

PHONETIC-PHONOLOGICAL ASPECTS OF MODERN ANGOLAR¹

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- **ABSTRACT:** This work addresses Angolar, a native language of São Tomé and Príncipe. It aims to (i) investigate its phonetic-phonological aspects, and (ii) compare the research results with Maurer (1995) and Lorenzino (1998), two of the first descriptions. The *corpus* is constituted by 3,000 items collected in two field trips (in 2014 and 2018) to the community of São João dos Angolares in São Tomé. Regarding the consonants, we argue that Angolar has sixteen phonemes: /p, b, t, d, k, g, f, v, θ, ð, l, m, n, ɲ, j, w/. This study differs from the analyses of Maurer (1995) and Lorenzino (1998) because it considers [t̪], [d̪] and [r] as allophones. On the other hand, all three studies agree as for the phonological status of interdental fricatives. Regarding the vowel inventory, Angolar has fourteen oral vowels: /i, e, ε, a, ɔ, o, u, ii, ee, εε, aa, ɔɔ, oo, uu/. Nasal realizations are possible. Finally, regarding syllable structure, there is a larger number of syllable templates, including a possibility of realization of complex onsets. With this study, it is possible to know more about Angolar phonology, to shed new light on a still little studied language, and to contribute to the area of Contact Linguistics.
- **KEYWORDS:** modern Angolar; vowel inventory; consonant inventory; syllabic structure.

Introduction

This study seeks to investigate phonetic-phonological aspects of Angolar, one of the three indigenous languages of the Republic of São Tomé and Príncipe (Fig. 1) alongside Santome and Lung'Ye. Regarding the geographical location of its community of speakers, Angolar is spoken on the island of São Tomé. Of the absolute population

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of that country (173,015), 11,377 people speak Angolar as a first or second language (INE, 2013). Its speakers live in the coastal areas of São Tomé in the district of Caué, between Ribeira Afonso and Porto Alegre, and on the northwest coast, between Neves and Bindá in the district of Lembá. In addition, close to the city of São Tomé, there are small groups of speakers in São João da Vargem, Pantufo, and Praia Melão (CEITA, 1991).

Regarding the genesis of the Angolar ethnic group, there are three explanatory and simultaneously excluding hypotheses (SEIBERT, 2004). The first hypothesis, of popular origin and widespread among the local population, formulated in the 19th century, argues that the Angolar are descendants of the survivors of a shipwreck of a slave ship coming from Angola in the mid-16th century. The second hypothesis states that the Angolar people are indigenous inhabitants of São Tomé and for that reason they were already present on the island by the time the Portuguese arrived. Finally, the third hypothesis, known as the maroon hypothesis, advocates that the ancestors of the Angolar were former captives who fled to previously uninhabited areas and started a new community that later expanded and adopted elements of the newly escaped people from the fields and cities around the 16th and 17th centuries. Based on research of genetic comparisons between the three languages, Ferraz (1974) demonstrated that Angolar is linguistically related to Santome and Lung'le, discarding the hypotheses of a shipwreck and that the Angolar already inhabited São Tomé before the Portuguese arrived. The author then posited that the fugitive slaves were exposed to the formative phases of the Proto-Creole. In this sense, the linguistic contact during the process of populating the island of São Tomé resulted in a language different from that of the colonizer, i.e., the Proto-Creole of the Gulf of Guinea (GÜNTHER, 1973; FERRAZ, 1974, 1979; BANDEIRA, 2017), of which Angolar later branched out.

Image 1 – Map of São Tomé and Príncipe



Source: Mapmaker (2016).

Although it is spoken by 6% of the country's total population, this language has not been the object of systematic descriptive studies. The pioneering study was published more than two decades ago: *L'angolar. Un créole afro-portugais parle à São Tomé. Notes de grammaire, textes, vocabulaire* (MAURER, 1995). Three years later, another study was conducted: *The Angolar creole Portuguese of São Tomé: its grammar and sociolinguistic history* (LORENZINO, 1998). Because of this, in 2014 and 2018 two field surveys were conducted in the community of São João dos Angolares, a small village in the district of Caué, to collect recent data on Angolar. Thus, the present analysis has two primary objectives: (i) to investigate phonetic and phonological aspects of modern Angolar, and (ii) to discuss the convergent and dissonant points in the comparison of collected samples with the descriptions presented by Maurer (1995) and Lorenzino (1998). This study has the following structure: initially, we approach the materials and methods considered in the analysis. Subsequently, we present considerations on Angolar made by Maurer (1995) and Lorenzino (1998). Then, we discuss and compare the data with aspects the aforementioned authors pointed out. For that, we present an analysis of the Angolar consonantal inventory. Then, we do the same with the Angolar vowel inventory, and finally we make remarks regarding the syllable structure of the language. We recognize that presenting discussions about the consonant and vowel systems and the syllable in Angolar in a single study is an audacious decision given its wide scope. However, we chose to address these issues since, as mentioned, the phonology of that language has not been the focus of much research and the results presented here can instigate further studies. Finally, we present our final considerations.

Materials and methods

For analysis purposes, this research considered as a starting point a list of about 1,600 words taken from Maurer's work (1995). *L'angolar. Un créole afro-portugais parle à São Tomé. Notes de grammaire, textes, vocabulaire* is one of the first and few descriptive studies on Angolar that performs an almost complete morphosyntactic analysis (there are thirty pages on phonetics and phonology). Although the list of 1,600 items of Maurer (1995) includes the basic lexicon of Angolar and in some cases tonal information, the data present an orthographic notation with no phonetic transcriptions or phonological notations, and above all no references to the position of the primary accent. In addition, audio materials from Angolar had not been available for consultation so far.

Therefore, to conduct this study, two field surveys were undertaken at the beginning of 2014 and the end of 2018 in the community of São João dos Angolares, São Tomé. The two field trips extended up to two months, during which it was possible to record speakers. In addition to interviews, community stories were recorded. Tests with minimal pairs, grammaticality judgments, and tests of subjective reactions were conducted to confirm whether a given realization was possible or not so that aspects regarding the

phonology of the language could be observed.² During field research, it was possible to record bilingual speakers (Portuguese and Angolar) and monolingual speakers, in general the elderly, but also children.³ Recording these speakers was important since it was possible to investigate Angolar in its vernacular state and in its generational interface.

After data collection, the process of transcribing the audio material began. From the collection, a small dictionary was created with about 3,000 entries (ARAÚJO; BANDEIRA, to appear) and phonetic transcriptions. This dictionary is a source of this study. Subsequently, after the first stages were completed, the data analysis process began. Some conflicting points were observed in the comparison of samples with the descriptions of Maurer (1995) and Lorenzino (1998). Given this, we address such converging and discordant aspects, highlight similarities, and analyze possible reasons for the differences.

Previous studies on Angolar

Regarding its specificities, Angolar has a portion of Bantu lexicon that is not found in the other indigenous languages of São Tomé and Príncipe, such as the system of cardinal numerals, which only resembles Lung'le⁴ and Santome up to the number three; from the number four, Angolar has items similar to Kimbundu (CHATELAIN, 1888-1889; MAURER, 1995; LORENZINO, 1998; BANDEIRA, 2017), as Table 1 shows.

² Some allophones already appeared in the recordings, such as those between [d] and [r], [s] and [θ], and [z] and [ð] (discussed in the data analysis section). In addition, in cases in which there were doubts about the occurrence of a segment, requests for judgments were also made to confirm it. This was highly relevant, for example, for the analysis of interdental.

³ Differences were found between bilingual and monolingual informants regarding the judgment of some segments. Bilingual speakers, for example, fluctuated more in terms of interdental fricatives, which were categorical among monolingual speakers.

