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CONTENT

Literal and metaphorical usages of Babanki EAT and DRINK verbs[1]

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Abstract
In Babanki, a Grassfields Bantu language of North-West Cameroon, two of the numerous consumption verbs, namely the generic verbs *ʒɨ́* 'eat' and *ɲú* 'drink', constitute a major source of metaphorical extensions outside the domain of ingestion. Setting out from a characterisation of the basic meanings of these two lexical items as they emerge from their paradigmatic relations within the semantic field of alimentation processes, this paper explores the figurative usages of the two verbs and their underlying semantic motivations. Semantic extensions that radiate from EAT can be subsumed under two closely related structural metaphors, i.e. APPROPRIATION OF RESOURCES IS EATING and WINNING IS EATING. The first metaphor construes the acquisition and exploitation of non-food items such as material possession as eating, while the second metaphor casts the acquisition of immaterial advantage in the mould of eating. Both metaphors have further entailments, i.e. the derivation of pleasure from consumption of resources, the depletion of resources via consumption and the deprivation of a third party from access to these resources. Semantic extensions that radiate from DRINK can be accounted for in two structural metaphors, i.e. INHALATION IS DRINKING and ABSORPTION IS DRINKING. Remarkably, some metaphorical extensions of consumption verbs attested in other African languages, such as extensions of EAT for sexual intercourse and for killing, and the extensions of DRINK for undergoing trouble and enduring painful experiences are absent in Babanki.

Keywords: consumption verbs, metaphor, metonymy, Babanki

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1 Introduction

In Babanki, a Grassfields Bantu language of North-West Cameroon, the consumption verbs *ʒɨ́* 'eat' and *ɲú* 'drink' constitute a rich source of metaphorical extensions similar to what is seen crosslinguistically (Williams 1991, Newman 2009, Jaggar & Buba 2009, Song 2009, Næss 2009, Ye 2010, Næss 2011). This is because both concepts relate to very basic human activities which have been recognised to participate actively in metaphorical extensions, and which Newman (1997, 2009) identifies as internalisation and transformation of food and drinks. Eating and drinking are basic activities of all human beings required for survival and growth as well as sources of pleasure and sociability. So both concepts seem to be universally lexicalised as consumption verbs that denote the process of taking solid or liquid food into the body through the mouth. More specifically, eating involves "(a) intake of food into the mouth, (b) mastication of the food involving mainly teeth, tongue, and roof of the mouth, (c) swallowing of the masticated food, and (d) sensory experiences on the part of the consumer" (Newman & Aberra 2009: 225). For its part, drinking involves "(a) intake of liquid into the mouth, (b) swallowing of the liquid, and (c) (usually positive) sensory experiences on the part of the consumer." Although these activities are universal, they are not performed in the same way in all communities (Næss 2011). Their universality lies only in the physiological aspects of eating and drinking, i.e. the concept of taking food or drinks from outside into the body using the mouth as a passage (Agyepong, Amfo & Osam 2017: 63). As Ye (2010: 375) observes, "recent cross-linguistic investigation has pointed to both the regularities and variations in the way humans conceptualise the activities of eating and drinking". Languages distinguish between consumption verbs based on the characteristics of an object and/or the manner of its consumption. The distinction in Navajo is based on the characteristics of the object (Rice 2009), while in English, the manner of consumption tends to be considered in the first line. In languages such as English, there is a clear interrelation between the characteristics of the object and the manner of its consumption, i.e. the characteristics, especially the texture entails how an object is consumed. English verbs such as 'crunch', 'munch', 'gnaw', 'grind', 'slurp' refer to the manner of eating, while necessarily also referring to the quality of the object that is

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eaten. In Babanki the primary criterion of distinguishing between consumption verbs is the texture of the object which, in turn, determines the manner of consumption.

In this study we explore the semantics of the consumption verbs and examine the connection between the literal and metaphorical uses of the generic consumption verbs *ʒɨ́* 'eat' and *ɲʉ́* 'drink'.[2] The data reveal that the metaphorical extensions that radiate from EAT cover the appropriation of non-food items such as material possessions, emotions such as pleasure derived from exploiting them and their subsequent depletion, while those that radiate from DRINK refer to processes which involve the internalisation of aeriform or gaseous materials by animate agents and the absorption of liquids into various types of porous substances. To properly explore the uses of these two consumption verbs, *ʒɨ́* 'eat' and *ɲʉ́* 'drink', this study proceeds in section 2 to present and characterise their basic meanings as they emerge from their paradigmatic relations within the semantic field of alimentation processes at large before discussing their metaphorical and metonymical extensions in section 3. This is followed by a conclusion in section 4.

2 Consumption verbs

Manners of taking food and drinks into the body through the mouth can be expressed in Babanki by various consumption verbs such as *ʒɨ́* 'eat', *pfɨ́ʔ* 'eat by chewing', *ló* 'eat by licking', *bwóló* 'eat noisily', *ɲʉ́* 'drink', *mì* 'swallow', *ʃwɔ́ŋ* 'suck', and *lím* 'bite'. As will be shown in section (3) below, only the verbs *ʒɨ́* 'eat' and *ɲʉ́* 'drink' are singled out from this list in undergoing metaphorical extension. This is because *ʒɨ́* 'eat' and *ɲʉ́* 'drink' are the prototypical verbs for the ingestion of

2 The data presented and analysed here come from two sources. The first author had five WhatsApp consultation sessions in December 2020 with five other native speakers of Babanki during which they produced most of the examples adapted and presented in this paper. All sessions taken together have the duration of approximately two hours. One session was dedicated to talking about the consumption of food and drinks while the other four focused on the use of the verbs *ʒɨ́* 'eat' and *ɲʉ́* 'drink' in any context participants could think of. The consumption verbs and metaphorical usages of 'eat' and 'drink' were later extracted and analyzed. The first author also generated examples based on his native speaker competence. Many thanks to Vivian Ba-ah, Regina Phubong, Cornelius Wuchu, Stanley Amuh, and Benjamin Nkwenti for sharing their knowledge of Babanki with us.

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solid food vs. liquids, as reflected in their default usage in contexts where neither the object nor its texture nor the manner of eating (1) or drinking (2) is specified.

(1) a. *Búŋ yì ʒɨ̀*[3] *ɣɔ̄ láyn á*
Bung P1 eat what today QUES
'What did Bung eat today?'

b. *Búŋ ə́ yî ʒɨ̀ nántô*
Bung DJ P1 eat much
'Bung ate a lot.'

(2) a. *Búŋ yì ɲʉ̀ ɣɔ̄ láyn á*
Bung P1 drink what today QUES
'What did Bung drink today?'

b. *Búŋ ə́ yî ɲʉ̀ nántô*
Bung DJ P1 drink much
'Bung drank a lot.'

Any of the other, semantically more specialised, verbs can be used in these contexts with the effect that the texture of the food and the manner of eating it are specified according to the verb's meaning.

Each of the consumption verbs listed above denotes the texture of the object consumed, i.e. hard or soft, depending on whether it is raw, properly or partially cooked, or fried, as well as encoding the specific manner of eating or drinking. An overview of the distinctions is visualised in table (3) where the food items are grouped according to the verbs that typically collocate with them specifying their texture and the way they are consumed.

3 The L tone on the verb is due to Low Tone Spread (LTS) from the preceding L tone. LTS dislodges the H of the verb which joins the L of a following noun prefix to form a HL falling tone, which is subsequently simplified to M. In the absence of a following prefix the dislodged H is deleted (Akumbu, Hyman & Kießling 2020).

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(3) Overview of consumption verbs and food items

Verbs	Food items
ʒɨ́ 'eat'	*kàbáyn* 'fufu'[4], *ndù* 'koki'[5], *kàlàŋ* 'achu'[6], *àkwén* 'beans', *àkwén á məŋkálə̀* 'rice', *kàlāŋ ká məŋkálə̀* 'cocoyam', *kàlāŋ ká káká* 'taro', *ndɔ̀ŋ ə̀ màŋkálə̀* 'potato', *ndɔ̀ŋ ó lyɨ̀má* 'sweet potato', *kàsâ 'cassava'*, *ə̀bú?* 'pumpkin', *kàʒʉ́?* 'yam sp.', *ə̀lém* 'yam sp.', *mbàsə̀* 'vegetable', *kàʒɨ́ŋ* 'bitterleaf (*vernonia amygdalina*)'[7], *tàwás* 'peas', *ə̀ŋgɔ̀m* 'banana, plantain', *mbú?* 'peanut pudding' [...]
pfɨ́? 'eat by chewing'	*ɲàm* 'meat', *ʃʉ̀* 'fish', *bə̌làŋ* 'peanuts', *ə̀ŋgə̀ʔsə́* 'egusi (CPE)'[8], *ə̀sáŋ* 'maize', *fáŋgwòlə̀* 'mango', *ŋgwə̌bàŋ* 'guava', *kànsánsáŋ* 'pineapple, sugar cane', *ə̀bí* 'kolanut', *mbvèn* 'grasshopper', *kàntsì* 'cricket', *fə̀nʃî?* 'beetle'[9] [...]

4 Fufu is the most popular staple food among the Babanki made from corn flour. After grinding dried maize, water is boiled and the flour cooked and stirred in the water to obtain a semi-solid paste which is shaped into loaves using a calabash bowl and eaten with a vegetable or sauce.

5 Koki is also made from corn. Fresh corn is ground and mixed with taro leaves, palm oil, and salt. The mixture is then tied up into plantain leaves and cooked. When ready it can be eaten with sweet potatoes, cassava, or plantains.

6 Achu is popular among the people of North-West Cameroon and is made by pounding cocoyam and/or taro into a paste using a pestle. It is generally eaten with what is popularly known as yellow soup.

7 "*Vernonia amygdalina*, a member of the daisy family, is a small shrub that grows in tropical Africa." (Wikipedia, s.v. "Vernonia amygdalina", last modified December 3, 2021, 00:08, https://en.wikipedia.org/wiki/Vernonia_amygdalina). It is called bitter leaf because of the bitter taste of the leaves.

8 Egusi is the Cameroon Pidgin English name of the seeds of pumpkins, one of the *cucurbitaceous* plants. (Wikipedia, s.v. "Egusi", last modified September 12, 2021, 14:40, https://en.wikipedia.org/wiki/Egusi). After drying and grinding the seeds are used as a major ingredient in various soups, as well as for making egusi pudding.

9 Crickets and beetles are roasted in ashes and eaten directly or deep fried in palm oil, while grasshoppers can be eaten raw or fried without oil before eating.

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Verbs	Food items
ló 'eat by licking'	*lâmsə̀* 'orange', *kə̀mbámbáyn* 'passion fruit'[10], *byə̂* 'avocado', *kə̀nwì?tə̀* 'black nightshade', *ə̀dzɔ̀ŋ* 'plum (*dacryodes edulis*)'[11], *ə̀byɨ́* 'shell butter nuts', *ə̀lyʉ̀* 'honey', *mbàsə̀* 'soup', *kə̀ʒɨ́ŋ* 'bitterleaf (*vernonia amygdalina*)', *tə̀wás* 'peas', *ŋgwɔ̀lɔ̀?* 'okra', *kə̀vú?* 'mushroom', *fə̀sɛ́s* 'pepper', *fə̀mbváŋ* 'salt', *fə̀ɲɔ́?* 'tomato, garden egg', *áɲɔ̀s* 'onion', *gálìk* 'garlic', *mə̀nʃí?* 'oil' [...]
bwólá 'eat noisily'	*ə̀sáŋ* 'corn', *fáŋgwɔ̀lə̀* 'mango', *ŋgwɔ̌bə̀ŋ* 'guava', *ə̀bî* 'kola-nut', *ndɔ̀ŋ á lyɨ̀mə́* 'sweet potato', *mbɔ̀ŋmbɔ̄ŋ* 'bonbon' [...]
ʃwɔ́ŋ 'suck'	*lâmsə̀* 'orange'[12], *kə̀mbámbáyn* 'passion fruit', *kə̀nsánsáŋ* 'pineapple, sugar cane'[13], *kə̀nwì?tə̀* 'black nightshade', *ə̀dzɔ̀ŋ* 'plum', *ə̀byɨ̂* 'shell butter nuts', *mbɔ̀ŋmbɔ̄ŋ* 'bonbon' [...]
lʉ́m 'bite'	*fə̀ɲɔ́?* 'garden egg', *ɲə̀m* 'meat', *ʃʉ̀* 'fish', *fáŋgwɔ̀lə̀* 'mango', *ə̀sáŋ* 'corn', *kə̀lāŋ ká māŋkálə̀* 'cocoyam', *kə̀lāŋ ká káká* 'taro', *ndɔ̀ŋ ə̀ mə̀ŋkálə̀* 'potato', *ndɔ̀ŋ á lyɨ̀mə́* 'sweet potato', *kə̀sâ* 'cassava', *ə̀bú?* 'pumpkin', *kə̀ʒʉ́?* 'yam sp.', *ə̀lɛ́m* 'yam sp.', *ŋgwɔ̌bə̀ŋ* 'guava', *kə̀nsánsáŋ* 'pineapple', *ə̀ŋgɔ̀m* 'banana, plantain' [...]

The verb *ʒɨ́* encodes the meaning 'eat' in general but it is used specifically when the food eaten has a soft texture and is easy to break down even for babies and older people who may lack strong teeth. When sufficiently cooked, some food items are soft enough to be easily tackled by an act of *ʒɨ́* 'eat', e.g. *ə̀kwɛ́n* 'beans' (4a) and *ndɔ̀ŋ á lyɨ̀mə́* 'sweet potato' (4b).

10 The passion fruit is mostly called 'Adam fruit' in North-West Cameroon.

11 "*Dacryodes edulis* is native to Africa, sometimes called *safou* (in Cameroon), *atanga* (in Equatorial Guinea and Gabon), *ube* (in Nigeria), or *African pear, bush pear, African plum, nsafu, bush butter tree*, or *butterfruit.*" (Wikipedia, s.v. "Dacryodes edulis", last modified January 10, 2022, 06:18, https://en.wikipedia.org/wiki/Dacryodes_edulis).

12 To eat oranges in Cameroon a small lid can be cut away and the juice is sucked out. It is also common for the skin to be peeled off using finger nails or a knife and then breaking little pieces to eat.

13 In order to eat sugarcane in Cameroon, the skin is first peeled off using one's teeth or a knife before breaking the softer inner part into little and chewing to squeeze the juice into the mouth and swallow.

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(4) a. *Búŋ yì ʒɨ́ ā-kwén á bɔ́ŋgə̀ŋ*
Bung P1 eat 6-beans PREP morning
'Bung ate beans in the morning.'

b. *Búŋ yì ʒɨ́ ndɔ̄ŋ á lyɨ̀mə́*
Bung P1 eat 1.potato 1.AM be(come) sweet
'Bung ate sweet potato.'

The verb *pfɪ́ʔ* 'eat by chewing' rather describes the act of using a little more effort to masticate items such as *ɲàm* 'meat' (5a), *ə̀sáŋ* 'corn' (5b) and others listed in table (3) above. This is due to their relatively hard texture even when these items are cooked or fried.

(5) a. *Búŋ yì pfɪ́ʔ ɲàm á bɔ́ŋgə̀ŋ*
Bung P1 chew 9.meat PREP tomorrow
'Bung ate meat in the morning (by chewing).'

b. *Búŋ yì pfɪ́ʔ tà ə̀-sáŋ*
Bung P1 chew only 5-corn
'Bung ate only corn (by chewing).'

The semantic distinction between *ʒɨ́* 'eat' and *pfɪ́ʔ* 'eat by chewing' can express the difference in the texture of the consumed object, i.e. whether the object is raw or cooked. This is seen when *pfɪ́ʔ* 'eat by chewing' rather than *ʒɨ́* 'eat' is used to describe the eating of food items when they are not properly cooked, or are eaten raw or unripe, e.g. *kə̀lāŋ ká māŋkálə̀* 'cocoyam', *kə̀lāŋ ká káká* 'taro', *ndɔ̀ŋ ə̀ mə̀ŋkálə̀* 'potato', *ndɔ̀ŋ á lyɨ̀mə́* 'sweet potato', *kàsâ* 'cassava', *kə̀ʒʉ́ʔ* 'yam sp.', *ə̀lɛ́m* 'yam sp.', *mbàsə̀* 'vegetable', *ŋgwɔ̌bàŋ* 'guava' and *ə̀ŋgɔ̀m* 'banana, plantain'. Thus, the selection of the verb *pfɪ́ʔ* 'eat by chewing' in (6) rather than *ʒɨ́* 'eat' as in (4) indicates that the consumed items, i.e. beans (6a) and sweet potato, are not properly cooked or even raw[14] rather than well cooked as entailed when used in collocation with *ʒɨ́* 'eat' in (4).

(6) a. *Búŋ yì pfɪ́ʔ ā-kwén á bɔ́ŋgə̀ŋ*
Bung P1 chew 6-beans PREP tomorrow
'Bung ate beans in the morning (by chewing).'

14 Babanki people do eat raw *ndɔ̀ŋ á lyɨ̀mə́* 'sweet potato', but not raw *ndɔ̀ŋ ə̀ mə̀ŋkálə̀* 'potato'.

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b. *Búŋ yì pfɨ̂ʔ ndɔ̄ŋ á lyɨ̀mɨ́*
Bung P1 chew 1.potato 1.AM be(come) sweet
'Bung ate sweet potato (by chewing).'

In other cases the manner of eating certain objects can be expressed only by a single verb. For example, the way *kàbáyn* 'fufu' is eaten can only be encoded by *ʒɨ́* 'eat' because there is only one way to prepare it, that is, the corn flour must be cooked thoroughly to produce a paste that is made into loaves and then eaten with a vegetable or soup. The way of eating *ɲàm* 'meat', *ʃʉ̀* 'fish', *bə̌lə̀ŋ* 'peanuts', *àsáŋ* 'corn', *fáŋgwòlə̀* 'mango', *kànsánsáŋ* 'pineapple/sugarcane' can only be described by *pfɨ́ʔ* 'eat by chewing' since they do not become completely soft even after cooking (where applicable) and still require some effort to masticate. If peanuts are ground to make *mbúʔ* 'peanut pudding' then the verb *ʒɨ́* 'eat' is used.

The manner of consuming food items that are liquid or soft is encoded by *ló* 'eat by licking (using tongue)', as illustrated in (7). Some fruits such as *lâmsə̀* 'orange', *kə̀mbámbáyn* 'passion fruit', *kə̀nwìʔtə̀* 'black nightshade', *ə̀dzɔ̀ŋ* 'plum (*dacryodes edulis*)', *ə̀byɨ́* 'shell butter nuts', and *byə̂* 'avocado' become soft or contain a high amount of juice when ripe, which justifies the conceptualisation of their consumption as eating by licking. This is also true of various kinds of vegetables such as *kə̀ʒɨ́ŋ* 'bitterleaf (*vernonia amygdalina*)', *tə̀wás* 'peas', *ŋgwɔ̀lɔ̀ʔ* 'okra', *kə̀vúʔ* 'mushroom', *fə̀sés* 'pepper', *fə̀ɲɔ́ʔ* 'garden egg, tomato', *áɲɔ̀s* 'onion', and *gálɨ̀k* 'garlic' which become soft when cooked. Other items actually come in liquid form, e.g. *mbàsə̀* 'soup', *mànʃíʔ* 'oil', and *ə̀lyʉ̀* 'honey', but are not consumed by drinking, but rather in small quantities, i.e. by licking or by sips. *Fə̀mbváŋ* 'salt' comes in granular form, but can be consumed by licking in small quantities by dissolving either in liquid food or by saliva, just like *mbɔ̀ŋmbɔ̄ŋ* 'bonbon'.

(7) a. *Búŋ yì lò byə̄ láyn*
Bung P1 lick 1.avocado today
'Bung ate avocado today.'

b. *Búŋ yì lò fə̄-sés nə̀ ŋgwɔ̀lɔ̀ʔ*
Bung P1 lick 19-pepper with 1.okra
'Bung ate pepper and okra.'

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c. *Búŋ* *yì* *lò* *fə̀-mbváŋ* *nàntô*
Bung P1 lick 19-salt much
'Bung ate a lot of salt.'

Apart from objects that are mostly liquid, i.e. *lâmsə̀* 'orange', *ə̀lyʉ̀* 'honey', *mbàsə̀* 'soup', *mànʃíʔ* 'oil', the rest of the objects in this category, e.g. *byə̂* 'avocado' (7a) and *fə̀sés* 'pepper' (7b) can also be chewed when not well-cooked, not properly ripe or even raw, as illustrated in (8a–b).

(8) a. *Búŋ* *yì* *pfɨ̀ʔ* *byə̄* *láyn*
Bung P1 chew 1.avocado today
'Bung ate avocado today (by chewing).'

b. *Búŋ* *yì* *pfɨ̀ʔ* *fə̀-sés* *nà* *ŋgwɔ̀lɔ̀ʔ*
Bung P1 chew 19-pepper with 1.okra
'He ate pepper and okra (by chewing the pepper).'

The verb *ló* 'eat by licking' can also be used if someone eats any type of food, e.g. 'fufu' extremely fast (9a). The other verb that also refers to the act of licking, i.e. *líŋ* 'lick (using fingers)' describes the act of cleaning up a plate with fingers and licking them (9b). It is also used if someone finishes up the soup or vegetable before the carbohydrate, which could be 'cocoyam' or 'fufu' (9c), an act which is reprehensible and blameworthy.

(9) a. *Búŋ* *yì* *lò* *kə̄-báyn* *á* *n-lū*
Bung P1 lick 7-fufu CONJ N-leave
'Bung hurriedly ate the fufu and left.'

b. *Búŋ* *yì* *ʒɨ́* *á* *n-ló* *kə̄-káŋ*
Bung P1 eat CONJ N-lick 7-plate
'Bung ate and then licked the plate.'

c. *Búŋ* *yì* *lò* *mbàsə̀* *n-kyé* *kə̄-báyn*
Bung P1 lick 1.soup N-allow 7-fufu
'Bung finished up the soup and left the fufu.'

The verb *bwólə́* 'eat noisily, crunch' encodes the manner in which objects that have a hard texture are eaten, e.g. *ə̀sáŋ* 'corn', *fə́ŋgwòlə̀* 'mango', *ŋgwə̌bàŋ* 'guava', *ə̀bí* 'kolanut', *ndɔ̀ŋ á lyɨ̀mə́* 'sweet potato', and *mbɔ̀ŋmbɔ̄ŋ* 'bonbon'. Apart from 'kolanut' and 'bonbon', the rest of the items listed above can be eaten noisily only under certain

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conditions, e.g. corn should be dried and fried (10b) and sweet potato should be raw or not properly cooked (11b–c) for *bwóló* ‘eat noisily, crunch’ to be applicable.

(10) a. *Búŋ yì pfè ə̄-sáŋ ə́ m-pfɨ̀ʔ*
Bung P1 boil 5-corn CONJ N-chew
‘Bung boiled corn and ate it.’

b. *Búŋ yì kàŋ ə̄-sáŋ ə́ m-bwóló*
Bung P1 fry 5-corn CONJ N-crunch
‘Bung fried corn and crunched it.’

(11) a. *Búŋ yì pfè ndɔ̀ŋ ə́ n-ʒɨ́*
Bung P1 boil 1.sweet_potato CONJ N-eat
‘Bung boiled sweet potato and ate it.’

b. *Búŋ yì pfɨ̀ʔ ndɔ̀ŋ ə̄-kú*
Bung P1 chew 1.sweet_potato 1-raw
‘Bung ate raw sweet potato.’

c. *Búŋ yì bwòló ndɔ̀ŋ wàyn ə́ n-tʃə́ʔ*
Bung P1 crunch 1.sweet_potato 1.child DJ N-laugh
‘Bung crunched raw sweet potato and the child laughed.’

As seen in table (3) above, corn, mango, guava, kolanut, and sweet potato primarily collocate with the verb *pfɨ́ʔ* ‘eat by chewing’. The application of *bwóló* ‘eat noisily, crunch’ instead of *pfɨ́ʔ* ‘eat by chewing’ in (10b) and (11c) highlights an unusually hard texture and an extraordinary amount of noise that accompanies the consumption, due to the hard texture of the object.

The verb *mì* ‘swallow’ describes possible ways of eating and drinking, since it can refer to the eating of food without chewing properly (12a), or eating rapidly without taking time to masticate (12b). The verb *mì* can also be used when someone keeps water in their mouth for a while before swallowing (12c).[15]

15 Keeping the water in the mouth for a while is a necessary precondition since *ɲɨ́* ‘drink’ is used for gulping down water or any other liquid immediately.

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(12) a. *Búŋ yì mì à-kwɛ́n mí-í*
Bung P1 swallow 6-beans swallow-SFX[16]
'Bung swallowed the beans.'

b. *Búŋ yì mì ndɔ̀ŋ á n-lú*
Bung P1 swallow 1.sweet_potato CONJ N-leave
'Bung swallowed the potato and left.'

c. *Búŋ yì ká? á m-mī mú^{u}ú myì*
Bung P1 turn CON N-swallow 6a.water DEM
'Bung finally swallowed the water.'

The verb is also used to reprimand a greedy person who wishes to eat more food than is available. In this case, the person expected to provide the food can give ironic encouragement to the greedy person to swallow any object (13).

(13) a. *mì-í Búŋ*
swallow-IMP Bung
'Swallow Bung!'

b. *mì-í ŋgù?*
swallow-IMP 9.stone
'Swallow the stone!'

The verb *ʃwɔ́ŋ* 'suck' is used to talk about the consumption of food items like fruits that are liquid in nature when properly ripe, e.g. *fə́ŋgwòlə̀* 'mango' or items that need sucking in the mouth before swallowing, e.g. *mbɔ̀ŋmbɔ̄ŋ* 'bonbon', as in (14a–b).

(14) a. *Búŋ yì ʃwɔ̀ŋ fə́-ŋgwòlə̀*
Bung P1 suck 19-mango
'Bung sucked the mango.'

b. *Búŋ á ʃwɔ̀ŋ-á mbɔ̀ŋmbɔ́ŋ*
Bung DJ suck-PROG 1.bonbon
'Bung is sucking the bonbon.'

Fə́ŋgwòlə̀ 'mango' normally collocates with *pfí?* 'eat by chewing', and if it becomes soft and someone uses their mouth to peel and eat

16 This suffix has been glossed simply as SFX for lack of a satisfying functional label since its presence is solely to specify the context of the occurrence of the repeated verb.

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it, then only *ʃwɔ́ŋ* 'suck' is used. As will be seen below, to break off a little piece of an unripe mango with the teeth before chewing is denoted with the verb *lɨ́m* 'bite'. *Mbɔ̀ŋmbɔ̄ŋ* 'bonbon' collocates with *ló* 'eat by licking' whereas *fáŋgwòlə̀* 'mango' does not since *ló* 'eat by licking' usually applies to items which can be dissolved by saliva. Regarding other kinds of fruits such as *lâmsə̀* 'orange', *kə̀mbámbáyn* 'passion fruit', and *kə̀nwì?tə̀* 'black nightshade' it is not clear what kind of contrast ensures that only *ló* 'eat by licking', not *ʃwɔ́ŋ* 'eat by sucking' is applicable with them.

The act of sucking does not only apply to human agents but to non-human animates such as *fə̀mbúm* 'mosquito' (16a) and *kə̀kúf* 'tick' (16b) as well.

(15) a. *fə̀-mbúm* *fá* *yì* *ʃwɔ̀ŋ* *Búŋ* *ɣə̀* *á*
19-mosquito DJ P1 suck Bung 3SG DJ

ŋ-kwá?á
N-be(come)_ill
'A mosquito sucked Bung ('s blood) and he fell ill.'

b. *kə̀-kúf* *ká* *ʃwɔ́ŋ* *lí* *mə̀-nlyúŋ* *fá* *ə̄-wèn* *ə̀*
7-tick DJ suck P0 6a-blood PREP 5-body 5.AM

ɲàm
9.animal
'A tick has sucked the animal's blood.'

This meaning can be construed as an extension from the meaning of a person consuming something. Stinging and biting by insects are as concrete as humans biting food (Newman & Aberra 2009), implying that this meaning is not particularly figurative. In this regard, it it important to note that the eat verbs listed above can have nonhuman animate agents, e.g. *ʒɨ́* 'eat' is used when dogs, cats, or pigs eat solid food such as *kə̀báyn* 'fufu'; *pfí?* 'eat by chewing' describes how cattle and goats eat grass or how dogs and cats eat meat; and *ló* 'eat by licking' is used when dogs and cats eat liquid food.

The verb *lɨ́m* 'bite' is used when a hard object needs to be broken down into little pieces before chewing, as in the case of mango (16a) and meat (16b). Objects in this category also include *fə̀ɲɔ́?* 'garden egg', *kə̀lāŋ ká māŋkálə̀* 'cocoyam', *kə̀lāŋ ká káká* 'taro', *ndɔ̀ŋ ə̀ mə̀ŋkálə̀* 'potato', *ndɔ̀ŋ á lyɨ̀mə́* 'sweet potato', *kə̀sâ* 'cassava', *ə̀bú?* 'pumpkin', *kə̀ʒú?* 'yam sp.', *ə̀lɛ́m* 'yam sp.', *ə̀ŋgɔ̀m* 'banana, plantain', *ʃù* 'fish', *ə̀sáŋ*

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'corn', *ŋgwŏbàŋ* 'guava', *kànsánsáŋ* 'pineapple/sugarcane', as listed in table (3) above.

(16) a. *Búŋ yì lɨ̀m fə́-ŋgwòlə́ ə́ ŋ-kú wāyn*
Bung P1 bite 19-mango CONJ N-give 1.child
'Bung took a bite from a mango and shared it with the child.'

b. *Búŋ yì lɨ̀m ŋàm ə̀ wàyn*
Bung P1 bite 9.meat 9.AM 1.child
'Bung took a bite of the child's meat.'

As with sucking, the act of biting does not only apply to human agents but to non-human animates, e.g. *fə̀mbúm* 'mosquito' (17a) and *kə̀kúf* 'tick' (17b), as well.

(17) a. *fə̀-mbúm fə́ yì lɨ̀m Búŋ ɣə̀ ə́*
19-mosquito DJ P1 bite Bung 3SG DJ

ŋ-kwáʔá
N-be(come)_ill
'A mosquito bit Bung and he fell ill.'

b. *kə̀-kúf kə́ lɨ́m lí ɲàm*
7-tick DJ bite P0 9.animal
'A tick has bitten an animal.'

Drinking involves the movement of liquid through the mouth and down the throat facilitated by the tongue and the palate. The verb *ɲʉ́* 'drink' describes the process of drinking *mú^{ʉ}ú* 'water', *mànlyʉ̀ʔ* 'wine (i.e. palm wine, soft and alcoholic drinks)', and *ŋkáŋ* 'cornbeer', as in (18).

(18) a. *Búŋ yì ɲʉ̀ mú^{ʉ}ú nántô*
Bung P1 drink 6a.water much
'Bung drank a lot of water.'

b. *Búŋ ə́ ɲʉ́-ʉ́ tà mə̀-nlyʉ̄ʔ mə́*
Bung DJ drink-PROG only 6a-wine 6.AM

m-fífə́ mə̀
N-white 6a
'Bung drinks only palmwine.'

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c. *Búŋ yì ɲʉ̀ ŋkáŋ á ə̄-ŋgə̀ŋ*
Bung P1 drink 1.cornbeer at 5-home
'Bung drank cornbeer at home.'

The semantic distinctions in Babanki consumption verbs hinge primarily on the texture of the object which, in turn, determines the manner of consumption. In other words, the choice of verb depends primarily on the texture of the object consumed, but gives information about the manner of consumption, since one determines the other.

3 Semantic extensions of *ʒɨ́* 'eat' and *ɲʉ́* 'drink'

Babanki verbs for EAT and DRINK are rich sources of figurative extensions just as they are in other African languages such as Akan (Agyepong, Amfo & Osam 2017), Amharic (Newman & Aberra 2009), Ewe and Gurene (Adjei & Atintono 2009), Hausa (Williams 1991, Jaggar & Buba 2009), and Swahili (Sheikh & Wolff 1981) and non-African languages such as Korean (Song 2009), Mandarin and Shanghainese (Ye 2010). The verbs for EAT and DRINK are the lexical items in the domain of consumption of solid vs. liquid food which have the most generic meanings in Babanki, as systematically expanded and illustrated according to extensions that radiate from EAT (3.1) and those from DRINK (3.2).

3.1 Semantic extensions of EAT

In general, semantic extensions that radiate from EAT are based on the process of getting food into the mouth and eventually swallowing it. They reflect the tendency for the internalisation of food to provide the agent with certain sensory experiences such as taste, satisfaction, pleasure or displeasure (Newman 2009). As for Babanki, all semantic extensions of the generic verb *ʒɨ́* 'eat' build on two closely related overarching structural metaphors, i.e. APPROPRIATION OF RESOURCES IS EATING (3.1.1) and WINNING IS EATING (3.1.2), and a metonymical extension that links mutual agreement with commensuality (3.1.3).[17] The first metaphor construes the internalisation

17 The shorthand notation of conceptual metaphors by using small capitals follows conventions adopted in cognitive linguistics, most notably Lakoff & Johnson (1980) and Kövecses & Benczes (2010).

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of non-food items such as material possessions as ingestion of food, which in itself is based on another structural metaphor RESOURCES ARE FOOD. The second metaphor casts the acquisition of immaterial advantage gained in a competition in the mould of eating. The metaphor APPROPRIATION OF RESOURCES IS EATING has two major entailments which derive from correspondences between source and target concepts on the level of individual aspects and sub-components. Thus, the insertion of food into the mouth as the initial phase in the act of eating simply corresponds to the appropriation of possessions itself. The act of swallowing corresponds to the eventual spending of the resources as enabled by appropriation. The act of spending typically entails two further effects, i.e. pleasure on the consumer's side which corresponds to the derivation of positive feelings from the pleasant taste of food and the sensation of satiation in the course of eating (3.1.1.1) and reduction and depletion on the side of the consumed item which corresponds to the decrease of available food in the course of the meal (3.1.1.2).

In contrast to APPROPRIATION OF RESOURCES IS EATING (3.1.1), the structural metaphor WINNING IS EATING (3.1.2) rather highlights two additional aspects, i.e. the benefit gained does not reside in the appropriation of some material possession, but rather in some advantage gained in the course of a competition and at the expense of some other participant. In addition, the metaphor WINNING IS EATING is also linked to the first metaphor APPROPRIATION OF RESOURCES IS EATING by virtue of the negative effect of deprivation which the appropriation inevitably has on the prior owner of the resource in question. Such negative corollaries of autobeneficiary effects will be referred to as altrimaleficiary in the following.

The semantic extension ACHIEVING MUTUAL AGREEMENT IS EATING TOGETHER (3.1.3) is motivated by the cultural practice of sealing an agreement with the shared consumption of kolanuts.

