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RESEARCH ARTICLE

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ABSTRACT

This study aims to not only establish the existence of Chamtok, a hybridized communicative system used in the southwest region of Cameroon, but also to structurally and acoustically analyse its relation with English and Cameroon Pidgin English. We observed that despite lacking widespread recognition, even in localities where it is spoken, it shares some structural and acoustic characteristics with English and Cameroon Pidgin English, which warrant further investigation. Data were collected through participant observation, interviews and expert elicitation. The study involved 10 female participants, with data collected via recorded telephone communications, segmented, annotated, and phonetically transcribed using the ELAN software. A structural and acoustic analysis in PRAAT, guided by the descriptive linguistic approach, revealed that Chamtok adheres to the preferred CV syllable structure of English, with hyper-syllable amplifications through consonant insertion and vowel reduplication. This similarity extends to Cameroon Pidgin English, with which Chamtok interacts to form its hybrid identity. Acoustically, the analysis showed that the series of insertions and vowel reduplications harmonize Chamtok's stress and intonation patterns with those of the English language. Unlike English, where primary stress typically falls on a single syllable, Chamtok often assigns similar stress patterns to adjacent syllables. Whilst it is apparent that the language is inspired by the quest for mutual exclusivity in linguistic expression, the unique linguistic phenomenon it reveals is meritorious of linguistic attention.

KEYWORDS: communicative hybridization, chamtok, harmonization, reduplication, youth identity

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1. Introduction

Research on multilingualism and multiculturalism highlights the significance of youth language and identity in diverse linguistic contexts. Researchers such as Pujolar (2008), Bucholtz and Skapoulli (2009), and Wyman et al. (2013) have made significant contributions to our understanding of how young people navigate linguistic and cultural diversity in multilingual environments. For example, Pujolar assesses youth language in Catalan, viewing youths as the seed of future society, while Wyman et al. (2013) offer a critical look at indigenous youth language in multiple endangered language communities, informing intergenerational language planning activities in dynamic sociocultural contexts. Bucholtz and Skapoulli investigate the linguistic development of youth identities within the context of cultural mobility. They focus not only on the broader cultural and political processes that influence young people's lives but also on how youth identities are formed through interaction and local language practices.

A common thread among these authors is that linguistic diversity offers creative language use beyond communication. It's intriguing how individuals in multilingual and multicultural environments manage the pressures of speaking multiple languages as they navigate across linguistic and cultural borders. In the case of most African countries, including Cameroon, the response to such pressure has been the spontaneous development of pidgins, creoles and hybrid languages, a strategy that transforms what seems to be a linguistic curse, as seen in the case of the biblical story of the tower of babel (Genesis 11: 7-9), to a rich and colourful linguistic culture that symbolize the pride of the African intellectual and his verbal capacity. An example of such languages is Camfranglais, a sociolect that blends elements of French, English, and local languages, serving as an icon of "resistance identity" for urban youth (Kießling 2005). This study focuses on Chamtok, a youth language developed from the liaison of the English language, Cameroon Pidgin English and national languages.

As a linguistic hybrid, Chamtok serves as a medium through which young people construct and negotiate their group identity (Bucholtz & Skapoulli 2009; Wyman et al. 2013). This phenomenon reflects the complexities of language and culture, where youths balance group inclusion and linguistic distinction (Kießling 2005). Over the years, Chamtok has become integral to Cameroonian youth identity, reflecting their relationship with a complex and interconnected world. This study therefore, explores Chamtok's structural and acoustic characteristics, shedding light on language hybridisation and identity construction in multilingual spaces. Within Cameroon's complex linguistic landscape, featuring over 283 national languages and two official languages (Eberhard et al., 2025), Chamtok has emerged as a significant aspect of youth identity.

This study therefore, contributes to our understanding of Chamtok taking into account its structural and acoustic properties in relation to English and Cameroon Pidgin English. The study is structured as follows: Section 2 provides an overview of Chamtok's origins and context, Section 3 outlines the methodology, Section 4 presents a detailed analysis of Chamtok's structural properties, and Section 5 summarises key findings and implications.

2. The origin of Chamtok

Chamtok is widely spoken in the Southwest Region of Cameroon, particularly in urban communities such as Mutengene and Buea. These towns, originally inhabited by Mokpe natives, are situated on the slopes of Mount Cameroon and boast favourable weather conditions and fertile soils, which are crucial for agriculture. The University of Buea and the mountain's touristic appeal attract people from diverse geographical, cultural, and linguistic backgrounds, resulting in a significant influx of migrants. This diversity fosters interaction among speakers of different languages, often relying on English or Cameroon Pidgin English (Kamtok) as the lingua franca.

However, this limitation prompts the need for a private speech form that is understood by a specific group. Young girls and women, in particular, sought a linguistic form that would allow them privacy in the midst of men and others out of their circle. This necessity drove the creative blending and reduplication of syllables in words from English and Cameroon Pidgin English, resulting in unique word forms and utterances that are largely intelligible only to the feminine gender. This phenomenon is consistent with research on language contact and hybridity, which emphasizes the intricate relationship between language, culture, and identity (Bucholtz &

Skapoulli 2009; Kießling 2005).

The name “Chamtok” originates from Mutengene (locally known as “Cham”), where women popularized this communicative system. As Chamtok gained popularity, it became a secretive form of communication amongst women, who intentionally kept it mysterious to prevent men from understanding it. The word “Chamtok” consists of two morphemes: “cham,” referring to Mutengene, and “tok,” the Pidgin word for “talk.” Thus, Chamtok literally relates to speech or a communicative style from Cham (Mutengene).

This linguistic phenomenon underscores the importance of considering cultural contexts in understanding language use and identity (Dwivedi et al. 2023). Recent studies on language augmentation and hybridity emphasize the importance of exploring linguistic diversity and creativity in multilingual contexts. Researchers have utilized large language models (LLMs) to create synthetic data, improving the performance of large language datasets (Dai et al. 2023; Liu et al. 2023). These approaches have shown promise in enhancing language model performance and capturing nuanced aspects of human language use.

