A PHONOLOGICAL SKETCH OF THE BOBO LANGUAGE OF TANSILA

By Richard C Brassington – August 2008

1. INTRODUCTION

As with many languages, this one has a number of different names. SIL Mali refers to it as Konabere; SIL Burkina Faso refers to it as Bobo-Konabere; I shall refer to it as Bobobɛrɛ, since this term is currently the vernacular term used in Tansila, where I collected my data. (Tansila was chosen since its dialect is widely understood by neighbouring communities, and since the Catholic White Fathers there have been working on the language for decades.)

For more details, please refer to Béatrice Tiendrébéogo's survey [i] and to the relevant Ethnologue entry [ii].

NB **Footnotes** may be found at the end of each page. They contain quotations or further information and are indicated by normal numerals. **Endnotes** may be found at the end of the document. They contain the actual references and also serve as a bibliography. They are indicated by Roman numerals.

2. PHONEMES

2.1 CONSONANTS

I have drawn up a chart of consonantal phones using the 1000 words which I have collected between January 2007 and July 2008 [iii]. I have used this as a basis for the analysis, plus a corresponding Distinctive Features chart [iv]. Where better examples exist in others' data, I have included this too.

Here follows a comparison of phonetically similar phones using this chart to determine phonemes. Note that definitions are given for each new phone introduced. As all phones in this language are produced using egressive lung air, this will not be stated each time in the definitions.

2.1.1 LABIAL SET:

[p] Voiceless unaspirated bilabial plosive:

[b] Voiced unaspirated bilabial plosive:

Minimal pair:

Toolbox database number[v]	Example	tone[1]	French gloss	English gloss	linguist / LRP[2]
9971	pɑlɑˑ	B-M	petit hangar	small awning	DK
9970	bɑlɑˑ	B-M	bâton	stick	DK

[1] B = *bas* (low); M = moyen (mid); H = *haut* (high)

[2] LRP = Language Resource Person

Analogous pair:

9994	bɛrɛ	B-B	boue	mud	RCB/DK
0850	pɛrɛ:	H-M	attacher	attach, tie	RCB/YD

Conclusion: /p/ and /b/ are phonemes in their own right.

Distribution of /p/:

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY	0922	pɪrɪ	donner	give	RCB/YD
WORD MEDIALLY / INTERVOCALICALLY	1748	koropʊrɔ	sept	seven	RCB/YD
WORD FINALLY		*none*			

Distribution of /b/:

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY	9994	bɛrɛ	boue	mud	RCB/DK
WORD MEDIALLY / INTERVOCALICALLY	0931	dɑbɑ	prêter	to lend	RCB/YD
WORD FINALLY		*none*			

[p^h] Voiceless aspirated bilabial plosive:

Some aspiration was heard after [p] in the following examples:

1617	p^hie	H-M	s'envoler	fly away	RCB
1166	p^hĭjene	B-B-M	gésier	gizzard	RCB
1679	p^hɪnɪp^hɪnɪ	B-B-B-B	être rond	be round	RCB
1178	p^hipɪredi	B-B-M-HM	battre les ailes	beat wings	RCB

NB during the original transcription, only 1166 was written with aspiration. Other linguists did not write similar words containing [pi] as [p^hi].

Conclusion: [p^h] is an allophone of the phoneme /p/, occurring before [i] and [ɪ] only.

Comparison of [b] and [w] (voiced rounded central approximant):

Minimal pair (apart from tone):

0688	burʊ	B-M	verser	to pour	DK

0043	wuɾu	H-B	nombril	navel	RCB/RosD

Examples in analogous environment:

9994	bɛɾɛ	B-B	boue	mud	RCB/DK
1253	wɛɾɛkuɾu	B-B-H-B	termitière	termite mound	RCB/YD
0916	bɑɾɑdi	M-M-B	embaucher	employ	RCB/YD
1202	wɑlɑlɛ	B-B-M	python	python	RCB/YD

This proves that /w/ is a phoneme in its own right.

Distribution of /w/:

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY	0043	wuɾu	nombril	navel	RCB/RosD
WORD MEDIALLY / INTERVOCALICALLY	0940	ˈnɑwɑ	apporter	to bring	RCB/YD
WORD FINALLY		*none*			

Examination of [f] (voiceless labiodental flat fricative):

The most phonetically similar phone to [f] is [s] (voiceless alveolar grooved fricative)[3].

good analogous pairs contrasting [f] and [s]:

0105	fiˈ	M	bile	bile	RCB/YD
0258	si		vie	life	DD
9955	fɑfɑ	B-M	rien	nothing	RCB/DK
9919	sɑʁɑ		brousse	bush, scrubland	RCB/YD

For good measure, we also have this minimal pair contrasting [f] and /p/:

9013	fiɾɪ	B-B	boue	mud	RCB/DK
9003	piɾɪ	B-B	puiseur	well-digger	RCB/DK

Conclusion: /f/ is a phoneme in its own right.

Distribution:

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY	9013	fiɾɪ	boue	mud	RCB/DK
WORD MEDIALLY / INTERVOCALICALLY	0966	fufugu	piller	to pound	RCB/YD
WORD FINALLY		*none*			

[3] Although both place *and manner* are different, they are, at least, both fricatives.

BEFORE A FLAP	1630	fre	barbouiller	to daub	RCB/LK

Examination of [v] (voiced labiodental central flat fricative):

This does not occur in the Tansila variety of Bobobɛrɛ. However, it does occur in another variety, which Tienon [vi] describes as Tangkire, spoken in and around the town of Minanba, near Yorosso in Mali.

2.1.2 CORONAL SET:

Comparison of [t] (voiceless alveolar plosive) and [d] (voiced alveolar plosive):

9988	dugo	B-B	céréale	cereal	RCB/LK
1588	tugo	M-M	donner un coup	to hit	RCB/LK

Conclusion: /t/ and /d/ are both phonemes in their own right.

Distribution of /t/:

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY	1588	tugo	donner un coup	to hit	RCB/LK
WORD MEDIALLY / INTERVOCALICALLY	0906	kɑtɑrɑ	échange (de marchandises)	exchange (of goods)	RCB/YD
WORD FINALLY		*none*			
BEFORE A FLAP	1179	tə̌rɪ	voler	to fly	RCB/LK

Distribution of /d/:

POSITION	NO.	ITEM	FR gLOSS	ENg gLOSS	LINgUIST/LRP
WORD INITIALLY	9988	dugo	céréale	cereal	RCB/LK
WORD MEDIALLY / INTERVOCALICALLY	1670	didɛ	être profond	to be deep	RCB/LK
WORD FINALLY		*none*			
BEFORE A LIQUID		*none*			

Comparison of /t/ and [s] (voiceless alveolar fricative):

1185	tɛbɛː	M-M	couver	sit on eggs	RCB/LK
1724	sɛbɛ	H-H	être capable	be capable	RCB/YD
0313	te	B	choisir	to choose	RCB/DD
0844c	se	M	cueillir du miel	to gather honey	RCB/YD

This shows contrast in a good analogous environment.

Conclusion: /s/ is a phoneme in its own right.

Distribution of /s/:

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY	1724	sɛbɛ	être capable	be capable	RCB/YD
WORD MEDIALLY / INTERVOCALICALLY	0960	bɛsɛ	épée	sword	RCB/YD
WORD FINALLY		*none*			
BEFORE A FLAP		*none*			

Examination of [z] (voiced alveolar central flat fricative):

This does not occur in the Tansila variety of Bobobɛrɛ. However, it does occur in the Tankire variety [vii].