⁴ There is no consensus in the literature addressing Lung'le phonology (GÜNTHER, 1973; TRAILL; FERRAZ, 1981; MAURER, 2009; AGOSTINHO, 2015; AGOSTINHO; HYMAN, 2021) on the classification of its word-prosodic system. Günther (1973) considered that it is a tonal language with three tones, Traill and Ferraz (1981) classified it as a free pitch-accent language, Maurer (2009) analyzed it as a tonal language with two tones, Agostinho (2015) proposed a mixed tone and stress system, and Agostinho and Hyman (2021) argues for a privative tonal system. In this paper, we assume the analysis of Agostinho and Hyman (2021). In relation to Angolar, Maurer (1995) and Lorenzino (1998) proposed that Angolar has a lexical tone, but they did not present an in-depth phonological analysis. In this work, we do not address the description of the word-prosodic system of Angolar, which will be the focus of future research, and we use the accent mark here to indicate lexical prominence.

Table 1 – Cardinal numbers in the languages of São Tomé and Príncipe and in Kimbundu

Numeral	Angolar	Santome	Lung'le	Kimbundu
One	['ũɛ] ⁵	['ũɛ]	[úa]	<moxi>
Two	['dosɔ]	['dosɔ]	[dósu]	<lari> ou <ladi>
Three	['te:ʃi]	['tleʃi]	[tɛ:ʃi]	<tatu>
Four	['kwɔnɛ]	['kwatlo]	[kwátu]	<uana>
Five	[ta'no]	['ʃiko]	[ʃíku]	<tanu>
Six	[sa'mãndõ]	['seʃi]	[séj]	<samanu>
Seven	[sãba'di]	['sete]	[sétʃi]	<sambuadi>
Eight	[na'ke]	['woto]	[wétu]	<nake>
Nine	[u'vwɔ]	['novɛ]	[nóvɛ]	<ivua> ou <vua>
Ten	['kwĩ]	['deʃi]	[déʃi]	<kuinii> ou <kuinhi>

Source: Data modified from Bandeira (2017).

By analyzing all words of African etymon belonging to Angolar, 92% are words derived from languages of the Bantu group, 6% from Edoid etymon, and 2% from Yoruba and other languages (LADHAMS, 2007). The great Bantu influx into Angolar is due to the change from 1520 of the region where the African slave population was kidnapped during the plantation time in São Tomé: it moved from Benin, where languages of the Edo group were spoken (therefore the 6%), to Bantu zones (firstly Congo and shortly after Angola), where Kikongo and Kimbundu were spoken among other Bantu languages (HAGEMEIJER, 2009). Thus, Angolar, which is the result of PGG speciation within a maroon community, developed with less pressure from the Portuguese element due to its relative isolation. Angolar was also implemented with Bantu contributions due to the participation of former fugitive slaves from the Bantu zones. The Yoruba-etymon items can be explained because captives were originally traded in the Itisikiri region, whose language is close to Yoruba. In addition, due to the importance of Yoruba as a regional language, it may have been a second language for some Edo speakers, as Ladhams (2007) points out.

⁵ Some considerations about the notation used here: the items of Angolar and other indigenous languages of São Tomé and Príncipe (Santome and Lung'le) are presented in three ways: (i) according to their phonetic performance, (ii) according to their phonological representation, and (iii) in line with the official spelling of the language (BANDEIRA, 2017). The first representation is indicated by square brackets [], as in ['ba:θɔ] 'arm' in Angolar. The primary accent was marked - only in phonetic transcriptions - by the symbol (˘) preceding the tonic syllable, as in [˘'budɔ] 'stone' in Angolar. The gloss is indicated after the given word between single quotation marks (example: 'stone') The symbols used in the transcription are in accordance with the International Phonetic Alphabet (IPA) of the *International Phonetic Association*, revised in 2015. The phonological representation, in turn, is identified by slashes / /, as in /lala/ 'to grate' in Santome. The representation through the official spelling is indicated in bold, as in **dhumbo** 'mustache' in Angolar. The use of such spelling obeys the rules of *Unified Alphabet for the Native Languages of São Tomé and Príncipe* (ALUSTP) to represent Santome, Lung'le, and Angolar alphabetically. Although languages are mutually unintelligible, they share a substantial number of lexical and grammatical properties, which justifies a unified spelling (ARAUJO; AGOSTINHO, 2010).

Although Angolar has a robust presence of words of African origin in its vocabulary (especially Bantu), its basic lexicon is predominantly of Portuguese origin. By counting the list of the nuclear lexicon of the native languages of São Tomé and Príncipe (Angolar, Santome, Lung'le), Hagemeyer (2009) showed that Angolar has an approximate percentage of 82% of lexicon of Portuguese origin, along with Santome and Lung'le, in which it represents 93% of the lexicon. The greatest participation of items of Portuguese etymon in the common lexicon of those languages was corroborated by Bandeira (2017), such as the items listed in Table 2 that refer to human anatomy. These are words from the basic vocabulary whose presence can be traced to the formation period of the three languages.

Table 2 – Items of Portuguese etymon in Angolar, Santome, and Lung'le

Portuguese	Angolar	Santome	Lung'le
<i>Braço</i> ('arm')	['ba:θɔ]	['blasɔ]	[ubã:su]
<i>Boca</i> ('mouth')	['bokɛ]	['bɔkɛ]	[ubúka]
<i>Dente</i> ('tooth')	['detʃi]	['dɛtʃi]	[idítʃi]
<i>Osso</i> ('bone')	['ɔθɔ]	['ɔsɔ]	[ósu]
<i>Coração</i> ('heart')	[kɔ'θɔ]	[klo'sɔ]	[kɔsɛ]
<i>Pé</i> ('foot')	[ɔ'pɛ]	[ɔ'pɛ]	[ɔpɛ]

Source: Data modified from Bandeira (2017).

Regarding the establishment of the phonological inventory of Angolar, there are two relatively recent proposals. The first is that of Maurer (1995) and the second that of Gerardo Lorenzino (1998) in his doctoral thesis. According to Maurer (1995) and Lorenzino (1998), Angolar has 12 vowel phonemes, seven of which are oral vowels and five of which are nasal vowels. Table 3 presents the vowels of Angolar according to both authors.

Table 3 – Angolar vowels according to Maurer (1995) and Lorenzino (1998)⁶

	Maurer (1995)	Lorenzino (1998)
<i>Oral vowels</i>	/a e e i ɔ o u/	/a e e i ɔ o u/
<i>Nasal vowels</i>	/ĩ ẽ ã õ ù/	/ĩ ẽ ã õ ù/

Source: Authors' elaboration.

According to Maurer (1995), the phonological system of Angolar consists of twenty-five phonemes. However, this system is not stable in several aspects, namely

⁶ The transcriptions with other phonetic alphabets have been adapted to the International Phonetic Alphabet (IPA).

- a) nasal vowels;
- b) nasal sounds;
- c) prenasalized consonants;
- d) the opposition between the consonants /r/ and /l/.

The author attributes such an instability in part to the contact with Santome and in part to a certain level of contact with Portuguese. In addition to the twenty-five phonemes, Angolar would present the phones [ʃ] and [ʒ] in borrowed words (MAURER, 1995). In the words of Maurer (1995, p.38), [d] would be a “more or less free” variant of [r]. Table 4 shows the consonants as proposed by both authors:

Table 4 – Angolar consonants according to Maurer (1995) and Lorenzino (1998)

	Maurer (1995)	Lorenzino (1998)
Plosive	/p b t k g/	/p b t d'k g/
Fricative	/f v θ ð/	/f v s z θ ð/
Affricate	/tʃ dʒ/	/tʃ dʒ/
Liquid	/l r/	/l r/
Nasal	/m n/	/m n ɲ ɳ/
Prenasalized⁷	mp mb nd ndʒ ŋk ŋg nf	mb mp ŋk ŋg nf nt nʒ
Allophone	[dʃ ʒ]	[ʃ ʒ]
Glide	/j w ʝ/	/j w/

Source: Authors' elaboration.

