Plural suffixes on Tagoi nouns

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1 Introduction

The Rashad language Tagoi exhibits a complex system of nominal plural suffixes. There are basically three suffixes, *-(V)t, -(V)n* and *-tVn,* which show up in fifteen allomorphs: *-t*, *-at*, *-ɔt*, *-it*, *-et*, *-ʌt; -n*, *-an*, *-en, -ʌn*, *-in*; *-tan*, *-tin*, *-ten* and *-tʌn.* A number of phonological environments interact and affect the alternation and selection of these suffixes. The first is vowel harmony, in which the vowel of the suffix is either controlled by the stem's low/non-low vowel or we find a dominant vowel suffix which raises the preceding stem vowels. Second, the noun stem selects suffixes due to the size of the stem, whether mono-, di- or polysyllabic, and due to the shape of the final syllable, i.e., its weight (open or closed), vowel length (short or long), vowel quality (low or non-low) and tone (H or L). The present contribution identifies the nominal plural suffixes and tries to determine the patterns for their environments. Thus, in Pattern I we find *-(V)t,* used for nouns with a stem-final syllable with a high-toned vowel. Pattern II, characterized by the morpheme *-(V)n,* includes nouns with a low-toned stem final syllable. While the former two can thus easily be distinguished, Pattern III, with the suffix *-tVn*, occurs with nouns whose singular form ends with a high- or low-toned syllable. The decisive distinguishing factor is the shape of the final syllable, which must be closed when it has a long vowel. Variation within the three patterns will be explained more broadly by further conditioning features.

The present analysis elaborates on noun morphophonology, and specifically on nominal suffix allomorphy. Obviously, the plural suffixes *-(V)t, -(V)n, -tVn* and their allomorphs have independent phonological forms, but the selection and alternation of the suffix and its vowel is more often than not conditioned by several phonological attributes interacting in the singular noun stem.

The contribution consists of six sections. The remainder of the introduction gives some background information on the language (SECTION 1.1), as well as a review of the existing literature concerning Tagoi (SECTION 1.2). In SECTION 2 I give a brief account of Tagoi vowels, their distribution in nouns and vowel length. An

account on the syllable structure and the syllable weight of Tagoi nouns is presented in SECTION 3. Tone and its distribution on nouns is dealt with in SECTION 4. A detailed discussion of suffix alternation is given in SECTION 5, with three subsections going into detail regarding the main patterns analysed. A summary and conclusion are given in SECTION 6.

1.1 Background information

Tagoi is a Niger-Congo language of the Nuba Mountains of Sudan, spoken to the west of Rashad town. It has a noun class system that constitutes seven noun class pairings (13 single classes), including six noun class pairings plus a single class for liquids and abstract nouns. Most nouns have number-paired prefixes, singular and plural, replacing each other in the noun root. The assignment of nouns to the class is based on the prefix agreement evidence and semantics (Stevenson 1956/57, Corbett 1991, Bashir 2018). For example, when an adjective, e.g., *-òtró* 'big', modifies the noun *k-ùh/h-ùh* 'bone/s', the adjective takes an agreement prefix that belongs to the same noun class: *k-ùh k-òtró* 'big bone' for singular and *h-ùh/h-òtró* 'big bones' for plural. Further, nouns share some semantic features according to which they are classified into the semantic classes: animates, unit/collective and roundish things, common objects, long things, pointed and outstanding things, and diminutive, liquid and abstract nouns (Bashir 2018: 5). The noun prefixes thus signify number and determine the noun class membership.

In addition to prefixes, most Tagoi nouns mark plural with suffixes. The suffix marks countable nouns and is added to plural nouns with a plural prefix, as a general tendency of Tagoi speakers to ensure and enforce plurality and distinguish countable nouns from mass/collective nouns. Regarding countability, Tagoi nouns are classified into countable nouns and mass/collective nouns. Countable nouns have either double marking for plural, i.e., they are marked with a prefix and a suffix, e.g., *k-áy/h-áy-at* 'head/s', or are prefixless, i.e., they are only marked by a suffix, for instance, *màfɔ̀ɔt/màfɔ̀t-tàn* 'cat/s' (see also Bashir 2018). Mass nouns/collectives are marked with a prefix only, for example, *k-àm/h-àm* 'hair' (Bashir, in preparation). The present contribution concerns the suffixation of countable nouns.

1.2 Literature review

The use of suffixes in plural formation is widespread throughout the group of Rashad languages, including Tagoi. Stevenson assumed that suffixes, not prefixes, were the fundamental method of plural formation (1964: 86) and that prefixation is a later acquisition in the Tagoi language. He mentioned that there are many plural suffixes in Tagoi and reported among them *-in*, *-at* and *-ɔt* (1964: 85). The present description also identifies these three suffixes, but with more

vowel variants. In addition, one more suffix, *-tVn*, not reported by Stevenson, is identified. The various types of Tagoi plural suffixes pointed out by Stevenson, and noticed later by the present author, are the focus of the present contribution.

Earlier work and materials on the Rashad (Tegali-Tagoi) languages are still scanty and many points await further investigation. In his comprehensive survey of the phonetics and grammatical structure of the Nuba Mountain languages (1956/57), Stevenson pointed out general linguistic characteristics of the Rashad language group, including Tagoi. I review here only those of relevance to our topic, i.e., vowels (SECTION 2), syllable structure (SECTION 3) and tone (SECTION 4).

Concerning vowels, Stevenson (1956/57: 46f.) reported five vowel qualities: *a, e, i, o, u,* and the neutral vowel *ə*. Most vowels, as he says, are also attested "with lax or short varieties […], particularly in unstressed syllables where they are also often lost or represented by some kind of neutral vowel whose quality is not always easily determined. The neutral vowel (ə) also occurs in stressed positions." The present contribution attests ten vowels, including the neutral vowel. The vowels are distinguished, however, as low vs. non-low vowels (see SECTION 2). Stevenson mentioned that vowels may be short or long but no data supporting the existence of length contrast is recorded. The present analysis provides evidence for vowel length contrast (see SECTION 2.2). Most roots are monosyllabic or disyllabic, as also reported by Stevenson (1956/57: 47). For more details see SECTION 3.

Concerning tone, as cited by Stevenson (1956/57: 47), Mr. and Mrs. MacDiarmid (1931) recorded tone in Moreb, but Meinhof (1916) found no trace of tone in Tagoi. Stevenson (1956/57: 47) himself doubted whether tone exists or, "apart from stress, plays an important role" in Rashad languages. However, data in the present contribution show evidence in favour of tone rather than stress, as will be discussed in SECTION 4.

The present contribution is part of ongoing research on the Tagoi language that started in 2012.[1] Data are obtained from a database containing more than 800 nouns and a number of sentences collected during several periods between 2012

[1] The research on the phonology and the morphology of the Tagoi language was conducted in 2011-2012 by the present researcher and Suzan Alamin. In addition, a sociolinguistic survey conducted by Helene Fatima Idris provided facts about the sociolinguistic situation and the degree of language endangerment among the Tagoi people. The research was part of a program funded by ELDP. The outputs are sociolinguistic data, a wordlist file containing more than 200 nouns, and audio files documenting numerals, adjectives and the paradigms of some verbs. In addition, a Toolbox file (224 records) of one of the stories was produced. All these files are archived in the Endangered Language Archive, ELAR (see information on the project at https://www.elararchive.org/dk0126).

and 2022. Data were elicited and recorded directly from four adult male language consultants.[2] This research aims to fill certain gaps in the systematic description of the Tagoi language. So far, a description of the pronominal system (Alamin 2015), the noun classes (Bashir 2018), word order and agreement (Alamin 2020) and a study on birth names (from a linguistic and socio-historical perspective) (Bashir & Ali 2024) have been published. In addition, an initial description of Tagoi vowel harmony by Bashir & Rose (2024) has been published. Other work regarding nominal and verbal aspects of the language is still in preparation.[3]

2 Tagoi vowels

The inventory of Tagoi vowels (TABLE 1) shows eight vowels with four height levels whose phonemic status is undoubted: high /i, u/, mid-high /e, ʌ, o/, mid-low /ɛ, ɔ/ and low /a/. There are three positions: front /i, e, ɛ/, central /ʌ, a/ and back /u, o, ɔ/. In addition, all vowels are distinguished in terms of the feature [round]. As discussed below, on a systematic level, low vs. non-low vowels are distinguished, which shows in the formation of affixes.