Comparison of [l] (voiced alveolar lateral approximant) and [ɾ] (voiced alveolar flap):

1610	kɑbɑlɑ	B-B-M	mettre	put	RCB/LK
0906	kɑtɑrɑ	M-M-M	échange de marchandises	exchange of goods	RCB/YD
9971	pɑlɑˈ	B-M	petit hangar	small shed	RCB/DK
0263b	pɑrɑ	B-M	grandir (de taille)	grow tall	RCB/DD

Comparison of [l] with [d]:

1694	lɛbɛ	M-B	rendre lisse	make smooth	RCB/YD
0761	dɛbɛ	B-M	natte	mat	RCB/YD

Comparison of [ɾ] with [d]:

0623	sɛrɛ	M-B	restes	leftovers	RCB/YD
9916	sɛdɛ		durer	last	RCB/DD

The above three sets of comparisons in good analogous environments prove that /l/ and /ɾ/ are both phonemes.

Distribution of /l/:

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY	0901	lorɑ	pauvre	poor	RCB/YD
WORD MEDIALLY / INTERVOCALICALLY	1610	kɑbɑlɑ	mettre	put	RCB/LK
WORD MEDIALLY BEFORE A CONSONANT	1167	jɑldege	plume d'oiseau	bird's feather	RCB/LK
WORD MEDIALLY AFTER A CONSONANT	1198	blɑblɑwɔlɔ	escargot	snail	RCB/LK
WORD FINALLY		*none*			
BEFORE A FLAP		*none*			

Distribution of /ɾ/:

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY		*none*			
WORD MEDIALLY / INTERVOCALICALLY	0901	lorɑ	pauvre	poor	RCB/YD
WORD MEDIALLY BEFORE A CONSONANT	0910	tɛrbɑ	être cher	to be expensive	RCB/YD
AFTER A CONSONANT		brɛ	picorer	to peck	RCB/LK
WORD FINALLY	1605	sɛr	éparpiller		RCB/LK

Comparison of [ɾ] and [r] (voiced alveolar trill):

1177	brɛ	M	picorer	peck	RCB/LK
9987	brɛ	M	picorer	peck	RCB/LK

Whenever an "r" sound occurs, it is offered as an alveolar flap. However, at least 3 LRPs accepted [r] instead - in numerous instances. Conclusion:
[r] and [ɾ] are in free variation, and as such are considered to be allophones of the phoneme /ɾ/.

2.1.3 DORSAL SET:

Comparison of [k] (voiceless velar plosive)and [g] (voiced velar plosive):

0457	sigɑ	B-M	téter	suckle	RCB/DD
0314	sikɑsikɑ		hésiter	hesitate	RCB/DK
1662	tugoli	M-M-H	être court	to be short	RCB/LK
1194	fukolifɑ	B-B-B-H	nageoire	fin (of fish)	RCB/LK

Contrast in analogous environment shows a phonemic difference, so
we add the phonemes /k/ and /g/.

Comparison of [c] (voiceless palatal plosive) and [k]:

I worked with DK and DD to establish when each of these phones is used, and these were my findings:

VOWEL:	WORD	gLOSE	gLOSS	DATA BASE NO.	[k] ACCEPTABLE?	[c] ACCEPTABLE?
i	kini	front	forehead	0008	YES	YES
ɪ	kɪrɪ	hirondelle	nightingale	9005	YES	YES
e	kerɑ	vipère	viper	1201	YES	YES
ɛ	kɛkɛlɛ	aigle	eagle	1160	YES	YES
ɑ	g͡bɑŋkɑrɑ	tortue	tortoise	1215	YES	NO
ɔ	dɔkɔlɔ	palais	palate	0024	YES	NO
o	kɑlo	orteil	toe	0079	YES	NO
ʊ	kʊrʊ	porte	door	9203	YES	NO
u	ku	dos	back	0048	YES	NO

Conclusion: [k] is accepted before any vowel; [c] is only accepted before front vowels ([i, ɪ, e, ɛ]). As [k] is more common and occurs in more environments, it is logical to write /k/ as the phoneme of [k] and [c].

Distribution of the phoneme /k/

POSITION	NO.	ITEM	FR GLOSS	ENG GLOSS	LINGUIST/LRP
WORD INITIALLY	0008	kini	front	forehead	RCB/RosD
WORD MEDIALLY / INTERVOCALICALLY	9915	sɪkɪ	chèvre	goat	RCB/DD
WORD MEDIALLY BEFORE A LIQUID	0063	sɑrɑkwil	poing	fist	RCB/RosD
AFTER A NASAL	0272	nʊŋkɑ	espérer	to hope	RCB/DD
BEFORE A NASAL	0243	kn̩	paludisme	malaria	RCB/DD

Comparison of [c] and [ɟ] (voiced palatal plosive):

The following show the phones in analogous environment, and as such indicate a phonemic difference:

0908	ɟebre	B-B	vendre	sell	RCB/YD
1171	cebe	M-M	coquille	shell (of egg)	RCB/LK
0448	ɟɛwɛtɑ	B-M-MB	commerçant	shopkeeper	RCB/YD
1160	cɛcɛlɛ	M-M-M	aigle	eagle	RCB/YD

But [ɟ] is phonetically very similar to [g]; we therefore need to compare these. When we do so, we discover complementary distribution:

I have 75 occurrences of [ɟ] in my database, and *all* of them occur syllable-initially. Whenever they occur word medially, they occur in compound nouns, because they retain their position at the onset of the second word of the compound noun. In other words, they occur **root initially** – e.g.

0042	ciɾeɟɪŋ	M-M-HM	taille (mot pour mot: long-distance)	height (literally: long	RCB/DK

However, my 86 examples of [g] show that it only occurs word medially and in simple (non-compound) words – or else before a nasal - as in these two examples:

0206	bugu	B-B	un sourd	a deaf person	RCB/YD
1708	gn̪	MB	noir	black	RCB/YD

A neat example of this complementary distribution is the following example:

0289	ɟigi	M-B	rire	laugh	RCB/DD

The only exceptions to this rule are loan words from Jula. The examples I have discovered are:

9954	gɑlɛ	M-B	mascara	mascara	RCB/DD
9953	gɑɾɛ	B-M	teinture	dye	RCB/DD
9952	sɑnɟe	M-M	moustiquaire	mosquito net	RCB/DD

So we can conclude the following:

[g] only occurs word medially in simple (non-compound) words (except for loan words);

[ɟ] only occurs root initially in compound words (except for loan words).

Being in complementary distribution, [g] and [ɟ] are allophones of the phoneme /g/.

Examination of [j] (voiced palatal unrounded central approximant):

Comparing this with the nearest palatal [ɟ], we have the following:

0949	ɟokɔrɔ		pirogue	dugout canoe	RCB/YD
0935	jokiɾi		voyager	travel	RCB/YD
9938	ɟow		manger	eat	RCB/DD
1220	jow	H	ramper	crawl	RCB/YD

These contrast in analogous environment, which shows that /j/ is a phoneme.