3. Methodology

Data for this study are primary in nature and were obtained from naturally occurring conversations by speakers of Chamtok through recorded elicitation complemented by participant observation and recorded telephone conversations between competent users of the language who were geographically dispersed. All participants in the study were females aged 20 years and older, as the user population is predominantly female. Such participants hailed from the southwest region of Cameroon, particularly in Mutengene and Buea, where the language is spoken.

Data obtained were segmented, phonetically transcribed using the Eudico Linguistic Annotator (ELAN) and glossed in accordance with the Leipzig Glossing Rules. To ensure reliability, the data were crosschecked with other speakers of the language for accuracy. After transcribing, glossing, and verifying the data, a qualitative analysis was conducted, considering their morphological structures, tonal and stress characteristics (following an Autosegmental approach), and acoustic features using Praat. In terms of presentation, the data is presented in tables and Praat charts for a visual representation of the acoustic features.

4. The structure of Chamtok

Chamtok exhibits a striking resemblance to both English and Kamtok. As a hybrid language, it combines characteristics of both languages at various levels, including phonological, morphological, and syntactic structures, which are reflected in its phrasal and sentential structures. In so doing, words derived from English tend to inherit the prosodic nature of the language, thereby surfacing with stress patterns. Similarly, those from Kamtok also bear its tonal nature. Thus, one can conclude that Chamtok is a stress-timed language like English and also a tone language, similar to Kamtok. Its ability to accommodate both tone and stress makes it one of the rarest linguistic forms in the continent of Africa where native languages are predominantly tonal.

Before addressing the prosodic nature of Chamtok, specifically its stress and tone patterns, a structural analysis is warranted. From a structural standpoint, a notable feature of Chamtok is the productive role of reduplication and consonant insertion in word formation. The use of reduplication and consonant insertion in Chamtok highlights the creative potential of language contact and hybridity, where speakers draw on multiple linguistic resources to construct new meanings and identities (Omoniyi & Saxena 2017). For instance, during word formation, the vowel of each syllable is reduplicated and added to the same syllable by prefixing it to the same vowel, thereby creating a lengthened syllable. This is followed by the insertion of a consonant between the two vowels in avoidance of the adjacent occurrence of vowels, a violation that is prohibited in English, Cameroon Pidgin English and most Bantu languages (Hyman 2011).

Thus, the vowel of every syllable is copied, added before the same vowel and complemented by the insertion of the consonant /b/ between the two vowels in order to create a new syllable within the same word. This

formation pattern results in word creation and syllable amplification, as the following examples demonstrate.

Table 1. Illustrating data derived from English

1	English	Formation process		Chamtok	Gloss
	[tʃɛə(ɹ)]	/tʃ-ɛ-ɛə/	/tʃ-ɛ-b-ɛə/	[tʃɛbɛə]	Chair
	[si:]	/s-i-i:/	/s-i-b-i:/	[sibi:]	See
	[nju:]	/nj-u-u:/	/nj-u-b-u:/	[njubu:]	New
	[ba:]	/b-a-a:/	/b-a-b-a:/	[[baba:]	Bar
	[ka:]	/k-a-a:/	/k-a-b-a:/	[kaba:]	Car
	[nəʊ]	/n-o-əʊ/	/n-o-b-əʊ/	[nobəʊ]	Know/no
	[pleɪ]	/pl-e-eɪ/	/pl-e-b-eɪ/	[plebeɪ]	Play
	[meɪ]	/m-e-eɪ/	/m-e-b-eɪ/	[mebeɪ]	May

As the data above demonstrate, monosyllabic words tend to be realised as disyllabic due to the processes of reduplication and consonant insertion that result in their formation. Also noticeable is the fact that the vowel of the reduplicated syllable is shortened regardless of whether the original vowel is long or short. This is reminiscent of the case of Tagalog, a language spoken in the Philippines, where reduplication surfaces as non-constituent copy (see Katamba 2006: 187).

Although the process appears simple enough when dealing with words with open syllables, the process gets a little tricky when forming words with closed syllables. In this case, after the reduplication of the vowel and the insertion of the voiced bilabial plosive before it, the final coda consonant is maintained at the coda position of the reduplicated syllable thereby, creating a word with two syllables, the first of which is open and the second closed, as shown in the following examples.

Table 2. Illustrating the realisation of Chamtok words with closed syllables

2	English	Chamtok	Gloss
	[hat]	[habat]	Hat
	[pɒt]	[pɒbɒt]	Pot
	[sɪŋ]	[sɪbɪŋ]	Sing
	[kraɪt]	[krabaɪt]	Craft
	[spu:n]	[spubun]	Spoon
	[bəd]	[babad]	Bad
	[bʊk]	[bubuk]	Book
	[bæg]	[babæg]	Bag

The examples in (1) and (2) are derived from English, inheriting its prosodic characteristics. Specifically, the reduplication process in Chamtok appears to preserve the stress patterns of English source words, such that reduplicating a stressed monosyllabic word yields a form with multiple stressed syllables. This phenomenon potentially conflicts with the culminative nature of English stress, which typically assigns primary stress to one and only one syllable per word (Hayes 1995).

This observation aligns with research on language contact and phonological hybridity, highlighting the complex interactions between donor languages and emerging linguistic forms (Kießling 2005). In contrast, words in Chamtok derived from Kamtok exhibit the tonal melodies characteristic of Kamtok, reflecting the language's hybrid prosodic profile (Ayafor 2008). The interplay between stress and tone in Chamtok's prosody underscores the language's unique structural properties, warranting further analysis (see Section 4.2 for a visual and prosodic examination). The following data illustrates the structure of words derived from Kamtok, clearly showing the tonal relationship between root and reduplicated syllables.

