

Chapter 17

A preliminary phonology of Vale

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This paper is a preliminary phonology of Vale, a Sara-Bongo-Bagirmi language in Central African Republic. Vale's consonant system includes implosives, prenasalized plosives, and prenasalized fricatives, but it lacks labial-velar plosives. Robust voiceless fricatives are limited to /s/ and /h/. Vale has five oral and five nasal vowel phonemes. I found no evidence for the presence of ATR vowel harmony. It has two level tones, and I posit five underlying tone melodies: L, H, LH, HL, and HLH. All of these melodies occur on monomorphemic words. The L in the HLH pattern is realized as a floating L which triggers non-automatic downstep, so the HLH pattern surfaces as H'H.

1 Introduction

In this paper, I present a preliminary overview of the phonology of Vale (pronounced [và.lé]), a language spoken by approximately 5,400 people in the north-central part of Central African Republic: in Nana-Grébizi prefecture (Kaga Bandoro subprefecture) and Ouham prefecture (Batangafo and Kabo subprefectures). The two language consultants I worked with consider Vale to have six dialects: Dogu Saki, Tane Ngravo, Doro, Hula, Zabba, and Bbuna. Both of them speak Dogu Saki. The language is classified as part of the Sara-Bongo-Bagirmi (SBB) group within the Nilo-Saharan family. Dimmendaal et al. (2019: 343–344) consider SBB to be essentially the same as “West Central Sudanic.” The ISO 639-3 code for Vale is [vae]. More general information can be found in *Ethnologue*¹ (Eberhard et al. 2023) and *Glottolog*² (Hammarström et al. 2022).

¹<https://www.ethnologue.com/language/vae>

²<https://glottolog.org/resource/lanuoid/id/vale1250>



Little previous research has been done on Vale. The only language data I've found are lists of numbers in Bruel (1905: 100)³ and Gaudefroy-Demombynes (1906: 60), some additional vocabulary items in the latter source, and a few lexical items in Samarin (1971: 231). There are brief mentions of the language in Tucker (1940: 11) and Tucker & Bryan (1956: 17). SIL conducted a language survey on Vale in the 1990s (Moéhama 2021).

Yanguende (2011) discusses the phonology and nominal morphology of what he calls "Vale de Ndélé," but there is some doubt as to whether that is a variety of Vale (cf. §6).

I worked with two mother-tongue speakers of Vale. Speaker 1 is a 42-year-old male. He grew up in the Vale region, but he has lived off and on in Bangui for many years. He has a *baccalauréat*, as well as training in a couple of trades. He speaks Vale, Sango, and French. Both of his parents are mother-tongue Vale speakers.

Speaker 2 is a 30-year-old male. He grew up in the Vale region, but he moved to Bangui as a teenager, where he finished his *baccalauréat*. He also studied for one year at the University of Bangui. Besides Vale, he speaks Sango, French, Luto, Ngama, and "Sara".⁴ His father speaks Vale and his mother speaks Luto.

I worked with the speakers in a three-week phonological analysis workshop at the ACATBA⁵ center in Bangui in October 2021. I was assisted by Adelphe Dogue-Syssa, a member of ACATBA. We employed the participatory phonology research method described in Kutsch Lojenga (1996). We processed about 800 words that had been collected in 2020 by Dogue-Syssa. (John Berthelette and Paul Murrell also did some preparatory work for the workshop.) In addition, we collected noun phrase and verb phrase paradigms, as well as a short text (*The North Wind and the Sun*), in order to examine tone behavior.

I discuss consonants in §2, vowels in §3, syllable structure in §4, and tone in §5. I discuss some areas for further research in §6, and I draw conclusions in §7. The data are transcribed using the extant International Phonetic Alphabet (IPA 2006).

2 Consonants

Vale has 25 consonant phonemes, as shown in Table 1.

³Vale is referred to as "Télé de Guélo" in Bruel (1905).

⁴I was unable to verify which variety of Sara this was.

⁵L'Association centrafricaine pour la traduction de la Bible et l'alphabétisation

Table 1: Consonant phonemes

	Bilabial	Labiodental	Alveolar	Palatal	Velar	Glottal
Plosive	ɓ		ɗ			
	p		t		k	
	b		d		g	
	^m b		ⁿ d		^ŋ g	
Fricative		(f)	s			h
		v	z			
		^m v	ⁿ z			
Nasal	m		n			
Flap/trill	(ɾ)		r			
Lateral			l			
Approximant	w			j		

The prenasalized consonants are written with two symbols in Table 1, but they pattern as unitary phonemes in Vale. There is no symbol in IPA for a prenasalized consonant, so they will be written as two consonants, e.g., [mb] in phonetic transcription. Parentheses indicate phonemes that are marginal to the phonological system.