Comparison of [k] and [k͡p] (voiceless unaspirated labial-velar plosive):

0336b	kɑrɪ	B-M	être paresseux	to be lazy	RCB/DK
9969	k͡pɑrɪ	B-M	être habitué	to be used to	RCB/DK
1201	kerɑ	M-M	vipère	viper	RCB/YD
1770	k͡pesɑ	H-M	soixante	sixty	RCB/YD

These exhibit clear evidence for the existence of the phoneme /k͡p/.

Comparison of [k͡p] and [g͡b] (voiced unaspirated labial-velar plosive):

1576	g͡bo	B	frapper avec un bâton	to hit with a stick	RCB/LK
1761	k͡poɾo	H-H	vingt	twenty	RCB/YD
1690	g͡bɑnɛ	H-M	être émoussé		RCB/YD
1205	k͡pɑlɛ	B-M	margouillat	lizard	RCB/YD
	g͡bɑre	B-M	lépreux	leprous	gD,DJD
	k͡pɑre	B-M	escabeau	stool	gD,DJD

These analogous and minimal pairs clearly indicate that we have the phoneme /g͡b/.

Examination of uvulars.

I have 53 examples of voiced uvular sounds in my database. I believe this sound to be a [ʁ] (voiced uvular fricative). In normal speech it is said very quickly (which makes it sound almost like a flap) and with quite open articulation (which makes it sound almost like an approximant). There is a case for writing it thus: [ʁ̝] or thus: [ʁ̆]. When uttered slowly and carefully it can sound more like a plosive, thus: [ɢ]. Dr Ken Olson has kindly analysed 12 words containing the sound using the speech analysis program PRAAT. He concludes that the sounds are too long to be considered as flaps, and should be called "short uvular fricatives". [4] [viii]

[4] "First, the duration of the sound averages about 65 ms. This is much longer than what is typically found for flap or tap sounds (<30 ms), so on that basis I would hesitate to call it a flap. Some of the tokens are down in the 40 ms range (2 and 4), so they are definitely on the short end of normal sounds. ...

The normal acoustic correlate for a fricative is high frequency aperiodic noise. Unfortunately, I couldn't see much of that in the spectrograms. (This is often the case for non-strident fricatives.) On the other hand, a couple of the tokens (3 and 7) definitely sounded like fricatives to me.

Several of the tokens also had spurious glottal pulses present during the articulation of the sound (5, 8, 9, 10, and 12). This could be indicative of creaky voice (laryngealization). If I were describing it, I'd probably call it a "short voiced uvular fricative", but as you see, there's some interesting variation."

Note also that they have only been found intervocalically (see below).

To ascertain whether it is a phoneme in its own right, we need to compare it with phonetically similar phones. The two that are the most similar are [g] and [h]. If we compare it with [g] (proved above to be a phoneme), we find contrast in analogous environment:

1653	dɑgɛ	M-M	petit	small	RCB/LK
1143	dɑʁɛtɛ	B-B-M	volaille	poultry	RCB/YD
1717	sɑʁɛ	M-H	amer	bitter	RCB/YD

It is fruitless to compare it with [h], as there is so little data for the latter, but due to the above evidence I can say with confidence that [ʁ] is a phoneme in its own right.

It should, however, be noted that its distribution is limited to the intervocalic environment.

The [χ] (voiceless uvular fricative) does not exist, though sometimes [ʁ] is enunciated without much voicing - as in the following example:

1208	sɑʁɑrɛ	H-H-M	iguane	iguana	RCB/DK

2.1.4 NASAL SET:

Comparison of [b] and [m] (voiced bilabial nasal):

1163	bĩ	H	crête	crest	RCB/LK
1615	mĩ	B	chercher	look for	RCB/LK
0161	bɛnɛ	M-B	transformer	transform	RCB/DK
1261	mɛnɛ	B-M	dard	stinger	RCB/YD

Here the examples of minimal pairs (except tone) show two phonemes.

Conclusion: /m/ is a phoneme in its own right.

Comparison of [m] and [n] (voiced alveolar nasal):

1627	mɑˈwɑ	B-M	laver	wash	RCB/LK
0940	ˈnɑwɑ	B-M	apporter	bring	RCB/YD

This is a minimal pair, apart from stress.

Conclusion: /n/ is a phoneme in its own right.

Examination of [ɲ] (voiced palatal nasal) and [ŋ] (voiced velar nasal).

[ɲ] only ever occurs syllable initially and before a vowel – see below. It never occurs as a syllabic nasal.

[ŋ], on the other hand, only occurs syllable finally or as a syllabic nasal, as exemplified here:

1169	ɲɑŋkɑbɑ	M-M-M	griffe	claw	RCB/LK
0174	ɲimi	M-M	danser	danse	RCB/DK
9998	ŋ̩	BM	dormir	sleep	RCB/DK

They are therefore in conditioned variation and are allophones of the same phoneme.
As [ŋ] occurs in more environments, let us write the phoneme thus: /ŋ/
The rule will therefore be /ŋ/ → [ɲ] / # _ V

Comparing the proposed phoneme /ŋ/ (which now includes the allophone [ɲ]) with /n/, we find contrast in analogous environment:

0899	[nɑtɛ]	H-B	propriétaire	owner	RCB/YD
1240	[ɲɑmɛ]	B-B	scorpion	scorpion	RCB/YD
1256	[ɲinikoɾi]	M-H-B-B	cocon	cocoon	RCB/YD

In the first two words, [n] and [ɲ] contrast in analogous environments; in the third, they contrast when one compares the first and second syllables.
Conclusion: /ŋ/ is indeed a phoneme in its own right.

Examination of [ŋ͡m] (voiced labial-velar nasal).
My database contains 24 examples, and these include some syllabic nasals.

Consider the following:

1261	mɛnɛ	B-M	dard, aiguillon	stinger	RCB/YD
1624	mɛ̃ɑ̃		tremper	soak	RCB/LK
1643	ŋ͡mɛ̃nɛ̃		brûler (intrans)	burn	RCB/LK
9962	ŋ͡mɑ̃	M	ces	these	RCB/DK
9906	mɑ		même	even	RCB/DD

Comparing 1261 and 1624 with 1643, and also comparing 9962 with 9906, we can see that [ŋ͡m] and [m] contrast in analogous environments.

As a syllabic nasal, it contrasts with [ŋ̩] - for example:

9984	ŋ̊ŋ̊	MH	soleil	sun	RCB/DK
	ŋ̊͡m̥ŋ̊͡m̥	H	dix, 50 CFA	ten, 50 FrCFA	gD & DJD

Tienon [ix] suggests the existence of the voiceless version of this – see above example – but not the voiced.

Prost [x] cites 9 words beginning with a sound which he writes as [ŋʷ] and describes in his consonant chart as "nasale vélaire" *alongside the simple* [ŋ]. Judging from the transcription that he uses, we can assume that he means a labialised version of [ŋ]. This is in fact the voiced labial-velar nasal. I have all but one of the words he cites in my database.

Conclusion: /ŋ͡m/ is a phoneme in its own right.

Voiceless nasals.

