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Conative animal calls in Babanki and Bum (Grassfields languages of Cameroon)

Alexander Andrason & Pius W. Akumbu

Abstract:

This article offers a systematic analysis of conative animal calls (CACs) in Babanki and Bum – two Central Ring Grassfields Bantu languages of North-West Cameroon. The authors analyze the eco-pragmatics, semantics, phonetics, and morphology of 39 Babanki and 20 Bum CACs and conclude that in both languages CACs largely instantiate the prototype of a CAC with regard to semantics, phonetics, and morphology. The study further reveals that several linguistic properties exhibited by CACs have their source in the ecosystems inhabited by the respective communities of speakers. Finally, it is shown that the similarity between the CACs in Babanki and Bum is low and their phylogenetic relationship minimal despite the two languages being closely related.

Keywords: Grassfields, Babanki, Bum, conative animal calls, human-to-animal communication

1. Introduction

The present article is dedicated to the study of conative animal calls in two Central Ring languages of the Cameroonian Grassfields, namely, Babanki (ISO 639-3 bbk, Glottocode baba1266) and Bum (ISO 639-3 bmv, Glottocode bumm1238). Both varieties are spoken in the North-West Region of Cameroon, some 113-142 kilometers apart from each other, by relatively small communities of native speakers (Eberhard, Simons, and Fennig 2023; Hammarström, Forkel, Haspelmath and Bank 2022).¹ To be exact, Babanki is spoken in two principal settlements, Kejom Ketinguh (Babanki Tungoh) and Kejom Keku (Big Babanki), by less than 40.000 speakers, perhaps even no more than 25.000 (Faytak and Akumbu 2021: 333; see also Akumbu and Chibaka 2012: 3). Bum is spoken north of Fundong by some 15.000 speakers (Lamberty 2002: 4-5; cf. 21.000 reported in Eberhard, Simons, and Fennig (2023)). Although Babanki and Bum are vigorous languages, they already exhibit signs of language shift: education and health services are predominantly in English; Cameroun Pidgin English is widely used as an alternative communicative tool in trade; and both English and Cameroun Pidgin English often feature in

¹ 113 km separates Bum from the Babanki of Kejom Keku, while 142 km separates Bum from the Babanki of Kejom Ketinguh.

church and are increasingly more present in interactions at home (Lamberty 2002: 12; Akumbu and Wuchu 2015; Fatyak and Akumbu 2021; see also Ayafor and Green 2017).

As most Grassfields languages, Babanki and Bum have traditionally been severely under-researched. Recently, due to the work of one of the authors of the present article, this dire situation has greatly improved (see Akumbu 2008a; 2008b; 2011; 2015; 2016; 2019; 2022; Akumbu and Chibaka 2012; Akumbu and Wuchu 2015; Akumbu, Hyman, and Kießling 2020; Akumbu and Kießling 2021; 2022; Fatyak and Akumbu 2021). Bum, in contrast, still lacks systematic studies. The only works that we are aware of comprise of brief discussions of the nominal system (Hyman 1980; Akumbu 2009), as well as a preliminary study of the verb phrase (Bangsi 2016; see also Nombi 1981). Within the various language domains and grammatical and lexical categories, one class of constructions has particularly been overlooked in Babanki, Bum, and the entire Grassfields family. This concerns conative animal calls (CACs) or, according to an operationalized definition, word-like directive constructions that are used by humans in their communication with other animal species. CACs are briefly mentioned by Akumbu and Lionnet's (in preparation) study of Babanki interjections and liminal signs, but, to the best of our knowledge, have not featured in any discussion of Bum.

The present study responds to the above-mentioned epistemic lacuna and offers a systematic description of CACs in Babanki and Bum – the first of this type not only in these two languages but also in the Grassfields and Bantoid language groups.² In doing so, we follow a prototype approach to linguistic categorization and CACs specifically (Andrason and Karani 2021; Andrason 2022; Andrason and Phiri 2023) and couch our grammatical description within non-formal (“basic”) theories of language (see Goldberg 2003; Dryer 2006; Dixon 2010).

The article is structured in the following manner: in Section 2, we expose our conceptual framework and explain data collection methods. In Section 3, we present Babanki and Bum evidence. We evaluate this evidence in Section 4. In Section 5, we conclude the study and propose future lines of research.

2. Theory and methods

As mentioned in the previous section, our analysis of CACs is developed within a prototype approach to linguistic categorization (see Evans and Green 2006). This theoretical choice follows the conceptual framework that has widely been espoused in research on CACs (e.g., in Maasai, Xhosa, Tjwao, and several other (mostly African) languages; see Andrason and Karani (2021), Andrason (2022; 2023), and Andrason and Phiri (2023)) and that also underlies the most relevant study of all interactive word classes to which CACs belong (see Heine 2023). This means that we understand CACs as a radial category with prototype effects. The CAC category is a cloud of members that radiate from the categorial center to the periphery proportionally to the decrease of their compliance with the prototype, which demarcates the conceptual and topological nucleus of

² We understand Bantoid in its narrow sense, i.e., without Bantu languages. CACs have been analysed in some Bantu languages, e.g., Xhosa (Andrason 2022).

the category. Members that fully comply with the prototype are canonical and occupy a central position in the category's model. In contrast, members that comply with the prototype only minimally are non-canonical and populate the category's peripheries. As a result, the belonging to the CAC category is not a binary relation of an 'either-or' type but instead a gradient function of degree. Crucially, entities that fail to instantiate the prototype – including those that violate most of its characteristics – are not *a priori* denied their categorial belonging and thus a CAC status.