Table 3. The formation of Kamtok derived words

3	Kamtok	Formation process	Chamtok	Gloss
	[wàtá]	/w-à-à-t-á-á/ /w-à-b-à-t-á-b-á/	[wàbàtábá]	Water
	[tʃɔ̃p]	/tʃ-ɔ̃-ɔ̃p/ /tʃ-ɔ̃-b-ɔ̃p/	[tʃɔ̃bɔ̃p]	Food
	[tʃíjè]	/tʃ-í-í.j-è-è/ /tʃ-í-b-í.j-è-b-è/	[tʃíbíjèbè]	Chair
	[pân]	/p-á-ân/ /p-á-b-ân/	[pábân]	Plate
	[slépàs]	/sl-é-é p-à-às/ /sl-é-b-é p-à-b-às/	[slébépàbàs]	Slippers
	[ʃú]	/ʃ-ú-û/ /ʃ-ú-b-û/	[ʃúbû]	Shoe
	[hâws]	/h-á-âws/ /h-á-b-âws/	[hábâws]	House
	[mân]	/m-á-ân/ /m-á-b-ân/	[mábân]	Man

The prosodic nature of Chamtok's reduplicated forms reveals a striking pattern where reduplicated vowels tend to maintain the same tonal identity as the root vowels, suggesting a preservation of pitch characteristics (Menang 2008). Specifically, when a monosyllabic word with a contour tone (high-low pitch) undergoes reduplication, the reduplicated vowel typically copies the first tone of the root vowel, resulting in a consistent high-low pitch pattern on the prosodic word (see Nespor and Vogel 1986; Selkirk 1980).

The reduplicative process in Chamtok, observable in forms derived from both English and Kamtok, underscores the language's affinity with Kamtok, where reduplication is a highly productive mechanism for word formation and vocabulary expansion (Menang 2008; Sala 2012). Menang (2008) for instance highlights that reduplication in Kamtok plays a significant role in shaping the language's lexical structure, often conveying emphasis, intensification, or distributiveness. This is evident in the following examples.

Table 4. Demonstrating the presence of reduplication in Kamtok

4	English	Gloss	Kamtok	Gloss
	[kɹaɪ]	Cry	[kɹàjkɹáj]	Someone who loves crying
	[θɔ:n]	Thorn	[tʃùkùtʃúkú]	Thorn
	[pleɪ]	Play	[plèplé]	Playfulness
	[wɔ:k]	Walk	[wàkàwáká]	Someone who likes moving around
	[ʃeɪk]	Shake	[ʃèkʃék]	Tremble
	[tɔ:k]	Talk	[tòktók]	Talkative
	[ʌɡli]	Ugly	[wòwó]	Ugly
	[ɹæʃ]	Rash	[kòròkóró]	Rash
	[mʌd]	Mud	[pòtòpótó]	Mud
	[smɔ:l]	Small	[smóismól]	Slowly
	[bəlu:n]	Balloon	[bòlòbóló]	Balloon

This does not suggest that English is void of reduplicated forms. Katamba (1993: 180) for example, attests to the fact that English manifests some reduplicated forms such as poo-poo, sing-song, goody-goody, roly-poly, wishy-washy and others. Despite the availability of reduplicated forms in English, we associate the significant presence of reduplication in Chamtok with the Kamtok reality due to its substantial occurrence in the language. The productive use of reduplication in Kamtok indicates intensity, repetitiveness, manner, and other nuances that enhance the semantic implications of words.

Comparatively, it is observed that reduplication in Kamtok and English generally involves constituent copying; a process wherein an entire syllable, morpheme or word is reduplicated in the word formation process (see Katamba & Stonham 2006: 182-183). Conversely, reduplication in Chamtok is realised through non-constituent copying (a process whereby a non-syllabic fragment of a word is copied). According to Katamba and Stonham (2006), examples of reduplication that involve copying prosodic constituents such as syllables, morphemes, or words are straightforward and do not present significant theoretical challenges. Therefore, they

do not require prolonged consideration.

The following subsection dwells more on the less direct, though by no means rare, form of reduplication that does not involve the copying of a constituent. To thoroughly examine the prosodic aspects of this reduplication process, the following analysis will utilize insights from Autosegmental Phonology. This approach will ensure an accurate representation of supra-segments (see Durand 1990; Katamba 1996; Kenstowicz 1994; Kenstowicz & Kisseberth 1979).

4.1 Analysing reduplication in Chamtok

Linguistic forms in Chamtok are primarily generated through reduplication, as already shown in previous sections. In this context, reduplication is conceptualised as a type of affixation process, where phonologically underspecified affixes acquire phonetic expression by copying adjacent segments (Broselow & McCarthy 1983). Notably, Chamtok's reduplication process involves not only the copying of phonological material from the root, but also the infixation of a phonological element not derived from the root. As a result, Chamtok exhibits two distinct prosodic phenomena reflecting its linguistic heritage, stemming from the language's incorporation of words from English and Pidgin English (Kamtok).

While forms derived from English retain English stress patterns, those originating from Kamtok display the language's tonal characteristics. This dual prosodic nature is unsurprising given that Cameroon Pidgin English, closely related to African languages, has long been established as a tone language (Ayafor 2008; Faraclas 1996; Mafeni 1971; Menang 2008).

Despite the origin of words in Chamtok, the manifestation of reduplication in the language significantly differs from what pertains in both English and Kamtok. This difference is because while reduplication in English and Kamtok involves the copying of an entire constituent, in this case the entire word (see 4 above), in Chamtok, reduplication involves non-constituent copying. After examining how reduplication interacts with consonant insertion in Chamtok, we will now analyze a few utterances to visually illustrate their formation strategies.

