

Article

Prosodic Transfer in Contact Varieties: Vocative Calls in Metropolitan and Basaá-Cameroonian French

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Abstract: This paper examines the production of vocative calls in (Northern) Metropolitan French (MF) and Cameroonian French (CF) as it is spoken by native speakers of a tone language, Basaá. While the results of our Discourse Completion Task confirm previous descriptions of MF, they also further our understanding of the relationship between pragmatics and prosody across different groups of French speakers. MF favors the vocative chant in routine contexts and a rising-falling contour in urgent contexts. In contrast, context has little influence on the choice of contour in CF. A melody consisting of the surface realization of lexical tones is produced in both contexts. Regarding acoustic parameters, context only exerts a significant effect on the loudness of vocative calls (RMS amplitude) and has little effect on their F0 height, F0 range and duration. A target-use of vocative calls in CF thus does not amount to target-like use of the original standard target language, MF. Our results provide novel evidence for the transfer of lexical tones onto the contact variety of an intonation language. They also corroborate previous studies involving the pragmatics-prosody interface: the more marked a prosodic pattern is (here, the vocative chant), the more difficult it is to acquire.

Keywords: vocative calls; intonation; lexical tones; contact variety; prosodic transfer; French; bilingualism; Cameroon; Basaá; Bantu



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1. Introduction

Vocatives are generally understood as expressions, either simple (Marina! Misty!) or more complex (Professor Smith! Mrs. President!) whose aim is to attract one's attention ("calls" or "summonses") or help maintain and strengthen the relationship between interlocutors ("addresses") by spelling out the addressee (Di Cristo 2016; Hill 2014; Ritter and Wiltschko 2020; Schegloff 1968; Zwicky 1974). The expression of vocatives lies at the interface between different language components: phonology, syntax, morphology, semantics and pragmatics. It is also fundamentally related to how information is packaged to fit a context and this is what recent prosodic studies of vocatives have tried to establish across a variety of languages and prosodic types (Arvaniti et al. 2016; Borràs-Comes et al. 2015; Huttenlauch et al. 2018; Kubozono 2022; Kubozono and Mizoguchi 2019; Olawale 2021; Quiroz and Żygis 2017). A number of socio- and extralinguistic factors have long been known to affect how vocative calls are expressed: spatial distance, insistence, hierarchical relationship, politeness, intimacy (Brown and Levinson 1987; Brown and Gilman 1960; Hill 2014; Zwicky 1974). As stated by Di Cristo (2016), beyond the choice of nominal expression, the prosody of vocative forms also reflects the attitude adopted by the speaker: kindness, reprobation, etc. Many European languages associate vocative calls with a chanted tune consisting roughly of a rise followed by a sustained mid tone (e.g., English, German, Dutch, Polish). This contour, the 'vocative chant' or 'calling contour', is generally associated with

sweet and friendly contexts, and is known to display semantic and realizational differences across languages (Ladd 2008; citing Gibbon 1976). It has drawn considerable attention as part of the Auto-segmental Metrical (AM) framework, as there is no obvious answer to how to represent a phonetical mid tone using only phonological high and low tones (see Ladd 2008 and also Arvaniti et al. (2016) for relatively recent references of studies of vocative calls across a variety of languages). Other types of calling melodies have been associated with urgent or stern contexts, for instance a rising-falling contour in Polish (Arvaniti et al. 2016) and French (Delais-Roussarie et al. 2015; Di Cristo 2016).

How to use a language effectively in a particular context, or acquiring so-called *pragmatic competence*, is known to be particularly challenging for L2 learners (Kasper 2001; Leech 1983; Thomas 1983). Just as when it comes to grammatical knowledge, speakers tend to be influenced and transfer pragmatic knowledge from their L1 (Bardovi-Harlig 2002). Transfer from the L1 is also known to occur in the process of acquisition of different dimensions of the L2 prosody (Delais-Roussarie et al. 2015; Mennen 2004; Mennen and de Leeuw 2014; Trouvain and Braun 2020). A number of studies have shown that some aspects of sentence prosody, and in particular those that have to do with the discourse context (e.g., expressing focus and givenness), fail to be mastered even by advanced speakers. This is particularly the case when these aspects are absent from their L1 (Hamlaoui et al. 2021; Ortega-Llebarra and Colantoni 2014; Rasier and Hiligsmann 2007; Trouvain and Braun 2020; Zerbian 2015). In addition to learning a form that may or may not exist in their native language, L2 speakers also have to master the pragmatic contexts in which this form can be used appropriately (Kang and Kermad 2019). This form-meaning association is also key in the appropriate expression of vocative calls, the focus of the present paper.

There are relatively few studies of the second language acquisition of vocatives. Pešková (2019) has recently investigated the acquisition of vocative calls in L2 Spanish and L2 Italian by L1 Czech speakers. The three languages have in common that they realize vocative calls with a chanting contour, and thus a rising pitch accent ($L^* + H$, $L + H^*$) and a following mid-tone analyzed as a downstepped high boundary tone ($!H\%$). Although her speakers tend to demonstrate a native-like production of vocative calls, they also show a pattern, in Italian L2, which is found neither in Italian L1 nor in Czech L1: $H^* + L\%$. This is interpreted by Pešková as a case of prosodic overgeneralization (Brown 2000; Gabriel and Kireva 2014): the speakers use L2 tonal and durational patterns that otherwise exist in the target language but are appropriate in a different pragmatic context.

The present study concentrates on vocative calls in French. In Metropolitan French, vocative calls are also typically associated with a “chanting contour” (Ladd 2008). Previous descriptions of the language suggest that the chanting contour is favored in friendly contexts in which speaker and hearer have ‘a shared convention or agreement’ (Di Cristo 2016; Fagyal 1997). This contour is, however, not appropriate when an emergency call has to be made. Di Cristo (2016) and Delais-Roussarie et al. (2015) describe a distinct melody, that is, a rising-falling contour, which is felicitous in urgent calls. However, no study yet has systematically investigated the effect of context on the choice and realization of calling melodies in Metropolitan French. One of the aims of this paper is to fill this research gap.

As we are also interested in how bilingualism and contact conditions influence intonation systems, we also concentrate on vocative calls in French as it is spoken in Cameroon, and in particular by Basaá speakers.¹

There has been a growing interest in the topic of prosodic transfer in contact varieties of languages (Avanzi and Bordial Steien 2016; Bordial and Lyche 2012; Colantoni 2011; Colantoni and Gurlekian 2004; Delais-Roussarie et al. 2015; Gussenhoven and Udofot 2010; Gut 2005; Mamode 2015; Pešková et al. 2012). The idea of exploring these varieties from the perspective of Second Language Acquisition (SLA) has been put forward, for instance, by Williams (1989, p. 40). She argues that these varieties, which have developed over many generations of speakers and, in many cases, were once the result of individual language acquisition, crystalize inter-language features characteristic of the speech of second language learners in other settings (e.g., in the classroom). Their stability however

distinguishes them from learners' individual inter-languages and makes them another precious source of evidence regarding the processes involved in L2 acquisition. In this vein, our study investigates prosodic transfer through the study of the mature grammar of late bilingual speakers of a local variety of French, Cameroonian French. As is common in postcolonial contexts, for most speakers, Cameroonian French is primarily learned in school and sometimes outside, but almost always after at least one other language has been acquired (Onguene Essono 1999, p. 292). The transfer of characteristics from the L1 is widely acknowledged in the literature on Cameroonian French (Zang Zang 1999) and 'regional accents' have been described as 'strongly perceptible' (Tabi Menga 1999; Mendo Ze 1999). From a prosodic perspective, Cameroonian French has been described as being influenced by the tone languages with which it is in contact. This is no surprise when considering how early our processing system is tuned for our native language(s). According to studies such as Werker and Tees (1984) and Kuhl et al. (1992), there is evidence that native phonetic categories are acquired in infants between the age of 6 and 12 months and that they remain quite stable. What has been described in the case of Cameroonian French is reminiscent of what is observed in other contact varieties of European languages and, typically, varieties of New Englishes (Gut 2005; Gut and Pillai 2014; Lim 2009; Mesthrie 2008) and Latin American Spanish (Gabriel and Kireva 2014; O'Rourke 2005; Sosa 1999, and references therein). It is also consistent with the results of instrumental studies showing that bilinguals prosody differs from monolinguals' (Braunmüller and Gabriel 2012; Colantoni and Gurlekian 2004).

To date, and to the best of our knowledge, claims about Cameroonian French prosody are however mostly observational. The nature and scope of prosodic transfer from specific L1s remain little understood and for the time being we will focus on a particular L1, Basaá (Bantu A43). Although this language does not have any privileged status, it is one of the languages used for local inter-group communication in the South of the country and it is among a handful of local languages that have recently been selected to be used as a medium of education. As in the vast majority of Bantu languages, pitch in Basaá is phonemic. Makasso et al. (2016) found no evidence that post-lexical meanings such as focus and questions have an effect on Basaá tones, suggesting that the role of intonation is limited in this language. Votive calls are expressed by means of a particle ({à-}) and the language distinguishes formal and informal votive calls by means of morphology (Bitjaa Kody and Mutaka 1997; Makasso n.d.). There are however no available descriptions of the extent to which other variables such as kindness or reprobation can affect the realization of votive calls. The question then arises as to the prosody of Cameroonian French as it is spoken by speakers who have Basaá as their L1 (or other tone languages with a limited role of intonation) and the influence of the context on the prosody of votive calls. If the prosodic properties of Cameroonian French as spoken by Basaá speakers are at least in part the effect of transfer from the L1, we expect that syllables carry lexically specified tones and that the realization of lexical tones takes priority over the expression of post-lexical meanings which determine intonation in Metropolitan French. The fact that varieties of French in contact with African tone languages display lexical tones has been shown for instance by Bordial (2013, 2015) in relation to Central African French. Our study is particularly original in that it tests whether and how these tones can be influenced by the situational context and thus the extent to which a variety of French with lexical tone properties makes use of intonation.

The results of our Discourse Completion Task, adapted from Arvaniti et al. (2016) and Quiroz and Žygis (2017), tend to confirm previous descriptions of Metropolitan French regarding the preference for specific contours in particular pragmatic contexts. Whereas the chanting contour is most frequently realized in a routine (i.e., call for dinner) context, a rising-falling contour is favored in an urgent (i.e., call due to a broken vase) context. In contrast, in Basaá-Cameroonian French, the context has less influence on the choice of prosodic contour and a contour consisting of the surface realization of lexical tones is favored in both routine and urgent context. Target use of votive calls in Basaá-Cameroonian French thus does not amount to target-like use of the original standard target language,

Metropolitan French (Williams 1989). Our results are consistent with previous studies showing a transfer of lexical tones onto the contact variety of an intonation language. In our perspective, the semantic deviance (Mennen 2015) from Metropolitan French observed in our Basaá-Cameroonian French speakers also corroborates what has been observed in other studies involving the pragmatics-prosody interface, that the more marked a prosodic pattern is (here, the vocative chant), the more difficult it is to acquire (Eckman 1987).