3.1.1 Appropriation of resources

Taking over possession of something is often conceptualised via the structural metaphor APPROPRIATION OF RESOURCES IS EATING, which is based on yet another metaphor, namely, RESOURCES ARE FOOD. The applicability of both metaphors is motivated by the positive sensory experiences that are linked to the internalisation of food items being mapped onto the pleasant feelings that an individual

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experiences as a result of taking over ownership in general (19a–c) and in specific cases such as collecting a bribe (19e). While the case of inheritance (19d) may predominatly involve negative feelings such as sadness about the loss of the deceased person, the inheritor may still be seen to gain a certain amount of satisfaction from inheriting the deceased person's property. Beside mere appropriation, the metaphor also includes the notion of profit or benefit on the side of the agent and detriment to the former owner or some third participant. In contrast to ordinary expressions of possession and appropriation via verbs such as *zɛ́n* 'buy' in (20) and *lyɨ̀* 'take', *bóŋ* 'pick' and *kíʔí* 'have' (28), the expressions based on the metaphor APPROPRIATION OF RESOURCES IS EATING include an additional notion of irretrievability, i.e. the items consumed in (19) become completely inaccessible to anyone else with no chance of retrieval. It is the semantics of the framing verb 'eat' that brings out this particular notion.[18]

(19) APPROPRIATION OF RESOURCES IS EATING

a. *Búŋ á ʒɨ́ ᵘlí nsé ə̄ɣ-ɔ́m*
Bung DJ eat P0 1.land 9-POSS
'Bung has seized my piece of land.'

b. *Búŋ á ʒɨ́ ᵘlí tʃɔ́ʔ*
Bung DJ eat P0 1.njangi
'Bung has collected the *njangi* money.'[19]

c. *Búŋ á ʒɨ́-ɨ́ ə̄-lyʉ̀*
Bung DJ eat-PROG 3-honey
'Bung is collecting honey.'

d. *Búŋ á ʒɨ́ ᵘlí kə̀-bóŋ kə́ tíʔ*
Bung DJ eat P0 7-compound 7.AM 1.father

18 We owe this observation to one of the anonymous reviewers to whom we are grateful.

19 The term *njangi* is commonly used in Cameroon to refer a group of individuals who meet on a regular basis to contribute money and give it to one or more members at a time. During subsequent meetings previous benefactors refund the exact amount the current beneficiary had contributed and those who are still to benefit contribute an amount equal to or greater than an agreed minimum. Whatever they contribute will eventually by refunded to them when their turn to benefit comes.

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ə́ *wɛ́n*[20]
1.AM 3SG
'Bung has inherited his father's property.'

e. *Búŋ* *ə́* *ʒɨ́* *ᵑ͡mlí* *ŋkùf*
Bung DJ eat P0 1.bribe
'Bung has taken a bribe.'

The structural metaphor APPROPRIATION OF RESOURCES IS EATING has the following entailments: (a) the agent acquires some material item or gain, (b) the agent derives a positive effect from taking over ownership of the item or gain (profit or benefit), (c) the agent's ownership of the item or gain is to the detriment of the prior owner (19a, c, e) or a third party, i.e. the other *njangi* candidates (19b) and other potential inheritors who go away empty-handed (19d). The agent willfully takes over possession of items, preventing some other participant(s) from doing so. In (19a, e), the victims are deprived of their items such that they actually lose it against their will. Elsewhere, the agent's new possession may be endorsed or approved by others. In (19b) in particular, the choice of the beneficiary is always a consensus between the *njangi* members, whereas in (19c) only the owner of a beehive has the right to collect honey from it, and in (19d) inheriting property is usually based on the deceased person's will.[21] In all the cases in (19), the agent enjoys and gains satisfaction from appropriating a resource. The metaphor, therefore, includes the notion of profit or benefit on the side of the agent, showing that it is not simply a transfer of possession, but rather that the agent is actively involved in controlling the transfer. Even in the case of inheritance, which is patrilineal in Babanki, the agent is not passive as he has to prepare for and undergo the rituals involved. Implicit in the metaphor is the understanding that the material item or gain is not only appropriated by the agent, but it diminishes or vanishes from the perspec-

20 There is no negative connotation here at all, although the one who inherits would not say he has "eaten" his father's property but would simply say he is the successor.

21 Inheritance which is not in the deceased person's will is said to have been taken forcefully, as expressed in the following example.

Búŋ *ə́* *ʒɨ́* *ᵑ͡mlí* *kə̀-bə́ŋ* *kə́* *tí?* *ə́* *wén* *á* *ŋāŋ*
Bung DJ eat P0 7-compound 7.AM 1.father 1.AM 3SG by 9.force
'Bung has usurped his father's property.'

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tive of the prior owner as a consequence of their loss of access to it. Although the appropriation of a resource from a prior owner is done with the intention of spending the resource for oneself, the notion of spending alone does not license the application of the metaphor of eating. Thus, when agents simply spend their legitimately earned money on buying some commodity, the metaphor of eating cannot be used; only the verb *zén* 'buy' (20) is available in this context.

(20) Lack of emphasis on appropriation of resources

a. *Búŋ á zén ᵘlí à-fózɨ́və́ á sàŋ*
Bung DJ buy P0 8-food 8.AM 1.month
'Bung has bought food for the entire month.'

b. *Búŋ á zén ᵘlí mə́ntù tá kə̄-dɨ̀ŋ*
Bung DJ buy P0 1.car like 7-many
'Bung has bought several cars.'

Using *zɨ́* 'eat' here would either produce the prototypical meaning (21a) or another metaphor, i.e. WINNING IS EATING (21b) elaborated in (3.1.3).

(21) Lack of emphasis on appropriation of resources

a. *Búŋ á zɨ́ ᵘlí à-fózɨ́və́ á sàŋ á*
Bung DJ eat P0 8-food 8.AM 1.month in
kə̄-tsí kə̀-mù?
7-day 7-one
'Bung has eaten a month's food supply in a single day.'

b. *Búŋ á zɨ́ ᵘlí mə́ntù tá kə̄-dɨ̀ŋ*
Bung DJ eat P0 1.car like 7-many
'Bung has won several cars.'

When money is spent, two different situations can license the use of the EAT metaphor. The first is illegitimate acquisition, i.e. the process of acquiring the money spent is inappropriate, e.g. using someone else's money without their consent or in a way the owner disapproves of (22a), and the second is when the acquisition is legitimate but the money is misused or squandered, e.g. spending children's school fees on alcohol or women (22b).

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(22) Using the EAT metaphor for spending money

a. *Búŋ á yî ʒɨ̀ ə̄-kó ə̄ɣ-ɔ́mə́*
Bung DJ P1 eat 5-money 1-POSS
'Bung consumed/squandered my money (without my consent).'

b. *Búŋ á yî ʒɨ̀ ə̄-kó á wén*
Bung DJ P1 eat 5-money 5.AM 3SG

á mə̀-nlyʉ̀ʔ
on 6a-wine
'Bung misused his money on drinking.'

Additional remarks about some of the constructions in (19) are in order here. The meaning of (19a) includes the lack of consent on the side of the prior owner of the possession. Transfer verbs such as *lyɨ̀* 'take' (23a) and *ʃí* 'receive' (23b) would be used if the object(s) were willingly offered to or properly obtained by the agent.

(23) Willful transfer of possession

a. *Búŋ á lyɨ̂ ᵘlí nsé ə̄ɣ-ɔ́m*
Bung DJ take P0 1.land 9-POSS
'Bung has accepted a piece of my land.'

b. *Búŋ á ʃí ᵘlí kə̀-mbó ə̄k-ɔ́m*
Bung DJ receive P0 7-bag 7-POSS
'Bung has taken/received my bag.'

The situation in (19c) can be compared with the meaning of consuming honey which is expressed by the verb *ló* 'eat by licking' (24).

(24) *Búŋ á ló-ó ə̄-lyʉ̀*
Bung DJ lick-PROG 3-honey
'Bung is eating honey.'

Therefore, "eating" honey refers to "collecting" and *ʒɨ́* 'eat' is not applicable for its actual consumption, due to the nature of the substance, but rather *ló* 'eat by licking' is applied, as laid out in the section on the semantic field of ingestion of food in section two and illustrated in (25) where the two activities of collecting and eating honey are done consecutively in that order.

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(25) *Búŋ á ʒɨ́-ɨ́ ə̄-lyʉ̀ ló-ó*
Bung DJ eat-PROG 3-honey lick-PROG
'Bung is collecting and eating honey.'

The eat metaphor for taking a bribe (19e) is widespread in Cameroon and Nigeria, as can be seen from its occurrence in Cameroonian Pidgin English (CPE), Cameroonian French (Meutem Kamtchueng 2015), and Nigerian Pidgin (Naija). In CPE, for example, it is common to hear the expression in (26) uttered by a service provider who intends to make the beneficiary understand that they have to give a bribe for the service provided.

(26) *na thank you I di chop*
COP thank 2SG 1SG AUX eat
'Do I eat appreciation?'

P-Square's big music hit of 2011 "Chop my money" illustrates the use of this metaphor in Naija.[22] The eat metaphor for taking a bribe is prevalent in those African societies where bribing is conceptualised as feeding or as a (food-)gift, as pointed out by Polzenhagen & Wolf (2007).

The solid nature of the consumed item is crucial in the conceptual transfer of the structural metaphor APPROPRIATION OF POSSESSION IS EATING, since in none of the expressions in (19) above the verb *ʒɨ́* 'eat' can be replaced by *ɲʉ́* 'drink', as shown by the ungrammatical constructions in (27a–b).

(27) a. **Búŋ á ɲʉ́ ᵘlí nsé ə̄ɣ-ə́m*
Bung DJ drink P0 1.land 9-POSS
'Bung has *drunk my piece of land.'

b. **Búŋ á ɲʉ́ ᵘlí tʃə́ʔ*
Bung DJ drink P0 1.njangi
'Bung has *drunk the njangi.'

As mentioned above, the EAT metaphor always includes the notion of benefit on the agent's side which works to the detriment of some other participant(s). To express the transfer or acquisition of possession but without any additional ethical connotations, transfer verbs

22 NaijaPrey, s.v. "P-Square – Chop My Money Remix ft. Akon, May D", last modified October 12, 2021, https://www.naijaprey.com/p-square-chop-my-money-remix-ft-akon-may-d/.

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such as *lyɨ̀* ‘take’ (28a) and *bɔ́ŋ* ‘pick’ (28b) or the possession verb *kíʔí* ‘have’ (28c) are used.

(28) Other expressions of transfer and acquisition of possession

a. *Búŋ á lyɨ̂ ᵘlí kà-mbō āk-ɔ́m kɔ́*
Bung DJ take P0 7-bag 7-POSS 7
‘Bung has taken my bag.’

b. *Búŋ á bɔ́ŋ ᵘlí ā-kó ā-ɣɔ́m ɔ́*
Bung DJ pick P0 5-money 5-my 5
‘Bung has picked up my money.’

c. *Búŋ á kíʔí ᵘlí ā-kó*
Bung DJ have P0 5-money
‘Bung has made money / become rich.’

While the agent acquires possession of the items in (28) and may derive profit or benefit from them, there is no indication that they consume the items nor that they acquire the items to the detriment of some other participant(s). In (28a), for example, the agent might have simply taken the bag to hand it over to the owner, just as in (28b) where the agent may also hand over the money to the owner. In (28c) the agent has become rich probably by working hard without preventing others from doing the same. This contrasts with the specific meaning of acquisition of property for one’s own benefit and consumption to the exclusion and detriment of other participants obtainable by replacing the central verbs in (28a–c) by *ʒɨ́* ‘eat’, as in (29).

(29) Appropriation with detrimental side-effect entailed by the EAT metaphor

a. *Búŋ á ʒɨ́ ᵘlí kà-mbō āk-ɔ́m*
Bung DJ eat P0 7-bag 7-POSS
‘Bung has confiscated my bag.’

b. *Búŋ á ʒɨ́ ᵘlí ā-kó ā-ɣɔ́m ɔ́*
Bung DJ eat P0 5-money 5-my 5
‘Bung has taken my money, i.e refused to refund it me.’

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c. *Búŋ á ʒɨ́ ᵘlí ā-kó*
Bung DJ eat P0 5-money
'Bung has won money.'

As illustrated in section 2, the generic verb *ʒɨ́* 'eat' can undergo the metaphorical extensions in (19) but closely related consumption verbs like *pfɨ́ʔ* 'eat by chewing' (30a), *ló* 'eat by licking' (30b), *bwólə́* 'eat noisily' (30c), *mì* 'swallow' (30d), *lɨ́m* 'bite' (30e), and *ʃwɔ́ŋ* 'suck' (30f) cannot. Their use in this context actually produces humorous effects.

(30) Inappropriateness of consumption verbs other than *ʒɨ́* 'eat' for expressing appropriation

a. **Búŋ á pfɨ́ʔ ᵘlí nsé ə̄ɣ-ɔ́m*
Bung DJ *chew P0 1.land 9-POSS
'Bung has chewed my piece of land.'

b. **Búŋ á ló ᵘlí tʃɔ́ʔ*
Bung DJ lick P0 1.njangi
'Bung has *licked the njangi.'

c. **Búŋ á bwólə́ ə̄-lyʉ̀*
Bung DJ eat noisily.PROG 3-honey
'Bung is eating honey *noisily.'

d. **Búŋ á mîì ᵘlí kə̀-báŋ kə́*
Bung DJ swallow P0 7-compound 7.AM
tíʔ ə́ wén
1.father 1.AM 3SG
'Bung has *swallowed his father's compound.'

e. **Búŋ á lɨ́m ᵘlí ŋkùf*
Bung DJ bite P0 1.bribe
'Bung has *bitten a bribe.'

f. **Búŋ á ʃwɔ́ŋ ᵘlí ŋkùf*
Bung DJ suck P0 1.bribe
'Bung has *sucked a bribe.'

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3.1.1.1 Enjoying resources

Metaphorical entailments under this subgroup are based exclusively on EAT and express pleasurable emotional states agents derive from spending a resource such as *ə̄ɣɔ́ʔ* 'wealth' in (31a). Since we prefer food which procudes an agreeable taste and avoid food which is not pleasant to taste, "there is an experiental bias towards enjoyable gustation" (Song 2009: 201). This bias actually motivates the metaphor ENJOYING RESOURCES IS EATING as an entailment of the structural metaphor APPROPRIATION OF RESOURCES IS EATING.

(31) ENJOYING RESOURCES IS EATING

a. *Búŋ á ʒɨ́-ɨ́ ə̄-ɣɔ́ʔ á wɛ́n*
Bung DJ eat-PROG 5-wealth 5.AM 3SG
'Bung is enjoying his wealth (e.g. by drinking beer, hiring labour, etc).'

b. *wàyn á ʒɨ́-ɨ́ ə̀-wɛ́n á wɛ́n*
1.child DJ eat-PROG 5-body 5.AM 3SG
'A child is enjoying himself (e.g. by playing, eating, dancing, etc).'

c. *víʔí á ʒɨ́-ɨ́ mbyí*
2.people DJ eat-PROG 9.world
'People are enjoying life (e.g. by traveling, playing, eating, dancing, etc).'

Example (31a) reflects the linkage of the metaphor ENJOYING RESOURCES IS EATING to the metaphor APPROPRIATION OF RESOURCES IS EATING, since the wealth Bung enjoys is something he must have acquired by prior transfer, either by personal achievement or by inheritance. By contrast, examples (31b–c) show that the metaphor ENJOYING RESOURCES IS EATING also works independently, since in those instances the pleasure is derived from a resource for which prior appropriation is hard to conceive. The situation in (31b) can be interpreted as enjoying oneself by drawing on one's own body as a resource in all types of physical activities which create pleasure. In (31c) eating the world is equated to enjoying life by drawing on resources available to anyone who is capable of taking them for themselves. The actors may manifest physical evidence of what has

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been internalised through bodily gestures or other forms of expression of satisfaction.

Using DRINK in these expressions, as in (32), makes the metaphor collapse.

(32) a. *Búŋ á ɲú-ú̱ ə̄-ɣɔ́ʔ á wɛ́n
Bung DJ drink-PROG 5-wealth 5.AM 3SG
'Bung is *drinking his wealth.'

b. *wàyn á ɲú-ú̱ à-wɛ́n á wɛ́n
1.child DJ drink-PROG 5-body 5.AM 3SG
'A child is *drinking himself.'

c. *víʔí á ɲú-ú̱ mbyí
2.people DJ drink-PROG 9.world
'People are *drinking life.'

3.1.1.2 Depleting resources

A crucial entailment of the structural metaphor APPROPRIATION OF RESOURCES IS EATING is depletion, i.e. the resource is diminished markedly in quantity, content, or value after appropriation as the new owner starts spending it. In other words, the resulting metaphor DEPLETION OF RESOURCES IS EATING is linked to the basic metaphor APPROPRIATION OF RESOURCES IS EATING via an intermediate metonymical step, i.e. SPENDING OF RESOURCES IS EATING. This entailment is motivated by the effect of eating on the patient, i.e. food that is consumed. As the consumer takes food into their mouth and breaks it down into digestible particles, the transformation is considered to be depletive, i.e. time and resources referred to are not simply spent, but rather used up to an extent which is commonly felt to go beyond the prototypical limit, as illustrated in (33).

(33) DEPLETION OF RESOURCES IS EATING

a. à-ʃɛ̄ʔ yɛ́n á ʒɨ́-ɨ́ ə̄-ʒʉ́
5-work DEM DJ eat-PROG 5-time
'This job consumes time.'

b. à-ŋgəŋ yɛ́n á ʒɨ́ ᵘlí kə̀-tsɔ́ʔ
5-house DEM DJ eat P0 7-brick
'This house has taken too many bricks to build.'

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c. *tɔ́sà* *yɛ́n* *ə́* *ʒɨ́* *ᵘlí* *ndzísə́*
1.trousers DEM DJ eat P0 10.fabric
'This trousers has consumed a lot of tissue.'

d. *fə̀-kɔ̄ʔ* *fə́* *ʒɨ́* *ᵘlí* *kə̀-ʃí*
19-tree DJ eat P0 7-place
'A tree has occupied a lot of space.'

e. *Búŋ* *ə́* *yî* *ʒɨ̀* *ə̄-kó* *ə̄ɣ-ɔ́mə́*
Bung DJ P1 eat 5-money 1-POSS
'Bung squandered/consumed my money.'

The examples in (33) illustrate how certain resources, i.e. *ə̀ʒʉ́* 'time' (a), *kə̀tsɔ́ʔ* 'bricks' (b), *ndzísə́* 'fabric' (c), *kə̀ʃí* 'space' (d), and *ə̀kó* 'money' (e) are depleted. In each case a greater amount of the resource is used whereas the desire is that a lesser quantity should have been sufficient. In (a), the job takes up too much time, just like the building that requires more bricks for its construction (b), the dress that takes up more fabric (c), the tree that takes up more space than is desired (d), and the human agent who uses up money in a way that is not expected (e).

Although the agent derives pleasure from using someone else's money in (33e), the metaphor's entailment is categorised as depletion rather than pleasure from the perspective of the speaker who regrets and disapproves of the action, as discussed above in (3.1.1.1). The speaker regrets that the agent has used up the money either without authorisation or in a way that was not expected.

That depletion entailments are limited to EAT is confirmed by the fact that any attempt to replace the verb 'eat' in (33) with 'drink' produces only ungrammatical constructions, as illustrated in (34).

(34) a. **ə̀-ʃɛ̄ʔ* *yɛ́n* *ə́* *ɲʉ́-ʉ́* *ə̄-ʒʉ́*
5-work DEM DJ drink-PROG 5-time
'This job is *drinking time.'

b. **ə̀-ŋgə̀ŋ* *yɛ́n* *ə́* *ɲʉ́* *ᵘlí* *kə̀-tsɔ́ʔ*
5-house DEM DJ drink P0 7-brick
'This house has *drunk too many bricks.'

Babanki extensions categorised under "depletion" are classified as "destruction" extensions in a number of languages, e.g. Akan (Agyepong, Amfo & Osam 2017), Amharic (Newman & Aberra 2009), Korean (Song 2009). The classification is based on what happens

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to the patient, i.e., food, when taken whole or piecemeal into the mouth, crushed and chewed (i.e., masticated) by means of the teeth, tongue and palate and then swallowed. The reduction of food into small particles is considered to be "destruction", and the metaphorical extensions are based on the destruction or transformation of the patient. In Babanki, however, the patient is not really "destroyed" and the target meaning is rather something like "use up beyond a prototypical limit", and is better described as "depletion".

3.1.2 Winning

Immaterial gains are conceptualised as eating, motivated by the structural metaphor WINNING IS EATING. In contrast to the metaphor APPROPRIATION OF RESOURCES IS EATING, the benefit gained does not reside in the acquisition of some material possession, but rather in some advantage gained in the course of a competition and at the expense of some other participant. Both metaphors are also linked by virtue of the altrimaleficiary effect of deprivation which the appropriation inevitably has on the prior owner, just as the triumph of winning has for the loser. The applicability of this metaphor is motivated by the positive sensory experiences that are linked to the internalisation of food items being mapped onto the pleasant feelings that an individual experiences as a result of winning, as in the following examples.

(35) WINNING IS EATING

a. *Búŋ ə́ ʒɨ́ ᵘlí (wàyn á) kə̀-ɲɨ́ŋ*
Bung DJ eat P0 1.child in 7-running
'Bung has won (beaten the child) in the race.'

b. *Kàmàlún ə́ ʒɨ́ ᵘlí (fəlāns á) bɔ̄*
Cameroon DJ eat P0 France in 1.ball
'Cameroon has won (beaten France) in the football game.'

c. *Búŋ ə́ ʒɨ́ ᵘlí (wàyn á) ntáŋ yì*
Bung DJ eat P0 1.child in 9.quarrel DEM
'Bung has won (defeated the child) in that quarrel.'

d. *Búŋ ə́ ʒɨ́ ᵘlí (ndʒì?sə̀ á) nsɔ́?*
Bung DJ eat P0 1.teacher in 9.court_case

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yì
DEM
'Bung has won (defeated the teacher) in that court case.'

e. *Búŋ* *á* *ʒɨ́* *ᵘ̀lí* *ndɔ́ŋ*
Bung DJ eat P0 9.cup
'Bung has won the cup (trophy).'

f. *Búŋ* *á* *ʒɨ́* *ᵘ̀lí* *ə̄-kɔ́*
Bung DJ eat P0 5-money
'Bung has won a lottery.'

The optional mention of the opponents in (35a–d) suggests that either the "competition", i.e. *kə̀ɲɨ́ŋ* 'race', *bɔ̄* 'football game', *ntáŋ* 'quarrel', or the *nsɔ́ʔ* 'court case', or the opponent in the competition could be conceptualised as the patient and appear as direct object of *ʒɨ́* 'eat'. The following entailments are included in this structural metaphor WINNING IS EATING: (a) the agent acquires some immaterial gain, which (b) secures him or her an advantage (profit, gain, or benefit), (c) the agent derives a positive effect from winning, (d) the agent's winning is to the detriment of some other participant.

3.1.3 Mutual agreement

Agreement between individuals or groups of people is lexicalised in the verb stem *ʒɨ́mɔ́* 'agree with each other' (used only with plural subjects), as exemplified in (36) below. The verb stem *ʒɨ́mɔ́* is derived from the root *ʒɨ́* 'eat' by the associative extension *-mə* (Hyman 2018: 182) which expresses a social stem, i.e. the notion of cooperation of two or more participants. The semantic link which connects the source meaning 'eat' and the derived meaning 'agree' resides in the conventional practice of sealing an official agreement by both parties breaking and eating kolanuts together. The semantic transfer which derives the notion of mutual agreement from the notion of eating thus seems to be metonymical in nature in that shared consumption of kolanuts is taken to refer to the agreement that it seals.[23]

23 In addition, one might also argue that the metonymy ACHIEVING MUTUAL AGREEMENT IS EATING together also supports and strengthens the structural metaphor APPROPRIATION OF RESOURCES IS EATING, due to their convergence in the concept of pleasure. The mutual agreement achieved between two parties is a source of pleasure in that both gain mutual benefit from each other which is equal to the pleasure gained in a shared meal. And this corresponds to the pleasure a new owner

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(36) ACHIEVING MUTUAL AGREEMENT IS EATING TOGETHER

a. *vəwé á ʒɨ́-mə́ ᵘlí*
3PL DJ eat-ASS P0
'They have agreed.'

b. *váɣáŋ á kó ᵘʒɨ́-mə́ (bwɛ́n)*
1PL.INCL DJ NEG eat-ASS NEG
'We are not in good terms with them.'

The associative verb *ʒɨ́mə́* is specialised for the derived meaning 'agree with each other'. The original meaning of its source *ʒɨ́* 'eat' is no longer available in *ʒɨ́mə́*. In order to express the sharing of a meal one has to resort to periphrastic means, e.g. with the adverbial *ámúʔú* 'together' (37).

(37) a. *vəwé ʒɨ́ ᵘlí kə̀-bán ámúʔú*
3PL eat P0 7-fufu together
'They have eaten fufu together.'

b. *vəwé pfɨ́' ᵘlí ə̀-bí ámúʔú*
3PL chew P0 5-kolanut together
'They have not eaten kolanut together.'

3.2 Semantic extensions of DRINK

Semantic extensions that radiate from DRINK are based on two structural metaphors, namely, ABSORPTION IS DRINKING and INHALATION IS DRINKING. The two stages of getting drinks into the mouth and eventually swallowing which are included in the meaning of the source verb *ɲʉ́* 'drink' motivate its metaphorical extension to express absorption and inhalation. The metaphor ABSORPTION IS DRINKING (3.2.1) is based on the construal of the inanimate locus of absorption as personified agent of a drinking action while the metaphor INHALATION IS DRINKING (3.2.2) is based on the extension of eligible patients from liquids to aeriform or gaseous materials.

may derive from appropriating and spending a new resource as entailment from the metaphor APPROPRIATION OF RESOURCES IS EATING.

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3.2.1 Absorption

In the process of absorption, a liquid substance such as *màŋʒíʔ* 'oil' (38a–b) or *múᵘú* 'water' (38c–e) penetrates a locus, i.e. infiltrates some porous or permeable material such as *āŋgòm* 'plantain' (38a), *pwɔ̀fpwɔ́f* 'puff puff' (CPE) (38b)[24], *nsé* 'soil' (38c), *kàbáyn* 'fufu' (38d) and *ndʒíᵘsə́* 'dress' (38e) up to the point of soaking or satiating it. This process is conceptualised via the metaphor ABSORPTION IS DRINKING in Babanki. The semantic transfer underlying this metaphor resides in the construal of the locus of absorption as a metaphorical agent which actively initiates and willingly controls the process of taking in a liquid. At the same time, the theme role in the intrusion process is construed as a patient which undergoes reduction.

(38) ABSORPTION IS DRINKING

a. *Búŋ káŋ ā-ŋgòm ɣə́ ɲ-ɲʉ́ mā-ŋʒíʔ*
Bung fry 5-plantain DJ N-drink 6a-oil
'Bung fried plantain and it absorbed oil.'

b. *pwɔ̀fpwɔ́f ə́ ɲʉ́ ᵘlí mā-ŋʒíʔ*
1.puff_puff DJ drink P0 6a-oil
'The puff puff has absorbed oil.'

c. *nsé ə́ ɲʉ́ ᵘlí múᵘú myì*
9.soil DJ drink P0 6a.water DEM
'The soil has absorbed that water.'

d. *kà-báyn kə́ ɲʉ́ ᵘlí múᵘú wàyn ə́*
7-fufu DJ drink P0 6a.water 1.child DJ
ŋ-kʉ́ʔsə́
N-add
'The fufu has absorbed water and the child has added more.'

e. *wàyn tʃʉ̀ ndʒí-ᵘsə́ sə́ ɲ-ɲʉ́ múᵘú*
1.child soak dress-10[25] DJ N-drink 6a.water

24 Puff puff is the Cameroonian Pidgin English name of a popular West African fluffy and slightly crunchy doughnut made by deep frying dough in oil.

25 The noun class marker appears as a suffix since the noun *ndʒí-ᵘsə́* 'dress' is from class 10 which is marked by the *–sə́* suffix in Babanki as opposed to the rest of the classes which are marked by prefixes.

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mw-ɔ́mə̀
6a-POSS
'The child soaked dresses and they absorbed my water.'

The construal of the liquid as patient in a metaphorical drinking process entails the notion of its depletion, i.e. as more liquid comes to be soaked in, the amount remaining outside decreases markedly in quantity. In (38a–b), the quantity of oil that would have been used to fry more plantains, puff puff or other items is depleted by the item fried and in (38c–e) the water is soaked up by the item involved requiring more water to be supplied.

Absorption metaphors in other languages, e.g. Amharic (Newman & Aberra 2009) are mapped from the positive benefits derived from drinking to the effect the absorbed liquids have on the receiving objects. As in Akan (Agyepong, Amfo & Osam 2017), what is evident in Babanki is "internalisation" rather than "entity benefit" since not all absorption/internalisation of liquids is beneficial to the consumer. As is well known, some liquids may provide the consumer with the desired positive sensory feeling, but may not be beneficial. The focus, therefore, is on the absorption, not the benefits.

Absorption metaphors are restricted to DRINK and using eat leads to the collapse of the metaphor, as exemplified in (39).

(39) a. **Búŋ káŋ ə̄-ŋgɔ̀m ɣə́ n-ʒɬ́ mə̄-ŋzíʔ*
Bung fry 5-plantain DJ N-eat 6a-oil

b. **pwɔ̀fpwɔ́f ə́ ʒɬ́ ᵑ͡mlí mə̄-ŋzíʔ*
1.puff_puff DJ eat P0 6a-oil

3.2.2 Inhalation

The extensions in this subgroup are restricted to DRINK and describe the smooth, continuous, unimpeded intake of stimulants through the nasal-oral tract. As noted by Song (2009: 205) "gas and gas-like substances are akin to liquid in that they have a volume but no (definite) shape. They can also be inhaled through the nose - or the mouth if required - without interruptions, just as liquid is taken through the mouth into the stomach and intestines with virtually no interruption". It is this smooth, continuous, uninterrupted intake that motivates the metaphorical extensions. The inhaling or smoking interpretation is obtained by collocating *ɲʉ́* 'drink' with *kə̀bhìʔ* 'dust' (40a) or *ndɔ̀bɔ̀ʔ*

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'cigarette' (40b), *kàfʉ́* 'medicine' (40c), *kàtá?* 'cold' (40d) *fəlí?* 'smoke' (40e), *kàfwɔ̀s* 'fart' (40f), and *kəlɛ̀m* 'smell' (40g).

(40) INHALATION IS DRINKING

a. *Búŋ á ɲʉ́ kà-bhì?*
Bung F1 drink 7-dust
'Bung will inhale dust.'

b. *Búŋ ə́ ɲʉ́-ʉ́ ndɔ̀bɔ̀?*
Bung DJ drink-PROG 1.cigarette
'Bung is smoking a cigarette.'

c. *Búŋ ə́ ɲʉ́ ᵘlí kà-fʉ́*
Bung DJ drink P0 7-medicine
'Bung has taken medicine.'[26]

d. *wàyn ə́ ɲʉ́ ᵘlí kà-tá? ə́ sə́*
1.child DJ drink P0 7-cold CONJ now
kwá?à
ill.PROG
'The child has been exposed to the cold and is now ill.'[27]

e. *wàyn ə́ ɲʉ́ ᵘlí fə-lí? ə́ n-tʃō*
1.child DJ drink P0 19-smoke CONJ N-pass
'The child has been exposed to too much smoke.'

f. *Búŋ ə́ ɲʉ́ ᵘlí kà-fwɔ̀s ə̀k-yə̀*
Bung DJ drink P0 7-fart 7-2SG
'Bung has smelt your fart.'

g. *Búŋ ə́ kó kɔ̀ŋ ə́-ᵘɲʉ́ kà-lɛ̄m kə́*
Bung DJ NEG like INF-drink 7-smell 7.AM

26 While the verb *ɲʉ́* 'drink' is used for both liquid medicine and tablets, *mì* 'swallow' is used only if the medicine is in the form of tablets.

27 Unlike 'cold', 'heat' is not encoded by *ɲʉ́* 'drink' but by *lìm* 'be(come) hot', as in the following example.
ə̀-ʃí ə́ lím-ə̀ á ə̄-wɛ̀n ə̀ wàyn
8-place DJ be(come) hot-PROG at 5-body 5.AM 1.child
'The child feels hot.'

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ɲàm
1.meat
'Bung doesn't want to inhale the smell of meat.'

Compared to the prototypical drinking scenario the only semantic parameter that changes in these metaphors is the patient, while the semantic characteristics of the agent role remain the same as with the prototypical meaning. Other languages in which inhalation is conceptualised via drinking include Amharic (Newman & Aberra 2009), Akan (Agyepong, Amfo & Osam 2017), Hausa (Jaggar & Buba 2009), Korean (Song 2009), Lango (Noonan 1992), Puluwat (Elbert 1972).

An attempt to use EAT in these extensions makes the metaphors collapse since the metaphors of inhaling or smoking are restricted to DRINK, as illustrated in (41).

(41) a. **Búŋ á ʒɨ́ kə̀-bhìʔ*
Bung F1 eat 7-dust
'Bung will *eat dust.'

b. **Búŋ ə́ ʒɨ́-ɨ́ ndɔ̀bɔ̀ʔ*
Bung DJ eat-PROG 1.cigarette
'Bung will *eat a cigarette.'

4 Summary

The generic consumption verbs *ʒɨ́* 'eat' and *ɲʉ́* 'drink' undergo various semantic extensions in Babanki, both metaphorical and metonymical. The proliferation of figurative meanings is more common with EAT than with DRINK, as recurrently observed crosslinguistically, e.g. for Amharic (Newman & Aberra 2009), Akan (Agyepong, Amfo & Osam 2017), and Korean (Song 2009). Semantic extensions of *ʒɨ́* 'eat' are based on two closely related overarching structural metaphors, i.e. APPROPRIATION OF RESOURCES IS EATING and WINNING IS EATING. The first metaphor construes the internalisation of non-food items such as material possessions as ingestion of food, and is thus based on another metaphor RESOURCES ARE FOOD. The second metaphor casts the acquisition of immaterial advantage gained in a competition in the mould of eating. Further entailments of these metaphors have been traced along three separate lines of extension in a step-by-step fashion leading up to the target concepts, i.e. the altrimalefi-

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ciary effects of appropriation of resources, the pleasure of enjoying resources and the depletion of resources, as visualised below in table (42). The conceptualisation of ACHIEVING MUTUAL AGREEMENT BY EATING TOGETHER must be treated separately on both formal and semantic grounds. First, it is not directly based on the verb *ʒí* 'eat', but rather on its social verb stem *ʒímɔ́*. Second, the semantic transfer involved is not metaphorical in nature, but rather metonymical in that the notion of mutual agreement is derived from the conventional practice of sealing official agreements by breaking and eating kola-nuts together.