[m̥] (voiceless bilabial nasal) exists:

1150	mɑnɛm̥m̩	B-H-M	hibou	owl	RCB/YD
0392	nɑmɑm̥m	B-B-BM	enfants	children	RCB/YD
1490	m̥m	BM	jour complet	complete day	RCB/DK

[n̥] (voiceless alveolar nasal) also exists:

9983	n̥n̩̆	M	de suite	following	RCB/DK
9978	n̥n̩	B	masculin	male	RCB/DK

as does [ŋ̊] (voiceless velar nasal):

9984	ŋ̊ŋ̩	MH	soleil	sun	RCB/DK

and [ŋ̊͡m̥] (voiceless labial-velar nasal):

	ŋ̊͡m̥ŋ̊͡m̩	H	dix, 50 CFA	ten, 50 FrCFA	gD & DJD

(Though it must be noted that this is the only example that I can find in any data I have seen.)
So we can say that every voiced nasal has a voiceless counterpart. Furthermore, they only occur before a syllabic nasal - a restricted and predictable environment - and phonetically they can also be classed as [h] (voiceless glottal fricative), **but where the air is released through the nose instead of the mouth**. Let us further examine this very phone:

This sound is very interesting because it is easily pronounced by Bobo speakers, but is not really native to the language. I only have four examples in my database, and they comprise one ideophone and three loan words from Jula:

0132	hɑho / hohɑ	bailler	to yawn	*ideophone*	RCB/DK
0277	hɑkiri	sagesse, intelligence, esprit	wisdom, intelligence, mind, spirit	*jula loan word*	RCB/DD
0285	hɑkirisuru	se rappeler – *lit: descendre dans l'esprit*	to remember	*jula loan word; compound noun*	RCB/DD
9950	hɑle	même	even	*jula loan word*	RCB/DD

Prost [xi] includes it in his consonant chart, but does not cite any examples in his paper.
From this evidence of loan words alone, we cannot, of course, say that it has phonemic status. However, because of the existence of the voiceless nasals, albeit in a restricted environment, we can indeed assert that /h/ is a phoneme, and interpret [m̥], [n̥], [ŋ̊] and [ŋ̊͡m̥] as /h/.
This seems to me to be the simplest and most economical solution. The alternative would be to create four new phonemes, /m̥/, /n̥/, [ŋ̊] and / ŋ̊͡m̥/, just for a few words, which goes against the principle of economy. And that would still leave the [h] in the four words above (and I am sure that more such words exist).

[ʔ] (glottal plosive)

I have 9 instances of this sound – 3 in the initial position, 5 in the final position and only 1 in the medial position[5]. Bertrand Righo did not record any. Sometimes a speaker would accept or even offer the same word without the glottal present, so I conclude that the glottal plosive is used optionally and does not have any phonological or semantic significance.

2.1.5 MONOSYLLABIC NASAL WORDS:

These are a common feature of Bobobɛrɛ - both with and without vowels - and I have collected together 39 such words, comparing them with other linguists' data. [xii]

From this collection we learn not only that syllabic nasals can be preceded by their voiceless counterparts (as explained above), but also that they can be preceded by /k/ and /g/ - even without a vowel in between - for example:

0955	kn̥	B	guerre	war	RCB/YD
1708	gn̥	BM	noir	black	RCB/YD

From an articulatory point of view, what happens is this: the back of the tongue touches the velum and the uvula is raised to close off the velic passage and nasal cavity - ready to articulate the /k/. The vocal folds are at rest. Then the uvula is lowered at the same time as air is expelled from the lungs. The vocal folds vibrate and all the air is expelled through the nasal cavity. Thus we hear a slight "explosion" as the [k] sound is released in the *nasal not the oral cavity* , immediately followed by the [ŋ] sound. The same thing happens for the articulation of [gn̥], except that the vocal folds vibrate a split second before they do for [kn̥], so we hear the voicing of the [g].

2.1.6 LABIALISATION:

During my first visit to Tansila, I noted labialisation of [k͡p], [g͡b], [k] and [ŋ͡m]. However, on closer examination and testing with LRPs, I conclude that there are no phonemic differences: they are merely allophones of their respective phonemes, occurring more noticeably with some speakers than with others, and particularly before close back vowels (predictably). I also noted that some speakers emphasised labialisation to indicate double articulation.

5

0961	mɑlfɔʔ	fusil	gun	RCB/YD
1655	nɑ wɑʔ	diminuez	decrease	RCB/LK
1581	nɑːnɪʔ	appuyer	lean	RCB/LK
0037	pɛlɛbɪʔ	épaule	shoulder	RCB
1638	wɛlɪʔ	brillant	bright	RCB/LK
1172	wɔːnɔ̃diʔnufoʁo	jaune d'oeuf	egg yolk	RCB/LK
0898	ʔɑmi ɟonɑ	avoir besoin	to need	RCB/YD
9992	ʔɑurɑmɑɟiɑ	le matin va bien	the morning is going well	RCB/RobD
9982b	ʔɔ̃ɔ̃	oui	yes	DK

This marks the end of the consonants. Here follows a summary. Please also refer to the consonantal phoneme chart for an overview [xiii].

2.1.7 SUMMARY OF CONSONANTS:

/p/ and /b/ are phonemes
[p^h] is an allophone of the phoneme /p/, occurring before [i] and [ɪ] only
/w/, /t/ and /d/ are phonemes
/f/ and /s/ are phonemes, but /v/ and /z/ only occur in the Tankire variety.
/l/ and /ɾ/ are phonemes
[r] and [ɾ] are in free variation, and as such are considered to be allophones of the phoneme /ɾ/.
/k/ and /g/ are phonemes
[k] is accepted before any vowel; [c] is only accepted before front vowels ([i, ɪ, e, ɛ]).
As such, [k] and [c] are considered to be allophones of the phoneme /k/.
[g] only occurs word medially in simple (non-compound) words (except for loan words);
[ɟ] only occurs word initially - or word medially in compound words (except for loan words).
Being in complementary distribution, [g] and [ɟ] are allophones of the phoneme /g/.
/j/, /k͡p/ and /g͡b/ are phonemes.
/ʁ/ is a phoneme
/m/, /n/ and /ŋ͡m/ are phonemes; their voiceless counterparts are allophones of the phoneme /h/, which also covers [h] in loan words and ideophones.
[ɲ] only ever occurs syllable initially and before a vowel. It never occurs as a syllabic nasal.
[ŋ], on the other hand, only occurs syllable finally or as a syllabic nasal. They are therefore in conditioned variation and are allophones of the same phoneme.
[ʔ] is used in free variation and does not have any phonological or semantic significance.

2.2 VOWELS

I shall consider each voiced vowel in turn. Then I shall look at vowel distribution, voiceless vowels, elision, length, nasalisation, diphthongs, laryngealisation, pharyngealisation and vowel harmony.

2.2.1 Comparison of and [i] (close front unrounded) and [e] (close-mid front unrounded):

1632	geɾi	B-M	flotter	float	RCB/LK
1683	geɾe	B-B	crochet	hook	RCB/LK

This minimal pair (apart from tone) shows a phonemic difference: /i/ and /e/ are phonemes.

2.2.2 Comparison of [i], [e], [ɪ] (mid-centralised close front unrounded), [ɛ] (open-mid front unrounded) and [ɑ] (open central unrounded)[6]

0114	pʰije	B-MB	souffler	blow	RCB/RobD
9012	peɾe	M-B	honte	shame	RCB/DK
9004	pɪɾɪ	M-M	donner	give	RCB/DK
0850	peɾɛː	M-B	attacher	attach	RCB/YD
0665	pɑɾɑ	M-B	fermenter	ferment	RCB/YD

This five-way contrast reinforces [e] and [i] as phonemes and reveals three further phonemes: /ɪ/, /ɛ/ and /ɑ/.