While Maurer (1995) proposed a consonant inventory with twenty-five phonemes, Lorenzino (1998) presented a slightly smaller consonant inventory consisting of twenty-two phonemes. The main differences to Maurer's analysis are: /d/ is a phoneme (treated as an allophone by Maurer) and the consonants /ɲ/ and /ɳ/ are distinctive in the analysis undertaken by the author (LORENZINO, 1998). Also, Maurer (1995) pointed out the existence of allophones for the following phonemes:

- /n/ - realized as [m] before [m], [b], and [p]; [ɲ] before [g] and [k]; and [n] in all other cases.
- /θ/ - realized as [s] before [i].
- /ð/ - realized as [z] before [i].

Similar as to what Maurer (1995) observed, Lorenzino (1998) stated that Angolar has three syllabic nasals in complementary distribution: [m] before /m/ and /p/ (**mme** 'to eat'), [ɲ] before /k/ and /g/ (**nkila** 'tail'), and [n] in all other contexts (**nfara** 'pillow').

⁷ From the description of the authors, it is not clear whether such segments would be phones or phonemes of the language.

Regarding the syllabic structures, Table 5 shows the syllabic patterns considered by Maurer (1995) and Lorenzino (1998) as possible in Angolar.

Table 5 – Syllabic structures of Angolar according to Maurer (1995) and Lorenzino (1998)

	Maurer (1995)	Lorenzino (1998)
V	a PRO ⁸	a PRO
VV	ôu ‘to sew’	---
CV	pê ‘to place’	ta TMA ⁹
CVV	fiira ‘wound’	hɛɛga ‘belly’
CGV	---	kwa ‘thing’
VC	anda ‘to walk’	---

Source: Authors’ elaboration.

In the next section, after a brief analysis of studies that led to the establishment of a phonological inventory for Angolar, we argue for a different inventory from those presented so far.

Data analysis

The description of the phonological inventory of Angolar below was based on the analysis of data collected and transcribed during fieldwork. At the same time, a review of the descriptions of Maurer (1995) and Lorenzino (1998) served as a counterpoint to this study.

In the next subsections, we discuss relevant issues such as (i) the allophonic status of [t̃] and [d̃ʒ], (ii) the phonemic status of /p/, (iii) the establishment of a nasal consonant without a defined place of articulation represented by /N/, (iv) the existence of nasal or nasalized vowels, and (v) the definition of syllable structure and restrictions.

We begin with the phonological inventory of consonants.

Consonant inventory of Angolar

Regarding the consonant inventory of Angolar, our analysis argues that the language has sixteen consonant phonemes: /p, b, t, d, k, g, f, v, θ, ð, l, m, n, ɲ, j, w/. In the next subsections, we briefly present the realizations and oppositions of each consonant that justified the establishment of this phonemic inventory.

⁸ Indefinite pronoun.

⁹ Tense, mode, and aspect particle.

Plosive

Angolar has six plosive consonants in its phonemic inventory: two bilabial plosive consonants /p/ and /b/, two alveolar plosive consonants /t/ and /d/, and two velar plosive consonants /k/ and /g/. Table 6 demonstrates examples of minimum pairs of these consonants.

Table 6 – Minimum pairs – plosive consonants

Bilabial		Alveolar		Velar	
/p/	/b/	/t/	/d/	/k/	/g/
/p/ [pa'ga] 'to pay'	/b/ ['ba:tɔ] 'cheap'	/t/ ['taʒɪ] 'afternoon'	/d/ [kɔ̃'de] 'to hide'	/k/ [ʃi'ka] 'to push'	/g/ [lɔ̃'ga] 'bowl'
/b/ [ba'ga] 'to break'	/p/ ['pa:tɔ] 'plate'	/d/ ['daʒɪ] 'age'	/t/ [kɔ̃'te] 'to hate'	/g/ [ʃi'ga] 'to arrive'	/k/ [lɔ̃'ka] 'to snore'
/p/ ['pemɐ] 'Palm tree'	/b/ ['balɐ] 'cannon ball'	/t/ [ko'ta] 'to cut'	/d/ [da'da] 'fish'	/k/ ['katɐ] 'letter'	/g/ [be'ge] 'to crush'
/m/ ['memɐ] 'two'	used as a pestle' /v/ ['valɐ] 'stick'	/θ/ [ko'θa] 'to scratch'	/n/ [na'na] 'to spoil'	/p/ ['patɐ] 'paw'	/b/ [be'be] 'to drink'

Source: Data from Bandeira (2017).

Nasal

Angolar has in its phonemic inventory three nasal consonants: a labial nasal consonant (/m/), an alveolar nasal consonant (/n/), and a palatal nasal consonant (/ɲ/), as observed in the minimal pairs listed in Table 7.

Table 7 – Minimal pairs – nasal consonants

Labial	Alveolar	Palatal
/m/	/n/	/ɲ/
/m/ ['pemɐ] 'Palm tree'	/n/ [te'na] 'to suffice'	/ɲ/ [ku'ɲa] 'to fall, to wound'
/n/ ['penɐ] 'feather'	/t/ [te'ta] 'bark, peel'	/m/ [ku'ma] 'godmother of one's child'
		/n/ [ku'na] 'to plant'
/m/ ['malɐ] 'gut'	/n/ ['na] 'no'	/ɲ/ [ɲe'ga] 'to hang'
/b/ ['balɐ] 'cannon ball used as a pestle'	/d/ ['da] 'to give'	/n/ [ne'ga] 'to deny'

Source: Data from Bandeira (2017).

Alveolar lateral

Angolar has in its phonemic inventory solely one lateral consonant: the alveolar lateral consonant (/l/). Table 8 shows some minimal pairs.

Table 8 – Minimum pairs – lateral consonant

Alveolar lateral
/l/
/l/ [lẽ'ba] ‘to cover’
/t/ [tẽ'ba] ‘tamba, fish (sp.)’
/l/ [ˈlatɛ] ‘tin’
/d/ [ˈdatɛ] ‘quantity’

Source: Data from Bandeira (2017).

Fricatives

In Angolar there are four fricative consonants: two labial consonants, one voiceless /f/ and one voiced /v/, and two interdental consonants, one voiceless /θ/ and one voiced /ð/. Table 9 shows some minimal pairs.

Table 9 – Minimal pairs – fricative consonants

Labial		Interdental	
/f/	/v/	/θ/	/ð/
/f/ [fɛ'ga] ‘to rub’	/v/ [vu'na] ‘stool’	/θ/ [ˈba:θɛ] ‘a measurement unit’	/ð/ [ˈða] ‘already’
/v/ [ve'ga] ‘to take’	/f/ [fu'na] ‘to wrap’	/t/ [ˈba:tɛ] ‘cockroach’	/θ/ [ˈθa] ‘to be’
/p/ [pe'ga] ‘to grab, to nail’	/v/ [ˈvalɛ] ‘stick’		/ð/ [ˈðakɛ] ‘jack-fruit’
	/b/ [ˈbalɛ] ‘cannon ball used as a pestle’		/f/ [ˈfakɛ] ‘knife’

Source: Data from Bandeira (2017).

Approximants

In Angolar there are two approximant consonants: a voiced labial approximant consonant /w/ and a voiced palatal consonant /j/. Table 10 exhibits minimal pairs.

Table 10 – Minimum pairs – approximant consonants

Labial	Palatal
/w/	/j/
/w/ ['we] 'eye'	/j/ [ko'je] 'to choose'
/b/ ['be] 'to see'	/ð/ [ko'ðe] 'to knit'
/w/ ['awɐ] 'water'	/j/ [ta'ja] 'to cleave'
/ð/ ['aðɐ] 'wing'	/t/ [ta'ta] 'to treat'

Source: Data from Bandeira (2017).

After demonstrating the phonemic status of the sixteen consonants of Angolar, we now discuss the similarities and divergences between the present study and the study of Maurer (1995) and Lorenzino (1998). The later sections discuss interdental consonants and the phonemic or allophonic status of the rhotic [r].

