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The (low) phylogenetic relatedness of Conative Animal Calls: The case of Mokpe and Oroko (Bantu Zone A)

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Abstract
The present article is dedicated to the documentation of conative animal calls (CACs) in Mokpe and Oroko (Bantu Zone A) and the analysis of the cognancy / phylogenetic relatedness of these constructions. The examination of original data demonstrates that the CAC categories in both languages comply with synchronic and diachronic tendencies characterizing CACs in the world's languages. Primary CACs closely match the prototype of CACs and can be regarded as its canonical instantiations; secondary CACs may violate the prototypical features, which is also regular from a typological perspective. Furthermore, the comparison of Mokpe and Oroko CACs reveals the low cognancy of CACs in the two languages. The greater similarity exhibited by primary tokens than is the case of secondary ones does not stem from shared ancestry, but is more likely due to parallel developments and the exploitation of fully motivated, typologically common strategies.

Keywords: Human-to-animal communication, conative animal calls, interactives, phylogenetic relatedness, Bantu

1 Introduction

The present article is dedicated to the study of conative animal calls (CACs) in Mokpe ([bri]/[mokp1239]/[A22])[1] and Oroko ([bdu]/

1 The information provided in square brackets refers to ISO 639-3 codes, glottocodes, and Guthrie's (1967/1971) classification system in Hammarström's (2019) revision.

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[orok1266]/[A101]). We examine the similarity of CACs found in the above-mentioned varieties and discuss the potential phylogenetic (genealogical) relationship that underlies these types of constructions or their cognancy.

Mokpe and Oroko are Bantu languages of the so-called Sawabantu group, which comprises several zone A varieties: mainly A.20 and A.30, as well as, to some extent, A.10 (Nurse & Philippson 2003: 170, Ebobissé 2015). In the referential classification of the Bantu languages, Mokpe is part of the Duala group, i.e., A.20 (Hammarström 2019: 19) and the number of its speakers ranges from 25,000 to 35,000 people (Mutia 2005: 217–218, Atindogbe 2013: 5–6, Eberhard, Simons & Fennig 2023; see also Ebobissé 1989 and Neh 1989). Oroko forms part of the Lundu-Balong group, i.e. A.10 (Hammarström 2019: 19) and, according to the data from the beginning of this century, has between 110,000 and 140,000 speakers (D. Friesen 2002: 5; see also Atta 1993 and Eberhard, Simons & Fennig 2023). Mokpe and Oroko are closely related phylogenetically and, within the above-mentioned Sawabantu group, jointly belong to the greater Manenguba, Bafaw-Balong-Manenguba, and ultimately Bafawic-Bakweric branches. Within this last sub-branch, Mokpe is a Bakweric variety while Oroko is a Bafawic one (Eberhard, Simons & Fennig 2023, Hammarström et al. 2023; see also Ebobissé 1989, Neh 1989, Atta 1993, D. Friesen 2002).

Mokpe and Oroko are also geographically adjacent: the northern part of the Mokpe area connects to the southern part of the Oroko area (D. Friesen 2002, Atindogbe 2013). To be exact, Mokpe is spoken in the Wouri estuary and around the slopes of Mount Cameroon and Mount Fako, in cities such as Buea, Tiko, Limbe, and Muyuka in Western Cameroon (Atindogbé 2013, Tanda & Ayu'nwi 2005, Mokake 2016). Oroko is also spoken at the feet of Mount Cameroon but towards the north-west. Further Oroko settlements are found in the Meme and Ndian Divisions (Atta 1993, D. Friesen 2002, Mabian 2010, Che 1993, Atindogbé 2012). Both Mokpe and Oroko are in the Anglophone zone of Cameroon.

Conative animal calls (henceforth referred to as CACs), which constitute the topic of our article, are operationally defined as (a) directive lexemes or lexicalized constructions that (b) are addressed to animals and (c) can be (and, in fact, predominantly are) employed holophrastically as self-standing utterances or sentence equivalents

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(Andrason & Karani 2021, Andrason 2022, Andrason & Phiri 2023, Heine 2023, see also Bynon 1976, Aikhenvald 2010, Amha 2013). One of the issues recently observed in CAC scholarship concerns phylogenetics: CACs arguably exhibit a low level of relatedness or cognancy than what is attested in other lexical classes within a single linguistic family or branch (Daković 2006, Andrason & Akumbu 2024, Duah, Andrason & Antwi 2023, Andrason, Onsho Mulugeta & Shimelis Mazengia 2024, Andrason & Gafatsi 2025). In the present paper, we aim to contribute to the study of family-related properties of CACs and answer the following research questions: Do Mokpe and Oroko data confirm the phylogenetic hypothesis put forward on the basis of (very few) other languages and demonstrate the low cognancy of CACs? Should this be the case, we will respond to two further sub-questions: Are all types of CACs equally resilient to be shared in Mokpe and Oroko? What are the reasons of similarities, should these be attested? Additionally, given that Mokpe and Oroko are (heavily) under-researched, our article aims to contribute to the documentation of these two varieties.[2]

Following the most recent studies on CACs, including our own works dedicated to this lexical class (Andrason & Karani 2021, Andrason 2022, 2023, Andrason & Phiri 2023, Andrason & Akumbu 2024), the analysis proposed in this article will be guided by a prototype approach to linguistic categorization (Evans & Green 2006, Croft & Cruse 2004, Janda 2015) and the description of linguistic data will be developed with the terminological apparatus typical of less formal theories of language (which are commonly used in linguistic typology and from which our take on prototype theory emerges; see Croft 2003, Evans & Green 2006, Croft & Cruse 2004, Velupillai 2012, Janda 2015).

The article is organized as follows: in Section 2, we explain the theoretical background of our study. In Section 3, we introduce original evidence from Mokpe and Oroko and describe the function and

2 Nevertheless, important advancement in the documentation and analysis of these two languages have also been made. For Mokpe, these include studies by Hombert (1973), Gensler (1980, 1981a, 1981b), Hawkinson (1986), Bate (1987), Ebobissé (1989), Neh (1989), Kagaya (1993a, 1993b, 1993c), Connell (1997), Ngoisah Lyonga (2002), Marlo & Odden (2007), and Atindogbe (2013). For Oroko, less researched than Mokpe, the most important works include Atta (1993), Mbongue (2000), Friesen & Friesen (2001), D. Friesen (2002), and L. Friesen (2002).

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form of CACs as well as their relatedness/similarity. In Section 4, we evaluate our findings, answer the research question(s), and explain the contribution of our research to the scholarship of CACs. In section 5, we provide a conclusion to the study.

2 Theoretical background: CACs in related languages

CACs have traditionally been one of the most poorly researched categories in linguistics (Poyatos 2002: 178, Andrason & Karani 2021: 4–5). Indeed, it is only recently that their documentation and analysis have captivated more scholarly attention – a phenomenon that has its roots in the recognition of the relevance of interactives (e.g. interjections, ideophones, and directives) in language (cf. Heine 2023) and multimodality in human communication. This interest in CACs has led to a continuous expansion of typological evidence, proliferation of works examining these constructions in individual language varieties and language clusters, and much-improved theorizations regarding the form and function of a CAC category in human language, more generally.

To be exact, almost half a century ago, Bynon (1976) and Siatkowska (1976) offered the first comprehensive and theoretically advanced analyses of CACs.[3] The former concerned a Berber variety of Ayt Hadiddu, while the latter was dedicated to West Slavonic languages: Polish, Czech, and Slovak. 30 years later, research on CACs re-emerged thanks to Wierzbicka (2003), Daković (2006), Abdulla & Talib (2009), Amha (2013) and Denisova & Sergeev (2015), who reported more data from Polish, South and East Slavonic (i.e. Serbian, Croatian, and Russian), Arabic, Ta-Ne-Omotic (especially Zargulla) and Chuvash, respectively. Now, in the third decade of the 21st century, a new wave of studies, carried out primarily on the African continent, has introduced CACs to the forefront of language science. These recent research activities, which we will cite extensively in this paper, have systematically examined CACs in a Maasai language – Arusa (Andrason & Karani 2021); a Kwa language – Akan (Duah, Andrason & Antwi 2023); a Bantu language – Xhosa

3 Of course, these were not the first publications that mentioned CACs. See, for instance, Schulthess (1912), Jarring (1941), Eren (1952), and Germanovič (1954). For a review of the development of the research and scholarship dedicated to CACs consult Andrason & Karani (2021) and Andrason (2023).