Contrast between consonants within the same broad category of place of articulation is shown in Table 2. Insofar as possible, I provide contrast between nouns in word-initial position with a following /a/. Where this was not possible, I've provided additional data.

The period (full stop) symbol < . > indicates a syllable break. Glosses were obtained in French and translated into English for this paper.

I consider the voiceless labiodental fricative /f/ to be a marginal phoneme because it is rare. An exhaustive list of occurrences in our corpus is shown in Table 3. The word for 'hold' is pronounced [kù.hà] by the Dogo Saki group and [kù.fà] by the Doro and Hula people.

The prenasalized labiodental fricative /^mv/ is pronounced [mv] in Vale. I was consistently able to observe visually the labiodental nasal [ɱ] when the speakers produced words containing the sound.

The Vale speakers produced one ideophone containing a voiced bilabial flap: [ɣa] 'the sound of a slap in the face'. In the production of the flap, the upper lip is brought into the mouth so that the lower lip flaps against the upper lip instead of the upper teeth (Olson & Hajek 2003: 158). Speaker 1 identified the word as being

Table 2: Consonant contrasts

	Phoneme	Phone	Example	Gloss
Labial	/ɓ/	[ɓ]	[ɓà.rà]	rainy season
	/p/	[p]	[pà.rí]	bile
	/b/	[b]	[bà.ɗà]	lizard
	/ ^m b/	[mb]	[mbáá]	guest, visitor
	/f/	[f]	[fú. ^h lá]	sacrifice
			[tú. ^h fá]	squeak (wheel) (v.)
	/v/	[v]	[và.ɗú]	warthog, pig
	/ ^m v/	[ɱv]	[ɱvâi]	beard, mane
	/m/	[m]	[mà.rà]	crocodile; butcher
	/w/	[w]	[wá.jà]	sand
Alveolar	/ɗ/	[ɗ]	[ɗá.mà]	medicine
	/t/	[t]	[tà.lò]	dew
	/d/	[d]	[dà.rì]	locust
	/ ⁿ d/	[nd]	[ndà.là]	duck
	/s/	[s]	[sàá]	smoke
	/z/	[z]	[zá.mà]	camel
	/ ⁿ z/	[nz]	[nzà.mè]	squirrel
	/n/	[n]	[nà.ɲgà]	dirt, soil
	/r/	[r]	[ró]	body
			[rí]	name
Palatal			[kàm.rá]	sky
		[r]	[ɓà.rà]	rainy season
	/l/	[l]	[lá]	dance (n.)
	/j/	[j]	[jà.ɲgà]	hawk
Velar		[j̥]	[j̥ǎ.má]	cloth
	/k/	[k]	[kà.zà]	sun, day
	/g/	[g]	[gà.zò]	horn
	/ ⁿ g/	[ŋg]	[ŋgà.ɓà]	husband
Glottal	/h/	[h]	[hà.ɗù]	light

Table 3: Words containing /f/

Transcription	Gloss
[fú. ^h lá]	sacrifice
[fò.ndò]	plantain
[tú. ^h fá]	squeak (wheel) (v.)
[kù.hà] ~ [kù.fà]	hold

more typical of Sango speech than Vale speech, so it may be best to consider the sound a part of the Sango phonological system instead of Vale.

The phoneme /r/ is trilled [r] in word-initial position and following a consonant. In intervocalic position, it is usually produced with a single contact [r], but I sometimes heard it trilled in that position, particularly when the word was emphasized. This is similar to what Ladefoged (1968: 30) found in Hausa, where a trilled [r] is often produced with a single contact in normal speech. Closer to the Vale region, the same process also occurs in the Nduga variety of Luto (Olson 2013).

The phoneme /r/ does not sound retroflexed to me. In addition, the Vale speakers noted that the sound is not like the Gbanu rhotic, which is usually produced as a retroflex [ɽ] (Murrell 2021).⁶ The distribution of [r] and [ɽ] in Vale is formalized in (1).

- (1) Intervocalic tapping of /r/ (optional)
 /r/ → [r] / V_V

The alveolar lateral /l/ sounds like a regular clear [l], with no velarization.

The palatal approximant /j/ is nasalized [j̃] when the following vowel is a nasal phoneme, as shown in (2). This process is similar to what Valenzuela et al. (2001: 283) found for Shipibo, although I did not observe a corresponding nasalization of /w/ as they did.

- (2) Nasalization of /j/
 /j/ → [j̃] / _Ṽ

The resulting allophone [j̃] sounds like a palatal nasal [ɲ], so much so that we initially considered transcribing it as the latter, particularly since cognates in Boyeldieu et al. (2006) are transcribed with ⟨ɲ⟩. However, the Vale speakers noted

⁶We studied Gbanu in the same workshop as Vale, so we were able to compare the two rhotics.

that there is no contact between the tongue and the palate in the articulation of the sound.