2.2.3 Comparison of [ɔ] (open-mid back rounded), [o] (close-mid back rounded), [ʊ] (mid-centralised close back rounded) and [u] (open back rounded):

1073	kɔkɔɾi	B-B-M	coq	cockerel	RCB/LK
0747	kokonõ	B-B-B	crépissage	plastering	RCB/YD
9203	kʊɾʊ	H-B	porte	door	RCB/DD
0739	kukuɾu	B-M-B	tas d'ordures	garbage dump	RCB/YD

These four examples show contrast in analogous environment, proving that /ɔ/, /o/, /ʊ/ and /u/ are all phonemes.

2.2.4 Examination of [ə] (close-mid central unrounded):

I have 22 in my database. Here are 21 of them, omitting the loan word:

[6] Note that I write this vowel with the alpha symbol [ɑ] to conform with the teaching of the European Training Programme. BR and Prost write it [a]; the Burkina Faso language committee used [ɑ] in their original transcriptions. The Burkina Faso government's "Alphabet National" contains [ɑ].

1783	ˈbɛləmɑ	M-B-B	dernier; dos	last; back	RCB/YD
1179	tə̌ˈrɪ	H	voler	fly	RCB/LK
1254	dodɔnəˈsi	B-B-B-H	toile d'araignée	cobweb	RCB/YD
1229	g͡bəg͡bɛlˈnõ	M-M-H	termite	termite	RCB/YD
1780	g͡bəɾiji	B-B-M	premier	first	RCB/YD
1262	jɑɾəˈfoʁo	B-M-M-M	assaim	swarm	RCB/YD
1257	jɑɾəˈsjɑ̃nõ	B-B-B-M-M	ruche	beehive	RCB/YD
1259	jɑɾəˈŋ̩	B-B-M	miel	honey	RCB/YD
1750	koɾənõ	M-H-MB	neuf	nine	RCB/YD
1749	koɾəˈso	M-H-MB	huit	eight	RCB/YD
1150	ˌmɑnəˈm̥m	B-H-M	hibou	owl	RCB/YD
1760	ˈn̥n̩koɾənõ	B-M-M-M	dix-neuf	nineteen	RCB/YD
1759	ˈn̥n̩koɾəˌso	H-M-M-B	dix-huit	eighteen	RCB/YD
0911	tɛɾəmɑˈbɑ	M-M-M-H	être bon marché	to be cheap	RCB/YD
0082	wɔˑɾə̌pepe	H-B-B-M	squelette	skeleton	RCB/RobD
0112	fjɛnə̌		respirer	breathe	RCB/RobD
0583	ɟoɾə̌		habits	clothes	RCB/DD
0822	lɑʁəfɔ	B-B-MH	sol fertile	fertile ground	RCB/YD
1249	ˈdɛmə̃nõ	M-M-H	puce	louse	RCB/YD
1383b	lɑʁəbibi	M-M-M-MB	terre	ground, soil	RCB/YD
9891	cɛɾəcɛ		selle	saddle	RCB/DD

Various observations ensue:

a) [ə] seems to occur in unstressed syllables. (This is consistently the case where stress is marked.)

b) Perhaps unstressed vowels mutate to [ə]. Indeed, when LRPs are asked to pronounce words apparently containing [ə] slowly and carefully, they tend to pronounce the original phonemic vowel. If we compare my transcription of a couple of numerals with Prost's, it would lend weight to this theory:

PROST	**RCB**	**gLOSS**
korosoo	koɾəˈso	huit
koronõ	koɾənõ	neuf

c) Elision occurs in some people's data, but not in others' - here are some examples:

PROST	RCB	gLOSS
pəlɑ	plɑ	deux
sra	sɑrɑ	mains
tra	tɑrɑ	oreilles

Note: in these last two examples, BR records the first vowels as being very short.

d) Does [ə] carry tone? I record tone on all occurrences of [ə], but BR does not. Prost makes an interesting statement about this, suggesting that the surface structure contains [ə] without tone, or even complete elision of the vowel, but the underlying structure would contain tone. This is recognised by anyone whistling the language. [7xiv] Indeed, it is common for tone languages to retain the tone of elided vowels or syllables. They then attach to a neighbouring syllable.

e) Where does the vowel occur? It occurs in the middle of words, but beyond that we cannot draw any conclusions, as it comes **before and after** so many different types of sounds (liquids, nasals, plosives and fricatives!)

f) I must emphasise that I only had a small number of words to analyse (which in itself tells us something about the tentative nature of this vowel), and therefore I cannot come to any firm conclusions. In addition, many of them are **compound words,** which themselves merit further study. However, gathering all these observations together, we can perhaps make a tentative hypothesis:
[ə] represents any phonemic vowel which occurs in an unstressed syllable. Over time it gradually loses prominence, leaving only its tone, which attaches to another syllable. A flowchart would look like this:
{ + unstressed V + TONE} → { + [ə] + TONE} → {-V + TONE}

2.2.5 Vowel distribution:

Tienon gives us an exhaustive study and concludes that all vowels occur in all positions. However, "Vowels are all rare in initial position; they are mainly found in pronouns and in borrowed words having an initial vowel or initial r."[xv]

2.2.6 Voiceless vowels:

None was found, and no other linguists mention them.

2.2.7 Elision:

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[7] Prost says of this vowel: "[ə] est une voyelle sans timbre, comme le "e muet" du français. Dans l'écriture elle est souvent omise : pra creuser, sra mains, tra oreilles, mais en réalité elle est porteuse de tonêmes et un Bobo qui siffle sa langue ne l'omet jamais."

I have shown above that some vowels can be elided before the liquids /ɾ/ and /l/. Prost's short contribution is quoted above (see footnote[2]). The Burkina Faso language committee's "Transcription 2006" cites contractions [xvi]. Here are some examples that I have collected:

DATABASE NO.	FULL WORD	TONE	CHANgES TO	TONE	gLOSE FRANÇAISE	ENgLISH gLOSS	LINgUIST/LRP
1743	pɑlɑ	M-B	plɑ	MB	deux	two	RCB/YD
9880	buɾo	M-B	bɾo	MB	insulte	insult	RCB/DD
0019	dʊwɔ	M-B	dwɔ	MB	bouches	mouths	RCB/RosD
0239	buwu	M-B	buw	MB	maladie	illness	RCB/RosD

Here is a tentative rule:

In fast speech, any vowel may be elided before liquids and approximants. Where a vowel occurs at the end of a word and after an approximant, this vowel may be elided instead of the one *before* the approximant.

Sabari Tienon quotes similar examples[xvii] :

pala → pla = two
tara → tra = ears
bara → bra = to rot
bɛrɛ → brɛ = to swallow

These words have been confirmed by my language resource people.

Secondly, he quotes the following examples:

a ma age yi ko → a m'age yi ko = it is not mine
a pere a ma → a per'a ma = give it to him.

So we can also say:

A word-final vowel is elided when the following word begins with a vowel.

2.2.8 Lengthened vowels:

Previous studies come to different conclusions about vowel length: Prost did not find it to be contrastive, whereas Sanou did.