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(Andrason 2022), Grassfields Bantu languages – Babanki, and Bum (Andrason & Akumbu 2024); and Oromo, Dogon and Khoe varieties, i.e. Macha Oromo (Andrason, Onsho Mulugeta & Shimelis Mazengia 2024), Togo-Teŋu Kan of Dourou (Andrason & Sagara 2024), and Tjwao (Andrason & Phiri 2023), respectively. Recently, Bernd Heine (2023) included CACs – referred to as 'animal directives' – as one of the categories of interactive grammar and, largely drawing on some of the above-mentioned studies, offered their detailed and compelling analysis.[4]

One of the most significant results of this recent proliferation of research on CACs is the design of the prototype of CACs that was put forward by Andrason & Karani in 2021 and subsequently revised by a number of other scholars (see, *inter alia*, Andrason & Phiri 2023, Andrason & Akumbu 2024, Andrason, Onsho Mulugeta & Shimelis Mazengia 2024, and Andrason & Sagara 2024). A prototypical CAC is defined by a series of semantic, pragmatic, phonetic, morphological, syntactic, and ecolinguistic properties. A detailed discussion of all such prototypical features may be found in the above-mentioned works. Below, we summarize those that are relevant for the present study: ecolinguistic, semantic, phonetic, and morphological properties. Ecolinguistically, both the form and function of CACs are heavily conditioned by their natural (e.g. topography, climate, fauna, and flora) and cultural (e.g. economy and social norms) context. Semantically, CACs typically express actions related to motion (summonses make animals to come, dispersals chase them away, and directionals modify their movement in any other way), have domestic species (rather than wild specifies) as their addresses, and are monosemous (instead of being polysemous). Phonetically, a prototypical CAC is a monosyllable or a chain of replicated monosyllables, exhibits consonantal (rather than vocalic) character, and hosts extra-systematic sounds and/or sound combinations, including suprasegmental, phonational, and "modulational" ones. Morphologically, CACs tend to be lexically opaque and monomorphemic, thus failing to make use of inflectional, derivational, and compounding strategies (alternatively, CACs consist of segments that, although replicated, are not genuine independent meaning-bearing units; in such cases, replication constitutes an expressive phonetic mechanism instead of a derivational

4 CACs have recently attracted attention of scholars working on other languages, e.g. Jääskeläinen (2021) on Finnish and Treis (2023) on Kambaata.

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morphological one). It is important to note that the formal properties enumerated above, both phonetic and morphological, tend to be exhibited by primary CACs (i.e. those that have entertained the status of CACs since their formation or have acquired it via grammaticalization and/or lexicalization to the extent that any non-CAC origin is no longer recoverable) but violated by secondary CACs (i.e. those that are derived from and still visibly coincide with other lexical classes).

While most of the studies mentioned above are language-specific and/or aim to contribute to the synchronic typology of CACs by designing, testing, and refining the prototype of a CAC, they have also made available some comparative and phylogenetic evidence. This evidence has, in turn, allowed linguists to formulate certain diachronic family-related hypotheses. Below, we chronologically enumerate the (certainly, very few) main proposals concerning the diachrony and phylogenetics of CACs put forward over the last half century:

a) In Slavonic languages (i.e. Croatian, Polish, Russian, and Serbian), cognate CACs are uncommon. Inversely, CACs that differ in form are more frequent (Daković 2006: 136, 142–144). Among all sub-types of CACs, those that are secondary or borrowed, as well as those that exhibit forms identical or similar to primary interjections are shared more commonly than CACs that are primary (Daković 2006: 143; see also Siatkowska 1976: 169–171).
b) The above observation was subsequently tested in a study dedicated to three closely related varieties of Akan: Asante, Bono, and Fante (Duah, Andrason & Antwi 2023). Akan data confirm Daković's (2006) proposal and demonstrate that (i) the cognancy and phylogenetic relation of CACs found in Akan, Bono, and Fante is much less visible than what characterizes the general word stock and core grammar and, thus, (ii) CAC constructions that could be inherited from a common Akan ancestor are much fewer than one would expect. This conclusion draws on two main facts. First, shared CACs are very few. This especially holds true of primary CACs, whereas the similarity of secondary CACs and the CACs that formally overlap with primary interjections is slightly more visible. Second, in most instances of formal resemblance, the similarity attested is not necessarily phylogenetic or inherited. Equally likely, it has

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its roots in separately exploiting the same strategies (onomatopoeic and non-onomatopoeic) to coin analogous constructions in the related varieties. Overall, although CAC categories in Asante, Bono, and Fante are canonical by largely complying with the prototype of CACs, they achieve this canonicity independently rather than inheriting it from a common ancestor.

c) The observations made with regard to the Akan language cluster have afterwards been corroborated by Ewe – another Kwa language (Andrason & Gafatsi 2025). In Ewe, like in Asante, Bono, and Fante, the category of CACs is canonical and matches the behavior associated with a prototypical CAC. However, CACs that are identical or similar in Ewe and Akan are few and, in their majority, do not descend from a shared ancestor. Rather, this synchronic similarity is due to areal phenomena (borrowing) or, even more likely, reflect common cross-linguistic strategies whereby the formal and functional similarity of some CAC lexemes arose in these two languages independently.

d) This "minimal" extent of cognancy and phylogenic affinity between related languages has subsequently been observed in Babanki and Bum, two Central Ring Grassfields Bantu varieties of Cameroon (Andrason & Akumbu 2024). With a few exceptions, Babanki and Bum lack CAC cognates in contrast with the general word stock where circa 85% of lexemes are cognate and descend from proto-forms. As in Asante, Bono, Fante, and Ewe, in cases where Babanki and Bum CACs exhibit analogous forms and functions, their similarity need not be phylogenetic (inherited) but may rather reflect crosslinguistic pressures. Indeed, in all such instances, comparable CAC constructions exist in many other languages unrelated to these two Grassfields varieties.

e) Lastly, some anecdotal data from Oromoid (Cushitic) languages, Macha Oromo and Faaʃe Konso, corroborate the diachronic/phylogenetic findings presented in points (a)–(d) above, as the CACs attested in these two varieties tend to be "distinct and etymologically unrelated" (Andrason, Onsho Mulugeta & Shimelis Mazengia 2024: 205).

Overall, the above-mentioned studies dedicated to CACs in Slavonic, Kwa, Bantoid, and Oromoid languages, suggest the following: (a) in related languages, cognate CACs are few; (b) more specifically, cognate CACs are fewer than what characterizes other lexical classes and

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grammatical categories; (c) when attested, the examples of similarity are better explained in terms of areal phenomena or independent/parallel developments; and, therefore, (d) CACs seem more resistant to be shared across (the history of) a family or branch of languages than is the case of many other types of words.

3 Evidence: CACs in Mokpe and Oroko

The present study of CACs in Mokpe and Oroko draws on data that were collected through introspection (one of the authors being a Mokpe native speaker) and semi-structured open-ended interviews. To recruit participants, we relied on the non-probabilistic discriminative snowball (network/chain) sampling technique. This data collection strategy consists of recruiting new participants thanks to the referral given to the researcher by current participants already enrolled and/or interviewed (Saumure & Given 2008, Eide 2008). This also allowed us to pre-screen participants following their age, knowledge of the language, and the duration of contact with the language. Altogether, we obtained data from nine Mokpe and three Oroko speakers.[5] The data collection process was conducted following an interview guide that had been developed for and used in our previous work dedicated to CACs in Babanki and Bum (Andrason & Akumbu 2024). The fieldwork took place between June and July 2023. The interviews were conducted in person or, given the ongoing Anglophone conflict in Cameroon, remotely via WhatsApp and direct telephone calls. The discussions were recorded with smartphones as .gpp or .acc audio files.

The data collection process described above permitted us to identify 43 CACs in Mokpe and 48 in Oroko. The selected CACs may be viewed as (relatively) stabilized in the respective speech communities.[6] Inversely, we did not include in our paper those CACs that seemed to be idiolectal or *hapax legomena*. Since the size of CAC categories in the languages studied thus far tends to oscillate between some 40 and 60 constructions (cf. Bynon 1976, Amha 2013,

5 The different number of consultants sampled per community resulted from the greater willingness to participate in the study expressed by Mokpe speakers as opposed to Oroko speakers.

6 However, as we explain below, the lexicalization of several secondary CACs is low.

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Andrason & Karani 2021, Andrason & Akumbu 2024, Andrason & Sagara 2024), we are confident that our data are *grosso modo* representative (although not exhaustive) of the two coastal Bantu languages studied in this article and allow for their meaningful comparison. Of course, one must bear in mind that we obtained data by interviewing only a handful of speakers. Although all CACs analyzed in this article are panlectal rather than idiolectal, it is possible that other Mokpe and/or Oroko speakers, e.g. people who hunt regularly, have slightly distinct repertoires of CACs. This however has no critical bearing on our study and its findings.

In Table 1, we list all the collected/selected CACs using the International Phonetic Alphabet (rather than the Mokpe and Oroko orthographies, cf. D. Friesen 2002 and Atindogbe 2013), with the exception of kisses, snaps, whistles, and CACs produced with objects, the highly extra-systematic realization of which will be described in detail in section 3.1. Additionally, we indicate the function of each token: we specify the action that a CAC is aimed to trigger and the animal kind to which it is (typically) directed.

