

## Interrogative particle and phrasal pitch-accent in polar questions in Fa d'Ambô Partícula interrogativa e *pitch-accent* frasal nas perguntas polares em fa d'Ambô

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**Abstract:** We present in this work the linguistic strategies for the utterance of polar questions in Fa d'Ambô (FA). We discuss (i) the use of the final interrogative particle **a**, and (ii) the association of phrasal pitch-accent to the last mora of the final prosodic word of the sentence with a possible change in word accent and raising of intonation. The interrogative sentence allows using the particle **a** for polar questions, but its use is not licensed in WH-questions. Previous studies have not addressed this question (Barrena, 1957; Post, 1995; Zamora, 2010) or have stated that polar interrogatives are constructed as declarative sentences (Post, 1995). Furthermore, we argue that FA stress words at the end of a polar question differ from what occurs in other positions and that the pitch-accent is attracted to the right edge of the sentence, which is a previously unattested top-down system (Gordon, 2014). In addition, we offer further evidence for the presence of this phenomenon in the Proto-Creole of the Gulf of Guinea (PGG), as a sign of the influence from Niger-Congo substrate languages, especially those from the Sudanic belt, in the Gulf, since this is an area-related feature of this group.

**Keywords:** Particles. Fa d'Ambô. Polar Questions. Creole Languages. Phonology. Syntax.

**Resumo:** Apresentamos os recursos linguísticos para a realização de perguntas polares em fa d'Ambô (FA), a partir de um *corpus* formado por dados obtidos na Guiné Equatorial. Discutimos o (i) uso da partícula interrogativa final **a**; e a (ii) associação de *pitch-accent* frasal à última mora da palavra prosódica final da sentença, com alteração do acento da palavra e elevação da entonação, padrão linguístico não documentado, embora previsto por Gordon (2014). A interrogativa facultava o uso da partícula **a** para perguntas polares, porém seu uso não é licenciado em perguntas-QU. Trabalhos anteriores não abordaram essa questão (Barrena, 1957; Post, 1995; Zamora, 2010) ou afirmaram que as interrogativas polares eram construídas como as declarativas (Post, 1995). Argumentamos que, em FA, palavras acentuadas ao final da sentença interrogativa polar diferem daquelas que ocorrem em outras posições e que o *pitch-accent* é atraído ao limite direito da sentença, padrão não documentado em uma língua de sistema *top-down* (Gordon, 2014). Destacando o fato de a partícula final **a** ocorrer em FA e em outros crioulos de base portuguesa do Golfo da Guiné, oferecemos evidências para sua presença no Proto-Crioulo do Golfo da Guiné, bem como da influência das línguas do substrato Niger-Congo, sobretudo aquelas do cinturão sudanês.

**Palavras-chave:** Partículas. Fa d'Ambô. Perguntas polares. Línguas crioulas. Fonologia. Sintaxe.

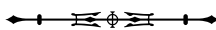
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## INTRODUCTION

Fa d'Ambô<sup>1</sup> (FA) (ISO code 639-3: FAB) is a language spoken on the island of Ano Bom (AB) in the Republic of Equatorial Guinea (EG). With about 5,000 speakers in AB, the language has an additional unknown number of speakers in the capital city, Malabo, and in the Equatorial-Guinean diaspora. Currently, FA is the mother tongue of all AB natives and its main vehicle of communication. Alongside Spanish, EG's official language, FA is in a situation of diglossia, since most of the population is bilingual or multilingual. However, there are some monolingual speakers, found only amongst elderly people over 80 years of age.

The province of Ano Bom is located on the coast of Gabon, 160 km southwest of São Tomé Island (Figure 1). Thus, AB is isolated from the political territory of EG, to which it belongs. From a geographical point of view, AB is part of the Cameroon Volcanic Line, which also includes the islands of Bioko, São Tomé, and Príncipe.

Ano Bom was a Portuguese colony from its discovery in 1543 until the year 1778, when the Spanish gained formal control of the island, thanks to the Treaty of El Pardo<sup>2</sup>. In 1968, Ano Bom was incorporated to the now independent state of Equatorial Guinea. As a tiny island of only 17.5 km<sup>2</sup>, far from the main navigation routes of the Age of Discoveries, AB had an irregular colonization, which began soon after its discovery (Caldeira, 2004, 2006, 2010; Araujo et al., 2013). Its modest territorial extension never supported a colonial agri-industrial model of sugarcane



Figure 1. The Gulf of Guinea. Source: National Geographic (1996).

<sup>1</sup> Ana Lúvia dos Santos Agostinho and Alfredo Christofolletti Silveira collected FA data during in field work carried out in Annobón and Bioko in 2011 and in 2010 Ana Lúvia Agostinho collected Lung'le data on Príncipe Island. In both cases, the data were collected from native speakers through elicitation of previously prepared sentences. The data of other authors are properly referenced.