The paper is structured as follows. Section 2 provides some background on vocative calls in Basaá and Metropolitan French, as well as on the prosody of proper names in Basaá-Cameroonian French. Section 3 presents the material and methods of the present study. Section 4 lays out the results and Section 5 concludes the paper.

2. Some Background on the Formation of Vocative Calls

2.1. Basaá Vocative Calls

Basaá, a Northwest Bantu language (A43 in Guthrie's (1948) classification), is spoken by approximately 300,000 speakers as a native language in the Center and Littoral regions of Cameroon (Lewis et al. 2015). It is a relatively well-studied language. Several grammatical sketches were written by missionaries in the early twentieth century (Rosenhuber 1908; Scholaster 1914; Schürle 1912). Although a lot remains to be done, numerous studies have dealt with various aspects of the language's grammatical and speech properties (among others, Bitjaa Kody 1990; Bot Ba Njock 1964; Dimmendaal 1988; Hyman 2003; Lemb and de Gastines 1973; Makasso 2008; Makasso et al. 2016).

From the perspective of tone, the language underlyingly distinguishes high-toned (H), low-toned (L) and toneless moras. On the surface, a number of tonal processes apply that give rise to a five-way tonal contrast between high, low, downstepped high (!H), falling (HL) and rising (LH) tones (Dimmendaal 1988; Hamlaoui et al. 2014; Hyman 2003; Makasso et al. 2016).

According to Bitjaa Kody and Mutaka (1997), who offer a detailed description and analysis of the tonology and morphology of vocative calls in a set of Bantu languages from Southern Cameroon, Basaá has in common with a number of neighboring Bantu languages that it expresses vocative calls by means of the morphological marker {a-}. The language distinguishes a colloquial and a polite form, while the colloquial form is commonly used among children, peers and in informal contexts, the polite form is strongly preferred in formal contexts and to call a superior. These two forms are illustrated, respectively, in (1) and in (2) for the call "Mr. Bitjaa!" (Bitjaa Kody and Mutaka 1997, p. 56).

- (1) à tʃá⁺á!
VOC Bitjaa
'Bitjaa!' (Colloquial form)
- (2) à sánɡó bíʃá⁺á
VOC Mister Bitjaa
'Mr. Bitjaa!' (Polite form)

Bantu languages are known for their complex nominal morphology and their use of noun class prefixes expressing morphological gender and number (Nurse and Philippson 2003). As in many cultures in this part of Africa and over the world, proper names often have a meaning and can refer to an artefact, action, activity or an individual who holds a significant meaning for the family. The name "Bitjaa" is thus a morphologically complex form, which consists of a noun class marker {bi-} and a lexical root. As visible in (1), in the presence of the vocative marker a-, the noun class prefix disappears.

In each of the five languages investigated by Bitjaa Kody and Mutaka (1997), that is, Akóósé (A15b), Basaá, Duala (A24), Ewondo (A72) and Mbòdo (A10), the details of vocative call formation depend on the segmental and tonal makeup of the proper name onto which the vocative marker attaches. The marker itself can surface with different tones and sometimes even coalesce with the first vowel of a name, thus only surfacing as a tone on the initial of this name. As for the proper name, it can lose its class prefix, as seen in (1)

in Basaá, or lose its final vowel, depending on the name and the particular language. The tones of the lexical root however seem to remain relatively unaffected by the presence of the vocative marker in all five languages.

In the particular case of Basaá, the authors distinguish 4 groups of nouns:

- Group 1: nouns starting with a syllabic prefix and whose first vowel underlyingly carries a low tone → the vocative marker surfaces as {á} and the name loses its noun class prefix. No changes are observed in the tones of the lexical root.
- Group 2: nouns starting with a syllabic prefix and whose first vowel underlyingly carries a high tone → the vocative marker surfaces as {à-} and the name loses its noun class prefix. The tones of the lexical root remain unchanged.
- Group 3: nouns without a noun class prefix and whose first vowel underlyingly carries a high tone → the vocative marker surfaces as {à-} and the tones of the lexical root are unaffected.
- Group 4: nouns without a noun class prefix and whose first vowel underlyingly carries a low tone → the vocative marker surfaces as {à-} and high tone surfaces on the lexical root, either forming a falling tone on the first vowel of the noun or leading to a downstep on a following high tone.

Bitjaa Kody and Mutaka (1997) analyze the vocative marker as carrying a floating high tone, which surfaces on the vocative marker itself in Group 1, on the noun in Group 4 and fails to surface in the two other groups. From an acoustic perspective, Makasso (n.d.) argues that the tones of vocative calls are realized with a higher F0 than in citation forms. No systematic instrumental study as however been carried out yet.

2.2. Metropolitan French Vocative Calls

Metropolitan or Hexagonal Standard French is an intonation language: pitch is primarily used to express post-lexical meanings such as sentence modality (interrogation, exclamation etc.) and attitudes (surprise, irony etc.) (Gussenhoven 2004; Ladd 2008). Pitch is also used to indicate word groupings and dependency relations between them. At the word level, Metropolitan French is characterized by the absence of lexical stress. Stress in this variety of French is phrase-final and assigned by a combination of F0, intensity and duration cues (Delais-Roussarie et al. 2015; Delattre 1966; Di Cristo 2016; Di Cristo and Hirst 1999; Lacheret-Dujour and Beaugendre 1999; Martin 1981; Mertens 1993; Jun and Fougeron 1995, 2000).

Although French, and other Romance languages, tend to differ from other European languages (Germanic, Slavic) in how structural constraints on accentuation interact with pragmatic information (e.g., in the case of expressing focus/givenness), this is not as strikingly the case when it comes to vocative calls. As in a number of European languages (e.g., English, Dutch, German, Polish, Portuguese, varieties of Spanish and Italian), French vocative calls are typically associated with a “chanter intonation” or a stylized “calling contour” (Delais-Roussarie et al. 2015; Dell 1984; Di Cristo 2016; Fagyal 1997; Fónagy et al. 1983; Ladd 2008).

This type of call is illustrated in (3) with a scenario whose French version was used by Fagyal (1997) as part of an elicitation task.

(3) Chanting contour (Fagyal 1997, p. 81)

A, the aunt, is taking Joanna, her niece, out. She cannot see her, so she calls sweetly:

A: Joanna!

This melody, which is not exclusive to vocative calls, has been described as consisting of a penultimate high and a final lowered high or mid tone. The final tone is often carried by a lengthened vowel and in monosyllabic names, vowel doubling is sometimes observed, splitting the word into two syllables (Fagyal 1997, p. 78). This effect of the chanting contour on word length is illustrated in (4).

- (4) a. Marthe [maʁt] → Ma-arthe! [ma.aʁt]
- b. Yann [jan] → Ya-an! [ja.an]
- c. Louise [lwiz] → Lou-ise! [lu.wiz]

This calling contour has received different phonological representations in different frameworks. It has been represented as LMH (Dell 1984; Di Cristo and Hirst 1999) and lh\HH (Mertens 1987). In the Auto-Segmental Metrical framework (AM) (Pierrehumbert 1980), the French calling contour has been encoded as H* H-L% (Jun and Fougeron 1995) and more recently H + !H*!H% in the French ToBI conventions proposed by Delais-Roussarie et al. (2015).

The melody of vocative calls has been reported to vary depending on the context. A French more insistent or less friendly call, for instance, is described by Delais-Roussarie et al. (2015) as consisting of a rising-falling contour, represented H* L%. This description is similar to the one provided by Di Cristo (2016, p. 411) and acceptable, according to him, in a wider set of contexts (e.g., distant calls and reprimands). The H* L% contour of French urgent calls is similar to the contour observed in urgent contexts in Portuguese (Frota 2014; Frota et al. 2015) and has in common with the ones observed in languages such as Polish (H* L-L%, Arvaniti et al. 2016) and Catalan (L + H HL%, Prieto 2014) that it ends in a fall.

2.3. Basaá-Cameroonian French Vocative Calls

There is a long and well-established interest among Cameroonian scholars for the study of languages and a rich literature on both structural and sociolinguistic aspects of Cameroonian French, the variety of French resulting from the contact with local languages. In the historically complex and linguistically dense Cameroonian context, it is clear that there is not just one variety of Cameroonian French but many. The influence of tone on Cameroonian French has long been acknowledged. According to Fame Ndong (1999, p. 198), each word rather than each phrase forms its own prosodic domain and pitch, rhythm and speech rate are all the effect of the speaker's L1. This seems consistent with the fact that, until recently, people used to learn to read and write French before they could speak it (Djoum Nkwescheu 2008).

To the best of our knowledge, no study has yet concentrated on the prosody of vocative calls in Basaá-Cameroonian French (or any other variety of Cameroonian French). What, from our perspective, is particularly interesting is that proper names provide evidence for prosodic transfer, as they are specified for lexical tones.² A few examples from the list of items we used, and that will be described in more detail in Section 3, are given in (5) to (8).

- (5) Mârínà (L H L)
- (6) Màgdalénà (L L H L)
- (7) Yânn (HL)
- (8) Grégóry (H H HL)

The lexical tones of these proper names seem to reflect the intonation of their citation form, i.e., they end in a fall which either aligns with the last or the penultimate and last syllable. From this perspective, these words are not unlike Basaá borrowings from French and other European languages. Loanword phenomena have also been argued to involve a transfer from the L1 (Broselow 2000). According to Major (2008), loanword phonology can be considered a form of “forced transfer”, by which foreign words are pronounced by speakers according to their L1 so as to avoid being perceived as ‘too snobbish and affected’. Over time, and through contact with various European cultures and languages, in particular through colonization, a number of foreign words have been integrated into the lexicon of Basaá. In contrast to our proper names, these words have typically undergone morphological and/or (supra-)segmental adaptation. A few examples are given in (9) to (12) of loanwords originating from German, English and French (Emmanuel-Moselly Makasso, *p.c.*).

- (9) [káásà] < Kaiser (Ger), “emperor”
 (10) [màlêr] < Lehrer (Ger), “teacher”
 (11) [kɪŋgê] < King (Eng)
 (12) [mésà] < Messe (Fr), “mass”

The words in (5) to (12) all have in common that they display a final H-L tonal pattern, suggesting that Basaá speakers follow the “stress-to-tone” principle (Silverman 1992), by which pitch accents and boundary tones in the intonation language are interpreted as lexical tone sequences. In relation to loanwords, this principle has been argued to find its source in the perceptual similarity between accentual and intonational phenomena on the one hand and lexically tonal phenomena on the other. It has been shown to apply in some Asian tone languages such as Cantonese (Chen 2000; Hao 2009; Kiu 1977; Silverman 1992) and Mandarin (Glewwe 2021). In African tone languages, it has been shown to apply to Hausa (Kenstowicz 2006; Leben 1996), as well Yoruba and Shona (Kenstowicz 2006), for instance. The same phenomenon seems to be at play in the French variety of our Basaá-Cameroonian French speakers, at least when it comes to proper names. As we know from previous studies on L2 prosody, speakers are greatly influenced, in their perception, by the prosody of their L1 (Mennen and de Leeuw 2014, p. 187). It is thus not surprising that the L2 prosody of our speakers would show influences from their L1 (Mennen 2004; Mennen and de Leeuw 2014; Pickering 2004). The question thus arises as to how the lexical tones of these proper names are realized as part of vocative calls in different situational contexts and this is what our study tries to establish.