To accurately account for reduplication and other prosodic phenomena, we utilise the principles of template and prosodic morphology as defined in (Katamba, 2006). Our analysis of reduplication is also guided by the rubrics proposed by Marants (1982) which stipulate that when accounting for reduplication, one must take into account the shape of the CV template, the type of reduplication (i.e. reduplication as prefixation, suffixation or as infixation), the copied melody of the base and the direction of mapping (from left to right or from right to left). With this in mind, a derived word like *sibi*: originating from the English form *si*: 'see' can be accounted for as follows.

Table 5. Derivation of the word *sibi*: 'see'

	/si:/	[sibi:] 'see'	
a.	ST	[stress]	Underlying representation where all consonant and vowel phonemes are independent from the CV skeleton.
	SKT	C V V	
	PT	s i	
b.	ST	[stress]	Mapping of the phonemic segments to the skeleton in a one-to-one fashion from left to right.
	SKT	C V V	
	PT	s i	

c.	ST [stress]	Spreading of the vowel /i/ to the free V slot
	SKT C V V	
	PT s i	
d.	ST [stress]	Introduction of a copy of the reduplicated skeleton of the root and the skeleton of the infix
	SKT C-V-C-V V	
	PT s i	
e.	ST [stress] [stress]	Introduction of a copy of the phonemic melody of the root, the infix, and stress
	SKT C - V-C- V V	
	PT s (s)i-b i	
f.	ST [stress] [stress]	Mapping the infixed phonemes as well as stress to the skeletal tier
	SKT C - V-C- V V	
	PT s (s)i-b i	
g.	ST [stress] [stress]	Erasure of all superfluous elements
	SKT C - V-C- V V	
	PT s i- b i	
	Output: [sibi:]	

In the derivation above, as well as in the subsequent derivations, acronyms have been used to designate the various tiers. The acronym ST represents the stress tier, SKT represents the skeletal tier, and PT stands for the phonemic tier. The derivation proceeds with the introduction of the underlying representation, where all segments and supra-segments are autonomous (unlinked). This is in line with the principles of Autosegmental Phonology extended to template and prosodic morphology, a theory that has been extended to account for non-concatenating morphology such as classical Arabic. As the theory predicts, all elements are autonomous and floating at the underlying level.

This is immediately followed by the second analytical level, where mapping occurs. Hence, mapping is done in a one-to-one fashion from left to right until all segments and supra-segments are linked using association lines. At this point, we realise that there is an extra V (vowel) slot on the skeletal tier, which is left unassociated, since no free phonemic segment is left to associate with it after mapping.

In order to ensure that the slot does not surface unassociated, the last associated vowel segment then spreads

to it, thereby completing the association of segments to supra-segments as seen in 5c. Given that the root or base is fully formed at this point, the derivation continues through the insertion of the skeleton of the reduplicated vowel (represented by a V-slot) and the inserted consonant (represented by a C-slot), which serves to split the contiguous occurrence of two V-slots, a condition that is utterly prohibited in Chamtok. In the next stage (5e), a copy of the phonemic melody of the reduplicated base as along with the infix consonant, is introduced, followed by a left to right mapping (see 5f). In this case, the first consonantal segment is invisible to the infix mapping rule (see Inkelas 1989). Once the mapping is done, the derivation ends with the erasure of all and any element that is not linked to a C or V-slot, thereby concluding the formation of the reduplicated word *sibi*.

From the derivation, it is observed that reduplication in Chamtok completely deviates from the concatenating nature of African (Bantu) languages, given its non-concatenating nature. Another key element to note from the previous derivation is the manifestation of stress. We observe that the stress pattern also manifests itself differently than in English. While stress in English is culminative in nature, in the sense that only one syllable in a word receives primary stress, in Chamtok, stress manifests itself in a completely different fashion.

Reduplication not only affects the vowel but also the stress pattern borne by the syllable. Thus, when the nucleus of a syllable is reduplicated, the stress pattern it bears is also reduplicated, thereby leading to the realisation of words with culminative stress on two syllables: on the root syllable and on the reduplicated syllable. Now that the realisation of words in Chamtok from English descent has been derivationally proven, let's now turn to words from Kamtok origin. In so doing, consider the derivation of the word *tʃɔ̃bɔ̃p*, derived from the lexical form *tʃɔ̃p* 'food/eat'.

Table 6. Derivation of the word *tʃɔ̃bɔ̃p* 'food/eat'

	/tʃɔ̃p/	[tʃɔ̃bɔ̃p] "food"	
a.	TT H L		Underlying representation where all consonant and vowel phonemes are independent from the CV skeleton.
	SKT C V C		
	PT tʃɔ̃p		
b.	TT H L		Mapping
	SKT CVC		
	PT tʃɔ̃ p		
c.	TT H L		Dumping of the floating low tone onto the V-slot
	SKT CVC		
	PT tʃɔ̃ p		
d.	TT H L		Insertion of the skeletal copy of the reduplicated skeleton of the base and that of the infix
	SKT C-V-C-VC		
	PT tʃ ɔ̃ p		

e.	TT H H L	Introduction of the phonemic and tonal melody of the root as well as that of the inserted consonant
	SKT C-V- C- V C	
	PT tʃ-(tʃ)ɔ(p)-b- ɔ p	
f.	TT H H L	Mapping on the infix
	SKT C -V- C- V C	
	PT tʃ-(tʃ)ɔ(p)-b- ɔ p	
g.	TT H H L	Erasing all unlinked elements
	SKT C -V- C- V C	
	PT tʃ -ɔ- b- ɔ p	
	Output: [tʃɔbɔp] “food”	

As the derivation above reveals, the word *tʃɔbɔp* is formed through the same derivational process as the case of words from English descent. Just as is the case with English-derived words, where the stress of the reduplicated syllable is also completely reduplicated, words derived from Kamtok reveal a similar phenomenon. Thus, the derivation reveals that the reduplication of the nucleus of a syllable equally entails the reduplication of its tone. However, unlike the case of words derived from English, where the entire stress pattern is copied, in the case of tone, only the first tone of the syllable is copied. In other words, where the reduplicated vowel bears a contour tone, say HL as seen in (6), only the H tone is reduplicated.