An alternative analysis could be considered, in which a phonemic nasal palatal approximant /j/ contrasts with /j/. In this analysis, the nasalization of /j/ would cause a following vowel /V/ to become nasalized [Ṽ]. However, I did not opt for this alternative analysis for several reasons.

First, I did not find a systematic spread of nasalization from nasal consonants to a following vowel.

Second, phonemic nasal vowels do exist in Vale, and they regularly occur following non-nasal consonants, as discussed in §3 below.

Third, native speaker intuitions strongly favor the chosen analysis. The Vale speakers easily recognized the distinction between oral and nasal vowel phonemes, while they were consistent in considering [j] and [j̃] to comprise a single phoneme. Concomitant with this, they utilized a single symbol, ⟨y⟩, to represent both [j] and [j̃] in the working orthography.

Labial-velar plosives are absent in Vale, apparently lost from Proto-SBB (Boyeldieu 2006: 8). These sounds merged with labial plosives in the closely-related language Luto (Olson 2021). It would be a reasonable hypothesis to suggest that this merger likely occurred in Vale as well.

3 Vowels

Vale has five oral vowel phonemes and five nasal vowel phonemes, as shown in Table 4. The inventory of oral vowels is reduced compared to what is typically found in Sara languages. More commonly, one finds seven oral vowels /i e ε a ɔ o u/, e.g. Bagiro (Boyeldieu 2000), or six oral vowels /i e a ɔ o u/, e.g. Mbay (Keegan 1997). A reduced central vowel [ə] is also common in Sara languages, e.g. Mbay (Keegan 1997) and Gula (Nougayrol 1999), but this is absent from Vale.

Contrast between the vowels is shown in Table 5. I illustrate contrast between oral vowels immediately following a word-initial /k/ and between nasal vowels following alveolar consonants.

Although rare, near minimal pairs do exist between oral and nasal vowels, as shown in Table 6.

According to my auditory impressions, the mid vowels /e/ and /o/ vary between open-mid and close-mid, without a clear environmental cause. That is, sometimes I heard the phonemes as [ɛ] and [ɔ] instead of [e] and [o], respectively. The International Phonetic Association (IPA 1949: 7) recommends employing the

⁷An additional example of [ĩ] is [j̃i.li] ‘melt, be wet (*fondre, être mouillé*)’.

Table 4: Vowel phonemes

	Front	Central	Back
Oral			
	i		u
	e		o
		a	
Nasal			
	ĩ		(ũ)
	ẽ		õ
		ã	

Table 5: Vowel contrasts

	Phoneme	Phone	Transcription	Gloss
Oral				
	/i/	[i]	[kì.lá]	tail
	/e/	[e]	[ké.rí]	firewood
	/a/	[a]	[kà.zà]	sun, day
	/o/	[o]	[kò.rò]	pain
	/u/	[u]	[kù.là]	work
Nasal				
	/ĩ/	[ĩ]	[tĩĩ] ⁷	scorpion
	/ẽ/	[ẽ]	[ndé]	few
	/ã/	[ã]	[tãã]	caterpillar
	/õ/	[õ]	[zì.tố]	hill
	/ũ/	[ũ]	[sũ.sũ]	story, tale

Table 6: Contrast between oral and nasal vowels

Phoneme	Phone	Transcription	Gloss
/a/	[a]	[kà.jà]	heal, cure (v.)
/ã/	[ã]	[kà.jã]	respect (v.)

roman letters in such cases instead of the non-roman ones, particularly if the transcription is intended to be somewhat broad. I point out this apparent free variation for the sake of future research on Vale.

The close back nasal vowel /ũ/ is rare, occurring in only two words in our corpus: [sũ.sũ] ‘story, tale’ and [káũũ] ‘fly (insect)’. As a result, I consider it to be a marginal phoneme, and include it in parentheses in Table 4 above.

In addition to the nasal vowel phonemes, there is an optional non-phonemic “bleeding over” of nasalization from a nasal consonant or vowel onto a preceding oral vowel, as formalized in (3).

- (3) Leftward nasal spreading (optional)
 /V/ → [Ṽ] / _X̃

Examples are given in Table 7.

Table 7: Examples of leftward nasal spreading

	Transcription	Gloss
/kè. ^m vè/	→ [kè̃.ṁvè]	find
/káũũ/	→ [káũũ̃]	fly (insect)

4 Syllable patterns

Four syllable patterns are attested in Vale, which are shown in Table 8.

Table 8: Syllable patterns

Syllable	Transcription	Gloss
V	[à.lí]	bird
CV	[ró]	body
CVV	[dóé]	fight
	[ṁvái]	beard, mane
CVC	[kàm]	stone, pit

The V syllable pattern is only found in word-initial position. In the CVC syllable, the coda consonant is a sonorant,⁸ and it does not bear tone.