<sup>2</sup> Based on the terms of the Treaty of El Pardo, the Queen of Portugal, Maria I, ceded the islands of Ano Bom, Formosa, and the coast of the Gulf of Guinea to King Carlos III of Spain. In exchange for these territories, Portugal received strips of South American territories for Brazil (Genuino, 2018, p. 25).

production. At the same time, the occupation of the island basically comprised enslaved people who generally spent a period in São Tomé, thus bringing with them the language spoken in that colony, as well as a version of the Portuguese Catholic culture (Araujo et al., 2013). Therefore, both the language and the Ano Bom cultural aspects reflect its historical connection with São Tomé and the Portuguese world. Thus, the genesis and development of FA and the occupation of the island are closely related to the Portuguese colonization process in the region, fueled by the abduction and displacement of inhabitants of the African continent for the purpose of labor exploitation in the islands of the Gulf of Guinea and beyond.

Besides FA, there are three autochthonous and genetically related indigenous Portuguese-based Creole languages in the Gulf of Guinea: Santome (or *fõrro*, ISO CODE 639-3 CRI), Angolar (ISO CODE 639-3 AOA), and Lung'le (ISO CODE 639-3 PRI), all three spoken in the Democratic Republic of São Tomé and Príncipe (Schuchardt, 1888; Günther, 1973; Ferraz, 1979; Maurer, 1995, 2009; Hagemeyer, 2009; Agostinho, 2016; Bandeira, 2017). Thus, we began from the assumption that FA and the other Portuguese-based creole languages in the region originated from the Proto-Creole of the Gulf of Guinea (PGG) spoken on the island of São Tomé at the beginning of the sixteenth century<sup>3</sup>. The four languages, though related, are currently unintelligible among each other. Besides FA, Lung'le and Santome have final interrogative particles, as shown in Table 1, while there is no similar interrogative particle data for Angolar (Maurer, 1995). According to Martins (2016), the syntax of interrogative phrases is the subject of a vast linguistic literature. However, there is still a lack of studies on how different languages realize their answers in contexts of polar interrogatives, and on the way these questions are answered.

Table 1. Interrogative particle **a/an** in the languages of the Gulf of Guinea.

Fa d'Ambô	Lung'le	Santome	Angolar
[a]	[a]	[an]	-

This study is organized as follows. In section "Polar questions", we present a brief definition of polar questions and their general characteristics. In section "Polar questions in Fa d'Ambô", we discuss the works that described interrogative sentences in FA and present an undocumented strategy that uses a final polar interrogative particle associated to changes in phrasal pitch-accent. In section "Interrogative particles in the Gulf of Guinea and African substrate", we illustrate the connection between this final polar interrogative particle and its presence in the Proto-Creole of the Gulf of Guinea, as well as in some substrate languages from the Niger-Congo branch, thus supporting the origin of the final interrogative particle in FA and in the PGG as a Niger-Congo areal feature from the Sudanic belt. In the last section, we present our final considerations.

## POLAR QUESTIONS

According to Brito et al. (2003, p. 460, our translation), interrogative sentences "[...]" are the expression of a direct illocutionary act through which the speaker verbally asks his or her addressee to provide information that he does not have<sup>4</sup>. There are two types of interrogative sentences according to the type of questions: WH-interrogatives and polar interrogatives.

<sup>3</sup> See Ferraz (1974, 1979), Garfield (1992), Post (1992, 1997), Maurer (1997, 2009), Hagemeyer (2003, 2009), Caldeira (2004), Seibert (2007), Araujo (2011), Bandeira (2017), Bandeira et al. (2019), among others.

<sup>4</sup> In the original: "[...] constituem a expressão de um acto ilocutório directivo, através do qual o locutor pede ao seu alocutário que lhe forneça verbalmente uma informação de que não dispõe" (Brito et al., 2003, p. 460).



a) The WH-interrogatives have a WH-pronoun (which, who, what, what, where, when, how), introducing the WH-matrix interrogative (Braga et al., 2009), as in the following examples:

- (1a) Who ate the cake?
- (1b) Where will the syntax test take place?
- (1c) How much does this phonology manual cost?

The answers that are expected in (1) are induced by the type of WH-pronoun that constitute these interrogatives. Thus, in (1a), an expected response is the identification of a person; in (1b), there is the expectation of naming some place; and in (1c), the specification of a numeric value is expected. The presupposition that semantically characterizes a WH-interrogative, or the sentences of (1), can be expressed from the adapted formula of Braga et al. (2009, p. 265):

- (2a) there is an X that is a person in (1a), a place in (1b), and a numeric value in (1c).
- (2b) for which X it is true that X is a person who ate the cake in (1a), that X is a place to take a syntax test in (1b), that X is the numeric value of a phonology manual in (1c).

b) Polar questions, also known as yes-no questions or direct questions, are used by speakers when the objective is to value a statement from its truth value, that is, if the true-false valuation is questioned in the relation between the subject and the predicate, as in (3):

- (3) Did you review the article for publication?
- (3a) Yes.
- (3b) No.