Table 1. Conative animal calls in Mokpe and Oroko

Mokpe		**Oroko**	
Form	**Function**	**Form**	**Function**
ámbélɛ̂	request dogs to exercise patience when fed	*àráwâ*	chase away dogs
àŋdʒíjá áŋgâ	chase away pigs, cats, dogs	*árá wàgíjâ*	chase away cats, chickens
bâk	request dogs to go back	*bɛ̌ɛ́ɛ̀*	summon goats
βɛ́βɛ́lɛ̂	incite dog to chase game during hunting	*èràkà*	chase away pigs
dʒă nù	summon dogs	*érák(á) ò wókà*	request dog to go out of the house
dʒànâ	request dog to bring game during hunting	*éráká ùndáwùnɛ̂*	chase cats, chickens out of the house

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Mokpe		**Oroko**	
Form	**Function**	**Form**	**Function**
gō áùt	request dog to go out of the house	*éráká wètíndénɛ̂*	chase away goats
hôhôhô	chase chickens away	*fííí*	summon cats
hr̃ɔ̃ɔ̃	summon pigs	*gbâ*	incite dogs to chase game during hunting
ínsáì	request dogs, pigs to enter cage or sty	*gbɛ́ ò ndáwò*	request dogs to go into the house
kám yéè	request dogs to move towards speaker	*hr̃ɔ̃*	summon pigs
kɔ̀kɔ̀kɔ̀	summon chickens	*ìràkà nàŋgà*	instruct dogs to lie down
kùrúkùrú	summon chickens	*jáká*	summon dogs
líf dá plēs	chase away cats, dogs	*jáká wàŋgjâ*	summon goats
lèmbɛ̂	incite dogs to chase game during hunting	*kǎʃà*	incite dog to chase game during hunting
lìjâ	request dogs to sit down	*kátʃàm*	incite dog to chase game
mbólì	summon goats	*kómá*	incite dogs to chase game during hunting
mɛ̌ɛ́ɛ̀?	summon goats	*kɔ̀kɔ̀kɔ̀*	summon chickens
míjǎw	summon cats	*kɔ̀kórɛ̀*	summon chickens
mínū	summon cats	*mbórì*	summon goats
mûf	chase cats and dogs away	*mbórì ìràkà nàŋgà*	chase goats
mùndɛ̂	summon pigs	*míjǎw*	summon cats

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Mokpe		**Oroko**	
Form	**Function**	**Form**	**Function**
ndê	chase away dogs	*mínūs*	summon cats
ò lèmí	training dogs to not poo at the wrong place	*mûf*	cause pig to move
ōōōō wêj	summon dogs during hunting	*mŭúû*	summon cows
pŭs	summon cats	*ɲàkà*	summon cows
ʃ:	chase away chickens, ducks, goats	*nàŋgâ*	request dogs to lie down
ʃû	chase away goats, cats, dogs	*ndê*	summon goats
tɛ́mɛ̂	request dog, goat, pig to stand or stop moving	*ndʒákátù*	summon chickens
tìmbâ	chase away dogs	*ómá éêê ómâ*	incite dogs to chase game during hunting
úúw è	incite dog to chase game	*óŋgò*	summon dogs
wúʒrá-(nù)	chase away goats	*pŭs*	summon cats
‖-‖-‖	summon chickens, ducks	*ʃ:*	chase away chickens, goats, ducks
⊙-⊙-⊙	summon dogs	*ʃû*	chase away chickens
{clap-1}	summon pigs	*tókówâ*	request dogs to stand
{kiss-1}	summon dogs, pigs	*tʃâj*	chase away dogs, pigs, ducks
{object-1}	summon cats, dogs, chickens	*tʃàtʃàtʃàj*	chase away strange dogs
{object-2}	chase away cats, dogs, chickens	*‖-‖-‖*	summon chickens, cows

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Mokpe		**Oroko**	
Form	**Function**	**Form**	**Function**
{snap-1}	summon cats, dogs	*ǂ-ǂ-ǂ*	summon cow
{stamp-1}	chase away dogs	*⊙-⊙-⊙*	summon chickens
{tune-1}	incite dogs to chase game during hunting	*k'-k'-k'*	summon chickens, ducks
{whistle-1}	summon dogs, cats, duck	{kiss-1}	summon goats, chickens, cows
{whistle-2}	summon dogs	{object-1}	summon chickens
		{object-2}	chase away chickens
		{snap-1}	summon cats, dogs
		{whistle-1}	summon dogs, chickens
		{whistle-2}	summon dogs
		{whistle-3}	summon dogs

Below, we offer an analysis of the data provided in Table 1. First, in section 3.1, we describe the lexico-grammatical profiles of the CAC constructions in Mokpe and Oroko. In doing so, we will be guided by the prototypical features distinguished in scholarship (see section 2 above) grouped into two clusters: function-related properties (ecolinguistic and semantic features) and form-related properties (phonetic and morphological features).[7] Subsequently, we discuss the cognancy of Mokpe and Oroko CACs or the (more or less) pronounced lack thereof.

3.1 The functional and formal profile of CACs in Mokpe and Oroko

The lexico-grammatical profile of Mokpe and Oroko CACs pertains to the function (3.1) and form (3.2) of these constructions. In the

7 In this study, we will not discuss syntactic properties of CACs. The only syntactic feature that we tested – as part of the operational definition of CACs which we had used to include (or exclude) a construction into our dataset – is holophrasticity, i.e., the ability to function as an autonomous utterance.

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present section, we offer a detailed analysis of such functional and formal characteristics.

3.1.1 Function

The functional profile of Mokpe and Oroko CACs comprises of ecolinguistic (3.1.1.1) and semantic (3.1.1.2) properties.

3.1.1.1 Ecolinguistics

Speakers of Mokpe and Oroko are exposed to very similar climatic and environmental conditions. The Southwest region of Cameroon, where the two communities are located, belongs to an equatorial (monsoon) climate zone within Köppen climate classification. This climate type comprises of two major seasons: rainy (humid) and dry. The rainy season is characterized by a drop in temperatures and heavy downpours during July, August and September, which render the circulation of people and transport of goods difficult, especially in rural areas where the Oroko reside. Mokpe and Oroko settlements are surrounded by thick tropical forests. This creates some opportunity for hunting and, in some places, farming. Small streams in and around Oroko villages also avail the local population of micro-fishing activities for subsistence purposes. The Mokpe, many of whom live at the seacoast, practice fishing at a considerably larger scale.

Living in similar climatological conditions and being surrounded by similar flora, the Mokpe and Oroko also interact with similar animals. As far as wild animals are concerned, this includes elephants, antelopes, eagles, monkeys, rabbits, deer, bats, lizards, and snakes – just to name the species that are currently the most common and/or relevant for humans. With regard to domestic animals, the most widespread are goats, chickens, ducks, and pigs, as well as dogs and cats which are kept for hunting, defense, or protection-related purposes rather than as pets. While all the above-mentioned domestic species have their respective CACs in Mokpe and Oroko (see further below), no token directed to wild animals features in our database. This fact may stem from a limited range of hunting practices generally undertaken by the Oroko and, especially, more urban Mokpe communities, as well as the character of our fieldwork which, as explained above, did not involve hunters.

Contrary to several communities living in Cameroon and neighboring countries, Mokpe and Oroko people did not rear cows and

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sheep. Currently, cows and, to some extent, sheep may be found in Oroko settlements due to cultural contact with the Fulani. As a result, some cow-specific CACs have been developed and those that are directed to goats may also be occasionally extended to sheep. In contrast, given that the Mokpe do not live in an area adjacent to the Fulani, cows and sheep continue to be absent in Mokpe localities and CACs that would (specifically) be directed to cows and sheep are absent in the Mokpe data we collected. Certainly, during festive periods, the Mokpe interact with Fulani grazers who pass through Mokpe communities with their cattle for business purposes. The Mokpe may even purchase cows to slaughter for meat, but they do not rear them in their households.

In both Mokpe and Oroko communities, domestic animals, especially dogs, cats, and goats, are given proper names. Four types of animal names are attested. First, an animal can be named after deceased loved ones in remembrance of them. For example, the name *Èjóndɛ̀* in Oroko was given to a cat in memory of a deceased grandmother who bore the same name (see also the dog name *Màŋákɛ̂* lit. 'wonderful' in Mokpe). Second, domestic animals can be named after certain wild species. For instance, dogs may be given the proper name *Lájɔ̀n* in Mokpe borrowed from English 'lion'. Third, a name may reflect the location from where the animal originated. This can be illustrated with the Mokpe name *Wɔ̀ndʒɔ̀* which was given to a goat that had been brought from the village of *Wɔ̀ndʒɔ̀ŋgɔ̀* located in Fako division. Fourth, the name of an animal can refer to a character trait or physical appearance. Such names are mostly borrowed from English, e.g. *Ràtì frɔ́gì* – a name that is typically given to cats because of their uncanny ability to hunt rats and frogs – or *Rambo*, *Bullet*, *Thunder*, and *Smart* which suggest the perceived strength, speed, and intelligence of a dog.