⁸The implosive [ɖ] occurs in the coda in [gáɖ.gó] ‘nape of neck’, but comparative evidence suggests that that word is a compound (Boyeldieu et al. 2006).

The CVV syllable pattern requires some comment. The exhaustive list of attested vocalic sequences in these syllables is: [ii, ee, aa, oo, uu, iĩ, ěě, ââ, õõ, ie, ia, io, ei, ai, au, oi, oe, ua, iã, ěĩ, ãũ]. The question that arises is how to interpret these sequences (Pike 1947; Burquest 1998).

The sequences with two identical vocalic segments ([ii], [ee], etc.) could be interpreted as such, or as long vowels ([i:], [e:], etc.). In sequences containing one close (i.e. high) vocalic segment (e.g. [ia]), the close vocalic segment could be interpreted as a vowel or as an approximant (i.e. [ia] or [ja]).

There is one sequence in Vale, [oe], in which neither vocalic segment is close. Such sounds are generally considered to be “nonsuspicious” or “unambiguous”, with an interpretation as an approximant highly unlikely (Pike 1947: 129; Burquest 1998: 156). In addition, the sequence [oe] is robust, occurring in several lexical items: [dóé] ‘fight’, [zòè], a grammatical particle, [kó’é bó.lé] ‘hiss’, [bòó dó’é] ~ [bòó dé’é] ‘under, below’. As a result, I do not consider it to be marginal to the phonological system.

The standard procedure is that suspicious sequences are “interpreted phonemically by analogy with the nonsuspicious ones” (Pike 1947: 128). This leads us to construe the close vocalic segments as vowels rather than approximants and the long vocalic segments as a sequence of two identical vowels.

The tonal behavior on these vocalic sequences harmonizes well with this interpretation. The long vowels can bear two tones, e.g. [ɱvâá] ‘breast’, and the close vowels in non-identical sequences bear tone as well, e.g. [ɱvâi] ‘beard, mane’. From the perspective of moraic theory, this means that CVV syllables have two moras and the tone bearing unit (TBU) in Vale is the mora.

5 Tone

Vale has two unambiguous tone levels, which I label as High (H) and Low (L). Words demonstrating the contrast between these two levels are shown in Table 9.

Besides the three bisyllabic tone patterns shown in Table 9 (LL, HL, HH), words with a LH tone pattern are also attested in Vale, e.g. [pà.rí] [_ -] ‘bile’. Hence, all four of the tone patterns typically expected in a two-tone system occur in Vale.

However, there is a complication in the data that can be interpreted in two very different ways: an additional fifth tone pattern occurs on some bisyllabic words. This additional pattern is comprised of a “Superhigh” (S) tone on the first syllable followed by a High tone on the second syllable, e.g. [kõ.né] [- -] ‘year’. For now, I will call this fifth tone pattern “Superhigh-High” (SH). Sample contrasts between SH and HH are shown in Table 10.

Table 9: Tonal minimal pairs between H and L

Transcription	Pitch	Gloss
[vì.jà]	[₋ ₋]	father
[ví.jà]	[₋ ₋]	pap, mushy food
[kó.lé]	[₋ ₋]	quarrel, argue
[kó.lè]	[₋ ₋]	luck

Table 10: Contrast between words with [₋ ₋] and [₋ ₋] surface tone

Transcription	Pitch	Gloss
[tó.lé]	[₋ ₋]	kill, extinguish
[tǒ.lé]	[₋ ₋]	carve
[kó.nǒ]	[₋ ₋]	thorn
[kǒ.né]	[₋ ₋]	year

One possible interpretation of these data is to consider that Vale has three tone levels, with a Superhigh tone occurring on the additional SH pattern. The key question that this interpretation raises is why there is only one bisyllabic pattern that involves the Superhigh tone (SH), while the other possible combinations are not attested (SS, SL, HS, LS).

Given this first interpretation of the data, we can posit an initial hypothesis for the tone melodies of Vale, shown in Table 11.

Table 11: Tone melodies (first draft)

Melody	Transcription	Pitch	Gloss
L	[vì.jà]	[₋ ₋]	father
H	[kó.lé]	[₋ ₋]	quarrel, argue
LH	[pà.rí]	[₋ ₋]	bile
HL	[ví.jà]	[₋ ₋]	pap, mushy food
SH	[kǒ.né]	[₋ ₋]	year

Another possible interpretation of these data—and the one we will ultimately adopt—is to consider an analysis that involves non-automatic downstep (Yip

In autosegmental terms, the L tone on the second syllable of ‘wind’ is delinked, which allows the H in [kú.lí] to spread leftward onto that syllable. The L is not deleted, but rather remains as a floating tone which triggers the downstep.