When we ask our interlocutor the question in (3), the expected answers may be what we see in (3a), 'yes', which characterize the content as true, or (3b), 'no', which would characterize the content as false.

In phonological terms, a polar interrogative sentence may, in some languages, be differentiated from its declarative equivalent by its specific intonation curve considering that, in most cases, the order of constituents in these two types of sentences is the same. In Brazilian Portuguese, for example, a declarative sentence, such as '*Amanhã vai faltar água*'<sup>5</sup>, is differentiated from its corresponding interrogative by its intonation curve (Figure 2).

When we analyze Figure 2, the intonation curve for the affirmative sentence is a decreasing line, with the highest peak in the stressed syllable of the first term of the utterance. As for the interrogative sentence, the intonation curve reaches its peak precisely at the stressed syllable of the last word of the utterance, characterizing the specific intonation of Brazilian Portuguese interrogatives. The WH-interrogatives, in Brazilian Portuguese, also present a specific intonation curve, as for polar interrogatives, but are differentiated by the presence of WH-pronouns, as previously pointed out.

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<sup>5</sup> 'Tomorrow there will be a water shortage.'



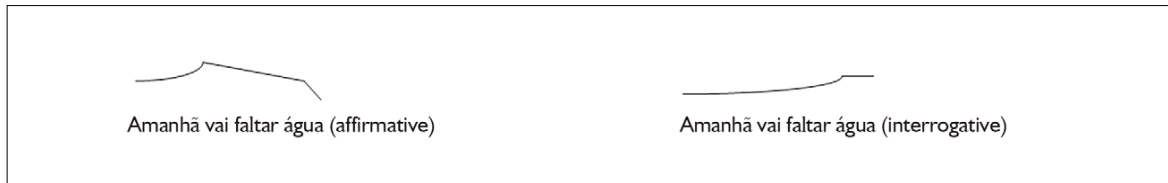


Figure 2. Intonation curve, respectively, for affirmative and interrogative sentences '*Amanhã vai faltar água*'.

In the next section, we show that FA has a non-previously described possibility of using a particle *a* for polar questions associated with a change of some prosodic features, besides the presence of WH-pronouns and the intonation resource.

### POLAR QUESTIONS IN FA D'AMBÔ

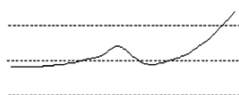
The task of including particles in the traditional spectrum of grammatical categories cannot be considered trivial (Zwicky, 1985; Radford, 1997). In view of this, we assume particles as invariant items that have specific grammatical functions, an idiosyncratic distribution, and semantically associated functional items rather than content items, corroborating Zwicky (1985, p. 291). Thus, the interrogative particle of FA has a fixed order, at the end of a polar interrogative sentence, and a phonological independence, one of the factors that distinguishes particles from clitics. This fixed order of particles, for example, differentiates them from other grammatical classes that have sentence mobility, such as adverbs. Moreover, their use is restricted to a specific type of sentence, the polar interrogative, contributing to the theoretical discussion about the status of particles in the languages of the world.

The use of a final interrogative particle as a strategy for building interrogative sentences was not a subject investigated in the history of FA (Barrena, 1957; Post, 1995; Zamora, 2010). The descriptive grammar of Barrena, written at the end of the nineteenth century and published in 1957 (Barrena, 1957), does not mention strategies for formulating interrogatives, except using WH-interrogative pronouns. In the few examples of interrogative sentences, however, there is no mention of the use of particles. Post (1995), in turn, stated that polar questions are built without changing the order of sentence elements, that is, in the same way as declarative sentences. Additionally, the author notes that WH-pronouns always occur at the first position of the interrogative sentence. She also states that an interrogative is marked by an intonation at the end of the sentence. However, the author does not specify the nature of the intonation and does not differentiate the intonation of the sentence with and without WH-pronouns. Zamora (2010) showed that intonation is essential in FA's interrogative sentences and provided examples with decreasing and increasing patterns. We observe the examples adapted from Zamora (2010) in (4), where the spelling and phonetic transcription were kept as in the original. Originally, the example (4a) does not have an intonation curve, and the examples (4b) and (4c) were not phonetically transcribed. Zamora (2010) offers no examples of polar interrogatives with an intonation curve, although it was mentioned. For this reason, we added it in (4b) and (4c).

- (4a) Quê juá bô falà?  
 ['kəxwa 'bɔfala ↓]  
 'What did you say?'<sup>6</sup> (Zamora, 2010, p. 106, our translation)

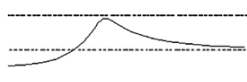
<sup>6</sup> In the original: "¿Qué has dicho?" (Zamora, 2010, p. 106).

(4b) A fà Zuã bì onte?



'Did they say that John came yesterday?'<sup>7</sup> (Zamora, 2010, p. 107, our translation)

(4c) A fà Zuã bì onte.



