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# The Morphology of Plant Names in Chasu

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**Abstract**

*The study on which this paper is based examined the morphological structure of plant names in Chasu, a Bantu language spoken by the people living along the Pare Mountains in North-eastern Tanzania. The study was conducted in selected rural areas in the districts of Same and Mwanga in Kilimanjaro Region, Tanzania. The data were collected using free listing, field interview (a walk–in–the–woods interview) and written texts, which contained Chasu plant names. The study found that the morphological structure of Chasu plant names is composed of a noun class prefix and a noun stem. It also found that the majority of plant names in Chasu are found in the noun class 3/4 pair, with 50.8% of the analysed plant names being found in that pair. Other plant names are found in the noun classes: 5/6 (25.8%), 9/10 (10.1%) and 7/8 (9.7 %). Only a few plant names are placed in noun classes 11/6 (1.9%) and 12/13 (1.7%). The paper reveals further that there are different strategies that speakers of Chasu use in naming plants including compounding, reduplication, descriptive phrases, borrowing, loan translation and semantic extension. The paper recommends further research on the semantics of plant names in Chasu.*

**Keywords:** *Chasu, plant names, noun classes, noun stems and plant naming strategies*

## Introduction

This paper is based on the study which was carried out to examine the morphological structure of plant names in Chasu (G22). Chasu was chosen because, firstly, the Pare area where Chasu is spoken as the main language (with approximately 530,341 speakers) (LOT, 2009) is characterised by mountainous land that has a direct relationship with various kinds of vegetation (Jin et al., 2008). Secondly, according to Ruffo et al. (2002:1), Pareland is very rich in species diversity and endemism. Thirdly, Yohana (2009) pointed out that Pareland has

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various sacred forests (*mishituyangathu*) used by different clans for youth initiation ceremonies and rituals. Thus, native speakers of Chasu have a relationship with the plant world which gives them sufficient knowledge about plants. Therefore, it was thought important to carry out a study to examine the morphological structure of plant names in Chasu.

In studying plant names, scholars have shown diversities regarding the morphological structure of such names, especially in the allocation of plant names to noun classes and in the strategies that native speakers use in forming plant names in Bantu languages (see Pakia, 2005; Legère, 2009; Thornell, 2010; Nyidem, 2019; and Legère, 2020). Traditionally, the noun class 3/4 pair is used for naming plants in Bantu languages (see Maho, 1999; and Katamba, 2003). In addition, different studies (see Guthrie, 1976; Burton & Kirk 1976; Denny &Creider, 1976; Legère, 2009; 2020; and Marten 2021) have also shown that the noun class 3/4 pair is used for naming plants.

Scholars (see Maho, 1999; and Katamba, 2003) have revealed that noun class 3/4 pair is dominantly used for naming plants, however, it is worth noting that various studies have shown that there are languages that have started drifting away from using noun class 3/4 pair for naming plants and they use other noun classes for that purpose (Legère, 2009; Thornell, 2010; Nyidem, 2019; Legère, 2020). There are languages that have shifted from using noun class 4 (plural) for naming plants, for example, Kwangali, which uses class 10 for that purpose (Legère, 2020). Other languages have drifted away from using noun class 3 (singular) for example Vidunda, which uses class 5 for that purpose (Legère, 2009). Yet, other languages have shifted from using both noun classes 3/4, for example, Isubu uses noun class 7/8 pair for naming plants (Nyidem, 2019) and Mpiemo uses noun class 7/8a pair (Thornell, 2010) for naming plants. The diversity of noun class assignments to plant names in different ethnolinguistic groups brings a need to pay close attention to an individual ethnolinguistic group as noun classes other than 3/4 are taking over the various important folk taxonomical functions. Therefore, these variations motivated the researchers to carry out the study to examine the morphological structure of plant names to establish the allocation of plant names to noun classes in Chasu.

Furthermore, various studies have shown that there are different morphological strategies employed in forming plant names, for example, compounding, reduplication, loan translation, adnominal constructions, borrowing, inherited terms, a prefix VP and adjectival structures (Pakia, 2005; Legère, 2009; Thornell, 2010; Nyidem, 2019). However, it is important to note that, languages differ in terms of the strategies

they employ in forming such plant names. In Digo, plant names are formed through reduplication, phrasal expressions (genitive phrases, object phrases and non-determiner phrases) and borrowing (Pakia, 2005). In Vidunda, plant names are formed through reduplication (partial and complete), compounding, shared names and adnominal constructions (Legère, 2009). In the Mpiemo language, plant names are formed using compounding, reduplication, adnominal constructions, a prefix VP and adjectival structures (Thornell, 2010). Thus, there are variations in the strategies employed by native speakers in forming plant names for different languages. Also, Booij (2009) observes that some of the strategies used in forming lexemes get lost when they lose their productivity, which is attributed to the fact that no more words of a given type can be formed through such strategies. Thus, variations in the strategies employed in forming plant names in different languages motivated the researchers to examine the strategies employed in forming plant names in Chasu.

It is argued that Bantu nominal morphology may consist of a noun class prefix and a noun stem (Van de Velde, 2019), however in plant names there are variations in noun class assignment to such names and the diversities in the morphological strategies employed in naming plants for different languages. Therefore, the study aimed at examining the morphological structure of the plant names in Chasu. Specifically, the study examined the allocation of plant names to noun classes and determined the strategies native speakers of Chasu use in forming such names. The paper makes an important contribution to the field of morphology, specifically to studies on the allocation of noun classes to plant names and on the morphological processes involved in forming plant names.