Semantic extensions that radiate from *ɲú* 'drink' are accounted for in two structural metaphors: INHALATION IS DRINKING and ABSORPTION IS DRINKING. While the first metaphor is simply based on the extension of eligible patients from liquids to aeriform or gaseous materials, the second metaphor is rather based on the construal of the inanimate locus of absorption as personified agent of a drinking action.

(42) Babanki semantic extensions of EAT and DRINK

Basic concept	Steps of extension
EAT	> appropriate resources (non-food items) > consume / enjoy resources irretrievably > deprive another party from resources > derive an autobeneficiary effect from consumption
	> gain possession of resources (non-food items) > use of resources beyond prototypical limit > deprive another party from resources > reductory effect on resources > depletion
	> win competition (immaterial gain) > derive an autobeneficiary effect from winning > detrimental effect for loser
EAT TOGETHER	> achieve mutual agreement
DRINK	> soaking in of liquid into porous material > porose material ingests liquid > absorb (inanimate "agent") > reductory effect on liquid
	> ingestion of aeriform or gaseous materials > inhale

The entailments of the two basic metaphors derived from EAT in table (42) above, i.e. APPROPRIATION OF RESOURCES IS EATING and WINNING IS EATING, can be unified in a single semantic network in (43)

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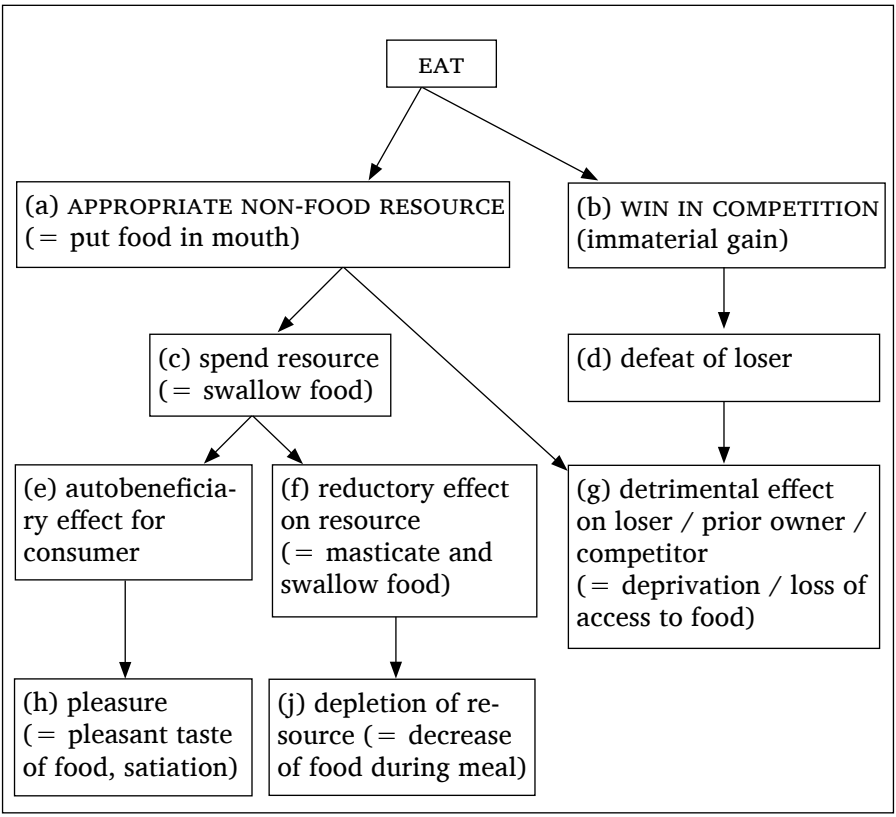
which exposes two crucial dimensions of the conceptual extensions branching off from the source concept EAT. First, it allows for an easy identification of areas of overlap in the metaphors' entailments. Thus, the altrimaleficiary effect can be seen to result from both metaphors, i.e. it follows as the defeat of the loser in a competition from the fact that the winner takes the gain, according to the metaphor WINNING IS EATING; and at the same time it also follows as the deprivation of prior owners or competitors, according to the metaphor APPROPRIATION of resources is eating. The pleasure effect results from the enjoyable taste of food and the feeling of satiation on the side of the consumer under the appropriation metaphor, while it also results as the winner's triumph from the winning metaphor.

(43) Unified model of semantic extensions of EAT



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The second dimension the network aims to reveal is the matching of individual entailments with individual aspects of the source concept EAT, as explicitly detailed in the bracketed expressions. Thus, the appropriation of non-food resources and the immaterial gain acquired by winning a competition correspond to the intake of food in the mouth under the source concept. Spending the resources is paralleled by the act of swallowing the food. The pleasure the new proprietor derives from spending the resources as well as the triumph the winner experiences when winning the competition can be equated with the positive sensory experiences derived from the pleasant taste of food and the feeling of satiation on the side of the consumer. The detrimental effect on the side of the loser as well as the prior owner or competitor corresponds to their deprivation and loss of access to food. Finally, the depletion of the resource corresponds to the decrease of the food during the meal resulting from its destruction by the process of mastication and swallowing.

Crosslinguistically, metaphorical extensions of either EAT or DRINK may both present pleasant and unpleasant sensory experiences, e.g. extensions from *shaa* 'drink' in Hausa (Jaggar & Buba 2009). Although the verbs for EAT and DRINK express universal activities, since everyone eats and drinks, the activities are conceptualized differently in different cultures. As pointed out by Adjei & Atintono (2009: 192) "there will be variations in the extent to which people from different cultural settings profile the interpretations of the metaphorical expressions. There is a strong relationship between a people's conceptual, environmental and cultural experiences and their linguistic systems which is shared across cultures". This accounts for the remarkable absence in Babanki of some metaphorical extensions of EAT and DRINK attested in other languages, e.g. extensions of EAT for sexual intercourse, as in Akan (Agyepong, Amfo & Osam 2017), Hausa (Newman 2009, Jaggar & Buba 2009), Zulu (Newman 2009), Swahili (Sheikh & Wolff 1981) and Camfranglais (Stein 2021: 172), for kill something / someone in Amharic (Newman & Aberra 2009), Akan (Agyepong, Amfo & Osam 2017), Hausa (Jaggar & Buba 2009), Ewe and Dagaare (Adjei & Atintono 2009), and the extensions of DRINK for undergoing trouble and enduring painful experiences, as in Hausa (Jaggar & Buba 2009). On the other hand, the fact that EAT (and DRINK) activities are conceptualized differently in different cultures accounts for the presence in Babanki of the metonymy

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ACHIEVING MUTUAL AGREEMENT IS EATING TOGETHER, which, to our knowledge, has not been reported for other languages.

Abbreviations

ꜜ downstep, 3SG third person singular, 1PL first person plural, 3PL third person plural, 1…19 noun classes, AM associative marker, ASS associative, AUX auxilliary, CON consecutive, CONJ conjunction, DEM demonstrative, DJ disjoint, F1 Immediate future tense, H high tone, IMP imperative, INCL inclusive, INF infinitive, L low tone, M mid tone, N nasal, NEG negative, P0 immediate past tense, P1 hodiernal past tense, POSS possessive, PREP preposition, PROG progressive, QUES question, SFX suffix.

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Aspects of negation in Makaa (A83)

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Abstract:
Polarity is a topic that has attracted much attention in semantics but as well in language typology regarding the syntactic and morphological realisations of negation. This paper studies negation in Makaa (A83) following two major perspectives. First, typologically, it examines the system of Makaa negation against the backdrop of polarity theory and second, from a (comparative) Bantu perspective, it examines the system of Makaa negation against the backdrop of other Bantu languages; including grammaticalization. Makaa negation displays divergent and very complex negation patterns studied under the contrast standard vs. non-standard negation. Concerning the origin of negators in Makaa, it is argued that Makaa negators might derive from grammaticalized verbs, the 3SG personal pronoun, possessive adjectives or object marker, and locative pronouns. Others are probably old negation particles.

Keywords: Makaa (A83), negation, tam and negation, semantics, asymmetric paradigms.

1 Introduction[1]

Bantu verbs are known for having rich morphological paradigms which may include several derivational as well as inflectional affixes.

1 This paper could not have been written without the invaluable contribution of Mrs Apang Lucie Valerie (†), my main informant, to whom this paper is dedicated. Special thanks to the editors of Afrika und Übersee and anonymous reviewers for invaluable discussions and comments. Equally, I am indebted to Maud Devos whose valuable comments helped me so much ameliorating my arguments. Thanks to Oumarou Mal Mazou R. for proofreading an older version of the current article. My heartfelt gratitude goes to Ken Safir and the audience at the Afranaph Project Development Workshop II held at the University of Rutgers, New Brunswick, New Jersey State on December 12-14, 2013 where I presented the first draft of this paper. All errors are mine.

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These markers typically do not only specify time, aspect and mood but also a range of other semantic categories including polarity (Schadeberg 2003: 151). The canonical form in (1) is recognized as the typical structure of the Bantu inflected verb form, with negation being marked before or after the subject marker.

(1) clitic + [NEG_1– SCD – NEG_2– TM_1– TM_2[OCD[= VB – FV]]] + clitic

There are six morphological strategies for encoding negation in finite forms across Bantu (Nurse 2008: 180ff.):

(i) inflectional morphemes at NEG_2 (predominant strategy in Zone A, B, D, E, F, and M but less frequent in H (especially), K, L and N);

(ii) inflectional morphemes at Pre-SM (present in all Zones except A, and frequent in most Zones except in B, C, and F);

(iii) inflectional morphemes at FV (predominant in two areas, G40 and Zones S, and in related, adjacent or influenced languages, namely E71-72, G30, K21, K30, M6, P311, R11);

(iv) post-verbal clitics or participles (scattered across Zones A, B, C, and in G50, N10-20, D14, E60, H21, H33),

(v) pre-verbal clitics or participles (K42, A72) and,

(vi) use of auxiliaries (B25, B11, L41, P13, H42).

Recently, works on negation in Bantu languages have focused on the (iv) post-verbal clitics or particles (Devos et al. 2010, Devos & Van der Auwera 2013). It is argued that they often derive from (1) locative pronouns, (2) possessives pronouns, (3) and negative (answer) particles and, take part in what is known as Jespersen cycle (Devos & Van der Auwera 2013: 1). The particles first function to reinforce negation and then become an obligatory part of negation giving rise to double negative constructions. Whereas in the typical French case (ne > ne ... pas > pas) the cycle ends with the new negative marker becoming the only negative marker (at least in colloquial speech) (Jespersen 1917, Van der Auwera 2009, 2010), in Bantu languages strengthening of a double negative construction and giving rise to a triple negative construction appears to be a recurrent phenomenon. Makaa negation does not fit the template in (1) and the language displays divergent and very complex negation patterns. Makaa counts

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a variety of negative constructions and negators depending on the tense, the mood, the finiteness of the sentence, or the scope of negation within a given construction in contrast to other Bantu languages (see section 4 for detail). This study surveys negation patterns in Makaa. Accordingly, it investigates the correlation between negation and tense, aspect, and mood (henceforth TAM), and the meaning conveyed by negation constructions. Section 2 presents some relevant background information necessary to understand the present study. Section 3 revisits previous accounts of negation in Makaa; section 4 provides an overview of negation constructions in Makaa. More so, it outlines, characterizes and distinguishes different types of negation constructions discussing, where relevant, some semantic, syntactic and morphophonological issues. Finally, Section 5 concludes the investigation by presenting some major findings and the implication this work could have on the typology of negation in Bantu.

2 Background

Makaa [mcp] is a Niger-Congo, Narrow Bantu language belonging to the Makaa-Njem group of languages spoken in Cameroon, precisely in the East Region, Upper Nyong Division, Messamena, Abong-Mbang, Doume, Nguelemendouka, Lom et Djerem subdivisions, and in the Center Region, Nyong and Mfoumou Division, Akonolinga and Endom localities (Ibirahim 2009: 21). It counts four major dialects, namely: Mbwaanz (spoken in the Upper Nyong Division), Bebend (spoken in Messamena Division), Shikunda (spoken in Nguelemendouka Division) and Besep (spoken in the Lom et Djerem and Nyong and Mfoumou Divisions) and it is spoken by about 110.000 people (Crystal 2010: 476). The dialect used for this analysis is the Mbwaanz variety. These dialects also designate ethnic groups and present mostly phonological and lexical differences. Bebend and Besep are related to the languages Kol [biw] and Byep-Besep [mkk] respectively. Makaa is surrounded by the Koonzime-Bajwe [ozm] language in the south, the Kwakum-Pol [kwu] and the Mpiemo [mcx] languages in the north as well as the Mpongmpong [mgg] and Ewondo [ewo] languages in the west (Heath & Heath 1982). Kol, Byep-Besep, Koonzime-Bajwe, Kwakum-Pol, Mpiemo and Mpongmpong belong to the Makaa-Njem group of languages; and Ewondo to the Fang-Beti

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group. Makaa is the dominant lingua franca in the area where it is spoken.

The analysis is data oriented and essentially based on established general patterns of negation crosslinguistically, language use, and diachronic changes observed across a significant number of constructions drawn from consulted sources (Heath 2003, Hewson 2016, Heath & Heath 1996), texts and discourse-based investigation carried out between October 2011 to April 2014 while I was doctorate student and assistant lecturer at the Asien-Afrika-Institut, Universität Hamburg. The data benefitted from my expertise as a linguist and native speaker of the Makaa language coupled with additional information and verification from other native speakers, namely, Simplice Mitale, Marie Madeleine Mbienz, Dominique Sandrine Mpouel, Ghislain Simon Mikoague and Rostand Bekole Aba Makaa. The informants were reached via Facebook Messenger, phone and WhatsApp video and audio calls, realized sometimes during lectures in order to enable students to familiarize themselves with fieldwork practices and exercises.

2.1 The internal structure of inflection

As earlier stated, the verb in Bantu languages is well known for its complex agglutinating morphology (Meussen 1967; Nurse et al. 2016: 13f.). The verb in Bantu languages has two main constituents, namely the inflectional stem and the macrostem (Myers 1998, following Meeussen 1967). The inflectional stem precedes the macrostem and consists of the morphemes marking subject, tense, aspect, and/or modality. The object marker (OM) and the verb combined are referred to as the verbal macrostem. The verb stem consists of the root, its suffixes (extensions) marking participant roles such as causative, passive, reciprocal and so on, and a terminal vowel. Generally, the object marker immediately precedes the verb stem. Makaa does not deviate from this pattern (cf. (2)). However, Makaa belongs to a set of northwestern Bantu languages that differ significantly, especially in their analytic verbal morphology, from most other Bantu languages (Hewson 2016: 215). Consider the position of the OM, with reference to the main verb of the sentence, *kwɨ̀ːd* ‘help’, in the examples in (2): whereas it is pre-verbal in (2a), it is post-verbal in (2b).

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(2) a. *Ìbâ ɲə̀ dɨ̀ ŋgə̀ nú:mbà*[2] *lɛ̀:lɨ́ kə̀ ɛ́ kwì:d bílálɨ́lə̀ málɨ́: mɛ ʃí*

Ìbâ	*ɲə̀=a*	*H*	*dɨ̀*	*ŋgə̀*	*nú:mbà*	*lɛ̀:l*	*kə̀*	*ɛ́*
Iba	SM=P3	PH.T	HAB	PROG	AUX	AUX	go	3SG.OM

kwì:d	*bîl-àl-Hlə̀*	*H*	*mə̀-lɨ́:*	*m-ɛ́*	*ʃí*
help	fall-CAUS-INF	PH.T	C6-tree	C6-3SG.POSS	down

'Iba used to (stupidly) go help him quickly fell his trees.'

b. *Ìbâ ɲə̀ dɨ̀ ŋgə̀ nú:mbà lɛ̀:lɨ́ kə̀ kwì:d ɛ̂ bílálɨ́lə̀ málɨ́: mɛ ʃí*

Ìbâ	*ɲə̀=a*	*H*	*dɨ̀*	*ŋgə̀*	*nú:mbà*	*lɛ̀:l*	*kə̀*	*kwì:d*
Iba	SM=P3	PH.T	HAB	PROG	AUX	AUX	go	help

ɛ́	*bîl-àl-Hlə̀*	*H*	*mə̀-lɨ́:*	*m-ɛ*	*ʃí*
3SG.OM	fall-CAUS-INF	PH.T	C6-tree	C6-3SG.POSS	down

'Iba used to (stupidly) go help him quickly fell his trees.'

In (2), the main verb is preceded by the following constituents: the subject marker SM *ɲə̀*; the tense marker TM *á*; a first H_1 that marks the beginning of the verb complex domain; the habitual aspect marker AM *dɨ́*; the progressive aspect marker *ŋgə̀*; two consecutive auxiliaries AUX *nú:mbà* and *lɛ̀:l*. The auxiliaries are followed by a verb *kə̀* 'go', which in turn is followed by an object marker OM *ɛ̀* and a series of two verbs *kwì:d* 'help' and the infinitive verb *bílálɨ́lə̀* 'cause to fall'. The infinitive verb stem comprises a root *bîl* followed by two extensions: the causative *-àl* and the infinitive marker H-*lə̀*. Finally, a second H_2 closes the verb complex domain.

Based on the syntactic relations between the constituents in (2), the Makaa internal structure of inflection is well summarized as in Hewson (2016: 215f.):

> "[…] The verbal complex has three parts: (i) a subject marker with a following tense marker, and a verb complex that begins and ends with a high tone, and is divided into (ii) a set of independent prestem morphemes, and (iii) a stem consisting of a root with prefixed om and suffixed extension and final vowel […]."

Following Heath & Heath (1996) and Noutsa (2009: 96ff.), and relying on personal observations, my intuition about H_1 and H_2 is that both

2 *Nú:mbà* derives from the auxiliary verb *nú:mbălə* which I am unable to translate appropriately into English, French or in any other language I speak. It is pejorative and used for insults. In (2a) it is used as an auxiliary though it has the meaning of an adverb that I translate as 'stupidly'.

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tones[3] have to do mostly with phrasal phonology than syntax. They are used as juncture tones and certainly serve to delimit intonational phrases. None of them marks TAM. $\underset{\circ}{H}_1$ behaves differently depending on the context. It can replace the preceding TBU tone, coalesce with it resulting in a contour tone, dock on the following TBU and replace its tones or remain inactive. $\underset{\circ}{H}_2$ behaves likewise though its presence is pescribed each time an object is added to the construction. Consequently, $\underset{\circ}{H}_2$ also seems to mark the syntactic relation between the verb and its object. With regard to (2), one can posit a linear structure for inflection in (3).

(3) SM TM $\underset{\circ}{H}_1$ AM AM AUX AUX VERB (OM) VERB OM root-EXT-EXT-FV $\underset{\circ}{H}_2$

Considering the fact that certain elements in (3) are recursive (auxiliaries, extensions, and verb roots), and that the OM in Makaa can either precede or follow the main verb in non-serialized verb constructions (see 2), the internal structure of the verb in (3) can be simplified as in (4).

(4) SM TM $\underset{\circ}{H}_1$ AM^n AUX^n (OM) root^n-EXT^n-FV (OM) $\underset{\circ}{H}_2$

2.2 Morphology

This section briefly presents Makaa tense, aspect, and mood. Tense and aspect are treated under the same section as in Makaa, generally, the present tense is either habitual or progressive.

2.2.1 Tense and aspect

Makaa counts seven absolute tenses: three future tenses symmetrical to three past tenses in addition to a present tense. The present tense has two sub-categories, namely a general present and a gnomic present (Ibirahim 2007, 2009, 2013b). The aforementioned tenses are negated differently (see 4.1.1).

Based on Nurse's 2008 analysis of TAM in Bantu and on empirical data from Makaa, Ibirahim (2013b: 14ff.) shows that Makaa uses inflectional morphemes at pre- and post-stem position, reduplica-

3 The analysis of the nature and function of H_1 and H_2 being far beyond the scope of this study, I will limit myself to marking them in the underlying forms. Due to the fact that at this stage of research on Makaa it is still difficult to state their exact function, they are glossed PH.T (phrasal tone) and their influence on surrounding tones will be highlighted where necessary.

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tion, repetition and compounding to mark 13 aspects grouped as follows: (i) imperfective (progressive, habitual, iterative, persistive and continuative), (ii) perfective (factative, completive and evidential), and miscellaneous aspects (inceptive, prioritive, proximate, counter-assertive and haste). For the reason of space, the complete paradigm of tense and aspect in Makaa will not be given here, but the paradigms in Table 1 are sufficiently representative.

Table 1. Tabular overview of the correlation of tense with progressive and habitual aspects in Makaa

Tense \ Aspect			Progressive (PROG) *ŋgə̀*	Habitual (HAB) *dɨ*
P3	*a*	Remote past	+	+
P2	*ámə̀*	Recent past	+	+
P1	*mə́*	Immediate past	+	–
P0	*Ø*	General present	+	+
	Ḥ̥lə̀ (INF)	Gnomic present	+	+
F1	*e*	Immediate future	+	+
F2	*bá*	Recent future	+	+
F3	*e bá*	Remote future	+	+

2.2.2 Mood

Makaa distinguishes three moods: indicative, subjunctive and imperative (Heath 2003: 345). The indicative is the unmarked or default construction used to express realis or irrealis situations. The imperative and the subjunctive are both marked by the inflectional enclitic */-v́g/* in the 2nd person singular.

In the 1st/2nd person plural, the morpheme *â* is suffixed to the aforementioned imperative/subjunctive maker resulting in */-v́g-â/*. The nucleus of the imperative/subjunctive marker turns to [*ɨ*] when the verb root ends in a consonant (5) or it is identical to the final verb root vowel, causing lengthening of that vowel (6). The difference between both constructions lies in the covert (in the subjunctive, see (5a), (6a)) or overt (in the imperative, see (5b) and (6b)) realization of the subject pronoun.

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(5) a. *Í tʃàlìgâ!*

î	*tʃàl-v́g-â*
1PL.INCL	cut.down-SBJV-PL

‘Let us cut down!’

b. *tʃàlìgâ!* (from *tʃàl*)

tʃàl-v́g-â
cut.down-IMP-PL
‘Cut down!’

(6) a. *Wò mìnə̌:g!*

wo	*mìnə̀-v́g*
2SG	swallow-SBJV

‘You swallow!’

b. *Mìnə̌:g!* *(from mìnə̀)*

mìnə̀-v́g
swallow-IMP
‘Swallow!’

3 Negation in Makaa: A previous account

Negation[4] in Makaa has previously benefited from scientific attention worth mentioning. Hewson (2016: 222) summarizing Heath (2003) notes that at first sight, there seems to be a binary negation contrast between indicative and subjunctive/imperative in Makaa. “Negation in the indicative is expressed by a discontinuous clitic on the first word of the Macrostem. The clitic (toneless *a* + H + suffix *ɛ̀* or *ɛ́*) varies somewhat from tense to tense.” (Heath 2003: 345).

In past tenses (Example 7b drawn from Hewson (2016: 222), and Heath 2003: 345)), the assertive clitic *a* is absent and the enclitic *ɛ* attaches to the counter-assertive morpheme *ʃí*, resulting in *ʃígɛ́*. The negator *ʃígɛ́* seems to be formed as the negator *tʃúgɛ́* ‘not to be’ (see section 4.2.3 for detail) resulting from an irregular conjugation of the verb *bə̀* ‘be’.

(7) a. *Mà: dígɛ̂*

mə̀=a	*´*	*díg*	*´*	*=ɛ̀*
1SG=P3	MACH	see	MACH	3SG

‘I saw him/her.’

b. *Mà: ʃígɛ́ dígɛ̂*

mə̀=a	*´*	*ʃígɛ́*	*díg*	*´*	*=ɛ̀*
1SG=P3	MACH	NEG	see	MACH	3SG

‘I did not see him/her.’

4 The examples presented within this section are taken from Heath 2003, Hewson 2016, Heath & Heath 1996, supplemented by affirmative sentences from me.

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In the present tense, the toneless clitic *=a* is followed by a L̥ which coalesces with the tone of the subject pronoun when it bears L (8a$_i$) or remains floating when the clitic attaches to a H subject pronoun causing any following H to downstep (8b).

(8) a. *Má ʧàl mə́ləndú*

mə ´ *ʧàl* ´ *mə-ləndú*
1SG MACH cut MACH C6-palm.tree
'I cut down palm trees.'

a$_i$. *Mə̀ àtʃálɛ́ mə́ləndú*

mə *aL̥-ʧàl-ɛ́* ´ *mə-ləndú*
1SG NEG-cut-NEG MACH C6-palm.tree
'I do not cut down palm trees.'

b. *Sə́ á^{u}ʧálɛ́ mə́ləndú*

sə́ *aL̥-ʧàl-ɛ́* ´ *mə-ləndú*
1PL NEG-cut-NEG MACH C6-palm.tree
'We do not cut down palm trees!'

In the subjunctive and the imperative, negation is marked by the morpheme *kú* followed by a L̥ that causes any following H to downstep.

(9) a. *Wííŋgíg ómpjə̂*

wííŋg-g *ò-mpjə̂*
chase-IMP C2-dog
'Chase the dogs away!'

b. *kú^{u} wííŋg ómpjə̂*

kú *L̥* *wííŋg* ´ *ò-mpjə̂*
NEG NEG chase MACH C2-dog
'Do not chase the dogs away!'

However, while the illustration in (8a$_i$, b)–(9b) provided by Heath (2003: 345f.) does support the two-way contrast indicative vs. subjunctive/imperative, Hewson (2016: 259), based on examples (10) and (11) from Heath (2003: 347) and Heath & Heath (1996: 29) respectively, further notes that negation in Makaa may not be quite as simple as it looks like.

In (10), the focus marker *ó* occurring in the affirmative sentence (10a) is replaced by the negative focus marker *dí* in the negative construction (10b).

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(10) a. *Mə́ ó má dʒá:mb*

mə́ *ó* *mə́* *dʒá:mb*
1SG FOC 1SG cook
'It is me who cooks.'

b. *Mə́ dí mə́ dʒá:mb* [sic][5]

mə́ *di* *mə́* *dʒá:mb*
1SG NEG.FOC 1SG cook
'It is not me who cooks.'

Regarding example (11), Hewson (2016: 222) wonders "how and why sentence [(11b)] contains a [negative] subjunctive" as originally labelled by Heath & Heath (1996: 29).

(11) a. *mə́ ɲíngə̀g ŋgə̀ wá:mbìlə̀ ìfàmbá?*

mə́ *H₁* *ɲìngə̀-g* *ŋgə̀* *wá:mbìlə̀* *H₂* *ì-fàmbá*
1SG PH.T again-SBJV PROG sweeping PH.T C8-field
'Should I be sweeping the fields again?'

b. *mə́ kú ɲìngə̀ ŋgə̀ wá:mbìlə̀ ìfàmbá* [sic]

mə́ *kú* *H₁* *ɲìngə̀* *H₂* *ŋgə̀* *wá:mbìlə̀*
1SG NEG.SBJV PH.T again PH.T PROG sweep

ì-fàmbá
C8-field
'I am not sweeping the field again.' [sic]

To provide an answer to Hewson, it should be noted that sentence (11b) is grammatical in Makaa only if it is in the interrogative form *mə́ kú ɲìngə̀ ŋgə̀ wá:mbìlə̀ ìfàmbá*? 'I should not be sweeping the fields again?'. It is a follow up question (from a speaker) addressed to a listener in order for the latter to confirm a previous order he gave, *wò kú ɲìngə̀ ŋgə̀ wá:mbìlə̀ ìfàmbá!* 'You should not be sweeping the fields again!'. The existence of a previously attested negative focus marker in Heath & Heath 1996 omitted in Heath 2003 and the apparently random occurence of a subjunctive marker suggest that a more systematic investigation of Makaa negation would be worthwhile.

4 Negation constructions in Makaa: Detailed account

Makaa counts a diversity of negators used in marking several distinct negative constructions. The choice of each of these markers is conditioned either by TAM or by the scope of negation within a given construction. From a typological point of view (cf. Miestamo 2005,

5 The mistake lies on the 1SG *mə̀,* it should be *mə́* instead.

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2007, Payne 1985), Makaa negative constructions can be classified into two groups, standard (4.1) and non-standard negation (4.2).

4.1 Standard negation

Standard negation[6] (henceforth SN) refers to 'the basic way(s) a language has for negating declarative verbal main clauses … [or] to the basic clausal negation construction(s) in a language' (Miestamo 2005: 3). Makaa standard negative constructions do not show paradigmatic symmetry as the marking of the bipartite negation clitics differs from one tense to another. They also do not show syntagmatic symmetry. Although at first sight negation appears to involve the simple addition of the bipartite negative clitic, more complex changes depending especially on the time frame, are involved. Makaa also uses additional auxiliaries, grammaticalized verbs, to mark negation as shown in the following sections.

4.1.1 Correlation between tense and negation

Generally, negation in the indicative mood occupies the second position in the clause. It is marked by the bipartite enclitic *=a* (NEG1) … *=*(C)*ɛ* (NEG2). The bipartite clitic varies from tense to tense as summarized in Table 2, of which the content is explained in detail in the following subsecions. The enclitic *=a* (NEG1) always cliticizes with the SM or the subject pronoun, and the enclitic *=*(C)*ɛ* (NEG2) with the element occuring in the second position. In the remote and the recent past tenses, the negator is made up of the evidential marker *ʃí* to which the enclitic *=ɛ́ is* attached resulting in *ʃígɛ́*. A tertiary negator *lɨ̀lɛ ~ lɛ* (NEG3) can be added to the bipartite negator or to *ʃígɛ́* to convey the French meaning *ne … plus* ('not VERB again/anymore') (cf. 4.1.2). The bipartite clitic can be also coupled with some grammaticalized verbs or negation particles to mark other meanings such as 'never VERB, not yet VERBed' (4.1.3).

In Makaa, the enclitic *=a* probably originates from the 3rd person singular pronoun *a* (*à zàg* 'he is coming'). On the other hand, the enclitic *=ɛ* could derive from the 3rd person singular object marker *ɛ* (*Mə̀ ká dɪ́g-ɛ̂* 'I am going to see him/her'), or from the 3rd person singular possessive stem *-ɛ (Mìká:ndá mj-ɛ́* 'His/her clothes'). The link made between the aforementioned negative markers and the prob-

6 It is also known in the literature as sentential or clausal negation (Dahl 2010, Mihas 2009, Miestamo 2007, Payne 1985).

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able sources from which they could originate is based essentially on formal similarities and on the report of similar cases across languages by Devos & Van der Auwera (2013: 256).

Table 2. A tabular overview of the correlation tense-negation in Makaa SN

Primary Negator	Primary + Secondary Negator (+ X)	Tense
a (TM) + **ʃígɛ́**	**a** (TM) + **ʃígɛ́** = **lɨ́lɛ** (i) **a** (TM) + **ʃígɛ́** = **lɛ** (ii)	P3
ʃígɛ́	**ʃígɛ́** = **lɨ́lɛ́** (i) **ʃígɛ́** = **lɛ́** (ii)	P2
a + = **ɛ́** **a fwɛ́**	not applicable not applicable	P1
= **a** + **L̥** + = **ɛ́** (i) = **a** + **L̥** + = **ɛ́** = **jɛ́** (ii)	= **a** + **L̥** + = **lɨ́lɛ́** (1) = **a** + **L̥** + = **lɛ́** (2) = **a** + **L̥** + = **ɛ́** = **jɛ́** = **lɨ́lɛ́** (1) = **a** + **L̥** + = **ɛ́** = **jɛ́** = **lɛ́** (2)	P0
= **a** + = **ɛ̀** (i) = **a** + = **ɛ̀** = **jɛ̀** (ii)	= **a** + = **lɨ́lɛ́** (i) = **a** + = **lɛ́** (ii) = **a** + = **ɛ̀** = **jɛ̀** = **lɨ́lɛ́** (i) = **a** + = **ɛ̀** = **jɛ̀** = **lɛ̀lɛ̀** (ii) = **a** + = **ɛ̀** = **jɛ̀** = **lɛ** (iii)	F1
= **a** + **bə́** (TM) = **lɛ́**	= **a** + **bə́** (TM) = **lɨ̀lɛ́**	F2
= **a** + **bə́** (TM) = **lɛ̀** + **bá** (TM)	= **a** + **bə́** (TM) = **lɨ̀lɛ̀** + **bá**	F3

4.1.1.1 Negation in remote past (P3) and recent past (P2): *ʃígɛ́*

In the remote and the recent past tenses, negation is marked by *ʃígɛ́* occuring immediately after the SM in P2 (12b$_i$), and after the TM in P3 (12a$_i$). The negator is made up of the evidential marker *ʃí* to which the enclitic =*ɛ́* attaches resulting in *ʃígɛ́* (12a$_i$, b$_i$). The evidential marker *ʃí* derives from the verb *ʃîn* 'finish'. It associates with lexical verbs in Makaa to mark completed actions at the moment of utterance. As a consequence, it inherently encodes past tense. The subject pronoun vowel undergoes total assimilation when the P3 (12a and 12a$_i$) or P2 (12b) marker attaches to it.

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(12) a. *Mǎ: kà:dí ɲə̀ ìdɨ̂w*

mə̀=a	*H̥*$_1$	*kà:d*	*H̥*$_2$	*ɲə̀*	*ì-dɨ̂w*
1SG=P3	PH.T	serve	PH.T	3SG	C8-food

‘I served him/her food.’

a$_i$. *Mà: ʃígɛ́ kà:dɨ ɲə̀ ìdɨ̂w*

mə̀=a	*H̥*$_1$	*ʃí=gɛ*	*kà:d*	*H̥*$_2$	*ɲə̀*
1SG=P3	PH.T	EVID.PAST=NEG	serve	PH.T	3SG

ì-dɨ̂w
C8-food
‘I did not serve him/her food indeed.’

b. *Mǎ:mə̀ kà:dí ɲə̀ ìdɨ̂w*

mə̀=ámə̀	*H̥*$_1$	*kà:d*	*H̥*$_2$	*ɲə̀*	*ì-dɨ̂w*
1SG=P2	PH.T	serve	PH.T	3SG	C8-food

‘I serve him/her food.’

b$_i$. *Mə̀ ʃígɛ́ kà:dɨ ɲə̀ ìdɨ̂w*

mə̀	*H̥*$_1$	*ʃí=gɛ*	*kà:d*	*H̥*$_2$	*ɲə̀*
1SG	PH.T	EVID.PAST=NEG	serve	PH.T	3SG

ì-dɨ̂w
C8-food
‘I did not serve him/her food indeed.’

The recent past tense in Makaa is a past perfective construction. There are two possibilities to negate a P1 sentence. The clitic =*a* coalesces with the subject pronoun and bears the same tone.