		FRONT UNROUNDED	CENTRAL UNROUNDED	BACK ROUNDED
non-low	high	i	[ɨ]	u
	mid-high	e	[ə] ʌ	o
low	mid-low	ɛ		ɔ
	low		a	

TABLE 1: Tagoi vowel inventory

In addition to the eight vowels, there is a weak vowel [ə] that appears as a reduced version of a short vowel of a light open syllable, e.g., /cárám/ [cə́rám] 'single twin', /fʌ́ŋʌ́nét/ [fʌ́ŋə́nét] 'elephants'. Another central vowel is [ɨ], whose phonemic status is not clear. It never occurs with other vowels in the same root, nor does it appear as an affix vowel. It is attested in a few nouns, e.g., *yɨ́tɨ́r* 'back', *wɨ́gɨ́r* 'waist'. With some lexemes, it is in variation with /ʌ/; for example, /tʌ́f/ 'roots of Daleeb tree' and /ŋʌ́r/ 'oil' are pronounced by some speakers as

[2] I express my sincere gratitude to the Tagoi language community and language committee, led by Mohamed Ahmed Adam and Hassan Hussein. My special thanks go to the principal speakers who contributed to the present research: Al-Gideel Yasin Bushara, Ahmed Boch and Abdelgadir Osman Ibrahim. I also pray for Daood Amaara, who passed away in 2017. He gave most of the data for this contribution. May Allah rest him in peace.

[3] Papers currently in preparation are: 'Arabic loan words in Tagoi' (Abeer Bashir & Helene Fatima Idris), 'Countable and mass/collective nouns of Tagoi' (Abeer Bashir) and 'Tagoi verb structure' (Abeer Bashir).

[tɬf] and [ŋɬr], respectively. It might be too early yet in this initial description to judge whether [ɨ] is a phoneme with restricted distribution or an allophone of /ʌ/. Due to its unclear status, it is presented in phonetic brackets in the vowel inventory. However, with the lexemes used in the remainder of the contribution, it is treated as a phoneme. Data in the present contribution will be presented in phonemic transcription; bracketing notations, i.e., square brackets or slashes, are only used where necessary. Evidence for the phonemic status of the eight vowels presented in TABLE 1 is shown in TABLE 2.

	TAGOI	ENGLISH GLOSS
i, ʌ, a	*tíf*	'remains of honey after filtering'
	tʌ́f	'roots of Daleeb tree'
	táf	'remains of sesame oil after filtering'
e, u, i	*ɲéer*	'animal sp.'
	ŋúur	'heart'
	kùt	'animal sp.'
	wìt	'guinea fowl'
o, ɔ	*wór*	'kadat tree'
	wɔ̀r	'baobab tree'
e, ɛ	*téeʈàn*	'grinder'
	tɛ́ɛkán	'leg'

TABLE 2: Evidence for the phonemic status of vowels

2.1 Distribution of vowels in a noun stem

In a noun (also verb and adjective) stem, Tagoi vowels are distributed in two distinct sets. Only vowels of the set /i, e, ʌ, o, u/ or the set /ɛ, a, ɔ/ are allowed to group in a stem. This distribution into two sets suggests a distinction based on either ATR or height features. One could say that this might be a mid-height (incomplete) ATR vowel harmony system in which the vowel inventory lacks the vowels *ɪ, ʊ* and mid vowels of different heights do not co-occur (Rolle & Orie 2024). However, mid vowels that are described as mid-high co-occur with high vowels, e.g., *yìbó* 'knee' and *kàtrú* 'pig'. In addition, the vowels of affixes alternate in terms of the [height] rather than [ATR] feature. Consider, for instance, *wɔ̀r* 'baobab' vs. *yùr-in* 'baobabs', where the high vowel of the suffix /i/ raises the mid-low vowel /ɔ/ to the high vowel /u/. Affix vowels may also alternate to match the height feature low /ɛ, a, ɔ/ vs. non-low /i, e, ʌ, o, u/ of the stem vowels (see also Bashir & Rose 2024 for verbal affixes). Compare the examples in TABLE 3.

	TAGOI	ENGLISH GLOSS
low vowels	*yánglák-ɔ́t*	'tongues'
high vowels	*ŋùur-ét*	'hearts'

TABLE 3: Height variation of affix vowels

In the examples presented in TABLE 3, the vowel of the plural suffixes *-ɔ́t* and *-et* are not high counterparts of their stem vowels, /a/ and /u/ respectively. Nevertheless, they are selected to match the general height of the stem vowel, i.e., low /ɔ/ with low /a/ and non-low /e/ with non-low /u/. The Tagoi vowel inventory thus shows a distinction between low vs. non-low vowels in terms of their distribution.

The distribution of vowels into two sets is further illustrated in TABLE 4 and TABLE 5. In the former, non-low vowels, including high /i, u/ and /ɨ/ and mid-high /e, o/, pattern together, whereas low vowels, including mid-low /ɛ, ɔ/ and low /a/, occur in the same stem, as shown in TABLE 5. In either group, a stem may also have vowels of the same quality.

	TAGOI	ENGLISH GLOSS
i, o	*yìbó*	'knee'
i, u	*kìirú*	'ostrich'
i, e	*kìbé*	'fire'
	tíiŋŋén	'tooth'
e, o	*kòomé*	'bee'
ʌ, o	*yʌ̀mʌ̀rgó*	'kidney'
	cʌ̀llʌ̀róh	'bride'
	kʌ̀tóm	'tooth gum'
ʌ, u	*kʌ̀ʌrú*	'wild buffalo'
	kʌ̀túm	'corner stone'
	kʌ́ʌbú	'beard'
same	*kɨ́ppɨ́ʈ*	'plant sp.'
vowel	*kɨ́rɨ́ʈ*	'strength, power'
	fɨ̋rɨ́ʈ	'aroma'
	yìmrì	'navels'
	kèmèe	'belly'
	cóorón	'polecat sp.'
	tʌ̀mʌ̀ŋ	'breast'
	ŋùurù	'small black ants'

TABLE 4: Noun stems with non-low vowels

	TAGOI	ENGLISH GLOSS
ɔ, a	*pɔ́ɲàan*	'Aradeeb tree'
a, ɛ	*kárbɛ́ɛt*	'fox'
ɔ, ɛ	*kɔ́wɛ́ɛr*	'animal sp.'
same	*kɛ̀ɟɛ̀t*	'man'
vowel	*fàràan*	'cow'
	kɔ̀fɔ̀ɔ	'tree'

TABLE 5: Noun stems with low vowels

2.2 Vowel length

Tagoi has short and long vowels. A short vowel constitutes one vowel/mora while the long vowel is two vowels/moras. A contrast between short and long vowels is attested, as shown in the monosyllabic and disyllabic lexemes in TABLE 6. The first pair, *yéw* 'place' vs. *yéew* 'insect sp.' deserves special attention, since, here, even the tone does not differ, which is proof that the length of a vowel does not correlate with the tonal pattern. The contrast between short and long vowels is more than just a lexical distinction, since it plays, in addition, a significant role in distinguishing (together with tone) the formal prosodic structure of the Tagoi noun. That is, the distinction between short vs. long vowels functions effectively in the morphophonemic processes of plural formation and plural suffix alternation, as discussed in SECTION 5. It is convenient, thus, to talk about short vs. long syllables rather than short vs. long vowels in Tagoi.