An autosegmental rendering of the underlying representation for this phrase is shown in (5).

- (5) Underlying representation (UR) of ‘cool wind’

H L H

j ě . l e k u . l i

One possible derivation would then proceed as shown in (6).

- (6) Autosegmental derivation of ‘cool wind’

UAC

Spreading

HLH Plateauing

H L H
| | |
j ě . l e k u . l i

H L H
| | |
j ě . l e k u . l i

H L H
| ‡ |
j ě . l e k u . l i

This derivation proceeds as follows. First, the *Universal Association Convention* (UAC) shown in (7) applies, linking the three tones to the first three tone bearing units (TBUs) of the phrase.

- (7) Universal Association Convention (UAC)

“Associate tones with tone bearing units, one-to-one, left to right.”

(Kenstowicz 1994: 317)

Second, a *Spreading* rule applies, linking the final TBU to the final tone. This is as formalized in (8).

- (8) Spreading

T
|
V V

Finally, the rule *HLH Plateauing* shown in (9) applies, delinking the L tone and spreading the following H tone leftward to the now unassociated TBU.

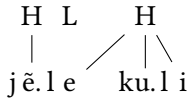
- (9) HLH Plateauing

“[A] singly linked L between two H tones delinks, and the second H spreads left and has a downstepped register.”

(Cahill 2019: 115; cf. Roberts et al. 2016)

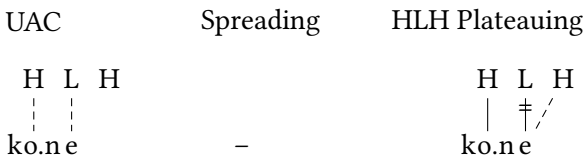
An autosegmental rendering of the surface representation is shown in (10). Note that the L tone is not linked to a TBU, but it nevertheless remains in the representation. The theoretical claim is that this configuration triggers downstep.

- (10) Surface representation (SR) of ‘cool wind’



If we extend this analysis to monomorphemic forms, the downstep attested on monomorphemic lexical items could also be attributed to a floating L tone. In this view, a word like [kó.ˈné] ‘year’ would have an underlying /HLH/ tonal pattern, i.e. /ko.ne, HLH/. An autosegmental derivation would proceed as shown in (11).

- (11) Autosegmental derivation of ‘year’



In this derivation, the UAC once again applies first, linking the first two tones to the two TBUs, and leaving the extra tone unassociated. Since there are no extra TBUs, *Spreading* does not apply. Finally, *HLH Plateauing* applies, delinking the L tone and linking the final H with the delinked TBU.

If we accept this view, Vale has five underlying tone melodies: L, H, LH, HL, and HLH. These are exemplified in Table 13.

Table 13: Tone melodies (revised)

Melody	UR	SR	Gloss
L	/vi.ja, L/	[vì.jà]	father
H	/ko.le, H/	[kó.lé]	quarrel, argue
LH	/pa.ri, LH/	[pà.rí]	bile
HL	/vi.ja, HL/	[ví.jà]	pap, mushy food
HLH	/ko.ne, HLH/	[kó.ˈné]	year

Tone melody inventories like this are not unheard of. Siane (Papua New Guinea) has an inventory of the same five tone melodies as Vale: L, H, LH, HL, and HLH

(James 1994, Kenstowicz 1994: 385). In Africa, Mende (Sierra Leone) also has five tone melodies, with a LHL three-tone melody instead of HLH: L, H, LH, HL, LHL (Leben 1973: 64).

A couple of additional examples of the downstep process in Vale are as follows. When we combine /zo, L/ ‘head’, /ke.te, HL/ ‘before’, and /ba.ŋga, HL/ ‘sweet potato’, one gets [zò ké.té bá.ŋgà] ‘first sweet potato’. When /ko.jo, HL/ ‘mother’ and /se.ge, HLH/ 2PL.POSS are combined, one gets *two* downsteps [kó.ʔjó sé.ʔgé] ‘your (pl.) mother’.

While the analysis of Vale presented here appears to be motivated, it also has the surprising result that the language has an underlying form /HLH/ that is dispreferred on the surface (Cahill 2007) and hence is not realized as such.

6 Discussion

Vale is geographically close to the Sara group of SBB. In addition, typological features provide some support for considering Vale to be a part of the Sara group: The language exhibits no evidence of ATR vowel harmony, it has a robust set of phonemic nasal vowels, and voiceless fricatives are limited to /s/ and /h/ (Dimmendaal et al. 2019: 347–348).