(i) =*a* … =*ɛ* ‘not VERBed’ (13)
(ii) =*a fwɛ́* ‘not VERBed yet’ (14)

(13) a. *Mə̀ mə́ kà:dí sə̂ ìdɨ̂w*

mə̀	*mə́*	*H̥*$_1$	*kà:d*	*H̥*$_2$	*sə̂*	*ì-dɨ̂w*
1SG	P1	PH.T	serve	PH.T	1PL	C8-food

‘I have served us food.’

b. *Mà: ká:dɛ́ sə̂ ìdɨ̂w*

mə̀=a	*H̥*$_1$	*kà:d-ɛ*	*H̥*$_2$	*sə̂*	*ì-dɨ̂w*
1SG=NEG	PH.T	serve-NEG	PH.T	1PL	C8-food

‘I have not served us food.’

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The negator *=a … fwɛ́* consists of the aforementioned bipartite clitic *=a … =ɛ* coupled with the dummy verb *fwə̀*. The enclitic *=ɛ* cliticizes with the verb root *fwə̀* replacing its vowel. *Fwə̀* derives from the auxiliary verb *fwə̌lə̀* 'to perform or undergo an action prior to another one'. In (14b) it is used as an adverb meaning 'yet'.

(14) a. *Sə́ mə́ wó:sɨ̀ tó:n*

sə̂	*mə́*	*H*$_1$	*wó:s*	*H*$_2$	*tó:n*
1PL	P1	PH.T	go.out	PH.T	outside

'We have gone out/outside.'

b. *Sə́: fwɛ́ wó:sɨ̀ tó:n*

sə̂=a	*H*$_1$	*fwə̀=ɛ́*	*wó:s*	*H*$_2$	*tó:n*
1PL=NEG	PH.T	AUX=NEG	go.out	PH.T	outside

'We have not yet gone out/outside'

4.1.1.2 Negation in present tense (P0)

In the present tense, the toneless clitic *=a* bears the same tone with the preceding subject marker or pronoun with which it cliticizes. A floating L follows the clitic. When the clitic *=a* associates to a L subject pronoun or marker, the L̩ coalesces with it (15a$_i$). On the other hand, if it rather associates to a H subject pronoun or marker, the L̩ remains active and downsteps any following H (15b$_i$).

(i) Present tense (P0) negator: *a L̩ … =ɛ*

(15) a. *Mə́ kà:dɨ́ ɲə̀ ìdə̂w*

mə̀	*H*$_1$	*kà:d*	*H*$_2$	*ɲə̀*	*ì-də̂w*
1SG	PH.T	serve	PH.T	3SG	C8-food

'I serve him/her food.'

a$_i$. *Mə̀: ká:dɛ́ ɲə̀ ìdə̂w*

mə̀=a	*L̩*	*H*$_1$	*kà:d=ɛ*	*H*$_2$	*ɲə̀*
1SG=NEG	NEG	PH.T	serve=NEG	PH.T	3SG

ì-də̂w
C8-food
'I do not serve him/her food.'

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b. *Sə́m wó:sɨ́ tó:n*

Sə̂ = m	*H₁*	*wó:s*	*H₂*	*tó:n*
2PL = DPRON	PH.T	go.out	PH.T	outside

'We get out/outside.'

b$_i$. *Sə́: ᵑwó:sɛ́ tó:n*

sə̂ = a	*L*	*H₁*	*wó:s = ɛ*	*H₂*	*tó:n*
2PL = NEG	NEG	PH.T	go.out = NEG	PH.T	outside

'We do not get out/outside.'

Semantically, the negated sentences in (15a$_i$, b$_i$) can also stand as replies for the following imperative sentences *Kà:dɨ́g ɲə̀ ìdî́w!* 'Serve him food!' and *Wó:sɨ́gâ tó:n!* 'Get out/outside!'. However, if a speaker instead of giving an order formulates questions in (16a–b), an additional enclitic *=jɛ́* will be adjoined to the initial negator resulting in *=a L … =ɛ=jɛ* (16a$_i$, b$_i$). Note, however, that the contextual distinction between the negators in (15) and that in (16) is not strict. Both forms are used interchangeably mostly by younger speakers. More so, certain verb stems can only take the form in (16) for euphonic reasons. In rapid speech, the negator *=jɛ́* can be silent or omitted.

(ii) Present tense (P0) negator (ii): *a L … =ɛ=(j)ɛ*

(16) a. *Wə́ kà:dɨ́ ɲə̀?*

wə̀	*H₁*	*kà:d*	*H₂*	*ɲə̀*
2SG	PH.T	serve	PH.T	3SG

'Are you serving him/her?'

a$_i$ *Mbô, Mə̀: ká:dɛ́jɛ́ ɲə̀*

mbô	*Mə̀ = a*	*L*	*H₁*	*kà:d = ɛ́ = jɛ́*	*H₂*
no	1SG = NEG	NEG	PH.T	serve = NEG = NEG	PH.T

ɲə̀
3SG
'No, I do not serve him/her.'

b. *Bì:m wó:sɨ̌?*

bɨ̌ = m	*H₁*	*wó:s*	*H₂*
2PL = DPRON	PH.T	go.out	PH.T

'Do you go out/outside?'

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b$_i$. *Mbô, sá: ᵘwó:sɛ́jɛ́*

mbô	*sə̂ = a*	*L*	*H$_1$*	*wó:s = ɛ́ = jɛ́*	*H$_2$*
no	1PL = NEG	NEG	PH.T	go.out = NEG = NEG	PH.T

'No, we do not go out/outside.'

4.1.1.3 Negation in immediate future (F1)

In the immediate future, like in the present tense, negation is marked by two distinct negators, (i) *a … ɛ* and (ii) *a … ɛjɛ* 'not VERB', depending on the meaning expressed by the negative construction. Often, both forms are used in free variation.

(i) (F1) negator: *a … ɛ*

The negator in (i) is used when the negated sentence expresses refusal to execute a proposal or an order (17a).

(17) a. *Mɛ̌: kà:dɛ́ ɲə̀*

mə̀ = e	*H$_1$*	*kà:d*	*H$_2$*	*ɲə̀*
1SG = F1	PH.T	serve	PH.T	3SG

'I will serve him.'

a$_i$. *Mă: kà:dɛ ɲə̀*

mə̀ = a	*H$_1$*	*kà:d = ɛ*	*H$_2$*	*ɲə̀*
1SG = NEG	PH.T	serve = NEG	PH.T	3SG

'I will not serve him.'

(ii) (F1) negator: *a … ɛjɛ*

The negator in (ii) is used as default and expresses in a neutral way the speaker's deliberate refusal to perform an action (17b).

(17) b. *Mɛ̌: kà:dɛ́ ɲə̀*

mə̀ = e	*H$_1$*	*kà:d*	*H$_2$*	*ɲə̀*
1SG = F1	PH.T	serve	PH.T	3SG

'I will serve him/her.'

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b$_i$. *Mǎ: kà:dɛ̀jɛ ɲə̀*

mə̀ = a	*H$_1$*	*kà:d = ɛ = jɛ̀*	*H$_2$*	*ɲə̀*
1SG = NEG	PH.T	serve = NEG = NEG	PH.T	3SG

'I will not serve him/her.'

4.1.1.4 Negation in near future (F2)

Negation in the near future is marked by *= a … = (l)ɛ*. The enclitic *= a* merges with the subject pronoun and the tone remains unchanged. The enclitic *= ɛ* merges with the F2 marker, and an epenthetic *l* is inserted to disrupt the sequence of vowels. It is also noticed that the addition of the enclitic raises the F2 marker vowel from *a* to *ə* (18b).

(18) a. *Mə̀ bá kà:dɨ́ ɲə̀ ìdî́w*

mə̀	*bá*	*H$_1$*	*kà:d*	*H$_2$*	*ɲə̀*	*ì-dî́w*
1SG	F2	PH.T	serve	PH.T	3SG	C8-food

'I will serve him/her food.' (Recent)

b. *Mà: bə́lɛ́ kà:dɨ́ ɲə̀ ìdî́w*

mə̀ = a	*H$_1$*	*bá = ɛ*	*kà:d*	*H$_2$*	*ɲə̀*	*ì-dî́w*
1SG = NEG	PH.T	F2 = NEG	serve	PH.T	3SG	C8-food

'I will not serve him/her food.'

4.1.1.5 Negation in remote future (F3): *= a … = (l)ɛ*

The remote future (F3) is marked by *e bá* (19a). The F3 marker is in fact a combination of F1 marker *e* with F2 marker *bá*. In F3 negative constructions, *e* becomes *bá* and its vowel raises to *ə* when the enclitic *= (l)ɛ* attaches to it (19b).

(19) a. *Mě bá kà:dɨ́ ɲə̀*

mə̀ = e	*bá*	*H$_1$*	*kà:d*	*H$_2$*	*ɲə̀*
1SG = F3	F3	PH.T	serve	PH.T	3SG

'I will serve him/her.'

b. *Mà: bə́lɛ̀ bá kà:dɨ́ ɲə̀*

mə̀ = a	*e = ɛ*	*bá*	*H$_1$*	*kà:d*	*H$_2$*	*ɲə̀*
1SG = NEG	F3 = NEG	F3	PH.T	serve	PH.T	3SG

'I will not serve him/her.'

The examples in (12)–(19) illustrate so far how the bipartite clitic *= a* (NEG1) … *= (C)ɛ* (NEG2) combines with different tenses in Makaa

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to encode negation. Additionally, the tertiary interchangeable negation clitic[7] *=lɨlɛ ~ =lɛ ~ =lɛlɛ* (NEG3) can be coupled with the aforementioned negator (in the constructions in (12)–(19)) to convey the meaning 'ne ... plus' ('not VERB again' or 'anymore') (cf. 20). The enclitic *=lɨlɛ ~ =lɛ* is incompatible with P1. It is the fourth negation clitic in certain P0 (20d) and F1 (20f) constructions. In F2 (20g) and F3 (20h), it is mutually exclusive/incompatible with the primary negative proclitic *=(l)ɛ*.

(i) (P3) negator: *a + ʃígɛ́ = lɨlɛ ~ = lɛ*

(20) a. *Mà: ʃígɛ́lɨ́lɛ́ ~ lɛ́ kà:dɨ ɲà ìdîw*

mə̀-a	*H₁*	*ʃí = (g)ɛ = lɨ́lɛ́ ~ = lɛ́*	*kà:d*	*H₂*	*ɲà*
1SG = P3	PH.T	EVID.PAST = NEG = NEG	serve	PH.T	3SG

ì-dîw
C8-food
'Indeed, I did not serve him/her food again/anymore.' (A long time ago)

(ii) (P2) negator: *ʃígɛ́ = lɨlɛ ~ = lɛ*

b. *Mə̀ ʃígɛ́lɨ́lɛ́ ~ lɛ́ kà:dɨ ɲà ìdîw*

mə̀	*H₁*	*ʃí = (g)ɛ = lɨ́lɛ́ ~ = lɛ́*	*kà:d*	*H₂*	*ɲà*
1SG	PH.T	EVID.PAST = NEG = NEG	serve	PH.T	3SG

ì-dîw
C8-food
'Indeed, I did not serve him/her food again/anymore.' (recently)

(iii) (P0) negator (i): *a L = ɛ = lɨlɛ ~ = lɛ*

c. *sá: ᵘwó:sɛ́lɨ́lɛ́ ~ lɛ́ tó:n*

sə̂-a	*L*	*H₁*	*wó:s = ɛ = lɨlɛ ~ = lɛ*	*H₂*	*tó:n*
1PL-NEG	NEG	PH.T	go.out = NEG = NEG	PH.T	outside

'We do not get out/outside again/anymore.'

7 For presentation reasons, affirmative sentences will be left out (cf. 12–19).

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(iv) (P0) negator (ii): *a L̥ =ɛ (=jɛ)=lɨlɛ ~ =lɛ*

d. *Mbô, mà: ká:dɛ́(jɛ́)lɨ́lɛ́ ~ lɛ́*

mbô	*mə̀=a*	*L̥*	*H̥₁*	*kà:d=ɛ́(=jɛ́)=lɨ́lɛ́ ~ =lɛ́*	*H̥₂*
no	1SG=NEG	NEG	PH.T	serve=NEG(=NEG)=NEG	PH.T

'No, I do not serve again/anymore.'

(v) (F1) negator (i): *a … ɛ=lɨlɛ ~ =lɛlɛ ~ =lɛ*

e. *Mǎ: kà:dɛ̀lɨ̀lɛ̀ ~ lɛ̀lɛ̀ ~ =lɛ ɲə̀ ìdə̂w*

mə̀-a	*H̥₁*	*kà:d=ɛ=lɨ̀lɛ̀ ~ =lɛ̀*	*H̥₂*	*ɲə̀*	*ì-də̂w*
1SG=NEG	PH.T	serve=NEG=NEG	PH.T	3SG	C8-food

'I will not serve him/her food again/anymore.' (Immediate)

(vi) (F1) negator (ii): *a … ɛ(jɛ)=lɨlɛ ~ =lɛlɛ ~ =lɛ*

f. *Mǎ: kà:dɛ̀(jɛ̀)lɨ̀lɛ̀ ~ lɛ̀lɛ̀ ~ lɛ ɲə̀ ìdə̂w*

mə̀-a	*H̥₁*	*kà:d=ɛ (=jɛ̀)=lɨ̀lɛ̀ ~ =lɛ̀lɛ̀ ~ =lɛ̀*	*H̥₂*
1SG=NEG	PH.T	serve=NEG (=NEG)=NEG	PH.T

ɲə̀	*ì-də̂w*
3SG	C8-food

'I will not serve him/her food again/anymore.' (Immediate)

(vii) (F2) negator *=a … =lɨlɛ*

g. *Mà: bɔ́lɨ̀lɛ́ kà:dɨ́ ɲə̀ ìdə̂w*

mə̀-a	*H̥₁*	*bá=lɨ̀lɛ̀*	*kà:d*	*H̥₂*	*ɲə̀*	*ì-də̂w*
1SG=NEG	PH.T	F2=NEG	serve	PH.T	3SG	C8-food

'I will not serve him/her food again/anymore.' (Recent)

(viii) (F3) negator (i): *=a … =lɨlɛ*

h. *Mà: bɔ́lɨ̀lɛ̀ bá kà:dɨ́ ɲə̀ ìdə̂w*

mə̀=a	*e=lɨ̀lɛ̀*	*bá*	*H̥₁*	*kà:d*	*H̥₂*	*ɲə̀*	*ì-də̂w*
1SG=NEG	F3=NEG	F3	PH.T	serve	PH.T	3SG	C8-food

'I will not serve him/her food again/anymore.' (Remote)

4.1.2 Correlation between aspect and negation

As previously mentioned, negated constructions in the indicative mood generally vary depending on the tense marker. When an aspect marker is added to the construction (see example 21), negation is still marked as described previously.

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(i) Future progressive

(21) a. *Mə́ bá ŋgə̀ kà:dɪ́ ɲə̀*

mə́ *bá* *H₁* *ŋgə̀* *kà:d* *H₂* *ɲə̀*
1SG F2 PH.T PROG serve PH.T 3SG
'I will be serving him/her.'

a$_i$. *Mà: bɛ́lɛ̀ ŋgə̀ kà:dɪ́ ɲə̀*

mə = a *bá = ɛ* *H₁* *ŋgə̀* *kà:d* *H₂* *ɲə̀*
1SG = NEG F2 = NEG PH.T PROG serve PH.T 3SG
'I will not be serving him/her.'

(ii) Future habitual

b. *Mə́ bá dɪ́ kà:dɪ́ ɲə̀*

mə́ *bá* *H₁* *dɪ* *kà:d* *H₂* *ɲə̀*
1SG F2 PH.T HAB serve PH.T 3SG
'I will usually serve him/her.'

b$_i$. *Mà: bɛ́lɪ̀lɛ̀ dɪ́ kà:dɪ́ ɲə̀*

mə̀ = a *bá = ɛ = lɪ̀lɛ̀* *H₁* *dɪ* *kà:d* *H₂* *ɲə̀*
1SG = NEG F2 = NEG = NEG PH.T HAB serve PH.T 3SG
'I will not usually serve him/her.'

(iii) Past progressive

c. *Mă: ŋgə̀ kà:dɪ́ ɲə̀*

mə̀ = a *H₁* *ŋgə* *kà:d* *H₂* *ɲə̀*
1SG = P3 PH.T PROG serve PH.T 3SG
'I was serving him/her.'

c$_i$. *Mà: ʃígɛ́ ŋgə̀ kà:dɪ ɲə̀*

mə̀ = a *H₁* *ʃí = gɛ* *ŋgə̀* *kà:d* *H₂* *ɲə̀*
1SG = P3 PH.T EVID.PAST = NEG PROG serve PH.T 3SG
'I was not serving him/her.'

(iv) Past habitual

d. *Mă: dɪ̀ kà:dɪ́ sə̂*

mə̀ = a *H₁* *dɪ* *kà:d* *H₂* *sə̂*
1SG = P3 PH.T HAB serve PH.T 1PL
'I used to serve us.'

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d$_i$. *Mà: ʃígɛ́lɛ́ dɨ́ kà:dɨ́ sâ*

Mə́ = a	*H$_1$*	*ʃí = gɛ́ = lɛ́*	*dɨ*	*kà:d*	*H$_2$*	*sâ*
1SG = P3	PH.T	EVID.PAST = NEG = NEG	HAB	serve	PH.T	1PL

'I did not use to serve him/her again indeed.'

In the present progressive (22) and habitual (23) constructions, due to the absence of an overt tense marker, the aspect markers fill the second position targeted by negation and cliticise with the enclitics *= ɛ́*, *= lɛ́* meaning 'not verb', or *= lílɛ* 'not VERB again'. An example of each enclitic is given in (22b–d)–(23b–d). However, a deviant behavior is noted in (22b–d). The progressive marker is followed by the preposition *nə̀* 'with' without which the constructions are ill-formed. More so, the adjunction of the negation marker changes the progressive marker vowel from *ə* to *ɛ* (22b–d).

(v) Present progressive

(22) a. *Mə̀ ŋgə̀ kà:dɨ́ ɲə̀*

mə̀	*H$_1$*	*ŋgə̀*	*kà:d*	*H$_2$*	*ɲə̀*
1SG	PH.T	PROG	serve	PH.T	3SG

'I am serving him/her.'

b. *Mà: ŋgɛ́ nə̀ kà:dɨ́ ɲə̀*

mə̀ = a	*H$_1$*	*ŋgə = ɛ*	*nə̀*	*kà:d*	*H$_2$*	*ɲə̀*
1SG = NEG	PH.T	PROG = NEG	PREP	serve	PH.T	3SG

'I am not serving him/her.'

c. *Mà: ŋgɛ́lɛ́ nə̀ kà:dɨ́ ɲə̀*

mə̀-a	*H$_1$*	*ŋgə = ɛ*	*nə̀*	*kà:d*	*H$_2$*	*ɲə̀*
1SG = NEG	PH.T	PROG = NEG	PREP	serve	PH.T	3SG

'I am not serving him/her again.'

d. *Mà: ŋgɛ́lílɛ́ nə̀ kà:dɨ́ ɲə̀*

mə̀-a	*H$_1$*	*ŋgə-ɛ́-lílɛ́*	*nə̀*	*kà:d*	*H$_2$*
1SG = NEG	PH.T	PROG = NEG = NEG	PREP	serve	PH.T

ɲə̀
3SG

'I am not serving him/her again.'

Likewise, in habitual constructions (23), the adjunction of the negation marker changes the habitual marker vowel from *ɨ* to *ɛ* (23b–d).

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(vi) Present habitual

(23) a. *Mə́ dɪ́ kà:dɪ́ sə̂*

mə̀	$\overset{\circ}{H}_1$	*dɪ*	*kà:d*	$\overset{\circ}{H}_2$	*sə̂*
1SG	PH.T	HAB	serve	PH.T	1PL

'I am used to serving us.'

b. *Mà: dɛ́ kà:dɪ́ sə̂*

mə = a	$\overset{\circ}{H}_1$	*dɪ-ɛ*	*kà:d*	$\overset{\circ}{H}_2$	*sə̂*
1SG = NEG	PH.T	HAB = NEG	serve	PH.T	3SG

'I am not used to serving us.'

c. *Mà: dɛ̀lɛ́ kà:dɪ́ sə̂*

mə̀ = a	$\overset{\circ}{H}_1$	*dɪ = ɛ = lɛ́*	*kà:d*	$\overset{\circ}{H}_2$	*sə̂*
1SG = NEG	PH.T	HAB = NEG = NEG	serve	PH.T	1PL

'I am not used to serving us.'

d. *Mà: dɛ̀lɪ̀lɛ́ kà:dɪ́ sə̂*

mə̀ = a	$\overset{\circ}{H}_1$	*dɪ = ɛ = lɪ̀lɛ́*	*kà:d*	$\overset{\circ}{H}_2$	*sə̂*
1SG = NEG	PH.T	HAB = NEG = NEG	serve	PH.T	1PL

'I am not used to serving us again.'

4.1.3 Correlation between tense-aspect and negation: Further notes

The preceding sections 4.1.1 and 4.1.2 have just revealed how complex negation in Makaa is. In addition to the aforementioned primary and secondary negators used in marking standard negation, Makaa counts other negated constructions worth describing separately due to their complexity. These constructions are particular in the sense that they make use of the negators discussed previously coupled with grammaticalized items for semantic purposes described in the two following sub-sections 4.1.3.1 & 4.1.3.2.

4.1.3.1 Negation + *ná*

Table 3 presents a summary of possible combinations between standard negation and the grammaticalized adverb *ná* 'again/at first'.

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Table 3. Tabular overview of standard negation (SN) coupled with the grammaticalized marker *ná*

Primary Negator	Primary + Secondary Negator	Tense
a (TM) + ***ʃígɛ́*** + ***ná*** + AM	*a* (TM) + *ʃígɛ́* = ***lɨ́lɛ*** + ***ná*** + AM (i) *a* (TM) + *ʃígɛ́* = ***lɛ*** + ***ná*** + AM (ii)	P3
ʃígɛ́ + ***ná*** + AM	*ʃígɛ́* = ***lɨ́lɛ́*** + ***na*** + AM (i) *ʃígɛ́* = ***lɛ́*** + ***ná*** + AM (ii)	P2
not applicable	not applicable	P1
= *a* + L̥ + AM = ***ɛ́*** + ***ná*** + (*nə*) (i)	= *a* + L̥ + AM = ***lɨ́lɛ́*** + ***ná*** (i) = *a* + L̥ + AM = ***lɛ́*** + ***ná*** (ii)	P0
not applicable with = *ɛ́* = *jɛ́* = *lɨ́lɛ́*	not applicable with = *ɛ́* = *jɛ́* = *lɨ́lɛ́*	
not applicable	not applicable	F1
= *a* + *bə́* = ***lɛ́*** + ***ná*** + AM	= *a* + *bə́* = ***lɨ̀lɛ́*** + ***ná*** + AM	F2
= *a* + *bə́* = ***lɛ̀*** + ***ná*** + *bá* + AM		

In general, the morpheme *ná* is associated with the progressive or habitual aspect marker to indicate persistive aspect (24).

(24) a. *Mwán ŋgə̀ ná də̀*

mu-ân H̥1 *ŋgə̀* *ná* *də̀* H̥2
C1-child PH.T PROG again eat PH.T
'The child is still eating.'

b. *Mwán mə́ dí ná də̀*

mu-ân *mə* H̥1 *di* *ná* *də̀* H̥2
C1-child SM PH.T HAB again eat PH.T
'The child is still used to eating.'

The same marker can be added to any of the negative constructions discussed so far (as illustrated in Table 3) to mean 'do not VERB anymore as announced previously' (25a), with the exception of P1, P0 second negation form and F1 where it is not applicable.

(25) a. *Mà: kɛ́ ná*

mə̀ = *a* H̥1 *kə̀* = *ɛ́* *ná* H̥2
1SG = NEG PH.T go = NEG again PH.T
'I am not going anymore.'

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b. *Mà: kɛ́lílɛ́ ná*

mə̀ = a	*H*$_1$	*kə̀ = lílɛ́*	*ná*	*H*$_2$
1SG = NEG	PH.T	go = NEG	again	PH.T

'I am not going anymore (as promised).'

In (25b), the secondary enclitic *=lílɛ* is associated to the construction for more prominence to convey the meaning 'again/anymore'. Semantically, the difference between (25a) and (25b) lies in the fact that the former implies that 'I went somewhere and now I do not wish to return there anymore' whereas the latter implies that 'I promised I will go somewhere; but I changed my mind and decided not to go any more'.

In past tenses (26), the distinction between (25a) and (25b) is neutralised. A general observation regarding the behavior of *ná* within negated constructions is that it always follows immediately the element to which the second part of the bipartite clitic *=ɛ́*, *=lílɛ́*, or *=lɛ́* attaches to.

(26) a. *Mà: ʃígɛ́lɛ́ ná kə̀*

mə̀ = a	*H*$_1$	*ʃí = gɛ́ = lɛ́*	*ná*	*kə̀*	*H*$_2$
1SG = P3	PH.T	EVID.PAST = NEG = NEG	again	go	PH.T

'I did not go anymore.'

a$_i$. *Mà: ʃígɛ́ ná kə̀*

mə̀ = a	*H*$_1$	*ʃí = gɛ́*	*ná*	*kə̀*	*H*$_2$
1SG = P3	PH.T	EVID.PAST = NEG	again	go	PH.T

'I did not go anymore.'

b. *Mě: kə̀*

mə̀ = e	*H*$_1$	*kə̀*	*H*$_2$
1SG = F1	PH.T	go	PH.T

'I will go.' (Immediate)

b$_i$. *Mà: bálɨ̀lɛ̀ ná kə̀*

mə̀ = a	*e = lɨ̀lɛ̀*	*ná*	*H*$_1$	*kə̀*	*H*$_2$
1SG = NEG	F1 = NEG	again	PH.T	go	PH.T

'I will not go again.'

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c. *Mɛ̌ː bá kə̀*

mə̀ = e	*bá*	*H̥₁*	*kə̀*	*H̥₂*
1SG = F3	F3	PH.T	go	PH.T

'I will go.'

c_i. *Mə̀ː bə́lɨ̀lɛ̀ ná bá kə̀*

mə̀ = a	*e = lɨ̀lɛ̀*	*ná*	*bá*	*H̥₁*	*kə̀*	*H̥₂*
1SG = NEG	F3 = NEG	again	F3	PH.T	go	PH.T

'I will not go again.'

The tense marker *e* in the F1 (26b_i) and F3 (26c_i) negative constructions, as previously observed in 4.1.1.6, mutates into *bá* and its vowel raises to *ə* when the enclitic *=lɨ́lɛ́* attaches to it.

4.1.3.2 Negation + *ɲìŋgə̀/kwə̌lə̀/bwəlɛ*

The verb *ɲìŋgə̀* derives from the infinitive verb *ɲìŋgə̌lə̀*[8] 'to return'. Besides its primary meaning (27a), it can be grammaticalised, used as an auxiliary (coupled with a lexical verb) with the adverbial meaning 'again' (27b).

(27) a. *Má ɲìŋgə̀ ŋgwə́là*

mə̀	*H̥₁*	*ɲìŋgə̀*	*H̥₂*	*ŋgwə́là*
1SG	PH.T	return	PH.T	city

'I return to the city.'

b. *Má ɲìŋgə̀ kə̌ ŋgwə́là*

mə̀	*H̥₁*	*ɲìŋgə̀*	*kə̀*	*H̥₂*	*ŋgwə́là*
1SG	PH.T	return	go	PH.T	city

'I return to the city again.'

When associated to the primary negator *=a … =ɛ*, *ɲìŋgə̀* renders the meaning 'not VERB again' (28a). Furthermore, the secondary negator *=lɨ̀lɛ* ~ *=lɛ* can be added to the construction to mark prominence (28b).

(28) a. *Mə̀ː ɲíŋgɛ́ də̀*

mə̀ = a	*H̥₁*	*ɲìŋgə̀ = ɛ́*	*də̀*	*H̥₂*
1SG = NEG	PH.T	AUX = NEG	eat	PH.T

'I am not eating again/anymore.'

8 Recall that the infinitive marker H̥-*lə̀* is left out when the verb is tensed.

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b. *Mə̀: ɲíŋgɛ́ = lɨ́lɛ́ ~ = lɛ́ də̀*

mə̀ = a	*H*$_1$	*ɲìŋgə̀ = lɨlɛ ~ = lɛ*	*də̀*	*H*$_2$
1SG = NEG	PH.T	AUX = NEG	eat	PH.T

'I am not eating again/anymore.'

The dummy verb *kwə̌lə̀* 'to redo' can substitute the verb *ɲìŋgə̀* in (28) to render the same meaning as illustrated in (29b). Both forms, *ɲìŋgə̀* and *kwə̌lə̀,* are used interchangeably (28)–(29) or combined within the same sentence for the same meaning with a bit more emphasis (see 30).

(29) a. *Mə̀: kwə́lɛ́ də̀*

mə̀ = a	*H*$_1$	*kwə̌lə̀ = ɛ́*	*də̀*	*H*$_2$
1SG = NEG	PH.T	AUX = NEG	eat	PH.T

'I am not eating again/anymore.'

b. *Mə̀: kwə́ = lɨ́lɛ́ ~ = lɛ́ də̀*

mə̀ = a	*H*$_1$	*kwə̌lə̀ = lɨlɛ ~ = lɛ*	*də̀*	*H*$_2$
1SG = NEG	PH.T	AUX = NEG	eat	PH.T

'I am not eating again/anymore.'

(30) a. *Mə̀: kwə́lɛ́ ɲìŋgə́ də̀*

mə̀ = a	*H*$_1$	*kwə̌lə̀ = ɛ́*	*ɲìŋgə̀*	*də̀*	*H*$_2$
1SG = NEG	PH.T	AUX = NEG	AUX	eat	PH.T

'I am not eating again/anymore.'

a$_i$. *Mə̀: kwə́ = lɨ́lɛ́ ~ = lɛ́ɲìŋgə́ də̀*

mə̀ = a	*H*$_1$	*kwə̌lə̀ = lɨ́lɛ́ ~ = lɛ́*	*də̀*	*H*$_2$
1SG = NEG	PH.T	AUX = NEG	eat	PH.T

'I am not eating again/anymore.'

b. *Mə̀: ɲíŋgɛ́ kwə́ də̀*

mə̀ = a	*H*$_1$	*ɲìŋgə̀ = ɛ́*	*kwə̀*	*də̀*	*H*$_2$
1SG = NEG	PH.T	AUX = NEG	AUX	eat	PH.T

'I am not eating anymore.'

b$_i$. *Mə̀: ɲíŋgɛ́ = lɨlɛ ~ = lɛ kwə́ də̀*

mə̀ = a	*H*$_1$	*ɲìŋgə̀ = lɨlɛ ~ = lɛ*	*kwə̀*	*də̀*	*H*$_2$
1SG = NEG	PH.T	AUX = NEG	AUX	eat	PH.T

'I am not eating anymore.'

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The negator *bwəlɛ* results from the grammaticalization of the auxiliary verb *bwəlɛ̌lə* 'to accomplish or undergo an action prior to another one' (31a). It is used in negated constructions to mean 'never VERB' (31b–c). *Bwəlɛ̀* is compatible with the primary bipartite enclitics *=a … =ɛ*. (31a$_i$), and incompatible with the secondary enclitics *=lílɛ* or *=lɛ* probably because it ends in *lɛ*.

(31) a. *Nǎ: bwəlɛ̀ jə̀ mə̀ ntədíʃínɨ̀g*

ɲə̀=a	*H*	*bwəlɛ̀*	*jə̀*	*H*	*mə̀*	*ntədíʃínɨ̀g*
3SG=P3	PH.T	AUX	give	PH.T	1SG	100.francs

'He gave me a hundred francs first.'

a$_i$. *Nà: bwə́lɛ́ jə̀ mə̀ ntədíʃínɨ̀g*

ɲə̀=a	*H*	*bwəlɛ̀=ɛ*	*jə̀*	*H*	*mə̀*
3SG=NEG	PH.T	AUX=NEG	give	PH.T	1SG

ntədíʃínɨ̀g
100.francs
'He has never given me a hundred francs.'

b. *Nà: ʃígɛ́ bwəlɛ́ zə̀ mádí*

ɲə̀=a	*H*	*ʃí=gɛ́*	*bwəlɛ̀*	*zə̀*	*H*
3SG=P3	PH.T	EVID.PAST=NEG	AUX	come	PH.T

mə̀-dí
1SG-LOC
'He never came to my place.'

c. *Nà: ꜜbɛ́lɛ́ bwəlɛ́ zə̀ mádí*

ɲə̀=a	*H*	*bə́=ɛ*	*bwəlɛ̀*	*zə̀*	*H*	*mə̀-dí*
3SG=NEG	PH.T	F2=NEG	AUX	come	PH.T	1SG-LOC

'He will never come to my place.'

4.2 Non-standard negation

Non-standard negation refers to any construction using a negation strategy different from the one used to negate basic verbal clauses. Eight non-standard negation constructions are identified in Makaa: (i) negative colloquial expression, (ii) negation of imperative and subjunctive constructions, (iii) negation of constructions with existential verbs, (iv) negation of infinitives, (v) negation of hypothetical

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constructions, (vi) negative polarity items, (vii) assertive contrastive negation, and (viii) negation of cleft items.

4.2.1 Negative colloquial expressions: the case of SM a + mú

Makaa counts some idiomatic expressions (which are not all relevant for this study) used to express denial or refusal. The construction in (32) is particular in that the first part of the bipartite clitic *=a* is associated to an inherently negative copula within a colloquial expression to express denial. The enclitic *=ɛ* is absent in the construction. The negative copula *mú* embodies both the present tense and negation features.

(32) a. *Mà: mú*

mə̀=a *mú*
1SG=NEG COP.NEG
'I do not agree'

b. *Sá: mú*

sə̂=a *mú*
1PL=NEG COP.NEG
'We do not agree'

c. *Bwá: mú*

bwə̀=a *mú*
3PL=NEG COP.NEG
'They do not agree'

4.2.2 Negation in imperative/subjunctive

Negation in both the imperative (33a_i) and the subjunctive (33b_i, c_i) is marked by the negator *kú*. *Kú* encodes simultaneaoulsy imperative/subjunctive and negation features. In the plural form (33c_i), the morphemes *-g-ə̂,* expressing the imperative mood and plurality respectively, are suffixed to it. In the singular form (33a_i, b_i), it occurs without the *-g* as shown in 2.3.2, certainly because both morphemes mark imperative/subjunctive.