## Theoretical Framework

The study was guided by cognitive linguistic theory, in particular, cognitive approaches to grammar (see Duranti 1997; Foley; 1997; and Evans & Green, 2006). One of the assumptions in this theory is that the knowledge of language emerges from use. In structuralist and generative models, only the structure of grammatical forms or words can determine their representation in the speaker's mind. However, in the cognitive approaches to grammar, it is not only the structure that is considered but also the properties of *the use* of a certain construction in communication may also determine the representation of that grammatical unit or a word in the speaker's mind.

The cognitive approaches to grammar emphasises two usage-based properties: the frequency of occurrence of particular grammatical constructions or words and the structure and meaning of grammatical

constructions or words in use (Croft & Cruse, 2004). According to Croft and Cruse (2004), the storage of a word form, regular or irregular, in the speakers' mind is a function of its token frequency, that is, each time a word is used it activates a node in the mind, thus leading to its ultimate storage as a conventional grammatical unit in the mind. The argument is that, whenever people utter a certain word or produce any grammatical construction, they unconsciously structure every aspect of that construction and the experience they intend to convey. Thus, words or any other grammatical constructions are the input and output of a cognitive process as a result of the function of their token of frequency.

The theory is deemed to be relevant to the current study as it helped in understanding the way the native speakers of Chasu select noun classes to be assigned to specific stems in the formation of Chasu plant names, also, it helped in understanding the strategies they deploy in the formation of such names. Native speakers of Chasu have been using plant names for a long time and they have grasped their structural knowledge, this reflects the assumption of the cognitive approach to grammar which emphasizes that the storage of the word structure in the native speaker's mind is a function of its token frequency[1].

## The Structure of Plant Names in Chasu

The structure of plant names in Chasu comprises a noun class prefix, which can either be singular or plural, and a noun stem. Generally, in Chasu, plant names are formed by attaching a noun class prefix to the noun stem, which can be simple, with or without derived lexemes. Simple words are mono-lexemic since they contain only one word, for example *m-vumo* 'strangler Fig' [*Ficus thonningii*] (simple structure and non-derived) and *i-kararato* 'African soapberry' [*Phytoloccadodecandra*] (simple structure, derived from a word *kararata* "be bitter"). In addition, plant names can be complex constructions, that is, compound words or adnominal constructions (phrasal compounds). A compound word is the one that is made up of at least two bases that can occur elsewhere as independent words (Katamba, 1993). In Chasu, a phrasal compound (adnominal construction) is a construction that comprises a lexeme as a headword, a linking element and another word that functions as an adnominal modifier, for example, *ki-thapakijewa* 'white aloe vera' [*Agave atrovirensi*] (compound) and *m-kosha wandhovu* 'thorny acacia' [*Vanchellianilotica*] (adnominal construction). The structure of plant names in Chasu is presented diagrammatically in Figure 1.

[1] The study was conducted in rural areas in Same and Mwanga districts in Kilimanjoro region. It worked with nine adult native speakers who are traditional healers, hunters and farmers. The methods involved were free listing, field interview and written texts which contained Chasu plant name

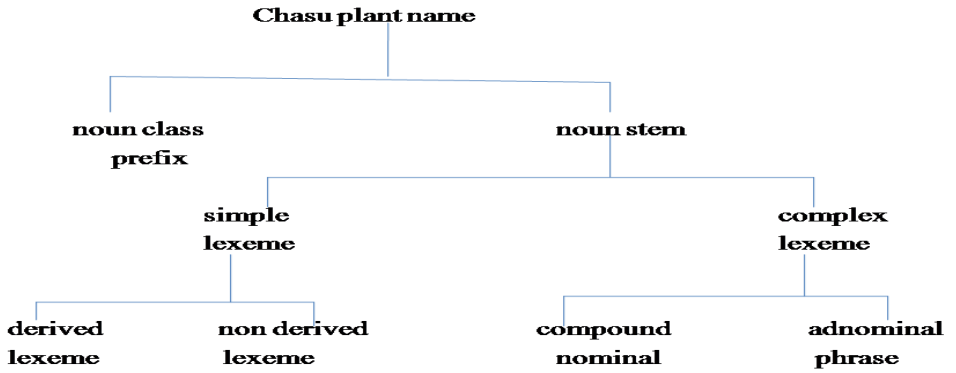


**Fig. 1: The Structure of Chasu Plant Names**

Figure 1 presents the structure of Chasu plant names where noun class prefixes can be attached to stems with different forms. The findings of the current study show that in Chasu, plants are named using bare nouns, derived nouns, compound nominals or adnominal constructions/descriptive phrases. For example, *i-dunguthi* 'cactus pear' [*Opuntia ficus-indica*] (bare noun), *m-kaankanga* 'mysore thorn' [*Caesalpimadecapitela*] (compound nominal), *i-kararato* 'African soapberry' [*Phytoloccadodecandra*] (derived noun), *i-komanyoka* 'wild cucumber' [*Momordica foetida*] (compound noun) and *m-thelewanyika* 'knob wood') [Xanthoxylum*chalybeum*] (adnominal construction).

Generally, in relation to the structure of Chasu plant names these findings match those unveiled in other studies for different languages, for example in Vidunda (Legère, 2009), Digo (Pakia, 2005) and Mpiemo (Thornell, 2010). However, Chasu plant names are found to be in different forms including bare nouns, derived nouns, compound nouns and adnominal constructions. These structural forms unveil the way the knowledge of native speakers of Chasu about plants is packaged through plant names. This part has shown that the morphological structure of Chasu plant names involves a noun class prefix and the noun stem. The next parts provide further descriptions of these two elements (noun class prefix and a stem) by focusing on the assignment of plant names to noun classes and on the plant formation strategies in Chasu.

## Assignment of Plant Names to Noun Classes

As it is evidently shown in the previous section, the structure of plant names in Chasu comprises a noun class prefix and a stem. The findings of the current study reveal that, in Chasu, plant names are assigned to different noun classes, as detailed below.