'They said that John came yesterday.'<sup>8</sup> (Zamora, 2010, p. 107, our translation)

The examples in (4) show interrogative sentences with a decreasing intonation (4a) when there is a WH-particle. The example (4b) would have an increasing intonation because the interrogative is polar. In (4c), the decreasing intonation is default for declarative sentences. At the same time, Zamora (2010, p. 536, our translation) observed that the increasing intonation occurs "[...] due to the absence of lexical markers typical to interrogative clauses"<sup>9</sup> in absolute interrogatives. However, FA has other strategies for the building of polar questions, which will be discussed in this work: (a) the use of the interrogative particle *a*, associated with a decreasing intonation, and (b) an increasing intonation with accentuation in the last mora, causing a change in the stress pattern of the last prosodic word of the utterance<sup>10</sup> through the implementation of a phrasal pitch-accent in the right edge of the sentence.

### THE PARTICLE *a*

The interrogative particle *a* in polar interrogative sentences can be seen in (5a). Its use is necessarily associated with a low (L) tone and descending intonation, marked in the sentence by the symbol ↓. The ascending intonation, marked by the symbol ↑, in turn, is compulsory when the particle is not used, as in (5b):

(5a)                    L  
                          |  
[bo 'be a ↓]?  
2<sub>SG</sub> to see Q  
'Did you see?'

(5b) [bo 'be ↑]?  
2<sub>SG</sub> to see  
'Did you see?'

<sup>7</sup> In the original: "¿Dicen que Juan vino ayer?" (Zamora, 2010, p. 107).

<sup>8</sup> In the original: "Dicen que Juan vino ayer." (Zamora, 2010, p. 107).

<sup>9</sup> In the original: "[...] por la ausencia de marcadores léxicos propios de las oraciones interrogativas" (Zamora, 2010, p. 536).

<sup>10</sup> Partially described by Zamora (2010, p. 527).

In (6a), we observe that the declarative sentence ends with a prosodic word with penultimate stress followed by an unstressed last syllable with a voiceless vowel. In this case, although the penultimate syllable is stressed, the prosodic word [pi'ʃɔxɔ] is realized as final stressed, due to the nature of the last voiceless vowel. On the other hand, in an interrogative sentence, such as (6b), we observe the strategy of stress change being applied, which generates the voicing of the final vowel [ɔ], previously devoiced. The stress change strategy will be discussed in section "The final stress". However, when the last prosodic word of the interrogative sentence ends with an unstressed vowel, an optional external vowel sandhi process may occur; in which there is the erasure of the unvoiced unstressed vowel and the addition of the particle **a** to the final prosodic word. In (6c), the interrogative particle occurs in a sentence without this sandhi process. Nonetheless, in (6d), it occurs along with the vowel sandhi process, that is, [pi'ʃɔxɔ] + [a] → [piʃɔ'xɔ a] → [piʃɔ'xa].

(6a) [bo be pi'ʃɔxɔ ↓]

2SG to see pixor<sup>11</sup>  
'You saw the pixor.'

(6b) [bo be piʃɔ'xɔ ↑ ]?

2SG to see pixor  
'Did you see the pixor?'

(6c) [bo be piʃɔ'xɔ a ↓ ]?

2SG to see pixor.ɔ  
'Did you see the pixor?'

(6d) [bo be piʃɔ'xa ↓ ]?

2SG to see pixor.ɔ  
'Did you see the pixor?'

The external vowel sandhi process is not applied when the last prosodic word of the utterance ends in a stressed syllable, that is, the process of sandhi can only occur with final devoiced unstressed vowels followed by a vowel-initiated word. This external vocalic sandhi is also blocked in Portuguese (Tenani, 2007) and in Lung'le (Agostinho, 2015), in certain prosodic contexts mainly related to stress.

(7a) [bo 'be a ↓ ]?

2SG to see ɔ  
'Did you see?'

(7b) \*[bo 'ba ↑ ]?

In sentences with WH-particles, such as in (8a), the presence of the interrogative particle **a** is ungrammatical, as shown in (8b, 8c).

<sup>11</sup> A traditional bread type.

- (8a) ['kenge sa 'bo ↑]?  
 who COP 2SG  
 'Who are you?'
- (8b) \*['kenge sa 'bo a ↑]?  
 \*['kenge sa 'ba ↑]?

The syntax of polar questions can shed light on the issue of prosodic words. When applying the strategy of stress change to the edge of the prosodic word, the polar interrogative receives an increasing intonation concomitant to the stress change. If the word ends in a devoiced vowel, the stress change implies its voicing. Thus, we observe that this strategy highlights the final vowel in the underlying phonological form, as, for example, in /pi'fɔx/, whose output can be [pi'fɔx] or [pi'fɔx̥]. If it ends in a glide, it receives the feature [+syllabic], being performed as a full vowel. Therefore, this evidence supports the phonetic status of glides, that is, the underlying forms of [ho'saj] and ['baj] are /ho'sai/ and /'bai/, respectively. Therefore, glides, as proposed by Araujo and Agostinho (2014), behave as consonants in the phonetic form only.