As is evident from the above, the most critical element in the CAC category is the prototype. Although the category is much more than the prototype, the prototype structures the category by constituting the reference point against which the canonicity and the extent of belonging of all the members is measured. The prototype itself is defined cumulatively as a collection of pragmatic, semantic, phonetic, morphological, and syntactic properties referred to as prototypical features. The inclusion of a feature in the prototype stems from four main reasons: crosslinguistic pervasiveness (i.e., that feature's frequency), cognitive salience (i.e., distinctiveness from other categories), diachronic convergence (i.e., developmental attractors towards which secondary CACs evolve), and/or spontaneous coinage (i.e., "naturalness" typifying primary CACs; see Andrason and Karani (2021) and Andrason (2023)).³

The features that scholars associate with the prototype of CACs will also be critical for our study. That is, to offer a systematic account of CACs in Babanki and Bum, we will estimate the extent to which the CAC categories in these two languages comply with (or violate) the prototype. Elaborate discussions of the various features proposed as prototypical are available in recent work on CACs and we invite the reader to consult these publications (see Andrason and Karani 2021; Andrason 2022; 2023; Andrason and Phiri 2023). Semantically, a prototypical CAC expresses the idea of motion (summonses call animals, dispersals chase them away, and directionals modify their movement), is directed to domestic rather than wild species, and its semantic potential is relatively limited. Phonetically, a prototypical CAC is monosyllabic, makes extensive use of consonantal rather than vocalic material, tolerates extra-systematic phones and phonotactics, potentially hosting non-IPA sounds (kisses and whistles), and largely exploits suprasegmental features such as length and various types of marked phonations. Morphologically, a prototypical CAC is opaque, being a monomorphemic root with no inflectional and derivational markers and no other elements incorporated through compounding. Additionally, the different semantic types of CACs, i.e., summonses, dispersals, and directionals, are correlated with determined phonetic and morphological features.⁴ Given the prototype approach which we have espoused, the above

³ Primary CACs are form that have been used as CACs since the beginning of their grammatical life as well as form that although limited to their use as CACs have acquired this study due to the profound extent of CAC-ization (i.e., grammaticalization/lexicalization into CACs). Secondary CACs are CACs that draws on other lexical classes (e.g., nouns and verbs) and entire phrases and closes and this diachronic relationship remains patent.

⁴ Similar prototypical features concern syntax. A prototypical CAC can be employed not only as a word (which is evident given its lexical-class status) but also as a non-elliptical autonomous utterance (i.e., holophrastically). In its non-holophrastic uses, a prototypical CAC is extra-clausal and asyntagmatic, occupies a peripheral sentence-initial position, and is phonetically separated from the other sentential elements by a pause. Given the scarcity of corpora demonstrating spontaneous speech, we do not analyze the syntax of CACs in this article.

features can be and, in some cases, often are violated. Importantly, such violations are motivated and, as the prototype itself, essential for an accurate understanding of the entire category.

Given the difficulties inherent to collecting data from any language used in rural areas that are remote from urban and administrative centers, our data-collection activities were necessarily heterogeneous and consisted of introspection, semi-structured interviews, and focus-group discussions. First, half of the Babanki CACs described in this study have been provided by the second author, drawing on his native-speaker competence. These lexemes were subsequently contrasted with five other Babanki native speakers (Vivian Ba-ah, Regina Phubong, Cornelius Wuchu, Victor Vishi, and Benjamin Nkwenti) during sessions conducted through WhatsApp between January and March 2023. The remaining half of the CACs were produced spontaneously by the above-mentioned team during a number of WhatsApp group-discussion sessions that lasted approximately 3 hours. CACs in Bum were elicited from a native speaker (Julius Ntang) through semi-structured interviews conducted via WhatsApp in November 2022 and April 2023. These sessions lasted about an hour each. All CACs in Babanki and Bum were recorded with smart phones as .ogg or .acc audio files and stored online on a safe repository platform facilitated by the Living Tongues Institute for Endangered Languages.

The CACs have been collected by means of the operationalized definition introduced at the beginning of the article. While simplified and less precise than the definition of the prototype of CAC (see Andrason and Karani 2021: 33-36), this definition has turned highly useful in our previous fieldwork activities dedicated to collecting CACs in several languages across Africa: Xhosa in South Africa (Andrason 2022), Tjwao in Zimbabwe (Andrason and Phiri 2023), Dogon in Mali (Andrason and Sagara, under review), and Oromo in Ethiopia (Andrason, Mulugeta, and Mazengia; under review). Furthermore, in interviews and focus discussions, we made use of written guidelines that had been developed during the same previous fieldwork activities, which we adapted to the reality of Babanki and Bum. These guidelines listed actions typically conveyed by CACs and animals that tend to be their referents, as well as suggested the most common lexicogrammatical forms with which directive-to-animal function could be encoded in the languages of the world.

3. Evidence

In course of the heterogeneous fieldwork activities described above, we were able to collect 39 CACs in Babanki and 20 in Bum. Table 1 below captures all these constructions and provides their IPA transcriptions as well as the meaning, i.e., the action that a CACs is supposed to trigger and the animal(s) to which it is addressed. The exact realizations of kisses, snaps, spansks, whistles, and CACs produced with objects will be explained in section 3.2.

Table 1: Conative animal calls in Babanki and Bum

Babanki		Bum	
IPA	Meaning	IPA	Meaning
bùús	summon cats	fû	chase away dogs
bwiné	make goats, sheep, cattle, dogs, and cats turn back or return	káhi	turn goats, sheep, dogs, cats, poultry (chickens, ducks), and cattle (cows) to the side
dzimé	incite dogs and cats to chase a prey; make them follow the speaker	kfáfi	stop motion of goats, sheep, dogs, cats, poultry (chickens, ducks), and cattle (cows)
dʒùú	chase away goats, sheep, dogs, cats, cattle	kòkòkòkókók	summon poultry (chickens)
fùú	chase away goats, sheep, dogs, cats, poultry (chickens), pigs	mèéʔ	summon goats and sheep
ɣáʔ	incite dogs and cats to chase a prey; encourage goats, sheep, dogs, poultry (roosters), cattle, and pigs to mate	mòóʔ	summon cattle (cows)
hárèi	chase away cattle and horses; encourage cattle to eat grass during the day	lô	chase away dogs
hóóíʔ	chase away cattle and horses; encourage cattle to eat grass during the day	lótʃâ	chase away dogs
héròè	chase away cattle and horses; encourage cattle to eat grass during the day	ndán	start and sustain motion of goats, sheep, dogs, cats, poultry (chickens, ducks), and cattle (cows)
kə̀tsàf	incite dogs to chase game during hunting	ŋíwū	summon cats
kírí	summon poultry (chickens)	ʃ:	chase away goats, sheep, dogs, poultry (ducks)
kòkòkò...	summon poultry (chickens)	tʃái	chase away goats, sheep, dogs, cats, poultry (ducks), and cattle (cows)