However, there is one important exception: Vale has two phonemic level tones (H and L), whereas most Sara languages have 3-tone systems (Dimmendaal et al. 2019: 349), including the nearby varieties of Luto (Olson 2021). More research needs to be done to situate Vale within the SBB group, but placing it within Sara would seem to be a reasonable first hypothesis.

Boyeldieu (2006: 10–11) reconstructed a two-tone system for Proto-SBB and posited six bisyllabic nominal proto tone patterns: *LL, *HH, *LH, *HL(a), *HL(b), and *HL(c).¹⁰ Four of the tone melodies in Vale correspond directly to the first four patterns posited by Boyeldieu. Table 14 shows the tone correspondences, and Table 15 provides sample data supporting the correspondences. I’ve included data from the Nduga variety of Luto, which is geographically adjacent to Vale. The Proto-SBB and Nduga data—as well as the reference numbers—are taken from Boyeldieu et al. (2006). (The Nduga data were collected by Pierre Nougayrol.)

What remains to be determined is whether the underlying HLH melody in Vale (realized as H’H) corresponds to either of the additional two Proto-SBB tone patterns, *HL(b) or *HL(c). The data at the bottom of Table 15 show that cognates do exist, but the proto forms for the tones are unclear. Resolving this is left for further research.

¹⁰Boyeldieu employed numbers in his labeling: *11, *22, *12, *21a, *21b, and *21c.

Table 14: Bisyllabic nominal tone correspondences between Proto-SBB, Vale, and Nduga

Proto-SBB	Vale	Nduga
*LL	LL	ML
*HH	HH	MM
*LH	LH	LL
*HL(a)	HL	HM
—	H ^h H	HM

The main topic for further research in this study of Vale is word patterns. I was able to identify monomorphemic words in Vale with one or two syllables without much difficulty, but when I looked at forms that appeared to be longer than two syllables, further investigation indicated that they were likely multimorphemic.¹¹ As a result, I was unable to determine how the five tone melodies were realized on monomorphemic words of three or more syllables.

When I discussed the HLH melody with other linguists, the first question that arose was, “Are you sure that these bisyllabic words aren’t compounds?” Snider (2018: 33–37) mentions this caveat explicitly and offers two diagnostics for identifying compounds: (1) Is the tonal pattern rare compared to the other ones? and (2) Do native speakers recognize the words as compounds?

Concerning the first diagnostic, words with a HLH pattern appear to be relatively common in Vale. Concerning the second diagnostic, sometimes the speakers could identify compounds, but not always.

One additional check I did was to compare the Vale words containing a HLH pattern with Proto-SBB forms (cf. the bottom of Table 15). In all cases where there was a resemblance between these two forms, the Proto-SBB form was monomorphemic. This increased my confidence that we were actually dealing with monomorphemic words.

Finally, I compared the phonological description of “Vale de Ndélé” in Yanguende (2011) with my own research. A large number of the lexical items in Yanguende’s *mémoire* resemble those from my own data, so it’s clear that the language is a Sara variety. However, Yanguende posits seven oral vowels /i e ε a ɔ o u/, five nasal vowels /ĩ ẽ ã õ ù/, and three level tones /H M L/. All three of

¹¹An anonymous reviewer pointed out that languages in the region often have a “disyllabic maximum” on words.

Table 15: Sample bisyllabic nominal correspondences between Proto-SBB, Vale, and Nduga

SBB segments	Tones	Vale	Nduga	Gloss	No.
*talɔ	*LL	tà.lò	tālù	dew	N/040
*mama	*LL	mà.mà	māmà	python	N/013
*kARKɛ; *kiRKɔ; *kVRKV	*LL	kò.kè	kākè	iron, hoe	N/029
*kaga	*HH	ká.gá	kāgā	wood, tree	N/199
*kumu	*HH	kú.mú	kūmū	navel	N/200
*ngeri; *Keri	*HH	ké.rí	kīrī	firewood	N/206
*baɖu	*LH	và.ɖú	vàɖù	warthog	N/094
*Subu	*LH	kù.ɓú	kùɓù	oil	N/107
*Sali, *Salu, *SOli	*LH	à.lí	yìlì	bird	N/093
*kORngO	*HL(a)	kó.ŋgò	kóngō	cliff, hill	N/166
*bisi; *ɓisi; *Cisi	*HL(a)	bí.sì	bísì, bísì	dog	N/160
*ngulu; *ngule; *ngulɔ; ... *ngulɛ	*HL(a)?	ŋgú.lù	ngúlū	yam	N/671
*putu; *piti	—	hú.ᵀtí	fítì	flower	N/767
*Cufa; *Nufa; *ɭufa	—	nú.ᵀfá	núfā	God	N/264
*ɓɔɓɔ	—	ɓó.ᵀló	ɓōl̄	be bitter	V/370
*aɖa	—	tá.ᵀzó	tāz	count (v.)	V/194
*igbo; *OgbO; *ndigbo; ... *ndOgbO	—	tí.ᵀbó	īgbò	wash (v.)	V/142
*ɖiyo; *ɖVyV; *ɖV; *Ciyo; ... *CVyV; *CV	—	zí.ᵀó	zyó	two	X/005
*ndOmO; *ndumi; *ndimi	—	ndó.ᵀmó	—	forget (v.)	V/296