TAGOI	ENGLISH GLOSS	TAGOI	ENGLISH GLOSS
short V		long V	
yéw	'place'	*yéew*	'insect sp.'
ɲíŋ	'children'	*ɲìiŋ*	'charcoal'
wábán	'cedar tree'	*wáabàl*	'Kikir tree'

TABLE 6: Contrastive vowel length

3 The syllable structure and syllable weight of nouns

A Tagoi syllable may consist of a vowel only, and may also have one of the following structures: VV, VC, CV, CVV, CVC, CVVC, CCV and CCVC. Examples of syllable types are shown in TABLE 7. The structure given in the second column of TABLE 7 refers to the first syllable of the words presented.

SYLLABLE WEIGHT	SYLLABLE STRUCTURE (FIRST SYLLABLE)	TAGOI	ENGLISH GLOSS
light	V	*à.ràm*	'five'
	VC	*èn*	'is'
	CV	*nì.kʌ́n*	'we'
heavy	VV	*àa.rám*	'four'
	CVV	*ɲèe.réy*	'six'
	CVC	*kʌ́n*	'house'
	CVVC	*kòor*	'Daleeb tree'
	CCV	*ndɛ̀*	'go'
	CCVC	*mbʌ̀t*	'goat'

TABLE 7: Tagoi syllable types

Syllables with the onset cluster CCV(C) are attested in a few monosyllabic words, as listed in TABLE 8. The cluster consists of a nasal and a plosive. Further research may reveal whether we are indeed dealing with prenasalized consonants.

TAGOI	ENGLISH GLOSS
mbʌ̀t	'goat'
ndàŋ	'in'
ndɛ̀	'go'

TABLE 8: Monosyllables with an onset cluster

In terms of syllable number, inflected nouns may have up to four syllables. A singular noun stem may have one, two or three syllables; it may have four syllables if a suffix is added, e.g., the plural marker. See the examples in TABLE 9.

	TAGOI	ENGLISH GLOSS
monosyllabic	*wɔ̀r*	'baobab tree'
disyllabic	*kì.bé*	'fire'
trisyllabic	*kɔ̀.bɔ̀.lɔ̀ŋ*	'leopard'
four syllables	*hù.bù.lù.ŋìn*	'leopards'

TABLE 9: Number of syllables exemplified with nouns

4 Tone on Tagoi nouns

The issue of prosodic pitch, whether tone or stress, in Tagoi (or in other Rashad languages) has been the subject of different opinions. As reported by Stevenson (1956/57: 47), Mr. and Mrs. MacDiarmid reported tone in Moreb, but Meinhof

(1916) and Stevenson denied the existence and the significant role of tone in Tagoi. Stevenson instead claims that stress plays a marked role and may be responsible for grammatical and lexical contrast in Tagoi (Stevenson 1956/1957: 47; 1964: 86). The present contribution, however, attests evidence of a two-tone pitch contrast between high (H) and low (L) in monosyllabic and disyllabic nouns. Thus, it might be that Stevenson noticed the pitch distinction but he attributed it to stress. Evidence of the contrast between the two tone pitches is in TABLE 10.

	TAGOI	ENGLISH GLOSS	TAGOI	ENGLISH GLOSS
monosyllabic	*wɔ̀r*	'baobab tree'	*wór*	'Kadat tree'
	cór	'orphan'	*cɔ̀r*	'moon'
	ŋ́ór	'basin'	*ŋɔ̀r*	'baobab fruits'
disyllabic	*ŋʌ̀mʌ̀n*	'local herbs'	*ŋ̀ímín*	'sorghum'
	yʌ́tʌ́r	'back'	*yʌ̀tʌ̀ʌr*	'nose'
	kɔ̀ɔʈɔ̀m	'flea'	*kʌ̀ʈóm*	'tooth gum'

TABLE 10: Tonal contrast with mono- and disyllabic lexemes

A few singular nouns seem to mark their plural mainly with tone, i.e., LL > LH, as shown in TABLE 11. However, whether these nouns present evidence for grammatical tone remains doubtful, since, first, in most cases we also find number marking prefixation and, second, the length of the final vowel also alters. That is, instead of tone marking, the length of the vowel may be responsible for number marking, as may the prefix. All the nouns in TABLE 11 have a final long vowel carrying a low tone in the singular, while the vowel is short and high-toned in the plural.

TAGOI SG	TAGOI PL	ENGLISH GLOSS
kɔ̀fɔ̀ɔ	*hɔ̀fɔ́*	'tree/s'
kìbìi	*hìbí*	'prayer mat/s'
kìmèe	*hìmé*	'stomach/s'
yʌ̀tʌ̀ʌr	*ŋʌ̀tʌ́r*	'nose/s'
kʌ̀hʌ̀ʌɲ	*ŋʌ̀hʌ́ɲ*	'elbow/s'

TABLE 11: Tonal contrast used with singular vs. plural marking

Recall that Tagoi has short and long vowels; both vowel/mora types bear tone. In a long syllable, the two vowels bear the same tone, either HH or LL, i.e., contour tones are phonemically non-existent; see the examples presented in TABLE 12 (but see TABLE 13 for phonetically falling tones).

TAGOI (SHORT V)	ENGLISH GLOSS	TAGOI (LONG V)	ENGLISH GLOSS
cíŋ	'child'	*cíin*	'rabbit'
yán	'sun/day'	*tàwáan*	'rope'
cɔ́r	'orphan'	*cɔ́ɔràt*	'hartebeest'
cɔ̀r	'moon'	*kàʈɔ̀ràk*	'hen'
kàmlàa	'camel'	*hàmlàan*	'camels'
wìt	'guinea fowl'	*ŋìiŋ*	'charcoal'

TABLE 12: Tonal marking on short vs. long vowels

Phonetically, we find the falling tone HL on long syllables word finally, never with monosyllables. The falling HL tone is interpreted as a realization of level tones in the word-final position, but is not considered to have phonemic status. The rising tone on long vowels is not attested at all. Examine the following examples in TABLE 13.

PHONEMIC TRANSCRIPTION	PHONETIC TRANSCRIPTION	ENGLISH GLOSS
tíiwéer	[tíiwéèr]	'butterfly'
kàbàaŋ	[kàbáàŋ]	'side'
kùʈòor	[kùʈóòr]	'shield'

TABLE 13: Phonemic vs. phonetic transcription

As we will see in SECTION 5, vowel length, syllable structure and tone, among other things, may play a role in the formation of plural marking.

5 Alternation and selection of nominal plural suffixes

Several factors, though in principle independent, all interact in a complex plural allomorphy process. For instance, vowel harmony with the stem vowels influences the choice of the suffix vowel. In other cases, though, the suffix vowel is dominant and alters the stem vowel. The size of the singular stem (mono-, di- or polysyllabic), the shape of the final syllable of the singular noun, i.e., its weight (open or closed), its vowel length (short/long), vowel quality (low/non-low), and tone (H or L) also matter regarding plural allomorphy.

Recall that there are basically three noun plural suffixes in Tagoi: *-(V)t, -(V)n* and *-tVn*. These suffixes show up in 15 variants, as shown in TABLE 14.