kúʔ	make goats, sheep, dogs, cats, and cattle go up and climb; incite them to mate	tʃàlà	chase away dogs
kwèè	incite dogs to chase game during hunting	tʃíná	silence goats, sheep, dogs, cats, poultry (chickens, ducks), cattle (cows)
kwén	make goats, sheep, dogs, cats, cattle, and pigs enter a space (e.g., bush or stable)	^w	summon goats and sheep
lùú	chase away dogs, poultry (chickens), and pigs; make them move	⏟	summon poultry (ducks) and cattle (cows)
mèéʔ	summon goats and sheep	{kiss-1}	summon dogs, cattle (cows), horses
mòní	summon pigs	{object-1}	summon pigs
mòóʔ	summon cattle (cows)	{snap-1}	summon cattle (cows), horses, poultry (ducks)
mùús	summon cats	{spank-1}	chase away horses
myāwúʔ	summon cats		
ɲàm	summon pigs		
ɲíŋ	speed up motion of goats, sheep, dog, cats, cattle		
ɲúʔmó	make dogs and cats sit down		
ʃ: ⁵	chase away goats, sheep, dogs, poultry (chickens); silence all animals		
tímó	stop motion of goats; sheep, dogs, cats, and cattle		
tʃáááìʔ	chase away goats, sheep, cattle, horse; encourage cattle to eat grass during the day		
tʃèèèìʔ	chase away goats, sheep, dogs, cattle, horses, and pigs		
tʃǝŋ	make goats, sheep, dogs, cats, cattle turn to the side		

⁵ We do not use the IPA length symbol : with vowels because each mora can bear a different tone. In the only example containing a long consonant, we make use of : to avoid spellings such as ʃʃ (which may suggest two syllables) or ʃʃ (which arbitrarily ascribe a nucleic role to one of the ʃ symbols). We thus choose the lack of coherence over the lack of precision.

tʃòó	chase away goats, sheep, dogs, cats, poultry (chickens), and pigs; make them pass or move across	
wàà	chase away birds (hawks, chickens)	
yéèè	chase away goats, sheep, dogs, cats, poultry (chickens), cattle when causing destruction on crops or food	
ʔf	summon goats, sheep, cats, pigs	
ʷ	summon goats, sheep, dogs, cats, cattle	
⊥	summon poultry (chickens) and cattle	
{kiss-1}	summon goats, sheep, dogs, cats, cattle	
{snap-1}	summon poultry (chickens) and cattle	
{tune-1}	tend cattle	
{whistle-1}	summon dogs	

The data from Babanki may be regarded as roughly comprehensive given that the usual size of CAC categories in a language ascends to around 40 or 50 constructions: 39 in Tjwao (Andrason and Phiri 2023), 40 in Xhosa (Andrason 2022), 45 in Arusa Maasai (Andrason and Karani 2021), 52 in Macha Oromo (Andrason, Mulugeta, and Mazengia, under review), and 57 in Togo-Tenju-Kan Dogon of Dourou (Andrason and Sagara, under review). In contrast, the data from Bum may be less complete. They do, however, capture the most stabilized and entrenched CACs that are found in the language and, therefore, in our view, warrant their inclusion in the present study and a comparison with Babanki.

3.1 Eco-pragmatics

The members of the Babanki and Bum ethnic group live in very similar environmental conditions and ecosystems. Both communities are located in the Western High Plateau in Cameroon. The Western High Plateau is a high relief of mountains and massifs that is characterized by an equatorial climate of the Cameroon type. This means generally cool temperatures, relatively heavy rainfall, and predominantly Sudan savanna-like vegetation, i.e., short bushes and shrubs as well as trees. Although this plateau used to be densely covered by forest, such forest areas are currently limited to zones adjacent to rivers, being replaced elsewhere by grassland – a process that is mostly due to human activities and agriculture-related deforestation (Gwanfogbe et al. 1983).

Given the shared ecosystem, the Babanki and Bum are exposed to and own identical animals. These primarily include goats and sheep, dogs and cats, poultry (mostly chickens and

ducks), cattle (typically, cows), and pigs. Expectedly, all these animals are reflected in CACs in both languages. In contrast, Babanki and Bum people do not keep horses. Horses that are found in areas inhabited by these two communities are rather owned by the cattle-herding Fulani. The Bum seem to have interacted with the Fulani more intensively than the Babanki. As a result, they have developed a horse-specific CAC (a non-oral, semi-auditory and semi-gestural spank; see section 3.3) and a few other ‘horse CACs’ that can also be employed with other animals. All these CACs are well known among the Bum speakers and stabilized in the community. With regard to the Babanki, only a small group of them lives in areas that are adjacent to Fulani settlements and has had contact with the Fulani and thus horses. Therefore, only those Babanki people who interact directly with the Fulani are familiar with expressions directed towards horses, the remaining community members being generally unaware of these CACs. Furthermore, contrary to what can be observed in many languages in Western and Central Africa where donkey are common referents of CACs (Andrason and Sagara, under review), there are no expressions directed towards donkeys among the CACs collected by us. Donkeys used to be found in both communities in the past but, since the 1980s, they have gradually ceased to be part of the livestock in the area. Accordingly, the CACs directed to donkeys which must have existed in the 20th century are now lost. Lastly, dogs and cats are not pets *sensu stricto* (contrary to their role in Western households) but rather entertain an important function: hunting (still commonly practiced) and defense in the case of dogs and protection from small rodents, reptiles, and arthropods (bugs and insects) in the case of cats.

The ecosystem shared by the two communities and the resultant common socio-cultural foundation of CACs are also evident through the personal names used for certain animals. According to our data, dogs are virtually the only animals that are given proper names in Babanki and Bum. Their names reflect the knowledge and worldview of the speakers and the stereotypes propagated in the respective communities – which once again coincide to an extent. For example, the perception of Japan’s technological prowess, shared by both Babanki and Bum, is reflected in the dog names *dzàpān* (Babanki) and *dzàpān* (Bum). According to native speakers, this name manifests the wish that the dog would become as efficient in hunting as the effectiveness associated with Japanese products. Other canine names that draw on nationalities reflect similar folk generalizations associated with certain countries and their citizens. That is, in Bum, *dzámân* ‘German’ has its roots in the conviction of Germany’s political and financial supremacy, *tšáínà* ‘China’ in China’s rising economic power, and *zàyí* ‘Zaire’ in Congo’s musical reputation. Other proper names of dogs draw on English personal names (e.g., *dzìmí* < Jimmy and *ràmbō* < Rambo), colors (e.g., *blāk* < black), and common names (e.g., *lókì* < lucky and *wiskì* < whisky). Given a greater exposure to the Fulani, Bum speakers also give proper names to horses. These names tend to be of Fulfulde origin: *wát* < Fulfulde *wárt* ‘come back’.