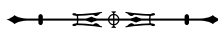
WH-interrogatives and polar interrogatives with the particle *a* have a decreasing intonation, whereas polar interrogatives without *a* have an increasing intonation. Thus, when there is some morphosyntactic indication that the sentence may be interrogative, as in this case with the use of WH or the particle *a*, the decreasing intonation is just the same as in declarative sentences. When there is no morphosyntactic evidence that the sentence is interrogative, increasing intonation and stress change are used to differentiate it from declarative sentences. This corroborates data from other languages, such as English, for example. According to Gordon (2014, p. 86-87), "Most languages realize their unmarked declarative utterances with a terminal pitch fall" and "Yes/no questions in English characteristically are realized with a final rise in pitch, thereby distinguishing them intonationally from declaratives and *wh*-questions". In this sense, the use of the particle *a*, associated with a descending intonation is an interesting characteristic for linguistic typology and African languages in general, as it reveals aspects of the phonology-syntax interaction, as well as the transmission of areal-related features in the genesis of Creole languages.

## FINAL STRESS

The second strategy for constructing polar questions in FA is the stress<sup>12</sup> of the last phonetic mora of the final prosodic word of the utterance associated with an increasing intonation. It is here analyzed as a consequence of a phrasal pitch-accent<sup>13</sup> linked to the last mora of the sentence. This final pitch-accent contributes to the increasing intonation found in these sentences. In this way, the accentuation pattern in the final mora is revealed when pre-final stress of a lexical item in declarative sentences is performed as final by the association of the phrasal pitch-accent (H\*) on the right, as can be seen in examples (9) and (10). In (9a), a neutral declarative sentence, the stress falls on the syllable ['ɔ] of the last prosodic word of the utterance. In (9a), the final vowel is voiceless because it is a non-stressed final. However, in

<sup>12</sup> We understand stress as an abstract category of prominence at the lexical level (Hulst, 2011) which has the potential to receive a pitch-accent (Bolinger, 1958 apud Gussenhoven, 2004). In this work, we will not address the lexical tone of FA, a controversial category still little described for this language. Post (2013) stated that, although some words differ in tone (high and low - H and L), FA seems to be no longer a tonal language. Zamora (2010) considered FA as a language with an accentual pattern (stress-accent), although the author considers pitch as a distinctive acoustic correlate in this language.

<sup>13</sup> We understand pitch-accent here as it is addressed by intonational and autosegmental studies (Hulst, 2011).





the interrogative sentence with the same lexical elements, in (9b), the final phrasal stress falls on the syllable ['xɔ]. In (9b), therefore, due to stress change, the final vowel is no longer voiceless.

- (9a) [bo kum pi'fɔxɔ ↓]  
 2SG to eat pixor  
 'You ate pixor.'

- (9b) [bo kum pi'fɔ'xɔ ↑?]  
 2SG to eat pixor  
 'Did you eat pixor?'
- H\*  
|

In (10a and 11a), in turn, the last prosodic word of the neutral declarative sentence ends with a glide. In the interrogative counterparts (10b and 11b), stress forces the final element to be realized as [i], undoing the diphthong in the phonetic form and transforming the glide into a vowel of an onsetless syllable.

- (10a) [bo be ho'saj ↓]  
 2SG to see that  
 'You saw that.'

- (10b) [bo be hosa'i ↑?]  
 2SG to see that  
 'Did you see that?'
- H\*  
|

- (11a) [mɛnɛ 'baj ↓]  
 Manuel to go  
 'Manuel went away.'

- (11b) [mɛnɛ ba'i ↑?]  
 Manuel to go  
 'Did Manuel go away?'<sup>14</sup> (Zamora, 2010, p. 537, our translation)
- H\*  
|

This strategy is particularly interesting because the final phrasal stress is not commonly realized in the last syllable, as proposed by Gordon (2014). According to the author, most languages in the world associate the phrasal pitch-accent to tonic syllables, which sets up a type of bottom-up pitch-accent system. According to this typology, FA would be a top-down pitch-accent language, since the lexical stress in words at the end of a sentence may be different from what

<sup>14</sup> In the original: "¿Se fue Manuel?" (Zamora, 2010, p. 537).

occurs in other positions (Gordon, 2014), as shown above. That is, the phrasal pitch-accent can be associated with an unstressed syllable. All languages with this standard analyzed by Gordon (2014) repel the final pitch-accent on the right edge of the sentence. It usually occurs in the pre-final or the antepenultimate syllable. In this sense, FA differs from the standard since the phrasal stress occurs in the last mora on the right. Gordon (2014, p. 96) suggests that,

Interestingly, another logically possible system that appears to be far less widely attested, if at all, is the inverse of these patterns, in which the pitch accent is attracted to rather than repulsed by the right edge. In this type of system, word-level stress would fall on a pre-final syllable, but the phrasal pitch accent would dock on a final syllable.