3. Materials and Methods

3.1. Stimuli and Procedure

Following Arvaniti et al. (2016) and Quiroz and Žygis (2017), we used a Discourse Completion Task (DCT) in which 12 names were called by our participants, either under a routine or an urgent context. Names of various lengths were used (1 to 4 syllables) and appear in Table 1. We selected three names per syllable count. A phonetic transcription is given under each name. Dialectal variants are given in the order Metropolitan French/Basaá-Cameroonian French. The Cameroonian French phonetic transcription includes the surface realization of lexical tones.³

Table 1. The names used in this study presented by the number of syllables.

Syllables	Names		
1	Yann [jan]/[jân]	Louise [lwiz]/[lɥiz]	Marthe [maxt]/[mâ:t]
2	Daniel [dane]/[dâpêl]	Alice [alis]/[âlîs]	Patrick [patɥik]/[pâtrík]
3	Natalia [natalja]/[nâtáljà]	Marina [maɾina]/[mârínà]	Grégory [gɾegori]/[grégórî]
4	Magdalena [magdalena]/[mágdalénà]	Alexandra [aleksâdɾa]/[âlègzádrà]	Bénédicte [benediktin]/[bènèdíktìn]

With respect to lexical tones, proper names can be grouped as in Table 2. All names have in common that they terminate in a fall. What distinguishes them is the tones that precede the fall (i.e., high or low) and whether the fall is anchored on the last (HL) or on the penultimate (H) and last (L) syllables.

Table 2. The names used in this study grouped by lexical tones

L (L) H L	L (L) HL	H H HL
Marina	Patrick	Grégory
Natalia	Daniel	
Alexandra	Alice	
Magdalena	Marthe	
	Louise	
	Yann	
	Bénédictine	

As in [Quiroz and Žygis \(2017\)](#), participants were asked to imagine a scenario in which they are inside a house and have to call a child who is playing outside. Under the routine context, the child is being called in for dinner, whereas under the urgent context, they are being called to be reprimanded for breaking a vase. All participants saw a prompt, illustrated in (13), consisting in a brief description of the scenario, and followed by the name they were asked to call.⁴

- (13) Vous entrez dans une pièce et vous voyez que votre enfant a cassé votre vase préféré. Vous l'appellez: ...
'You enter a room and you see that your child has broken your favorite vase. You call them: ...'

Participants were asked to produce the name as naturally as possible in the given context. Names were presented in a semi-random order and all names were called by all participants. There was a total of 78 trial runs (12 items*3 repetitions*2 contexts). In total, 1008 items were produced by Metropolitan French speakers and 936 by Basaá-Cameroonian French speakers. Filler items were also included which consisted of basic questions to which the participants had to provide a short scripted answer.

For Metropolitan French, recordings were carried out in Berlin, in a sound-proof booth of the Leibniz Center for General Linguistics. Participants were sitting in front of a computer screen with a microphone placed approximately 20 cm away from their mouth. For Cameroonian French, recordings were made in a quiet room in Yaoundé. Participants were sitting in front of a laptop and recordings were made through a head-mounted microphone.

3.2. Participants

Data were elicited from a total of 27 speakers. 14 speakers (4 male speakers) originated mostly from Northern France (e.g., Lille, Metz, Paris) and were native speakers of Metropolitan French.⁵ Their age ranged from 19 to 31 years. They were all monolingual speakers (with various levels of proficiency in foreign languages such as German, English, Russian, Dutch, Italian and Portuguese; none with lexical tones) and had been living in Berlin from 3 months to 13 years.⁶ They all had completed secondary education and were either in the process of completing university or had a university degree.

13 bilingual speakers (9 male speakers) originated from Cameroon, had Basaá as their native language and were speakers of Cameroonian French. Their age ranged from 20 to 41 years. 9 speakers originated from the Centre region of Cameroon and 4 from the Littoral. Only three of them had lived a few years in another country than Cameroon (France, Germany). They all frequently spoke Basaá, in particular with other members of the Basaá community and at home, with their family members. None of our speakers declared speaking another Cameroonian tone language. All were schooled in French, had completed secondary education and were either in the process of completing university or had a university degree.

All speakers were naive as to the purpose of the experiment and were financially compensated for their participation.

3.3. Data Analysis

3.3.1. Data Annotation

The utterances were perceptually categorized by two native speakers of French independently (one of the authors and a naive speaker trained for the purpose). The data were manually annotated by 3 of the authors independently. Categorizations and annotations were compared and when the judges disagreed, the data was discussed until agreement was reached.

In Metropolitan French, three distinct contours were distinguished, namely, vocative chant, rising-falling and rising contours.⁷ See Figure 1. In both dialects of French, a number of utterances did not fit in any of these categories and are represented under the category “other”. These utterances were mostly produced in the urgent context. Typically, they failed to realize a call. Rather, they tended to express a form of (questioning) disapproval, sometimes mixed with what could be perceived as anger or exasperation, depending on speakers.

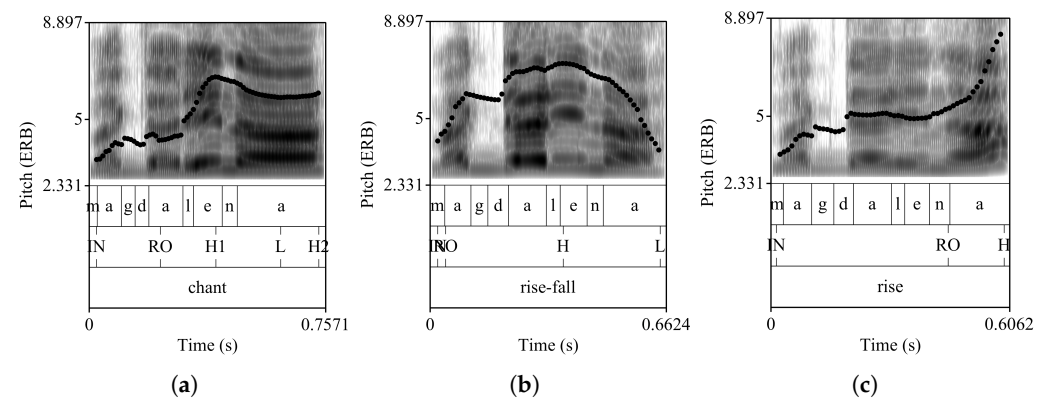


Figure 1. Illustration of the main three contours for the name ‘Magdalena’ in MF (male speaker). (a) Vocative chant; (b) Rising-falling contour; (c) Rising contour.

In Basaá-Cameroonian French, three main melodies were identified, namely, “default” (i.e., the surface realization of lexical tones, see Table 2), chanting and rising contour, which are illustrated in Figure 2.

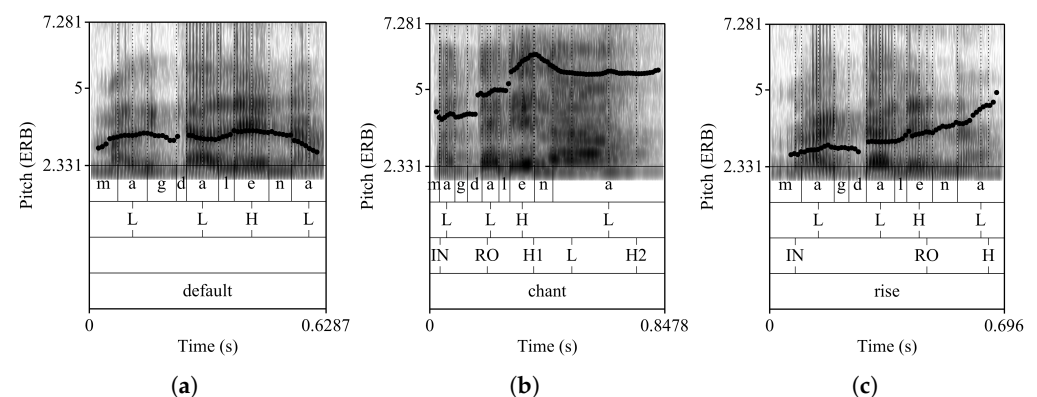


Figure 2. Illustration of the main three contours for the name ‘Magdalena’ in MF (male speaker). (a) Default contour; (b) Chanting contour; (c) Rising contour.

Again, some utterances could not be classified in any clear category based on perceptual and visual cues and were classified as “other”. In these utterances, our participants typically failed to realize a call.

3.3.2. Tonal Landmark Measures

Acoustic analysis of the data was carried out in PRAAT (Boersma and Weenink 2016). Again, following the methods used in Arvaniti et al. (2016) and Quiroz and Žygis (2017), we used the ERB scale to measure F0, that is, the perceptual equivalent bandwidth calculated from acoustic frequency in Hz, using the formula provided by PRAAT $(11.17 \ln((x + 312) / (x + 14,680)))^{43}$. The use of this scale was meant to reduce differences between male and female speakers.

As visible in Figures 1 and 2, measurements were taken at specific points in the contour. Areas of interest were selected and F0 maxima and minima were located and annotated using, respectively, the functions ‘maximum pitch’ and ‘minimum pitch’. For both varieties of French, the following measurements were subsequently obtained semi-automatically by means of PRAAT scripts.

- Initial Tone (IN): the F0 at the onset of the contour;
- Rise Onset (RO): RO corresponds to the F0 at the onset of the rise to the first (and sometimes only) peak in the contour. It was only measured in three and four-syllabic words. RO and IN coincided in 1- and 2-syllabic words.
- High 1 (H1): In the chanting melody, H1 was the F0 maximum of the first peak in the contour, while in rising-falling contours it was the only peak. Similarly, in rising contours there was also only one peak (H) found at the end of the word.
- Low (L): in the chanting melody, L was the F0 minimum in the dip in the contour (between the two H tones). In the rising-falling melody, it was the lowest point reached at the end of the contour.
- High 2 (H2): in the chanting melody, the F0 maximum at the end of the contour.

Additionally, in Basaá-Cameroonian French, each vowel was annotated for lexical tone, according to the tonal patterns presented in Table 2.

3.3.3. Additional Measurements

We also measured other acoustic parameters of the items including:

- F0 range, measured here as the difference between the F0 maximum and F0 minimum for a given name (Cosmides 1983, we thus focus on “span” in the sense of Ladd 2008)
- Duration (in seconds) for the entire name,
- Root mean square amplitude of the whole name. Prior to analysis, the RMS was log transformed as it was positively skewed.