3.2 Semantics

The typical action expressed by CACs in Babanki and Bum – i.e., the action that any given CAC is expected to trigger on the part of the animal – concerns motion. Indeed, all 39 CACs attested in

Babanki (100%) convey some motion nuances. The semantic potential of 32 of these CACs (82%) is in fact limited to the idea of motion. In Bum, 19 out of the 20 CACs (94%) are compatible with motion – for all of them motion constitutes the only semantic component attested. Inversely, CACs that express actions unrelated to motion are rare. In Babanki, there are 7 such constructions (18%). No CAC is restricted to a motion-unrelated meaning. In Bum, there is 1 such CAC (2%), which is exclusively used to silence animals (*tʃíná*). There are no significant differences between motion and non-motion CACs as far as their origin is concerned (i.e., being primary, secondary, or borrowed). That is, in Babanki, 3 out of 7 non-motion CACs are primary (*hááíʔ*, *f*·, and *tʃáááíʔ*), while the remaining 4 are either secondary (*yáʔ* and *kúʔ*) or borrowed (*háréì* and *háráà*). For motion CACs, this ratio is similar: out of 39 motion CACs, 21 are primary, 15 are secondary, and 3 are borrowed.⁶

With regard to the main semantic types of motions conveyed by CACs, no coherent hierarchies can be discerned although in both languages the particular frequency of summonses seems evident. In Babanki, summonses are the most common types of CACs: 20 CACs can be used to call animals with 17 exclusively being associated with this function. Directionals are second most common. There are 14 CACs that are employed to direct animals of which 8 are limited to this usage. Dispersals are the least common being instantiated by 9 CACs. 3 of them function exclusively as dispersals. In Bum, summonses are again the most common (9 CACs each), followed by dispersals (6 CACs) and directionals (3 CACs). In Bum, all such CACs are only used in one action-related function. As far as motion-unrelated CACs are concerned, three meanings are attested: encouraging cattle to eat grass during the day (4 CACs), mating (2 CACs), and silencing (2 CACs). Of these, one silencing CAC is found in Bum while the remaining meanings are limited to Babanki.

With regard to the animal addressees of CACs, domestic species clearly predominate over wild species. All CACs in Bum (20x) and all but one in Babanki (38x) can be directed to domestic animals. In contrast, only 2 CACs are in principle compatible with wild animals (see *wàà* that is used with birds and *f*· that is applicable to all animals). As far as the specific domestic species are concerned, the following picture emerges. In Babanki, dogs, cats, and cattle have the largest number of CACs. 21 CACs are used with dogs, with 3 constructions being exclusively associated with these animals; cats – 21 / 3 exclusive; and cattle 21 / 1 exclusive. For the remaining species the frequencies are as follows: goats and sheep 18 / 1 exclusive; poultry – 11 / 2 exclusive; pigs 10 / 2 exclusive; horses 6 non-exclusive; and birds 2 / 1 exclusive. In Bum, dogs also have the largest number of CACs, i.e., 11 of which 4 are exclusively used with these animals; goats and sheep – 9 / 2 exclusive; cows 9 / 1 exclusive; poultry 9 / 1 exclusive; cats 6 / 1 exclusive; horses 3 / 1 exclusive; and pigs 1 non-exclusive. Many of the CACs that are limited to a particular species are summons exhibiting an onomatopoeic foundation, e.g., *mǎǎʔ* and *mèéʔ* in Babanki and *kǎkǎkǎkǎkǎk* in Bum. Overall, despite certain language-specific idiosyncrasies and differences, the similar fauna to which Babanki and Bum speakers are exposed manifests itself through highly

⁶ The very low number of non-motion CACs makes an equivalent comparison in Bum unreliable.

similar hierarchies of addresses in both languages. As explained in section 3.1, given the greater exposure of the Bum to Fulani herders, only the Bum language has a horse-specific CAC – itself a non-oral, semi-auditory and semi-gestural spank.

The semantic potential of CACs in Babanki may range from (virtually) monosemous to largely polysemous. The increase in polysemy stems from two main factors: the animal referent may be more general and/or the action expressed by a CAC may be of more than one semantic type. In Babanki, *bùús* and *mùús* are exemplary cases of monosemy – they are directed to a specific species (cats) and convey a specific meaning (summoning). The same may be observed with *m̀̀ní* and *jàm* used to call pigs, as well as *k̀̀tsàf* and *kwé* used to incite dogs to chase a prey. In contrast, *f:* is compatible with all animals and can be employed to both repel and silence them. It should be noted that goats and sheep always share their CACs. This is also, to some extent, the case of household birds (poultry), which have a number of CACs applicable to them all. Nevertheless, such CACs tend to select one specific type of poultry as their preferred (yet not exclusive) referent, i.e., either roosters, hens, chicks, or ducks. Similarly, horses always share their CACs with cattle (although this relation is not mutual and there are CACs that are compatible with cattle but not horses). Overall, the vast majority of Babanki CACs are not limited to a single species but may be used with several species whether phylogenetically related or phenotypically similar, as well as those that entertain comparable roles in the local community and economy. In Bum, the semantic potential of CACs is somewhat more limited. This stems from the fact that CACs in Bum invariably express a single specific action. Their referents may, however, range from a single species (e.g., dogs: *fù*, *t̀̀là*, *l̀̀*, *l̀̀t̀̀à*; pigs: {object-1}, horses: {spank-1}) to two species, whether related (e.g., *l̀̀w* used with goats and sheep) or unrelated (e.g., *l̀̀* used with cows and ducks), or even a more diverse set of referents (e.g., *f* used with goats, sheep, dogs, and poultry and *káhi* used with goats, sheep, dogs, cats, poultry, and cows). Nevertheless, we suspect that this exclusivity of Bum CACs with regard to their actions may, to some degree, be due to the limitation in our data. It is probable that several of the Bum CACs convey a somewhat broader scope of action and thus exhibit at least minimally larger polysemy.