LOW VS. NON-LOW	SUFFIX TYPE	SINGULAR	PLURAL	GLOSS	VARIANT
root-controlled suffixes					
low	*-(V)t*	*káy*	*káy-àt*	'head/s'	*-at*
low		*káɟár*	*háɟár-ɔ́t*	'mouth/s'	*-ɔt*
non-low		*kút*	*hút-ʌ̀t*	'animal sp. (SG/PL)'	*-ʌt*
non-low		*wíin*	*yìin-ét*	'snake/s'	*-et*
n/a		*ŋétée*	*ŋétée-t*	'brother/s'	*-t*
low	*-(V)n*	*kàakɔ̀y*	*hàkɔ̀y-àn*	'female sheep (SG/PL)'	*-an*
non-low		*wòoh*	*yòoh-ʌ̀n*	'monkey/s'	*-ʌn*
non-low		*wùut*	*yùut-én*	'bird/s'	*-en*
n/a		*yéŋŋórèe*	*ŋéŋŋórèe-n*	'walking stick/s'	*-n*
low	*-tVn*	*wɔ̀rɔ́ɔy*	*yɔ̀rɔ́ɔy-tàn*	'person/s from Toroy area'	*-tan*
non-low		*kóʈóor*	*hóʈór-tʌ̀n*	'shield/s'	*-tʌn*
non-low		*tíiwéer*	*yíwér-tèn*	'butterfly/ies'	*-ten*
dominant suffixes					
n/a	*-Vt*	*kɔ́n*	*hún-ìt*	'house/s'	*-it*
n/a	*-Vn*	*wɔ̀y*	*yùwùy-ìn*	'male goat/s'	*-in*
n/a		*wìt*	*yìt-ìn*	'guinea fowl/s'	
n/a	*-tVn*	*tàwàan*	*yèwè-tìn*	'rope/s'	*-tin*

TABLE 14: Variants of noun plural suffixes

In terms of their vowels, the suffixes are divided into root-controlled suffixes, i.e., *-(V)t, -(V)n* and *-tVn* (other than *-it*, *-in* and *-tin*). Here, the vowel of the suffix matches with the root vowel in terms of height feature and is realized either as a low or non-low allomorph. If the root ends in a long vowel, as with *yéŋŋórèe* 'walking stick' or *ŋétée* 'brother', we may not find a suffix vowel, as illustrated by their plural forms *ŋéŋŋórèe-n* and *ŋétée-t.* Other lexemes with a long final vowel behave differently, though, e.g., *yìrìi/ŋìrìyèn* 'coffee pot base' or *pìkìi/fɛ̀kìyèn* 'eyebrow/s' (see SECTION 5.2.2). Here, the quality of the vowel may play a role in a different kind of suffixing. The remaining three suffixes *-it*, *-in* and *-tin* are dominant suffixes that raise the height of the preceding vowels.

There are some stem modifications such as vowel deletion and insertion, consonant insertion, metathesis and tonal change to be observed which are not pointed out here, since a detailed discussion of these modifications is beyond the scope of the present contribution and will be dealt with in a different paper.

In SECTION 5.1., I will go into more detail regarding vowel harmony with its two types of suffixes, the root-controlled plural markers and the dominant plural suffixes. In SECTION 5.2, I will consider other factors playing a role regarding the choice of the suffix.

5.1 Root-controlled vs. dominant height harmony

Two types of vowel harmony are at work concerning the vowel alternation of the plural suffix and the stem vowels: a root-controlled harmony and a dominant height harmony. In a root-controlled harmony, the vowel of the suffix correlates with the height of the vowels in the stem. If this stem vowel is non-low (/ɨ, ʌ, u, e, o/), the vowel of the suffix is the non-low /i, e/ or /ʌ/ (see TABLE 15). When the stem vowels are low (/a, ɛ, ɔ/), the vowel of the suffix is the low /a/ or /ɔ/ (see TABLE 16). Exceptions to this rule are the dominant suffixes (*-it*, *-in* and *-tin*), which are all characterized by the vowel /i/ that causes raising of the vowels of the singular noun. Of course, the allomorphs *-t* and *-n*, which only – but not always, as will be shown – occur when the root ends in a vowel, are also not listed here. That is, all in all, ten of the 15 suffixes are affected by root-controlled vowel harmony.

FINAL ROOT VOWEL	TAGOI	ENGLISH GLOSS	REALIZED SUFFIX	ABSTRACT SUFFIX
i	*yìin-ét*	'snakes'	*-et*	*-Vt*
ɨ	*yɨ́lɨ́h-ét*	'animal sp. (PL)		
u	*hút-ʌ̀t*	'wild buffalos'	*-ʌt*	
o	*ɲìfróttók-ʌ̀t*	'leopard sp. (PL)'		
e	*fɛ́y-èn*	'animals'	*-en*	*-Vn*
u	*yùut-én*	'birds'		
o	*yóor-ʌ̀n*	'porcupines'	*-ʌn*	
o	*hòor-ʌ̀n*	'Daleeb trees'		
e	*yíwér-tèn*	'butterflies'	*-ten*	*-tVn*
ʌ	*yúmʌ́ʌŋ-tèn*	'lizards'		
u	*ɲúwúy-tèn*	'animal sp. (PL)'		
o	*hùʈòr-tʌ̀n*	'shield'	*-tʌn*	
e	*yéyèŋ-tʌ̀n*	'wild pig/s'		
o	*ŋóoc-tʌ̀n*	'bladders'		

TABLE 15: Vowel harmony with plurals: non-low allomorphs

FINAL ROOT VOWEL	TAGOI	ENGLISH GLOSS	REALIZED SUFFIX	ABSTRACT SUFFIX
a	*háy-àt*	'heads'	*-at*	*-Vt*
a	*hɔ̀ʈáŋ-àt*	'skulls'		
ɛ	*háréh-át*	'animal sp. (PL)'		
ɔ	*ɲèttɔ́k-àt*	'small pots'		
a	*pálák-ɔ́t*	'big rocks'	*-ɔt*	
a	*yárát-ɔ́t*	'wild cat sp. (PL)'		
ɔ	*yɔ́lɔ́ŋ-ɔ́t*	'eagle sp. (PL)'		
ɛ	*ɲámʈɛ́ɲ-ɔ́t*	'polecats'		
a	*hàkɔ̀y-àn*	'female sheep (PL)'	*-an*	*-Vn*
a	*ɲàmàn-àn*	'lambs'		
a	*hàmlà-an*	'camels'		
ɔ	*màfɔ́t-tàn*	'cats'	*-tan*	*-tVn*
ɛ	*hárbɛ́t-tàn*	'leopard sp. (PL)'		
a	*kɔ́hác-tàn*	'old people'		

TABLE 16: Vowel harmony with plurals: low allomorphs

In the dominant height harmony system, the vowel of the suffix raises the preceding low stem vowels (see the examples in TABLE 17). If the root vowel is already high, there is no change. The dominant suffixes are *-it*, *-in* and *-tin*. The selection between them is made based on other conditioning factors (see SECTION 5.2).

TAGOI (NOUN SG)	TAGOI (NOUN PL)	SUFFIX	ENGLISH GLOSS
kɔ́n	*hún-ìt*	*-it*	'house/s'
kàaláŋ	*hèléŋ-it*		'door/s'
wàan	*yèen-ín*	*-in*	'friend/s'
yàf	*ŋèf-ìn/ŋʌ̀f-ìn*		'concrete stone/s'
wàam	*yèem-ín*		'python/s'
wɔ̀r	*yùr-ìn*		'baobab tree/s'
wìt	*yìd-ìn*		'Guinea fowl/s'
kàràaŋ	*hʌ̀rʌ̀ŋ-tìn*	*-tin*	'deer/s sp. (SG/PL)'
kàbàaŋ	*hʌ̀bʌ̀ŋ-tìn*		'side/s'
pɔ́ŋáan	*fúŋʌ́n-tìn*		'Aradeeb tree/s'
kàmréɛŋ	*hʌ́mríŋ-tìn*		'hyena/s'

TABLE 17: Height harmony with dominant suffixes

TABLE 18 summarizes the 13 plural suffixes, including both the root-controlled and dominant allomorphs, considering the information presented so far. In SECTION 5.2, more features relevant for the choice of the allomorph will be presented.