The study found that the majority of plant names are placed in the noun class 3/4 pair in Chasu. Specifically, the findings reveal that 215 plant names (50.8%) out of 423 are designated in the noun class 3/4 pair. These findings imply that the majority of plant names in Chasu are allocated to noun class 3/4 pair in relation to all analysed plant names. Table 1 presents examples of Chasu plant names that are designated in the noun class 3/4 pair.

**Table 1: Plant Names in Noun Classes 3/4 (m(u)-/ mi-)**

| Singular (Noun Class 3) | Plural (Noun Class 4) | Botanical Name | Gloss |
|---|---|---|---|
| *m-ramba* | *mi-ramba* | *Adansonia digitata* | baobab tree |
| *m-kisha* | *mi-kisha* | *Kigeliaafricana* | sausage tree |
| *m-kokoma* | *mi-kokoma* | *Diospyiosabyssinica* | giant diospyros |
| *m-daria* | *mi-daria* | *Vangueriavolkelnsii* | wild medlar tree |
| *m-wangwi* | *m-yangwi* | *Myrica salicifolia* | kilimandscharica |
| *m-wembe* | *m-yembe* | *Mangifera indica* | mango tree |
| *m-washo* | *m-yasho* | *Nuxia floribunda* | wild elder tree |
| *m-wongati* | *m-yongati* | *Cupressus abramsiana* | santacruz cypress tree |

Table 1 shows that the noun class 3 prefix *m-* is used with a stem that begins with a consonant. This is the result of the deletion process whereby the vowel (sound) *u-* is deleted from the stem of the plant name that begins with a consonant for simplification purposes (Hayes, 2009), as in*mu-ramba-m-ramba* 'baobab tree' [*Adansonia digitata*], *mu-kisha-m-kisha* 'sausage tree' [*Kigelia Africana*], *mu-kokoma-m-kokoma* 'giant diospyros' [*Diospyiosabyssinica*] and*mu-daria-mdaria* 'kyimbilensis' [*Vangueriavolkelnsii*]

In the case of a stem that begins with a vowel, the attachment of the noun-class 3 prefix triggers gliding of the vowels as Chasu does not allow the co-occurrence of the high vowel (e.g. *i-*, *u-*) and other vowels (e.g. *e-*, *a-*). Such co-occurrence causes gliding, as in *mu-angwi -m-wangwi* 'kilimandscharica' [*Myrica salicifolia*], *mu-asho- m-washo* 'wild elder tree' [*Nuxia floribunda*], *mu-embe-m-wembe* 'mango tree' [*Mangifera indica*]and *mu-ongati- m-wongati* 'santacruz cypress' [*Cupressus abramsiana*]

Furthermore, the noun-class 4 prefix (*mi-*) is attached to the stems of plant names that begin with a consonant to form plural, for example, *m-ramba- mi-ramba, m-kisha-mi-kisha, m-kokoma-mi-kokoma*and *m-daria-mi-daria*. However, when noun class 4 (*mi-*) is attached to a stem of the plant name that begins with a vowel, gliding occurs, for example, *mi-agwi-m-yangwi, mi-asho-m-yasho, mi-embe-m-yembe*and *mi-ongati-m-yongati.*

Thus, the findings of the current study indicate that the majority of plant names in Chasu are designated in noun class 3/4 pair which are consistent with other studies (Pakia 2005; Legère, 2020). However, they also contradict the findings of other studies which show that plant names are designated in noun classes other than classes 3/4 (Legère, 2009; Thornell 2010; Nyidem, 2019; Legère, 2020).

It has been shown evidently in this paper that the majority of plant names are allocated in noun classes 3/4, however, other plant names are allocated to other noun classes. Thus, the study has found also that there are plant names that are placed in noun classes 5/6. The findings reveal that 109 (25.8%) out of 423 plant names are found in classes 5/6. Table 2 presents different examples of Chasu plant names that are placed in classes 5/6.

**Table 2: Plant Names in Noun Classes 5/6 (i-/ma-)**

| Singular (Noun Class 5) | Plural (Noun Class 6) | Botanical Names | Gloss |
|---|---|---|---|
| *i-jia* | *ma-jia* | *Cyperus alternifolius* | umbrella sedge |
| *i-ririko* | *ma-ririko* | *Veronica amygdalina* | bitter leaf |
| *i-jaja* | *ma-jaja* | *Maesa lanceolata* | false assegai |
| *i-guramagonji* | *ma-guaramagonji* | *Hackelia virginiana* | beggar's lice |
| *i-komanyoka* | *ma-komanyoka* | *Momordica foetida* | wild cucumber |
| *i-dunguthi* | *ma-dunguthi* | *Opuntia ficus-indica* | cactus pear |
| *i-rigo* | *ma-rigo* | *Esenteventri cosum* | 'baobab tree' |

Table 2 presents examples of plant names that are designated in noun class 5/6 pair in Chasu. Findings show that this class pair also hosts different fruit names in Chasu. The examples include *i-parachichi* 'avocado' *i-papayu* 'pawpaw' *i-kongwa* 'goose berry', *i-pera* 'guava', *i-takataka* 'snot apple' *i-tungululu* 'wild cardamom' *i-yembe* 'mango' and *i-funethi* 'jack fruit'. These findings are consistent with those of other studies (Denny &Creider, 1976; Cantini Morava, 2000; Legère, 2020; Marten, 2021), which also revealed that fruit names are placed in classes 5/6. Denny and Creider (1976) termed the class 5/6 pair as a 'fruit class'. It is important to note that different plant names are derived from fruit names where the same stems used for naming fruits (with noun classes 5/6) are also used to form plant names (with noun

classes 3/4). It is argued that fruit names come first because of the utility criterion (see Leyew, 2011). For example, *i-pera* 'guava fruit' with noun classes 5/6 (fruit name) form a plant name *m-pera* 'guava plant' with noun classes 3/4 (plant name).