3.2 Phonetics

CACs exhibit a series of phonetic tendencies which become particularly manifest if primary and secondary CACs are studied separately. These tendencies concern the robustness (or shortness) of the phonetic form of a CAC, its consonantal (or vocalic) character, and extra-systematicity (or systematicity).

To begin with, CACs tend to be short. This is relatively evident in Babanki where 22 CACs are monosyllabic or consist of monosyllabic segments replicated in a series (see section 3.3), while only 13 CACs are disyllabic. Disyllabicity is somewhat correlated with the secondary status of a CAC (e.g., *b̀̀wíná* and *d̀̀zímá*) or its borrowing (*háréi* and *háráà*) – in total, there are 8 such CACs. In contrast, five disyllabic CACs are primary (e.g., *hááí?*, *kírí*, and *myáwú?*). Overall, disyllabic lexemes constitute 24% of the 21 primary CACs. For the 18 secondary and borrowed CACs,

disyllabic forms ascend to 44%. In Bum, the prevalence of monosyllabic forms over disyllabic forms is comparable: 10 CACs contain one syllable or are built of such monosyllabic segments, while 6 consist of two syllables. Similarly, the above-motivated correlation between monosyllabicity and primary CACs on the one hand, and disyllabicity and secondary/borrowed CACs on the other hand, is palpable although perhaps slightly less evident than in Babanki. Overall, trisyllabic CACs or longer constructions are unattested in both languages. It should however be noted that the phonetic shortness of CACs in Babanki and Bum is not particularly remarkable as monosyllabic roots, including verbal and nominal, are the most common root types in Babanki (Akumbu and Chibaka 2012: 24-26) and, as far as we know, Bum.

While CACs may draw on both consonants and vowels in Babanki and Bum, consonantal material seems more visible and is, in our opinion, more fundamental in CACs. This stems from two reasons. First, while purely vocalic CACs are unattested (the closest equivalent of such forms are CACs that in Babanki consist of an approximant and a vowel, e.g., *wàà* and *yééè*), a number of CACs are exclusively built around consonants. Such consonantal CACs are *ʔ* in Babanki and *f*ː, *lʷ*, and *l̥* in Babanki and Bum. Second, no CAC begins with a pure vowel and is thus onset-less. Inversely, all CACs have consonantal onsets with only a few exhibiting an approximant (see the above-mentioned *wàà* and *yééè*, as well as *hǎǎíʔ*).⁷

Although the majority of CACs make use of systematic sounds, i.e., phones that are found in the standard phonetic repertoire of Babanki and Bum, CACs may also contain extra-systematic phonetic elements or be entirely made up of such extra-systematic material. The first type of extra-systematicity comprises of phones that, although absent in the general word stock in Babanki and Bum, can be found in standard sound systems in the languages of the world and are, therefore, included in the International Phonetic Alphabet. Four such extra-systematic IPA sounds are attested in CACs in Babanki and Bum. All of them are consonants. Contrary to the phonetic repertoire of the prosodic system (or sentence-grammar in Heine's (2023) terminology), CACs make use of clicks. The first click is a dental click often coarticulated with strongly *u*-shaped lips and thus labialized, i.e., [*lʷ*]. This click may sometimes be produced with the closure made more closely to the palatal zone than dental, thus approximating [*ʈ*]. In all such cases, the click is bright and high pitched (cf. Sands 2022). The other click is a dull, hollow, and popping (cf. Sands 2022) alveolar click [*ɽ*]. The remaining extra-systematic sounds found in CACs in Babanki are the glottal fricative or approximant [*h*] (e.g., *hǎǎíʔ*) and the trill [*r*] (e.g., *kírí*). However, [*h*] is not restricted to CACs but also present in onomatopoeias and ideophones (Akumbu 2022). In contrast, [*r*] is only attested in CACs, i.e., the single CAC *kírí* used to summon chickens. Interestingly, no extra-systematic vowels are attested in our data.

Another peculiarity of CACs is the use of contour tones and diphthongs in forms such as *bùús*, *mùús*, and *tǎǎíʔ* in Babanki or *tǎǎi*, *mèéʔ*, and *mǎǎʔ* in Bum. While being extremely rare in the prosaic systems of both languages, contour tones and diphthongs are relatively frequent in

⁷ As far as codas are concerned, CACs may exhibit any type of form. They can end in a pure vowel, a diphthong, or a consonant.

CACs, whether primary or secondary. At least as far as Babanki is concerned, contour tones and diphthongs have also been reported in ideophones and onomatopoeia (Akumbu 2022).⁸

The class of extra-systematic sounds that is larger comprises of sounds that extend beyond the International Phonetic Alphabet. These include sounds made orally (i.e., whistles, kisses, and what we refer to as a tune) and non-orally (i.e., snaps and spansks, and sounds made with objects). {whistle-1}, attested in Babanki, is a series of short high-tone high-pitch whistles produced with strongly protruded lips. Following Poyatos (1993; 2002), this type of whistle may be codified with the symbol {S^H- S^H- S^H(...)} or [S¹-S¹-S¹(...)]. {kiss-1}, found in Babanki and Bum, is a cross-linguistically common kissing sound that, in the literature dedicated to CACs, has been noted as [↓B’]. This kiss consists of two closures: one is dorsovelar being made with the tongue while the other is labial and made with (strongly) protruded lips. These two closures create an air pressure in the mouth which, when released during the opening of the mouth, produces an air suction and an ingressive sound (Poyatos 1993; 2002; Andrason and Karani 2022; Andrason and Sagara, under review). The [↓B’] segment itself is often replicated in a series. The remaining oral non-IPA sound is a melodic uninterrupted vocalization present in Babanki to which we refer as {tune-1}. This tune is a holistic song-like pattern hummed to tend cattle. The class of non-oral sounds is less robust. Babanki and Bum contain {snap-1} or a short finger snap that can be repeated in a series with relatively short intervals. Additionally, Bum speakers make a common use of a spank in their interactions with horses. This sound, referred to as {spank-1}, combines an auditory feature (i.e., a relatively loud but dull bang similar to claps often used in CACs in the languages of the world; see Andrason, Antwi, and Akuoko 2023) with a gestural and tactile component. Lastly, one of the CACs employed in Bum to communicate with pigs (see {object-1}) is made by means of a receptacle, usually a dish that is used to give food to pigs. The speaker hits the dish against a wall or the ground and alerts the animals to come to eat.⁹