SUFFIX	LOW ROOT VOWELS (SG)	ALLOMORPHS	NON-LOW ROOT VOWEL (SG)	ALLOMORPHS
-Vt	/a, ɛ, ɔ/	*-at, -ɔt*	/i, ʌ, u, e, o/	*-et, -ʌt, -it*
-Vn	/a, ɛ, ɔ/	*-an*	/i, ʌ, u, e, o/	*-en, ʌn, -in*
-tVn	/a, ɛ, ɔ/	*-tan*	/i, ʌ, u, e, o/	*-ten, -tʌn, -tin*

TABLE 18: Distribution of allomorphs according to vowel harmony

5.2 Selection of noun plural suffixes

Beyond vowel harmony, the shape of the singular noun stem plays a role in the selection of the plural suffixes. Here, we consider the complete noun stem as well as the shape of the stem-final syllable. That is, the size of the noun stem, i.e., whether it is monosyllabic or di-/polysyllabic, controls the selection of some suffixes. Most of the suffixes, however, are selected due to the stem final syllable of the noun denoting singularity. Its weight, and whether it is open or closed, its vowel length, i.e., whether it is short or long, its vowel quality, i.e., whether it has a low or a non-low vowel, and finally its tone, i.e., whether the syllable is high-toned or low-toned, all have their role in suffix selection. We cannot refer to only one or two phonological conditions to predict the selection of a suffix, since several factors interact in the singular noun stem and affect the selection of the plural suffix. That is, the singular stem-final open or closed syllable with a high-toned short or long vowel selects the suffix *-(V)t,* while the open or closed low-toned syllable with a short or long vowel selects the suffix *-(V)n.* The decisive criterion for *-tVn* seems to be that the final vowel in the closed final syllable of di- or polysyllabic stems must be long. For the correlation of tone and suffix marking see TABLE 19.

TONE OF FINAL SYLLABLE (SG)	PATTERN I	PATTERN II	PATTERN III
H	*-(V)t*		
L		*-(V)n*	
H/L			*-tVn*

TABLE 19: Correlation of suffixes according to tone

The remaining factors, i.e., the size of the stem (mono-/polysyllabic), the weight of the stem and the quality of the stem vowels (low/non-low) are responsible for the selection of the vowel of each suffix that shows up in different allomorphs.

For a better understanding of the complexity of the plural suffix selection, we aim in this section to organize and state, in detail, the patterns recognized for each suffix. The basic selection of plural suffixes is stated in the three patterns distinguished and described in TABLE 19; in the following, we will go into further detail.

To describe the plural formation process in each of the three patterns by considering all allomorphs, we use tables showing five columns. In the first two columns, the singular noun stem and its syllable structure are listed. Next comes the tonal pattern of the singular noun. The fourth column shows the plural noun stem. Throughout, the syllable boundaries are marked. The final column contains the English gloss.

5.2.1 Pattern I: *-(V)t* (*-t, -at, -ɔt, -it, -et, -ʌt*)

Singular noun stems with a high-toned final syllable select the suffix *-(V)t*. This final syllable may be open or closed, short or long. The suffix is realized as *-t* when occurring after an open long syllable, or *-Vt*, i.e., low *-at, -ɔt* or non-low *-it, -et, -ʌt*, elsewhere. The allomorphy of *-Vt* depends partly on the height of the root vowel. That is *-at* and *-ɔt* are attached to singular nouns with low vowels, while *-et* and *-ʌt* are attached to singular nouns with non-low vowels. The allomorph *-it* is special in that it has the high front vowel /i/ and is thus one of the dominant suffixes which raises the low vowels occurring in the singular noun. Though the correlation between singular and plural forms seems clear, we still need to establish in which cases the dominant suffix is chosen, as the environments in some cases seem not to differ; compare, e.g., *kɔ́n/hɔ́n-àt* 'house/s' with *kɔ́n/hún-ìt* 'houses'.

The choice between the suffixes *-at* and *-ɔt* is made in terms of the size of the stem and the quality of the stem's vowels. Thus, *-at* is attested with monosyllabic and disyllabic singular nouns, while *-ɔt* only occurs with disyllabic nouns under the condition that the vowels of both syllables are of the same quality. The choice between *-et* and *-ʌt* depends on the quality of the preceding stem. Each allomorph and its corresponding factors are explained in the following.

The suffix *-t*

The allomorph *-t* is attached to singular noun stems with an open final syllable with a long vowel. The only nouns attested are disyllabic and the vowels in the syllables of the singular form share their quality, i.e., either /a/, /ɔ/ or /e/ (see

the examples in TABLE 20). That is, the vowels may be either low or non-low. Note, though, that this is not an exclusive criterion for the selection of *-t*, since this is also true of some nouns which have *-n* as the plural suffix, e.g., *màaràa* 'road' with its plural form *màaràa-n* (see TABLE 26). However, *-t* only occurs with high-toned lexemes, while *-n* occurs with low-toned ones.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
már.dáa	CVC.CVV	HH	*már.dáat*	'horse/s'
ɔ́.tɔ́ɔ	V.CVV	HH	*ɔ́.tɔ́ɔt*	'father-in-law/s'
ŋé.tée	CV.CVV	HH	*ŋé.téet*	'brother/s'

TABLE 20: The suffix *-t*

The suffix *-Vt* with low vowels

The allomorphs *-at* and *-ɔt* are attested after singular stems that have low vowels. The number of syllables and the quality of the vowels are decisive for the choice between these two suffixes. In addition, we find the allomorph *-it*, which raises the preceding vowel from low to non-low.

The suffix *-at*

The suffix *-at* is attached to mono- or disyllabic singular stems with high-toned low vowels. The low vowels in these stems have different qualities, as shown in TABLE 21. The final or only syllable of the singular noun is closed and short.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
káy	CVC	H	*há.yàt*	'head/s'
kɔ́n	CVC	H	*hɔ́.nàt*	'house/s'
cɔ́r	CVC	H	*cɔ́.ràt*	'orphan/s'
ká.rɛ́h	CV.CVC	HH	*há.rɛ́.hàt*	'animal sp. (SG/PL)'

TABLE 21: The suffix *-at*

The suffix *-ɔt*

Unlike *-at*, the suffix *-ɔt* only attaches to disyllabic stems. Its attachment to the stem requires that all preceding vowels of the singular stem should be low vowels of the same quality carrying a H tone. The final syllable of the singular noun is open or closed and has a short vowel (see the examples in TABLE 22).

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
pɔ́.rɔ́	CV.CV	HH	*fɔ́.rɔ́ɔ́t*	'chest/s'
tá.gál	CV.CVC	HH	*yá.lá.gɔ́t*	'back/s of neck'
pá.lát	CV.CVC	HH	*pá.lá.tɔ́t*	'rock/s'
ká.ɟár	CV.CVC	HH	*há.ɟá.rɔ́t*	'mouth/s'
tá.kám	CV.CVC	HH	*yá.ká.mɔ́t*	'neck/s'
téɛ.kén	CVV.CVC	HH	*ŋéɛ.ké.nɔ́t*	'leg/s'
wɔ́ɔ.lɔ́ŋ	CVV.CVC	HH	*yɔ́ɔ.lɔ́ŋ-ɔ́t*	'eagle/s sp.'
cám.táɲ	CVC.CVC	HH	*ɲám.tá.ɲɔ́t*	'polecat/s'

TABLE 22: The suffix *-ɔt*

The suffix *-it*

A less common suffix *-it* appears with a few nouns with a stem-final high-toned low vowel in the singular. These nouns, as shown in TABLE 23, may additionally form their plurals with the more common suffix *-at*, together with vowel shortening.

The vowel of the suffix *-it* is a dominant vowel and the suffix behaves similarly to the suffixes *-in* and *-tin* (to be discussed in SECTIONS 5.2.2 and 5.2.3 respectively). They cause the height of the preceding low singular stem vowels to be raised to non-low vowels. The status of the suffix *-it* as rare drives the assumption that it might have been used as part of the plural formation system and then became less productive due to an optimization process.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
tɔ́ɔm	CVVC	H	*yòo.mít/yɔ́.màt*	'face/s'
kɔ́n	CVC	H	*hú.nìt/hɔ́.nàt*	'house/s'
kàa.láŋ	CVV.CVC	LH	*hè.lé.ŋit/hà.lá.ŋàt*	'door/s'
kél.ʈáŋ	CVC.CVC	HH	*hél.ʈé.ŋít/hél.ʈá.ŋát*	'drum/s'

TABLE 23: The suffix *-it*

The suffix *-Vt* with non-low vowels

Having dealt with the morpheme *-Vt (-at, -ɔt, -it)* occurring with lexemes which have low vowels in the singular stem, we now look at the morpheme *-Vt (-et, -ʌt)* when the singular stem has non-low vowels.