This results in the formation of a new word with two syllables, the first bearing a single level tone (high tone), while the second surfaces with the original contour tone (falling tone) of the root. What pertains is that the melody or pitch of the word in the source language must be maintained in Chamtok. Thus, a Pidgin word with a HL pitch remains HL in Chamtok regardless of the number of syllables it tends to be realised with in Chamtok. The same happens to stress, as the stress pattern of the word is reflected in reduplicated forms. Having pointed this out, the following subsection tackles an acoustic analysis of this phenomenon for a more visual representation.

4.2 Reduplication: an acoustic perspective

In this section we attempt a visual representation of words in Chamtok using Praat. This is especially useful as it vividly illustrates the acoustic properties of Chamtok forms, which often remain unnoticed following a purely Autosegmental or structural analysis. We focus on analyzing stress through words derived from English and tone by examining words from Kamtok. In analyzing stress using Praat, we carefully examine the key characteristics of the stressed syllable: loudness (intensity), length (duration), pitch (fundamental frequency), and quality (although we pay little attention to this in our analysis). Similar characteristics are used in the analysis of tone, except that in this case, particular attention is paid to pitch, loudness and length. This section is divided into two parts: the first part focuses on analyzing stress in Chamtok words derived from English, while the second part concludes the analysis by presenting tone in words derived from Kamtok.

4.2.1 The analysis of stress in Chamtok

Drawing on the analysis of stress in Chamtok, it is noted that words derived from English are formed by reduplicating the various syllables, along with their stress patterns. Therefore, in Chamtok, it is common to find words with primary stress on more than one syllable (see 4.1 above). Drawing on the very nature of stress, it is

common knowledge that stressed syllables are characteristically louder, longer, and more intense as compared to unstressed syllables. Therefore, from an acoustic perspective, evidence points to the fact that the stressed syllable is realized with a higher pitch modulation as well as intensity than the unstressed syllable. This phenomenon is evident in Chamtok as illustrated by the representation of the word *wɔbɔ:taba:* derived from the English *wɔ:tə*. Consider the following figure.

Figure 1. Representation of the word *wɔbɔ:taba:* ‘water’

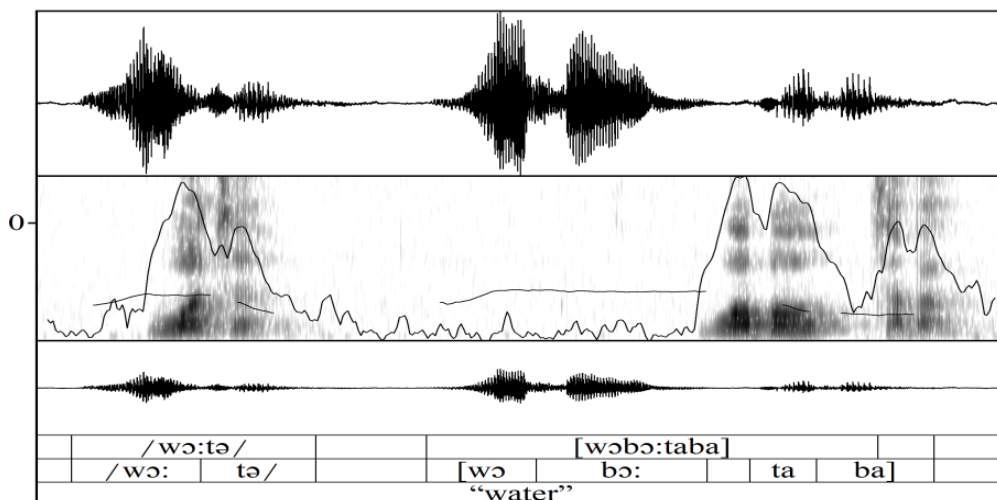


Figure 1 depicts the phonetic realization of the word “water” in both English and Chamtok, with the English form presented on the left and the Chamtok equivalent on the right of the Praat display. In addition, the figure illustrates the waveform, spectrogram, and phonetic transcription, segmented into respective syllables (Boersma & Weenink 2022). The English rendition of “water” displayed on the figure clearly comprises two syllables, with primary stress on the initial syllable. This stress pattern is evident from the Praat representation, observable through the waveform, amplitude, intensity curve, and pitch contour (Fry 1955; Lehiste 1970). The waveform segment corresponding to the first syllable appears denser and wider, indicating greater amplitude, and exhibits longer duration relative to the second syllable, suggesting extended production time.

Aside from amplitude and duration, differences in pitch modulation also indicate primary stress on the initial syllable, as represented by the horizontal pitch trace in Figure 1’s spectrogram (Ladefoged & Johnson 2015). Upon examination, the pitch contour of the first syllable appears slightly higher than that of the second syllable. This elevated pitch on the first syllable is associated with increased perceptual prominence, often correlating with greater articulatory effort and louder perception, aligning with characteristics of stressed syllables (Fry 1955; Beckman 1986). Further evidence supporting primary stress on the initial syllable derives from the intensity curve, depicted by the vertically undulating lines on the spectrogram.

The visual representation clearly demonstrates that the first syllable exhibits higher intensity compared to the second, reinforcing the presence of primary stress on the initial syllable. These acoustic differences are quantifiable; the accompanying table summarizes specific measurements from the Praat analysis, detailing pitch, intensity, and duration disparities.