As far as phonotactics are concerned, CACs may exhibit syllable structures that are unattested in the general word stock of Babanki and Bum. That is, apart from the standard syllable structures such as V, C(G)V, C(G)VC, and N (Akumbu and Chibaka 2012: 24-25), CACs allow for C and CC syllables and thus consonantal nuclei other than nasals. These extra-systematic syllables are found in ʔf in Babanki and in f:, |w, and | in Babanki and Bum. The same CACs demonstrate that, contrary to the standard system, CACs tolerate entirely consonantal word structures. It should also be noted that, in the general word stock, the glottal stop ʔ does not appear in an onset position (Akumbu and Chibaka 2012: 19). In CACs, ʔ may appear in syllable onsets as illustrated by ʔf often found in the replicated series ʔf-ʔf-ʔf.¹⁰

⁸ The lesser frequency of contour tones and diphthongs in Bum is most likely due to the limited number of CACs collected so far.

⁹ Of course, this is not the only situation when Bum and also Babanki speakers make use of objects to interact with animals. For instance, a Bum person may use a carved wood where salt is served to goats and cows can also be hit to invite the animals to consume salt before going to eat grass in the fields. It seems, however, that the CAC used with pigs is the most regularized and entrenched.

¹⁰ In coda, CACs behaves as the general word stock. They do not exhibit more codas than what is tolerated in other lexical classes, i.e., /m/, /n/, /ŋ/, /f/, /s/, /b/, and /ʔ/ (Akumbu and Chibaka 2012: 19). See, for instance, *kàtsàf*, *jàm*, *kwén*, *tʃəŋ*, *bùús*, and *ɣáʔ* in Babanki.

A clearly recognizable feature of CACs is length. In Babanki and Bum, to the best of our knowledge, vowel length is not contrastive. Importantly, long vowels seem to be absent in the general word stock in both languages, being limited to ideophones where lengthening has an intensifying function (Akumbu and Chibaka 2012: 22, 204). In CACs, long vowels are common and need not convey any type of intensity of emphasis: *hááí?*, *háráà*, *wàà*. In fact, several CACs regularly exhibit a trimoraic extra-long realization of their vowels. See, for example, *tʃáááí?*, *tʃěěěì?*, and *yééé* in Babanki. Babanki and Bum also tolerate long consonants in CACs as illustrated by *f*: which can be lengthened to *f*: or exhibit even more exaggerated duration.

CACs distinguish themselves from the many other lexical classes in Babanki and Bum by the so-called modulations, i.e., loudness, marked intensity, articulatory speed, intonation, and phonation (Andrason and Karani 2021: 34; Andrason and Sagara, under review). Indeed, CACs are often shouted, pronounced with particular intensity, speed, and excessive high pitch, sung following a determined melody pattern, or uttered with strongly modified voice thus being hummed, murmured, and/or whispered. One CAC, i.e., *tʃěěěì?*, is in fact usually pronounced with heavy laryngealization or creaky voice.

Some of the semantic types of CACs are correlated with determined phonetic features. Summonses tend to be realized with the so-called “friendly intonation” (Andrason and Karani 2021: 36; Andrason 2022) and thus uttered with a gentle voice, higher pitch, and melodically (cf. Andrason, Antwi, and Akuoko 2023). They also draw more extensively on extra-systematic sounds than any other semantic types. To be exact, in Bum, only 1 summons out of the 6 attested is phonetically systematic (i.e., *ɲɲíwū*). In Babanki, out of 16 summonses, 6 are phonetically extra-systematic (e.g., *ʔf-ʔf-ʔf*, *|ʷ*, and *||*). In contrast, dispersals tend to be realized with hostile pronunciation: loudly, quickly, and harshly (cf. Andrason and Karani 2021; Andrason 2022; Andrason, Antwi, and Akuoko 2023). They also exploit sibilants to a larger extent than the other types of CACs. Out of 9 dispersals in Babanki and 7 in Bum, 4 draw on a sibilant (see [ʃ] attested in *f*: in Babanki and Bum) or an affricate sibilant (see [tʃ] in *tʃáááí?*, *tʃěěěì?*, *tʃòó* in Babanki and *tʃáí*, *tʃàlà*, and *lótʃà* in Bum).¹¹

3.3 Morphology

CACs tend to be morphologically simple in Babanki and Bum, and this simplicity is recognizable in primary and, albeit less on, secondary CACs.

All primary CACs (21 in Babanki and 19 in Bum) are monomorphemic. They contain neither inflectional nor derivational affixes. They also fail to make use of compounding mechanisms. The only exceptions to morphological simplicity are replications, which are particularly common in summonses. Indeed, several summonses tend to occur in series, as illustrated by *kírí-kírí-kírí*, *mòní-mòní-mòní*, *jàm-jàm-jàm*, *ʔf-ʔf-ʔf*, *|ʷ-|ʷ-|ʷ*, and *||-||-||* in Babanki. For these CACs, the use of singletons is rare, dispreferred, or disallowed. The clearest examples of this are *kàkàkà kàkàkà* in Babanki and *kàkàkàkàkàkàkà* in Bum. This replicative structure is also

¹¹ Some of these dispersals are secondary CACs, e.g., Babanki *tʃòó*, and Bum *tʃàlà* and *lótʃà*.

patent in {whistle-1}, {kiss-1}, and {snap-1} found in Babanki and Bum, which must be envisioned as holistic replicative patterns. Importantly, the addition of another segment to the above-mentioned CACs does not trigger a change in meaning: the CAC expresses the same action and is addressed to the same animal. Furthermore, the replication found in CACs does not have an intensifying force contrary to the replication present in ideophones (Akumbu and Chibaka 2012: 22, 204). Indeed, the forms ʔf-ʔf-ʔf , $|^w-|^w-|^w$, and ||-||-|| are not more ‘emphatic’ than summonses that are not replicated. Therefore, as is typical of replications found in CACs across languages, the replication attested in CACs in Babanki and Bum constitutes an expressive phonetic strategy rather than an (exclusively) derivative and thus morphological device. Overall, like ideophones, replicated CACs would violate the constraints that regulate the general word structure in Babanki and Bum (see Akumbu and Chibaka 2012: 26) allowing for reduplicated and triplicated structures.