these features are characteristics of Luto (Olson 2021) rather than Vale. Two varieties of Luto—Ndoka and Wad—are spoken in and around Ndélé, while the Vale region is 300 kilometers west of Ndélé. This suggests to me that the speech variety Yanguende studied is likely Ndoka or Wad. It is common for Central Africans to migrate for work, education, marriage, or other reasons, so it's possible that there is a community near Ndélé that self-identifies as Vale but has adopted the local language.

7 Conclusion

This paper makes a significant contribution to our understanding of a language that has received very little attention in the literature. I've provided information about Vale consonants, vowels, syllable structure, and tone.

At the same time, it is a modest first step in the large task of documenting a language. There are topics of further research that could prove fruitful. These include: (1) confirming Vale's status as a Sara language, (2) clarifying the morphemic structure of multisyllabic forms, which could inform, in particular, the tone analysis, (3) examining tonal behavior in the tense-aspect-mood system, and (4) comparing the extant Vale forms with Proto-SBB to understand the historical development of the language, including identifying the process that led to the loss of labial-velar consonants, as well as determining the source of the HLH tone pattern.

Abbreviations

Abbreviations in this chapter follow the Leipzig Glossing Rules, with the following additions.

H	High tone	SBB	Sara-Bongo-Bagirmi
L	Low tone	SR	Surface representation
M	Mid tone	UAC	Universal Association
n.	Noun		Convention
No.	Number	UR	Underlying representation
S	Superhigh tone	v.	Verb

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References

- Boyeldieu, Pascal. 2000. *La langue bagiro (République Centrafricaine): Systématique, textes et lexique* (Research in African Studies 4). Frankfurt: Peter Lang.
- Boyeldieu, Pascal. 2006. *Présentation des langues Sara-Bongo-Baguirmiennes*. Paris: CNRS-LLACAN. <https://llacan.cnrs.fr/SBB/>.
- Boyeldieu, Pascal, Pierre Nougayrol & Pierre Palayer. 2006. *Lexique comparatif historique des langues Sara-Bongo-Baguirmiennes*. Paris: LLACAN-CNRS. <https://llacan.cnrs.fr/SBB/>.
- Bruehl, Georges. 1905. *Le cercle du Moyen-Logone*. Paris: Comité de l'Afrique Française. DOI: 10.5479/sil.626490.39088010252781.
- Burquest, Donald A. 1998. *Phonological analysis: A functional approach*. 2nd edn. Dallas: Summer Institute of Linguistics.
- Cahill, Michael. 2007. More universals of tone. *SIL Electronic Working Papers* 7. <https://www.sil.org/resources/archives/7816>.
- Cahill, Michael. 2019. Tone, orthographies, and phonological depth in African languages. In Samson Lotven, Silvina Bongiovanni, Phillip Weirich, Robert Botne & Samuel Gyasi Obeng (eds.), *African linguistics across the disciplines: Selected papers from the 48th Annual Conference on African Linguistics*, 103–123. Berlin: Language Science Press. DOI: 10.5281/zenodo.3520575.
- Connell, Bruce & D. Robert Ladd. 1990. Aspects of pitch realisation in Yoruba. *Phonology* 7. 1–29. DOI: 10.1017/S095267570000110X.
- Dimmendaal, Gerrit J., Colleen Ahland, Angelika Jakobi & Constance Kutsch Lojenga. 2019. Linguistic features and typologies in languages commonly referred to as “Nilo-Saharan”. In H. Ekkehard Wolff (ed.), *The Cambridge handbook of African Linguistics. Part II: Comparative and descriptive African Linguistics*, 326–381. Cambridge: Cambridge University Press. DOI: 10.1017/9781108283991.011.
- Eberhard, David M., Gary F. Simons & Charles D. Fennig (eds.). 2023. *Ethnologue: Languages of the world*. 26th edn. Dallas: SIL International. www.ethnologue.com.
- Gaudefroy-Demombynes, Maurice. 1906. *Documents sur les langues de l'Oubangui-Chari: (Extrait du tome II des Actes du XIV Congrès International des Orientalistes)*. Paris: Ernest Leroux. <http://hdl.handle.net/2027/wu.89085118743>.
- Goldsmith, John A. 1976. *Autosegmental phonology*. Cambridge, MA: MIT. (Doctoral dissertation). <http://dspace.mit.edu/handle/1721.1/16388>.