The quality of the preceding stem vowel is the basic criterion for the choice between the *-et* and *-ʌt* suffixes. The stem vowels /i, e, ɨ, u/ select the suffix *-et* and the stem vowel /o/ and, under more restricting conditions, also /u/, select the suffix *-ʌt*. The size of the stem, the length of the stem vowel and the absence or presence of the stem-final coda are additional indicators for this selection. That is, we may generalize that high-toned monosyllabic short stems select *-ʌt*, while high-toned monosyllabic long stems select the suffix *-et*. In the following, the patterns of the *-et* and *-ʌt* suffixes are presented in more detail.

The suffix *-et*

The suffix *-et* is, on the one hand, attached to disyllabic singular noun stems whose final vowels /i, ɨ, u/ belong to an open or closed short syllable. In addition, the suffix *-et* is selected when the singular noun is monosyllabic with long non-low vowels other than /o/ (see SECTION 5.2.3, suffix *-tʌn*) in a closed syllable, i.e. /i, e, u/. Regarding monosyllables, the tone of the stem vowel changes from H to L. This change is correlated with the length of the stem vowel, since the tone does not change when the stem vowel is short (as will be exemplified below where *-ʌt* is discussed). See the examples in TABLE 24.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
kí.bí	CV.CV	HH	*hí.bí.yèt*	‘animal skin’s mat/s’
yɨ́.tɨ́r	CV.CVC	HH	*ŋɨ́.tɨ́.rèt*	‘back/s’
wɨ́.gɨ́r	CV.CVC	HH	*yíg.ɨ́.rèt*	‘waist/s’
kìi.rú	CVV.CV	LH	*hì.rú.wèt*	‘ostrich/s’
fɨ̃.nín	CV.CVVC	HH	*fɨ̃.ní.nèt*	‘ear/s’
céer	CVVC	H	*ɲèe.rét*	‘animal sp. (SG/PL)’
cíin	CVVC	H	*cìi.nét*	‘rabbit/s’
yúur	CVVC	H	*ŋùu.rét*	‘heart/s’
wíin	CVVC	H	*yìi.nét*	‘snake/s’

TABLE 24: The suffix *-et*

The suffix *-ʌt*

The final stem vowel /o/ of di- or polysyllabic singular nouns co-occurs with the suffix *-ʌt*. This suffix also attaches to short closed monosyllabic singular stems, attested with the vowels /o/ and /u/; see TABLE 25. Note that in this case, the tone remains high in both the singular and the first syllable of the plural. The final syllables are always closed.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
wór	CVC	H	*wó.rʌ̀t*	'Kadat tree/s'
kút	CVC	H	*hú.tʌ̀t*	'animal sp. (SG/PL)'
cóo.rón	CVV.CVVC	HH	*ɲó.ró.ɽʌ̀t*	'polecat sp. (SG/PL)'
yìb.ró.róŋ	CVC.CV.CVC	LHH	*ŋ̀ib.ró.róŋ.ʌ̀t*	'hyena/s'
cìf.rót.tók	CVC.CVC.CVC	LHH	*ɲ̀if.rót.tó.kʌ̀t*	'leopard sp. (SG/PL)'

TABLE 25: The suffix *-ʌt*

5.2.2 Pattern II: *-(V)n* (*-n*, *-an, -en, -ʌn, -in*)

Singular noun stems of Pattern II are distinguished from those of Pattern I by their low-toned final vowels. The abstract plural marker is *-(V)n*, with the allomorphs *-n*, *-an, -en, -ʌn* and *-in* attested. The allomorph *-n* occurs with final long vowels in an open syllable. While *-an* is only attested with a single noun stem that has a low short vowel in a closed final syllable, *-en* and *-ʌn* attach to nominal stems with non-low vowels. The choice between the non-low suffixes *-en* and *-ʌn* is determined by the quality of the final vowel in the singular. The last allomorph in this group is *-in*. It occurs with nouns that have a closed final or only one syllable. The attested allomorphs are again discussed one after the other.

The suffix *-n*

The consonantal nasal allomorph *-n* occurs when the singular di- or polysyllabic noun stem has a final open syllable with a long vowel carrying low tone, as shown in TABLE 26.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
màa.ràa	CVC.CVV	LL	*màa.ràan*	'road/s'
èm.mèe	CV.CVV	LL	*èm.mèen*	'grandfather/s'
cè.fè.nèe	CV.CV.CVV	LLL	*cè.fè.nèen*	'small turtle/s'
ʌ̀.mìt.tìi	V.CVC.CVV	LLL	*ʌ̀.mìt.tìin*	'my aunt/s (Ar.)'
àm.bàg.làa	VC.CVC.CVV	LLL	*àm.bàg.làan*	'mule/s

TABLE 26: The suffix *-n*

As discussed above, the same criteria are true for the suffix *-t* (see TABLE 20), but the latter allomorph occurs with high-toned lexemes. However, consider also forms like *kìmèe* 'stomach', which mark the plural through a change of vowel length accompanied by tonal change, here *hìmé* (see SECTION 4). Furthermore, as we will see below, the suffix may be *-en* (see TABLE 28) when the final long

vowel is /i/ (as is also the case with *ʌ̀mìttìi* 'my aunt' and its plural form *ʌ̀mìttìin* in TABLE 26). Thus, the conditions for a noun stem choosing *-n*, or *-en* or even staying suffixless remain to some extent obscure.

The suffix *-an*

The suffix *-an* is attested only once. Here, the stem-final vowel is short in a closed final syllable of a disyllabic lexeme, as illustrated in TABLE 27.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
kàa.kɔ̀y	CVV.CVC	LL	*hà.kɔ̀.yàn*	'female sheep/s'

TABLE 27: The suffix *-an*

The suffix *-en*

The suffix *-en* is attached to a singular noun stem of an open or closed final syllable with a short or long low-toned high vowel; see the examples in TABLE 28. However, consider that some nouns, e.g., *kìbìi* 'prayer mat', have no plural suffix but mark the plural form with vowel length alternation and tone, here *hìbí* (see SECTION 4).

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
wùut	CVVC	L	*yùu.tén*	'bird/s'
tù.rùk	CV.CVC	LL	*yù.rù.kèn*	'government/s'
yì.rìi	CV.CVV	LL	*ŋì.rì.yèn*	'coffee pot base/s'
pì.kìi	CV.CVV	LL	*fɛ̀.kì.yèn*	'eyebrow/s'

TABLE 28: The suffix *-en*

The suffix *-ʌn*

The suffix *-ʌn* is so far attested only with monosyllabic stems with the long vowel /o/, as shown in TABLE 29.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
wòor	CVVC	L	*yòo.rʌ̀n*	'porcupine'
kòor	CVVC	L	*hòo.rʌ̀n*	'Daleeb tree'
wòoh	CVVC	L	*yòo.hʌ̀n*	'monkey/s'

TABLE 29: The suffix *-ʌn*

The suffix *-in*

As was the case with the suffix *-it*, *-in* also contains the dominant vowel /i/. Consequently, all vowels which occur in the singular stem are raised when the plural suffix attaches. If these vowels are already high, no change occurs, i.e., the vowel quality remains high (see TABLE 30). The suffix *-in* occurs with singular nouns with closed final or only syllables. The vowel of monosyllabic nouns may be short or long; the vowel of the final syllable with di- or polysyllabic nouns is always short.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
yàf	CVC	L	*ŋè.fìn*	'concrete stone/s'
wɔ̀r	CVC	L	*yù.rìn*	'baobab tree/s'
wìt	CVC	L	*yìt.ìn*	'guinea fowl/s'
mɔ̀ɔŋ	CVVC	L	*mù.ŋìn*	'red monkey/s'
wòoy	CVVC	L	*yù.wù.yìn*	'male goat/s'
yɔ́ɔ.ʈàŋ	CVV.CVC	HL	*ŋú. ʈʌ́.ŋìn*	'skull/s'
kám.bàŋ	CVC.CVC	HL	*hʌ́m.bʌ̀.ŋìn*	'side/s'
mà.ràh	CV.CVC	LL	*mɨ̀r.hìn/mèr.hìn*	'spear/s'
kɔ̀.tɔ̀ɔ.ràk	CV.CVV.CVC	LLL	*hù.tùr.kìn*	'hen/chicken'
kù.lùk.kùr	CV.CVC.CVC	LLL	*kù.lùk.kù.rín*	'turtle dove/s'