(33) a. *kà:díg ídə̂w!*

kà:d-g *H₂* *ì-də̂w*
serve-IMP PH.T C8-food
'Serve food!'

a_i. *Kú kà:d ídə̂w!*

kú *kà:d* *H₂* *ì-də̂w*
NEG.IMP serve PH.T C8-food
'Do not serve food!'

b. *Wə̀, kà:díg ídə̂w!*

wə̀ *kà:d-g* *H₂* *ì-də̂w*
2SG serve-SBJV PH.T C8-food
'You, serve food!'

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b$_i$. *Wə̀, kú kà:d ídî̂w!*

wə̀	*kú*	*kà:d*	*H$_2$*	*ì-dî̂w*
2SG	NEG.SBJV	serve	PH.T	C8-food

'You, do not serve food!'

c. *Í kà:dɨ̀gâ ìdî̂w!*

î	*kà:d-g-â*	*H$_2$*	*ì-dî̂w*
1PL	serve-SBJV-PL	PH.T	C8-food

'Let us serve food!'

c$_i$. *Í kúgá kà:d ídî̂w!*

î	*kú-g-â*	*kà:d*	*H$_2$*	*ì-dî̂w*
1PL	NEG.SBJV-SBJV-PL	serve	PH.T	C8-food

'Let us not serve food!'

The enclitic *=lɛ́* can be attached to the negator *kú* in the singular form (34a) or to *kúgâ* in the plural form to express the meaning 'not again'. Inb the plural form, *=lɛ́* occurs between *kú* and *=gâ* (34a).

(34) a. *Í kúlɛ́gá*[9] *kà:d!*

Í	*kú=lɛ́-g-â*	*kà:d*	*H$_2$*
1PL	NEG.SBJV=NEG-SBJV-PL	serve	PH.T

'Let us not serve again!'

b. *Kúlɛ́ kà:d!*

Kú=lɛ́	*kà:d*	*H$_2$*
NEG.IMP=NEG	serve	PH.T

'Do not serve again!'

4.2.3 Negation of constructions with an existential verb

Generally, existential constructions in the present tense are expressed by the copulae *dʒìsə̀* 'to be' (35a) or *músə̀* 'to become' or 'to be … now' (35b), and their negated counterparts comprise the negator *tʃúgɛ́*. In sentences containing the verb *dʒìsə̀ nə̀ʃ*[10] 'to be with' (35c), the negator is followed by the preposition *nə̀* resulting in *tʃúgɛ́ nə̀* 'be without … '.

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9 Some speakers also use *kúgálɛ́* with the negator *=lɛ́* suffixed after the plural marker rather than infixed. This form is considered odd by many Makaa native speakers but acceptable.

10 Literally, the verb meaning 'to have' is translated as 'to be with something'.

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(35) a. *Mə́ dʒìsə́ ɲdʒə́w*

mə́	*H*$_1$	*dʒìsə́*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP	PH.T	home

'I am at home.'

a$_i$. *Mə́ tʃúgɛ́ ɲdʒə́w*

mə́	*H*$_1$	*tʃúgɛ́*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP.NEG	PH.T	home

'I am not at home.'

b. *Mə́ músə́ ɲdʒə́w*

mə́	*H*$_1$	*músə́*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP	PH.T	home

'I am at home now.'

b$_i$. *Mə́ tʃúgɛ́ ɲdʒə́w*

mə́	*H*$_1$	*tʃúgɛ́*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP.NEG	PH.T	home

'I am not at home.'

c. *Mə́ dʒìsə́ nə́ ɲdʒə́w*

mə́	*H*$_1$	*dʒìsə́*	*nə́*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP	with	PH.T	home

'I have a home.'

c$_i$. *Mə́ tʃúgɛ́ nə́ ɲdʒə́w*

mə́	*H*$_1$	*tʃúgɛ́*	*nə́*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP.NEG	with	PH.T	home

'I do not have a home.'

d. *Mə́ ŋkùl zə́*

mə́	*H*$_1$	*ŋkùl*	*H*$_2$	*zə́*
1SG	PH.T	can	PH.T	come

'I can come.'

d$_i$. *Mə́ tʃúgɛ́ nə́ ŋkùl zə́*

mə́	*H*$_1$	*tʃúgɛ́*	*H*$_2$	*nə́*	*ŋkùl*	*zə́*
1SG	PH.T	COP.NEG	PH.T	with	power	come

'I can not come.'

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For constructions containing a modal verb (35d), the negator still is *ʧúgɛ́ nə̀* + modal verb 'be without MODAL VERB'. Modal verbs lose their finiteness in negative constructions in Makaa, become nominalized and function like a complement of the negative copula. The negator *ʧúgɛ́* seems to be formed as *ʃígɛ́*, i.e. *ʧú* + *gɛ́* with the exception that *ʧú* has been completely grammaticalized and corresponds no longer to any existing word or stem. Existential constructions in past tenses and future tenses behave similarly to standard negation contructions (cf. 4.1.1.1, 4.1.1.4–6).

Similarly, as previously described in 4.1, the enclitic *=lɛ ~ =lílɛ* can be suffixed to the negator *ʧúgɛ́* to express the meaning 'not … again/anymore', 'not have … again/anymore' 'cannot … again/anymore' depending on the inherent meaning of the verb (36b).

(36) a. *Mə̀ ʤìsə̀ ɲdʒə́w*

mə̀	*H*$_1$	*ʤìsə̀*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP	PH.T	home

'I am at home.'

b. *Mə̀ ʧúgílílɛ́ ~ lɛ́ ɲdʒə́w*

mə̀	*H*$_1$	*ʧúgɛ́ = lílɛ́ ~ = lɛ́*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP.NEG = NEG	PH.T	home

'I am not at home again/anymore.'

Makaa native speakers also use the negators *ʧígɛ́* and *ʧígílɛ́ ~ ʧígílílɛ́,* as respective variants of *ʧúgɛ́*, *ʧúgɛ́lɛ́* and *ʧúgɛ́lílɛ́*. The variants show signs of segmental mutations. The initial consonant undergoes fortition; the vowel [*u*] is centralized and loses the labiality feature (37a$_i$, b$_i$).

(37) a. *Mə̀ ʤìsə̀ ɲdʒə́w*

mə̀	*H*$_1$	*ʤìsə̀*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP	PH.T	home

'I am at home.'

a$_i$. *Mə̀ ʧígɛ ɲdʒə́w*

mə̀	*H*$_1$	*ʧígɛ́*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP.NEG	PH.T	home

'I am not at home anymore.'

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b. *Mə̀ ʤìsə̀ nə ɲdʒə́w*

mə̀	*H*$_1$	*ʤìsə̀*	*nə̀*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP	with	PH.T	home

'I have a home.'

b$_i$. *Mə̀ tɨ́gɨ́lɨ́lɛ́ ~ lɛ́ nə̀ ɲdʒə́w*

mə̀	*H*$_1$	*tɨ́gɛ́ = lɨ́lɛ́ ~ = lɛ́*	*nə̀*	*H*$_2$	*ɲdʒə́w*
1SG	PH.T	COP.NEG = NEG	with	PH.T	home

'I do not have a home anymore.'

4.2.4 Negation of infinitives

Infinitives are used to express gnomic events (cf. Table 1). The negator *kú* supported by the habitual marker *dɨ́* is used to negate infinitives. These markers can occur at the beginning of the negated construction (38a$_i$) or at the beginning of a completive clause (38b$_i$). There are two possibilties to negate an independent or an embedded infinitival clause in Makaa, depending on the speaker's intention. (i) Either the initial-infinitive verb (38a$_i$) is negated alone, (39a$_i$), or (ii) the initial-infinitive verb and the clause main verb are both negated, such as in (38b)–(39b).

(38) a. *kə̌lə̀ fàmbə́ ʤísə̀ báwɨ́lə̀*

kə̀-H̰lə̀	*fàmbə́*	*ʤísə̀*	*bâw-H̰lə̀*
go-INF	field	COP	bad-INF

'Going to the field is bad.'

a$_i$. *Kú dɨ́ kə̀ fàmbə́ ʤísə̀ báwɨ́lə̀*

Kú	*dɨ́*	*kə̀*	*fàmbə́*	*ʤísə̀*	*bâw-H̰lə̀*
NEG	HAB	go	field	COP	bad-INF

'Not going to the field regularly is bad.'

b. *Kú dɨ́ kə̀ fàmbə́ ɨ́ ʧúgɛ́ báwɨ́lə̀*

Kú	*dɨ́*	*kə̀*	*fàmbə́*	*ɨ́*	*ʧúgɛ́*	*bâw-H̰lə̀*
NEG	HAB	go	field	SM.3SG	COP.NEG	bad-INF

'Not to go to the field regularly is bad.'

(39) a. *À mpú ná* [*lújɨ́lə̀ ʤísə̀ sə̂m*]

À	*mpù*	*ná*	*lûj-H̰lə̀*	*ʤísə̀*	*sə̂m*
3SG	know	that	insult-INF	COP	sin

'He knows that insulting is a sin.'

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a$_{i.}$ *À mpú ná* [[*kú dɨ́*] *lûj dʒísə̀ sə́m*]

à	*mpù*	*ná*	*kú*	*dɨ́*	*lûj*	*dʒísə̀*	*sə̂m*
3SG	know	that	NEG	HAB	insult	COP	sin

'He/she knows that not insulting usually is a sin.'

b. *À mpú ná* [[*kú dɨ́*] *lûjí tʃúgɛ́ sə́m*]

à	*mpù*	*ná*	*kú*	*dɨ́*	*lûj*	*tʃúgɛ́*	*sə̂m*
3SG	know	that	NEG	HAB	insult	COP.NEG	sin

'He/she knows that not insulting usually is not a sin.'

4.2.5 Negation in hypothetical constructions

Negation in hypothetical constructions is marked by *bə́ ndá … kú* in the protasis preceded by the conditional marker *kí* or *ká* used interchangeably (40b)–(41b). *Bə́ ndá* derives from the verb *bə̌lə̀ ndà nə̀* 'be without'.

(40) a. *Mə́ kí/ká bə̀ nə̀ mwànɛ̂, mə̀ kùsə̀ mə́twâ*

mə̀	*H*$_1$	*kí/ká*	*bə̀*	*nə̀*	*mwànɛ̂*	*mə̀*	*kùsə̀*
1SG	PH.T	HYP	be	with	money	1SG	buy

H$_2$	*mə̀-twâ*
PH.T	C6-car

'If I have money, I will buy a car.'

b. *Mə́ kí/ká bə́ ndá bə̀ nə̀ mwànɛ̂, mə̀ kú kùsə̀ mə́twâ*

mə̀	*H*$_1$	*kí/ká*	*bə̀*	*ndà*	*bə̀*	*nə̀*	*mwànɛ̂*
1SG	PH.T	HYP	be	without	be	with	money

mə̀	*kú*	*kùsə̀*	*H*$_2$	*mə̀-twâ*
1SG	NEG.FUT	buy	PH.T	C6-car

'If I don't have money, I will not buy a car.'

(41) a. *Á kí/ká zə̀, mə̀ kùsə̌ ɲə̀ mə́twâ*

a	*H*$_1$	*kí/ka*	*zə̀*	*mə̀*	*kùsə̀*	*H*$_2$	*ɲə̀*
3SG	PH.T	HYP	come	1SG	buy	PH.T	3SG.OM

mə̀-twâ
C6-car

'If he comes, I will buy him/her a car.'

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b. *Á kí/ká bə́ ndá zə̀, mə̀ kú kùsə̀ ɲə̀ mə́twâ*

a	*H*$_1$	*kí/ká*	*bə̀*	*ndà*	*zə̀*
3SG	PH.T	HYP	be	NEG	come

mə̀	*kú*	*kùsə̀*	*H*$_2$	*ɲə̀*	*mə̀-twâ*
1SG	NEG.FUT	buy	PH.T	3SG.OM	C6-car

'If he doesn't come, I will not buy him/her a car.'

Ndà occurs in protasis without a conditional marker, e.g., in Makaa sentences expressing a warning (the consequence being implicit) (42a). It also occurs in hypothetical constructions lacking an overt conditional marker (mostly proverbs) (42b).

(42) a. *Wə̀ ndà zə̌ wà!*

Wə̀	*ndà*	*zə̀*	*wà*
2SG	NEG	come	here

'(You) don't dare come here (or else you will regret)!'

b. *Mpá:mbá: bjɛ́lɛ́, ntà ndà bjɛ̂l*

mpá:mbá = a	*bjɛ̂l = ɛ*	*ntà*	*ndà*	*bjɛ̂l*
grandparent = NEG	born = NEG	grandson	NEG	born

'If the grand parent was not born, the grand son would not have been born.'

The negator *mbə́gɛ́* is used in the protasis of certain hypothetical constructions in Makaa as shown in (43). To my knowledge, *mbə́gɛ́* probably derives from the addition of the second part of the bipartite negator *= ɛ* to the conditional marker *mbə̂m*.

(43) *Wə̀ mbə́gɛ́ zə̀ mú:s, wə̀ mbə̂m mpù mə̀*

wə̀	*mbə́gɛ́*	*zə̀*	*mú:s,*	*wə̀*	*mbə̂m*	*mpù*	*mə̀*
2SG	HYP-NEG	come	today	2SG	HYP.FUT	know	1SG

'If you did not come today, you would have seen what I am made of.'

4.2.6 Negative polarity items

A polarity item (e.g.: nothing, no one, nobobody) is a lexical item that occurs only in environments associated with either affirmative or negative polarities. A polarity item occurring in an affirmative (positive) context is called a positive polarity item (PPI), e.g.: 'Nothing will happen to you'; and one that appears in a negative context is a negative polarity item (NPI), e.g.: 'Nobody won't bother

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you'. Makaa uses negative polarity items (Henceforth NPIs) also to express negation. NPIs have the structure *tò* + noun and they can only occur in negated constructions. Example (44) is another typical case of double negation in Makaa. Examples (44a$_i$)–(44b$_i$) are ungrammatical because polarity items in Makaa are licensed to occur in a negative context.

(44) a. *Tò sá já sájɛ̌ wò*

tò	*sâ*	*í=á*	*H$_1$*	*sâ-ɛ*	*H$_2$*	*wò*
NEG	thing	SM=NEG	PH.T	do=NEG	PH.T	2SG

'Nothing will happen to you.'

a$_i$. **Tò sá jé sá wò*

tò	*sá*	*í=e*	*H$_1$*	*sâ*	*H$_2$*	*wò*
NEG	thing	SM=F1	PH.T	do	PH.T	2SG

'Nothing will happen to you.'

b. *Mə̀ ʃígɛ́ dɨ́gɨ́ tò mù:d*

mə̀	*ʃí=gɛ́*	*H$_1$*	*dɨ́g*	*H$_2$*	*tò*	*mù:d*
1SG	EVID.PAST=NEG	PH.T	see	PH.T	NEG	person

'I did not see anyone/anybody.'

b$_i$. **Mə̀ ʃí dɨ́gɨ́ tò mù:d*

mə̀	*ʃí*	*H$_1$*	*dɨ́g*	*H$_2$*	*tò*	*mù:d*
1SG	EVID.PAST	PH.T	see	PH.T	NEG	person

'I did see nobody.'

4.2.7 Contrastive negation: kú bə̀

This refers to constructions in which only a part of the utterance is negated in order to mark contrastive focus. The negator *kú* coupled with the copula *bə̀* 'to be' are used to achieve the aforementioned purpose. They introduce the co-ordinate clause on which the emphasis lies.

(45) a. *Mə̀ ŋgə̀ kə̀ fàmbá kú bə̀ ŋgwə́là*

mə̀	*ŋgə̀*	*kə̀*	*fàmbá*	*kú*	*bə̀*	*ŋgwə́là*
1SG	PROG	go	field	NEG	COP	town

'I am going to the farm and not to the town.'

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b. *Ɲămə̀ jə̀ mə̀ tʃúdú kú bə̀ ntɔ̃̀ː*

ɲə̀=ámə̀	*jə̀*	*mə̀*	*tʃúdú*	*kú*	*bə̀*	*ntɔ̃̀ː*
3SG=P2	give	1SG.OM	meat	NEG	COP	rat.mole

'He gave me meat and not rat mole.'

4.2.8 Negated emphatic (cleft) NPs: dí

Generally, emphatic noun phrases are preposed and separated from the rest of the sentence by the focus marker *ó*. Constructions within which the emphatic NPs occur are equivalent to the English cleft construction. In negated cleft constructions in Makaa, the affirmative focus marker *ó* is replaced by the negation focus marker *dí* whose vowel undergoes an assimilatory process in order to harmonize with surrounding vowels as in (46c$_i$–d$_i$). Note that in (46) the focused NPs are structurally different. In (46a–b), the NP holds in single nouns whereas in (46c–d) the NPs comprise a head-noun followed by a relative clause. The structural difference therefore gives the impression that the focus marker changes its position in (46c–d) though it does not. Note that in Makaa, cleft and relative constructions are almost similar at the exception that clefts comprise a focus marker. *Dí* might originate from the grammaticalization of the locative prounoun *-dí* referring to one's place such as in *mádí* 'in/to my place'.

(46) a. *Mwán ó ɲămə̀ də̀ fjâ*

mu-ân	*ó*	*ɲə̀=ámə̀*	*də̀*	*fjâ*
C1-child	FOC	SM=P2	eat	avocado

'It is the child who ate avocado.'

a$_i$. *Mwán dí ɲămə̀ də̀ fjâ*

mu-ân	*dí*	*ɲə̀=ámə*	*də̀*	*fjâ*
C1-child	NEG.FOC	SM=P2	eat	avocado

'It is not the child who ate avocado.'

b. *Bwán ó bwămə̀ də̀ fjâ*

bu-ân	*ó*	*bwə̀=ámə̀*	*də̀*	*fjâ*
C2-child	FOC	SM=P2	eat	avocado

'It is the children who ate avocado.'

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b$_i$. *Bwán dí bwămà dà fjâ*

bu-ân	*dí*	*bw = ámà*	*dà*	*fjâ*
C2-child	NEG.FOC	SM = P2	eat	avocado

'It is not the children who ate avocado.'

c. *Mù:d ɲá: bjá mŏ nɛ̀*

mù-ùd	*ɲà = a*	*H$_1$*	*bjâ*	*mà-ó*	*nɛ̀*
C1-person	SM = P3	PH.T	father	1SG-FOC	DEM.SG

'That is the person who fathered me.'

c$_i$. *Mù:d ɲá: bjâ mà dɛ́ nɛ̀*

mù-ùd	*ɲà = a*	*H$_1$*	*bjâ*	*mà*	*dí*	*nɛ̀*
C1-person	SM = P3	PH.T	father	1SG	NEG.FOC	DEM.SG

'That is not the person who fathered me.'

d. *Bù:d bwá: bjá mŏ gà*

bù-ùd	*bwà = a*	*H$_1$*	*bjâ*	*H$_2$*	*mà-ó*	*gà*
C2-person	SM = P3	PH.T	father	PH.T	1SG-FOC	DEM.PL

'These are people who fathered me.'

d$_i$. *Bù:d bwá: bjâ mà dó: gà*

bù-ùd	*bwà = á*	*bjâ*	*mà*	*H$_2$*	*dí-ó*
C2-person	SM = P3	father	1SG	PH.T	NEG.FOC-C2.SM

gà
DEM.PL
'These are not people who fathered me.'

5 Summary

This paper set out to provide a thorough description of negation patterns in Makaa with an emphasis on negator types and their distribution, the correlation between TAM and negation, and the semantics of negated constructions. From the discussion, one retains that Makaa counts several distinct negation constructions depending on the tense, mood, the finiteness of the sentence, or the scope of negation.

Regarding the interrogation on the slot(s) occupied by NEG(s) (see 3.2), it is shown that standard negation in Makaa targets any element

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occupying the second position of the inflectional phrase. Negation is marked by the primary bipartite clitic *=a … =(C)ɛ(=jɛ)* in P0, P1, F1, F2 and F3 and by *ʃígɛ́* in P2 and P3 to express the meaning 'not verb'. More so, a secondary enclitic *=lɨlɛ ~ =lɛlɛ* (F1) *~ =lɛ* can be added to the primary clitic to express the meaning 'not verb again or anymore'. With regard to the foregoing discussion, the negated counterpart of the structure in (4) can be written as in the scheme in (47). In the structure in (47), NEG_1 stands for the proclitic *=a*, NEG_2 for the enclitic *=ɛ*, NEG_3 for the additional enclitic *=jɛ* taken by certain verbal forms in P0 and F1. NEG_4 stands for the enclitic *=lɨlɛ ~ =lɛlɛ* (F1) *~ =lɛ*. X stands for any element ranked first in the extended verb base. X can be an aspectual marker, F2 or F3 tense markers, and auxiliary or a verb. Note that for F3, the first tense marker particle (*e* which becomes *bə* in negative constructions) will occupy the X-slot immediately after NEG_1 and the second tense particle (*bá*) will occur after NEG_1, NEG_2, NEG_3 or NEG_4 depending on the construction. However, within simple P0 and F1 negative counterpart constructions, i.e. P0 and F1 constructions without an aspectual marker, the verb base ([[ROOT]^n-EXT-FV]) occupies the X-slot.

(47) $\text{SM} \begin{Bmatrix} P_3 \\ NEG_1 \end{Bmatrix} H_1 \, X = NEG_2\text{-}(NEG_3)\text{-}(NEG_4)\boldsymbol{bá}(OM)[[ROOT]^n\text{-EXT-FV}](OM)H_2$

Concerning the interaction between TAM and negation, it is observed that negators are compatible with aspect markers and with almost all tense except from P1 (*ámə̀*) and F1 (*é*) markers which are banned in negative constructions. The fact that the P3 marker *a* occurs in a position further front to the slot occupied by the past tense negator *ʃígɛ́* and that the F2, and F3 markers rather occur preceded by the proclitic *=a* suggests that the P3 marker certainly occupies a slot preceding that occupied by F2 and F3. In addition, the position occupied by F2 and F3 certainly precedes that occupied by F1.

Concerning the origin of negators in Makaa, some of them might derive from grammaticalized verbs, e.g.: *ʃígɛ́* (the past tense negator) might come from the verb *ʃîn* 'finish', *bə̀ ndà nə̀* (used in hypothetical constructions) from the verb *bə̌lə̀ ndà nə̀* 'be without'. Forms like *mbágɛ́* or *ndà* (used in hypothetical constructions), *tò* (used for NPIs), and *=lɨlɛ ~ =lɛlɛ* (F1) *~ =lɛ* (used in sentential constructions) are probably old negation particles. Particles of the bipartite negator

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=*a* … =(C)*ɛ* might derive from the 3rd person singular and 3rd person singular possessive adjectives or the 3rd person singular object marker respectively. *Dí* (used in negating clefted NPs) could derive from the locative pronoun *-dí*. However, there is no diachronic evidence or comparative data from neighboring languages to sustain these predictions, they remain hypothetical.

Some negative constructions couple auxiliaries such as *ɲìŋgə̀*, *bwə̀lɛ̀* with the primary bipartite negator for prominence. Finally, Makaa associates the marker *kú* (used for negating imperatives) with other particles to form different negation markers, namely, *kú bə̀* (used in assertive constrative negation), *kú dí* (used in infinitives), and *bə̀ ndà … kú* (used in hypothetical constructions).

Abbreviations

1.PL	first person plural	IMP	imperative mood
1.SG	first person singular	INF	infinitive marker
1PL.INCL	first person plural inclusive	L	low tone
2.PL	second person plural	L̰	floating low tone
2.SG	second person singular	LOC	locative
3.PL	third person plural	MACH	macrostem high
3.SG	third person singular	NEG	negator
AUX	auxiliary	OCD	object concord marker
CAUS	causative	OM	object marker
COP	copula	P1	immediate past
C	noun class	P2	recent past
DEM	demonstrative	P3	remote past
DPRON	dummy pronoun	PH.T	phrasal tone
EVID	evidentiality	POSS	possessive
EXT	verbal extension	PL	plural
F1	immediate future	PROG	progressive aspect marker
F2	recent future	SBJV	subjunctive mood
F3	remote future	SCD	subject concord marker
FV	final vowel	SG	singular
FOC	focus marker	SM	subject marker

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H	high tone	T̥	floating tone
H̥$_1$	phrasal floating high tone 1	TAM	tense-aspect-mood
H̥$_2$	phrasal floating high tone 2	TBU	tone bearing unit
HAB	habitual aspect marker	TM	tense marker
HYP	hypothetical	VB	verbal base

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How to quote Ethiopian authors in linguistic publications

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Abstract
As the patronymic Ethiopian names do not match the widespread GIVEN NAME – FAMILY NAME pattern of the Western world, the names of Ethiopian authors are often quoted inconsistently and inappropriately by scholars in the field of linguistic typology and historical-comparative linguistics. After a brief introduction into the Ethiopian naming conventions and a summary of recurrent issues in quoting Ethiopian authors in scientific publications, we propose a number of general citation rules that would help overcome these issues and do justice to the Ethiopian naming conventions. The rules are offered as an addendum to the *Generic Style Rules for Linguistics*. Finally, the article demonstrates how reference management software can be manipulated so that it correctly applies the Ethiopian naming conventions.

Keywords: Ethiopian names, patronym, quotation, reference management software

1 Introduction

Thanks to the steadily increasing number of Ethiopian scholars engaged in linguistics and, consequently, thanks to the growing international visibility of their publications, more and more Ethiopian authors are quoted in typological and historical-comparative works. However, as the Ethiopian naming system does not match that of the widespread GIVEN NAME – FAMILY NAME pattern in the Western world (Sect. 2), the citation conventions applied when quoting Ethiopian authors are highly inconsistent and often inappropriate due to the patronymic structure of Ethiopian names.

In this paper, we first introduce the Ethiopian naming conventions (Sect. 2) and highlight some of the recurrent issues (Sect. 3) arising

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when authors quote Ethiopian colleagues in their works and when scientific and commercial editors of books and journals proofread these manuscripts. In the core of this paper (Sect. 4), we propose general rules on how to quote Ethiopian authors appropriately. In the section on practical solutions (Sect. 5), we show how reference management software can be "tricked" into applying Ethiopian naming conventions correctly. The paper is concluded in Sect. 6.[1]

We offer this text as an addendum to the *Generic Style Rules for Linguistics* (Haspelmath 2014). We want to stress that it is not targeted at an audience of Ethiopianists (i.e. scholars engaged mainly in the study of Ethiopian culture, history, and languages), but we address an audience of scholars in the field of linguistic typology and historical-comparative linguistics.

2 Ethiopian naming system

In the Ethiopian patronymic naming system (see Kaplan & Smidt 2007: 1126–1127),[2] the concept of a FAMILY NAME is unknown. A person is identified by their GIVEN NAME, which is followed by their FATHER'S NAME (patronym) and, especially in administrative contexts (e.g. at the immigration office, town hall, university), by their paternal GRANDFATHER'S NAME (avonym), e.g.

a. Tsehay Berhanu Abebe (*Tsehay* = female given name, *Berhanu* = her father's name, *Abebe* = her father's father's name)
b. Mohamed Ahmed Nasir (*Mohamed* = male given name, *Ahmed* = his father's name, *Nasir* = his father's father's name)

The father's or grandfather's names are not family names but simply given names of the respective individuals. Hence members of the same family do not share a family name. If Mohamed Ahmed Nasir

1 We would like to thank Hongwei Zhang, Wolbert Smidt and all other participants in the discussion of an earlier version of this paper on the academia.edu platform. Their insightful comments were very helpful to us.

2 By "Ethiopian" naming system, we mean the naming system as reflected in official documents of the modern Ethiopian state as well as the naming practice currently followed by most Ethiopians irrespective of their linguistic, ethnic and religious background. Readers should note that certain of the more than eighty ethnic groups in Ethiopia may traditionally follow (or have followed) a different naming system.

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in (b) had a daughter Sitti, she would be called Sitti Mohamed (= her father) Ahmed (= her grandfather). Names do not change through marriage.

In Ethiopia, people are exclusively addressed by their GIVEN NAME, with which forms of address such as 'Mr'/'Ms' (e.g. in Amharic the corresponding terms would be *ato* 'Mr', *wäyzäro* 'Mrs', *wäyzärit* 'Miss', in Oromo *obboo* 'Mr' and *aaddee* 'Ms') or academic and other titles can be combined. In a formal context, the two persons in (a–b) could be addressed as Ms Tsehay or Prof. Tsehay (and **not** Ms/Prof. Abebe), and as Mr Mohamed or Dr Mohamed (and **not** Mr/Dr Nasir).

The patronymic naming system is not particular to Ethiopia or the other countries at the Horn of Africa (i.e. Eritrea, Djibouti and Somalia) but is also found elsewhere in the world where the (grand) father's name or a name derived from it is used as a component of a child's full name and where family names are either unknown or uncommon, see e.g. Iceland (Garðarsdóttir 1999) and parts of India and Sri Lanka (e.g. the Tamil naming system; see Nalini et al. 2008). For further information, see *A guide to names and naming practices* (2006).

3 Problem

Following the naming conventions in Sect. 2, in publications written in Ethiopian languages, Ethiopian authors are exclusively cited by their GIVEN NAME followed by their FATHER'S (and optionally GRANDFATHER'S) NAME. See, for instance, Baye's (2000 EC: 459) Amharic grammar, Berhanu's (1999 EC: 417–418) study of Amharic poems, or Laphiso's (1983 EC: 325–332) work on the Ethiopian feudal system.[3] A number of scientific journals published in Ethiopia request explicitly that Ethiopian authors are quoted according to the conventions explained in Sect. 2, see e.g. the submission guidelines of the *Ethiopian Renaissance Journal of Social Sciences and the Humanities* (2019) and *Ethiopian Journal of Sciences and Sustainable Development* (2019).

In the domain of Ethiopian Studies, Ethiopianists also use the GIVEN NAME + FATHER'S NAME citation style in their publications in

3 University students in Ethiopia often over-apply the Ethiopian naming conventions and quote Western authors by their given name rather than their family name, e.g. "as stated in Ronny (YEAR) …" for "as stated in Meyer (YEAR) …".

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English or other European languages, e.g. Rubenson (1978: 421–427), Pankhurst (1990: 335–351), and Bahru (1992: 79–80, 148–149, 176–177, 226–227) on Ethiopian history, Ullendorff (1978: 138–141) and Leslau (1995: xxviii–xlv) on Amharic, and Griefenow-Mewis (2001: 10) on Oromo. The same established practice is followed in the *Encyclopaedia Aethiopica* (Uhlig & Bausi 2003–2014) and the journal *Aethiopica*.

However, any linguist who addresses a general linguistic audience and quotes Ethiopian authors in accordance with the Ethiopian naming conventions regularly has their reference list and in-text citations "improved for the worse" (here we lack a good translation of the useful German word *verschlimmbessern*). Outside Ethiopia, scientific and commercial editors of journals and books tend to turn father's and grandfather's names into family names and order them accordingly in the reference list. Alternatively, authors' given names are turned into family names and their fathers' and grandfathers' names into given names. In in-text citations, authors are variably quoted by their given name, their father's or grandfather's name or by a two-name or three-name sequence. If the style manual of a publication requires author's initials only, one can find Ethiopian authors cited by their father's name (interpreted as a family name) and their given name abbreviated to the initial letter, e.g. "Demoz, A." for Abraham Demoz (as cited in Ghirmai 1999: 222–236) – which renders it almost impossible for readers to identify the quoted author. Ethiopians themselves contribute to the already existing confusion by sometimes signing their papers as given name + father's name, and sometimes with an additional grandfather's name (e.g. Degif Petros or also Degif Petros Banksira) – which means that editors order some publications under the assumed family name "P[etros]", others under "B[anksira]".[4]

The situation is rendered even more complicated by scholars of Ethiopian origin living in the West who follow Western naming

4 Ethiopian linguists suffer the same fate as Ethiopian long-distance runners like Kenenisa Bekele and Tirunesh Dibaba, who usually wore their fathers' names (rather than their given names) on their jerseys in international competitions. Ethiopian politicians, too, are often mistakenly called by their fathers' names in Western media. The former Ethiopian head of state (1977–1991) Mengistu Haile Mariam (with *Haile Mariam* being a compound name meaning the 'power of Mary') was even once referred to as *Herr Mariam* ('Mr Mariam') in the German media and thus called, literally, 'Mr Mary'.

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standards and who quote themselves (whether of their own accord or obliged by the editors) by their grandfather's name (usually when they have left Ethiopia within the past two decades) or by their father's name (usually when they left Ethiopia more than two decades ago). For instance, the specialist for Ethiosemitic languages Girma Awgichew Demeke, who lives in the US, cites his work as "Demeke", the Omotist Azeb Amha in the Netherlands cites her works as "Amha", and Mengistu Amberber, an expert of Amharic in Australia, cites his works as "Amberber". In addition, scholars of Ethiopian ancestry but born in the West may have an Ethiopian name as an established family name, as, for instance, Julian Tadesse (e.g. Seidel, Moritz & Tadesse 2009).

4 Proposal

In order to do justice to the Ethiopian naming conventions in scientific publications, we propose the following rules for citing Ethiopian authors:

Rule R1: The patronymic structure of Ethiopian names should be retained in citations and references.

Rule R2: The names of Ethiopian authors should not be abbreviated, even if a style manual calls for authors' initials only.

Rule R3: In the reference list, Ethiopian authors should be sorted by their GIVEN NAME followed by their FATHER'S NAME and (if used) GRANDFATHER'S NAME without a comma. Example:

a. Girma Mengistu Desta. 2016. Tone in Sezo. *Oslo Studies in Language* 8, 1: 55–83.
b. Hirut Woldemariam. 2006. Some aspects of the phonology and morphology of Dawuro. *Folia Orientalia* 42/43: 71–122.

Rule R4: When following the author-date in-text citation, Ethiopian authors should be quoted by their GIVEN NAME. Example:

a. "As has been shown by Girma (2016), …"
   not: "… by Mengistu Desta/by Desta (2016)"
b. "For more information see Hirut (2006)."
   not: "… see Woldemariam (2006)."

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Rule R5: If two or more works of authors with identical names are published in the same year, the FATHER'S (and GRANDFATHER'S) NAME should be added in the in-text citation. Example:
"As has been shown by Girma Mengistu (2012) and Girma Awgichew (2012), …"
"For more information see Tsehay Abebe (2019) and Tsehay Berhanu (2019), …"

Rule R6: For better readability, R5 can also be applied when authors of the same GIVEN NAME have published works in different years.

Rule R7: Names of Ethiopian authors are given in their established Romanised form and are not transliterated from the Ethiopic script (*fidel*). Note that authors with the same name may use different Romanisations. For instance, **ብርሃኑ** (transliteration: Bərhanu) may write himself "Berhanu" or "Birhanu", or **ብንያም** (transliteration: Bənyam) may write himself "Beniam", "Binyam" or "Biniyam". If the established Romanised form of an Ethiopian author is unknown because they only publish in Amharic or other Ethiopian languages written in fidel, their name is transliterated according to the conventions of the journal *Aethiopica* (see Transcription/transliteration tables n.d.). These conventions are also used in the reference list for transliterating titles of articles, book and chapters written in the Ethiopic script (as in our reference list below).