Angolar consonant inventory: similarities and divergences

By observing data in general and the survey of minimum pairs above, we posit that Angolar has sixteen consonant phonemes (see Table 11): /p, b, t, d, k, g, f, v, θ, ð, l, m, n, ɲ, j, w/.

Table 11 – Angolar consonants

	Labial	Alveolar	Palatal	Velar
Plosive	p b	t d		k g
Fricative	f v	θ ð		
Nasal	m	n	ɲ	
Lateral		l		
Tap				
Approximant	w		j	

Source: Adapted from Bandeira (2017, p.209).

However, according to Maurer (1995), Angolar has twenty-five phonemes: /p, b, t, k, g, f, v, θ, ð, [t̪], [d̪], l, r, m, n, mb, mp, nd, nd̪, ŋk, ŋg, nf, j, w, ʃ/.¹⁰ The main differences between Maurer's descriptions and those presented by this study are related to the following issues regarding consonants: (i) the allophonic status of [t̪] and [d̪], (ii) the phonemic status of /ɲ/, (iii) the establishment of a nasal consonant without a defined place of articulation represented by /N/, and (iv) the allophonic status of [r],

¹⁰ As mentioned, it is not clear whether Maurer (1995) considers prenasalized phonemes.

which will be discussed later. As for the analysis of Lorenzino (1998), the primary differences refer to the allophonic status of [s] and [z], [tʃ] and [dʒ], and [r]. These aspects have already been pointed out for Maurer's (1995) analysis. Another issue in which the analysis proposed here differs from that of Lorenzino (1998) is the status of the velar nasal, which is not considered a phoneme since we found no minimal pairs. A convergent point of the three studies is the presence of interdental fricative consonants in the phonological inventory of Angolar, an aspect to be addressed in the following section, which will also discuss the status of [s] and [z]. The divergent aspects mentioned in (i), (ii), and (iii), in turn, are addressed in this section.

The first difference between the analyses refers to the attribution of the phonemic character to the consonants [tʃ] and [dʒ], which, in this study, are not considered phonemes, as advocated by Maurer (1995) and Lorenzino (1998), but allophones, since their realization is restricted to contexts in which the consonants /t/ and /d/ are followed by a high coronal vowel /i/ or by the approximant /j/, as in (01):

- (01) a. [ka'tʃje] 'maybe'
 b. [fɔ'tʃi] 'temple'
 c. [mɛ:'dʒjɔkɛ] 'manioc'
 d. [ɛ'dʒi] 'palm nut'

For Maurer (1995), [dʒ], for example, could not be replaced for another typically Angolar sound. For this reason, he claims [dʒ] is part of the phonological system. However, during data analysis, we noticed that the realization of [dʒ], as well as of [tʃ], was directly related to the contexts in which there was a high coronal vowel /i/ or an approximant /j/ immediately after the voiced alveolar plosive, as in [mɛ'dʒi] 'to measure' (thus, no minimum pairs are found between [t] and [tʃ] and [d] and [dʒ]). Consequently, affricate consonants cannot be considered phonemes in Angolar.

Furthermore, through the collection of minimal pairs, we found that the palatal nasal consonant /ɲ/ is a phoneme in the consonantal inventory of Angolar, as Lorenzino (1998) highlighted. Its phonemic status can be verified by observing the oppositions of /ɲ/, /m/ and /n/ in (02) and /ɲ/ and /n/ in (03) (as shown in Table 7).

- (02) /ɲ/ [ku'ɲa] 'to fall, to wound'
 /m/ [ku'ma] 'godmother of one's child'
 /n/ [ku'na] 'to plant'
- (03) /ɲ/ [ɲe'ga] 'to hang'
 /n/ [ne'ga] 'to deny'

In his data, Maurer did not describe the realization of the consonant [ɲ] even before another consonant. Therefore, there are no considerations regarding contexts in which there is a consonant with the palatal feature. There is only mention to consonants with the velar feature, in which the <n> syllabic will behave as a velar ([ŋ]) or bilabial ([m]) before labial consonants. In all other cases, Maurer stated that the nasal consonant is realized as [n]. The present study argues for its phonemic status by analyzing minimal pairs and observing that the palatal nasal is not restricted to contexts in which there is a high coronal vowel /i/ or a palatal approximant /j/. However, the consonant has a restricted distribution, as in Lung'le (AGOSTINHO, 2015) and in Portuguese, in which the palatals do not have a high functional load compared to other phonemic pairs (AGOSTINHO; SOARES; MENDES, 2020). Another possible analysis is to consider that /ɲ/ is phonologically a sequence of nasal plus glide /nj/ that can be realized phonetically as [ɲ], since there is no distinction between /ɲ/ and /nj/, as in Russian, for example (BAKER, 2004). Casagrande (1984 *apud* BAKER, 2004) proposed a similar analysis for French, in which [ɲ] derives from /ni/.

Continuing the discussion, Maurer (1995) established that Angolar has in its inventory seven prenasalized consonants¹¹ [mb, mp, nd, ndʒ, ŋk, ŋg, mf]. Lorenzino (1998) considered these consonants as phonetic realizations. In this study, we assume a nasal consonant with no defined place of articulation that can be realized as /m, n, ŋ/ upon assimilating the point of the following consonant, as documented for its sister languages (cf. AGOSTINHO, 2015; BANDEIRA, 2017). The nasal consonant is syllabic at the beginning of the word when it precedes the consonants /p b t d k g f v θ ð/. Thus, the nasal /N/ assimilates the place of articulation of the following consonant, realizing it as [n] before the alveolars /t d/ and the interdental /ð θ/, as in (04a), as [m] before the labials /p b f v/, as in (04b), and as [ŋ] before the velars /k g/, as in (04c).

- (04) a. [ɲ] [ɲdu'lu] 'cast'
 b. [ɲ] [ɲ'punɐ] 'knee'
 c. [ɲ] [ɲkɔ'mɛ] 'fist'

As in Lung'le (AGOSTINHO, 2015), syllabic nasals in Angolar can vary with [ĩ] in some contexts or with total deletion, as in (05).

- (05) a. [ɲ] [ɲdu'lu] ~ [ĩdu'lu] ~ [du'lu] 'cast'
 b. [ɲ] [ɲ'punɐ] ~ [ĩ'punɐ] ~ ['punɐ] 'knee'
 c. [ɲ] [ɲkɔ'mɛ] ~ [ĩkɔ'mɛ] 'fist'

In this analysis, we argue that the tautosyllabic nasal consonant plosive/fricative consonant sequences (referred to in the literature as prenasalized consonants) cannot

¹¹ As already shown, Maurer (1995) did not make it evident in his analysis whether he considered prenasalized phonemes.

be considered phonemes because in Angolar the nasals are heterosyllabic, which prevents them from being considered as prenasalized and a single phoneme, as in Bantu languages (NGUNGA, 2004; ANDRADE, 2007). We used the same approach for the syllabic nasals of Lung’Ie, its sister language (AGOSTINHO, 2015). According to Araujo and Agostinho (2014), language games are normally used as an argument for syllabic structures (cf. DAVIS; HAMMOND, 1995; BOTNE; DAVIS, 2000). Araujo and Agostinho (2014), Agostinho (2015) and Agostinho and Araujo (2021) described a language game in Fa d’Ambô and Lung’Ie, sister languages of Angolar, which serves as an argument for the syllabic nasal consonant. In the game, a syllable with an onset [p] plus a copy vowel is inserted after the syllable (with a high tone and/or in the final position for Lung’Ie). Therefore, the segmental material to be copied is the nucleus of the syllable regardless of simple or complex onset. Also, the coda appears only in the inserted ludling syllable. The following are examples of Lung’Ie (AGOSTINHO; ARAUJO, 2021):

(06)		Lung’Ie	
	<i>Base</i>	<i>Game</i>	<i>Gloss</i>
a.	[udédu]	[udepédu]	‘finger’
b.	[prímu]	[pripímu]	‘cousin’
c.	[ʃtrĩŋki]	[ʃtripĩŋki]	‘new’
d.	[góʃto]	[gopóʃto]	‘taste’

When there is a syllabic nasal, [u] is inserted, according to the following examples (AGOSTINHO; ARAUJO, 2021):

(07)	Fa d’Ambô			Lung’Ie		
	<i>Base</i>	<i>Game</i>	<i>Gloss</i>	<i>Base</i>	<i>Game</i>	<i>Gloss</i>
	nda	mpundapa	‘to walk’	ŋ	mpu	1SG ¹²

The example in (07) shows that the syllabic nasal is regarded as a syllable in both language games, as argued by Araujo and Agostinho (2014) and Agostinho (2015), because it behaves differently in relation to tautosyllabic consonant encounters, as in [pripímu], in which the result is not *[puripímu]. Thus, the language game above shows the heterosyllabic status of the nasal.