I have recorded distribution as follows:

VOWEL	SHORT	GLOSS	LONG	GLOSS
e	bĭre M-M (0146)	toucher = touch	bre: (1740)	vieux = old
i	kiɾi M-B (0575)	village	kiri: M-B (9034)	voyage = journey
ɪ	bɪ (0246)	vomir = vomit	NONE	
ɛ	bɛ (9885)	tomber = fall	bɛ: MB (9881)	parler = speak

ɑ	pɑ B (0744)	abri = shelter	pɑː MB (1578)	gifler
ɔ	dɔ BM (0282)	enseigner = teach	dɔː (1620)	égoutter = drain
o	jo MB (0385)	mère = mother	soː M (9015)	tout le temps = all the time
ʊ	sʊ B (9001)	route = road	NONE	
u	ku H (0932)	dette = debt	kuː BM (9899)	fleuve = river
ə	tərɪ (1179)	voler = fly	NONE	

From the above evidence, it is clear that vowel length is contrastive in Bobobɛrɛ. It should be noted, however, that no instances of lengthened [ɪ], [ʊ] and [ə] have been found.

2.2.9 Nasalisation.

a) Distribution: any vowel can be nasalised:

VOWEL	TOOLBOX NO.	EXAMPLE	TONE	FR. gLOSS	ENg. gLOSS	LINgUISTS
i	1163	bĩ	H	crête	bird's crest	RCB/LK
ɪ	9918	sĩ		demain	tomorrow	RCB/DD
e	0404	tẽẽ		co-épouse	fellow-wife	BR/RosD
ɛ	1665	fɛ̃	MH	mince	thin	RCB/LK
ɑ	1183	tɑ̃ŋ	B	se percher	perch	RCB/LK
ɔ	1658	kɔ̃ŋkɔ̃ŋ	B-M	baisser	lower	RCB/LK
o	1258	jɑrdõ	B-M	cire d'abeille	beeswax	RCB/YD
ʊ	0363	nʊ̃[8]	M	enfant	child	RCB/DD
u	0370	sũŋ	MH	home	man	RCB/YD
ə	1249	dɛməñõ	M-M-H	puce	louse	RCB/YD

b) A vowel is always nasalised after a nasal:

I have 58 words containing nasalised vowels in my database. Of these words, 40 contain nasals, and all of the vowels following them are nasalised.

c) A vowel is sometimes nasalised before a nasal:

Sometimes I detected nasalisation before a nasal– e.g. [k͡põnɑ̃] no. 1629; sometimes I did not – e.g. [dɛməñõ] no. 1249. There doesn't seem to be any pattern to this. It is natural to begin nasalising in preparation for the nasal to come, but it does not seem to be necessary in Bobobɛrɛ.

d) Nasalisation of vowels in words without nasals is contrastive:

TOOLBOX NO.	EXAMPLE	TONE	FR. gLOSS	ENg. gLOSS	LINgUISTS
1163	bĩ	H	crête	bird's crest	RCB/LK
0944	bi	B	porter	carry	RCB/YD

It should be noted that in this example the difference in tone also helps to distinguish the two words.

[8] My original transcription of this word was [nõ]

e) ***Consider what other linguists say:***

Prost[xviii] recognises the existence of all the nasalised vowels except [ɔ̃, ə̃].
He remarks that they are often pronounced with "velar resonance", so he would say that [pã] would be realised as [paŋ], for example. Furthermore, there is often elision of final vowels, so for example [nano] "chicken" becomes [naŋ dɛge] "chicken feather".
Hochheimer[xix] et al give examples of words for all the nasalised vowels except [ə], which is a special case anyway - see above. They suggest writing all word-final nasalised vowels with [Vŋ] and word-medials with [Vn].
Djele Diarra and Gabriel Diarra[xx] found examples of all the nasalised vowels except [ə̃, ʊ̃].

f) Conclusions

Any vowel can be nasalised; a vowel is always nasalised *after* a nasal and sometimes *before*; nasalisation of vowels in words without nasals is contrastive. [9]

2.2.10 Diphthongs:

I would like to suggest that there are no true diphthongs in Bobobɛrɛ. Hochheimer et al do not quote any diphthongs. Neither Tienon nor Prost nor Sanou mention them[10]. Diphthongs which do seem to exist can be explained by the existence of an elided central approximant in the underlying structure, so

V + {[w] or [j]} + V → V + V / fast speech

Thus the diphthongs suggested by Djele Diarra and Gabriel Diarra[xxi] can be transcribed as follows:

ɪɛ → ɪjɛ; ɛɪ → ɛjɪ; iɑ →ijɑ; iɛ → ijɛ; oʊ → owʊ; ʊo → ʊwo; ɔʊ → ɔwʊ; uo → uwo; ou → owu; ɪɔ → ɪjɔ

2.2.11 Laryngealisation:

I did not find any evidence of laryngealisation of vowels or consonants, and neither has any other linguist.

2.2.12 Pharyngealisation:

I did not find any pharyngealisation as a phonologically significant phenomenon. However, when pronouncing the vowels [ɪ] and [ʊ] very carefully, some LRPs pronounce them with a certain amount of constriction in the pharynx, which makes them easier to distinguish from adjacent vowels. Please see the next section for a further mention of this.

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[9] ORTHOGRAPHICAL NOTE: This means that in my view it will not be necessary to mark nasalisation after a nasal, but it will be necessary in other contexts.

[10] Prost has a paragraph on the subject in his "Dictionnaire Bobo-Français" (p22), but is careful not to draw any definite conclusions. He agrees with me, however, that elision of consonants does lead to the apparent existence of diphthongs.

2.2.13 Vowel Harmony:

Bobobɛrɛ exhibits a classic nine-vowel system, as exemplified above ([ə] is not a phonological vowel). Many Mandé languages exhibit vowel harmony, and Bobobɛrɛ is no exception.

Eight of the vowels fall naturally into two categories, with /ɑ/ being allowed into both. Thus:

	FRONT	CENTRAL	BACK
CLOSE	i		u
CLOSE-MID	e		o
OPEN		ɑ	

These can be described as "Plus Advanced Tongue Root" (+ATR)

Here is an example of each combination:

0114	pije	B-MB	souffler	to blow	RCB/RobD
0301	toli	M-B	surprendre	surprise	RCB/DD
0460	tugo		rencontrer	meet	RCB/DD
0916	bɑrɑdi	M-M-B	embaucher	to employ	RCB/YD
1234	tuni		locuste	locust	RCB/YD
1201	kerɑ	M-M	vipère	viper	RCB/YD
1591	kure	B-B	entailler	cut into	RCB/LK
1807	k͡pĭredo	B-B-MB	sud	south	RCB/DK
0079	kɑlo	B-HM	orteil	toe	RCB/YD
1710	bulɑ	M-H	bleu	blue	RCB/YD

Second set:

	FRONT	CENTRAL	BACK
MID-CENTRALISED (BETWEEN CLOSE AND CLOSE-MID)	ɪ		ʊ
OPEN-MID	ɛ		ɔ
OPEN		ɑ	

These can be described as "Minus Advanced Tongue Root" (-ATR). This is why some speakers pronounce them with a certain amount of constricted pharynx.