3.3.4. Statistical Analysis

The statistical analysis of the data was conducted in the R studio software (version 4.0.0, RStudio Team 2020) by using the *lmer4* (Bates et al. 2020) and the *emmeans* package (Lenth 2019).

For Metropolitan French data, linear mixed effects models were employed for assessing the influence of Context [routine, urgent], Shape [chant, rise-fall, rise, other] and Number of Syllables of a given name [1:4] and Sex [female, male] on F0 range, RMS amplitude of a given name and name duration. In addition, an interaction of Context and Shape was included to test whether the dependent variables are affected when different contours are compared across the routine and urgent context. If the interaction was not significant, it was removed from the final model. In addition, participants and names were included as random intercepts and Context and Number of Syllables of a given name were taken as by-participant and Context as by-name random slope. The same statistical modeling was applied for Basaá-Cameroonian French data with the only difference regarding Shape, consisting of the following levels [chant, default, rise, other]. For a comparison of F0 range, RMS amplitude and duration between languages, we added the factor Language [MF, CF].

Since the factors Shape and Number of syllables consisted of four levels, we performed pairwise comparisons of the data by using the *emmeans()* function from the *emmeans* package (Lenth 2019).

4. Results

4.1. Calling Melody Frequency

4.1.1. Metropolitan French

As seen in Figure 3, the routine context elicited a majority of vocative chants (64%). In the urgent context, speakers mainly produced rising-falling contours (83%). Alternative melodies were also produced in each of the two contexts. A minority of rising (22%) and rising-falling contours (13%) were found in the routine context and some vocative chants (7%) and rising contours (2.5%) in the urgent context. The category “other” constitutes 0.7% calls in the routine and 7% in the urgent context.

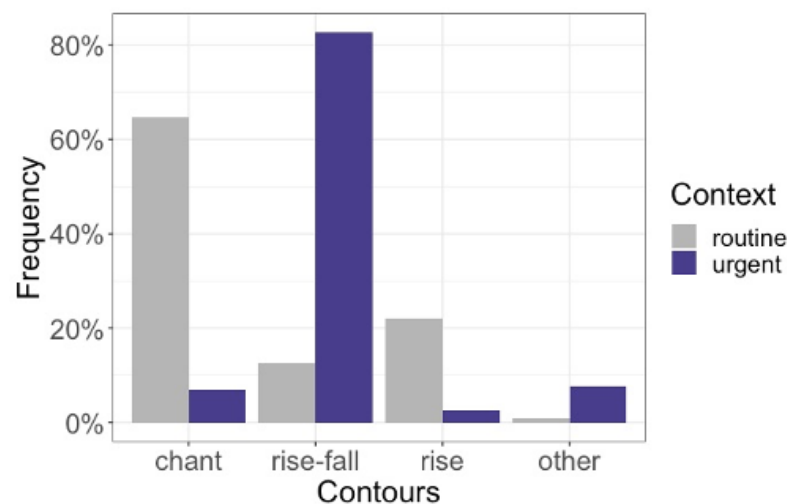


Figure 3. Frequency of occurrence of contours in routine and urgent context (Metropolitan French).

It is worth noticing that there was considerable variation among speakers as far as the choice of contour is concerned within a given context. Table 3 presents the frequency in percentages and counts appear in parentheses.

Table 3. Percentage of individual speakers’ calling melodies depending on context in MF.

	Chant		Rise-Fall		Rise		Other	
	Routine	Urgent	Routine	Urgent	Routine	Urgent	Routine	Urgent
S1	89 (32)			94.4 (34)	11 (4)	5.6 (2)		
S2	69.7 (23)		24 (8)	75.8 (25)	6 (2)			24 (8)
S3	83.3 (30)	2.8 (1)	8.3 (3)	80.6 (29)	8.3 (3)	13.9 (5)		2.8 (1)
S4	30.6 (11)		22.2 (8)	75 (27)	44.4 (16)	2.8 (1)	22.2 (8)	
S5	83.3 (30)		11.1 (4)	97.2 (35)	5.6 (2)	2.8 (1)		
S6	58.3 (21)			100 (36)	41.7 (15)			
S7	25 (9)		44.4 (16)	61.1 (22)	30.6 (11)			38.9 (14)
S8	83.3 (30)	22.2 (8)	2.8 (1)	75 (27)	11.1 (4)	2.8 (1)	2.8 (1)	
S9	91.7 (33)	58.3 (21)	2.8 (1)	38.9 (14)	5.6 (2)	2.8 (1)		
S10	5.6 (2)		11.1 (4)	97.2 (35)	83.3 (30)			2.8 (1)
S11	44.4 (16)	5.6 (2)	16.7 (6)	86.1 (31)	36.1 (13)	5.6 (2)	2.8 (1)	2.8 (1)
S12	72.2 (26)	2.8 (1)	25 (9)	97.2 (35)			2.8 (1)	
S13	77.8 (28)	2.8 (1)		100 (36)	19.4 (7)			
S14	91.7 (33)	5.6 (2)	5.6 (2)	77.8 (28)	2.8 (1)	16.7 (6)		

Some speakers (e.g., Speaker 4, Speaker 7, Speaker 10) only realized a minority of chanting contours in the routine context and either favored a rising or a rising-falling contour instead. In the urgent context, all speakers favored the rising-falling contour, except for Speaker 9, who realized a majority of chanting contours instead.

4.1.2. Basaá-Cameroonian French

As seen in Figure 4, Basaá-Cameroonian French participants produced a majority of default contours, that is, lexical tones, in both contexts. They constituted 57% of all calls in the routine context and 81% in the urgent context. The rising contour was the second most frequently appearing one, with 21% in the routine and 8% in the urgent context. The chant contour was also produced but to a very limited extent: 12% in the routine and 3% in the urgent context. Finally, speakers also produced other patterns: 10% in the routine and 9% in the urgent context.

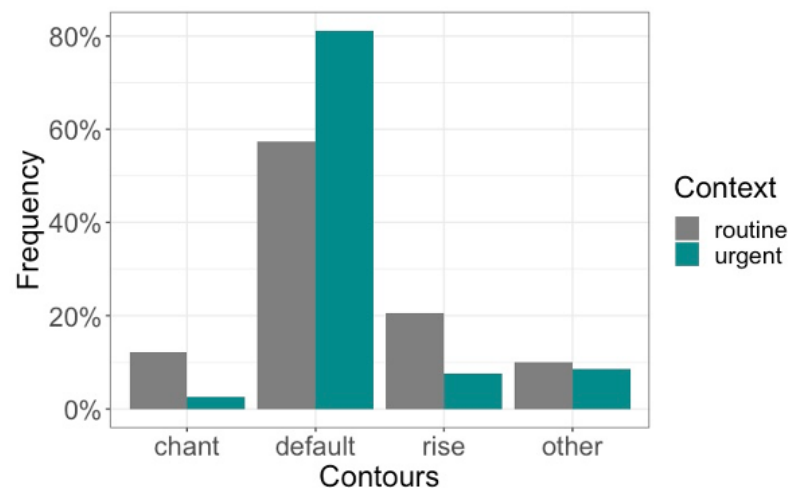


Figure 4. Frequency of occurrence of contours in routine and urgent context (CF).

Variation in the choice of contour based on context was also observed among Cameroonian-French speakers. See Table 4. Counts are given in parentheses.

Table 4. Percentage of individual speakers' calling melodies depending on context in CF.

	Chant		Default		Rise		Other	
	Routine	Urgent	Routine	Urgent	Routine	Urgent	Routine	Urgent
S1			100 (36)	100 (36)				
S2	3 (1)		14 (5)	75 (27)	75 (27)	19 (7)	8 (3)	6 (2)
S3	36 (13)	6 (2)		94 (34)	64 (23)			
S4			9 (3)	6 (2)	79 (27)	76 (25)	12 (4)	18 (6)
S5	6 (2)	6 (2)	91 (32)	85 (28)	3 (1)			9 (3)
S6			97 (35)	100 (36)			3 (1)	
S7	6 (2)		82 (27)	87 (27)			12 (4)	13 (4)
S8		3 (1)	94 (34)	97 (35)			6 (2)	
S9			97 (35)	97 (34)		3 (1)	3 (1)	
S10	81 (29)		3 (1)	97 (35)	14 (5)	3 (1)	3 (1)	
S11			31 (11)	53 (19)	6 (2)		64 (23)	47 (17)
S12	22 (8)	8 (3)	67 (24)	86 (31)	6 (2)	3 (1)	6 (2)	3 (1)
S13	3 (1)	11 (4)	61 (22)	72 (26)	22 (8)		14 (5)	17 (6)

Some speakers (Speakers 1, 6, 8 and 9) almost exclusively produced default contours, independently of the context. Some speakers realized contours that were akin to the vocative chant, with a sustained final mid tone (Speakers 3, 10 and 12). Note that although Metropolitan French is not the local variety of French of our Cameroonian speakers, speakers still have access to it through the media. Some of our speakers have also spent a few years in Europe, which might explain why they use this contour while other speakers do not. Speaker 10, in particular, produced a higher percentage of chanting contours in the routine context. Speaker 4 favored rising contours in both the routine and the urgent context, while Speakers 2 and 3 favored rising contours in the routine context only.

4.2. F0 Scaling of Tonal Landmarks

4.2.1. Metropolitan French

Beyond the choice of contour exerted in different contexts, we were also interested in the effect of context on the phonetic realization of contours. Starting with the chanting contour, our results show that the context did not have a significant effect on F0. Pairwise F0 comparisons within each tone (IN, RO, H1, L, H2, see Figure 5) across the two contexts did not reveal any significant differences either. Note that chanting contours only represent 7% of urgent calls whereas they represent 64% of routine calls.

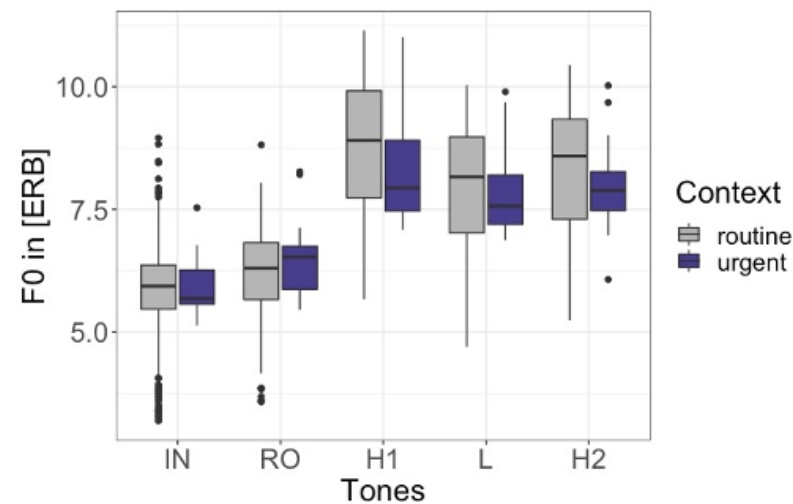


Figure 5. F0 scaling of the chanting contour in the routine and urgent context in MF.