¹² First person singular pronoun.

Interdental consonants

Regarding alveolar and interdental fricatives, Maurer (1995) argued for a complementary distribution between the voiceless fricatives [s] and [θ] and the voiced fricatives [z] and [ð]. Thus, the alveolars [s] and [z] would be realized before /i/, while the interdentals [θ] and [ð] would be realized before other vowels. Consequently, the occurrence of [s] and [z] before vowels other than [i] would be rare, according to Maurer, being only found in recent loanwords from Portuguese and Santome, such as **zulu** ['zulo] 'July', **gôsô** ['goso] 'taste' and **sala** ['salə] 'room'. Lorenzino (1998) followed the same description as Maurer (1995). Thus, despite arguing for the existence of four phonemes /s/, /z/, /θ/ and /ð/, the author pointed out a complementary distribution between voiceless and voiced fricatives.

By analyzing the data collected for this study, we observed that in the speech of informants over 60 years of age the interdentals have vitality and are easy to record. In contrast, in the speech of younger informants, especially those between 25 and 45 years old, interdental fricatives have already given way to the fricatives [s] and [z] not only before /i/, but before all other vowels. Thus, as the older age groups use the interdentals [θ] and [ð], while younger groups have completely replaced them for the alveolars [s] and [z], such inventory can indicate an ongoing change (cf. WEINREICH; LABOV; HERZOG, 2006; LABOV, 2008) concerning the [strident] feature. As the change has not yet been completed, we chose to use interdentals to represent phonemes.

In addition, many items recorded during collection only presented the realization of [s] and [z]. When asked if the item could also be realized with the interdentals [ð] and [θ], the speaker identified the items as possible in the language. However, judging them as belonging to the speech of the "elders" or as a "deep Creole" (old Creole).

Regarding phonology, the present study proposes that the voiceless interdental /θ/ be considered a phoneme in Angolar, even though it is realized as [s] or even as [ʃ] before /i/ or /j/. The voiced interdental /ð/ should also be considered a phoneme. Therefore, the phonemic status of the voiceless interdental /θ/ and the voiced interdental /ð/ can be observed in the oppositions between /θ/, /t/ and /f/, as in (08) and (09), and between /ð/, /f/ and /v/, as in (10) and (11) (data are shown in Table 9):

(08) /θ/ ['ba:θɐ] 'measurement unit'

/t/ ['ba:tɐ] 'cockroach'

(09) /θ/ ['θa] 'to be'

/f/ ['fa] 'to speak'

(10) /ð/ ['ðakɐ] 'jack-fruit'

/f/ ['fakɐ] 'knife'

- (11) /ð/ [ðɛ̃'de] 'to defecate'
 /v/ [vɛ̃'de] 'to sell'

Furthermore, for Maurer (1995), in addition to syllables such as [ʃi] and [zi] being rare, it would not be common to find realizations of [ʃ] and [z] before vowels that were not /i/ or the approximant /j/ in Angolar. In items such as **ngoxi** ['ŋgɔʃi] instead of **ngosi** ['ŋgɔsi] 'night', according to the author, one can conjecture two possibilities for the realization of [ʃi]: either due to a case of dialectal variation or a case of influence of Santome. Regardless of the reason why /θ/ before /i/ is realized as [ʃi], upon recording Angolar speakers we noted that the realization of the postalveolar voiceless consonant is common and could no more be characterized as rare, as Maurer (1995) advocated. As for [z], Maurer (1995) argued that it can only be found in loanwords such as ['zulu] 'July' and ['zɪnɔ] 'June'. For comparison purposes, it was possible to observe in the informants' statements items such as in (12) and (13).

- (12) a. [ziki'tʃi] 'rude'
 b. [zi'lerɛ] 'fridge'
 c. [z'ibɔɛ] 'jimboa, a plant'
 d. [zi'mɔɛ] 'alm'

- (13) a. ['liʃi] 'nose'
 b. ['ʃimɪ] 'jealousy'
 c. ['iʃikɛ] 'bait'
 d. ['tɔʃi] 'cough'

Unlike that described by Maurer concerning the fricative [z], this study does not characterize its realization as rare; on the contrary, it is possible to verify frequent records of it. However, it cannot be denied that such frequency is subject to the conditioning of defined contexts. The examples in (12) and (13) share the fact that they present the consonants [ʃ] and [z] in the same realization context: preceding the vowel /i/. In this sense, Maurer (1995) argued that [ʃ] and [z] are the result of the conditioning of the vowel /i/ and of the approximant /j/, therefore not being part of the system. The present analysis also concluded this as for post-alveolar fricatives since they take place primarily before the vowel /i/. Therefore, they are not phonemes, but allophones – when before /i/ and /j/ – of the voiceless /θ/ and voiced /ð/ interdental fricatives, respectively.

In the next section, we discuss the phonemic or allophonic status of [r].

Angolar and the status of [r]

According to Maurer (1995) and Lorenzino (1998), the rhotic [r] has a phonemic status. According to Lorenzino (1998), Angolar has two liquids (/l/ and /r/), being possible to find variations between [l] and [r], especially in intervocalic position, as in **fala ~ fara ~ fa** ‘to speak’. The author also pointed out that /d/ can be realized as [r] in contexts where that consonant is preceded by a nasal consonant. Maurer (1995) argued that [d] would be a variant of /r/, as in **da ~ ra** ‘to give’. The realization of /r/, for this author a phoneme of Angolar, would be more common with [r] than with [d]; [d] would appear more at the beginning of the word. However, [r] could not be excluded from the position, since it occurs in **dia ~ ria** ‘day’, for example. Maurer (1995) stressed that it is not evident whether [r] and [d] are interchangeable in all cases but admitted not having found minimal pairs opposing [r] to [d]. Similarly, in the present study, we also found a variation between [r] and [d] in our data in a significant number of items, such as in **delu ~ rêlu** ‘money’. Besides, such variation extends in a set of items also to the lateral consonant [l], such as in **rêlu ~ dêlu ~ lêlu** ‘money’ and **dêvê ~ levê ~ rêvê** ‘duty’, which was also highlighted by Maurer (1995).