Secondary CAC – which are 15 in Babanki and 4 in Bum) – exhibit a slightly greater extent of morphological complexity. When it is present, this complexity is however the property of the sources of CACs rather than CACs themselves.

To begin with, nearly all secondary CACs draw on imperative verbs. In Babanki, 13 secondary CACs derive from imperatives with which they are still fully homophonous: *bwiná* ‘return!’, *dzimá* ‘chase!’, *dziúú* ‘go!’, *fúú* ‘go out!’, *yáʔ* ‘grip!’, *kúʔ* ‘climb!’, *kwén* ‘enter!’, *lúú* ‘leave!’, *niŋ* ‘run!’, *niúʔmá* ‘sit (down)!’, *tímá* ‘stand (up)!’, *tʃǎŋ* ‘turn!’, and *tʃòó* ‘pass!’. It should be noted that in Babanki, imperative CACs are marked by a final high tone. This final high tone surfaces as an epenthetic schwa when the imperative is formed with low tone roots – a strategy that allows these roots to avoid a contour tone, which is generally dispreferred in the phonetic system of this language (Akumbu, Kießling, and Hyman 2020). This may be observed in CACs such as *bwiná*, *dzimá*, and *niúʔmá*. In low-tone roots that end in a vowel, the schwa assimilates to the radical vowel as illustrated by the forms such as *fòó*, *dziúú*, *lúú*, and *tʃòó*. In contrast, the imperative form of high-tone roots coincides with their respective roots: *yáʔ*, *kúʔ*, *kwén*, *niŋ*, and *tʃǎŋ*. From the onset, this last class of deverbal CAC would morphologically agree with CACs by exhibiting a radical form with no inflectional markers. While de-imperative CACs may host inflections (inherited from the original imperatives), they do not make use of derivational marking and compounding strategies. Additionally, two CACs are derived in Babanki from nouns, i.e., *jàm* ‘animal, cattle’ and *kàtsàf* ‘booty’. These nouns are monomorphemic with no inflections derivations, or compounded elements. In Bum, the four secondary CACs attested in our database derive from imperatives: *fú* ‘exit!’, *ló* ‘leave!’, *lótʃá* ‘get out!’, and *tʃàlà* ‘pass!’.

In addition to primary and secondary CACs, 3 lexemes are loanwords. In Babanki, *mòni* derives from the English word *money*, while *hàréi* and *hàràà* are identical to the Fulfulde CACs used with cows and horses. Similar to primary and some secondary CACs, these forms lack any type of morphological complexity.

As is the case of phonetics, the morphological structures of summonses and dispersals are subject to certain (more specific) tendencies. As mentioned above, summonses are correlated with replications. In contrast, dispersals generally have punctual forms, avoiding replicated patterns.¹²

When considered holistically, the categories of CACs in Babanki and Bum are opaque. This means that no morphological pattern is exclusively associated with CACs and a directive-to-animal function. Inversely, CACs may exhibit any type of form, ranging from shorter to more robust. This not only holds true of the CAC category envisaged jointly (compare the primary *f*: and *ɓ*– with the secondary *kàtsàf* and the borrowed *m̀̀ni*) but is also evident in the subset of primary CACs. Compare *ɓ̀̀*, *ʔf*, *kírí* (both typically found in the replicated series *kírí-kírí-kírí* and *ʔf-ʔf-ʔf*), *bùús*, and *tʃáá:iʔ*.

3.4 Similarity

The similarity of the Babanki and Bum CACs is remarkably low. Out of the 59 CACs included in our database, at the most 18 (30%) coincide formally. 16 of these shared CACs are primary CACs: 12 are built around IPA phones while 4 exploit non-IPA sounds. 2 shared CACs are secondary.

The “IPA” CACs – i.e., *k̀̀* (found in *k̀̀k̀̀k̀̀ k̀̀k̀̀k̀̀* and *k̀̀k̀̀k̀̀k̀̀k̀̀k̀̀k̀̀k̀̀*), *m̀̀:éʔ*, *m̀̀:óʔ*, *f*:, *ɓ̀̀*, and *ɓ*– not only coincide formally but also express the same meaning, although the specific animal referents in Babanki and Bum may sometimes differ slightly. Specifically, *k̀̀*–, *m̀̀:éʔ*, *m̀̀:óʔ*, *ɓ̀̀* and *ɓ*– are all used to summon animals, while *f*: is used to chase them away. The use of sibilant- and click-driven CACs in dispersals and summonses respectively is highly common from a crosslinguistic perspective. Indeed, sibilants are extensively exploited to chase away animals, being the most recognizable exponent of the prototype of a prototypical dispersal (Andrason 2023). Similarly, even in non-click languages, clicks tend to be used to call animals; see, for instance, Arusa Maasai (Andrason and Karnai 2021), Akan (Andrason, Antwi, and Akuoko 2023), Oromo (Andrason, Mulugeta, and Mazengia, under review), and Dogon (Andrason and Sagara, under review). The remaining shared CACs have an onomatopoeic foundation and imitate the sounds made by the respective animals that are summoned. This means that the surface similarity in form and function between all these primary CACs observed in Babanki and Bum need not stem from some common source originating in an ancestor proto language. Equally likely is that this similarity has emerged independently – it manifests certain typological regularities and has an iconic and/or cognitive motivation.

The “non-IPA” CACs that exhibit the same form in Babanki and Bum, i.e., {kiss-1} and {snap-1}, also largely coincide in function. That is, although the scope of their animal referents varies slightly, these CACs are summonses in both languages. Again, this formal and functional similarity need not be phylogenetic but may rather reflect crosslinguistic pressures. This especially holds true of {kiss-1} given that similar kisses are commonly used to summon animals in many languages, e.g., Arusa Maasai (Andrason and Karnai 2021), Xhosa (Andrason 2022), Akan

¹² These punctual forms may of course be repeated. In such instances, each CACs is separated by a pause and the sequence constitutes an analytical syntactic pattern.