Similarly, in the rising-falling contour, the context did not show a significant effect on F0. The pairwise comparisons did not reveal any significant differences in F0 between the routine and urgent context in IN, RO and H tones, see Figure 6. However, as far as the final L tone is concerned, it was lower in the urgent than in the routine context ($t = 6.38$, $p < 0.001$). Note again that the rising-falling contour represents 83% of all urgent calls and 13% of all routine calls.

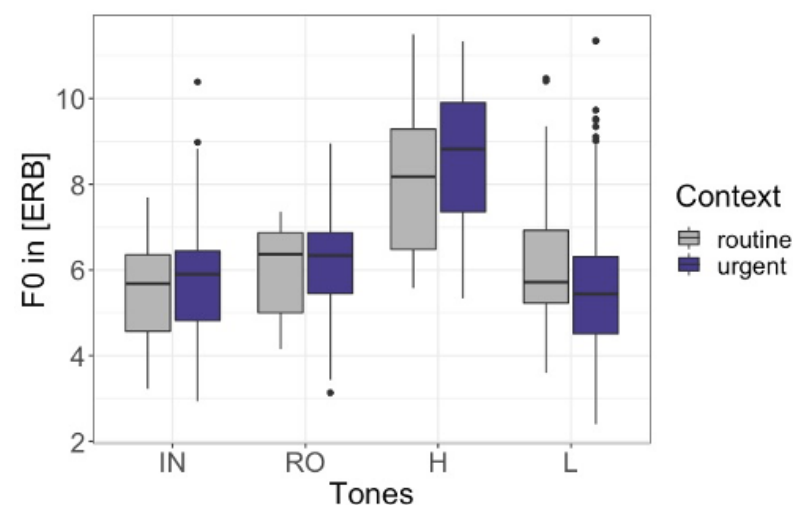


Figure 6. F0 scaling of the rising-falling contour in the routine and urgent context in MF.

Finally, in the rising contour, F0 was not significantly different in the routine and urgent context. None of the tones significantly differed across contexts, see Figure 7. Remember that rising contours count for 22% of routine calls and only 2.5% of urgent calls.

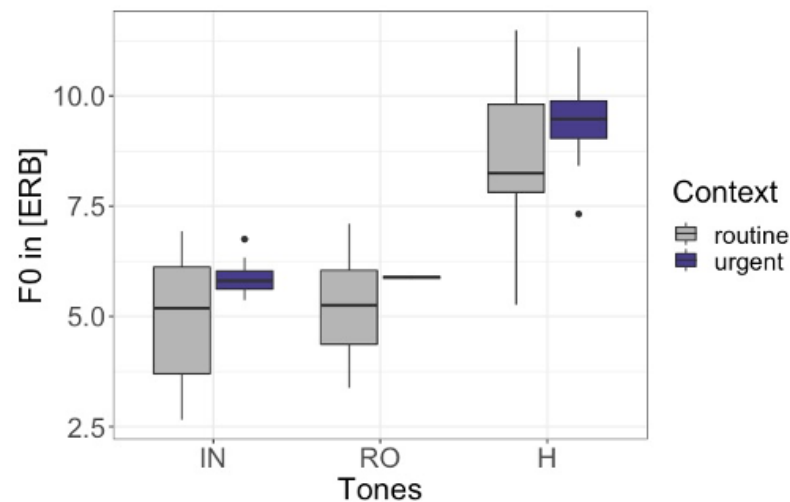


Figure 7. F0 scaling of the rising contour in the routine and urgent context in MF.

4.2.2. Basaá-Cameroonian French

Turning now to Basaá-Cameroonian French, and as context had little influence on the choice of contour, we were particularly interested in seeing whether context would significantly affect contour realization.

In contrast to what is observed in MF, the context exerted a significant effect on the realization of the chanting contour: F0 was higher in the urgent context as compared to the routine context ($t = 3.60$, $p < 0.01$). Remember that chanting contours represented 12% of all routine calls and 3% of urgent calls. Additionally, the interaction context*contour was at the level of statistical tendency (urgent*IN vs. routine L1; $t = -1.90$, $p = 0.057$), see Figure 8. Please note that our data set for the chanting contour in CF is extremely small (340 items), see also Figure 4.

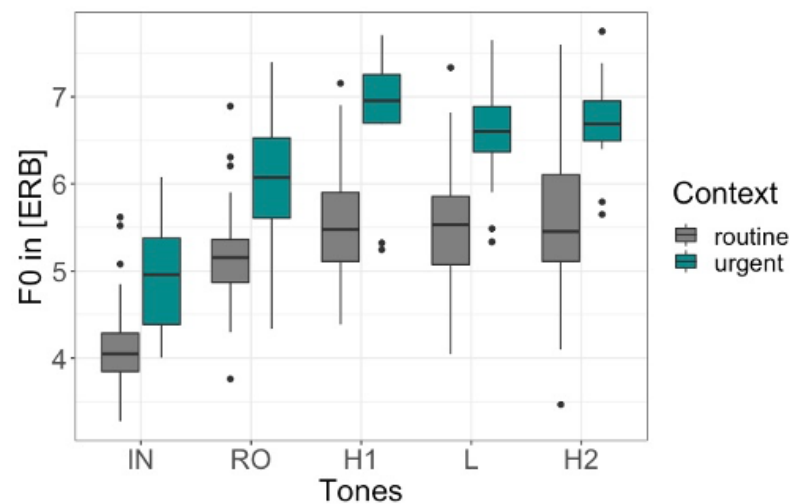


Figure 8. F0 scaling of the chanting contour in the routine and urgent context in CF.

As for the rising contour, the context appeared not to be significant, but the interaction context*contour turned out to be significant (urgent*IN vs. routine*H, $t = -2.88$; $p < 0.01$). We interpret it as a smaller difference between the routine context and the urgent context with regard to H than with regard to IN and RO. A pairwise comparison, however, revealed no significant effect of context for any of the three tones. Again, our data set is relatively

limited, as rising contours represented 21% of all routine calls and 8% of all urgent calls. See Figure 9.

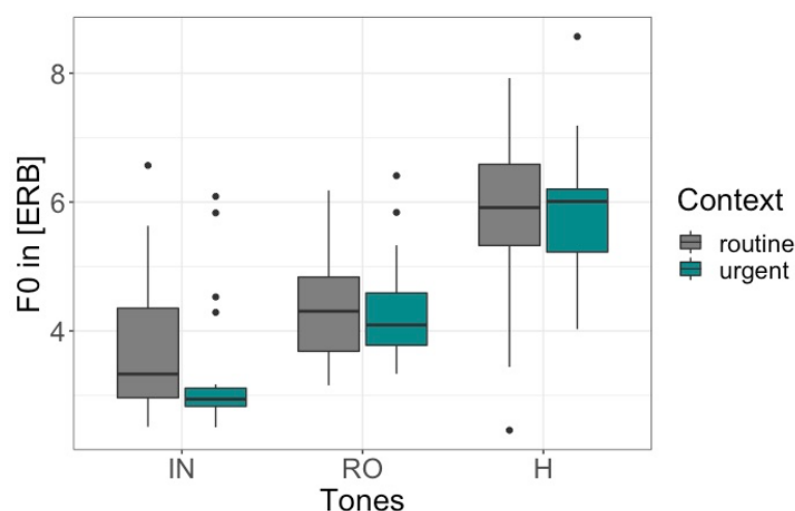


Figure 9. F0 scaling of the rising contour in the routine and urgent context in CF.

We also examined whether context exerted a significant effect on tones in the default contour, but the results did not reveal a significant difference. Remember that the default contour represented 57% of all routine calls and 81% of all urgent calls in CF. As the default contour is the surface realization of a sequence of lexical tones and different names consisted of different lexical tones (see Table 2), we also analyzed categories of names separately. Figure 10 shows F0 scaling for three syllabic words with L H L pattern (i.e., Marina, Natalia), and Figure 11, four syllabic names with the L L H L pattern (i.e., Alexandra, Magdalena). The effect of context on tones did not reach significance.

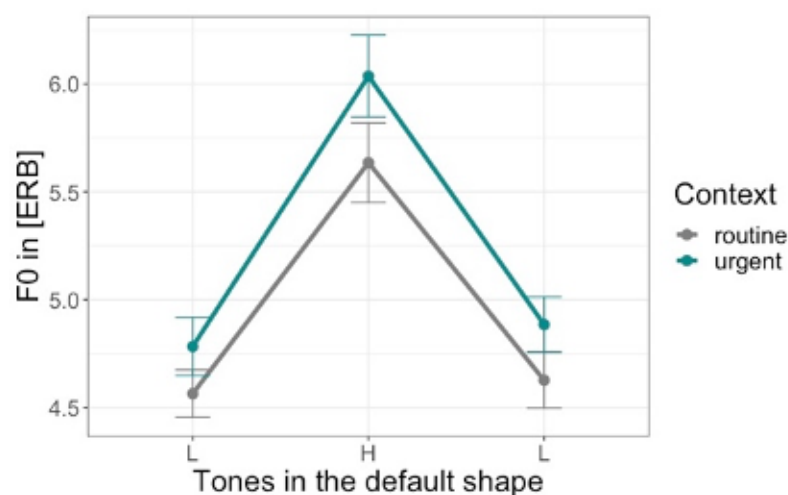


Figure 10. F0 scaling of the default contour in the routine and urgent context for three syllabic words with L H L lexical tones in CF.

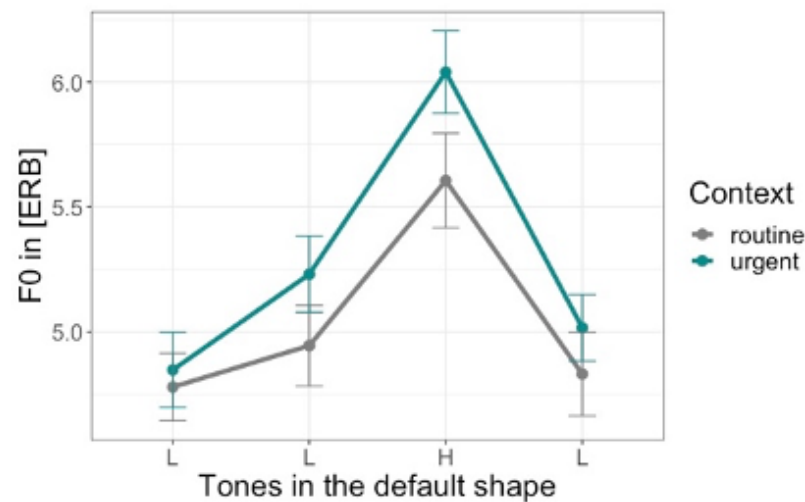


Figure 11. F0 scaling of the default contour in the routine and urgent context for four syllabic words with L L H L lexical tones in CF.