The study also found that there are plant names in Chasu that are designated in class pair 7/8. However, the findings show that this class pair is not very commonly used for naming plants in Chasu where only 42 plant names (9.7%) out of 423 were found to have been designated in this class pair. Table 3 presents examples of the plant names found in classes 7/8.

**Table 3: Plant Names in Noun Classes 7/8 (ki-/vi-)**

| **Singular (Noun Class 7)** | **Plural (Noun Class 8)** | **Botanical Name** | **Gloss** |
|---|---|---|---|
| *ki-kwatamno* | *vi-kwatamno* | *Acasiamellfera* | black thorn |
| *ki-thapakijiru* | *vi-thapakijivu* | *Agave fourcroydes* | Cuban sisal |
| *k-yombati* | *v-yombati* | *Lonchocarpusbussei* | narrow lance pod |
| *ki-dongadwa* | *vi-dongadwa* | *Rapaneamelanophloeos* | cape beech |
| *k-yogwe* | *v-yogwe* | *Ipomoea batatas* | sweet potato |
| *ki-mbara* | *vi-mbara* | *Bidens Pilosa* | beggar's tick |
| *ki-yandama* | *v-yandama* | *Pararistolochiapraevenosa* | butterfly vine |

Table 3 presents plant names that are designated in classes 7/8. It was pointed out earlier that the co-occurrence of the high vowel and other vowels triggers gliding in Chasu, as *ki-ombati-k-yombati, ki-ogwe- k-yogwe*and*ki-iandama- ki-yandama*show. The study found that, in Chasu, the noun class 7/8 pair is not very commonly used in naming plants (only 9.7% of the analysed plant names are placed in this pair). However, this noun class pair (7/8) is predominant in other languages with respect to the naming of plants. For example, the study by Nyidem (2019) revealed that the noun class 7/8 pair is predominant in naming plants in the Isubu language. Thornell (2010) also found that the noun class 7/8a pair is predominant in naming plants in the Mpiemo language. This implies that although it has been pointed out that plant names were allocated in class pair 3/4 in Proto-Bantu (Maho, 1999; Katamba, 2003; Legère, 2020) folk taxonomy has modified the allocation strategies in some languages where noun classes other than 3/4 are used for naming plants.

The study also found that, in Chasu, there are plant names that are designated in the noun class 9/10 pair. The findings reveal that noun classes 9/10 are not commonly used in naming plants in Chasu as only 44 (10.1) out of 423 plant names were found to be in this noun class pair. Table 4 presents examples of plant names that are assigned to noun classes 9/10.

**Table 4: Plant Names in Noun Classes 9/10 (N-/N-)**

| **Singular (Noun Class 9)** | **Plural (Noun Class 10)** | **Botanical Name** | **Gloss** |
|---|---|---|---|
| *Nkinda* | *Nkinda* | *Musa spp* | banana plant |
| *Nkatakwa* | *nkatakwa* | *Annona squamosa* | custard apple |
| *Nyanje* | *Nyanje* | *Indigofera suffruticosa* | small-leaved indigo |
| *Ngena* | *Ngena* | *Vigna radiata* | mug bean |
| *Njwinjwi* | *nywinjwi* | *Solanum anguivi* | African egg plant |
| *Nkambu* | *Nkambu* | *Rumex usambarensis* | dammer |
| *Mpatha* | *Mpatha* | *Vernonia sp* | bitter leaf |

Table 4 presents examples of plant names that are found in the noun class 9/10 pair. Noun classes 9/10 are not overtly marked for number. Therefore, these noun classes were identified through agreement patterns during the data collection process. The study found that noun classes 9/10 are also used in naming various non-typical fruit plant products (e.g., cereal grains, root tubers, legumes and fat products) in Chasu. There are other fruit names that are also allocated in noun class 9/10 pair, also, other studies (see Morava, 2000) have shown that there are fruit names that are found in noun class 9/10 pair. It should be noted that different plant names are derived from fruit and non-typical fruit product names; fruits or any other non-typical fruit plant products come first because of the utility criterion (Leyew, 2011). Table 5 presents non-typical fruit plant product names and some of the fruit names (with noun classes 9/10) that form plant names (with noun classes 3/4).

**Table 5: Non-typical fruit Plant Product names (9/10) and Plant Names (3/4)**

| Non-typical Fruit Plant Product/Fruit (Noun Classes 9/10) | Gloss | Plant Name (Noun Classes 3/4) | Botanical Name |
|---|---|---|---|
| *ndangu* (non-typical fruit) | bitter brinjal | *m-dangu* | *Solanum incanum* |
| *mpirimpiri* (non-typical fruit) | Pepper | *m-piripiri* | *Capsicum annuum* |
| *nadhi* (non-typical fruit) | coconut | *m-nadhi* | *Cocos nucifera* |
| *korosho* (non-typical fruit) | cashew nut | *m-korosho* | *Anacardium accidentale* |
| *kahawa* (non-typical fruit) | coffee | *m-kahawa* | *Coffea arabica* |
| *shughu* (non-typical fruit) | pigeon pea | *m-shughu* | *Cajanus cajan* |
| *mbono* (non-typical fruit) | castor bean plant | *m-bono* | *Ricinus communis* |
| *thambia* (fruit) | - | *m-thambia* | *Pachystelamsolo* |
| *ntundutwa* (fruit) | hog plum | *m-tundutwa* | *Ximenia Americana* |
| *ndaria* (fruit) | African medlar | *m-daria* | *Vangueriainfausta* |
| *ntelia* (fruit) | strawberry | *m-telia* | *Fragaria ananasa* |
| *dhambarau* (fruit) | jamun | *mdhambarau* | *Syzygiumcumini* |
| *mpunguu* (fruit) | - | *m-punguu* | *Antidesma membranaceum* |

From Table 5, the first column presents non-typical fruit product names and fruit names and the third column presents the derived plant names. The findings show that the same stems used for naming non-typical fruit products or fruits (with noun classes 9/10) are also used for naming plants (with noun classes 3/4). For example, *ndangu* 'bitter brinjal' is a non-typical fruit plant product name which forms a plant name *m-dangu* 'bitter brinjal plant' [*Solanum incanum*] and *ndaria* 'African medlar' is a fruit name that forms a plant name *m-daria* 'African medlar plant' [*Vangueriainfausta*].