TABLE 30: The suffix *-in*

5.2.3 Pattern III: *-tVn* (*-tan, -tin, -ten, -tʌn*)

The environment of the suffix *-tVn* is characterized by a high-toned long final closed syllable that commonly belongs to di- or polysyllabic singular noun stems. There is, so far, only one monosyllabic noun, i.e., *yóoc/ŋóoctʌ̀n* 'bladder', which is similar to long monosyllables with a high tone of Pattern I (cf. *ŋúur/ŋùurét* 'heart/s'). We may assume that the vowel quality /o/ vs. other non-low vowels is decisive for the choice of the suffix *-tVn*, or, to be more specific, the suffix *-tʌn*.

The suffix-*tVn* is realized in four allomorphs, *-tan*, *-tin*, *-ten* and *-tʌn*. They are selected in terms of the stem-final consonant (nasal vs. non-nasal) and the quality of the stem vowel (low/non-low (other than /o/)). While both allomorphs *-tan* and *-tin* correlate with low stem vowels, only *-tan* follows a non-nasal stem-final consonant (see TABLE 31), while *-tin* comes after a nasal consonant. Again *-tin* has the dominant vowel /i/, which causes raising of the preceding singular stem vowels (see TABLE 32). The other two allomorphs, *-ten* and *-tʌn*, are selected by non-low stem vowels, *-ten* occurring with lexemes whose vowels are /i/, /ɨ/, /ʌ/,

/e/ or /u/ (see TABLE 33), while *-tʌn* is attested with a singular stem lexeme whose final vowel is /o/ (see TABLE 34).

The suffix *-tan*

Disyllabic noun stems with a long high-toned final syllable with a low vowel and closed by a non-nasal consonant select the suffix *-tan*, as shown in TABLE 31.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
kɔ́.wéer	CV.CVVC	HH	*hɔ́.wéer.tàn*	'animal sp. (SG/PL)'
wɔ̀.rɔ́ɔy	CV.CVVC	LH	*yɔ̀.rɔ́ɔy.tàn*	'person/s from Toroy area'
mà.fɔ́ɔt	CV.CVVC	LH	*màfɔ́t.tàn*	'cat/s'
kàr.béɛt	CVC.CVVC	LH	*hár.bét.tàn*	'leopard sp. (SG/PL)'

TABLE 31: The suffix *-tan*

The suffix *-tin*

The suffix *-tin* occurs with di- or polysyllabic nouns under the condition that the stem's final long and high-toned low vowel of the last syllable of the singular noun is followed by a nasal. Like the suffixes *-it* and *-in*, *-tin* is a dominant suffix that raises the stem's low vowels, as shown in TABLE 32.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
kà.báaŋ	CV.CVVC	LH	*hʌ̀.bʌ́ŋ.tìn*	'side/s'
kà.ràaŋ	CV.CVVC	LL	*hʌ̀.rʌ̀ŋ.tìn*	'deer/s sp. (SG/PL)'
kám.réɛŋ	CVC.CVVC	HH	*hʌ́m.ríŋ.tín*	'hyena/s'
pɔ́ɔ.ŋáan	CVV.CVVC	HH	*fú.ŋʌ́n.tìn*	'Aradeeb tree/s'
wè.héɛ.réen	CV.CV.CVVC	LHH	*yè.hé.ré.né.tín*	'big deer/s'
wè.rèɛ.máan	CV.CVV.CVVC	LLH	*yì.rì.mé.tín*	'lion/s'

TABLE 32: The suffix *-tin*

The suffix *-ten*

The stem-final high-toned syllable of disyllabic singular nouns with (in contrast to *-tin* and *-tan*) non-low long vowels other than /o/ selects *-ten*, as shown in TABLE 33.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
tú.mʌ́ʌŋ	CV.CVVC	HH	*yú.mʌ́ŋ.tèn*	'lizard/s'
tíi.wéer	CVV.CVVC	HH	*yí.wér.tèn*	'butterfly/ies'

TABLE 33: The suffix *-ten*

The suffix *-tʌn*

Three examples of a mono- or disyllabic noun with a stem-final syllable containing the long non-low high-toned vowel /o/ are attested; they are suffixed by *-tʌn* (cf. the occurrence of *-ʌn* after the long vowel /o/, illustrated in TABLE 29), as shown in TABLE 34.

TAGOI (NOUN SG)	SYLLABLE STRUCTURE (SG)	TONE (SG)	TAGOI (NOUN PL)	ENGLISH GLOSS
kʌ̀.dʌ̀.lóoŋ	CV.CV.CVVC	LLH	*hʌ̀.dʌ̀.lóŋ.tʌ̀n*	'fox/es'
kó.ʈóor	CV.CVVC	HH	*hó.ʈór.tʌ̀n*	'shield/s'
yóoc	CVVC	H	*ŋóoc.tʌ̀n*	'bladder'

TABLE 34: The suffix *-tʌn*

6 Summary and conclusion

In this study, plural suffixation as part of the number marking system of Tagoi was centred upon. The complex system, containing 15 allomorphs, can be divided into three basic patterns. The alternation and selection of the allomorphs are summarized in TABLE 35. TABLES 36-38 in the appendix are more detailed and were used to identify correlations. The main findings will be outlined in the following.

In general, the suffixes are divided into root-controlled allomorphs and dominant suffixes. The latter are invariable and raise the preceding vowels (if not already high). However, in some cases, the question of when an allomorph of the first group over that of the second group or vice versa is chosen could not be satisfactorily solved. For instance, *cór* 'orphan' has the suffix *-àt*, while *kón* 'house' has the suffix *-it*. It may thus not come as a surprise that the plural of 'house' has the alternative realizations *húnìt* and *hónàt*. The majority of plural forms, however, seem to be predictable when considering a number of features associated with the shape of the singular noun. These include, first of all, the size of the noun itself, i.e., whether it is mono-, di- or polysyllabic. Second, the shape of the final syllable influences the choice of allomorph, that is, whether the syllable is closed or open and whether it is long or short. Tone is also a decisive feature and vowel quality plays a role as well.

Patterns I and II (with their abstract morphemes *-(V)t* and *-(V)n*) can be differentiated by the tone of the final syllable: for I, it is high-toned, for II, it is low-toned. The nouns assigned to Pattern III, with its abstract morpheme *-tVn*, are mostly di- or polysyllabic (with one attested exception), and have a final closed long syllable (a combination which is not attested with the other two patterns).

The allomorphs *-t* of Pattern I and *-n* of Pattern II occur with both low and non-low vowels (see TABLE 20 and TABLE 26). Both suffixes also occur with final open syllables of disyllabic stems. The allomorph *-n* is also attested for polysyllabic stems. However, the tone seems decisive for the choice of *-t* vs. *-n*: That is, if the singular forms are high-toned, *-t* is chosen, if they are low-toned, *-n* is chosen. Elsewhere, vowel harmony plays a role in choosing vowels within each pattern.

Thus, with Pattern I, suffixing *-Vt*, we have on the one hand the allomorphs *-at* and *-ɔt*, which occur with low vowels in the singular noun, and on the other hand we have the allomorphs *-et* and *-ʌt*, which are chosen when the stem vowels belong to the non-low set. The allomorph *-it* is not predictable, since it occurs with low vowels as well. It is distinguished from the other *-Vt* suffixes in that it causes raising of the singular stem vowels.