3.1.1.2 Semantics

Nearly all the CACs included in our database convey actions related to motion. This is the rule in Oroko where all tokens indeed express an idea of motion. In Mokpe, one CAC, i.e. *ò lèmí* does not principally imply motion but is rather used to shame dogs for discharging feces in inappropriate places and to train them not to do so. Nevertheless, even this CAC may trigger the animal to go away and may thus be related to motion at least minimally. (It should be noted that *Ò lèmí*

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is a secondary CAC which literally means 'Are you crazy?' The lexicalization of *ò lèmí* into a CAC (or its CAC-ization) is low and the construction is widely used with human addressees as well.) The three semantic motion-related categories of CACs found across languages, i.e. summonses, dispersals and directionals, are attested in both Mokpe and Oroko. In the two languages, summonses are the most common types of CACs; dispersals are the second most common; and directionals are the least common. Accordingly, the semantic hierarchy of actions exhibited by Mokpe and Oroko CACs coincides with those identified for two other Western Cameroonian languages, i.e. Babanki and Bum (Andrason & Akumbu 2024).

With regard to the distribution of CACs among domestic species – which, as we indicated above, are the only addressees of CACs in Mokpe and Oroko – the following can be observed: In Mokpe, the largest group of CACs is used with dogs and, slightly less so with cats. The next class of recipients of CACs includes chickens, goats, and pigs. Each of these species has approximately half of the CACs associated with dogs or cats. Ducks have the fewest CACs. Oroko data reveal a similar, although not identical, hierarchy. Dogs and, somewhat less, chickens can be addressed with the largest number of CACs. The number of CACs compatible with goats and cats is approximately half this number. Pigs and cows have yet fewer CACs associated with them, and ducks, as in Mokpe are the least frequent addressees of CACs.

Primary CACs are uniquely directed to animals and their usage with human speakers would be perceived as extremely offensive. In contrast, secondary CACs may be employed in communication with both animals and humans and generally do not trigger pejorative effects (other than their literal meaning; see *ò lèmí* discussed above).

Overall, Mokpe and Oroko CACs, especially primary ones, are often monosemic: they express a specific action and are directed to a specific animal species. Many CACs that are limited to a particular species are summons, some of them exhibiting an onomatopoeic foundation, e.g. *kùrúkùrú* (restricted to chickens) and *mɛ̌ɛ́ɛ̀?* (restricted to goats) in Mokpe and *mŭúúû* (restricted to cows) in Oroko. However, several other CACs may be used with a range of species, especially if such animals are phenotypically similar (e.g. small). For instance, in Mokpe, the primary CAC *ʃ:* can be employed with chickens, ducks, and goats, while *ʃû* can be employed with cats, dogs, and goats. Sim-

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ilarly, the secondary CAC *àŋdʒíjá áŋgâ* meaning ‘leave that place’ is used to chase away pigs, dogs, and cats and the borrowed *mûf* can be used to chase away both dogs and cats. The same phenomenon is observed in Oroko. The primary CAC ǁ may be addressed to both chickens and cows and the secondary CAC *árá wàgíjâ* ‘leave that place’ to chickens and cats. The polysemous character of secondary CACs is significantly more pronounced than is the case of primary CACs and it is likely that many secondary CACs can be used with a larger set of animals than attested in our data.

3.1.2 Form

The formal profile of Mokpe and Oroko CACs comprises of phonetic (3.1.2.1) and morphological (3.1.2.2) properties.

3.1.2.1 Phonetics

Mokpe and Oroko CACs exhibit distinct phonetic profiles depending on whether the specific CAC forms are primary or secondary. In general terms: primary CACs tend to be short, more consonantal than vocalic, and, to some extent, extra-systematic, whereas secondary CACs are robust, equally vocalic and consonantal, and systematic.

Regarding phonetic shortness/robustness, monosyllabicity is typical of primary CACs in Mokpe and Oroko, while for secondary CACs, polysyllabicity is far more common. To be exact, the vast majority of primary Mokpe/Oroko CACs are monosyllabic (see *hrɔ̀ɔ̀* and *mɛ́ɛ̀ʔ* in Mokpe and *bɛ́ɛ̀* and *fííí* in Oroko) or draw on identical monosyllabic segments arranged into sequences (see *hôhôhô* in Mokpe and *kɔ̀kɔ̀kɔ̀* in Oroko; see next section). In contrast, very few primary CACs are disyllabic (e.g. *míjǎw* in Mokpe and Oroko) or constitute a series of identical dissyllabic segments (e.g. *kùrúkùrú* in Mokpe). For secondary CACs, this tendency is reversed. The vast majority of secondary forms are polysyllabic: disyllabic (e.g. *dʒànâ* ‘bring (it)’ and *lèmbɛ̂* ‘catch (it)’ in Mokpe and *jáká* ‘come’ and *kómá* ‘chase/follow’ in Oroko) or trisyllabic (e.g. *ámbɛ́lɛ̂* ‘wait’ and *àŋdʒíjá* ‘leave’ in Mokpe and *tókówâ* ‘stand’ and *àráwâ* ‘go/leave’ in Oroko). If all the constituents of secondary CACs that originate in analytical phrases are considered jointly, syllabic length may even be greater (see *érákà ùndáwùnɛ̂* which literally means ‘leave the house’ and contains 7 syllables). By contrast, monosyllabic secondary CACs are extremely rare (see *ndɔ̂* ‘go/leave’ in Mokpe/Oroko and *gbâ* ‘follow’ in Orko). The tendency of

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secondary CACs to consist of two syllables is overall consistent with the prevalence of disyllabic roots in the general word stock of Mokpe (Atindogbe 2013) and Oroko (D. Friesen 2002).

In Mokpe and Oroko, CACs tend to draw on both consonants and vowels. This relatively equal contribution of consonantal and vocalic material to the phonetic substance of CACs is particularly evident in secondary CACs. Indeed, in our data, there are no secondary CACs that would only consist of vowels or, on the contrary, consonants. Nevertheless, as far as primary CACs are concerned, their consonantal nature seems somewhat more marked. First, in both languages, a number of primary CACs are exclusively built around consonants as illustrated by *ʃː*, *ǁ-ǁ-ǁ*, and *ʘ-ʘ-ʘ* in Mokpe and Oroko, and *k'-k'-k'* and *ǂ-ǂ-ǂ* in Oroko. In contrast, purely vocalic primary CACs are rare and attested only in Mokpe: *ōōōō* in *ōōōō wêj wêj* (see also *úúw è hèhèhèhè*). Second, except for *ōōōō wêj*, and *úúw è hèhèhèhè* mentioned above, primary CACs regularly exhibit consonantal onsets – a fact that clashes with a much larger number of onset-less secondary CACs (e.g. *ámbélɛ̂*, *àŋdʒíjá áŋgâ*, *àráwâ*, *èràkà*, *ómá éɛ̂é ómâ*, and *óŋgò*). Third, primary CACs (e.g. *míjǎw* in both languages, *pǔs* in Mokpe, and *tʃâj* in Oroko) allow for consonantal codas – a phenomenon that is absent in secondary CACs and generally disallowed in the standard phonetic systems of the two languages.[8]

The majority of CACs are wholly built around systematic phonetic material, i.e. consonants and vowels that form part of the standard phonetic repertoire of Mokpe and Oroko. While this phonetic systematicity prevails, some CACs – invariably primary ones – make use of extra-systematic sounds or even are solely made up of extra-systematic phones.

One class of the extra-systematic sounds found in Mokpe/Oroko CACs involves phones that, although absent in the standard phonetic repertoires of these two languages (see Neh 1989 and Atindogbe 2013 for Mokpe and Atta 1993 and D. Friesen 2002 for Oroko), are attested in the phonetic systems of other languages and feature in the International Phonetic Alphabet. In total, there are five such extra-systematic IPA sounds in the collected data. Three of them are clicks: the lateral [ǁ] and the bilabial [ʘ] (attested in both Mokpe and Oroko), as well as the palatal [ǂ] (attested only in Oroko) – each

8 This phenomenon is also attested in CAC loanwords (see further below).

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of which usually appears in a series. Neither of the above-mentioned clicks combines with other phones, whether systematic or extra-systematic. The remaining extra-systematic consonants attested in CACs are the velar ejective [k'] and the voiceless postalveolar fricative [ʃ], which are found in CACs but are absent in the regular word stock in Oroko (D. Friesen 2002); the trill [r] and the labio-dental fricative [f], which except for CACs, do not feature in Mokpe; and the glottal fricative [h] which in both Oroko and Mokpe is limited to CACs and interjections. The extra-systematicity of the vocalic material used in CACs is much less pronounced. Our data do not reveal vowels of extra-systematic quality. Nevertheless, in both Mokpe and Oroko, vowels found in CACs can be nasalized (see Mokpe *hrɔ̃ɔ̃̃* and Oroko *hrɔ̃̃*) contrary to the standard phonetic systems of these languages that only consist of oral vowels.