Table 7. Acoustic properties of the English word *wɔ:tə* ‘water’

Acoustic	S1	S2
Pitch	798.1 Hz	543.9 Hz
Intensity	2669 Hz	1543 Hz
Duration	0.278131 Ms	0.235705 Ms

The above Praat analysis reveals that the first syllable exhibits greater intensity, higher pitch, and longer duration, attributable to the presence of a long vowel. These acoustic differences in duration, pitch, and intensity provide strong evidence for primary stress on the initial syllable of the examined word (Fry 1955; Lehiste 1970). Consistent with established characteristics of stressed syllables, the first syllable is comparatively louder, longer, and appears to demand more articulatory energy relative to the second syllable (Ladefoged & Johnson 2015). It is therefore clear that stress typically correlates with heightened acoustic prominence, often manifesting as increased intensity, higher pitch, and/or greater duration in many languages (Beckman 1986).

In Chamtok, the acoustic properties of stress are reflected in its word formation processes, which primarily involve copying segmental and suprasegmental material from English (Ayafor 2005; Menang 2008). The derived form *wɔbɔ:taba* for instance originates from the English word “water” and it exemplifies the reduplication of syllabic components. The waveform representation of *wɔbɔ:taba* displays four distinct projections, with the initial two waveforms appearing thicker, wider, and longer than the latter two. Notably, the second waveform is comparatively wider than the first, suggesting a longer production time despite containing the same reduplicated vowel *ɔ*. This disparity arises because the second syllable retains the root’s long vowel *ɔ*; whereas the first syllable features a reduplicated short *ɔ* lacking the original length specification (Gussenhoven 2004).

Furthermore, examination of the pitch and intensity curves demonstrates pronounced increases in both parameters for the initial two syllables compared to the final two, which is indicative of stress placement and aligns with established phonetic research (Fry 1955; Lehiste 1970). These acoustic characteristics are summarized in the accompanying table.

Table 2. Acoustic representation of the word *wɔbɔ:taba*

Acoustic	S1	S2	S3	S4
Pitch	961.6 Hz	907.1 Hz	434.9	126.2 Hz
Intensity	2797 Hz	2655 Hz	1664 Hz	1563
Duration	0.226276 Ms	0.313487 Ms	0.151 Ms	0.231 Ms

The acoustic evidence presented indicates a notable increase in pitch, intensity, and duration of the initial two syllables compared to the latter two syllables. This pattern suggests the presence of primary stress on the first two syllables, which align with established acoustic correlates of stressed syllables (Fry 1955; Lehiste 1970). Examining the data, one might wonder why the first two syllables, which are purportedly stressed, exhibit slight pitch and intensity differences. A plausible explanation for this lies in damping – the gradual loss of energy as speech progresses from the first to the second syllable (Fant 1960).

This phenomenon is acknowledged in studies of speech acoustics, contributing to effects such as downstep in tonal languages, where a high tone may be realized with lowered pitch due to a preceding tonal context (Connell 2001; Yip 2002). The observed durational differences can consequently be attributed to Chamtok’s reduplication strategy: when the source language features a long vowel, diphthong, or triphthong, the process typically copies only the initial vowel element. This pattern is foundational to word formation in Chamtok, exemplified in the derivation of *habaɔs* from English *haɔs* as shown in Figure 2.

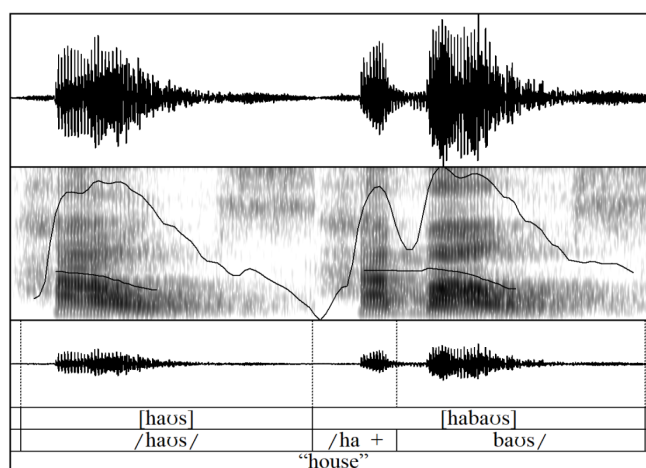


Figure 2. The acoustic representation of *habaɔs* ‘house’

Looking at the figure above, the word “house” is a monosyllabic stressed word containing a diphthong nucleus. Acoustic analysis reveals that the English production of “house” exhibits a high pitch modulation and notable intensity, indicative of the syllable’s loudness. This is also evident on the pitch and intensity representations on the spectrum above. In contrast, the Chamtok variant displays a waveform with two distinct peaks of unequal amplitudes and duration, despite comprising the same reduplicated syllable. This disparity prompts inquiry into the underlying rationale. Pitch frequency analysis using Praat indicates that the English rendition has a high frequency of 1037 Hz, whereas the first syllable of the Chamtok variant measures 1057 Hz, and the second syllable registers 1138 Hz. Compared to the English language, Chamtok renditions exhibit slightly higher pitches.

The presence of a voiced bilabial plosive [b] intervening between the reduplicated and root vowels in the Chamtok form likely contributes to this pitch difference. Thus, in the intervocalic environment, the voiced plosive appears to influence the pitch of the adjacent diphthong *au*, leading to obvious pitch amplification. This effect potentially extends to both neighboring vowels, accounting for the higher frequencies observed in the Chamtok reduplicated syllables relative to the English source (Gussenhoven 2004; Ladefoged & Johnson 2015).

Regarding syllable length, there is an obvious disparity between the reduplicate and the root syllable in Chamtok as observed above. The observed disparity in Chamtok reduplicated forms stems from differences in syllable structure. When observed, a key pattern emerges; we see that when the English source syllable is an open syllable, the Chamtok word typically surfaces with two open syllables. Conversely, when the English source syllable is closed, the Chamtok word exhibits two syllables – the first is open (resulting from vowel reduplication) and the second is closed, retaining the coda of the original syllable (Kaisse 1992).