Here is an example of each combination:

1210	jɛlɪ	M-M	crocodile	crocodile	RCB/YD
0638	bɑsɪ	M-HM	bière de mil	millet beer	RCB/YD
1774	ɟɔlɪ	B-B	cent	hundred	RCB/YD
1653	dɑgɛ	M-M	petit	small	RCB/LK
0630	fɔrɛ	H-M	farine	flour	RCB/YD
9925	tʊwɔrɛ	B-B-B	se rassembler	meet	RCB/DD
0961	mɑlfɔ		fusil	gun	RCB/YD
0272	nʊŋkɑ		espérer	hope	RCB/DD
9868	bɛnɪrʊ	B-B-H	petite coupure	small cut	WW/DD

Note: it is very common in Bobobɛrɛ to duplicate the same vowel in a word – for example, /kɛbɛ/ (0041), biɾi (9982), bɑnɑ (0867), dɔkɔlɔ (0024), etc.

2.2.14 Summary:

- There are nine vowels: /i, ɪ, e, ɛ, ɑ, ɔ, o, ʊ, u/[xxii]
- [ə] represents any phonemic vowel which occurs in an unstressed syllable
- All vowels occur in all positions, though syllable-initially they are rare
- There are no voiceless vowels
- Vowels can be elided before the liquids /ɾ/ and /l, after /w/, and at the ends of words where the proceeding word begins with a vowel.
- Vowel length is contrastive
- Any vowel can be nasalised
- Nasalisation of vowels *always* occurs after a nasal and *sometimes* before
- Nasalisation of vowels in words without nasals is contrastive
- There are no true diphthongs
- Pharyngealisation is not phonologically contrastive (though it can occur in –ATR vowels)
- There is vowel harmony. Vowels fall into 2 sets: + ATR and –ATR
- It is very common for the same vowel to be duplicated within a word – eg /kɛbɛ/.

This marks the end of the section on vowels.

3. TONE

3.1 DISTINCT TONES

All previously-quoted linguists agree that there are 3 distinct level tones in Bobobɛrɛ: high (represented by H or ˊ), medium (M or no mark, or sometimes ¯) and low (B or ˋ). These are exemplified by the following phrases, quoted by Prost[xxiii] :

à wūɾó = c'est un trou á ɲīmì = je danse

I cannot claim to be an expert on tone, but my initial findings certainly concur with this hypothesis. I have found minimal pairs such as these:

TOOLBOX NO.	EXAMPLE	TONE	FR gLOSS	ENg gLOSS	LINgUISTS / LRPs
9014	bɛɾɛ	H-B	langue	language	RCB/DK
9994	bɛɾɛ	B-B	boue	mud	RCB/DK
1655	nɑwɑ	B-B	diminuer	diminish	RCB/LK
0940	nɑwɑ	B-M	apporter	bring	RCB/YD
0903	pɪɾɪ	B-B	puiseur		RCB/DK
0922	pɪɾɪ	M-B	donner	give	RCB/YD
1797	e	M	tu	you	RCB/DK
1801	e	B	ils	they	RCB/DK
0243	kn̩	M	paludisme	malaria	RCB/DD
0955	kn̩	B	guerre	war	RCB/YD
0744	pɑ	B	abri	shelter	RCB/YD
0838	pɑ	M	battre le mil	to pound millet	RCB/YD

Ideally these need to be presented within identical frames for each pair. More research is needed, together with work on *contrastive melodies*.

3.2 TONE GLIDES

It seems that all possible combinations of the three tones exist to produce glides, but again, ideally they need to be presented within good frames to be sure. Between us, BR and I recorded examples of all of them. I have reproduced them here, with minimal pairs for contrast where possible:

TONE GLIDE	NO.	EX.	FRENCH GLOSS	ENG GLOSS	IN PHRASE	FR. GLOSS	LINGUIST
HIGH-LOW c.f. LOW	0005 0955	kn̩ kn̩	chair guerre	flesh war	wɔɾɔfɑ̄ kn̂ à kn̩ dīkà bⁱɛ̃	peau d'animal la guerre commence ici	RCB/RosD RCB/YD
HIGH-MID	0341	fɔ	bon	good	ɑ̄ pjàsjō fɔ̄	le vélo est bon	RCB/YD
MID-HIGH LOW-MID	9979 9998	ŋ̩ ŋ̩	odeur dormir	smell to sleep	- à ŋ̀ k͡pī̃dɔ̀	- il dort maintenant	RCB/DK RCB/DK

MID-LOW c.f. LOW-MID	1279 0401	bɑŋ bɑ̃ŋ	bambou mari	bamboo husband	- à ɲɑ̀ bɑ̀ŋ k^{h}īré	- Le mari de cette femme est grand de taille	RCB/DK RCB/YD
LOW-HIGH	0370	sũŋ	personne	person	-	-	BR/RosD

3.3 SYLLABIC NASALS

All syllabic nasals in my data carry tone, as the following examples show:

Toolbox item no.	item	tone (H = high, M = mid, B = low)	French gloss	English gloss	linguist/LRP
1490	m̥m̩	BM	journée complète	complete day	RCB/DK
0631	n̩	M	huile, graisse	oil, grease	RCB/YD
9979	ŋ̩	MH	odeur	smell	RCB/DK
1739	n͡m̩nõ	H-B	être nouveau, neuf	to be new	RCB/DK

They not only carry tone, but this tone is *contrastive:*

9999	ŋ̀	B	tête	head	RCB/DK
9979	ŋ̩	MH	odeur	smell	RCB/DK
0243	kŋ̩	M	paludisme	malaria	RCB/DD
0577	kŋ̩	H	marché	market	BR
0005	kŋ̀	HB	peau, chair	skin, flesh	RCB/RosD

4. SYLLABLE STRUCTURE

4.1 First let us define a phonological syllable in Bobobɛrɛ.

In the previous section, I established that tone is contrastive. Furthermore, I established that each phonological unit carries exactly one tone - though some are tone *glides* - and no data in my possession negates this. Thirdly, I established that a syllable nucleus can be a nasal. Since throughout the sketch I have already quoted numerous items where the syllable nucleus is a vowel, we can assert the following:

A phonological unit in Bobobɛrɛ is that which carries only one contrastive tone and whose syllable nucleus can be either a vowel or a nasal.

4.2 Now let us establish what syllable types (CV patterns) we have.

Let us look at some univalent syllables:

1673	pɛtɛː	M-M	être plat	to be flat	RCB/LK
1727	fɔ	M	être beau	to be beautiful	RCB/YD
1168	kɑbɛ	M-M	aile	wing	RCB/LK

These clearly show the pattern **CV**.

Now consider these words:

1198	blɑblɑwɔlɔ	B-H-M-M	escargot	snail	RCB/LK
1630	fre	B	barbouiller	smear, daub	RCB/LK

At first glance they show the pattern **CCV**. However, we have observed above that there is a lot of elision in Bobobɛrɛ, particularly before liquids. These examples can be reinterpreted as [bəlɑbəlɑwɔlɔ] and [fərɛ], to the satisfaction of native speakers, which means that they conform to the CV pattern. I favour this approach of simplicity: keep the number of syllable types as low as possible.

The alternative interpretation would be to say that a consonant is allowed before a liquid.

Let us now turn to **CVC**. Can we say, with Prost, that this does not exist? I found 23 items which on the face of it exhibit the pattern CVC[xxiv]. Interestingly, they fall into one of two groups: those containing the liquids [ɾ] or [l] and those containing the velar nasal [ŋ]. Let us look at the liquid words first. When I listened to the recordings, I found that in most cases short vowels [ŭ, ə̆, ĭ] were in evidence but almost hidden because of their length. However, there were two examples where I did not hear a half-hidden vowel: **jɑldege** and **g͡bɔr.** This leads us one of two ways: either we can say that vowels are there in the underlying form but not in the surface form; or we can say that the CVC pattern does indeed exist.