The other, equally considerable, set of extra-systematic sounds found in Mokpe/Oroko CACs comprises articulations that are not included in the International Phonetic Alphabet. Such non-IPA sounds may be produced orally, i.e. with the vocal tract, or non-orally, i.e. without the use of a vocal-tract mechanism. Non-IPA oral sounds attested in Mokpe and Oroko CACs are kisses, whistles, and the so-called tune. As was the case of clicks, these sounds never combine with other phones in CACs. {Whistle-1}, attested in both Mokpe and Oroko, is a sequence of short high-tone and high-pitch whistles. Following the notation which we developed in our previous study on CACs in Babanki and Bum (see Andrason & Akumbu 2024) – which reflects the proposal originally put forward by Poyatos (1993, 2002) – we represent this whistle as [S˥-S˥-S˥(…)]. {Whistle-2}, also attested in both languages, exhibits a more complex tonal structure: it begins with a rise in pitch and ends with a pitch fall, i.e. [S˥˩]. Lastly, {whistle-3}, which is restricted to Oroko, is a series of rising-pitch short whistles, i.e. [S↗-S↗-S↗(…)]. {Kiss-1} is found in both Mokpe and Oroko. It matches a cross-linguistically common kiss-sound found in CACs that draws on a pressure-release mechanism produced by two closures: an anterior dorsovelar one (made with the tongue) and a forward labial one (made with protruded lips) (Andrason 2024). In scholarly literature, this speech-kiss sound has been represented with the tripartite symbol [↓B'] that refers to the ingressive [↓], labial [B], and click-like nature ['] of this phone (Poyatos 1993, 2002, Andrason & Karani 2021, Andrason 2024). Similar to clicks, {kiss-1} often

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appears in a series. The remaining non-IPA sound produced orally is a melodic vocalization found in Mokpe which we label as {tune-1}. This repeated song-like pattern uses high-toned back high and front mid vowel patterns followed by a verb that encourages or motivates a dog during hunting.

The remaining types of non-IPA extra-systematic sounds are made with body parts other than the mouth and vocal tract, namely fingers (snaps), hands (claps), and feet (stamps), as well as with objects. To be exact, {snap-1}, found in Mokpe and Oroko, is a short finger snap usually realized in a series. In like manner, {clap-1} found in Mokpe is a serial realization of short claps done by slapping the two hands against each other. {stamp-1} is produced by periodically hitting one foot against the ground to chase away animals. In addition, speakers may use objects to communicate with animals. The CAC referred to as {object-1} is made by means of a dish that usually contains food given to an animal. The sound is produced by repeatedly hitting the dish with another object, against a wall, or on the ground. Whatever object is used to hit the dish, the sound produced serves the same function of inviting animals to eat. {object-2} is a louder sound typically made with a piece of wood (however, the use of non-wooden tools is also possible). It may be realized as a single "beat" or a series of "beats" as is necessary to catch the attention of the animal.

As far as phonotactics are concerned, primary and secondary CACs also exhibit different properties. Secondary CACs make use of syllable structures that are fully systematic in both Mokpe and Oroko (see Neh 1989 and Atindogbe 2013 for Mokpe and Atta 1993 and D. Friesen 2002 for Oroko), namely CV (e.g. *βέβélê* and *tókówâ*) and V (see the first syllable in *àráwâ* and *ómá*), as well as, with nasals only, NCV (see *mbórì/mbólì*) or CVC (*kám*). In contrast, primary CACs may additionally exhibit a C syllabic structure, thus allowing for consonantal nuclei and non-vocalic words. The exemplary cases are *ʃː*, *ǁ-ǁ-ǁ*, *⊙-⊙-⊙* in Mokpe and Oroko, as well as *ǂ-ǂ-ǂ-ǂ* and *k'-k'-k'* in Oroko. This type of syllable (and word) structure is unattested in the general word stock of Mokpe and Oroko. A further phonotactic peculiarity of primary CACs concerns onsets and codas. Both in Mokpe and Oroko, CACs tolerate complex onsets in which C1 is a consonant other than a nasal; see [#hr-] in Mokpe *hr̃ɔ̃ɔ̃* and Oroko *hr̃ɔ̃*. CACs also allow for non-nasal codas, e.g. approximants (*míjăw* in Mokpe and *tʃâj* in Oroko) and genuine consonants, specifically, [s] (*pŭs* in both lan-

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guages). CACs that are borrowed exhibit another extra-systematic coda, namely [-f#] (see *mûf* 'move' from English into both Mokpe and Oroko).

Lastly, primary CACs distinguish themselves from the general word stock, as well as from secondary CACs, by exhibiting two or three degrees of length. As far as we know, vocalic length is not a contrastive feature in the general word stock of Mokpe and Oroko even if some vowels can be lengthened (see Neh 1989: 66–67 and Atindogbe 2013 for Mokpe and Atta 1993: 60 and D. Friesen 2002 for Oroko). In primary CACs, long vowels are not only attested but also relatively common and 'stable', as illustrated by Mokpe *hr̃̃ɔ̃̃*, *mɛ́ɛ́ɛ̀ʔ*, and *ōōō wêj* and Oroko *bɛ́ɛ́ɛ̀*, *fííí*, and *mŭúûû*. That is, the above-mentioned CACs are not mere lengthened variants, but rather the regular forms that are typically realized with well-audible long vowels. The most frequent length type in such CACs is an exaggerated or extra-long realization, equivalent to three morae (see Mokpe *mɛ́ɛ́ɛ̀ʔ* and Oroko *bɛ́ɛ́ɛ̀*). Nevertheless, 'non-exaggerated' long vowels (equivalent to two morae) are also found (see *hr̃̃ɔ̃̃* in Mokpe). Consonants may also be long in primary CACs in Mokpe and Oroko. The exemplary case is *ʃ̩ː*.

3.1.2.2 Morphology

Similar to phonetics, the morphological profiles of primary and secondary CACs are quite dissimilar in Mokpe and Oroko. Primary CACs are morphologically simple, whereas secondary CACs are (or at least may be) complex.

All primary CACs in Mokpe and Oroko are monomorphemic. They consist of a root – the so-called CAC matrix – and do not contain any other morphemes whether inflectional, derivational, or compounded. This morphological simplicity is only violated in cases where a CAC is a series of identical segments, e.g. *ǁ-ǁ-ǁ*, *⊙-⊙-⊙*, *tʃàtʃàtʃàj*, *ǂ-ǂ-ǂ-ǂ*, *k'-k'-k'*, and *kùrúkùrú*. In agreement with recent work on CACs, we regard such replications as expressive/phonetic rather than derivative/morphological strategies. As is true of CACs in many other languages, this view can be substantiated by the following facts. First, the use of isolated segments (or singletons) outside of serialized CACs is problematic. Second, the addition of another segment and, for example, the expansion of a triplicated structure to quadruplicated, does not trigger a change in meaning. The action requested

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and the animal concerned remains the same. Third, replicated CACs need not have an intensifying effect, as illustrated by triplicated ‖-‖-‖ and ⊙-⊙-⊙ which are not more intense or emphatic than duplicated or non-replicated summonses (e.g. *kùrúkùrú*). This same applies to *ʧàtʃàtʃàj* which is used in Oroko to chase away unknown dogs and comprises three *ʧà*(*j*) chunks. To be sure, Oroko contains another dispersal CAC, i.e. the singleton *ʧâj* used to chase away dogs, pigs, and ducks (furthermore, the same form *ʧâj* is used in Cameroonian Pidgin English (CPE) as an exclamation to express surprise in moments of sadness). Nevertheless, the CAC *ʧàtʃàtʃàj* need not be viewed as tri-morphemic with each *ʧâj* segment conveying a separate meaning. Rather, *ʧàtʃàtʃàj* constitutes a holistic pattern indivisible into more elementary meaning-bearing units – despite its relation to the CAC *ʧâj* and, much less likely, the (emotive) interjection *ʧâj*.