Thus, FA contributes to the validation of the existence of this type of system, which, according to Gordon (2014), is logically possible, but has not been tested yet.

### INTERROGATIVE PARTICLES IN THE GULF OF GUINEA AND AFRICAN SUBSTRATE

After the formation of the Proto-Creole of the Gulf of Guinea, its speakers separated geographically, which resulted in the four languages (Ferraz, 1979; Bandeira, 2017): Santome, Angolar and Lung'le (spoken in São Tomé and Príncipe), and FA. Lung'le, as FA, has similar strategies for the formation of interrogatives, including a final interrogative particle **a** (Maurer, 2009; Agostinho, 2015), as shown in (12). In (12a), there is a polar question with a decreasing intonation. However, unlike FA, the particle **a** can be realized concomitantly with WH-words, as in (12b) and (12c). Nonetheless, in relation to the sandhi process<sup>15</sup>, it occurs when the word before the particle **a** ends in an [a] vowel, resulting in a long vowel [a:]<sup>16</sup>, as we can see in (12c). The sandhi process can optionally occur when there are other vowels preceding **a**, as we can see in (12d), where the words **ve** 'to see' and **wε** 'to go' end in a mid vowel.

(12a) [tʃi me'se a ↓]?

2<sub>SG</sub> to want Q

'What do you want?'<sup>17</sup>

(12b) ['kwa tʃi me'se a ↓]?

what 2<sub>SG</sub> to want Q

'What do you want?'<sup>18</sup>

(12c) [ku'min ji'kɔla sa 'ta: ↓]?

where school COP to be.Q

'Where is the school?'<sup>19</sup>

(12d) [kumin tʃi wa ↓]? (wε + a → wa)

where 2<sub>SG</sub> to go.Q

'Where did you go?' (verbal information)<sup>20</sup>

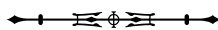
<sup>15</sup> For details, see Agostinho et al. (2012).

<sup>16</sup> In Lung'le, vowel length is phonological (Günther, 1973; Maurer, 2009; Agostinho, 2015, 2016).

<sup>17</sup> Data were collected by Ana Livia Agostinho during field work carried out on Príncipe island in 2010.

<sup>18</sup> Data were collected by Ana Livia Agostinho during field work carried out on Príncipe island in 2010.

<sup>19</sup> Data were collected by Ana Livia Agostinho during field work carried out on Príncipe island in 2010.



In addition, the fact that the particle **a** occurs in FA and Lung'le as **a**, and as **an** in Santome, as we see in (13), shows that this particle or a similar form was probably present in the PGG, since an independent development by chance would have been unlikely.

- (13) **Bô tendê an?**  
 2<sub>SG</sub> to understand Q  
 'Did you understand?' (Araujo; Hagemeyer, 2013, p. 24)

FA, like its sister languages, has a Niger-Congo substrate, more specifically Edoid (which form part of the Benue-Congo West group), Bantu, and Kwa languages (Hagemeyer, 2011). However, Benue-Congo languages of the Bantu group, such as the Kikongo and Kimbundu, have no interrogative particles (Chatelain, 1888; Nzwanga, 2007). Thus, according to Nzwanga (2007), yes-no questions in Kikongo are realized with an increasing intonation, while WH-questions are described as performed 'with or without intonation', which seems to mean that there is a possibility of an increasing intonation for WH. Volta-Niger languages may present interrogative particles, as occurs in Bini, Edo, and Ewe (Dryer, 2013a, 2013b). Figure 3 presents general interrogative strategies in a considerable number of African languages. Interrogative particles are common in the Atlantic region of Central Africa, although they also occur outside this region.

Figure 4 presents languages that have final particles for yes-no questions. We observe a concentration of languages with final polar questions particles in the region near the Niger Delta, north of the Gulf of Guinea. Hagemeyer (2009) showed that the languages of the Niger Delta region were present in the formation of the Proto-Creole of the Gulf of Guinea, although, their influences can be noted more clearly in Lung'le. Thus, substrate language areal features influences seem to have played a role in the Proto-Creole and in FA, as can be evidenced by the existence of final polar particles in these languages. Hence, the linguistic analysis presented here supports the hypothesis of the influence of the languages of the Niger Delta region in the formation of Portuguese-based Creole languages because the final interrogative particle can be associated with an area-related feature.

At the same time, most languages use a rising intonation for yes-no questions, which is not the case in FA. Clements and Riiland (2007, p. 75) state that:

While many of the question markers found in Africa are commonly used elsewhere in the world, one type appears to be unique, or near-unique, to this continent: this consists of markers that do not involve high pitch or pitch raising. No less than thirty-four languages in our sample – almost half – are reported to have question markers of this type.