Let us now turn to F0 range.

4.3. F0 Range of Tonal Landmarks

4.3.1. Metropolitan French

F0 range for different calling melodies is represented in Figure 12 for MF. The interaction between shape and context was significant ($t = 3.83$, $p < 0.001$). Pairwise comparisons of similar contours across the routine and urgent context revealed no significant effect of context on F0 range, except for the category “other”, with lower F0 range values in the routine than in the urgent context ($t = 3.60$, $p < 0.05$). Our results also reveal, rather unsurprisingly, that F0 range values were lower in the chanting contour than in the rising-falling contour ($t = -6.85$, $p < 0.001$), and rising contours ($t = -8.23$, $p < 0.001$). No significant difference was found between the F0 range of rising-falling and rising contour. It should also be noted that longer words showed a larger F0 range (3 syllabic words vs. 1 syllabic words, $t = 3.73$, $p < 0.01$ and 4 syllabic words vs. 1 syllabic words, $t = 4.11$, $p < 0.01$).

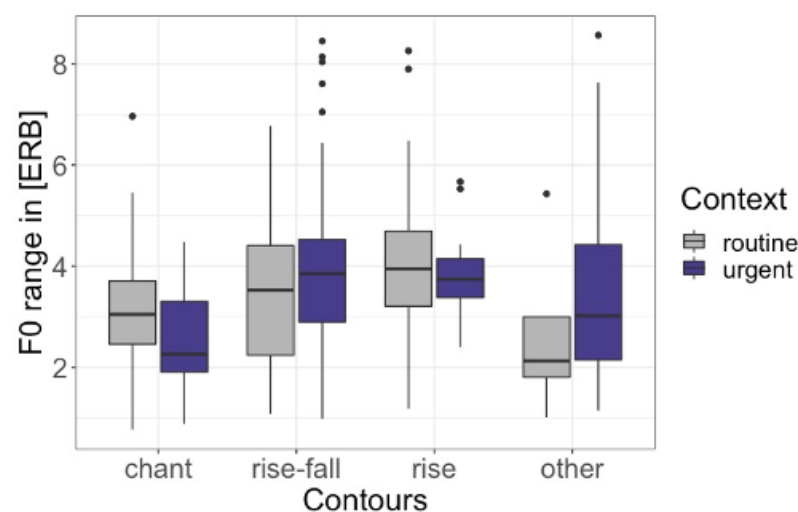


Figure 12. F0 range in the routine and urgent context across different calling melodies in MF.

4.3.2. Basaá-Cameroonian French

F0 range for different calling melodies is represented in Figure 13 for CF. The context did not exert a significant effect. When comparing F0 range across contours, our results reveal that F0 range values were significantly higher in the rising contour as compared to

the chanting contour ($t = 4.22$, $p < 0.001$), the default contour ($t = 3.85$, $p < 0.001$) and the category “other” ($t = 6.79$, $p < 0.001$). In contrast to MF, the number of syllables had no significant effect on F0 range.

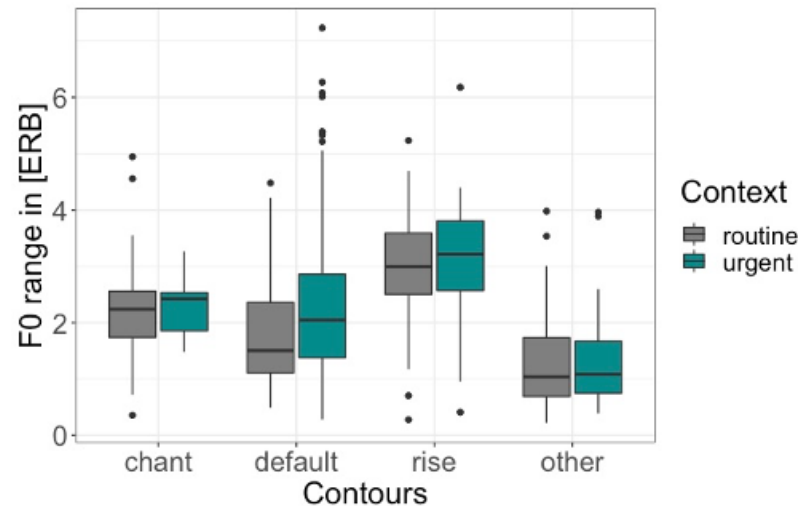


Figure 13. F0 range in the routine and urgent context across different calling melodies in CF.

Figure 14 shows F0 range in all CF speakers in both the routine and the urgent context. Overall, no uniform pattern emerges as to a possible consistent effect of context on F0 range in CF. The majority of speakers however realize the default contour with higher F0 range values in the urgent context (7 speakers out of 11). Other speakers seem to show the opposite tendency, i.e., a higher F0 range values in the routine context (Speakers 4, 7 and 12).

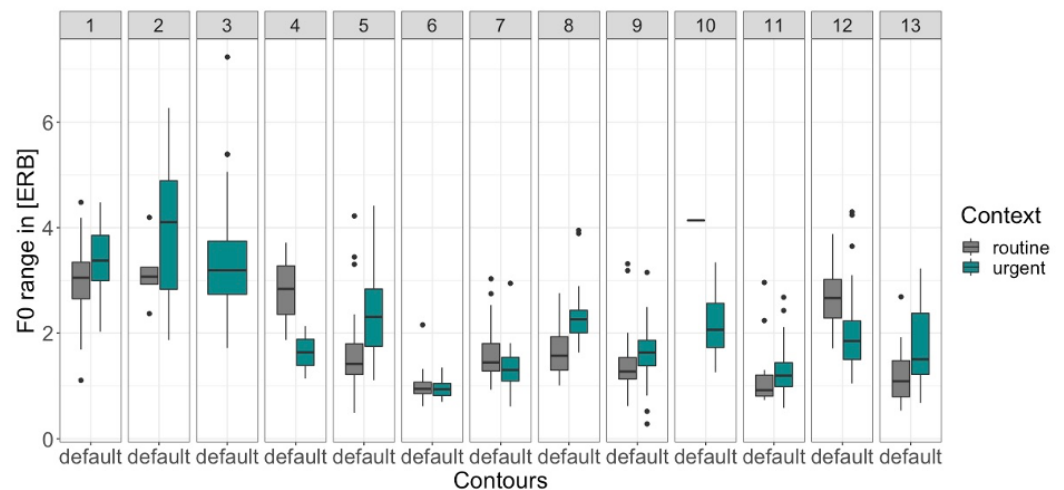


Figure 14. F0 range in the routine and urgent context for the default contour in CF speakers.

4.3.3. Cross-Dialectal Comparison

Languages are known to differ in their F0 range (Altenberg and Ferrand 2006; Eady 1982; Keating and Kuo 2012; Mennen et al. 2012; Nguyễn 2020). As in other varieties of European languages in contact with lexical tone, the intonational organization of Basaá-Cameroonian French looks different from the one of Metropolitan French. Observationally, some contours look like they result from a succession of tones carried by each syllable, corroborating previous literature on Cameroonian French. Pitch excursions, even in the rising and chanting contours, look much smaller than in Metropolitan French. If CF intonational contours are the implementation of successive lexical tones transferred from

the phonological/phonetic inventory available in Basaá, we expect CF to show a narrower F0 range than MF (Makasso et al. 2016). This would be reminiscent of what has been reported, for instance, in Nigerian English as compared to British English (Gut 2005, and references therein).

When comparing F0 range between the two varieties of French, it turns out that F0 range values are indeed significantly lower in Basaá-Cameroonian French than in Metropolitan French ($t = -9.06$, $p < 0.001$). Pairwise comparisons revealed that F0 range values in the chanting contour in MF were higher than in the same contour in CF ($t = 7.03$, $p < 0.001$). Similarly, the rising contour showed a higher F0 range in MF than in CF ($t = 6.89$, $p < 0.001$) and the “other” contours were also produced with significantly higher F0 range values in MF than CF ($t = 11.11$, $p < 0.001$). See Figure 15.

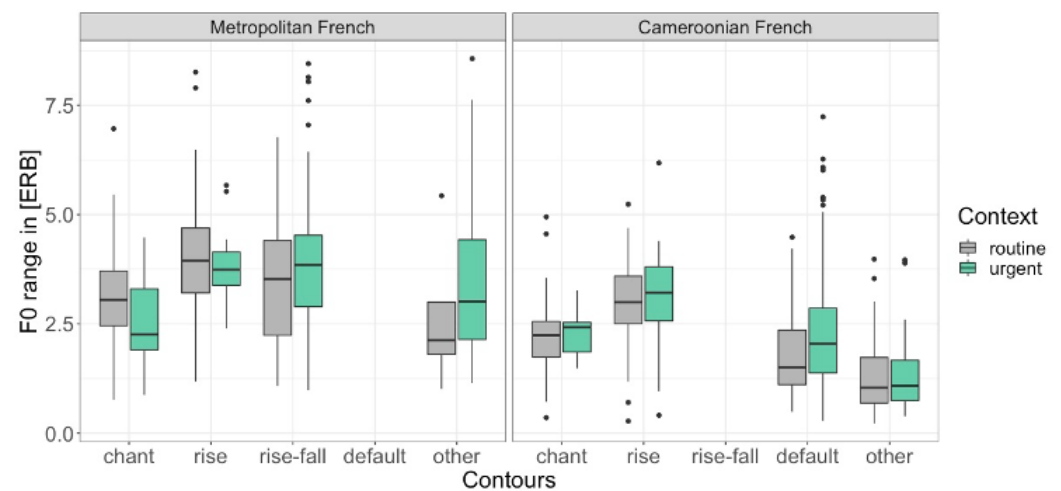


Figure 15. F0 range in the routine and urgent context across different calling melodies in MF and CF.

4.4. RMS Amplitude

4.4.1. Metropolitan French

Beyond the effect of context on F0, the question arises as to whether context influences the loudness of vocative calls, here measured in RMS amplitude. Our results show that calls produced in the urgent context were significantly louder than in the routine context ($t = 2.77$, $p < 0.01$). Pairwise comparisons also revealed that the amplitude was significantly higher in the rising-falling contour in the urgent than in the routine context ($p = 5.10$, $p < 0.001$). The same conclusions applied to the rising contour ($t = 4.15$, $p < 0.01$); see Figure 16.