The study found a few plant names in noun class 11. In Chasu, theplural counterpart of noun class 11 is noun class 10 (Kagaya, 1989). However, the findings of the current study show that the plural counterpart of the plant names found in noun class 11 is noun class 6.

This seems to be different from other Chasu nouns, which are placed in noun class 11 as they form their plural using noun class 10. For example, *lu-kwi/n-kwi*and *lu-kombe /n-kombe* 'piece(s) of firewood /nail(s)' are found in noun classes 11/10 (Kagaya, 1989). Findings of the current study show that the plural counterpart of the plant names found in noun class 11 is noun class 6, as *ma-lu-thingu, ma-lu-koka*and *ma-lwamwa*show. There are Bantu languages (e.g., Vidunda) where the plural counterpart of the plant names allocated in noun class 11 was not found (see Legère, 2009). The study found only eight plant names that are placed in noun classes 11/6 out of 423. Examples of the plant names in noun class 11 are *lufuriani* 'creeping panic grass' [*Branchiariareptans*], *lwamwa* 'swamp rice grass' [*Leersiahexandra*], *lukoka* 'creeping guinea grass' [*Panicum trichocladum*]and *lukokodhi* 'stinking Kedrostis' [*Kedrostisfoetidissima*]

In Bantu languages, noun classes 12/13 areregarded as secondary classes, which reflect diminutiveness (Maho, 1999). Findings of the current study show that the majority of plant names in Chasu are allocated to noun classes 12/13 to show diminutiveness. The study found that, in Chasu, such noun classes can be substituted with the primary classes or can be stacked together with the primary classes. The findings revealed that substitution/ replacement can be done to noun classes 5/6 and 7/8. In the case of other noun classes, especially noun classes 3/4, 9/10 and 11/6, Chasu allows the stacking/doubling of noun classes to express diminutiveness. Table 6 illustrates this point.

**Table 6: Diminutiveness for Plant Names in Chasu (Noun Classes 12/13)**

| Plant Name | Singular (Noun Class 12) | Plural (Noun Class 13) | Botanical Name | Gloss |
|---|---|---|---|---|
| *i-baa mbono* (5/6) | *ka-baa mbono* | *vu-baa mbono* | *Macaranga capensis* | small David' heart |
| *i-dunguthi* (5/6) | *ka-dunguthi* | *vu-dunguthi* | *Opuntia ficus-indica* | small cactus |
| *ki-mbara* (7/8) | *ka-mbara* | *vu-mbara* | *Bidens Pilosa* | small beggar's tick |
| *ki-lukwa* (7/8) | *ka-lukwa* | *vu-lukwa* | *Dioscoreaalata* | small water yam |
| *m-kunguma* (3/4) | *ka-m-kunguma* | *vu-mikunguma* | *Sorindeiamadagascariensis* | Small "evergreen tree" |
| *m-wangwi* (3/4) | *ka-m-wangwi* | *vu-m-yangwi* | *Myrica salicifolia* | small Chinese bay berry |

| Plant Name | Singular (Noun Class 12) | Plural (Noun Class 13) | Botanical Name | Gloss |
|---|---|---|---|---|
| *n-kambu* (9/10) | *ka-n-kambu* | *vu-nkambu* | *Rumex usambarensis* | small dammer |
| *n-yanje* (9/10) | *ka-n-yanje* | *vu-nyanje* | *Indigofera suffruticosa* | small-leaved indigo |
| *lu-koka* (11/6) | *ka-lu-koka* | *vu-lu-koka* | *Salaellaramosa* | small azumazasa |
| *lu-kokodhi* (11/6) | *ka-lu-furiani* | *vu-lu-furiani* | *Branchiariareptans* | small creeping panic grass |

The data in Table 6 show that noun classes 5/6 and 7/8 permit their regular replacement for the purpose of showing diminutiveness, as shown by the first four examples in the table, as*i-dunguthi* (5/6) *-ka-dunguthi* (12/13) and *ki-mbara* (7/8)-*ka-mbara* (12/13) show. Other noun classes are stacked together with the diminutive classes to show diminutiveness, as *m-kunguma* (3/4)-*ka-m-kunguma* (3/4, 12/13) and*n-yanje* (9/10)-*ka-n-yanje* (9/10, 12/13) show. This makes Chasu different from other Bantu languages, which allow regular substitution of the diminutive noun classes with the primary noun classes in plant names (see Pakia, 2005; and Legère, 2020). However, Maho (1999) also confirms that some Bantu languages allow the doubling of noun classes.