4.3 Next let us turn to syllable-final velar nasals.

These are quite common in Bobobɛrɛ and force us to accept the CVC pattern. Consider this item:

1279	bɑŋ	B	bambou	bamboo	RCB/DK

We cannot interpret it as [bɑ̃]* (which would give us the CV pattern) because this would give us nasalisation without the velar quality.

In conclusion, we need to include the CVC pattern in our syllable types. It can occur with liquids and velar nasals.[11][xxv].

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[11] Prost prefers to refer to this type as CVŋ, so it would be fascinating to know how he would describe the syllable patterns of the words containing liquids that I have quoted. In his dictionary of the southern dialect, he asserts categorically that CVC does not exist. Here is the full quote:

"Structure phonétique des mots - 1.5. Aucun mot ne commence par une voyelle sauf quelques emprunts à l'arabe commençant par **a**. On a, de plus, les pronoms **à** "il", **è** "ils" (complément), la particule de liaison de phrase **òn**.

La syllabe est de structure **CV**. Elle peut être répétée et l'on a **CVCV, CVCVCV**. Au-delà, il s'agit de mots composés ou de verbes à forme redoublée.

CV est très fréquent: **bɛ̄n** "corne" ...

CVC n'existant pas, on peut écrire **bɛ̄n** au lieu de **bɛ̃** sans risque de confusion.

CVCV est également fréquent: **dɛ̀mɛ̀n** "haricot du pays" ...

CVCVCV: kànànā "frire" ..."

Because our phonological syllable nucleus can either be a vowel or a nasal, this allows for the pattern **CN**, where **N** signifies a syllabic nasal, and sure enough this exists too:

0955	kn̩	B	guerre	war	RCB/YD
1760	n̥n̩korənõ	H-M-M-M	dix-neuf	nineteen	RCB/YD

[kn̩] gives us CN
[n̥n̩korənõ] gives us CN.CV.CV.CV

Bobobere also has syllables of one letter only, which can either be a nasal or a vowel:

9979	ŋ̩	MH	odeur	smell	RCB/DK
9998	ŋ̩	BM	dormir	sleep	RCB/DK
9995	α	B	le, la, etc.	the	RCB
9996	α	H	je, il, elle, etc.	I, he, she, etc.	RCB

NOTE: Prost points out that, although single vowels do exist as words in their own right, they are rare[ii] - see footnote 3 above.
Nevertheless, we must include the syllable types **N** and **V**.

4.4 SUMMARY:

We have established the following:

- Bobobɛrɛ nasals carry contrastive tone;
- A phonological unit in Bobobɛrɛ is that which carries only one contrastive tone and whose syllable nucleus can be either a vowel or a nasal;
- Bobobɛrɛ has the following syllable types:

CV	(the most common)	e.g.	fɔ̃	= to be beautiful
CVC	(tentative)	e.g.1	g͡bɔ̀r	= to be rough
		e.g.2	bɛ̀ŋ	= understanding
CN		e.g.	kn̩	= corps
N		e.g.	n̩	= sleep
V	(rare)	e.g.	á	= the

5. SUMMARY OF PHONEMES AND POINTERS TOWARDS AN ALPHABET

Here are the phonemes which I have established, with alphabet comparisons and notes:

5.1 CONSONANTS

PHONEMIC DESCRIPTION	IPA PHONEMIC TRANSCRIPTION	CATHOLIC TRANSCRIPTION (1976ff)	JULA EQUIVALENTS	SUggESTED ALPHABET TO TRY OUT (ALL of these are accepted by the Burkina Faso government)	NOTES
voiceless bilabial plosive	p	p	p	p	
voiced bilabial plosive	b	b	b	b	
bilabial nasal	m	m	m	m	
bilabial rounded central approximant	w	w	w	w	
voiceless labiodental flat fricative	f	f	f	f	
(voiced labiodental flat fricative – NOT IN TANSILA DIALECT)	v	NOUVEAU TESTAMENT: v		v	Include this to use for Biblical loan words
voiceless alveolar plosive	t	t	t	t	
voiced alveolar plosive	d	d	d	d	
voiceless alveolar grooved fricative	s	s	s	s	
(voiced alveolar grooved fricative– NOT IN TANSILA DIALECT)	(z)	NOUVEAU TESTAMENT: z		z	Include this to use for Biblical loan words
alveolar nasal	n	n	n	n	
alveolar flap	ɾ	r	r	r	
alveolar lateral approximant	l	l	l	l	
(voiced palatal plosive: ALLOPHONIC)	[ɟ]		j (ACTUALLY REPRESENTS [dʒ])		This is not necessary, as it is in complementary distribution with /g/, but the people may want to write it anyway.
(palatal nasal: ALLOPHONIC)	[ɲ]	ny	ny		This is not necessary, as it is in complementary distribution with /ŋ/, but the people may want to write it anyway.
palatal unrounded central approximant	j	y	y	y	
voiceless velar plosive	k	k	k	k	

voiced velar plosive	ɡ	g	g	g	
velar nasal	ŋ	ng; NOUVEAU TESTAMENT: ŋ	ŋ	ŋ	
voiceless labial-velar plosive	k͡p			kp	There may be some preference for "kw", as there is some labialisation in producing it. NB "kp" is accepted by the Burkina Faso government
voiced labial-velar plosive	g͡b			gb	ditto – "gw"
labial-velar nasal	ŋ͡m			ŋm	ditto – "mw"
uvular fricative	ʁ	ḫ		ɣ	I believe that this is accepted by the BF government
glottal fricative	h	h		h	
nasalisation	Ṽ	Vn or Vŋ	Vn	Ṽ	I favour this, because of possible confusion with nasals, but there will probably be a preference for Vn
length	Vː	VV	VV	VV	
voiceless nasals	[n̥, m̥, ŋ̥] → /h/	h		h	

5.2 VOWELS:

PHONEMIC DESCRIPTION	IPA PHONEMIC TRANSCRIPTION	CATHOLIC TRANSCRIPTION (1976ff)	JULA EQUIVALENTS	SUggESTED ALPHABET TO TRY OUT	NOTES
close front unrounded	i	i	i	i	
mid-centralised close front unrounded	ɪ			ɩ	This symbol is suggested by the Burkina Faso government
close-mid front unrounded	e	e	e	e	
open-mid front unrounded	ɛ	è; NOUVEAU TESTAMENT: ɛ	ɛ	ɛ	
open central unrounded	ɑ	ɑ	ɑ	ɑ	
open-mid back rounded	ɔ	ɔ	ɔ	ɔ	
close-mid back rounded	o	o	o	o	
mid-centralised close back rounded	ʊ			ʊ or ü	
close back rounded	u	u	u	u	
(close-mid central unrounded)	(ə)				This does not need to be written

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7. LINGUISTS AND LANGUAGE RESOURCE PEOPLE REFERRED TO:

BR = Bertrand Righo
DD = Djele Jean Diarra
DK = Dieudonné Kiénou
GD = Gabriel Diarra
LK = Lydie Kiénou
RCB = Richard C Brassington
Rob D = Robert Dioma
Ros D = Rosalie Dioma
YD = Yakuba Dao

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