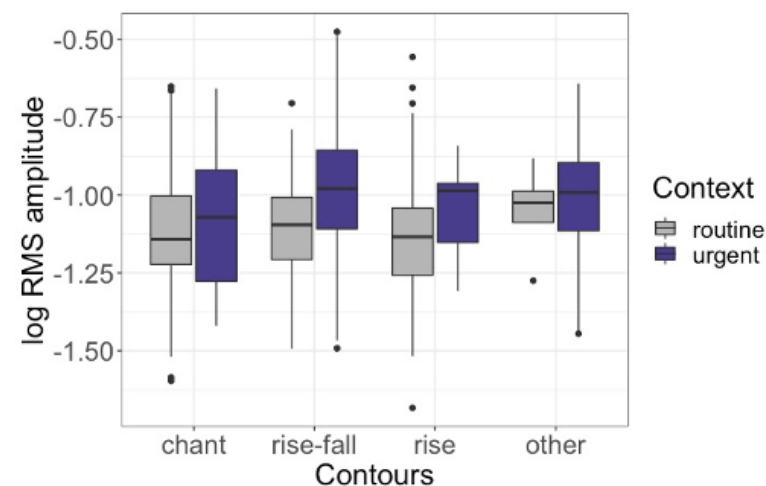


Figure 16. RMS amplitude in the routine and urgent context across different calling melodies in MF.

4.4.2. Basaá-Cameroonian French

In Cameroonian French, the items produced in the urgent context were significantly higher in comparison to those produced in the routine context ($t = 3.08$, $p < 0.05$); see Figure 17. Pairwise comparisons across contexts for individual contours did not reveal significant effects.

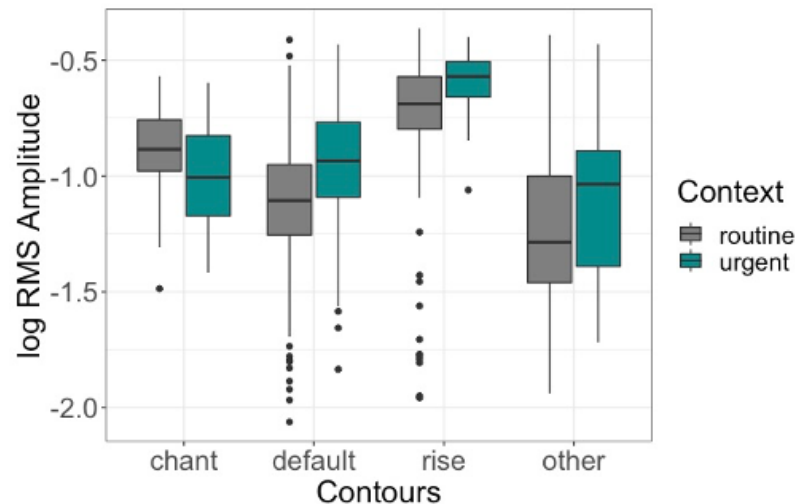


Figure 17. RMS amplitude in the routine and urgent context across different calling melodies in CF.

4.4.3. Cross-Dialectal Comparison

When comparing the RMS amplitude of calls in MF and CF, it turns out that the effect of Language was significant, i.e., names produced by the Basaá-Cameroonian French speakers were significantly louder in comparison to those produced by the Metropolitan French speakers ($t = 4.67$, $p < 0.001$). In particular, chants produced in CF were louder than chants produced in MF ($t = 7.03$, $p < 0.001$) and similarly, rising contours in CF were louder than rising contours in MF ($t = 6.89$, $p < 0.001$). Finally, a significant difference was also found in “other” contours, which were louder in MF than in CF ($t = 11.10$, $p < 0.001$). The results appear in Figure 18.

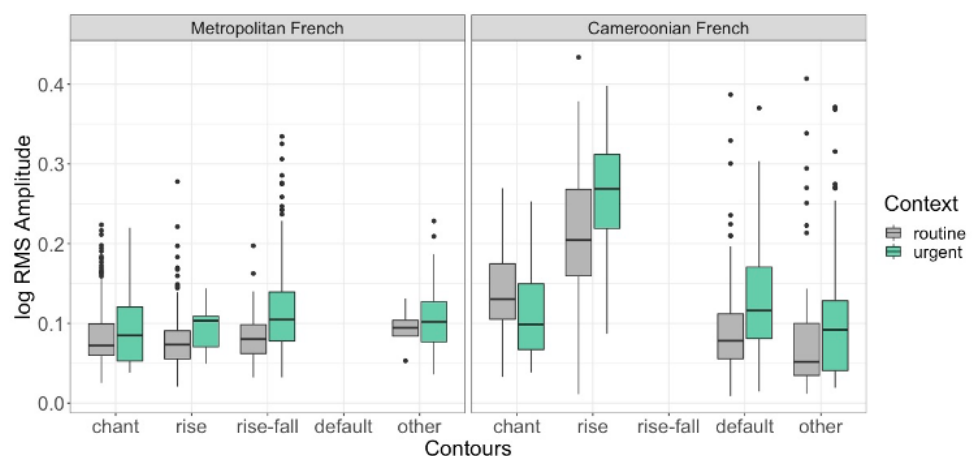


Figure 18. RMS amplitude in the routine and urgent context across different calling melodies in MF and CF.

Note, however, that the recordings were not made in the same conditions, as speakers were in two different countries, and that this acoustic parameter is particularly sensitive to the distance between speaker and microphone. These results should thus be interpreted with caution.

4.5. Word Duration

4.5.1. Metropolitan French

Finally, we were interested in determining whether context or contour would have a significant effect on word duration. As the syllable carrying a sustained downstepped high tone in the chanting contour has been reported to be lengthened, we expect names with a chanting tune to be longer than names carrying the other contours identified in our data (although see again Figure 1: the three contours are produced in the same context by the same speaker and they happen to all show a lengthened final vowel).

Word durations are visible in Figure 19 for Metropolitan French. The chanting contour was significantly longer than the rising-falling ($t = 6.03$, $p < 0.001$) and rising contour ($t = 6.71$, $p < 0.001$). No significant difference was found between the chanting contour and “other” shapes. The context did not however affect the word duration. Interestingly, overall, only 4 syllabic words were significantly longer from one-syllabic words ($t = 5.39$, $p < 0.001$).

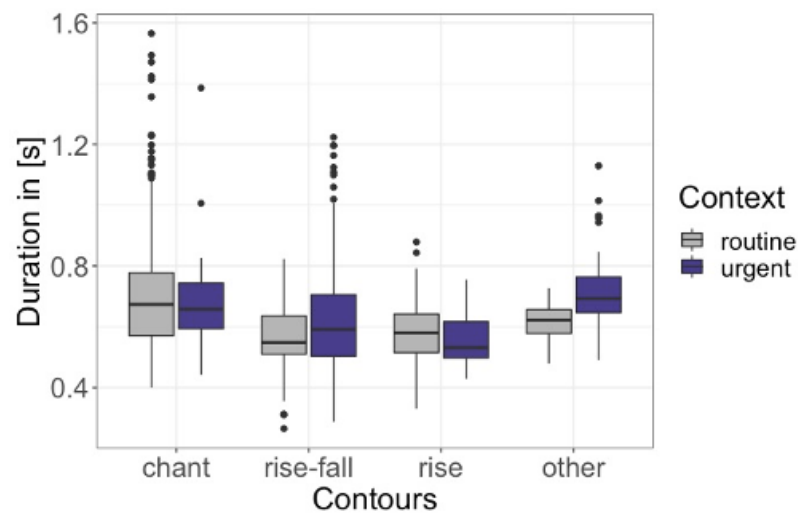


Figure 19. Word duration in the routine and urgent context across different calling melodies in MF.

In addition, we were also interested in whether one-syllabic words were longer in the chanting contour as opposed to the rising-falling and the rising contour, as they tend to become bi-syllabic words (Fagyal 1997; Ladd 2008). Results appear in Figure 20.

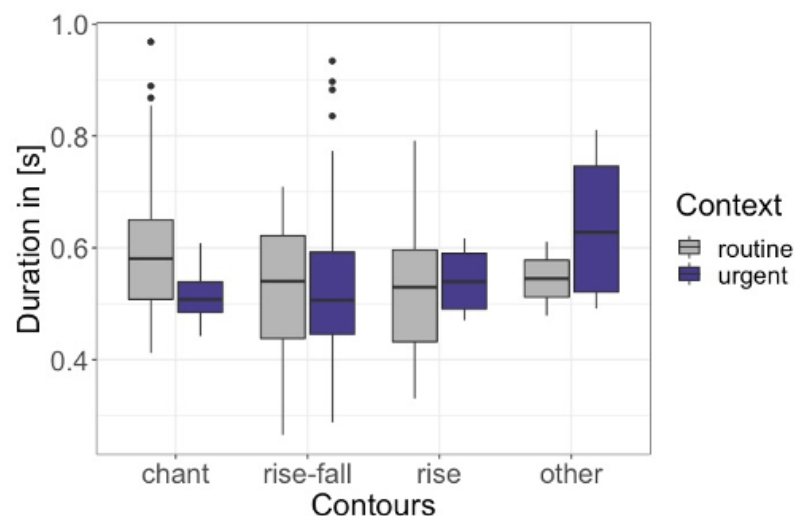


Figure 20. Word duration of one-syllabic words in the routine and urgent context across different calling melodies in MF.

The results show that one syllabic words were indeed longer when realizing the chanting contour than when realizing the rising-falling and the rising contour ($t = -5.14$, $p < 0.001$).

4.5.2. Basaá-Cameroonian French

The findings for word duration are shown in Figure 21. The context did not exert a significant effect on word duration. As in MF, the names produced with a chanting melody were significantly longer as compared to words with the default contour ($t = 4.14$, $p < 0.001$). Please note that there were only a few one syllabic words produced with the chanting contour so that a statistical comparison with respect to one-syllabic words with other contours was impossible.

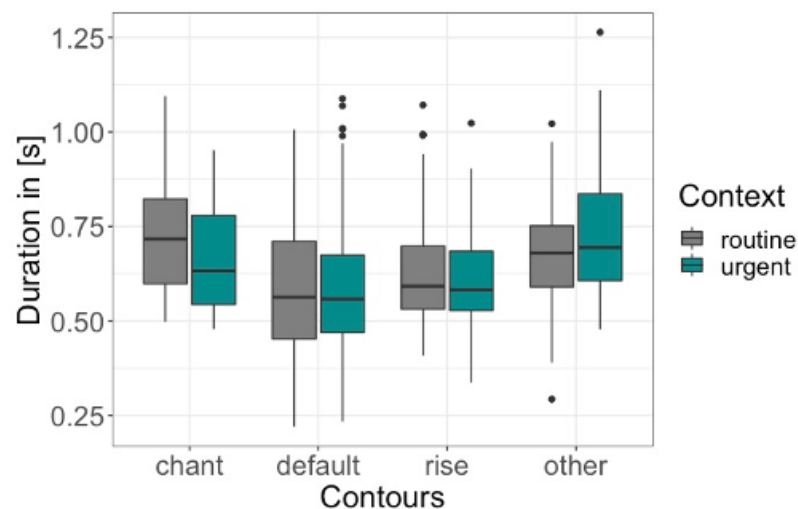


Figure 21. Word duration in the routine and urgent context across different calling melodies in CF.