There are fascinating findings revealed by Msuya (2021), which show that, in Chasu, some plant names (and plant part names) are used as personal names when they are allocated to the singular diminutive class (noun class 12). Thus, different personal names are formed by attaching the noun class 12 to the stems of different plant names in Chasu. For example, the plant name- *i-rigo* 'abyssinian banana' [*Esenteventricosum*] forms the personal name *Ka-rigo*, the plant name-*i-duri* 'shrub verbena' [*Lantana camara*] forms the personal name *Ka-duri*, the plant name- *i-jia* [*Dracaena afromontana*] forms the personal name- *Ka-jia* and the plant part *i-hungo* "plant leaf" forms the personal name *Ka-hungo* (see Msuya, 2021). With this regard, other personal names derived from plant names were found in the current study, the names include; a plant name *m-vumo* "strangler fig" [*ficusthonningii*] forms a personal name *Ka-vumo, i-dio* "banana" forms the personal name *Ka-dio.* There are other plant names used as personal names by attaching the feminine prefix *na-* (Sebonde, 2020) for example a plant name *ngena* 'mung bean' [*Vigna radiate*] forms the personal name *Nangena*, a plant name *Shimbwe* 'sicklethorn' [Asparagus falcatus] forms a personal name *Nashimbwe*also a forest name *Mshitu* "forest" forms a personal name*Namshitu*. Also, the study found that there are

plant names that are used as personal names directly without any modification for example, *Shaghude,* 'wild spikenard' *Irigo* 'abyssinian banana' *Nkinda* 'banana tree" and *Mramba* 'baobab tree'. It is plausible to argue that plant names are used to form personal names as plant names are given to people on different basis, for example, a place of birth (e.g., *Mshitu-* in the forest, *Mramba-* under the baobab tree etc.), people's habits and mannerisms or inherited names (*Nangena, Kaduri*etc.) and preference for healing through herbal practice (*Nakashari* – small shrub for herbal medicine, *Nakaramba* -small creeping plant) (Sebonde, 2020; Msuya, 2021).

Apart from noun classes 12/13 being used as secondary classes for expressing diminutiveness for the majority of plant names, the findings show that, in Chasu, a few plants use noun classes 12/13 as their primary classes. It is revealed that, out of the 423 plant names analysed, 7 plant names are placed in noun classes 12/13. Examples include *ka-lukumbi* 'tall fleabane' [*Erigeron sumatrensis*], *ka-goma* 'black-eyed susan vine' [*Thunbergia alata*], *ka-mrushu* 'common wireweed' [*Sida acuta*], *ka-thomambala* 'snake plant' [*Sansevieria phillipsiae*] and *ka-nandhighe* 'white weed' [*Ageratum conyzoides*].

### Distribution of Plant Names across Noun Classes

It has been shown in the previous sections that various plant names are allocated to different noun classes in Chasu. Therefore, there is some variation in the frequency in which different plant names are assigned to different noun class prefixes in Chasu. The information in the following table helps to illustrate this point.

**Table 7: Distribution of Plant Names across Noun Classes**

| Noun Class Prefix | Frequency | Percentage |
|---|---|---|
| Class ¾ | 215 | 50.8 |
| Class 5/6 | 109 | 25.8 |
| Class 7/8 | 41 | 9.7 |
| Class 9/10 | 43 | 10.1 |
| Class 11/6 | 8 | 1.9 |
| Class 12/13 | 7 | 1.7 |
| Total | 423 | 100.0 |

Table 7 shows that, in Chasu, 50.8% of the plant names analysed are found in noun classes 3/4. The second noun class pair, which is used in naming plants in Chasu, is 5/6, in which 25.8% of the plant names analysed are found. Other noun classes that are used in naming plants

in Chasu are noun classes 9/10 (10.1%) and 7/8 (9.7 %). Only a few plant names are in noun classes 11/6 (1.9%) and 12/13 (1.7%). This distribution implies that plants are not a single category as there are different categories of plants (different life forms). The findings show that, in Chasu, plants can be categorised into three life forms: trees (*mti/miti*), grass and herbs (*ijani/majani*) and creepers/climbers (*irigherighe/marigherighe*). People's perception of plants, their sizes or uses find their reflection in language structures, including the noun classes. The findings show that names of trees are mostly found in noun classes 3/4 in Chasu, although there are tree names that are shifting towards noun classes 5/6. The names of other categories of plants such as grass and herbs (*ijani/majani*) and creepers/climbers (*irigherighe/marigherighe*) are mostly found in noun classes 5/6. Therefore, the advancement of the knowledge of conceptualising plants which goes beyond the identification and naming of trees (as plants were associated with tree only which is a predominant category of plants) has caused plant names to be allocated to various noun classes, which seems to be different from the past conceptualisation process. Therefore, it is pointed out earlier that in the Proto -Bantu plant names were mainly allocated to noun classes 3/4, however advancement in the conceptualization process and in folk taxonomy causes noun classes other than 3/4 to be used in naming plants in different languages.

## Strategies Used in Forming Plant Names in Chasu

Native speakers of Chasu deploy different strategies in forming various plant names. The study found that plant naming strategies follow general word formation patterns available in Chasu (including compounding, reduplication borrowing etc.). However, complex constructions such as compounds and adnominal constructions were found to be useful in the folk taxonomic system as specific taxa are named through these constructions.

The findings show that the morphological structure of plant names in Chasu involves simple morphological structure and complex morphological structure. In the simple morphological structure, the strategy used to form plant names involves attaching a noun-class prefix to the noun stem. Simple plant names are mono-lexemic and cannot be divided any further into meaningful components. They are believed to be the oldest names in the plant nomenclature (see Pakia, 2005; and Leyew, 2011). A couple of plant names in Chasu are found in this category, for example, *m-ramba* 'baobab tree' [*Adansonia digitata*], *i-rigo* 'baobab tree' [*Esenteventricosum*]*ki-dongadwa* 'cape beech tree' [*Rapanea pulchra*] and *n-kinda* 'banana tree' [*Musa spp*].