(Andrason, Antwi, and Akuoko 2023), Oromo (Andrason, Mulugeta, and Mazengia, under review), and Dogon (Andrason and Sagara, under review).

Additionally, the CAC *fúú* used to chase away many types of animals in Babanki exhibits formal similarity with *fú* employed to chase away dogs in Bum. Both CACs are secondary and derive from a cognate verbal root inflected in its imperative form. While the above may suggest that these CACs are phylogenetically related (they certainly exploit a verbal form that existed in the proto language), the very process of harnessing this root for a directive-to-animal function may have occurred independently in Babanki and Bum and stemmed from iconic pressures. That is, although [f] is not a common consonant in dispersals (Andrason 2023: [20]), it may be iconically related to an intense blow of air which is sometimes used to repel insects and smaller animals.

This generally low extent of relatedness between CACs in Babanki and Bum is clearly visible in the primary CACs used to summon cats. Babanki and Bum exploit three main strategies attested across languages to form these types of CAC: {miau}-type (found in Akan, Kihunde, and Oromo), {niau}-type (found in Maasai and Xhosa), and {b/mVs}-type (found in Bono and Arabic). While Babanki makes use of the first and the third of these strategies, Bum opts of the second one.

Overall, the genetic relationship of the CACs attested in Babanki and Bum is minimal, if any. In other words, despite being closely related, Babanki and Bum do not have undeniable cognates (with the exception of *fúú* and *fú*).

4. Discussion

The evidence presented in section 3 demonstrates that Babanki and Bum CACs tend to match the features associated with the prototype of a CAC and, as a result, the CAC categories in these two languages may be viewed as canonical. This is true with regard to all the domains studied by us: semantics, phonetics, and morphology. Semantically, CACs mainly express actions related to motion and have domestic species as their referents. Phonetically, CACs, especially their primary subclass, tend to be monosyllabic. They also exploit consonantal material more extensively than vocalic material, exhibit extra-systematic sounds (both IPA or non-IPA) and sound combinations, and are marked by a series of suprasegmental features such as length and various types of modulations. Morphologically, CACs are often monomorphemic roots with no inflections, derivations, and compounding – a form that makes the entire category opaque. Additionally, summonses and dispersals are correlated with a series of more specific phonetic and morphological properties. The most pervasive violation of the prototypical features is polysemy. That is, although as predicted by the prototype, monosemy is attested, polysemous CACs seem to be equally common. However, since similar extents of polysemy of CACs have been observed in other languages (Andrason 2022; Andrason and Phiri 2023; Andrason, Antwi, and Akuoko 2023; Andrason, Mulugeta, and Mazengia, under review), “the polysemy of CACs may be [...] greater than assumed thus far” (Andrason 2022: 49). Our results seem to support this revision to the prototype. The most significant divergences from the prototype with regard to phonetics and

morphology are found in secondary CACs – a phenomenon that is also well documented in literature (Andrason and Karani 2021).

Apart from systematically describing the categories of CACs in Babanki and Bum and determining the extent of their canonicity, our study has some bearings for the general typology of CACs. First, the organization of a CAC category in specific languages seems to depend largely on eco-pragmatics. That is, the linguistic nature of CACs is deeply embedded in the fauna and flora of the community that speaks a given language and the economy that it practices (cf. Andrason and Sagara, under review). Second, our data corroborates a semantic and formal relationship between CACs and imperative verbs. Both classes are directive and draw on short or even monomorphemic forms. Given this semantic and morphological similarity, it is unsurprising that most secondary CACs derive from imperative verbs across languages (cf. Andrason, Antwi, and Akuoko 2023). Third, apart from allowing for the presence of clicks in non-click languages, CACs may exhibit some tendency to exploit the trill [r] in non-trill languages (see a similar phenomenon attested in Akan (Andrason, Antwi, and Akuoko 2023) and Dogon (Andrason and Sagara, under review)). Fourth, our research strongly confirms the hypothesis that CACs are more resistant to be inherited throughout the history of a language or a language branch – the fact that transpires in fewer cognates being found in dialects of a language or in related languages, than is the case of other lexical classes. This hypothesis, which has been put forward given Akan evidence (Andrason, Antwi, and Akuoko 2023) as well as some observations concerning Macha Oromo (Andrason, Mulugeta, and Mazengia, under review), is further validated by Babanki and Bum data.

Lastly, our study also contributes to Babanki and Bum scholarship, especially the phonetics and phonology of these languages. CACs demonstrate that radical contour tones and diphthongs (i.e., those found in roots) are not foreign to Babanki and Bum speakers. Nor are the Babanki and Bum unfamiliar with clicks, trills, and glottal fricative/approximants. Similarly, length(ening) and replications do not always carry intensifying functions in Babanki and Bum. While the intensifying function of length(ening) and replications may indeed apply to onomatopoeias and ideophones, they are not inherent to CACs.

5. Conclusion

In this article we offered a systematic analysis of conative animal calls in Babanki and Bum – two under-researched Central-Ring Grassfields languages of Cameroon. The evidence presented demonstrates that, in both languages, the categories of CACs instantiate the prototype of a CAC to a large extent with regard to both semantics, phonetics, and morphology; that several linguistic properties of CACs have their source in the ecosystems inhabited by the respective communities of speakers; and that the similarity between the CACs in Babanki and Bum is low and their phylogenetic relationship minimal.

Of course, our study has not addressed all the questions related to CACs in Babanki and Bum and Grassfields languages more generally. Given the scarcity of corpora capturing spontaneous language use, we did not analyze the syntax of Babanki and Bum CACs. Without

doubt, such an analysis is necessary to design a (more) complete picture of the CAC category in these two languages. Furthermore, while reluctance to a phylogenetic transmission is evident in the Central-Ring Grassfields languages studied in the present article, the phylogenetics of CACs in the other members of this family remain unknown. To ensure that the low inheritance ratio of CACs is indeed a characteristic of the entire branch of languages, a study of CACs in Kuk, Kung, Mmen, Oku, and especially, Kom – which separates Babanki in south from Bum in the north – is needed. Our intention is to conduct all such studies in the near future.

Abbreviations

C – consonant; CAC – conative animal call; G – glide; N – nasal; V – vowel.

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