Contrary to primary CACs, secondary CACs can – although need not – be morphologically complex. In cases where this complexity is attested, it reflects the non-CAC source underlying a given CAC construction. It thus stems from the fact that such CACs originate in other lexical classes or phrases/clauses built around non-CAC constituents. Most secondary Mokpe/Oroko CACs derive from imperatives, with which they are still homophonous, e.g. *ámbɛ́lɛ̂* ‘wait!’, *βɛ́βɛ́lɛ̂* ‘chase!’, *ʤànâ* ‘bring!’ in Mokpe and *àráwâ* ‘go!’, *kómá* ‘chase!’, and *tókówâ* ‘stand!’ in Oroko. Given their imperative origin, these CACs exhibit imperative morphology. In Mokpe and Oroko, imperatives are (one of) the simplest forms of a verb, although they are marked by their own, very diverse tonal patterns (Atindogbe 2013: 82). As a result, it is possible to argue that, similar to the corresponding imperatives, (de)imperative CACs exhibit at least a bi-morphemic structure: they consist of a root (and other extensions, should this be the case) and an imperative tone configuration. Comparably, CACs derived from nouns – *mbólì/mbórì* ‘goat’ in Mokpe and Oroko and *ɲàkà* ‘cow’ in Oroko – may be regarded as bi-morphemic (or even more complex). For example, in agreement with their nominal source, the CAC *mbólì/mbórì* consists of the root *bólì* and the class-9 nasal prefix (in this case, *m*-) and *ɲàkà* ‘cow’ consists of the root *-ɲàkà* and a zero class-9 prefix (since the root begins with a nasal, see Atindogbe 2013: 32). The morphological complexity of secondary CACs is even greater if a CAC construction descends from a small phrase or clause, e.g. one built around an imperative and a noun (Oroko *gbɛ́ ò ndáwò* ‘enter the

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house'), or a series of imperatives (Oroko *ìràkà nàŋgà* 'go and sleep)'. It should however be noted that the lexicalization of such original analytical phrases in their CAC uses is low.

CACs that are borrowed from other languages may also reflect forms that are morphologically complex in the donor language system. For instance, Mokpe *gō áùt* is a CPE phrasal verb *go out*, composed of the verbal root (imperative) and a particle; *kám yéè* 'come here' is a CPE expression composed of an imperative and a locative adverbial; and *líf dá plēs* is an adaptation of the small clause 'leave that place' composed of three free morphemes. This is also the case of Oroko *kátʃàm* 'catch it' which derives from a bi-morphemic construction *catcham* in CPE. However, some expressions (e.g. Mokpe *bâk* 'back' and *ínsáì* 'inside') reflect monomorphemic forms in the donor language. Most borrowed CACs originate from Cameroon Pidgin English, with Mokpe containing a larger number of CPE loans (5x) than Oroko (2x). This presence of CPE CACs might reflect the multilingualism of the interviewed speakers, who could switch between Mokpe/Oroko, CPE and, perhaps, even English when talking to animals. Thus, rather than borrowing *sensu stricto*, we would deal with some type of code switching. Nevertheless, since code switching and borrowing are connected phenomena constituting two edges of a shared continuum (Matras 2009, Pakendorf 2009, Meakins 2011, Gardani 2020, Andrason 2021), we regard such CACs as some types of loanwords, whether less general/entrenched/panlectal/integrated/default (more code-switching-like) or more general/entrenched/panlectal/integrated/default (more borrowing-like).

The only CAC that can be traced to French – one of the former colonial languages still used in Cameroon – is *mínū* in Mokpe and *mínūs* in Oroko. Both CACs are employed to summon cats as is also true of their French source *minou*. The presence of the final *-s* in the Oroko form is difficult to explain. It is possible that *s* found in the coda is analogical to *pŭs* which is found in both Mokpe and Oroko and entertains the same function: a summons to cats.[9] The borrowing of CACs from both Cameroon Pidgin English and French on the one

9 Compare with the CAC *les* [lés] in Ewe. *Les* consists of the Ewe imperative verb *le* 'catch!' and a suffix *-s*. The suffixation of *-s* is attributed to analogy with other CACs found in Ewe and "the 'naturalness' or the crosslinguistic pressure of closing mono-syllabic CACs with consonantal codas and using sibilants for these purposes" (Andrason & Gafatsi 2025: 19).

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hand and the larger number of CPE loans than French loans on the other, stem from the fact that, as explained in the introduction, Mokpe and Oroko are spoken in the Anglophone zone of Cameroon (see D. Friesen 2002). The greater visibility of CPE loans in Mokpe is, in turn, likely due to the extensive presence of Cameroon Pidgin English in the area which includes parts of Cameroon's South-West Regional headquarters and, is therefore, more urbanized than the area where Oroko is spoken. Borrowed CACs tend to be directionals, slightly less often dispersals, and only residually summonses. Accordingly, they contrast with primary CACs for which summonses are more common than dispersals and directionals.

To conclude, our data demonstrate that, when considered in their totality, the categories of CACs in Mokpe and Oroko are opaque. There are no morphological patterns that would be pervasive in and/or exclusive to CACs. On the contrary, CACs allow for a great diversity of word structures ranging from strictly monomorphemic (and simple) to pluri-morphemic (and complex).

3.2 Relatedness

As was the case with the phonetic and morphological properties of Mokpe/Oroko CACs, which are largely conditioned by the primary or secondary status of CAC constructions, primary and secondary CACs exhibit different extents of similarity. In general terms, primary CACs tend to be more similar in the two languages than secondary CACs. Among the primary CACs attested, 8 are identical or highly similar in both languages. For Mokpe, this amounts to slightly more than half of all primary CACs (i.e. 8 out of 14 = 57%); for Oroko, this number constitutes slightly less than half (i.e. 8 out of 17 = 47%). The following CACs are identical in both form and meaning in Mokpe and Oroko: *hrɔ̃ɔ̃*, *kɔ̀kɔ̀kɔ̀*, *míjǎw*, *pŭs*, *ʃː*, and *ʃû*. The majority are summonses (4x). The remaining type comprises of dispersals (2x). No directionals or motion-unrelated CACs are identical in both languages. The cognancy of the Mokpe/Oroko general word stock – or more correctly, the 40 words that we collected following the Automated-Similarity-Judgment-Program (ASJP) list (Wichmann 2007, Wichmann, Holman & Brown 2022) – ranges between 65% and 75%.[10] The following 23

10 The ASJP list (Wichmann et al. 2012, Wichmann, Holman & Brown 2022) can be found in the Max Planck repository. Initially, the list drew on the Swadesh list and thus included 100 lexemes (Brown et al. 2008). However, "research shows that

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(Mokpe/Oroko) ASJP lexemes may be regarded as cognate: EYE (*lízrɔ̀/lísɔ̀*); EAR (*lìtô/lìtó*); TONGUE (*dʒémè/ìjémé*); TOOTH (*lìʒrɔ̀ŋgá/lìsɔ̀ŋgá*); KNEE (*lùwɔ́ŋgɔ́ŋgɔ́/lìβɔ́ŋgɔ̂*); BLOOD (*màjdʒá/màkìjá*); BONE (*èèʒré/èsé*); BREAST (*lìwê/màβɛ́*); LIVER (*lìwàj/lìβɛ̀*); LOUSE (*ɲìɲá/ɲa, nija, ɲia* (D. Friesen 2002)); DOG (*ɱgbâ/ɱgbá*); FISH (*ɲàmà màlúwá/ɲamamaliba* (D. Friesen 2002)); HORN – ANIMAL PART (*mòʒréwá/mòséβâ*); PERSON (*màlúwá/ìlíβâ*); NAME (*ndʒìjá/ndʒìjá*); DIE (*ṽâ/wa* (D. Friesen 2002)); SEE (*énɛ̂/énɛ̂*); ONE (*βɔ́kɔ́, jɔ̀kɔ́/èjɔ́kɔ́*); TWO (*wéwă/béwɛ̄*); I (*ìmbâ/mbá*); YOU (*òwâ/ùwá*). The above shows that, for Oroko, the cognancy of CACs is considerably lower than that of the ASJP vocabulary; for Mokpe, it is also lower, although less radically.

Importantly, out of the four summonses that are identical in Mokpe and Oroko, three have an onomatopoeic foundation. Accordingly, they coincide with onomatopoeias (also attested in Mokpe and Oroko) that imitate the sounds made by the respective animals: *hrɔ̃̀ɔ̃̀* by pigs, *kɔ̀kɔ̀kɔ̀* by chickens, and *míjằw* by cats. This imitative nature is also patent through the similarity of these Mokpe/Oroko forms with onomatopoeias attested in many other languages, including those that are typologically, geographically, and phylogenetically remote and/or disconnected. For example, *hrɔ̃̀ɔ̃̀* has close onomatopoeic equivalents in several Slavonic languages, such as Czech (*chro*), Polish (*chrum*), and Russian (*хрю* [xr'ju]), as well as Romanian (*groh*) and Indonesian (*grok*). This cross-linguistic correspondence is even more evident with the two other tokens. CACs comparable to *míjằw* are, for example, found in Kihunde (*mìjáw*(*ù*)), Asante, Bono, and Fante (*mìàẁ*), Macha and Harar Oromo (*miw* and *mew*, respectively), with onomatopoeias exhibiting forms similar to *míjằw* being even more prevalent cross-linguistically.[11] CACs comparable to *kɔ̀kɔ̀kɔ̀* are attested in Arusa Maasai (*kúkukúku*), Fante (*kúkú*(*kú*)), and Sengwer (*kutkutkutkut*). Again, onomatopoeias of this type are even more common across languages, e.g. in Bulgarian (*ко-ко-ко*), Greek (*ко-ко*), Japanese (*kokko*), Portuguese (*có-có-có*), and Tjwao (*kokokokoko*). The other identical CAC in Mokpe and Oroko, i.e. the summons *pŭs*

automated language classification is just as accurate, if not more so, using a much shorter list restricted to the 40 most stable items of the 100-item list" (Wichmann 2007: 1, Wichmann, Holman & Brown 2022).