These rules should be considered optional. Linguists of Ethiopian descent living in Europe, North America or Australia tend to adapt to Western naming standards and to reinterpret their father's or grandfather's name(s) as family names. These authors may prefer to be quoted according to the Western naming pattern – a look into their self-edited publications should give an indication about their citation preference.

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5 Practical solutions

Reference management software usually provides two fields for an author's (editor's, translator's, etc.) name: GIVEN NAME and FAMILY NAME. When citing Ethiopian authors according to the conventions laid out in Sect. 4, it is necessary to trick the software into displaying the names correctly in in-text citations and in the bibliography. We provide here two workarounds for bibliography management in the free software Zotero and LaTeX.

5.1 Zotero

In order to sort Ethiopian authors by their GIVEN NAME according to R2, all name components (GIVEN NAME, FATHER'S and GRANDFATHER'S NAME) need to be inserted into the field "last name"; the field "first name" remains empty (Figure 1).[5]

Figure 1. Zotero metadata sheet

While this causes the works by "Girma Mengistu Desta" to be sorted correctly under "G[irma]" and not "[D]esta" in the list of references, it creates overly long in-text citations, as Zotero consequently displays all name components, i.e. "(Girma Mengistu Desta 2016)" rather than "(Girma 2016)". Therefore, when inserting in-text citations, one has to suppress the author's name in the cite options window (tick box "suppress author" in the menu) and add the GIVEN NAME

5 We advise against choosing single field formatting in the author line and against inserting the given-father-grandfather name in this one field, as this would not change Zotero's "understanding" of the name. It would continue to interpret the grandfather's name as the name according to which it sorts.

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or – if several authors of the same GIVEN NAME are quoted in one paper – the GIVEN NAME + FATHER'S NAME as a prefix instead (Figure 2). Possibly, a comma is needed after the author's name, depending on the citation style of the publication outlet. This "prefix trick" helps to display the citation as "(Girma 2016)" in the text.[6]

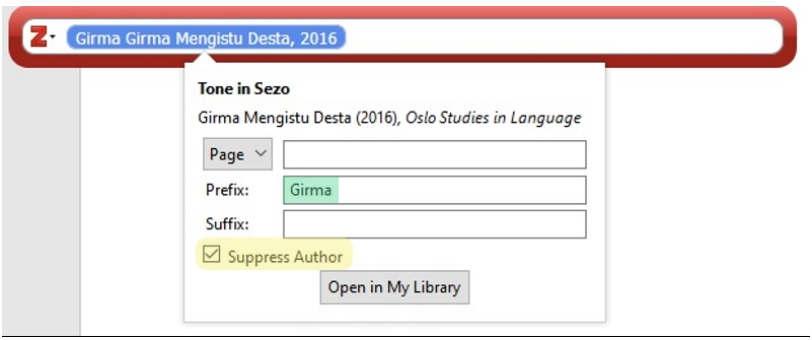

Figure 2. Zotero citation dialogue in Word

Matters are more complex when a co-authored paper is to be cited. In this situation, after the suppress box is ticked, all authors need to be typed into the prefix field. The ampersand "&" or the conjunction "and" needs to be inserted manually before the last author (depending on the citation style of the publication outlet).

5.2 LaTeX

In the bibliography file (.bib) of a LaTeX document (Figure 3), the full name of Ethiopian authors can be enclosed in parentheses so that no name component is analysed as a FAMILY NAME. Next, one adds two additional fields to the records (in bold in the following).

6 In principle, one could also manually modify the author's name and delete the superfluous "Mengistu Desta" directly in Word. However, manual modifications prevent Zotero from automatically updating the citation.

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```
@book{Alemu2016,
        address = {Addis Ababa},
        author = {{Alemu Banta Atara}},
        shortauthor = {Alemu},
        sortkey = {Alemu},
        publisher = {Berhanena Selam Printing},
        title = {Kookaata: {K}ambaatissa-{A}maarsa-{I}
        ngiliizissa laaga doonnuta \textup{[{K}ambaata-{A}
        mharic-{E}nglish dictionary]}},
    year = {2016}

