metathesis that resolves disallowed /sn/ clusters.

This analysis proposes specific phonological rules to account for the variation among similar plural forms in Western Sisaala. It demonstrates that [-se] and [-si] are alternations of a single form while [-sé] constitutes a distinct form. In addition, this analysis demonstrates that plural nouns ending in [nse] belong to Class-ne not Class-sE. This analysis may provide evidence for a re-articulation or reanalysis of Class 3 in Moran (2006).

References

Gordon, Raymond G., Jr. (ed.), 2005. *Ethnologue: Languages of the World*, Fifteenth edition. Dallas, Tex.: SIL International. Online version: <http://www.ethnologue.com/>.

McGill, Stuart, Samuel Fembeti and Mike Toupin. 1999. *A Grammar of Sisaala-Pasaale*. Tamale, Ghana: Ghana Institute of Linguistics, Literacy and Bible Translation and Institute of African Studies.

Moran, Steven. 2006. *A Grammatical Sketch of Western Sisaala*. M.A. Thesis: Eastern Michigan University.