- Hammarström, Harald, Robert Forkel, Martin Haspelmath & Sebastian Bank. 2022. *Glottolog 4.7*. Leipzig: Max Planck Institute for Evolutionary Anthropology. <https://glottolog.org>.
- IPA. 1949. *The principles of the International Phonetic Association*. London: International Phonetic Association. DOI: 10.1017/S0025100311000089.
- IPA. 2006. IPA news. *Journal of the International Phonetic Association* 36(1). 133–135. DOI: 10.1017/S0025100306002465.
- James, Dorothy J. 1994. Word tone in a Papuan language: An autosegmental solution. *Language and Linguistics in Melanesia* 25(2). 125–148. <https://www.langxmelanesia.com/llm-archive>.
- Keegan, John M. 1997. *A reference grammar of Mbay* (LINCOM Studies in African Linguistics 14). München: Lincom.
- Kenstowicz, Michael. 1994. *Phonology in generative grammar*. Oxford: Blackwell.
- Kutsch Lojenga, Constance. 1996. Participatory research in linguistics. *Notes on Linguistics* 73. 13–27. <https://www.sil.org/resources/archives/4087>.
- Ladefoged, Peter. 1968. *A phonetic study of West African languages*. 2nd edn. (West African language monograph series). London: Cambridge University Press.
- Leben, William R. 1973. *Suprasegmental phonology*. Cambridge, MA: MIT. (Doctoral dissertation). <https://dspace.mit.edu/handle/1721.1/16364>.
- Moéhama, Elisée. 2021. Rapport d'enquête sociolinguistique: Première évaluation parmi les Vale. *Journal of Language Survey Report* 2021-025. <https://www.sil.org/resources/publications/entry/88747>.
- Murrell, Paul. 2021. *An overview of Gbanu phonology*. Tech. rep. Bangui: SIL International.
- Nougayrol, Pierre. 1999. *Les parlers gula: Centrafrique, Soudan, Tchad: Grammaire et lexique*. Paris: CNRS.
- Odden, David. 1982. Tonal phenomena in KiShambaa. *Studies in African Linguistics* 13(2). 177–208. DOI: 10.32473/sal.v13i2.
- Olson, Kenneth. 2013. *A sketch of Lutos phonology*. Unpublished ms. <http://www.sil.org/resources/archives/60749>.
- Olson, Kenneth S. 2021. Labial-velar to labial sound changes in Luto: Paper presented at the Annual Conference on African Linguistics 51–52, 8–10 April 2021. University of Florida, Gainesville, FL.
- Olson, Kenneth S. & John Hajek. 2003. Crosslinguistic insights on the labial flap. *Linguistic Typology* 7(2). 1–30. DOI: 10.1515/lity.2003.014.
- Pike, Kenneth L. 1947. *Phonemics: A technique for reducing languages to writing*. Ann Arbor, MI: The University of Michigan Press.

- Roberts, David, Stephen L. Walter & Keith Snider. 2016. Neither deep nor shallow: A classroom experiment testing the orthographic depth of tone marking in Kabiye (Togo). *Language and Speech* 59(1). 113–138. DOI: 10.1177/0023830915580387.
- Samarin, William J. 1971. Adamawa-Eastern. In Thomas A. Sebeok (ed.), *Linguistics in Sub-Saharan Africa* (Current Trends in Linguistics 7), 213–244. The Hague: Mouton De Gruyter. DOI: 10.1515/9783111562520-009.
- Snider, Keith. 2018. *Tone analysis for field linguists*. Dallas: SIL International.
- Tucker, Archibald Norman. 1940. *The Eastern Sudanic languages*, vol. 1. London: Oxford University Press (for the International Institute of African Languages & Cultures).
- Tucker, Archibald Norman & Margaret Arminal Bryan. 1956. *The Non-Bantu languages of North-Eastern Africa (with a supplement on the Non-Bantu languages of Southern Africa, by E. O. J. Westphal)*. *Handbook of African Languages, Part III*. London, New York, Cape Town: Oxford University Press (for the International African Institute).
- Valenzuela, Pilar M., Luis Márquez Pinedo (Yoi Sani) & Ian Maddieson. 2001. Shipibo. *Journal of the International Phonetic Association* 31(2). 281–285. DOI: 10.1017/S0025100301002109.
- Yanguende, Simplicie. 2011. *Phonologie et morphologie des nominaux du vale de Ndélé en Centrafrique*. Bangui: Université de Bangui. (Mémoire de Master 2 en linguistique, Filière Professionnelle). <https://www.sil.org/resources/archives/93213>.
- Yip, Moira. 2002. *Tone* (Cambridge Textbooks in Linguistics). Cambridge: Cambridge University Press. DOI: 10.1017/CBO9781139164559.