A crucial factor influencing duration, therefore, is that open syllables generally require less production time compared to closed syllables (Maddieson 1992). Acoustic data for the Chamtok pronunciation of *habaʊs* therefore illustrate this: the first (open) syllable [ha] is produced in 0.166340 milliseconds, while the second (closed) syllable *baʊs* is produced in 0.490983 milliseconds. In a nutshell, two clear factors influence syllable length: syllable structure and nuclear complexity. While open syllables tend to be shorter than closed syllables (Maddieson 1992), the presence of a long vowel, diphthong *au*, or triphthong in one syllable sharply contrasts with a short vowel in the other, affecting duration (Lehiste 1970). Having expatiated on the acoustics of reduplicated forms derived from English, we now move on to the analysis of tone in words derived from Kamtok.

4.2.2 The analysis of tone in Chamtok

The acoustic analysis of words in Chamtok, derived from both English and Kamtok sources, reveals consistent patterns of reduplication. Notably, words originating from Kamtok exhibit pronounced acoustic characteristics, which include particularly evident tonal modulations that are observable through Praat analysis. An examination of intensity and pitch frequency patterns provides crucial evidence of reduplication in Chamtok which mirrors observations from English-derived words where stressed syllables are reduplicated along with their prosodic features.

The analysis of Chamtok words with Kamtok origins reinforces prosodic reduplication as a significant word formation strategy. For instance, the production of *wàbàtábá*, derived from Kamtok *wàtá* ‘water’, demonstrates syllable reduplication accompanied by tonal preservation. Intensity curves and pitch contours of such words highlight relational similarities between Kamtok source forms and their Chamtok counterparts.

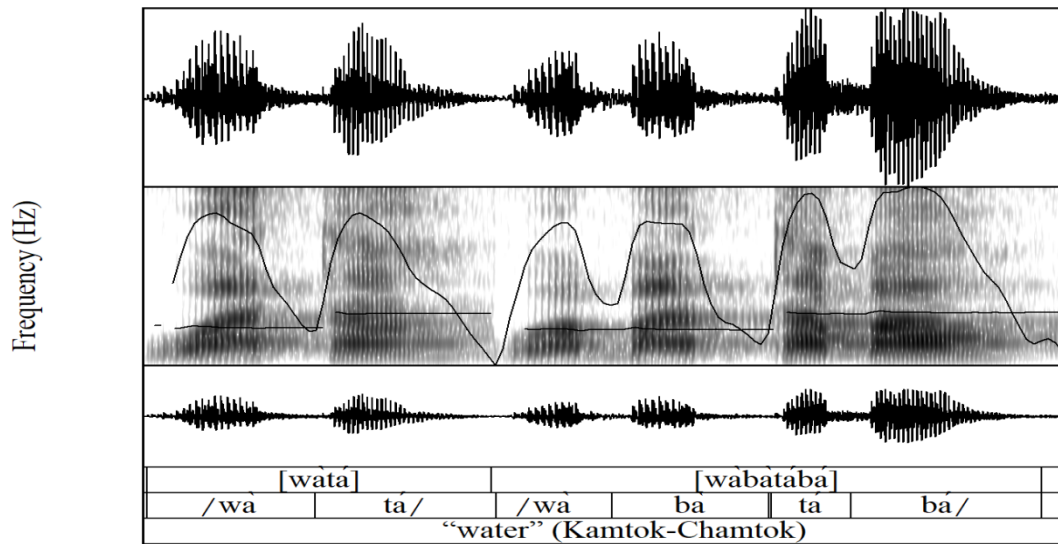


Figure 3. Realisation of the word *wàbàtábá* ‘water’

Pitch measurements above show strong acoustic parallels between the Kamtok source word and its Chamtok reduplicated form. The Kamtok word has a low tone on the first syllable at 449 Hz. This contrasts with a high tone on the second syllable at 895 Hz. In the Chamtok counterpart, the tonal preservation of the word *wàbàtábá* is clear. The first two syllables (low tone) register a frequency of 389.1 Hz, maintaining the source’s low tone with slight adjustment. The last two syllables (high tone) register a matching frequency of 895 Hz (high tone), showing stability in the reduplication process.

In terms of intensity, the results show nuanced differences between the Kamtok source word and its Chamtok reduplicated form. The frequency measurements show the first two syllables of the Kamtok word are realised with a uniform intensity of 2615 Hz. In the same light, the Chamtok expression reveals that the first two syllables bearing a low tone are produced with a frequency of 2453 Hz. The last two syllables, reflecting a high tone, present a slightly different situation. We see that the first of the last two syllables is produced with an intensity frequency of 2898 Hz, while the last two are produced with a frequency of 2999 Hz.

The increase in frequency from 2898 Hz to 2999 Hz is justified by additional amplification resulting from the insertion of the voiced bilabial plosive [b]. In spite of the smearing disparity in intensity frequencies, the relationship between the root word and the derived reduplicated word is obvious. The following figure provides further clarity on the prosodic reduplication of Chamtok.