The divergence between the proposals exists because Maurer (1995) presented /r/ as a phoneme (which is realized sometimes as [r], sometimes as [d]) that opposes the phoneme /l/, as in **rema ~ dema** ‘to weight’ and **lema** ‘to row’. In fact, in our data, there was a lexical variation between [r] and [d] and, in fewer items, with [l] as well. However, there was not a single case that pointed to the rhotic as a phoneme in Angolar. We observed minimal pairs that presented the consonants /d/ and /l/ as distinct phonemes (**data** ‘quantity’ *versus* **lata** ‘tin’). However, no realization of [r] justified a phonemic status, bearing in mind that the rhotic is always in variation with [d] and, in some items, with [d] and [l]. During fieldwork, we noted that there are items in which it is not possible to exchange [d] for [r] under the penalty of the speaker identifying such item as not belonging to Angolar, such as **dooba** ‘to fold’ (***rooba**) and **disinu** ‘destiny’ (***risinu**). At the same time, this same nature of explanation was used by older speakers to justify the preference of [r] in items where there is variation with [d] (such as in **kethara ~ kethada** ‘mandible’): the given item, with the realization of the voiced dento-alveolar consonant, would supposedly belong to Portuguese, according to the informants. As noted, the subjective assessments of speakers are not a consensus. However, such a contradiction is not an uncommon situation in fieldwork. Labov (2008, p.359, our translation), for example, discussed decades ago the gap between what speakers believe they say and what they actually say. In this sense, the author stated: “[...] there are opposing sets of values that support the vernacular forms, and that do not appear in subjective reaction tests”. That said, it is essential to conduct a study with several experiments on the variation of [r] and [d] so that accurate statements can be made.

Regarding what can be stated at this point, there is evidence that indicates the consonants /l/ and /d/ as phonemes of Angolar. The rhotic [r] has been observed to vary

fundamentally with the voiceless dento-alveolar consonant and sometimes with /l/. As already mentioned, some signs converge to the phonemic existence of /d/. This cannot be stated about [r], since, in contexts of variation between [d] and [r], there was no categorical realization of the rhotic or minimal pairs that support its distinctive status. In other words, given the absence of minimal pairs in which it is only possible to realize [r], the present study chooses not to propose adding it to the phonemic inventory of Angolar. It is undeniable that the two consonants are in variation. However, the lack of further analysis and the absence of a distinctive opposition of [r] do not make it possible to consider it as a phoneme with certainty. The phonetic alternation between the liquids [l] and [r] and [d] after a nasal consonant is a common phenomenon in most Bantu languages (HYMAN; INKELAS, 2012). In these languages, liquids can be the result of diachronic modifications of plosive phonemes of the Proto-Bantu (cf. HYMAN, 2001). In the case of Angolar, a language that has a great contribution from Bantu, this distribution seems to have converged to a variation whose conditioning factors still need to be identified and analyzed using larger samples. It is salutary to highlight that in the future the existence of data that points to the distinctive character of [r] may lead to a revision of this theory.

After discussing aspects related to the consonantal inventory of Angolar and pointing out similarities and divergences regarding the analysis by Maurer (1995) and Lorenzino (1998), the next section focuses on the vowel inventory of Angolar.

Vowel inventory

As for its vowel system, Angolar has seven simple oral vowels and seven long ones, as Tables 12 and 13 show:

Table 12 – Simple oral vowels of Angolar

	Coronal	Central	Dorsal
Close	i		u
Close-mid	e		o
Open-mid	ɛ		ɔ
Open		a	

Source: Bandeira (2017, p.226).

Table 13 – Long oral vowels of Angolar

	Coronal	Central	Dorsal
Close	ii		uu
Close-mid	ee		oo
Open-mid	ɛɛ		ɔɔ
Open		aa	

Source: Bandeira (2017, p.226).

Regarding their distribution, the seven oral vowels /i e ɛ a ɔ o u/ have a phonemic status that can be observed in the examples from (14) to (18). Such vowels can occur in stressed and unstressed syllables. All of them can be phonetically nasalized before /N/ and in a syllable preceded by a nasal consonant in the next syllable, being realized as [ĩ ê ẽ ẽ̃ õ õ̃ ù].

(14) /a/ and /ɛ/

- a. [tẽ'ba] 'tamba, fish (sp.)'
- b. [tẽ'be] 'also'

(15) /e/ and /ɛ/

- a. ['me] 'half'
- b. [mɛ] 'same'

(16) /o/ and /ɔ/

- a. [lo'lo] 'pain'
- b. [lɔ'lo] 'to lick'

(17) i/ and /e/

- a. ['vi] 'wine'
- b. ['ve] 'turn'

(18) /u/ and /o/

- a. ['bu] 'to come'
- b. ['bo] 2SG¹³

Regarding the change in the realization of the vowels conditioned by the accent, the mid vowels /e ɛ ɔ o/ are realized in the same way regardless of whether they are in a final unstressed syllable, as observed in (19).

¹³ Second person singular pronoun.

- (19) a. **longô** [ˈlõgo] ‘long’
 b. **kobo** [ˈkɔbɔ] ‘whole’
 c. **inhe** [ˈiɲɛ] ‘nail’
 d. **ikwê** [ˈikwe] ‘grain’

On the other hand, the vowel /i/ can be realized as [ɪ] in final unstressed syllables, as in (20a). When it occurs on a hiatus, it can be realized as [j] after a diphthongization process, as in (20b). The close dorsal rounded vowel is realized as [u] in non-final stressed, pre-tonic, and non-final post-stressed syllables and as [ʊ] in final unstressed syllables, as in (20c). When it occurs on a hiatus, it can be realized as [w] after a diphthong process, as in (20d). The low vowel /a/ is realized as [ɐ] in final unstressed syllables, as in (20e).

- (20) a. **maxi** [ˈmaʃi] ‘more’
 b. **mionga** [miˈõgɐ] ~ [ˈmjõgɐ] ‘sea’
 c. **lalu** [ˈlalɔ] ‘a skin disease’
 d. **kueca** [kuˈɛkɐ] ~ [ˈkwɛkɐ] ‘underpants’
 e. **lama** [ˈlamɐ] ‘mud’

For Maurer (1995), the vocalic system of Angolar has phonemic nasal vowels. However, during fieldwork, there was no opposition between a nasal vowel and a nasalized vowel for a nasal consonant, for example between /ẽ/ and /aN/, in the informants’ statements. In this study, we argue that the vowel nasality in Angolar is the result of a process of nasality spreading originating from a nasal consonant /N/ in the coda, with mandatory vowel nasalization, as in (21); or from a nasal consonant on the next syllable, optional and therefore subject to variation, as in (22). Thus, there is no phonemic nasality of vowels given that nasality is due to a process, as it occurs in Lung’Ie (AGOSTINHO, 2015) and Santome (BALDUINO *et al.*, 2015). There is evidence for this analysis also in the aforementioned language games, in which the nasal behaves as a coda (cf. ARAUJO; AGOSTINHO, 2014; AGOSTINHO, 2015, 2016), as can be seen in the example (06c).

There are two processes of regressive nasalization: a process triggered by a nasal coda in the same syllable or by a nasal onset in the next syllable, as also attested for Lung’Ie (AGOSTINHO, 2015). The nasalization process by nasal coda /N/ nasalizes the preceding vowel, as we see below:

- (21) Nasalization triggered by a nasal coda – *Mandatory*
 a. [ˈmẽgɐ] /maNga/ ‘mango’
 b. [ˈbẽ:θɐ] /baaNθa/ ‘scale’
 c. [bẽːdɛðɐ] /baNdeða/ ‘tray’

This process is mandatory and occurs in stressed and unstressed syllables. The nasalization process by a nasal consonant of the following syllable is optional, as we see below:

- (22) Nasalization triggered by a consonant in the next syllable onset - *Optional*
- a. [lũ'migʊ] ~ [lu'migʊ] 'enemy'
 - b. [mẽ'nelʊ] ~ [ma'nelʊ] 'sailor'
 - c. [mĩ'nisʊ] ~ [mi'nisʊ] 'minister'

As in Lung'le (AGOSTINHO, 2015), long vowels are phonologically distinct from short ones in Angolar, as in (23) to (28):

- (23) a. /a/ ['ta] TMA¹⁴
b. /aa/ ['ta:] 'to cut'
- (24) a. /e/ ['e] 3SG¹⁵
b. /ee/ ['e:] 'yes'
- (25) a. /ɛ/ ['mɛ] 'even'
b. /ɛɛ/ ['mɛ:] 'Manuel'
- (26) a. /ɔ/ [gɔ'pa] 'a drink'
b. /ɔɔ/ [gɔ:'pa] 'grouper'
- (27) a. /o/ ['θoko] 'punch'
b. /oo/ ['θo:ko] 'charoco, fish (sp.)'
- (28) a. /u/ ['kuθʊ] 'sand weight'
b. /uu/ ['ku:θʊ] 'cross'

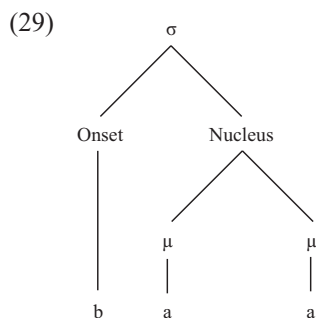
Like short vowels, long vowels are also subject to nasalization, as in (29):

- (29) a. /aaN/ ['lẽ:ðɛ] 'orange'
b. /aaN/ ['bẽ:kʊ] 'white'
c. /ooN/ ['kõ:dʒɐ] 'coconut seed'

¹⁴ Tense, mode, and aspect particle.