}
```

Figure 3. Bibliography file in LaTeX

The field shortauthor = {Alemu} abbreviates the full name "Alemu Banta Atara" to the GIVEN NAME "Alemu" in in-text citations (see Figure 4). If several quoted authors called Alemu need to be differentiated (see R4 in Sect. 4), one can also abbreviate the name to shortauthor = {Alemu Banta}.

[1]See (27) for an example of a pre-reduplicated noun.
[2]Transcriptions in this chapter use the official Kambaata orthography, which is based on the Roman script (Treis 2008: 73-80; Alemu 2016). One important adaptation is here made to the official orthography: phonemic stress is marked by an acute accent on the vowel. The following

Figure 4. In-text citation

The field sortkey = {Alemu} ensures that the entry is sorted by the GIVEN NAME in the list of references.

6 Conclusions

We are not the first to raise awareness to the Ethiopian naming conventions among members of the scientific and librarian communities; see Kebreab (2007 [1974]), Appiah (2010), Mesfin (2020) and Walsh (2004: 19–21), to quote but a few. The persistently widespread misinterpretation of the Ethiopian naming system by editors, publishers and researchers in linguistics (and beyond) has repercussions that go well beyond inverted author names in in-text citations and reference lists. The problem we have described here ensues issues with indexing and cataloguing in libraries and online archives, and consequently issues of information access. Moreover, on a personal level,

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variant and erroneous forms of names make it difficult to attribute publications to Ethiopian authors unequivocally and to determine where and how often they are cited and what the impact of their work is. In this paper, we have brought forward a proposal of citation conventions that, if followed consistently, would ensure that publications are correctly attributed, that linguistic works became more easily accessible, and, most importantly, that research works by Ethiopian authors were duly acknowledged.

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Nominal and verbal plurality in the Mandara and Ɓata subgroups of Central Chadic

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Abstract
This paper contrasts the strategies for marking nominal and verbal plurality in the Mandara and Ɓata subgroups of Central Chadic, and offers some thoughts on their possible origin and development. The Mandara subgroup generally uses an */-a-/* infix for verbs, and the suffix */-ak/-ax/-ah/* for nouns. The Ɓata subgroup uses an */-ə-/* infix for both nouns and verbs, as well as a suffix */-j/* (or */-n/*) for nouns. In both groups, the strategies used also depend upon the structure of the verb root. Data is provided for several languages, including little-documented languages such as Nzanyi, Bacama and Glavda. The data suggests that vowel infixes may originally have been used for both nominal and verbal plurals throughout Chadic, but the development of specific nominal plural suffixes gradually made the use of vowel infix plurals redundant in nouns. The nominal suffix */-ak/-ax/-ah/* would then have been a subsequent innovation in the verbal system for verb roots in the Mandara whose structure was incompatible with an infix strategy.

Keywords: plurality, pluractional, Central Chadic, Biu-Mandara, internal vowels

1 Introduction

One of the striking features of many Chadic languages is an */-a-/* or */-aa-/* infix which is inserted between adjacent consonants of a lexical root to form a plural of a noun or verb, sometimes in conjunction with certain suffixes (e.g. Hausa */gúlb-íí/* 'stream', */gúl-àà-b-éé/* 'streams'). This so-called 'internal *a*' is similar in some respects to the well-known vocalisation patterns of other branches of the Afroasiatic phylum, such as Semitic, Cushitic and Berber, leading some scholars (e.g. Greenberg 1955, Diakonoff 1965) to propose it as a feature of Proto-Afroasiatic. Certainly, it is generally agreed to go back as far as Proto-Chadic as a marker of verbal plurality (Frajzyngier 1977:

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52, Newman 1990: 134, Wolff 2009: 161), and possibly also of nominal plurality (Ratcliffe 1996: 302, Newman 2006: 195), although the latter function is less widespread throughout Chadic and has been challenged by Wolff (2009), who suggests that so called 'internal vowels' in nouns are a result of Semitic-like vocalisation patterns with or without various additional (morpho)phonological processes.

As Newman (1990: 38) and Wolff (2009: 161) point out, the phenomenon known as 'internal *a*' is sometimes used to refer to two distinct types of process: morphological processes (e.g. ablaut, apophony, infixation) and phonological processes (e.g. assimilation/umlaut). Infixation (a morphological process) occurs when a vowel is inserted between two adjacent underlying consonants, whereas vowel lowering (a phonological process) occurs when an underlying high or mid central vowel (*/ɨ/* or */ə/*) is lowered to */a/* as an assimilatory effect of a root-final */a/*. However, as is shown in this paper, there is good reason to suppose that many reported cases of vowel lowering are actually cases of vowel insertion, since the underlying high vowel can often be analysed as epenthetic.[1]

The Central Chadic (Biu-Mandara) languages provide a further variation of the vowel infix strategy in that for some groups, the infix is */-ə-/* rather than */-a-/*, although it is quite possible that both infixes share a common origin. Thus it is preferable to talk about vowel infix plurals rather than just 'internal *a*' plurals. This paper examines plural formations in two of the larger subgroups within Central Chadic: the Mandara (A4) subgroup, which uses an */-a-/* infix, and the Ɓata (A8) subgroup, which uses an */-ə-/* infix. In the Mandara subgroup, the vowel [ə] is typically epenthetic and non-phonemic, whereas in the Ɓata subgroup, */ə/* is typically phonemic, and the epenthetic vowel is [ɨ]. As these two subgroups come from different main branches (North and South) of the whole Central Chadic family, it is possible that they may turn out to be somewhat representative

1 Hall (2006) distinguishes two types of inserted vowels: epenthetic vowels, which are full, phonological segments and relatively phonetically stable, and intrusive or transitional vowels, which are not phonological units, tend to be optional or disappear during fast speech and are often influenced by adjacent consonants. Using her terminology, the internal vowels of Central Chadic plurals would be considered epenthetic, whilst the high/central vowels which the internal vowels replace would be considered intrusive/transitional, although most authors still use the term epenthetic with this second sense well, as I do in this paper.

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of their respective branches. It is shown that both subgroups use internal vowel strategies in conjunction with other strategies such as reduplication, suffixes and suppletives, with the particular strategy used being largely dependent on the root structure. There are, however, also some important differences between the two subgroups, the main one being that the Ɓata subgroup uses internal vowel plurals frequently for both nouns and verbs, whereas the Mandara subgroup uses it mainly for verbs, although traces of it remain in a subset of kinship terms, suggesting that it was perhaps once more widespread.

The term 'plurality' applied to nouns refers to reference to more than one entity. When applied to verbs, it encompasses various notions of multiplicity of action, including multiple participants (multiple subjects of intransitive verbs or multiple objects of transitive verbs), multiple occasions (e.g. iterative, habitual), and multiple locations (distributive), as well as variations in degree or intensity of action. Newman (1980) coined the term 'pluractional' to refer to any of these senses of verbal plurality, and there has been widespread adoption of the term, particularly in Chadic linguistics. As is shown in the case of Podoko in section 3.6, some languages have developed multiple plural verb forms, which are used to express different types of plurality.

2 The Central Chadic languages

The Central Chadic languages are geographically clustered around the Mandara mountains along the far northern border between Nigeria and Cameroon, just to the south of Lake Chad. Eberhard et al. (2020) currently list 79 Biu-Mandara languages and classify them using Newman's (1977) proposal, which splits Biu-Mandara into three main branches (A, B and C) with the A branch divided into eight subgroups. Hammarström, Forkel & Haspelmath (2019), on the other hand list 81 languages, and largely follow Gravina's (2011) more recent arrangement, given in Figure 1.

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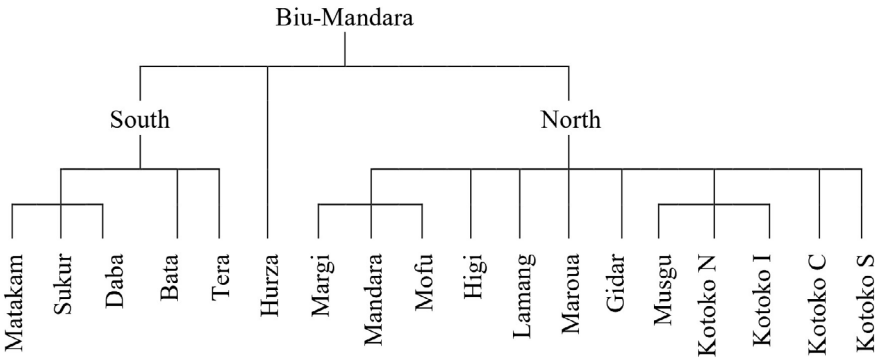

Figure 1. The internal classification of Biu-Mandara (Gravina 2011)

The Ɓata subgroup[2] comprises eleven languages: **Ɓacama [bcy]**, Ɓata [bta], Fali [fli], **Guɗe [gde]**, Gudu [gdu], **Jimi [jim]**, Ngwaba [ngw], **Nzanyi [nja]**, Tsuvan [tsh], **Sharwa [swq]**, Zizilivakan [ziz], and more or less corresponds to Newman's A8 subgroup. The Mandara subgroup contains eight languages: **Wandala/Malgwa [mfi]**, Cineni [cie], **Dghweɗe [dgh]**, **Guduf-Gava [gdf]**, **Glavda [glw]**, Gvoko [ngs], **Parkwa (Podoko) [pbi]**, Matal [mfh][3], and largely corresponds to Newman's A4 languages, minus the Lamang group, which Newman also classified as A4.[4] The Mandara languages are all quite closely related, having more than 50% internal lexical similarity, whereas the Ɓata group is less so, with Ɓata and Ɓacama having a rather low lexical similarity with the rest of the group, a likely reflection of their geographical separation to the south, which has led to a different environment for contact-induced change (Gravina 2014: 34–35).

Previous research into the languages of both subgroups is somewhat varied, with only Wandala/Malgwa (Löhr 2002), Guɗe (Hoskison 1983), Dghweɗe (Frick 1978), Parkwa (Jarvis 1989), and Glavda

2 In the Glottolog (Hammarström, Forkel & Haspelmath 2019), the Ɓata and Mandara subgroups are labelled Bataic and Mandraic. The Bataic group is listed with two further language, Bacama-Yimburu (a dialect of Ɓacama spoken in Numan), and Holma, a now extinct language. The Mandraic subgroup is listed with Wandala and Malgwa as separate languages.

3 Matal was originally classified by Newman (1977) as belonging to the A5 subgroup, but is now thought to be most closely related to Parkwa.

4 The languages printed in bold are those for which data is provided in this paper.

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(Nghagyiya 2011) having any kind of moderately detailed grammatical description. A couple of others, such as Ɓacama (Pweddon 2001) and Jimi (Djibi n.d.) have published dictionaries, but with little or no grammatical data, and most of the others have shorter unpublished wordlists or basic phonological sketches. This paper brings new data on several languages, including Ɓacama, Nzanyi, Guduf-Gava, and Glavda, so that the analysis is based on roughly half the languages from the two subgroups. Data from Ɓacama, Nzanyi and Glavda was collected between 2005 and 2020, whilst working with speakers of these languages who were students at the Theological College of Northern Nigeria in Jos. Some data was elicited by the author directly from the students, whilst some was collected by the students during their fieldwork, which is referenced at the relevant places in the paper. The students in question were: Kaduwe Ornan and Wama Gabriel (Ɓacama), Ishaya Benson (Nzanyi) and Gulla Nghagyiya (Glavda). Data from Glavda was supplemented by data from a short trilingual phrase book (Nghagyiya 2012). Data from Guduf-Gava was provided by Hak-Soo Kim (personal communication) in September 2019. In most cases, the analysis presented here, particularly with respect to morpheme breaks, is my own, and often differs from that which has been previously reported. Tones were not always marked in the sources consulted, or were marked only sporadically without explanation. In this paper they have been marked when available and relevant to the discussion. In some languages, many of the morphemes concerned, including many verb roots, are inherently toneless and receive their tone from the wider context.

3 The Mandara subgroup

I start with the Mandara subgroup because this is the group that uses an */-a-/* infix rather than an */-ə-/* infix, and the plural formatives are more phonologically transparent. Nominal and verbal plural strategies are discussed for each language in turn.

3.1 Glavda

The general strategy for forming nominal plurals in Glavda is the suffix */-ax/*[5], as shown in Table 1.

5 In Glavda, the phoneme */x/* is pronounced as a voiceless uvular fricative [χ].

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Table 1. Glavda nouns which take */-ax/* in the plural (data from Nghagyiya 2012)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘tree’	[uufa]	/wf-a/	[uufaχa]	/wf-ax-a/
‘goat’	[aag^{w}a]	/aag^{w}-a/	[aag^{w}aχa]	/aag^{w}-ax-a/
‘head’	[ʁəra]	/ʁr-a/	[ʁəraχa]	/ʁr-ax-a/
‘house’	[həɲa]	/hɲ-a/	[həɲaχa]	/hɲ-ax-a/
‘mother’	[baaba]	/baab-a/	[baabaχa]	/baab-ax-a/
‘bat’	[avavaga]	/avavag-a/	[avavagaχa]	/avavag-ax-a/
‘farm’	[guxa]	/g^{w}x-a/	[guχaχa]	/g^{w}x-ax-a/
‘day’	[həŋga]	/h^{ŋ}g-a/	[həŋgaχa]	/h^{ŋ}g-ax-a/

At first sight, given the surface forms (e.g. [*uufa*] / [*uufaχa*]), one might think that the plural suffix is */-xa/* ([*χa*]). However, as in many other Central Chadic languages, all citation forms in Glavda end in [*a*], which disappears in non-prepausal position, so the question is whether this final [*a*] is part of the root and is deleted before other words, or is not part of the root and is inserted prepausally. It can be shown from proper names and loan words that both processes are active in Glavda, as names which end in [*a*] have their final vowel deleted before other words, whilst names which do not end in [*a*] have a final [*a*] added prepausally, even if they end in another vowel, as shown in examples (1) and (2).

Final vowel (FV) insertion:

(1) a. *ɗaag-ar* *laadi-a*
name-POSS.1SG Ladi-FV
‘My name is Ladi’

b. *laadi* *ɗaag-ar-a*
Ladi name-POSS.1SG-FV
‘My name is Ladi’[6]

6 Incidentally, these examples also show that a final */i/* does not behave like a final */a/*, suggesting that in Glavda, */i/* is phonologically considered a vocalisation of the consonant */j/*.

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Final-vowel deletion:

(2) a. *ɗaag-ar* *dauda*
name-POSS.1SG Dauda-FV
'My name is Dauda'

b. *daud* *ɗaag-ar-a*
Dauda name-POSS.1SG-FV
'My name is Dauda'

From comparative data, it has been shown that most words in Proto-Central Chadic have been reconstructed without final vowels, with just a few words ending in a vowel, which is typically */a/* (Gravina 2014: 354). Therefore in Glavda, it seems preferable to assume that in most cases, final vowels are not part of the root. For those few nouns for which a final */a/* has been reconstructed as part of the root (e.g. */ɬa/* 'cow'), one of the adjacent vowels is deleted when the plural suffix is added. As Nghagyiya (2011: 12) notes, the plural suffix */-ax/* can be reduplicated on nouns, usually indicating sets or groups of items, as shown in example (3):

(3) a. *ɬ-ax-a*
COW-PL-FV
'cows'

b. *ɬ-ax-ax-a*
COW-PL-PL-FV
'groups of cows'

A few nouns, mostly wild animals, can take the plural prefix */jaa-/* (< [*jaχa*] 'family') instead of the suffix */-ax/*, as shown in Table 2. It is possible to analyse */jaa-/* as a separate word rather than a prefix, on the grounds that when it co-occurs with vowel-initial nouns, none of the adjacent vowels are deleted, and such sequences are not attested elsewhere within words.

Table 2. Glavda nouns which can take */jaa-/* in the plural (data from Nghagyiya 2012)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'bird'	[ɗiika]	/ɗjk-a/	[jaa-ɗiika]	/jaa ɗjk-a/
'hare'	[viida]	/vjd-a/	[jaa-viida]	/jaa vjd-a/
'squirrel'	[ajaɣajaɣa]	/ajaɣajaɣ-a/	[jaa-ajaɣajaɣa]	/jaa ajaɣajaɣ-a/
'guinea-fowl'	[ʒabra]	/ʒabr-a/	[jaa-ʒabra]	/jaa ʒabr-a/

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‘crow’	[ɣaɣaχra]	/ɣaɣaxr-a/	[jaa-ɣaɣaχra]	/jaa ɣaɣaxr-a/
‘elephant’	[guuna]	/gwn-a/	[jaa-guuna]	/jaa guun-a/

Nouns that take */jaa-/* in the plural can all optionally take */-ax/* instead, with no difference in meaning. It is even possible to use both affixes on the same word, which typically gives the sense of sets or groups of items, just as when the */-ax/* suffix is reduplicated, as shown in example (4), taken from Nghagyiya (2011: 12–13):

(4) a. *jaa-vjd-a* (= *vjd-ax-a*)
PL-hare-FV (= hare-PL-FV)
‘hares’

b. *jaa-vjd-ax-a*
PL-hare-PL-FV
‘groups of hares’

As in many languages, a few kinship terms take irregular plurals (e.g. [*ʒra*] / [*ʒarχa*] ‘child’ / ‘children’, [*uusa*] / [*ŋɣʷasaχa*] ‘wife, woman’ / ‘wives, women’, although they usually still show traces of the */-ax/* suffix, as well as an */-a-/* infix, which becomes more apparent in the light of the Guduf-Gava data.

Some agentive nouns appear to take a */li-/* prefix in the plural, but like the */jaa-/* prefix, this likely has a nominal origin, since the corresponding singular forms use the prefix */dada-/*, derived (via shortening of the first vowel) from */daad-a/* ‘father’, as in [*dada-ɣalga*] ‘beggar’ (lit. ‘father of begging’) / [*li-ɣalga*] ‘beggars’. It is not clear which nominal */li-/* is derived from, as the plural of ‘father’ is */daad-ax-a/*, but cognate pluralisers are found in the neighbouring languages Lamang and also in Hdi (Wolff 2015, Vol. 1: 121, 389).

Plural verbs in Glavda are formed using an */-a-/* infix, inserted between adjacent root consonants, as shown in Table 3. If the root contains just a single consonant, then the nominal suffix */-ax/* is used. For tri-consonantal roots, some roots contain two */-a-/* infixes in the plural, whereas other roots just have one. A few verb roots contain the vowel */a/*, but so far, I haven’t come across any such verbs that have distinct plural forms, so it may be that these verbs are considered inherently plural.

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Table 3. Glavda plural verbs

Gloss	Root	Singular		Plural	
		Surface	Underlying	Surface	Underlying
‘bite’	C	[ʁʷ]	/ʁʷ/	[ʁʷaχ]	/ʁʷ-ax/
‘lose’		[z]	/z/	[zaχ]	/z-ax/
‘pull’	CC	[tᵊd]	/td/	[tad]	/t-a-d/
‘sell’		[vᵊl]	/vl/	[val]	/v-a-l/
‘jump’		[d͡zᵊv]	/d͡zv/	[d͡zav]	/d͡z-a-v/
‘tear’		[tᵊχ]	/tx/	[taχ]	/t-a-x/
‘cough’		[wᵊç]	/whʲ/	[wɛç]	/w-a-hʲ/
‘rub on’		[viχ]	/vʲx/	[vɛχ]	/vʲ-a-x/
‘write’	CCC	[viid]	/vjⁿd/	[veend]	/v-a-jⁿd/
‘snatch’		[pɽɗ]	/prɗ/	[parɗ]	/p-a-rɗ/
‘sit’		[t͡ʃᵊχʷᵊɾ]	/t͡ʃxʷr/	[t͡ʃaχʷar]	/t͡ʃ-a-xʷ-a-r/
‘throw’		[ɗuul]	/ɗwl/	[ɗawal]	/ɗ-a-w-a-l/

Note that the pronunciation of the */-a-/* infix is fronted when it occurs adjacent to palatalised consonants (see the words for ‘cough’ and ‘rub on’ in Table 3). The similarity in pluralisation strategy between nouns and monoconsonantal verbs shows category boundaries are sometimes blurred when it comes to plural formation, as is shown by some other Central Chadic languages.

3.2 Guduf-Gava

Guduf-Gava is closely related to Glavda and uses virtually identical plural morphemes, although not with exactly the same distribution. Hak-Soo Kim (personal communication) reports that the prefix */ja-/* and the suffix */-ax/* are interchangeable on most nouns, and they can also co-occur on the same noun, as in Glavda. His impression is that the */-ax/* suffix is used more for individual plurality, whilst */ja-/* is used more for collectives. The prefixes */dad-/* and */li-/* are again used for some agentive nouns. Plural marking is optional on the noun if there is some other indicator of plurality within the clause (e.g. a quantifier or a plural verb), suggesting that the singular form is actually unmarked for number, as is the case in some other languages of this subgroup.

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Many nouns in the Guduf dialect of Guduf-Gava[7] end in [*e*] prepausally, rather than [*a*], although this is thought to be a dialectal innovation, since */e/* is not a phoneme, and in the Gava and Chikide dialects of Guduf-Gava, most nouns end in [*a*]. Also, in the plural form, the final vowel is */a/*, rather than [*e*]. Again, this vowel is not considered to be part of the root, and it always takes a low tone, unlike other vowels, which can be either high or low. As far as I am aware, all examples given in this section are from the Guduf dialect. Examples of Guduf-Gava nominal plurals are given in Table 4:

Table 4. Guduf-Gava nominal plurals

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'man'	[wúdè]	/wd-à/	[wúdáxà]	/wd-áx-à/
'mouse'	[xəkʷè]	/xkʷ-à/	[xəkʷáxà]	/xkʷ-áx-à/
'bird'	[dʹíkè]	/dʲk-à/	[dʹíkáxà]	/dʲk-áx-à/
'eye'	[dìjè]	/dj-à/	[dìjáxà]	/dj-áx-à/
'work'	[ɬərè]	/ɬr-à/	[ɬəráxà]	/ɬr-áx-à/
'mouth'	[ɣàjà]	/ɣàj-à/	[ɣàjáxà]	/ɣàj-áx-à/
'leg'	[sígà]	/sʲg-à/	[sígáxà]	/sʲg-áx-à/

A few kinship terms use an */-a-/* infix plural strategy, as shown in Table 5. Comparing these with the corresponding Glavda kinship terms which use irregular plurals (Table 6), it can be seen that there are traces of the */-a-/* infix in Glavda as well.

Table 5. Guduf-Gava nominal plurals with an */-a-/* infix.

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'son'	[zərè]	/zr-à/	[zàrà]	/z-à-r-à/
'daughter'	[dəɣʷè]	/dɣw-à/	[dəɣàwà]	/dɣ-à-w-à/
'wife/ woman'	[nùùsè]	/nws-à/	[nəɣʷàsà]	/nɣʷ-à-s-à/

7 Guduf-Gava is reported to have three dialects: Guduf, Gava and Chikide (Hamm 2004: 12).

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Table 6. Glavda irregular nominal plurals with traces of an */-a-/* infix.

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'son'	[zra]	/zr-a/	[zarχa]	/z-a-r-x-a/
'wife/ woman'	[uusa]	/ws-a/	[ŋɣʷasaχa]	/nɣʷ-a-s-ax-a/

Thus it is possible that the */-a-/* infix in nominal plurals were once more common in both Glavda and Guduf-Gava, but now traces of it only remain in a few kinship terms.

At first sight, plural verbs in Guduf-Gava are formed in much the same way as they are in Glavda, with monoconsonantal roots taking the */-ax/* suffix, and other roots using an */-a-/* infix, as shown in Table 7. The citation form of monoconsonantal verbs usually involves a [*-gè*] or [*-gà*] suffix, although it is not currently known what determines when each suffix is used.

Table 7. Guduf-Gava plural verbs for consonantal verb roots

Gloss	Root	Singular		Plural	
		Singular	Underlying	Surface	Underlying
'go'	C	[dəgè]	/d-gà/	[dáxà]	/d-áx-à/
'give birth'		[jəgè]	/j-gà/	[jáxà]	/j-áx-à/
'shoot'		[xəgà]	/x-gà/	[xáxà]	/x-áx-à/
'blow'		[fəgà]	/f-gà/	[fáxà]	/f-áx-à/
'throw'	CC	[ɬəvà]	/ɬv-à/	[ɬàvà]	/ɬ-à-v-à/
'come back'		[gʷíjà]	/gʷj-à/	[gʷájà]	/gʷ-á-j-à/
'eat'		[zùwà]	/zw-à/	[zàwà]	/z-à-w-à/
'hold'		[xúts͡à]	/xʷts-à/	[xʷáts͡à]	/xʷ-á-ts-à/
'die'		[mts͡à]	/mts-à/	[mats͡à]	/m-á-ts-à/
'show'		[mɮà]	/mɮ-à/	[maɮà]	/m-á-ɮ-à/
'bite'	CCC	[ɣədəvà]	/ɣdv-à/	[ɣàdàvà]	/ɣ-à-d-à-v-à/
'jump'		[ɣədz͡əvà]	/ɣdz͡v-à	[ɣàdzàvà]	/ɣ-à-dz-à-v-à

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However, unlike Glavda, several Guduf-Gava verb roots contain vowels (*/a/*, */i/* or */u/*), and these are pluralised with the */-ax/* suffix, like monoconsonantal roots, as shown in Table 8:

Table 8. Guduf-Gava plural verbs for verb roots which contain a vowel

Gloss	Root	Singular		Plural	
		Singular	Underlying	Surface	Underlying
'do, make'	CVC	[mànà]	/màn-à/	[mànáxà]	/màn-áx-à/
'run'		[xʷájà]	/xʷáj-à/	[xʷájáxà]	/xʷáj-áx-à/
'ask'		[ⁿdíɗà]	/ⁿdíɗ-à/	[ⁿdíɗáxà]	/ⁿdíɗ-áx-à/
'swim'		[ɗìmà]	/ɗìm-à/	[ɗìmáxà]	/ɗìm-áx-à/
'fry'		[sùlà]	/sùl-à/	[sùláxà]	/sùl-áx-à/
'wash'		[ɣúbà]	/ɣúb-à/	[ɣúbáxà]	/ɣúb-áx-à/
'laugh'	CCVC	[ɣəɓásà]	/ɣɓás-à/	[ɣəɓásáxà]	/ɣɓás-áx-à/
'hunt'	CVCC	[ɣùvlà]	/ɣùvl-à/	[ɣùvlà]	/ɣùvl-áx-à/
'dream'	CVCVC[8]	[sùwànà]	/sùwàn-à/	[sùwànáxà]	[sùwàn-áx-à]
'sneeze'		[wùdísà]	/wùdís-à/	[wùdísáxà]	[wùdís-áx-à]

A few verbs take both an */-a-/* infix and the */-ax/* suffix ([*t͡sànà*] 'hear' and [*wúʃá*] 'twist') or have no distinct plurals ([*ᵐbákà*] 'increase' and [*ŋgʷijè*] 'be wet') or have irregular plurals ([*sàwè*] 'come'), as shown in Table 9.

Table 9. Guduf-Gava plural verbs with either irregular or no distinct plural forms

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'hear'	[t͡sànà]	/t͡sn-à/	[t͡sànáxà]	/t͡s-à-n-áx-à/
'twist'	[wúʃá]	/wʃ-à/	[wáʃáxà]	/w-à-ʃ-áx-à/
'increase'	[ᵐbákà]	/ᵐbák-à/	[ᵐbákà]	/ᵐbák-à/
'be wet'	[ᵑgʷijè]	/ᵑgʷj-à/	[ᵑgʷijè]	/ᵑgʷj-à/
'come'	[sàwè]	/sàw-à/	[sáxáɣà]	/s-áx-á-ɣà/

8 Both words listed with this structure could also be analysed as having CCVC structure, with an epenthetic schwa between the first two consonants. Kim (p.c.) does not list any verbs with an unambiguous CVCVC structure.

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3.3 Dghweɗe

There is very little data on nominal pluralisation is Dghweɗe, but from what is available (Frick 1977, 1978), it is possible to see some similarities with both Glavda and Guduf-Gava. Firstly, an */-x/* suffix is used for at least some nominal plurals, and traces of an */-a-/* infix is seen for some kinship terms, as shown in Table 10.

Table 10. Dghweɗe nominal plurals

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'elephant'	[gʷínè]	/gʷn-à/	[gʷínxà]	/gʷín-x-à/
'girl'	[dᵘgwà]	/dgw-à/	[dᵊgàwá]	/dg-à-w-á/
'wife/ woman'	[níʃè]	/ns-à/	[nᵊɣʷàsxá]	/nɣʷ-à-s-x-á/

Secondly, plural marking on nouns seems to be optional in many cases, and relatively rare in natural texts, again suggesting that the singular form is unmarked for number.

There is more data on Dghweɗe plural verbs, and again it is clear that the particular plural strategy used is dependent to a large extent upon root structure. Dghweɗe has three main ways of pluralising verbs: the suffix */-àɗ/*, the */-a-/* infix, and reduplication of the last VC segment of the verb root, as shown in Table 11.

Table 11. Dghweɗe plural verbs (data from Frick 1978)

Gloss	Root	Singular		Plural	
		Surface	Underlying	Surface	Underlying
'carry'	C	[zá]	/z-á/	[zàɗá]	/z-àɗ-á/
'put'		[bá]	/b-á]	[bàɗá]	/b-àɗ-á/
'come'		[səgàjá]	/s-g-àjá/	[sàɗəgàjá]	/s-àɗ-g-àjá/[9]
'spend'	CC	[xənná]	/xn-á/	[xànná]	/x-à-n-á/
'cook'		[təgájà]	/tg-ájà/	[tágájà]	/t-á-g-ájà/
'roll'		[lúkà]	/lkʷ-à/	[lákʷà]	/l-á-kʷ-à/
'drink'		[xútà]	/xʷt-à/	[xʷátà]	/xʷ-á-t-à/

9 Frick reports that the */-ájà/* suffix is a completive marker, and the */-g/* suffix a middle voice marker.

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‘sweep’	CVC	[ɬàɗájà]	/ɬàɗ-ájà/	[ɬàɗàɗájà]	/ɬàɗ-àɗ-ájà/
‘call’		[jáxà]	/jáx-à/	[jáxáxà]	/jáx-áx-à/
‘drown’		[sùfájà]	/sùf-ájà/	[sùfùfájà]	/sùf-ùf-ájà/

For a few monosyllabic verbs, the imperfective suffix [*-gè*] is also used to express verbal plurality, as shown in Table 12:

Table 12. Dghweɗe plural verbs using the imperfective suffix [*-ge*] (data from Frick 1978)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘put’	[bá]	/b-á/	[bɔ́gè]	/b-gà/
‘strike’	[t͡ʃá]	/t͡ʃ-á/	[t͡ʃɔ́gè]	/t͡ʃ-gà/
‘join’	[d͡ʒá]	d͡ʒ-á/	[d͡ʒɔ́gè]	/d͡ʒ-gà/

Thus although Dghweɗe has more variation in verb plural formation than both Glavda and Guduf-Gava, once again, it is verbs with mono-consonantal roots or roots containing a vowel that don’t take an */-a-/* infix.

3.4 Malgwa

Nominal plurals in Malgwa also resemble those in other languages of the group. The most common strategy involves the suffix */-áh/*, in which the voiceless velar fricative */x/* has been weakened (from the perspective of the languages so far discussed) to a glottal fricative. Löhr (2002: 98) analyses this plural suffix as */-hà/*, but such an analysis does not easily explain why the [*h*] is always preceded by the vowel [*á*], which replaces the last vowel of the singular form, whilst the [*à*] following [*h*] may be deleted (e.g. when followed by the genitive linker */á/*). As in Guduf-Gava all nouns end in either [*a*] or [*e*], and as [*e*] mostly appears to occur only in this position (excluding loan words and words where it is adjacent to a palatalised consonant), I consider it a product of either borrowing or a vestigial trace of a word-level palatalisation prosody, which has been reconstructed for Malgwa and its closest genetic relatives (Gravina 2014: 189). Examples of noun plurals are given in Table 13:

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Table 13. Malgwa nominal plurals (data from Löhr 2002, with morpheme breaks reanalysed)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'mouth'	[wè]	/w-ə/	[wáhà]	/w-áh-à/
'house'	[ŋá]	/ŋ-á/	[ŋáhà]	/ŋ-áh-à/
'stone'	[kʷà]	/kʷ-à/	[kʷáhà]	/kʷ-áh-à/
'room'	[bə̀ré]	/bə̀r-ə́/	[bə̀ráhà]	/bə̀r-áh-à/
'hand'	[ʔə́rvà]	/ʔə́rv-à/	[ʔə̀rváhà]	/ʔə̀rv-áh-à/
'shop'	[kàntì] (lw.)	/kàntì/	[kàntìáhà]	/kàntì-áh-à/
'hedge-hog'	[ʔúsùsà]	/ʔúsùs-à/	[ʔùsùsáhà]	/ʔùsùs-áh-à/
'hyena'	[ʔííndàlè]	/ʔíndàl-ə/	[ʔììndàláhà]	/ʔìndàl-áh-à/
'finger'	[nágùlàndé]	/nágùlànd-ə́/	[nágùlàndáhà]	/nágùlànd-áh-à/

Malgwa also has a collective plural for people and animals, formed using the suffix */-á/*, as shown in Table 14:

Table 14. Malgwa collective plurals (data from Löhr 2002: 99–100)

Gloss	Singular	Plural	Collective
'goat'	[náwè]	[nàwáhà]	[náwá]
'horse'	[bə́lsà]	[bə̀lsáhà]	[bə́lsá]
'person'	[núúrà]	[nùùráhà] / [ʔə́mdè]	[núúrá]
'Kanuri'	[mùfákè]	[mùfàkáhà]	[mùfáká]

Many agentive nouns take the prefix */ɬə́-/* in the singular (e.g. [*ɬə́-ríjà*] 'neighbour', [*ɬə́-gáɬárà*] 'worker') and take the prefix */ʔə́mdà-/* (meaning 'people') in the plural, often alongside the plural suffix */-áh/* (e.g. [*ʔə́mdá ríjà*] / [*ʔə́mdà rìjáhà*] 'neighbours', [*ʔə́mdà gáɬárà*] 'workers').

Nominal plurals with the */-a-/* infix are restricted to a few human nouns, or nouns which are semantically associated with humans, as shown in Table 15. The noun [*múksè*] 'woman' (pl.: [*ŋwáshà*]) could also be put in this group, since the */-a-/* infix is evident here in the light of comparative data.

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Table 15. Malgwa */-a-/* infix nominal plurals

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘man’	[ʒíílè]	/zl-ə/	[zâlà], [zàláhà]	/z-â-l-à/, /z-à-l-áh-à/
‘footprint’	[píjàsə́rà]	/pjàsə́r-à/	[pájàsə́rà]	/p-á-jàsə́rà/

As with other languages of the group, most plural verbs in Malgwa are formed using an */-a-/* infix, with monoconsonantal verbs requiring a reduplication of the consonant, as shown in Table 16:

Table 16. Malgwa verbal plurals

Gloss	Root	Singular		Plural	
		Surface	Underlying	Surface	Underlying
‘drink’	C	[ʃà]	/ʃ-à/	[ʃáʃà]	/ʃ-á-ʃ-à/
‘beat’		[dʒà]	/dʒ-à/	[dʒádʒà]	/dʒ-á-dʒ-à/
‘eat’		[zà]	/z-à/	[zázà]	/z-á-z-à/
‘put’		[fà]	/f-à/	[fáfà]	/f-á-f-à/
‘split’		[té]	/t-á/	[tátà]	/t-á-t-à/
‘kneel’	CC	[kə́ɮà]	/kɮ-à/	[káɮà]	/k-á-ɮ-à/
‘jump’		[bə́zà]	/bz-à/	[bázà]	/b-á-z-à/
‘forget’		[víjà]	/vj-à/	[vájà]	/v-á-j-à/
‘open’		[wúrà]	/wr-à/	[waɾà]	/w-á-ɾ-à/
‘cut’		[kút͡ʃà]	/kʷt͡ʃ-à/	[kʷat͡ʃà]	/kʷ-á-t͡ʃ-à/
‘tie’		[ŋúɗà]	/ŋʷɗ-à/	[ŋʷaɗà]	/ŋʷ-á-ɗ-à/

There is currently no data available as to how Malgwa pluralises verbs which contain a vowel phoneme, or contain more than two consonants.

3.5 Wandala

Nominal plurals in Wandala are formed using the suffix */-ah/*, as shown in Table 17:

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Table 17. Wandala nominal plurals (data from Frajzyngier 2012: 104)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘room’	[brè]	/br-/	[bràhà]	/br-àh-à/
‘elephant’	[gʷé]	/gʷ-/	[gʷáhà]	/gʷ-áh-à/
‘dog’	[krè]	/kr-/	[kràhà]	/kr-àh-à/
‘shoe’	[kímàkè]	/kímàk-/	[kímàkàhà]	/kímàk-àh-à/
‘thing’	[dùksà]	/dùksà/	[dùksáhà]	/dùks-áh-à/
‘parent’	[màlè]	/màl-/	[màlàhà]	/màl-àh-à/
‘donkey’	[zəŋʷà]	/zŋʷà/	[zəŋʷáhà]	/zŋʷ-áh-à/
‘girl’	[gʲálè]	/gʲál-/	[gʲálàhà]	/gʲál-àh-à/

The plural morpheme is reduced to */a/* when followed by certain modifiers such as determiners, quantifiers and possessive adjectives (e.g. [*gʲál-àh-à*] ‘girls’, [*gʲál-á-nà*] ‘the girls’). Traces of */-a-/* infix plural forms are again limited to a few human nouns, as shown in Table 18, which may sometimes also carry the plural suffix */-ah/*.

Table 18. Wandala */-a-/* infix nominal plurals

Gloss	Singular	Plural
‘man’	[ʒílé][10]	[zálà]
‘woman’	[mùksè][11]	[ŋwáʃà]
‘child’	[(ə́)gd͡zrè]	[(ə̀)gd͡zárà]

Frajzyngier (2012: 97–100) makes some useful observations about final vowels on nouns. He notes that the majority of nouns end in */a/*, with most of the rest ending in [*e*]. A final [*e*] on a noun is either epenthetic, inserted only before pause, or is the realisation of an underlying */i/*, as shown by comparative data and loanwords

10 The underlying form of [*ʒílé*] is likely to be */zl-/*, with the vowels [*i*] and [*e*] being realisations of epenthetic vowels. Frajzyngier (2012: 49) notes that the raising of a final [*ə*] to [*e*] can affect the quality of a preceding epenthetic [*ə*], changing it to [*i*] (e.g. [*ɬìdé*] ‘property’, [*ɬàdə́-nà*] ‘the property’). This [*i*] would then cause palatalisation of the preceding */z/*, producing the surface form [*ʒílé*].

11 Comparing this with the corresponding Glavda and Guduf-Gava forms in Tables 5 and 6, one can see how the singular surface forms in all three languages could have derived from a possible proto-form */***nɣʷs/*, which makes an */-a-/* infix more transparent in the plural.

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(e.g. [*háŋkàlè*] 'reason, intelligence' (< Hausa [*háŋkàlì*]). A final [*a*] on nouns occurs prepausally, and elsewhere indicates that "the constituent that follows, although not part of the same grammaticalized construction should nevertheless be interpreted in connection with the preceding constituent" (e.g. topicalised noun phrases). An alternative explanation is given by Wolff and Naumann (2004) who suggest a final [*e*] on nouns may have arisen from a monophthongisation of */a-y/* involving the frozen Proto-Chadic determiner */-i/* (see also Wolff 2006, 2009, 2019). Frajzyngier also notes that plural marking is optional on nouns if the noun is followed by a numeral (as in Guduf-Gava), although human nouns are more likely to be marked for plurality than non-human nouns.

For verbal plurality, Wandala, like Malgwa, uses an */-a-/* infix for most roots, although some monoconsonantal roots are not reduplicated (c.f. Table 16) and take an */-a/* suffix, as shown in Table 19. For those monoconsonantal roots which appear to have homophonic citation forms for singular and plural (e.g. [*và*] 'give (sg)' / [*và*] 'give (pl)'), evidence for the */-a/* suffix in the plural comes from the fact that the final vowel is deleted clause-internally for the singular forms, but remains in the plural.

Table 19. Wandala */-a-/* infix verbal plurals

Gloss	Root	Singular		Plural	
		Surface	Underlying	Surface	Underlying
'stand, rise'	C	[t͡sè]	/t͡s-/	[t͡sà]	/t͡s-à/
'give'		[và]	/v-/	[và]	/v-à/
'hold'		[ŋà]	/ŋ-/	[ŋà]	/ŋ-à/
'throw'		[pʷà]	/pʷ-/	[pʷà]	/pʷ-à/
'fall'	CC	[ᵐbɗà]	/ᵐbɗ-/	[ᵐbàɗ]	/ᵐb-à-ɗ-/
'sell'		[vlà]	/vl-/	[vàl]	/v-à-l-/
'jump'		[bzà]	/vz-/	[vàz]	/v-à-z-/
'return'		[pt͡sà]	/ft͡s-/	[fàt͡s]	/f-à-t͡s-/
'close'		[xəɗà][12]	/hɗ-/	[hàɗ]	/h-à-ɗ-/

12 The vowel [*ə*] in the root of this example is epenthetic, as [*xɗ*] is a disallowed word-initial consonant sequence, unlike the sequences in the other biconsonantal roots in Table 19.

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Significantly, all verb roots which contain an */a/* vowel underlyingly (e.g. */pàl/* 'pound with hammer or stone', */hàl/* 'gather') are inherently plural, although sometimes, in order to make the plurality more specific, an */-à/* suffix is used (e.g. */hàl-à/*), as in the case of monoconsonantal roots.

As with nouns, the majority of verbs end in /a/ in prepausal position, with a small number ending in */e/*. Once again, Frajzyngier (2012: 167–169) makes a perceptive observation about such verbs. He notes that all */e/*-final verbs share the semantic characterisation of separation of an entity from its source (e.g. [*t͡sè*] 'stand, rise', [*plè*] 'detach', [*fjè*] 'peel'). As in the case of nouns, since */e/* is not phonemic, it is most likely either epenthetic or the realisation of an underlying */i/*. Evidence for the latter comes from comparative data from Hdi, which has a verbal extension */-i/* which encodes separation from source.

3.6 Podoko

In Podoko, as in most other languages of the Mandara group, the bare form of the noun is unmarked for number, with plural marking only present when deemed pragmatically necessary. The main plural marker is the suffix */-aki/*, which possibly consists of two different suffixes, */-ak/* and */-i/*, as the latter can occur without the former. Some nouns (e.g. [nawə] 'goat') take just */-ak/* and */-i/*. Several nouns referring to family members (e.g. [*nəwalə*] 'man, husband' and other nouns in the middle section of Table 20) use an */-a-/* infix strategy along with the */-i/* suffix, and can optionally take the */-ak/* suffix as well. A few other nouns that belong to the domestic domain (e.g. [*dəgʷəzəmə*] 'male goat' and other nouns in the final section of Table 20) obligatorily take all three markers, as shown in Table 20. A small number of nouns require the */-ak/* suffix to be reduplicated (e.g. [*kʷəma*] 'mouse').

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Table 20. Podoko nominal plurals (data from Jarvis 1986: 81–82)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘goat’	[nawə]	/naw/	[nawaki]	/naw-ak-i/
‘bird’	[ɗəja]	/ɗja/	[ɗəjakaki]	/ɗj-ak-ak-i/
‘mouse’	[kʷəma]	/kʷma/	[kʷəmakaki]	/kʷm-ak-ak-i/
‘robber’	[mət͡sərə]	/mt͡sr/	[mət͡sərakaki]	/mt͡sr-ak-ak-i/
‘man’	[nəwalə]	/nwal/	[nawal(ak)i]	/n-a-w-a-l(-ak)-i/
‘woman’	[nəsə]	/ns/	[nas(ak)i]	/n-a-s(-ak)-i/
‘child’	[udzərə]	/udzr/	[udzara(ki)]	/udz-a-r(-ak)-i/
‘boy’	[zəgʷənə]	/zgʷn/	[zagʷan(ak)i]	/z-a-gʷ-a-n(-ak)-i/
‘girl’	[dəhələ]	/dhl/	[dahal(ak)i]	/d-a-h-a-l(-ak)-i/
‘older brother’	[mət͡səha]	/mt͡sha/	[mat͡sah(ak)i]	/m-a-t͡s-a-h(-ak)-i/
‘young man’	[dəhʷələ]	/dhʷl/	[dahʷal(ak)i]	/d-a-hʷ-a-l(-ak)-i/
‘male goat’	[dəgʷəzəmə]	/dgʷzm/	[dagʷazam-aki]	/d-a-gʷ-a-z-a-m-ak-i/
‘calf’	[vilki]	/ʲvlk/[13]	[vɛlikɛki]	/ʲv-a-lk-ak-i/
‘baby’	[virndi]	/ʲvrⁿd/	[vɛrindɛki]	/ʲv-a-rⁿd-ak-i/
‘blind man’	[ŋgʷəlfə]	/ᵑgʷlf/	[ŋgʷaləfaki]	/ᵑgʷ-a-lf-ak-i/
‘fiancée’	[dilgʷi]	/ʲdlgʷ/	[dɛlikʷɛki]	/ʲd-a-lkʷ-ak-i/

Another morpheme associated with the concept of plurality is */ⁿda/*, which can often be used instead of or in addition to the */-ak-i/* suffixes. When followed by a noun with unique reference, it conveys the idea of a group of associated items, which are not necessarily all homogenous (e.g. [*ⁿda ɬəwandala*] ‘the chief and his entourage’, [*ⁿda Zaza*] ‘Zaza and his family’), and as such has some similarity

13 The marking of palatalisation before the initial consonant in these examples indicates a word-level palatalisation prosody that fronts all the vowels in a word, although the full application of the prosody depends upon the particular consonants and vowels in the word (Gravina 2014: 185).

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in function to the */jaa-/* prefix (< [*jaχa*] 'family') in Glavda.[14] It is obligatory in the plural of the noun [*məndə*] 'person' (from which */ⁿda/* is plausibly derived) and it is also compatible with mass nouns, conveying the idea of groups of items (e.g. [*ⁿda dîrə*] 'several basketfuls of beans'.

Verbal plurality in Podoko is also marked in two distinct ways (by an */-a-/* infix, and with an */-aw/* suffix), which may combine on the same lexical item, but are also somewhat dependent upon root structure, as shown in Table 21. For example, monoconsonantal verbs and verbs with a */CaC/* root structure only have plurals with the */-aw/* suffix. Most other verbs use the */-aw/* suffix with or without an */-a-/* infix. A few verbs use suppletive plurals (e.g. [*kəɗ*] 'kill (sg)', [*paɬ*] 'kill (pl)', although it appears that most suppletive plurals contain the vowel */a/*.

Table 21. Podoko verbal plurals (data from Jarvis 1986)

Gloss	Root	Singular		Plural	
		Surface	Underlying	*/-a-/* infix	*/-aw/* suffix
'go'	C	[da]	/d-a/	–	/d-aw/
'sit'		[ⁿdza]	/ⁿdz-a/	–	/ⁿdz-aw/
'sell'	CC	[vəla]	/vl-a/	/v-a-l/	/v-a-l-aw/
'walk'		[wija]	/wj-a/	–	/w-a-j-aw/
'buy'		[skʷa]	/skʷ-a/	/s-a-kʷ/	–
'stir'		[uza]	/wz-a/	–	/wz-aw/, /w-a-z-aw/
'boil'		[ufa]	/wf-a/	–	/wf-aw/
'receive'		[ɮəxa]	/ɮx-a/	/ɮ-a-x/	/ɮ-a-x-aw/
'jilt'	CCC	[suɗa]	/swɗ-a/	/s-a-w-a-ɗ/	–
'drown'		[zufa]	/zwf-a/	–	/zwf-aw/
'surround'		[duɗa]	/dwɗ-a/	/d-a-w-a-ɗ/	/dwɗ-aw/
'embrace'		[hʷəmbəra]	/hʷᵐbr-a/	–	/hʷ-a-ᵐb-a-r-aw/

14 In the related language Margi there is a post-nominal modifier [*ʔʲar*] with much the same function as [*ⁿda*] in Podoko (e.g. [*Síápú ʔʲàr*] 'Siapu and his people' (Hoffmann 1963).

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‘spy’		[uɓəla]	/wɓl-a/	–	/wɓ-a-l-aw/
‘chase’		[gərəva]	/grv-a/	/g-a-r-a-v/	–
‘twist’		[tərɗa]	/trɗ-a/	/t-a-rɗ/	–
‘follow’	CaC	[ɗaba]	/ɗab-a/	–	/ɗab-aw/
‘dig’		[laxa]	/lax-a/	–	/lax-aw/
‘grill’	CCaC	[mt͡saka]	/mt͡sak-a/	/m-a-t͡sak/	–
‘cough’		[kʷəɬaxa]	/kʷɬax-a/	–	/kʷ-a-ɬax-aw/
‘chew’		[upaɗa]	/wpaɗ-a/	–	/wpaɗ-aw/
‘pack down’		[dədara]	/ddar-a/	–	/ddar-aw/

Interestingly, some verbs use each of these strategies to form two distinct plural forms, with a functional difference between them: an */-a-/* infix strategy alone is used for multiple subjects of intransitive verbs and multiple objects of transitive verbs, but both strategies are used together when the plurality or repetition of the action is highlighted (e.g. habituality).

4 The Ɓata subgroup

Much of the existing literature on internal vowel plurals in Chadic languages discusses only languages which use an */-a-/* infix or a vowel lowering or vowel lengthening strategy (Newman 1990: 37–41 (nouns), 72–76 (verbs)). The idea of an */-ə-/* infix strategy has often been overlooked because it is harder to spot. This section hopes to show that it is relatively common in both nominal and verbal plurals, at least in the languages of the Ɓata subgroup. The difficulty in noticing it stems from the fact that the pronunciation of the phonemic vowel */ə/* and the epenthetic vowel */ɨ/* are affected by neighbouring palatalised and labialised segments in ways in which an */a/* vowel is not. However, once the phonological rules of consonant-vowel interaction are properly understood, the use of the */-ə-/* infix becomes clear, and avoids the need to posit a lot of seemingly random vowel change rules. It also links pluralisation strategies across the whole of the Central Chadic family more transparently, as it is reasonable to suppose that the */-a-/* infix and the */-ə-/* infix ultimately have the same origin. One possibility is that synchronic */ə/* in the Ɓata subgroup derives historically from short **/a/* in Proto-Ɓata, and syn-

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chronic */a/* derives from Proto-Bata long */aa/*.[15] The languages of the Bata subgroup are much less well documented than those of the Mandara subgroup, but hopefully this section provides enough evidence to present a basis for the case that an */-ə-/* infix strategy is actually fairly common.

4.1 Sharwa

Sharwa, like Bacama and Nzanyi in the Bata subgroup can be analysed with two phonemic vowels */a/* and */ə/*, as well as an epenthetic */ɨ/*. The pronunciation of */ə/* and */ɨ/* is affected by neighbouring palatalised and labialised segments, as summarised in Table 22.

Table 22. Rules governing the pronunciation of [ɨ] and */ə/* in Sharwa

Vowel	/C_C/	/C_#/	/C^{w}_/ and /_w#/	/C^{j}_/ and /_j#/
Ø	[ɨ]	[ə]	[u]	[i]
/ə/	[ə]	[ə]	[o]	[e]
/a/	[a]	[a]	[a]	[a]

Limited data is available on Sharwa, but what exists shows some evidence that an */-ə-/* infix is used for some nominal and verbal plurals, as shown in Table 23 and Table 24. Many nominal plurals also take a suffix */-j/*, which is a common plural suffix on nouns in the Bata subgroup. The data is taken from Gravina (2009), who analyses the */ɨ/* as phonemic, even though he reports that it is often unrealised between consonants (and thus has zero as an allophone), and could be considered epenthetic.

Table 23. Sharwa nominal plurals

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘flute’	[fɨdkə]	/fd-k-ə/	[fədəkə]	/f-ə-d-ə-k-ə/
‘hoe’	[t͡sɨrə]	/t͡sr-ə/	[t͡ʃərə]	/t͡s^{j}-ə-r-ə/
‘skin’	[bugɨrə]	/b^{w}gr-ə/	[bogəri]	/b^{w}-ə-g-ə-r-j/
‘rat’	[himə]	/h^{j}m-ə/	[h^{j}emi]	/h^{j}-ə-m-j/
‘terrapin’	[k^{w}akurə]	/k^{w}ak^{w}r-ə/	[k^{w}akori]	/k^{w}ak^{w}-ə-r-j/
‘bank’	[dɨglə]	/dgl-ə/	[d^{j}egəli]	/d^{j}-ə-g-ə-l-j/

15 My thanks go to an anonymous reviewer for pointing out this possible origin for the */-ə-/* infix.