4.5.3. Cross-Dialectal Comparison

Finally, for the sake of exhaustivity, we compared word duration in MF and CF and the effect of language turned out to be significant: words produced in MF were longer than those produced in CF ($t = -2.49$, $p < 0.001$). The only significant comparison across languages was found between the word duration in MF chants, that were longer in comparison to the default contours in CF ($t = 3.34$, $p < 0.05$). See Figure 22.

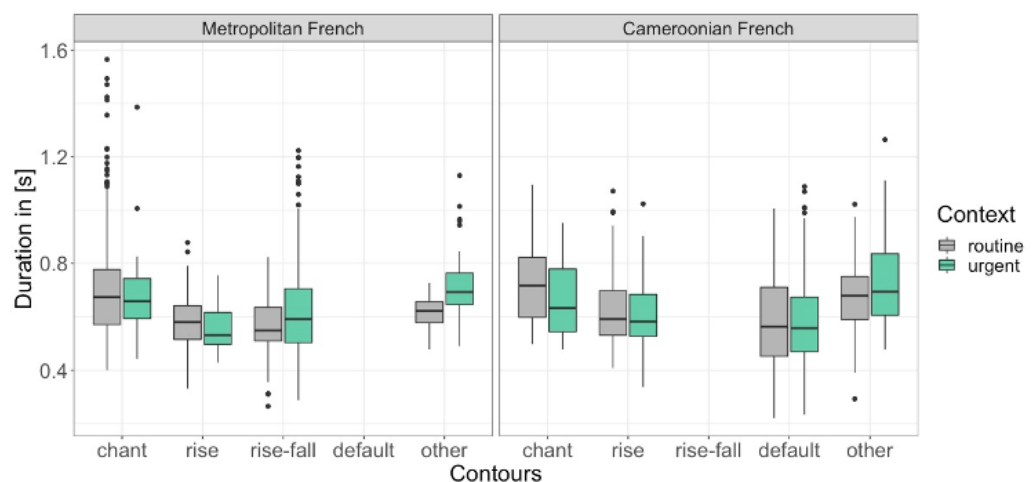


Figure 22. Word duration in the routine and urgent context across different calling melodies in MF and CF.

5. Discussion and Conclusions

As stated in the Introduction, the expression of vocatives lies at the interface between different language components: phonology, syntax, morphology, semantics and pragmatics. It provides us with a precious window onto the relationship between prosody and pragmatics in specific languages.

We have conducted a systematic study of the prosody of vocative calls in two different contexts (i.e., routine and urgent) among monolingual Metropolitan French speakers on the one hand and bilingual speakers of Basaá, a tone language, and Cameroonian French, on the other. The results of our DCT indicate that our two groups of speakers behave differently when it comes to the influence of context on the choice of contour. Context has a clear impact on the choice of contour in Metropolitan French, in which a chanting contour is favored in routine contexts and a rising-falling contour is preferred in urgent contexts. In Basaá-Cameroonian French, a contour consisting of a sequence of lexical tones is largely favored in both the routine and the urgent context. We have also observed a considerable amount of inter-speaker variation: in Cameroonian French, in particular, some speakers consistently produced the same contour independently of the context while others alternated between several contours including, for a minority, the chanting contour. As our Cameroonian speakers are also exposed to other varieties of French, for instance through the French media, we cannot exclude an influence from the exonormative standard, Metropolitan French.

Regarding acoustic parameters, context did not exert much effect on the F0 height of the different calling melodies in Metropolitan French. In contrast, we found an effect of context on the realization of vocative chants in Basaá-Cameroonian French, with a higher F0 in urgent contexts. This result is however to be interpreted with caution, as our speakers only produced a minority of chanting contours. We did not find an effect of context on F0 scaling for the two other contours (default and rising contour), indicating that our speakers did not realize the contours differently depending on the context.

When it comes to F0 range, neither of the varieties showed a significant effect of context. Interesting differences were observed across calling melodies in MF, with lower F0 range values in the chanting contour than in the rising-falling and rising contour. F0 range values were also partly dependent on word length (3 and 4 syllabic words showing significantly higher F0 range values than 1 syllabic words). In Basaá-Cameroonian French, the rising contour showed significantly higher F0 range values than the chanting and “other contours”. It did not however significantly differ from the default contour. No effect of word length was observed on F0 range, indicating that it remained stable across words of different lengths in Basaá-Cameroonian French. Interestingly, the two varieties of French significantly differ in their F0 range, with values being significantly lower in Basaá-Cameroonian French.

In both varieties, no effect of context on duration was found, but a significant effect of contour. Our results confirm that words carrying a chanting contour are longer than words with other contours in both varieties of French. For MF, in which our dataset was large enough for statistical analysis, this is also the case for 1-syllabic words, whose length only significantly differed from 4 syllabic words.

In sum, when it comes to the production of vocative calls, target-use of the contact variety, here Basaá-Cameroonian French, does not amount to target-like use of the original standard target language, here Metropolitan French (Williams 1989). We have seen that rather than using vocative chants in routine contexts, our speakers preferred a melody consisting of lexical tones reflecting the citation form of words in the standard target language (i.e., ending in a fall rather than a phonetic mid), and that this melody remained unchanged in urgent contexts. The very presence of lexical tones in the grammar of our speakers is consistent with what has been reported in other contact varieties of intonation languages in African as well as in Asian contexts. What is particularly interesting, and in our view further supports the idea of a prosodic transfer from the L1 (at an individual level in our present speakers but also maybe at a more collective level among Cameroonian French

speakers whose L1 is tonal), is the fact that the realization of these tones remains stable across pragmatic contexts. Remember that Basaá, the L1 of our speakers of Cameroonian French, is a language that has been described as showing little evidence of a use of prosody to encode postlexical meanings (Makasso et al. 2016), which is not uncommon among African tone languages (Downing and Rialland 2016). It is also a language in which vocative calls are expressed through morphological means (Bitjaa Kody and Mutaka 1997; Makasso n.d.).

To use Mennen's (2015) terminology, we observe a deviance in the semantic dimension from Metropolitan French. Such deviances have typically been reported in other areas involving information packaging: learners from different L1s and L2s have been shown not to mark prominence in focused elements and/or to fail deaccenting discourse-given ones (Gut and Pillai 2014; Hamlaoui et al. 2021; Ortega-Llebarra and Colantoni 2014; Swerts and Zerbian 2010). This is particularly the case when their L1 does not use prosody to encode these information-structural categories (Rasier and Hiligsmann 2007; Zerbian 2015). The question arises as to the origin(s) of the present deviance. Historically, at the collective level, the present contact variety of French might have fossilized before vocative chants were acquired. This would be a natural result of the fact that very few speakers achieve native-like competence in an L2 (Edwards 1994). Although the vocative chant is common to a number of European languages and it was believed for a time that it might be a prosodic universal (Ladd 2008), it has not, to the best of our knowledge, been reported to exist in Basaá, Bantu or related languages. Its use within the grammar of Metropolitan French is actually limited to a small set of contexts, which might contribute to making it a marked prosodic pattern and thus particularly difficult to acquire for learners who do not already have it in their L1 (Eckman 1987). Studies of the prosody of vocative calls with other L1–L2 pairings might help shed further light on this issue, including among speakers of Cameroonian French with L1s other than Basaá. Further studies of Cameroonian French will also help determine whether other areas of the grammar of this contact variety support the idea of a prosodic transfer of lexical tones from local L1s and whether, as has been proposed for other contact varieties of European languages (Gussenhoven and Udofot 2010; Lim 2007), it should be classified as something else than an intonation language.

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Notes

- ¹ With its highly heterogenous population and over 250 local languages from the 4 major African language families, Cameroon is often described as ‘Africa in miniature’. Although a few of the local languages serve as languages of major communication at the regional level, none of them dominates at the national level (Tabi Menga 1999). French was first introduced in 1916 and was imposed as the only language of education in the part of Cameroon under French rule. It has since acquired vehicular language status and is regularly used for inter-group communication (Mendo Ze 1999). For over 80% of the Cameroonian population, i.e., people living in present-day Francophone regions of Cameroon, it is still the main language of education and administration (Onguene Essono 1999, 2003). Together with English, which has been present in the country since around 1840 and is still dominant in the Western regions of Cameroon, French has remained one of the two official languages, even after the country gained its independence in 1960 (Mendo Ze 1999).
- ² We are extremely grateful to Emmanuel-Moselly Makasso (*p.c.*) for drawing our attention to this fact and for providing us with the tonal specifications for the proper names used in the experiment. Note that we cannot presently state whether speakers of Cameroonian French with other L1s will differ from our present speakers, as Cameroonian French is certainly the result of the contact of French with many typologically unrelated languages (tone languages and others) and not only Basaá. Further research will inform us of the specificities of Basaá-Cameroonian French speakers as compared to other speakers of Cameroonian French.
- ³ Several realizations of the phoneme /r/ were observed. For more detail on this point, the interested reader is referred to Hamlaoui et al. (2020).
- ⁴ A limit of the present design is that it does not distinguish between polite and informal calls, a distinction that has been described to be relevant in Basaá. Rather, the calls elicited within the present study all fall within the informal type. A design of the type found in Borràs-Comes et al. (2015) could be used in the future to determine whether this distinction is somehow transferred onto Basaá-Cameroonian French. This could also allow determining whether Basaá-Cameroonian French speakers have distinct means of expressing the type of speaker-hearer connivence that typically licenses the use of the vocative chant in Metropolitan French (Ladd 2008).
- ⁵ As pointed out by an anonymous reviewer, regional varieties of French also vary in pronunciation, making the label Northern Metropolitan French (NMF, Carignan 2013; Nicholas et al. 2019) more appropriate for the variety of European French considered here. On the segmental level, all speakers exhibited a Standard French pronunciation, consistent with NMF. Although there were audible differences in the way some of our speakers realized calls (e.g., in terms of the intensity of positive/negative emotion associated with our discourse contexts, or assumed distance between caller and callee), none of these differences could be attributed to a difference in geographic origin or the influence of another language. Varieties of Northern French have been described as undergoing a process of accent levelling or phonological uniformization, by which regionally localized features tend to disappear. This is particularly true of urban varieties, with differences across urban centers (Boughton 2005). The interested reader is also referred to Armstrong and Pooley (2010). A larger and more controlled sample of speakers from different regions of France would be needed to account for possible cross-dialectal differences in vocative calls within Metropolitan French.
- ⁶ As noted in previous studies (see for instance Mennen et al. 2014), in European countries it is generally difficult to find monolingual speakers in the strictest sense of the word, as people have usually received secondary instruction in at least one foreign language. As pointed out by an anonymous reviewer, it might be more accurate to consider our NMF speakers as having French as their native and dominant language, rather than as monolingual speakers. The same applies to our group of Cameroonian French speakers, who have also received secondary instruction in at least one foreign language, typically English. We expect the potential transfer effect from these other languages to be negligible.
- ⁷ The meaning associated with the rising contour was that of a question of the type “Can you hear me?”, “Are you there?”.

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