With Pattern II, suffixing *-Vn*, the same allomorphy regarding the suffix vowel is attested. The allomorph *-an* occurs when the vowels of the singular noun belong to the set of low vowels, while the allomorphs *-en* and *-ʌn* occur when the relevant vowels are non-low, with *-ʌn* only attested after /o/, *-en* elsewhere. The allomorph *-in* is again not always predictable. It occurs, for instance, with *wòoy/yùwùyìn* ‘male goat/s’, while other lexemes with long /o/ take the suffix *-ʌn*, like *yòoh/yòohʌ̀n* ‘monkey/s’ (see TABLE 29). In general *-in* occurs with low and non-low vowels and causes raising of the stem vowels if they are not already high.

Pattern III, characterized by the suffix *-tVn*, cannot easily be distinguished from the other two. The suffix only occurs with long final closed syllables when its vowel carries a high tone, while the long monosyllables of Pattern II are low-toned. In order to be able to differentiate monosyllables with long vowels of Pattern III from those of Pattern I, the vowel quality seems decisive. Note, though, that there is only one high-toned monosyllable in our database, which has the vowel /o/ in its stem: *yóoc/ŋóoctʌ̀n* ‘bladder’. Thus, the whole structure needs to be considered. We have mostly di- or polysyllabic singular nouns which take the suffix *-tVn*, while di- or polysyllabic singular nouns with an open final syllable do not take the suffix *-tVn*. This leaves us with final closed syllables with a long vowel.

Within Pattern III, the allomorphs are again distributed according to the height of the singular nouns' stem vowels, i.e., *-tan* occurs with low vowels, while *-ten* and *-tʌn* are attested with non-low vowels, the latter again after /o/, the former elsewhere. The allomorph *-tin* is attested when the final syllable of the singular stem has a low-toned low vowel.

The aim of the present contribution was to find out the conditioning factors of noun suffix allomorphy in Tagoi. Though I was able to describe a number of environments that made one or the other allomorph more likely, there is still some way to go before we will be able to safely predict the allomorph, if it is possible at all. Not only is Tagoi an endangered language, we, i.e. the Tagoi team, were also working with members from the Tagoi community living in Khartoum. Thus, we were confronted with a variety of data. According to the speaker, the singular form was sometimes pronounced differently. However, as I have hopefully been able to describe, the plural form depends on several features of the singular form. Thus, different plural forms were presented as well. In this paper, I considered the forms that most Tagoi speakers agreed upon, while neglecting the other forms. In a planned paper, I will come back to this issue and try to describe the close connection between singular and plural forms including all the collected varieties. Thus, future research with more data will show whether this first classification can be maintained or whether other factors also need to be considered.

SIZE AND SHAPE OF THE SG NOUN STEM'S FINAL SYLLABLE	H TONE		L TONE	
	low vowel	non-low vowel	low vowel	non-low vowel
disyllabic stem with final open long syllable	*-t*			
mono-/di-/polysyllabic stem with closed final short syllable (exception with long syllable: *tɔ́ɔm* 'face' /)	*-at / -it*	*-ʌt*		
monosyllabic stem with closed long syllable; disyllabic stem with open/closed final short syllable		*-et*		
disyllabic stem with closed/open short syllable (within one word, vowels must share the same quality)	*-ɔt*			
di-/polysyllabic stem with final open long syllable			*-n*	
disyllabic stem with closed final short syllable			*-an*	
monosyllabic stem with closed long syllable				*-ʌn* (after /o/)
disyllabic stem with open long or closed short final syllable monosyllabic stem with closed final long syllable (problem: consider *yìrìi/ŋìrìyèn* 'coffee pot base/s' compared with *èmmèe/èmmèen* 'grandfather/s'; *kìmèe/hìmé* 'stomach/s'; *kìbìi/hìbí* 'prayer mat')				*-en*
monosyllabic stem with closed final short/long syllable; di-/polysyllabic stem with closed final short syllable (problem: consider *wòoy/yùwùyìn* 'male goat/s' compared with *yòoh/yòohʌ̀n* 'monkey/s')			*-in*	
	H TONE			H/L TONE
(mono-,) di- and polysyllabic stem with closed final long syllable	*-tan*	*-ten*	*-tʌn* (after /o/)	*-tin*

TABLE 35: The distribution of allomorphs

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Appendix

	root-controlled suffix vowel							dominant suffixes	
	low vowels (*a / ɛ / ɔ*) NOUN SG		non-low vowel (i / e / (ɨ / ə) ʌ / o / u) NOUN SG				low vowels (*a / ɛ / ɔ*) NOUN SG	
Pattern I (*-Vt*) high-toned stem final syllable	***-at*** (3:1)*		***-ɔt*** (8)	***-et*** (4:5)		***-ʌt*** (2:3)		***-it*** (2:2)	
	mono-syllabic	di-syllabic	di-syllabic	mono-syllabic	di-syllabic	mono-syllabic	di-/poly-syllabic	mono-syllabic	di-syllabic
	H	HH	HH	H	HH/LH	H	(L)HH	H	LH/HH
	after *a / ɔ*	after *ɛ*	after *a / ɔ / ɛ* (vowels with same quality)	after *i / e / u*	after *i / ɨ / u*	after *o / u*	after o	after *ɔ*	after *a* (vowels may have same quality)
	closed syllable		open/closed syllable	closed syllable	open/closed syllable	closed syllable	closed syllable	closed syllable	
	short final V		short final V	long final V (final sonorant)	short final V	short final V	short final V	short/long final V (final nasal)	short final V (final nasal)

TABLE 36: Pattern I

* The numbers in brackets indicate the frequency of occurrence in this article, e.g., "-***at*** (3:1)" means that *-at* occurs three times when the singular form is a monosyllable and once when it is disyllabic.

	root-controlled suffix vowel					dominant suffixes	
	low vowels (*a* / *ɛ* / *ɔ*) NOUN SG		non-low vowel (i / e / (ɨ / ə) ʌ / o / u) NOUN SG			low/non-low vowels (*a* / *ɔ* / *o* / *i* / *u*) NOUN SG	
Pattern II (*-Vn*) low-toned stem final syllable		***-an*** (1)	***-en*** (1:3)		***-ʌn*** (3)	***-in*** (5:5)	
	monosyllabic	disyllabic	monosyllabic	disyllabic	monosyllabic	monosyllabic	di-/polysyllabic
		LL	L	LL	L	L	HL/(L)LL
		after *ɔ*	after *u*	after *i* / *u*	after *o*	after *a* / *ɔ* / *o* / *i*	after *a* / *u*
		closed syllable	closed syllable	closed/open syllable	closed syllable	closed syllable	
		short final V	long final V	short/long final V	long final V	short/long final V	short final V

TABLE 37: Pattern II

	root-controlled suffix vowel					dominant suffixes	
	low vowels (*a* / *ɛ* / *ɔ*) NOUN SG		non-low vowel (i / e / (ɨ / ə) ʌ / o / u) NOUN SG			low vowels (*a* / *ɔ* / *ɛ*) NOUN SG	
Pattern III (*-tVn*) long high-toned stem final closed syllable	***-tan*** (4)		***-ten*** (2)		***-tʌn*** (3)	***-tin*** (4:2)	
	mono-syllabic	disyllabic	mono-syllabic	disyllabic	mono- (1) / di- (1) / poly-syllabic (1)	mono-syllabic	di-/polysyllabic
		HH / LH		HH	H / HH / LLH		LL / (L)LH / (L)HH
		after *ɛ* / *ɔ*		after *e* / *ʌ*	after *o*		after *a* / *ɛ*
		closed syllable		closed syllable	closed syllable		closed syllable
		long final vowel (final non-nasal)		long final vowel (final sonorant)	long final vowel		long final vowel (final nasal)

TABLE 38: Pattern III

Wall painting on a kindergarten in Khartoum
(photo: Gertrud Schneider-Blum, February 2019)