11 Additionally, in many languages, the nasal onset [ɲ] appears instead of [m], e.g. *ɲá:u* in Arusa Maasai.

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directed to cats, is also frequent from a crosslinguistic perspective. Indeed, similar CACs addressed to cats are found in Dutch (*poes*); with a front close vowel instead of the back one, they are found in Romanian (*pis*(*i*)), Turkish (*pisi*), and Azeri (*pish*); with no vocalic nucleus, in Ayt-Haddidu Tamazight and Sengwer (*ps*); and with the voice bilabial stop instead of the voiceless one, in Arabic (*bis*), Babanki (*bùús*), and Bono (*bú(ú)s*). Although the CAC *pŭs* found in Mokpe and Oroko and similar forms attested in other languages need not have an onomatopoeic foundation imitating meowing, they may mimic a more aggressive sound produced by cats when hissing (cf. Schötz 2020).[12]

As is the case of the summonses described above, the two dispersals that exhibit the same form in Mokpe and Oroko, i.e. *ʃː* and *ʃû*, exploit cross-linguistic strategies. In the sample of 79 languages (Andrason 2023), dispersals tend to draw on sibilants, with [ʃ] being the most commonly attested. A non-vocalic syllable pattern similar to *ʃː*, i.e. [Ṣ] (that is, a syllabic sibilant), appears in a tenth of sibilant dispersals, while the SV syllable structure, as in *ʃû*, is slightly more frequent. The most common vowels are close, specifically U- and I-types – each featuring in approximately a third of the language sample underlying that study. For example, a dispersal form *ʃ* is found in Arusa Maasai, Dza, German, Lithuanian, Malay, Matses, Nahuatl, Persian, and Polish. A dispersal form *ʃU* is found in Malay, English, Ndebele, Oromo, Shona, Suba, and Xhosa. While not necessarily onomatopoeic, the presence of sibilants in dispersals is motivated (Andrason 2023).

The crosslinguistic pervasiveness – whether due to an onomatopoeic foundation or motivated by other reasons – means that although identical, the above-mentioned CACs in Mokpe and Oroko need not have descended from a common ancestor. Equally likely (perhaps, in fact, more so), they may have emerged by harnessing common cross-linguistic strategies, independently in Mokpe and Oroko. Such parallel developments are even more plausible in light of the two other Mokpe/Oroko CACs that have the same form, which we discuss in the next paragraph.

12 The majority of the examples of CACs from languages other than Mokpe and Oroko provided in this paragraph are extracted from *A living database of conative animal calls. Version 1.1* (Andrason et al. 2024). A few others come from a forthcoming edition of this database, i.e., version 1.2.

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Two primary CACs coincide formally in Mokpe and Oroko but differ as far as their functions are concerned. Both are clicks, i.e. *‖-‖-‖* and *⊙-⊙-⊙*. In Mokpe and Oroko, *‖-‖-‖* is used to summon chickens. However, the same CAC can also be addressed to other species: in Mokpe to ducks while in Oroko to cows. Across languages, the lateral click *‖* – employed typically on its own with no accompanying phones whether consonants or vowels – is widely exploited in CACs and entertains a variety of functions. For example, to summon animals (Arusa, Ewe, Macha Oromo, Babanki, and Bum), modify the motion of an animal (Arusa, Tjwao, Ewe), chase away an animal (Tjwao), and request actions that are not related to motion, such as silencing (Tjwao), encouraging animals to give milk (Sengwer), and merely drawing the attention of an animal (Ewe). The click *‖* is also compatible with a number of different animal species: goats, sheep, donkeys, cows (cattle), dogs, and poultry. Like *‖-‖-‖*, *⊙-⊙-⊙* is employed to summon animals in Mokpe and Oroko. However, in Mokpe, it is directed to dogs, while in Oroko to chickens. The use of *⊙* in a summoning function is widely attested across languages: with dogs (Arusa and Sengwer) and specifically puppies (Bono), livestock (Tjwao), poultry (Kihunde and Asante), goats and sheep (Asante). Additionally, although much less common, *⊙* can be employed as a directional to modify the motion of animals (in Fante). Overall, click CACs (including the post-alveolar [!] and the palatal [ǂ]) are highly pervasive from a typological perspective. Indeed, nearly all languages that have been studied thus far have at least one click CAC in their repertoire (Andrason 2024). As far as non-click languages are concerned, click consonants constitute the most ubiquitous class of extra-systematic IPA sounds found in CACs (Andrason & Karani 2021: 18, Andrason 2024). Therefore, it is likely that the presence of the same click CACs in Mokpe and Oroko reflects a crosslinguistic pressure rather than stems from shared ancestry (although the latter cannot be ruled out either). The different meanings of these forms would be a palpable manifestation of this.

The remaining primary CACs are distinct in Mokpe and Oroko. There are 5 CACs in Mokpe that have no equivalents in Oroko: *hôhôhô*, *kùrúkùrú*, *mɛ́ɛ̀ʔ*, *ōōōō wêj*, and *úúw è hèhèhèhè*. In Oroko, nine CACs do not have equivalents in Mokpe: *bɛ́ɛ̀*, *fííí*, *kǎʃà*, *kɔ̀kɔ́rɛ̀*, *mǔúû*, *tʃâj*, *tʃàtʃàtʃàj*, *k'-k'-k'*, and *ǂ-ǂ-ǂ-ǂ*. The majority of such dissimilar primary CACs are summonses several of which have an onomatopoeic foun-

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dation, e.g. *kùrúkùrú*, *mɛ̌ɛ̀ɛ̀ʔ*, *bɛ̌ɛ̀ɛ̀*, *kɔ̀kɔ́rɛ̀*, *mǔúûʉ*, and perhaps even *k'-k'-k'*. Once again, similar CACs (or onomatopoeias) are widely attested in the languages of the world, as illustrated by *kukuryku*, *mee*, *bee*, *muu* in Polish and other Slavonic languages (Siatkowska 1976). Therefore, the above-mentioned CACs have most likely been developed in Mokpe and Oroko by harnessing well-known crosslinguistic strategies – although independently. The lexemes *tʃâj* and *tʃàtʃàtʃàj* with which speakers chase away animals, as we explained in section 3.1.2.2, exploit "universal" mechanisms as well. They draw on sibilant affricates which are common in dispersals and the nucleic vowel *a* which is almost as common as the U- and I-type vowels mentioned above (and discussed in Andrason 2023). The palatal click *ǂ-ǂ-ǂ-ǂ*, which is found in Oroko but unattested in Mokpe, is also common in summonses in other languages. It is used to summon poultry and/or cats in Asante, Bono, Fante, and Arusa. Even *kǎʃà* employed to incite dogs to chase prey may be explained in terms of common typological tendencies. This CAC makes use of the plosive [k] and a sibilant [ʃ] and thus closely approximates the form exhibited by a prototypical dispersal [kI/Uʃ] (Andrason 2023), with the meaning of chasing prey (a directional subtype) and chasing away an animal (dispersal) being related. (This CAC may also be related to *kátʃàm* and thus reflect the CPE form *catcham*.)

Overall, drawing on common crosslinguistic strategies seems to constitute the chief manner of coining primary CACs in Mokpe and Oroko. Although this may lead to the emergence of forms that are similar (formally/functionally or formally only) in both languages – apart from the creation of CACs that are clearly different – to account for such similarities one need not involve proto-Bafawic-Bakweric origin. In other words, our analysis shows that none of the CACs that are currently similar in Mokpe and Oroko necessary descends from a shared ancestor. Parallel developments drawing on common crosslinguistic strategies are much more likely.