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Note that in the words for 'hoe' and 'bank', one of the root consonants is palatalised in the plural, which is a common feature of plural nouns in some languages of the Ɓata subgroup. Synchronically, it is analysed as a word-level prosody which affects certain root consonants (with laminals and alveolar consonants preferred over labials), but historically, it was likely caused by a **-j* suffix, which is still common on many nouns (Gravina 2014: 318).

Table 24. Sharwa verbal plurals

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'choose'	[ɗɨr]	/ɗr/	[ɗər]	/ɗ-ə-r/
'die'	[mɨtə]	/mtə/	[mətə]	/m-ə-tə/

In Jimi, a closely related language of the Ɓata subgroup, the vowels [*ə*] and [*i*] consistently correspond to the vowels [*ɨ*] and [*ə*] in Sharwa (Gravina 2009: 14). Thus in Jimi, verbal plurals are formed by the insertion of the vowel */i/*, pronounced as a long vowel [*ii*], as in Table 25:

Table 25. Jimi verbal plurals (data from Gravina 2003: 9)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'gather'	[ɗəmən]	/ɗm-n/	[ɗiimən]	/ɗ-i-m-n/
'buy'	[ɗərən]	/ɗr-n/	[ɗiirən]	/ɗ-i-r-n/

No data is currently available on Jimi nominal plurals, although Jimi is closely related to Guɗe, which is discussed later in this paper.

4.2 Ɓacama

Ɓacama has the same two phonemic vowels as Sharwa (*/a/* and */ə/*) and the same rules for pronunciation (Table 22), with the exception that */ə/* is pronounced as [*e*] word-finally before a pause or a major syntactic boundary. Noun roots either end in */a/* or a consonant, in which case */ə/* is affixed to the end of the root. This final */-ə/* is usually still present in the singular mid-phrase, but it is sometimes deleted in the plural, although it is currently not clear what determines this deletion since it doesn't appear to be optional. The general plural marker is the suffix */-j/*, which attaches to the end of the root, but roots that don't contain a vowel also have */ə/* inserted between

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the consonants in the plural, as shown in Table 26. Some roots also have a */-g/* suffix added in the plural between the root and the general plural suffix */-j/*. */-j/* also functions as a prenominal quantifier meaning 'some, other' (e.g. [*i mandi*] */j ma^{n}d-j/* 'some, other women', [*i d^{w}e*] */j d^{w}a-j/* 'some, other pots').

Table 26. Ɓacama nominal plurals (data from Ornan 2016)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'calabash'	[kpa]	/kpa/	[kpe]	/kpa-j/
'stone'	[faɪa]	/faɪa/	[faɪe]	/faɪa-j/
'dog'	[sake]	/sak-ə/	[sakje]	/sak-j-ə/
'room'	[vɨne]	/vn-ə/	[vənje]	/v-ə-n-j-ə/
'basket'	[kune]	/k^{w}n-ə/	[konje]	/k^{w}-ə-n-j-ə/
'egg'	[ɗule]	/ɗ^{w}l-ə/	[ɗolje]	/ɗ^{w}-ə-l-j-ə/
'hole'	[g^{w}e]	/g^{w}-ə/	[goje]	/g^{w}-ə-j-ə/
'wine'	[vwe]	/v^{w}-ə/	[vogje]	/v^{w}-ə-g-j-ə/
'corn'	[zɨmwe]	/zm^{w}-ə/	[zəmogje]	/z-ə-m^{w}-ə-g-j-ə/

Identifying an */-ə-/* infix in the plural, along with understanding the regular phonological rules affecting the pronunciation of vowels, provides a relatively straightforward analysis which fits in nicely with comparative data. Adjectival modifiers also take an */-ə-/* infix in the plural, although those that are derived from verbs (e.g. */kltə/* 'swell, inflate') do not also take the */-j/* plural suffix, as shown in Table 27:

Table 27. Ɓacama post-nominal adjectival modifiers

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'heavy stone'	[faɪa diksɨke]	/faɪa d^{j}ksk-ə/	[faɪe deksəkje]	/faɪa-j d^{j}-ə-ks-ə-k-j-ə/
'large tree'	[kada kɨltə]	/kada kltə/	[kade kəltə]	/kada-j k-ə-ltə/

Verbal plurals are particularly interesting, since they use either an */-a-/* infix or an */-ə-/* infix depending on whether the root ends in */a/*, as shown in Table 28. A similar situation also holds in Guɗe. This suggests that */-a-/* infix and */-ə-/* infix are underlyingly the same morphological process, with */a/* and */ə/* being phonologically

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conditioned allophones of the same phoneme in this context. Monoconsonantal roots are highly irregular, although their plurals always involve the addition of an extra syllable.

Table 28. Ɓacama verbal plurals (data from Gabriel 2020)

Gloss	Root	Singular		Plural	
		Surface	Underlying	Surface	Underlying
‘lie down’	C	[bà]	/b-/	[púkà]	/pʷkə/
‘give’		[và]	/v-/	[vénà]	/vʲ-ə-n-ə/
‘lose’	CC	[kípà]	/kʲp-ə/	[képà]	/kʲ-ə-p-ə/
‘pierce’		[tɬlà]	/tl-ə/	[tàlà]	/t-ə-l-ə/
‘run’		[gíɓà]	/gʲɓ-ə/	[géɓà]	/gʲ-ə-ɓ-ə/
‘mold’	CCC	[ⁿdɨfɪɾà]	/ⁿdfɾ-ə/	[ⁿdàfəɾà]	/ⁿd-ə-f-ə-ɾ-ə/
‘fold’		[tɨfɨɗà]	/tfɗ-ə/	[tàfəɗà]	/t-ə-f-ə-ɗ-ə/
‘peel’		[ʃɨbútà]	/ʃbʷt-ə/	[ʃèbótà]	/ʃ-ə-bʷ-ə-t-ə/
‘hit’	CaCC	[zàmbɨɾà]	/zaᵐbɾ-ə/	[zàmbàɾà]	/z-ə-ᵐb-ə-ɹ-ə/
‘throw’	Ca	[ká]	/ká/	[kàlá]	/k-à-l-á/
‘sing’		[gá]	/gá/	[gə́ə́]	/gə́ə́/
‘call’		[wá]	/wá/	[wàgá]	/w-à-g-á/
‘hang’		[bá]	/bá]	[púká]	/pʷká/
‘saw’	CCa	[ɗíjá]	/ɗja/	[ɗájá]	/ɗ-a-ja/
‘sweep’		[fíjá]	/fja/	[fájá]	/f-a-ja/
‘blow’		[ʃíná]	/sʲna/	[ʃáná]	/sʲ-a-n-a/
‘drink’	CCCa	[hùɓìlá]	/hʷɓla/	[hʷàɓàlá]	/hʷ-a-ɓ-a-la/

Note from the verb */zaᵐbɹ-ə/* ‘hit’ that if a root contains an */a/*, but doesn’t end in */a/*, the */a/* in the root is replaced by */ə/* in the plural. This would constitute one of the few cases of vowel replacement.

4.3 Nzanyi

Nzanyi as the same vowel phonemes (*/a/* and */ə/*) and phonological conditioning as Sharwa, and like Sharwa and Ɓacama, a */-j/* suffix is used in nominal plurals, along with an */-ə-/* infix if the root contains adjacent consonants, as shown in Table 29. As in Ɓacama, some nouns also take a */-g/* suffix in the plural, and it is possible that this segment was originally part of the root but has been lost in the sin-

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gular, since included in such nouns are all nouns that end in [*o*] in the singular. However, it also possible that the */-gi/* suffix is a remnant of the Proto-Chadic nominal plural suffix **-aki*.

Table 29. Nzanyi plural nouns (data from Benson 2013)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'thing'	[sə́]	/s-ə/	[ʃí]	/s-j/
'corpse'	[wó]	/w-ə/	[wògí]	/w-ə-g-j/
'man'	[múɾə́]	/mʷɾ-ə/	[móɾí]	/mʷ-ə-ɾ-j/
'whiteness'	[púɗə́]	/pʷɗ-ə/	[póɗí]	/pʷ-ə-ɗ-j/
'room'	[vìnə́]	/vʲn-ə/	[vènəgí]	/vʲ-ə-n-ə-g-j/
'granary'	[dɪ̀ɓó]	/dɓʷ-ə/	[dəɓògí]	/d-ə-ɓʷ-ə-g-j/
'leaf'	[gàsə́]	/gas-ə/	[gàʃí]	/gas-j/
'bead'	[músɪ̀ɾə́]	/mʷsɾ-ə/	[mósəɾí]	/mʷ-ə-s-ə-ɾ-j/
'thief'	[màhɨɾə́]	/mahɾ-ə/	[màhəɾí]	/mah-ə-ɾ-j/
'cutlass'	[màʔʷàt͡sə́]	/maʔʷat͡s-ə/	[màʔʷàt͡ʃí]	/maʔʷat͡s-j/

Some nouns whose polyconsonantal roots end in */a/* take an */-a-/* infix in the plural, whilst for others, the only change is a replacement of the final */a/* with the */-j/* suffix, as shown in Table 30.

Table 30. Nzanyi plural nouns for roots ending in */a/*

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
'road'	[ɾɨ̀gʷá]	/ɾgʷa/	[ɾàgʷàgí]	/ɾ-a-gʷa-g-j/
'town'	[vɨ̀ɾàt͡ʃí]	/vɾa-t͡sj/	[vàɾàgí]	/v-a-ɾa-g-j/
'nail'	[úsá]	/wsa/	[úʃí]	/ws-j/
'dish'	[tásá]	/tasa/	[táʃí]	/tas-j/
'frog'	[gʷàndá]	/gʷaⁿda/	[gʷàndí]	/gʷaⁿd-j/

Plural verbs in Nzanyi are yet to be fully investigated, but preliminary findings suggest that Nzanyi uses the same strategy as Ɓacama does, except that monoconsonantal roots are reduplicated, as shown in Table 31:

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Table 31. Nzanyi plural verbs

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘cut’	[tan]	/ta-n/[16]	[tatan]	/t-a-ta-n/
‘dig’	[tɨlə]	/tl-ə/	[tələ]	/t-ə-l-ə/
‘push’	[lɨka]	/lka/	[laka]	/l-a-ka/
‘fall’	[fuk^{j}a]	/f^{w}k^{j}a/	[f^{w}ak^{j}a]	/f^{w}-a-k^{j}a/

4.4 Guɗe

Guɗe has been left to last because it has the most complicated phonology which is far from transparent. Hoskison (1975, 1983) analyses Guɗe with four vowel phonemes */a/*, */ɨ/*, */aa/* and */ɨɨ/*. However, it is possible to consider [*ɨ*] as an epenthetic vowel, and [*ɨɨ*] as the realisation of the phoneme */ə/*. Such an analysis makes both the underlying vowel system and the morphology of nominal and verbal plurality more typologically consistent, since it has the same system as Sharwa, Ɓacama and Nzanyi, and the nominal plural suffix */-j/* is clearer to see. In many cases, it also helps to show more consistency among lexical roots across the group.

Singular nouns in Guɗe fall into two basic lexical categories: those which take a petrified */-n/* suffix, and those which do not. Those which do not can be split into two further groups: those whose final */a/* disappears before another word, and those whose final */a/* remains. Most plural nouns also take the */-n/* suffix. The main synchronic plural features are the suffixes */-n^{j}/* or */-j/*, or palatalisation of the final root consonant and sometimes other root consonants as well. A small subset of nouns take the irregular plural suffixes */-g^{j}/* or */-s^{j}ʔ^{j}/* instead. Generally, singular noun stems which end in a consonant (plus all loanwords) take the */-n^{j}/* suffix, and stems which end in */a/* replace the */a/* with the */-j/* suffix, as shown in Table 32. A few */a/*-final stems can optionally take the */-n^{j}/* suffix instead.

16 It is likely that this */-n/* suffix is a petrified Proto-Chadic determiner **n*, as posited by Schuh (1983: 158).

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Table 32. Guɗe plural nouns with */-j/* or */-nʲ/* suffixes (data from Hoskison 1983: 34–38)

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘cow’	[la]	/la/	[liiniɨ]	/l-j-n/
‘basket’	[ɗɨva]	/ɗv-a/	[ɗɨviiniɨ]	/ɗv-j-n/
‘hoe’	[t͡sɨiɾa]	/t͡sər-a/	[t͡sɨiɾriiniɨ]	/t͡sər-j-n/
‘frog’	[gʷanda]	/gʷaⁿda/	[gʷandiiniɨ]	/gʷaⁿd-j-n/
‘Kanuri person’	[uuva]	/wv-a/	[uuviiniɨ]	/wv-j-n/
‘fire’	[guniɨ]	/gʷ-n/	[guŋiniɨ]	/gʷ-nʲ-n/
‘fence’	[t͡saniɨ]	/t͡sa-n/	[t͡saŋiniɨ]	/t͡sa-nʲ-n/
‘feather’	[bibiniɨ]	/bʲbʲ-n/	[bibiŋiniɨ]	/bʲbʲ-nʲ-n/
‘car’	[mota] (lw.)	/mota/	[motaŋiniɨ]	/mota-nʲ-n/
‘kola nut’	[goɾa] (lw.)	/goɾa/	[goraŋiniɨ]	gora-nʲ-n/

Plural nouns which don’t take either of the plural suffixes */-j/* or */-nʲ/* palatalise the final consonant of the root instead, and sometimes other consonants as well, with a preference for coronal consonants over non-coronal consonants, and labials over velars, as shown in Table 33.

Table 33. Guɗe plural nouns with a palatalised root consonant

Gloss	Singular		Plural	
	Surface	Underlying	Surface	Underlying
‘royal clansman’	[kamba]	/kaᵐba/	[kambiniɨ]	/kaᵐbʲ-n/
‘young girl’	[ɾɨmɨniɨ]	/ɾm-n/	[ɾimiɨniɨ]	/ɾʲmʲ-n/
‘civet cat’	[gudɨɾa]	/gʷdɾ-a/	[gudiɾiniɨ]	/gʷdʲɾʲ-n/
‘baboon’	[huɾɨba]	/hʷɾb-a/	[huɾɨbiniɨ]	/hʷɾbʲ-n/
‘adult man’	[lawaɾa]	/lawaɾ-a/	[lʲawaɾiniɨ]	/lʲawaɾʲ-n/
‘cripple’	[mɨdɨɾa]	/mdɾ-a/	[midiɾiniɨ]	/mʲdʲɾʲ-n/
‘princess’	[kʷatama]	/kʷatam-a/	[kʷatʲaminiɨ]	/kʷatʲamʲ-n/
‘parent-in-law’	[sɨɾɨhʷa]	/sɾhʷ-a/	[ʃiɾɨhiniɨ]	/sʲɾhʲ-n/
‘medicine’	[kuzɨka]	/kʷzk-a/	[kuʒikiniɨ]	/kʷzʲkʲ-n/
‘prince’	[ɨnʃaɾa]	/nʃaɾ-a/	[ɨnʃaɾiniɨ]	/nʃarʲ-n/

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This conditioned variation between the plural suffixes (*/-j/* and */-nʲ/*) and the palatalisation of one or more of the consonants of the root suggests that the palatalisation is a result of the incorporation of the */-j/* suffix into the root. Guɗe also uses the same palatalisation strategy in marking ventive aspect, together with an */-a/* suffix.
As usual, there are also a few kinship terms whose plurals are irregular (e.g. [*minɨ*] 'woman, wife', [*makinɨ*] 'women, wives'; [*ŋgura*] 'man, husband', [*ŋgʷiirɨnɨ*] 'men, husbands'), although they often show traces of infixed vowels.

Verbal plurals in Guɗe are more regular, using an */-a-/* infix or */-ə-/* infix depending on whether the root ends in */a/*, just as in Ɓacama and Nzanyi, as shown in Table 34. The only significant difference in Guɗe is that infixed vowels are predictably lengthened.

Table 34. Guɗe verbal plurals

Gloss	Root	Singular		Plural	
		Surface	Underlying	Surface	Underlying
'break'	C	[ɓi]	/ɓʲ/	[ɓiiɓi]	/ɓʲ-ə-ɓʲ/
'fill mouth'		[ɓu]	/ɓʷ/	[ɓuuɓu]	/ɓʷ-ə-ɓʷ/
'breathe'		[pi]	/pʲ/	[piipi]	/pʲ-ə-pʲ/
'stab'	CC	[d͡zɨɓɨ]	/d͡zɓ/	[d͡zɨɨɓɨ]	/d͡z-ə-ɓ/
'collect'		[fɨɗɨ]	/fɗ/	[fɨɨɗɨ]	/f-ə-ɗ/
'grind'		[ɨdɨ][17]	/xd/	[xɨɨdɨ]	/x-ə-d/
'die'		[ɨntɨ][18]	/mt/	[mɨɨtɨ]	/m-ə-t/
'gather'	CCC	[fɨɗɨn]	/fɗn/	[fɨɨɗɨn]	/f-ə-ɗn/
'be full'		[ɨburɨ]	/xbʷɾ/	[xɨɨburɨ]	/x-ə-bʷɾ/
'cut'	Ca	[la]	/la/	[laala]	/l-a-la/
'drive away'	CCa	[sɨba]	/sba/	[saaba]	/s-a-ba/
'fall'		[kula]	/kʷla/	[kʷaala]	/kʷ-a-la/

17 For some verbs beginning with [*ɨ*], an original, initial velar consonant has been dropped in the singular form, but remains in the plural.

18 In this case, the epenthetic [*ɨ*] has been inserted before the initial consonant rather than after it. There has then been place assimilation between the nasal and the following consonant.

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Verb roots with more than one consonant optionally have their first consonant reduplicated, in which case a second vowel infix is used (e.g. [*d͡zɨd͡zɨɨbɨ*] ‘stab (pl)’, [*kʷakʷaala*] ‘fall (pl)’).

5 Conclusion

It is often the case that looking at the morphological patterns of a group of closely related languages yields insights into the analysis of individual languages within the group, and this has certainly been the case in this paper, where new morphological analyses of plural marking in individual languages has yielded a remarkable degree of internal consistency within the groups. A number of general observations can be made regarding nominal and verbal plurality within each group as summarised here.

The Mandara subgroup typically uses an */-ax/* suffix for nominal plurals, sometimes in conjunction with an */-a-/* infix. It is certainly possible that this suffix is a reflex of the best attested and most widespread Proto-Chadic nominal plural suffix **-aki*. Indeed, Newman (1990: 19) suggests that */-ak/* could be a reflex of **-aki* in Musgu, another Central Chadic language, and so it would be easy to see how */-ax/* (or */-ah/* or */-aw/*) could also be reflexes of this, especially given that the suffix has the form */-ak/* in Podoko. If the */-a-/* infix does go back to Proto-Chadic, as tentatively suggested by Newman (2006: 195), the vestigial traces of an */-a-/* infix in a basic subset of kinship terms in several languages of the Mandara group is certainly compatible with such an idea. Podoko is interesting in that both the */-ak/* suffix and */-a-/* infix strategies have become rather mixed, with nouns taking one or the other (or both) on a seemingly random basis. Another feature of plural marking in the Mandara group is that the singular form is actually unmarked for number, or to be more precise, the unmarked number form can be used with both singular and plural reference. The marked plural form is used only when specific plural reference is deemed pragmatically necessary.

For verbal plurality, it is clear (in all cases except Podoko) that different strategies are employed depending on how many consonants the root contains, and whether the root contains a vowel. Such strict conditioning of verbal plurality strategies was first pointed out for Lamang by Wolff (1983: 107). An */-a-/* infix is the preferred strategy for vowel-less polyconsonantal roots, with the */-ax/* suffix generally

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used elsewhere. Less common strategies include partial reduplication, and an */-ad/* suffix in the case of Dghwede. Podoko is the exception in that both an */-aw/* suffix and the */-a-/* infix are used in a seemingly haphazard manner, regardless of root structure, but given the similar situation for nouns, this is hardly surprising.

It therefore seems likely that the */-ak/*, */-ax/*, */-ah/* and */-aw/* suffixes found in the Mandara subgroup are reflexes of the same PC plural marker **-aki*. Newman (1990) presents **-aki* as a PC nominal suffix and **-aw* as a tentative PC verbal suffix, but it is perhaps possible that both have the same origin, especially as he also posits **-d(i)* as a possible PC nominal suffix and **-ɗ* as a possible PC verbal suffix. Frajzyngier (1977: 37) suggests that such extensive similarities between nominal and verbal plurality can hardly be accidental, although Newman (1990: 86) essentially claims that they are, with Wolff (2009) also suggesting an alternative explanation for nominals. Given that an */-a-/* infix is much more widespread in Chadic as a marker of verbal plurality than nominal plurality, Frajzyngier (1977: 51–52) suggests that it originally started out as a marker of verbal plurality and then some languages transferred it into the nominal system. As borrowing often goes in both directions, given that the suffix **-aki* is much more widespread as marker of nominal plurality, it is at least possible that this suffix was borrowed in the opposite direction, particularly for verb roots whose structure made the */-a-/* infix strategy difficult (e.g. monoconsonantal verbs, and verbs which already contained an */a/* vowel). The Podoko data raises a further interesting question, namely whether that the PC **-aki* suffix could actually comprise two separate PC suffixes **-ak* and **-i*, as **-i* is also generally accepted as a PC nominal plural suffix (Newman 1990: 48).

The Ɓata group most widely uses a */-j/* suffix to mark nominal plurality, presumably originating from the PC nominal plural suffix **-i*. In some languages, this suffix has become incorporated into the root, surfacing as palatalisation of the final consonant and often other consonants as well. Infixed vowel plurals are also common, and it is interesting to note that, just as in the verbal plurals of the Mandara group, the internal vowel strategy for nominal plurals of the Ɓata group is somewhat dependent upon root structure. An */-ə-/* infix is the default strategy, but for roots which end in */a/*, an */-a-/* infix is preferred. If the */-ə-/* infix is an historically reduced form of */a/*, then one could say that a final */a/* blocked the weakening of an original

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medial **/a/* to */ə/*. Roots which already contain a vowel, for which an infix vowel strategy wouldn't be appropriate, the usual */-j/* suffix normally suffices. Less common plural suffixes include */-gi/* and */-n/*, which are presumably vestigial traces of the PC nominal plural suffixes **-aki* and **-n*.

For verbal plurals, vowel infix plurals are almost exclusively used, with both */-ə-/* and */-a-/* being used according to whether the root ends in */a/*, again compatible with the idea that a final */a/* blocked the weakening of medial */-a-/* to */-ə-/*. In Jimi, the reflex of pan-Ɓata */ə/* is [*i*], whilst in Guɗe, it is [*ɨɨ*]. For monoconsonantal roots, reduplication is also sometimes used, as an infix vowel strategy alone would not be feasible.

Looking at both groups, is it possible to draw any possible conclusions about pluralisation strategies in Central Chadic as a whole? Such an undertaking would certainly need to look at other subgroups as well in at least as much detail as this paper has done for the Mandara and Ɓata groups. Given that infixed vowel nominal plurals are still relatively common in the Ɓata group, with remnants of it in the Mandara group, an initial hypothesis could be that infixed vowels were originally used for marking verbal plurality (a generally undisputed claim) and at some point early in the history of Central Chadic were adapted by the nominal system for marking plurality on certain nouns, or for certain semantic distinctions or pragmatically marked situations. Then, as the use of existing nominal plural suffixes inherited from Proto-Chadic became more systematic, the use of infixes gradually became more restricted and largely disappeared, with vestigial traces of them now discernable only among certain kinship terms, which is precisely where one might expect to find remnants of archaic systems (cf. the *-en* plural suffix in English (e.g. 'children', 'brethren')). In the case of the Mandara group, the dominant nominal suffix was **/-ak/*, and in the case of the Ɓata group, the nominal suffix was mostly */-j/*, with */-n/* also found either as a petrified trace of the PC plural demonstrative determiner **/-n/* or as the distinct PC nominal plural suffix **/-n(a)/*. As noted above, there may also have been borrowing going on in the opposite direction, particularly among verbs whose roots made the use of infixes problematic. This would explain the various overlaps between nominal and verbal plurality in both groups beyond the use of vowel infixes. Hopefully, as

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further studies reveal more data on individual languages, the diachronic situation may become even clearer.

Abbreviations

1 first person, 2 second person, FV final vowel SG singular, PL plural, POSS possessive

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Initial findings on the Boor language

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Abstract
This article provides the first published information on Boor, an Eastern Chadic language spoken in a single village in the Moyen Chari Region of Chad. First, the sociolinguistic situation of the language and its speakers is presented, along with the conditions under which the present data was collected. Then follows a very provisional statement about the consonant and vowel systems of the language, along with some remarks about nominal and verbal morphology. The article finishes by presenting several tables of lexical data, comparing Boor words with those of several nearby languages, in the interest of better understanding the place of Boor within the Eastern Chadic family.

Keywords: Endangered languages, Chadic, Chadic classification

1 Background

Boor (ISO 639-3 [bvf]) is undoubtedly the most obscure of the Eastern Chadic languages. Its speakers inhabit but a single village named Damraou, which hugs the banks of the Chari River in southeastern Chad, about 145 km from the city of Sarh. Despite its riverine location, Damraou is difficult for outsiders to access; its language is completely undocumented, and is almost completely unknown to the outside world.

The first mention I find to this language is in Boyeldieu's (1985) monograph on the Niellim language, where he simply mentions that Boor is one of the languages that neighbours the Niellim, and that it is of the Chadic family. More recently, a word list was taken in the village of Miltou during a survey conducted by an SIL research team in December 1993 (Faris & Le Ndotar 1994). On that occasion, the Boor speaker was a certain Kara Kanyar, and a total of 160 items were collected and transcribed. However, the research was not conducted in Damraou, where the language is actually spoken.

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In the ensuing years, I made repeated inquiry in N'Djaména about the language with Boua people who live in the area near Damraou. They confirmed to me that the Boor language exists, and is spoken in Damraou; however, I had not yet had any first-hand contact with the language or its speakers.

The first linguist to actually visit Damraou was Florian Lionnet, in the context of his own research into the Laal language, spoken in the nearby villages of Gori and Damtar. In March and again in November of 2012, Lionnet visited the village and collected a word list and some other rudimentary data in two very brief visits. Although Lionnet's primary focus was Laal, he did collect data on Boor: a few hundred words, simple sentences, pronouns, and verb forms.

Finally, during a separate survey of the situation of the Bagirmi language, I was able to reach the village of Damraou on April 19, 2013, but only for a single day. On that occasion, I conducted a sociolinguistic interview with a group of assembled villagers with the help of Assane Bella, who translated the questions into Bagirmi. I also transcribed and recorded a word list of 225 items with some rudimentary morphological data, as well as a brief text of slightly less than one minute. The Boor speakers who provided the language data were Hassan Kagalam and Oumar Khalamsa.

This paper summarizes the findings on the Boor language, from the data and the interviews conducted during my visit in 2013. Florian Lionnet was also kind enough to share with me the data from his notebook, and gave me permission to use what I could of his notes. His data is actually a bit more extensive than my own, but to date none of this data has been properly exploited. It will be understood that none of our data was collected under ideal circumstances, so the results that I report on here are very provisional.

2 Sociolinguistic situation

Our understanding of the sociolinguistic situation of the Boor language comes essentially from the interview conducted in 2013 with the villagers of Damrou.

2.1 Geography and demographics

The remarkable thing about the Boor language is that it is spoken in only one relatively small village, yet the language continues to be

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spoken, even by the children. Damraou is located on the north bank of the Chari River, about 145 km northwest and downstream from the city of Sarh. Administratively, it is located in the Moyen Chari Region of Chad, in the Korbol Département. The village is also on the outer edges of the Bagirmi domain, the ancient kingdom which assimilated a number of ethnic groups in the region years ago. The closest villages to Damraou are populated by speakers of Laal, Boua, and Bagirmi; a bit farther away we find speakers of Niellim, and also other Chadic languages, notably Miltu and Ndam.

The 1993 census of Chad is the last comprehensive census of the country with reasonably accurate detailed data that is publicly available. In that year, the population of Damraou was reported to be 96, made up of 54 males and 42 females. During our visit in 2013, the villagers reported that the population of the village was 106, reflecting a modest 10% increase over the previous 20 years. There are a few more speakers of the language in larger Chadian cities such as Sarh and N'Djaména.

2.2 Name of the language and people

The people of Damraou call their language Boor [*boːr*], and its speakers are the [*bɔrɔŋ*]. The Boua call them [*hua*], the people of Gori call them [*boː*], and the Bagirmi call them [*dəmraw*] after the name of their village. For the Niellim they are the [*buar*], and for the people of Kono they are [*bure*]. All of these names are acceptable to Boor speakers, and they incite no negative reactions. The name of the village is spelled Damraou on official documents, but it may also be pronounced [*dumraw*].

Despite the fact that the village is on the banks of the Chari River, the people are agriculturists, not primarily fishermen. They also reported that all were Muslim, although there is no mosque or Koranic school in operation there. None of the villagers are reported to practice traditional religion.

There is a school in the village, which has four classes, to the CE2 level. All the children of Damraou attend, and children also come from other nearby villages, swelling the enrollment number to 95 children. Of course, the language in school is French, but it is interesting that the people do not really claim any proficiency in French, and we did not interact with them in French during our visit. They added, however, that the schoolteacher, who was Sara, speaks some

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Boua, so that sometimes explanations are given to the children in Boua.

2.3 Bilingualism and language use

The interviewees in Damraou reported that all the villagers speak the following languages, in addition to Boor: Bagirmi, Laal, Boua, and Chadian Arabic. Everyone speaks Boor at home, but children will learn to speak the other languages at about the age of seven or eight years. Most marriages are reportedly endogamous, but a few have taken wives from the Ndam, the Laal, the Boua, or the Niellim. The Boor do not intermarry with Sara, Fulani, or Arabs, although they have some contact with these peoples. Lionnet (p.c.) reports that he perceived the incidence of mixed marriages as higher than the people reported to us. In any case, the villagers said that when the wife comes from elsewhere, she will learn Boor and speak it in the home; however, they admitted that the wife's language may well be spoken in these homes, in addition to Boor. It appears nonetheless that the high incidence of multilingualism in the area has not had noticeable impact to date on the vitality of the Boor language.

When the people of Damraou interact with others, they will communicate in whichever language both sides have in common. With the Laal or the Boua, they would speak the language of the interlocutor. With the Ndam, the Miltu, Saroua, Gadang, or Bagirmi, however, they would be obliged to use Bagirmi. And in other cases, they might have to use Chadian Arabic. Of the four languages in which the people are multilingual, they reckoned that they spoke Bagirmi best, followed by Laal, Boua, and Chadian Arabic, in that order. Lionnet (p.c.) also mentions that some speak Niellim, but that language was not mentioned during the 2013 visit as being understood by all.

3 Boor language

This section presents some tentative conclusions about the phonology and morphology of the language, based on the lexical data collected in 2013, and supplemented with items from Lionnet's (2012) field notes.

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3.1 Phonology

Tables 1 and 2 are preliminary charts of the consonants and vowels of Boor, based on the word list collected in 2013. The notes of Lionnet (2012) confirm my own findings. It is expected that a complete analysis will establish these as the basic phonological units of the language.

Table 1. Consonant system of Boor

	Labial	Alveolar	Post-alveolar	Velar
Plosives, voiceless	p	t	tʃ	k
voiced	b	d	ʤ	g
pre-nasalized	mb	nd	(ɲɟ)	ŋg
Implosives	ɓ	ɗ		
Fricatives		s	[ʃ]	h
Nasals	m	n	ɲ	ŋ
Lateral		l		
Flaps		ɾ	[ɽ]	
Glides	w		j	

This inventory is similar to that of other Chadic languages of the area, exploiting four points of articulation. There is a voicing contrast among the plosives only, and not for the fricatives. Implosives are common for languages in this area, and Boor has two of them. The consonants enclosed in square brackets are undoubtedly allophones of other consonants. The alveopalatal [ʃ] occurs before front vowels, especially */i/*, as an optional variant of the alveolar */s/*. In other Chadic languages in the general area, notably Sarua and Somrai, the phoneme */s/* shows the same variation. The retroflex flap [ɽ] occurs only once in my data, where it is in variation with [*l*]: [*goːɽe* ~ *goːle*] 'pebble'. This is reminiscent of the situation in Mulgi (personal field notes), where the phoneme */l/* has allophone [ɽ] before the front vowel */i/*. One final comment concerns the set of prenasalized stops. While I have only found three in my data, it is likely that more data would reveal a full set at all four points of articulation, so I have added [*ɲɟ*] in parentheses in the table above. (Lionnet 2012 does show the word for 'giraffe' as [*ɲɟele*].) It should be noted that pre-

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nasalized stops are rare in Eastern Chadic languages, although they have been attested in a few scattered languages: Lélé (Frajzyngier 2001) and Sarua (Abderamane Abdoul 2018) in the Chari-Logone group of Eastern Chadic, and Zerenkel (Ramat, in preparation) in the Guéra group. Finally, it is interesting to observe that this inventory is essentially identical with the consonant system found in Laal, an unrelated neighbouring language which is a classificatory isolate (Boyeldieu 1982, Lionnet 2017).

Table 2 presents a preliminary vowel chart based on my data. Boor has this rectangular system in common with a number of other languages in the Chari-Logone group of Eastern Chadic:

Table 2. Vowel system of Boor

	Front	Central	Back
High	i	ɨ	u
Upper mid	e	ə	o
Lower mid	(ɛ)		(ɔ)
Low		a	

It is difficult to make final conclusions about the fine points of the system, however, because of the rudimentary nature of my data. The lower mid vowels [*ɛ*] and [*ɔ*] are more limited in their occurrence, and it is likely that they are allophones of */e/* and */o/*, respectively. Such a situation obtains in a number of other Eastern Chadic languages. More problematic is the status of the central vowels [*ə*] and [*ɨ*]. It is true that the mid vowel [*ə*] is much more frequent in my data than [*ɨ*], but I hesitate to draw any conclusions about the relationship of the two vowels at this point.

The transcriptions in my data include a number of long vowels, but the evidence is not complete enough to confirm a phonological contrast of length. Also, although some vowels in a nasal environment have been transcribed as nasalized, there is no evidence that nasality is distinctive for vowels in this language.

A more interesting phenomenon is the variation I found in a number of words between [*ɔ*] and the diphthong [*u̯a*]: [*bakᵘ̯aj* ~ *bakɔj*] ‘spider’, [*kᵘ̯ani* ~ *kɔni*] ‘there’, [*bᵘ̯araŋ* ~ *bɔrɔŋ*] ‘Boor speakers (pl.)’. Lionnet (2012) shows [*bᵘ̯ara*] for a single Damraou man and [*bᵘ̯araŋ*] for the plural, but we both show [*boːr*] for the name of the village and language. This alternation may be purely phonological,

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or it may be conditioned by the morphology. The same alternation occurs in other Eastern Chadic languages such as Somrai (Roberts 2007, 2012), and to a lesser extent in Mawa (Roberts 2009). In those languages the alternation can be described as the effect of a word-level prosody of labialization (see Roberts 2001).

The parallel prosody of palatalization could also produce an alternation between [ɛ] and the diphthong [*ia*], but there are fewer examples of this diphthong in my Boor data, and I did not note any alternation with [ɛ]. The only examples of either transcription are in [*nətia̰rə*] 'I eat', [*nəʃia̰rə*], 'I drink', and possibly [*jɛrɛŋ*] 'long, tall' or [*giḛj*] 'ember'.

It is interesting to note that Boyeldieu (1985), in his analysis of the Niellim vowel system, posits two unit phonemes which he represents as */wa/* and */ya/*. These would correspond to the two alternations I have just mentioned. However, I believe that the situation in Boor is more likely due to a Chadic phenomenon, rather than one borrowed from an unrelated Niger-Congo language.

I should add that Lionnet and myself made some impressionistic and incomplete markings of tone on some of the words, but they are not presented here. It will be understood that little can be stated about the tone before a systematic study is undertaken, and it may turn out that even our initial impressions were erroneous.

3.2 Morphology

Information on Boor morphology is much more limited. I gathered a minimum of data in this area, but Lionnet (2012) actually includes a few more paradigms, which I report on here.

Nominal plurality in Chadic is often expressed by a variety of processes (Newman 1990). Most of the distinct plural forms in our data involve the names of animals. A few examples taken from Lionnet (2012) are shown in Table 3:

Table 3. Morphological expression of plurality in Boor nouns

Singular	Plural	Gloss
cuːn	*cwan*	'elephant'
bəgtə	*bəgt-aɲ*	'pigeon'
ɲɟele	*ɲɟel-əw*	'giraffe'
kom-o	*kom*	'mouse'

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In *cwan* ‘elephant’, plurality is shown by the addition of internal *a* (see Newman 1990). If one assumes that the *w* of that word is part of its root, then that consonant is vocalised to *u* in the singular form, a process observable in other Chadic languages (see Roberts 2001). The next two examples, *bəgtə* ‘pigeon’ and *ɲɟele* ‘giraffe’ show two different plural suffixes, *-aɲ* and *-əw*; and in the final example the plural form is unmarked, while there is a suffix *-o* expressing the singular. Apart from a few cases like this, however, it seems that the majority of nouns do not inflect for number. Rather, plurality is implied when a quantifier or a numeral accompanies the noun.

The pronoun system is structured like that of other Eastern Chadic languages, distinguishing masculine and feminine forms in the singular for 2nd and 3rd persons. It was also expected that the language makes a distinction between exclusive and inclusive forms for the 1st person plural, but I could not find it, and Lionnet (p.c.) reports that the Boor speakers gave clear indication that the distinction does not exist.

Pronominal markers in Chadic languages may occur as free (or clitic) forms, when they appear as the subject of a verb. But they may also be suffixed onto a noun for the expression of inalienable possession, or onto a verb to express its direct or indirect complements. My data includes possessive forms for several parts of the body, and Lionnet (2012) has a number of additional items. Lionnet’s data also shows that the same or similar pronominal suffixes are used as verbal complements. Table 4 shows the independent and suffixed forms of each pronoun as found in our data; the plural forms are from Lionnet’s notes.

Table 4. Personal pronouns

	Independent	Suffixed
1st singular	*nu ~ nə ~ nɨ*	*-u*
2nd sing. masculine	*jaŋ*	*-aŋ*
feminine	*ŋgə*	*-ə*
3rd sing. masculine	*ʃi*	*-i*
feminine	*ndə*	*-r*
1st plural	*ji*	*(nd)iŋ*
2nd plural	*jɨŋ*	*(nd)ɨŋ*
3rd plural	*ŋgə ~ ŋgɨ*	*(nd)u*

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The Boor verb displays at least two finite forms, which Lionnet has provisionally labeled imperfective and perfective. The perfective form often shows *-a* or *-ə* or *-o* suffixed onto the imperfective form, the choice possibly conditioned by the vowel of the verb root. Some verbs also undergo a change in the root vowel, the phenomenon that Jungraithmayr (2006) calls "apophony" or "ablaut". A few examples are shown in Table 5:

Table 5. Boor verbs in imperfective and perfective forms

Imperfective	Perfective	Gloss
mɨn	*mɨna*	'do'
gɔn	*guno*	'attach'
hul	*hulə*	'see'
ti	*taa*	'eat'
si	*saa*	'drink'

4 Comparison with other Chadic languages

Boor has been classified in the same subgroup of Eastern Chadic with Sarua, Gadang, and Miltu (Barreteau & Newman 1978), undoubtedly because of the geographical proximity. This is the Eastern subgroup of the Chari-Logone group of Eastern Chadic languages, according to my labeling, or subgroup A.1.2 in Barreteau & Newman's (1978) more abstractly labeled system. The people of Damraou realized that their language had some similarity to Miltu, but they knew nothing of Sarua or Gadang. When communicating with speakers of any of these other languages, the Damraou villagers reported that they would have to use Bagirmi, in any case.

An examination of the Boor data shows that this language is quite different, as compared to the other languages in its cluster. According to a very generous reckoning based on the 225-word list, I found only 51% of items that were possible cognates between Boor and Miltu. A more realistic count yielded a result of only 38% lexically similar items between these two. These indicators should be sufficient to establish Boor as a distinct language, and not a dialect of Miltu, as some have hypothesized (cf. Jungraithmayr & Peust 2019: 220). With regard to the other languages in the cluster, the results are much lower: a comparison of Boor with Sarua quantifies the simi-

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larity at 26%; and for Boor with Gadang, 28%. These findings led me to compare the Boor wordlist with data from other Chadic languages in the wider geographical area, to see if there were any closer affinities of Boor to a language from a different subgroup. But the results were no different. With Ndam, another close neighbour of Boor in the Chari-Logone subgroup, I found 25% similarity, and with Mawa (and Sokoro), from the southern cluster of Guéra languages, the similarity is at 22%.[1]

It is premature to propose any modifications to the classifications of languages within Eastern Chadic, but these indicators should help pave the way for further research into Boor and its Chadic neighbours. In the remainder of this article, I will simply present some tables of data to show comparisons of the Boor data with that of four other languages, languages which were chosen to represent Boor's closest possible relatives. I refrain from making further comments at this early stage of research on this language, but these data may be useful to others who are interested in the connections between these languages.

The first, Table 6, displays the numbers from one to ten, with comparisons to the languages mentioned above. At least some of the Boor forms are compounds, notably the words for 'seven' and 'nine'.

Table 6. Comparative data for numerals

Gloss	Boor	Miltu	Sarua	Ndam	Mawa
'one'	*lẹ̀k*	*pɨdɨ̀m*	*mɨ̀n*	*man*	*pəni*
'two'	*siːri*	*sɨ̀r*	*(ka)raị̀*	*sa*	*rap*
'three'	*supa*	*səp*	*sup*	*sub*	*sup*

1 The sources of data are as follows. For Miltu, I used the 225-word list (Roberts 2013) collected in the village of Miltou during the same survey trip as the visit to Damraou. For Sarua, I used data from the mémoire of Abderamane Abdoul (2018); and for Gadang, I used data from an old SIL survey trip (Vanderkooi 1990), supplemented by verb data from Jungraithmayr (2006). For the other languages, I used Cray (2012) and Broß (1988) for Ndam, and my own data for Mawa. I was careful to exclude items that were known loans in one or another of the lists, or else were duplicates of other words on the same list. And there were also some items missing in one or more of the lists. As a result, the calculations are based only on about 200 items in each case. Since the Miltu data was collected by the same method as the Boor data, 213 items were used in the calculation. The data on Gadang is the most incomplete, so that its calculation, which is the most uncertain of the cases presented here, is based on only 155 items.

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Gloss	Boor	Miltu	Sarua	Ndam	Mawa
‘four’	*paɗe*	*fwɔtˀ*	*wət*	*weti*	*paat*
‘five’	*piˈʤe*	*pi*	*wuɟu*	*wiʃi*	*bii*
‘six’	*ʤaraŋ*	*ʤigidim*	*ɟibərmin*	*wogi*	*biaapan*
‘seven’	*ʤaraŋ mbarme*	*ʤigsir*	*ɟisar*	*daksub*	*biamat*
‘eight’	*pare*	*fɔrɔwətˀ*	*marta*	*wetwet*	*patpat*
‘nine’	*parẹ ɓa*	*bani pidim*	*mical mun*	*disaaman*	*kuapinikara*
‘ten’	*pap*	*gʷɔm*	*dɔko*	*kwar*	*kuaayan*

Table 7 shows the words for a few parts of the body. It is possible that many of these are bound forms in Boor, and must obligatorily take a possessive suffix.

Table 7. Comparative data for parts of the body

Gloss	Boor	Miltu	Sarua	Ndam	Mawa
‘head’	*kaa̰r-*	*ki-*	*ndi-*	*dəj*	*guaam*
‘eye’	*ɲind-*	*ədən-*	*de(r)-*	*ci*	*ir*
‘nose’	*danto*	*hunan-*	*ndosn-*	*tan*	*demel*
‘ear’	*sima-*	*ʃiman-*	*ʃime-*	*sam*	*uandar*
‘mouth’	*par-*	*pie-*	*mbu-*	*bəg*	*but*
‘tooth’	*sind-*	*sin-*	*sand-*	*san*	*siin*
‘belly’	*gaˑn*	*gid-*	*notr-*	*guj*	*at*
‘back’	*jar*	*gaɽ-*	*gar-*	*tar*	*taar*
‘buttock’	*gula-*	*wɨlɨl-*	*ndaw-*	*gaj*	*wəl*
‘blood’	*pia̰r-*	*par-*	*mbar*	*bar*	*siat*

Table 8 displays several verbs in their citation form (possibly the infinitive or nominal form):

Table 8. Comparative data for verbs

Gloss	Boor	Miltu	Sarua	Ndam	Mawa
‘eat’	*tia̰rə*	*tə*	*ndra*	*wom*	*teeŋ*
‘drink’	*ʃia̰rə*	*sə*	*ʃija*	*ʃəy*	*siaaŋ*
‘kill’	*tija*	*koɟi*	*ndəh*	*aj*	*diaaŋ*
‘see’	*hulə*	*kəl*	*ndata*	*kal*	*niaaŋ*
‘give birth’	*waua̰rə*	*wə*	*ndija*	*aw*	*wiaaŋ*
‘die’	*muro*	*mər*	*mara*	*may*	*midiŋ*

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Gloss	Boor	Miltu	Sarua	Ndam	Mawa
‘weep’	*wəl*	*ʔwɔpˀ*	*wəla*	*nulə*	*ələŋ*

The final Table 9 presents a few additional items that are of pan-Chadic interest.

Table 9. Comparative data for other items

Gloss	Boor	Miltu	Sarua	Ndam	Mawa
‘name’	*libr-*	*ɾibi-*	*sime(di)*	*sam*	*suun*
‘dog’	*gəɾi*	*gəɾ*	*ndokro*	*gəy*	*kuy*
‘elephant’	*ʧuːn*	*ʧuːn*	*ɟun*	*cun*	*bəl*
‘fish’	*horo*	*fuci*	*ŋgosəi̯ʔ*	*gwəs / ba*	*buus*
‘tree’	*daːre*	*uʃo*	*aduwa*	*adu*	*səw*
‘sun’	*parə*	*paɾ*	*nɟa*	*jo(w)*	*pidi*
‘moon’	*ti̯rə*	*tər*	*ndu*	*di̯r*	*ɗel*
‘wind’	*əˑlə*	*əlal*	*ndifid*	*gaal*	*uac*
‘water’	*wum*	*wum*	*nam*	*naam*	*ami*
‘fire’	*kuɾ*	*kuɾ*	*nduwa*	*dəw*	*ak*
‘road’	*wuɾ*	*wudɨtˀ*	*mbərəŋ*	*bəm*	*əər*
‘meat’	*su*	*fi*	*ndon*	*dwaan*	*biik*
‘oil’	*su̯anə*	*su̯an*	*suwan*	*swan*	*suun*
‘egg’	*dĩ*	*ŋgasi*	*nanas*	*naas*	*dĩaas*
‘red’	*pəˑɾ*	*paʃɨ*	*bəra*	*pare*	*raabi*
‘black’	*kəlmi*	*kɨlim*	*ununa*	*digire*	*cilim*
‘white’	*daɾe*	*fʷɔɾ*	*pora*	*duwe*	*uro*

It is hoped that this paper, and the data it presents, will stimulate further research into the Boor language and into the other under-documented Chadic languages in the surrounding region. Our understanding of the relationship between these languages is still very imprecise, as is our understanding of the sociolinguistic factors that allow such a small language such as Boor to retain its vitality.

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