Furthermore, it has been found that complex morphological structures are also used in forming plant names in Chasu. Findings show that there are different strategies used in the formation of complex morphological structures in Chasu. The first strategy is reduplication (prefix + stem -reduplicated) with the complete reduplication and partial reduplication. In the complete reduplication, there is a complete repetition of the plant stem; for example, *i-kundukundu* [*Harunganamadagascariensis*], *m-dhingadhinga* [*Cordia Africana*], *m-sharashara* [*Aphloiatheiformis*], *i-belebele* [*Voacangalutescens*], *m-thongothongo* [*Euphorbia nyikae*], *m-fungufugu* [*Tarchonanthus camphorates*] and *m-shungashunga* [*Sonchus luxurians*]

In partial reduplication there is a partial repetition of the stem, that is, the part of the stem in the plant name is repeated. For example, *m-thothohwe* [*Carisa edulis*], *i-ririko* [*Veronica amygdalina*], *m-kokoma* [*Diospyiosabyssinica*], *i-kararato* [*Phytoloccadodecandra*], *i-jaja* [*Maesa lanceolata*]and *i-thathavo* [*Cyathea myosuroides*]

The second strategy employed in forming plant names is compounding. The findings show that there are different plant names in Chasu that are formed through compounding. It was found that, in the formation of compound plant names, various elements are combined. The combinations involve different elements; the first combination involves a noun class prefix which is attached to a verb stem and turns the verb into a noun (deverbal), which is, in turn, combined with another noun (prefix + verb stem+ prefix + noun stem). Examples from the elicited plant names are presented in Table 10.

**Table 8: Compound Plant Names in Chasu (Pref+Verb +Noun)**

| Noun Class | Verb Stem | Noun Class | Noun Stem | Plant Name | Botanical Name | Gloss |
|---|---|---|---|---|---|---|
| *m(u)-/mi-* (3/4) | *rer-a* (bring up) | *i-* (5) | *iy-ambo* (field) | *mreraiyambo* | *Newtoniabuchanani* | African newtonia |
| *i-/ma-* (5/6) | *ger-a* (shout) | *N-* (10) | *n-kunga* (screams) | *i-gerankunga* | *Acacia drepanolobium* | whistling thorn |
| *i-/ma-* (5/6) | *gur-a* (hold) | *ma-* (6) | *ma-gonji* (goats) | *i-guramagonji* | *Hackelia virginiana* | stickseed |
| *ki-/vi-* (7/8) | *chw-a* (cut) | *i-*(5) | *i-ghembe* (hoe) | *ki-chwaighembe* | *Conyza schimperi* | horseweed |
| *i-/ma-* (5/6) | *rem-a* (fail) | *N* (10) | *n-dhano* (sun) | *i-remandhano* | *Asystasiagangetica* | Chinese violet |

| Noun Class | Verb Stem | Noun Class | Noun Stem | Plant Name | Botanical Name | Gloss |
|---|---|---|---|---|---|---|
| *i-/ma-* (5/6) | *kom-a* (kill) | *N* (10) | *n-yoka* (snakes) | *i-komanyoka* | *Momordica foetida* | wild cucumber |
| *ki-/vi-* (7/8) | *gur-a* (hold) | *N* (10) | *n-guve* (pigs) | *ki-guranguve* | *Ancylobotristayloris* | Pichon |

Table 8 presents Chasu plant names that are formed through compounding with a combination of a prefix, a verb and a noun. The first column contains noun classes (singular and plural) and the third column contains noun classes either in singular or plural form; this is because the nouns in the fourth column are not heads and cannot be changed into plural. The findings reveal that the majority of compound plant names in Chasu are formed through this combination.

Another combination of constituents used in forming plant names through compounding in Chasu includes a prefix + a noun stem + a prefix + a noun stem. Examples of plant names formed that way are *m-kaankanga* 'mysore thorn' [*Caesalpinia decapetala*], *m-piripirimwachaka* 'pepper plant' [*Capsicum annuum*], *i-kala nyika* [*Biancaeadecapetala*] and *m-tundamighuva* 'common pear' [*Pyrus communis*]. Theseexamples show that, in Chasu, there are compound plant names formed by combining a prefix + a noun + a prefix + a noun. It was pointed out earlier that compounds are inflected in the heads; therefore, these compounds are inflected on the head nouns which appear in the left position, for example, *m-tundamighuva*/ *MI-tundamighuva* [*Pyrus pyrifolia*] and *m-pirpirimwachaka*/*MI-piripirimwachaka* [*Capsicum annuum*].

The study found that Chasu plant names are also formed by combining nouns and adjectives. An adjective is used to denote properties like size, colour and taste. The study found different plant names formed by combining nouns and adjectives. Table 9 presents examples of such plant names.

**Table 9: Chasu Compound Plant Names (Noun +Adjective)**

| Noun Class | Noun | Adjective | Plant Name | Botanical Name | Gloss |
|---|---|---|---|---|---|
| *ki-/vi* (7/8) | *ki-thapa* | *ki-jiru* (black) | *Kithapakijiru* | *Agave atrovirensi* | maguey manso |
| *m(u)-/ mi-* (3/4) | *m-daria* | *m-baha* (big) | *Mdariambaha* | *Vangueriavolkelnsii* | kyimbilensis |
| *m(u)-/ mi-* (3/4) | *m-hama* | *m-jewa* (white) | *Mhamamjewa* | *Combretum goetzei* | combretums |

| **Noun Class** | **Noun** | **Adjective** | **Plant Name** | **Botanical Name** | **Gloss** |
|---|---|---|---|---|---|
| *m(u)-/ mi-* (3/4) | *m-lawa* | *m-dori* (big) | *Mlawamdori* | *Grewia fallax* | grewia |
| *N/N* (9/10) | *tuku* | *thithiri*(thin) | *Tukuthithiri* | *Eucleadivinorrum* | magic guarri |
| *ki/vi* (7/8) | *ki-thapa* | *ki-edha* (tall) | *Kithapakiedha* | *Aloe ballyiReimolds* | rat aloe |
| *m(u)-/ mi-* (3/4) | *m-ghuva* | *m-nkundu* (red) | *Mghuvamnkundu* | *Saccharum officinarum* | sugarcane |

Table 9 presents examples of compound plant names formed by combining nouns and adjectives. Findings show that adjectives play a major role in the Chasu folk taxonomy as they are used to differentiate specific taxa from generic taxa where properties such as size and colour are used by speakers of Chasu to differentiate various categories of the same species. For example, the plant *m-ghuva* 'sugar cane plant' has different categories in Chasu which are differentiated on the basis of colour, for instance, *m-ghuvamjiru* "black sugarcane", *m-guvamjewa* "white sugar cane" and *m-ghuvamnkundu* "red sugar cane".