The authors found a falling intonation or a falling tone in languages from the Sudanic belt, including Kwa and Edoid languages. This feature was not found in any Bantu language, which might be related to the limitations of the analyzed database. An open-vowel question marker, usually [a], was found in Kwa (the Gbe languages Ewe, Fon, Gun etc.) and Edoid (Engenni) languages. We can observe the distribution of different 'lax'<sup>21</sup> markers of yes-no questions in the Sudanic belt in the following map (Figure 5).

<sup>20</sup> Fieldwork done by Ana Livia Agostinho in Sao Tomé and Príncipe, in 2019.



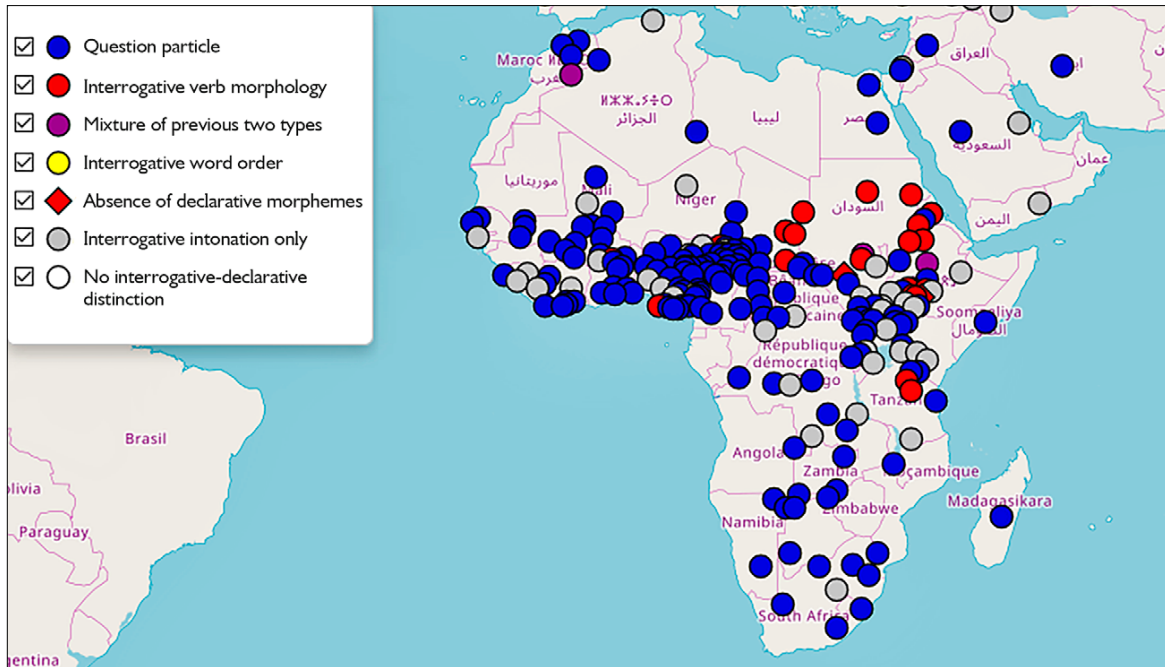


Figure 3. Polar questions in Africa. Source: Dryer and Haspelmath (2013).