¹⁵ Third person singular pronoun.

In our analysis, we use the notation /aa/ for the underlying form and the notation [a:] for the surface form, since these two segments are phonetically realized as a long vowel. We assume here the same structure proposed by Agostinho (2015) for Lung’Ie, who considered that the long vowel has two moras, and that a sequence of two tones is attributed to the syllable with a long vowel and each mora receives a tone. The syllable can be represented as follows:



Source: Agostinho (2015, p.77).

After discussing aspects of the vowel inventory, such as the existence of nasal vowels and the representation of long vowels, the next section addresses the syllabic structure of Angolar.

The syllable

We found that there can be one or two consonants in the onset. The onset can be C, CG, and CC. The consonant in the second position of the onset can be /j/, /w/, /l/, and [r]. We assume here the same approach as Agostinho (2015, 2016) for Lung’Ie and Araujo and Agostinho (2014) for Fa d’Ambô concerning glides, since the three languages are genetically related. For the authors, glides behave as consonants in the language game. Furthermore, Agostinho (2015, 2016) presented phonotactic arguments for such analysis.

According to the analysis of collected data and the descriptions of Maurer (1995) and Lorenzino (1998), Angolar presents the following syllable patterns: V, VV, CV, CVV, CGV, VC.¹⁶ Table 14 shows the possible syllable patterns in Angolar based on the analysis of *corpus* of this study: V, N, VN, CV, GV, CVN, CGV, CGVN, VV, CCV, CVV, and CVVN. Regarding its syllabic structure, the only consonant that can occupy the coda position is the nasal /N/, as in /baNbu/ [‘bẽbu] ‘bamboo’. We found only two records of items that presented the palatal approximant /j/ in the coda position

¹⁶ V is vowel; C is consonant; N is nasal; G is glide/approximant.

([ˈpaj] in ‘Our Father’ and [ˈbajle] ‘dance’). More data is needed in order to analyze the consonant in that position so that it is possible to define if there are still syllabic restrictions regarding the approximant consonant /j/ in the coda. Thus, this syllable template will not be represented below. Furthermore, there were no items that presented the approximant consonant /w/ in that position. The nucleus must be occupied with at least one simple vowel or a syllabic nasal. The syllable minimum should be V or N. As in the sister languages, in Angolar the syllabic nasal is a host consonant, occurring together with another consonant in [ŋ.ˈge] /Nge/ ‘human being’. Also, of the PGG’s daughter languages, Angolar is the most refractory to filling the coda, allowing only the consonant /N/ to occupy it.

Table 14 – Syllabic template of Angolar

Syllable	Example	Underlying Form	Gloss
V	[ˈo]	/o/	2PL ¹⁷
N	[ŋ.ˈge]	/Nge/	‘human being’
VN	[ˈẽ.ðo]	/aNðu/	‘newborn’
CV	[ˈbi.θo]	/biθu/	‘bug’
GV	[ˈpa.jɐ]	/paja/	‘beach’
CVN	[lẽ.ˈba]	/laNba/	‘to cover’
CGV	[θa.ˈgwa]	/θagwa/	‘to rinse off’
CGVN	[ˈkwẽ.dɐ]	/kwaNda/	‘summit’
VV	[ˈe:]	/ee/	‘yes’
CVV	[ˈfa:.ko]	/faaku/	‘weak’
CVVN	[ˈlẽ:.ðɐ]	/laaNða/	‘orange’
CVV ¹⁸	[bi.ʃi.ˈkle.tɐ]	/biθiklɛta/	‘bike’
	[trɛ.ˈtrɛ]	/tɛrɛ/	‘species of bird’

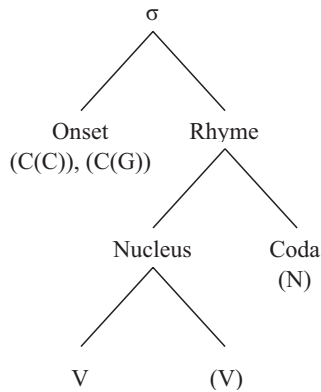
Source: Adapted from Bandeira (2017, p.230).

The following is a representation of the phonological syllable in Angolar based on the binary proposal with rhyme.

¹⁷ Second person plural pronoun.

¹⁸ See next section regarding [r].

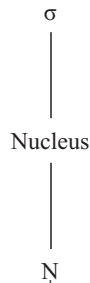
Representation 1 – Representation of the syllable in Angolar.



Source: Authors' elaboration.

When there is a syllabic nasal, the presence of other elements in the syllable is not possible, and the structure is as follows:

Representation 2 – Representation of Angolar syllabic nasal



Source: Authors' elaboration.

Angolar and complex onsets

During fieldwork, we found items such as **bixikleta** [biʃi'kletɛ] 'bike' and **kontra** ['kɔtrɛ] 'amulet'. Instead of **xtaka** ['ʃtakɛ] 'stake', as suggested by Maurer (1995), the item **xitaka** [ʃi'takɛ] 'stake' was collected. In addition, we recorded an item that presented /p/ in the first position of a complex onset with the lateral consonant /l/ in the second position (**templa** ['tɛplɛ] 'seasoning'). However, the same item is in variation with the realization without the consonant /l/ in the second position of the onset, but with the approximant /j/ in its place (**tempya** ['tɛpjɛ] 'seasoning'). Moreover, in Santome there is the same lexical item **templa** ['tɛplɛ] 'seasoning'. Given that, it can

be conjectured that the item may have entered Angolar as a loanword. As with /p/, we found records of items that presented /b/ in the first position of a complex onset with the lateral consonant /l/ in the second position, such as [bla' bɔzɐ] ‘aloe vera’. Since there is an identical item in Santome as **blaboza** [bla' bɔzɐ] ‘aloe vera’, it is possible to consider these items as influence via contact. However, it is relevant to make some remarks about considering complex onsets as resulting from loanwords. First, it is necessary to define the concept of loanwords as used in this study: any single or compound word, or a sentence, from a second language (L2) incorporated into the discourse of the first language (L1). In this sense, nativization or adaptation of L2 loans in L1 are governed by the phonological patterns of L1, patterns imposed by the speakers of L1 (cf. PARADIS; LABEL, 1994). Regarding loan adaptation, Paradis (1996) stated that L1 speakers tend to interpret the structure of L2 following the structure of L1. For this reason, L1 speakers often discard information contained in L2 from words incorporated via loan when perceived as redundant or prohibited from the point of view of L1. On the passage from L2 (in this case, Santome and Portuguese) to L1 (Angolar), there was and there still is a series of changes since they are different languages. On the other hand, when observing items of the basic lexicon of the language (see Table 15), it appears that Angolar did not maintain complex onsets *in situ* coming from its mother language, the PGG (BANDEIRA, 2017). It shows adaptation strategies such as the deletion of the liquid consonant *l in the second position of the onset, which could be followed or not by compensatory elongating.