The study found also that there are different phrasal compounds or adnominal constructions that speakers of Chasu use in naming plants. In Chasu, an adnominal construction comprises a lexeme as the headword, a linking element and another word that functions as an adnominal modifier. These phrasal constructions do not agree with the lexical integrity principle for wordhood (see Bresnan & Mchombo, 1995) but they are used by native speakers of Chasu as names of plants. The following are examples of phrasal compounds/adnominal constructions used for naming plants in Chasu: *i-thibo la va-ghothi* [*Cardia avails*], *m-fundofundowakidhungu* [*Medicago sativa*], *i-konje la kibora* [*Sansevieria hyacinthides*], *i-kongwe la nkondeni* [*Commelinadiffusa*], *i-koko la thirwa* [*Cucurbita ficifolia*], *m-kosha wandhovu* [*Vanchellianilotica*] to mention but a few. The study found that adnominal constructions are very important in the Chasu folk taxonomy as they are usually used in naming specific taxa. It has been found that there are various species of the same taxon categorised by native speakers of Chasu using adnominal constructions. For example, speakers of Chasu identify three sub-types of *n-gaghe* 'giant sedge' [*Cyperus exaltatus*]*; ngagheyakitegheta* 'giant sedge that grows in the swampy areas' *n-gagheyakondeni* 'giant sedge that grows in the banana field' and *n-gagheyathakeni* 'giant sedge that grows wild' and two sub-types of *i-kongwe* 'spreading dayflower'*; ikongwe la nkondeni* 'the one that grows in the banana field' and *i-kongwe la thakeni* 'the one that

grows wild'. These findings are similar to findings on the Digo language (Pakia, 2005), in which most specific taxa are also named using adnominal construction.

Another strategy employed in forming plant names in Chasu is borrowing. The study found that various plant names have been borrowed from other languages. For example, plant names are borrowed from Kiswahili: *mw-embe* 'mango' [*Mangifera indica*], *m-pera* 'guava' [*Psidium guajava*],*m-dhambarau* 'java plum' [*Syzygiumcumini*], *m-papayu* 'papaya plant' [*Carica papaya*],*m-limawe* 'lemon' [*Citrus limon*], *m-parachichi* 'avocado' [*Persea americana*], *m-vure* 'African teak' [*Milicia excels*], *i-gimbi* 'taro' [*Colocasia esculenta*],*k-yadhi* 'irish potato' [*Solanummtoberosum*], *m-dhabibu* 'common grape' [*Vitis vinifera*], *m-stafeli* 'Loquat' [*Eriobotrya japonica*],*m-korosho* 'cashew nut' [*Anacardium occidentale*],*m-nadhi* 'coconut' [*Cocos nucifera*], *karanga* 'groundnuts' [*Arachis hypogaea*] and *m-tama* 'sorghum' [*Sorghum bicolor*]. It should also be noted that there are plant names in Chasu borrowed from the English language*m-karatuthi* 'red gum' [*Eucalyptus camaldulensis*] and *m-thaiprathi* 'Italian cypress' [*Cupressus sempervirens*].

Another strategy involved in naming plants in Chasu is loan translations (calques). A loan translation (or calque) refers to a grammatical construction (a word or phrase) reproduced as a literal translation from one language into another. The findings of the present study show that, in Chasu, plant names are formed through literal translation from Kiswahili into Chasu, for example *m-tundamighuva* (mtundamiwa) 'apple pear', *m-piripirimbuji* (mpilipilimbuzi) 'habanero pepper', *m-perawakidhungu* (m-perawakizungu) 'guava plant' and *m-pripirikichaa* (mpilipilikichaa) 'African bird eye pepper'.

The study also found that there are different plant names in Chasu which are formed through semantic extension where those words acquire new meanings in relation to the plant named. For example: *m-kaburi* 'giant milkweed' [*Calotropis procera*] (a plant growing on a grave which acquired a name relating to the word *kaburi* 'grave'), *m-warobaini* 'neem' [*Azadirachta indica*] (derived from the word *arobaini* 'forty' as it is believed that the plant cures forty diseases and *m-tuliang'ombe* 'red ironwood' [*Ochna holstii*] (a tree under whose shed cows rest when it is extremely sunny) and it is derived from the words *tulia* 'rest' and *ng'ombe* 'cow'.

## Conclusions

The morphological structure of Chasu plant names comprises a noun-class prefix and a noun stem. The majority of plant names in Chasu are

canonically accommodated in the noun class 3/4 pair, which is also regarded as the default noun-class pair in Bantu languages. However, Chasu has plant names that are found in other noun classes, which indicates that plants are divided into different categories (life forms) resulting in the placement of various plant categories to different noun classes. Plant names in Chasu are found to be simple or complex. Speakers of Chasu employ various strategies in forming such names. The strategies are compounding, reduplication, borrowing, loan translation and semantic extension. Compounds and adnominal constructions are found to be useful in the Chasu folk taxonomy, especially in naming specific epithets. The study shows that most of the plant names in Chasu are formed using simple morphological structures. Further research should be conducted focusing on the semantics motivation of the plant names in Chasu.

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