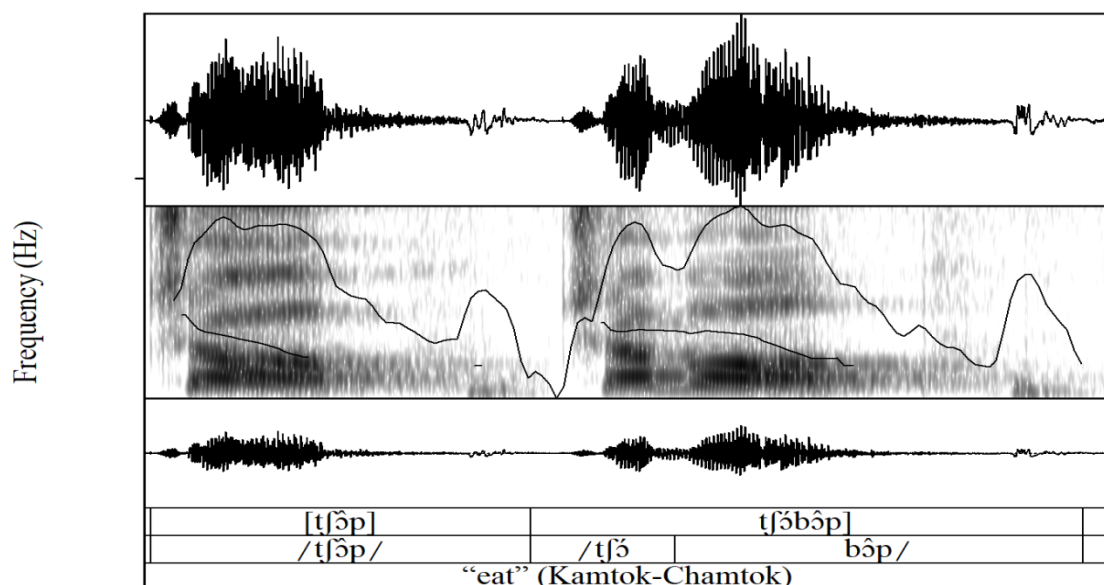


Figure 4. Derivation of the word *tʃóbâp* ‘eat’

As illustrated in the accompanying figure above, the Chamtok word *tʃɔ̀bɔ̀p* originates from the Kamtok variant *tʃɔ̀p*, meaning “eat/food”. The monosyllabic Kamtok source with a closed syllable and falling contour tone undergoes reduplication in Chamtok, resulting in a disyllabic form where the first syllable contains the reduplicated vowel. In terms of tone, the falling contour tone of the source syllable influences the Chamtok output. In this regard, the reduplicated vowel bears a high tone, reflecting the initial high component of the source falling tone. This suggests that the reduplication process copies the initial portion of the original contour tone.

Praat analysis reveals acoustic correlates of these tonal patterns, indicating that the Kamtok *tʃɔ̀p* exhibits a maximum frequency of 1664 Hz descending to a fundamental frequency of 389.1 Hz, characteristic of its falling tone. In the derived Chamtok word *tʃɔ̀bɔ̀p*, the first syllable *tʃɔ̀* is realized with a high frequency of 1462 Hz, aligning with a high tone. The second syllable *bɔ̀p* shows a frequency range peaking at 1198 Hz, falling to 126.1 Hz, indicative of a falling tonal pattern (high-low). This is characteristic of the reduplicated tonal pattern of the root word, signaling its generalizability in the formation of words in Chamtok. This same pattern is observable in the pronunciation of the word *lúbúkàbàm* ‘look at it’ as derived from Kamtok *lúkàm*. Consider the following figure.

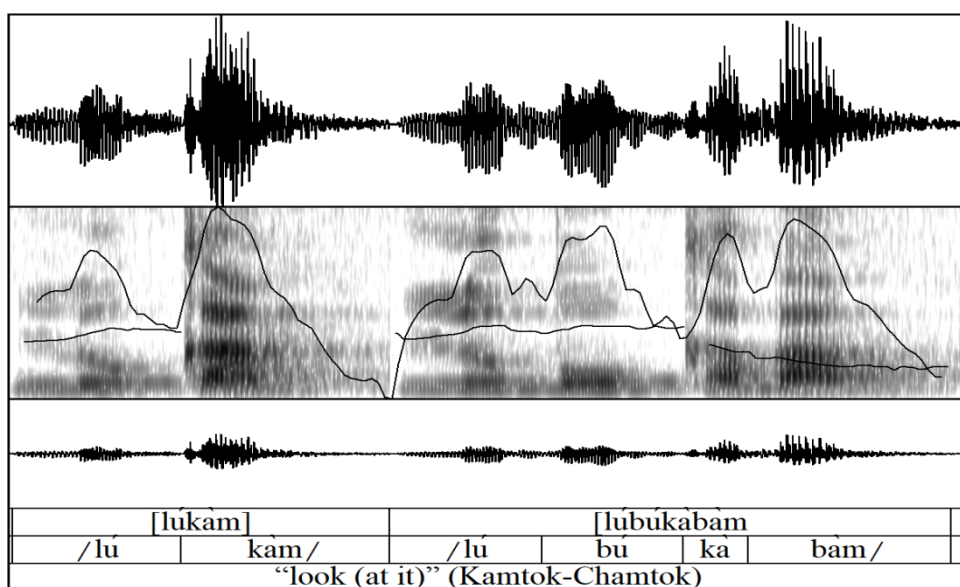


Figure 5. Derivation of the word *lúbúkàbàm* ‘look at it’

The figure above further illustrates the reduplication process evident in the formation of words in Chamtok, taking into account the expression *lúbúkàbàm* ‘look at it’ from the Kamtok word *lúkàm*. An examination of the pitch contours once again reveals notable correspondences between the source and derived forms. Specifically, the pitch patterns indicate that the initial syllable *lú* bears a relatively high pitch in both the Kamtok source and the corresponding Chamtok reduplicated syllables, suggesting tonal preservation in the reduplication process.

5. Conclusion

Our analysis reveals Chamtok as a distinctive linguistic phenomenon, showcasing creative language use and reflecting youth identity that transcends traditional linguistic boundaries. Chamtok emerges from the interaction of English and Kamtok, illustrating the adaptive and innovative capacity of language. A key characteristic of Chamtok word formation is non-constituent reduplication, where the vowel of each syllable in a source word is reduplicated, leading to amplified syllabic structures. This process is accompanied by the preservation of prosodic features: tonal patterns (or stress patterns) associated with source syllables are replicated alongside segmental reduplication. This study on Chamtok, therefore, holds significant relevance within sociolinguistic research and offers insights into language creativity, identity expression, and linguistic innovation in a multilingual context like Cameroon. The analysis also suggests that the unique word formation processes in Chamtok, particularly its non-constituent reduplication and preservation of prosodic features like stress and tone, show how language users adapt and create linguistic forms that reflect their social and cultural identities.

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