In contrast to what we observe with primary CACs, the similarity of secondary CACs in Mokpe and Oroko is very low. There are only two unquestionable cognates in our data. The first is the pair *mbólì* (Mokpe) and *mbórì* (Oroko). Both CACs derive from a natural-kind label, i.e. the noun meaning 'goat' and are used to summon goats (see section 3.1). The other is *ndê* which derives from a homophonous imperative verb that means 'go' (and thus 'leave') in Mokpe

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and ‘come’ in Oroko. As a CAC, *ndê* is respectively used as a dispersal (with dogs) and a summons (with goats). The remaining secondary CACs do not exbibit any similarity (although they do draw on verbal/nominal/adverbial roots that are cognate). Nevertheless, although independently, both Mokpe and Oroko exploit the same “universal” strategies that regulate the ‘cooptation’ of some lexical classes for human-to-animal directive purposes. Specifically, as is common across languages (and as we explained in section 3.1), imperatives constitute the most prolific source of secondary CACs, in Mokpe (e.g. *ámbélê* ‘leave’, *βéβélê* ‘chase’, *dʒànâ* ‘bring’, *kám* ‘come’, *lìjâ* ‘sit’, *témê* ‘stand’, *tìmbâ* ‘return’) and Oroko (e.g. *àráwâ* ‘go’, *èràkà* ‘go’, *gbâ* ‘kill’, *jákâ* ‘come’, *kómá* ‘chase’, *nàŋgâ* ‘sleep’, *óŋgò* ‘come’, and *tókówâ* ‘stand’). In some instances, a CAC is a small phrase in which the imperative is accompanied by a locative adverbial or nominal (e.g. *nù* ‘here’, *yéè* ‘here’, *wàgíjâ* ‘this place’, *ò ndáwò* ‘in the house’).[13] The other source of secondary CACs, significantly less frequent in Mokpe and Oroko (as is also the case crosslinguistically), are natural kind labels: *ɲàkà* ‘cow’ in Oroko and the above-mentioned *mbólì/mbórì* in the two languages.

As we also explained in section 3.1, a few CACs are borrowed from other languages. Among such loanwords, two are shared by both Mokpe and Oroko. The first of them is *mûf* adopted from the CPE imperative *move*. *Mûf* is used as a dispersal to chase away cats and dogs in Mokpe, but as a directional to make pigs advance in Oroko. Both meanings can be connected to the semantic content of their CPE imperative source. The other borrowed CAC that coincides in Mokpe and Oroko is *mínū/mínūs* used to call cats. As we explained above, this CAC is most likely adopted from the homophonous and synonymous summons *minou* found in French. The remaining CACs have been borrowed independently in Mokpe and Oroko. Mokpe contains at least four such CACs, while Oroko contains one CAC loanword, which is also absent in Mokpe.

13 As locative elements seem optional and may be changed or omitted without changing the meaning of the respective CACs, the lexicalization and morphologization of such original periphrastic expressions is relatively low.

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4 Discussion

The data presented in the previous section demonstrate that CACs in Mokpe and Oroko match the features associated with the typologically-driven prototype of CACs – they do so both closely and with an equal regularity. Therefore, the CAC categories in the two languages may be viewed as similarly canonical. With regard to function, in an almost exception-less manner, Mokpe/Oroko CACs express motion-related actions and have domestic species as their addressees. They also tend to be monosemous rather than polysemous and are largely determined by the (very similar) ecosystems in which the Mokpe and Oroko communities live. With regard to form, primary CACs tend to be monosyllabic (or consist of identical monosyllabic segments replicated in series); exhibit a more consonantal than vocalic nature; contain extra-systematic sounds (both IPA and non-IPA) and sound combinations, and tolerate extra-systematic degrees of vocalic and consonantal length. In addition, primary CACs are monomorphemic (with replication constituting an expressive/phonetic rather than derivative/morphological device) and thus fail to exhibit inflections and derivations or draw on compounding. As all these formal properties are often violated by secondary CACs (which is also expected given typological data available; Andrason & Karani 2021), the CAC categories in Mokpe and Oroko are structurally opaque.

The evidence provided also confirms the phylogenetic hypothesis put forward on the basis of other languages and demonstrates the low cognancy of CACs in Mokpe and Oroko. The similarity of secondary CACs in both languages is low (especially for Oroko) and only a few cognate forms exist. Contrary to secondary CACs – and apparently violating one of the proposals concerning the cognancy of CACs – primary CACs exhibit a greater extent of similarity. However, this convergence, most likely, does not reflect shared ancestry – the identical CACs thus do not descend from earlier, for instance, proto-Sawabantu or proto-Bafawic-Bakweric forms. Rather, the resemblance attested is due to parallel developments, certainly similar yet independent. That is, by following common crosslinguistic strategies, which themselves are cognitively and/or iconically motivated, Mokpe and Oroko have separately developed CACs that look alike – a conclusion that stands in full agreement with the proposals concerning the phylogenetics of CACs (see section 2). Indeed, as is true of Ewe and Akan (Andrason

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& Gafatsi 2025), for all the cases of resemblance between Mokpe and Oroko CACs, equally similar forms exist in many other unrelated and geographically remote languages. Accordingly, despite the greater similarity of primary CACs than secondary CACs observed in Mokpe and Oroko, the hypothesis of the low cognancy of primary CACs (Daković 2006, Duah, Andrason & Antwi 2023) is, in our view, corroborated.

While our findings concur with the previous works dedicated to CACs and provide further support for the thesis of their low cognancy, a more general question emerges: Why are CACs in Mokpe, Oroko, and other languages so resistant to be transmitted along a language lineage? While more research is needed to offer a definitive solution to this issue, we think that the principal reason may concern the (preferred) non-arbitrariness and thus form-function transparency of CACs, especially the primary ones. That is, to preserve a direct relationship between their form and function – whether it is imitative/onomatopoeic (as is the case of several summonses) or motivated by other reasons (as is the case of dispersals) – and, inversely, to prevent CACs from acquiring more arbitrary profiles (something that typically occurs during the diachronic development of most language structures), CACs would regularly be "updated" and re-aligned to what speakers perceive as transparent, iconic, and motivated. While such "updating" is not necessary for many other lexical classes of sentence grammar (e.g. verbs, nouns, pronouns, numerals, adverbs, adjectives, conjunctions, and adpositions), it is critical for CACs because they are directed to animals. Indeed, our communication with these non-human species needs to be transparent because our "'interlocutor' is non-human and thus 'not in command of the [human] linguistic system'" (Andrason & Karani 2021: 4 citing Isačenko 1964: 95). (This however does not mean that CACs are never inherited across a language lineage or are always immune to be governed by diachronic laws operating in a language or language group. Both phenomena (may) occur although, we argue, they are less common than in sentence grammar.)

The same low cognancy across (closely) related languages and the same principle underlying the reluctance to be shared apply to onomatopoeias which, similar to CACs, are motivated and iconic. The comparison of the onomatopoeic categories in two languages of the Jen cluster (Adamawa), i.e. Dza and Mingang Doso, reveals that, at

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least in these varieties, onomatopoeias tend to be "reinvented" in the two branching varieties (Andrason & Benson 2023). Crucially, "this greater mutability of onomatopoeias […] may stem from their inherent expressiveness […] and iconicity" (Andrason & Benson 2023: 21). In other words, "the relatively direct relationship onomatopoeias entertain with extra-linguistic reality and the apparent need to imitate it, seems to motivate speakers to re-invent onomatopoeias over the course of the history of a language [family] to constantly match real-world sounds (as perceived by humans) with their linguistic representations" (Andrason & Benson 2023).

Additionally, the results of our research, together with data from other languages, for example Dogon (Andrason & Sagara 2024), suggest certain hierarchical correlations between the three formal types of CACs (primary, secondary, and borrowed) and the motion-related semantic types (summonses, dispersals, and directionals). Primary CACs tend to be used as summonses more commonly than dispersals, and only residually as directionals. In contrast, secondary and borrowed CACs tend to be used as directionals, less so as dispersals, and rarely as summonses. Inversely, directionals tend to be expressed with secondary and borrowed CACs; dispersals with the three formal types relatively equally; and summonses mainly with primary CACs. This can be captured by the following table:

Table 2. Correlations between the formal and semantic types of CACs

	Summonses	**Dispersals**	**Directionals**
Primary	Common	Semi-common	Uncommon
Secondary	Uncommon	Semi-common	Common
Borrowed	Uncommon	Semi-common	Common

5 Conclusion

The present article demonstrates that the categories of conative animal calls in Mokpe and Oroko comply with synchronic and diachronic tendencies typifying these types of constructions in the languages of the world. Primary CACs closely match the prototype of CACs and can be regarded as its canonical instantiations; secondary CACs may violate the prototypical features, which is also regular from a typological perspective. Furthermore, the comparison of Mokpe and Oroko CACs reveals the low cognancy of CACs in these two Sawabantu languages.

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The greater similarity exhibited by primary tokens than is the case of secondary ones – which is somewhat unexpected in a crosslinguistic context – does not stem from shared ancestry but is due most likely to parallel developments and the exploitation of fully motivated, typologically common strategies.

We propose that the main reason behind the reluctance of CAC constructions to be transmitted within a linguistic lineage is the principle of non-arbitrariness and form-function transparency governing the grammatical life of CACs, especially the primary ones. While this explanation coincides with what has been suggested to account for the similar low cognancy of onomatopoeias, more research on CACs in related languages is needed. We particularly need systematic diachronic studies dedicated to languages with well-established phonetic and morphological evolutionary rules (and a literary tradition extending over many centuries), such as Romance, Germanic, and Slavonic languages.

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