Table 15 – Dissolution of complex onsets from the Proto-Creole in Angolar

Proto-Creole	Angolar	Gloss
*'blasu	['ba:θu]	‘arm’
*'blaNku	['bɛ̃:ku]	‘white’
*'gleza	['ge:ðɐ]	‘church’
*'pletu	['pe:tu]	‘black’
*'plaga	['pa:gɐ]	‘plague’
*sɔ'pla	[sɔ'pa]	‘to blow’

Source: Data from Bandeira (2017).

However, even though the basic vocabulary of Angolar shows a structural absence of complex onsets, items such as **tre.tre** [trɛ.'trɛ] (‘species of bird’), **bi.xi.kle.ta** [bi'xi'kleɾɐ] ‘bike’, and **kon.tra** ['kɔtrɛ] ‘amulet’ – when used by speakers – may indicate a possible change in the language inventory. However, it is necessary to collect more data that present such syllabic configuration to make further statements in this regard. However, it should be noted that if the speakers use words with the referred syllabic template, such structures are probably allowed and possible, otherwise items such as **bixikleta** [bi'xi'kleɾɐ], for example, would undergo an adaptation, as occurred in the past of the

language (*'blasu> **baathu** ['ba:θu] 'arm'). This can be observed even today through the item **xitaka** [ʃi'takɛ] instead of **xtaka** [ʃ'takɛ] 'stake'. Considering that Angolar does not accept onsets formed with the fricative [ʃ] and plosive consonants such as [t] – a structure that is possible in Santome –, it presents the item with CV syllables without the complex onset [ʃt], resulting in **xitaka** [ʃi'takɛ] 'stake'.

It is important to note that the variation between [d] and [r] in the simple onset position must be observed differently from the realization of [r] in the second position of the complex onset due to two aspects: evaluation and distribution. Regarding items with the realization of [r] in variation with [d] in the simple onset position, many mono- and bilingual speakers evaluated them positively by claiming that such items are of a “more Creole” or “non-Portuguese” nature. In addition, such variation is observed in numerous items. This cannot be stated for the presence of [r] in the second position of the onset. Regarding the evaluation, items with complex onsets were not well received by speakers in general in field research. They repeatedly identified such constructions as items in Portuguese, not Angolar. In addition, words with this syllabic configuration are less used (**tre.tre** [trɛ'trɛ] 'species of bird', **kon.tra** [kõtrɛ] 'amulet').

Thus, given the few items with /r/ occupying the second position, it is only possible to hypothesize that this rhotic is phonologized in Angolar. At the moment, its presence is marginal compared to other consonants. Since it is realized irregularly in few items, there are still no minimal pairs that categorically corroborate its phonological status. For this reason, this study argues for the notation of the consonant [r] enclosed in brackets in the consonant inventory of Angolar, which can be modified when there is evidence that leads us to consent on its phonemic status.

This section presented some issues related to a possible formation of complex onsets in Angolar. The next section presents the final remarks of this study.

Final remarks

The present study aimed to present a description of recent phonological aspects of Angolar, so that we could simultaneously compare the current discoveries with those of Maurer (1995) and Lorenzino (1998), the first descriptions of Angolar. Given this, we discussed aspects that indicated convergences and dissonances with the referred descriptions.

As a phonemic inventory, the present analysis argues that Angolar has sixteen consonants (/p, b, t, d, k, g, f, v, θ, ð, l, m, n, ɲ, j, w/), seven simple oral vowels (/i, e, ε, a, ɔ, o, u/), and seven long vowels (/ii, ee, εε, aa, ɔɔ, oo, uu/). Regarding the dissonant aspects to the proposals of Maurer (1995) and Lorenzino (1998), this study points out that the segments [t̪] and [d̪ɜ] are not phonemes, but allophones of the consonants /t/ and /d/ when adjacent to the vowel /i/ or the approximant /j/. Furthermore, for this research, as advocated by Lorenzino (1998), the consonant /ɲ/ has a phonemic status, since it has a distinctive function in the language, which does not happen with the

rhotic [r], whose phonemic status is uncertain given the absence of minimal pairs. This position differs from that of Maurer (1995), who added [r] to the inventory of phonemic consonants of Angolar.

We further argue that there are no nasal vowels in Angolar; instead, we conclude that nasal consonants condition vocalic nasalization. Such a process of nasalization does not present a phonological status. It is only phonetic and restricted to conditioning contexts: when there is a nasal consonant in syllable coda in which the nasalization is mandatory; or when there is a nasal consonant in the next syllable onset in which the nasalization is optional. Regarding the nasal consonants /m, n/ at the beginning of a word before another consonant, we assume a nasal consonant /N/, since in this context the nasal consonant has no defined place of articulation, assimilating the place of the following consonant. To establish syllabic molds, Maurer (1995) and Lorenzino (1998) recorded the following combinations: V, VV, CV, CVV, CGV, VC. On the other hand, from the analysis of the *corpus*, we observed that the syllabic possibilities in Angolar are different from those previously recorded, namely V, N, VN, CV, GV, CVN, CGV, CGVN, VV, CCV, CVV, and CVVN.

Regarding the converging aspects between analyses, this study is consistent with the statements of Maurer (1995) and Lorenzino (1998) about the phonological status of interdental fricative consonants. We consider that /θ/ and /ð/ have a distinctive function in Angolar, indicating phonological and therefore semantic oppositions. Given this, we argue that the voiceless interdental /θ/ is a phoneme realized phonetically as [s] or even as [ʃ] before /i/ or /j/. At the same time, the voiced interdental /ð/ is also a phoneme, occurring phonetically as [z] or as [ʒ] before /i/ or /j/.

Concerning the importance of this study, even though Angolar has a universe of 11,377 first or second language speakers (INE, 2013), there were no studies that described its phonology in such a systematic way. The most detailed analysis was published more than twenty years ago (MAURER, 1995), followed three years later by Lorenzino's discussion (1998). Due to gaps in the descriptions of Angolar, it was essential to investigate its phonological system in such a way that this description, due to its scope, was also a contribution to the study of Angolar phonology. This makes this study an original analysis proposal of Angolar phonological aspects that offers new descriptions of linguistic aspects for the study of contact languages in general, and of Angolar in particular.

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BANDEIRA, M.; AGOSTINHO, A. L.; FREITAS, S. Aspectos fonético-fonológicos do angolar moderno. *Alfa*, São Paulo, v.65, 2021.

- *RESUMO: Este trabalho tem como objeto o angolar, língua autóctone de São Tomé e Príncipe, e pretende: (i) investigar seus aspectos fonético-fonológicos; e (ii) comparar os resultados da pesquisa com Maurer (1995) e Lorenzino (1998), as primeiras descrições. Como corpus, foram utilizados 3000 itens coletados em duas viagens de campo (em 2014 e 2018) para a comunidade de São João dos Angolares, em São Tomé. Quanto ao quadro consonantal, defende-se que o angolar possui 16 fonemas: /p, b, t, d, k, g, f, v, θ, ð, l, m, n, ɲ, j, w/. Este estudo diferencia-se das análises de Maurer (1995) e Lorenzino (1998) por considerar [tʃ], [dʒ] e [r] como alofones; por outro lado, os três estudos concordam quanto ao estatuto fonológico das fricativas interdentais. Com relação ao quadro vocálico, o angolar apresenta 14 vogais orais: /i, e, ε, a, ɔ, o, u, ii, ee, εε, aa, ɔɔ, oo, uu/, sendo possíveis foneticamente realizações nasais. Por fim, quanto à estrutura silábica, foi encontrado um número maior de moldes silábicos, incluindo uma possível realização de onset complexo. Com esse estudo, foi possível conhecer mais acerca da fonologia do angolar; lançando novas luzes sobre uma língua ainda pouco estudada e contribuindo para a área de contato.*
- *PALAVRAS-CHAVE: angolar moderno; quadro vocálico; quadro consonantal; estrutura silábica.*

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