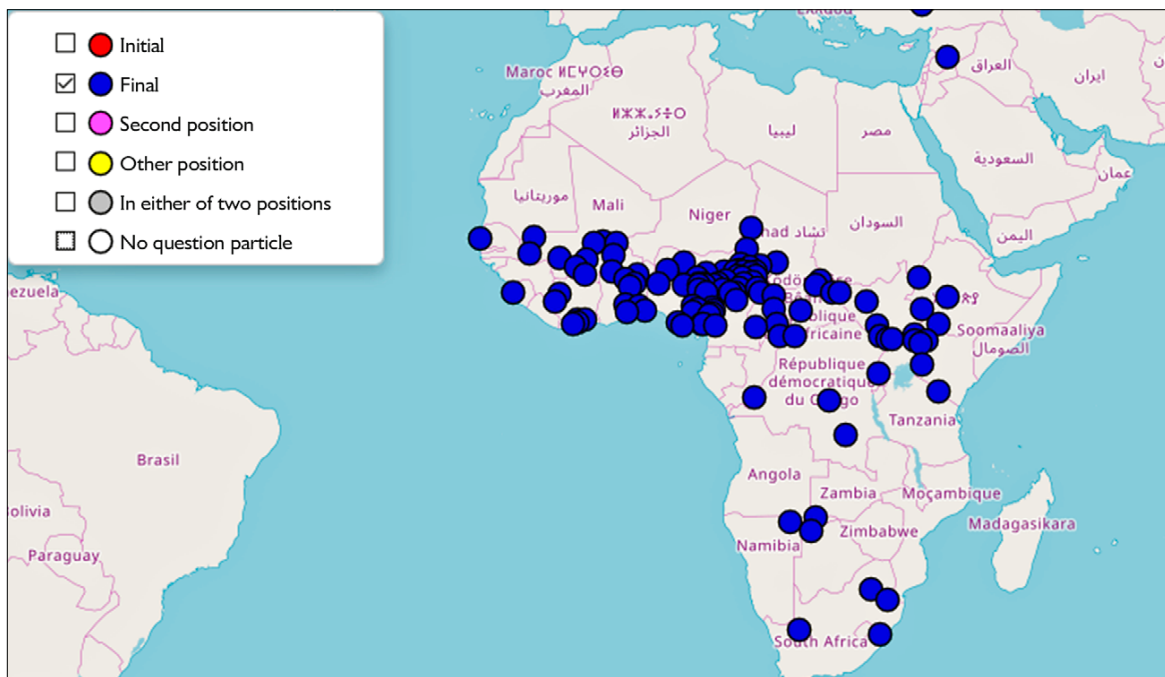


Figure 4. Final particles of polar questions. Source: Dryer and Haspelmath (2013).



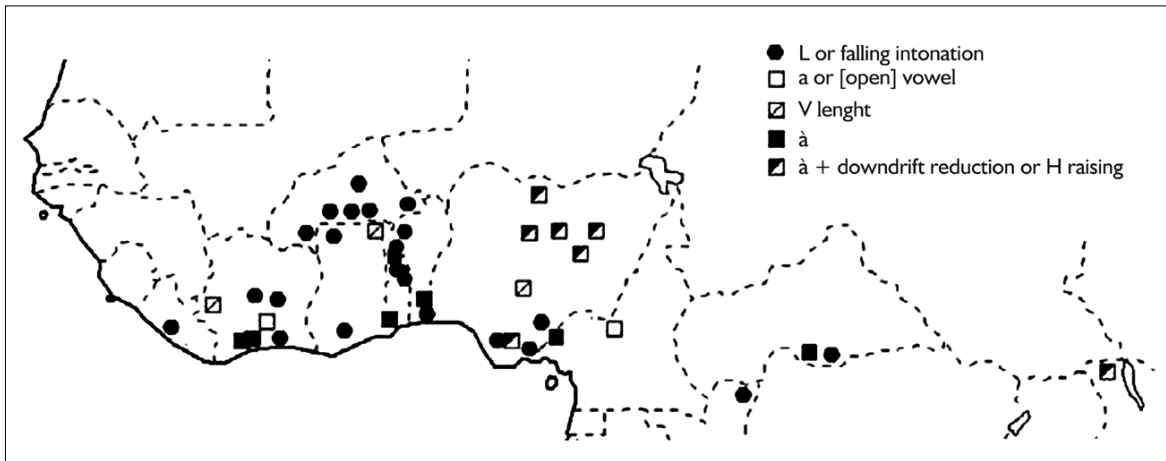


Figure 5. Distribution of 'lax' question prosody markers, which occur in 41 of a sample of 75 African languages for which relevant information was found. Source: Clements and Rialland (2007, p. 79, Map 3.7 in the original).

There seems to be a correlation between falling intonation and the low-tone marker [a] found in these languages and that found in FA and Lung'le. Again, these markers do not occur in any Bantu language in the database, although the authors claim this may occur because of the limited database and that these features might be present or even common in these languages as well (Clements; Rialland, 2007, p. 79).

In sum, we suggest that the interrogative particle *a* was already present in the Proto-Creole of the Gulf of Guinea with the same function, based on the reflexes found in FA, Lung'le and Santome, and that it is an areal feature from the Sudanic belt. In addition, the fact that these types of markers are only found in Africa evidences the influence of substrate languages in the Gulf of Guinea Creoles.

### FINAL REMARKS

The present work aimed to describe and discuss unpublished data of FA that contribute to studies on particles based on phonological and syntactic properties of polar questions. As expected, the heterogeneous behavior of this grammatical class is also manifested in FA. Nevertheless, we demonstrated that the occurrence of a final particle *a* in FA is one of the strategies for building polar interrogatives. Thus, the particle's phonetic form can be associated with prosodic and syntactic elements as well. Therefore, the manifestation of the particle occurs at the right edge of a sentence, and in the interaction between pitch-accent, stress, and intonation. Consequently, in relation to polar interrogatives, the data of FA point to an interface between the phonology, prosody, and syntax. Although predicted by Gordon (2014), FA has a pattern of pitch-accent interaction that was not previously documented. It is also noted that the particle *a* of these polar interrogatives may be related to the influence of the substrate of Niger-Congo languages, especially from the Sudanic belt, and it was probably present in the Proto-Creole of the Gulf of Guinea with the same function.

<sup>21</sup> "The cluster of properties just reviewed – open vowels, L tones, sentence-final falling intonation, and lengthening, often in combination – constitutes a syndrome of what might be called lax features, centering around a relaxation of the vocal cords inducing pitch lowering and the presence of low vowels, bearing intrinsically low phonetic pitch" (Clements; Rialland, 2007, p. 79).

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## ABREVIATIONS

2SG	second person
COP	copula
Q	interrogative sentence marker

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