Lubwisi Phonology Survey

By

Waller C. Tabb Jr

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1.0 Language Background

Language name: LuBwisi/KiTalinga
Dialect on which this study is based : LuBwisi spoken in Bundibugyo District, Uganda
Country: Uganda, Democratic Republic of Congo
Political division where spoken: LuBwisi: Bwamba County, Bundibugyo District, Uganda.
Kitalinga: Butalinga County, Beni Zone, North Kivu, Democratic Republic of Congo
Major towns/villages: Bundibugyo Town (District Headquarters), Nyahuka Trading Center
Number of speakers: approx. 95,000
Major language group: BaBwisi/BaTalinga
Minor language group: BaAmba/BaHumu
Contiguous languages: RuKonjo, RuTooro, KwAmba,
Source(s) of information on language classification: Tucker & Bryan 1957, Ladefoged et al 1972, Paluku 1998
Name(s) of language researcher(s): Waller Tabb
Period during which field work was carried out: 1991-Present
Previous studies: Tucker & Bryan 1957, Ladefoged 1972, Tabb 1993, Paluku 1998, Cullen 1999 (see Annotated Bibliography)
Acknowledgments: It is too difficult to list all the Babwisi people who have helped me learn their language, but some should be listed as I have worked with them formally in learning the language and inquiring about some of the more technical parts. Rev. Hannington Bahemuka is the key informant for this paper, and he supplied many of the examples. Others include Mubulya A. Wilson, Kisembo Akleo, Boniface Tibirihwa, and Taddeo Mwanga. I have also gotten linguistic help along the way from Connie Kutsch-Lojenga, Ron Moe, Keith Snider, Pat Bennett, and Oliver Stegen. Rod Casali has helped all of us in the Africa Area of SIL by providing this, a finishable phonological template. I wish to thank Rich & Alie Benson for beginning serious linguistic study of LuBwisi. I have had enlightening grammatical discussions with Wendy Cullen Gray. As always my wife, Mary Tabb, gives good feedback to some of the ideas I have, and is my counselor and companion. Of course the word "acknowledge" reminds me of the Proverbs 3:5-6 "Trust in the LORD with all your heart, and do not lean on your own understanding. In all your ways acknowledge Him, and He will make your paths straight." I don't want to fail to acknowledge the One who has given me life and a purpose for being in western Uganda.

Phoneme inventory

1.1 Consonants

	Labial	**Alveolar**	**Palatal**	**Velar**	**Labial-Velar**	**Glottal**
Plosive	p, b	t, d	t͡ʃ, d͡ʒ	k, g	k͡p, g͡b	
Implosive	ɓ	ɗ				
Nasal	m	n	ɲ			
Fricative	f	s				
Approximate	β	l	j	ɣ	w	h

Consonant Sequences

There are 23 distinct consonant phonemes and most of these consonants may be prenasalized, palatalized, or labialized. Prenasalized, palatalized, and labialized consonants are analysed as sequences of phonemes rather than individual phonemes on their own. Analysing the consonants this way follows a principle of economy of phonemes and keeps the consonant inventory to 23 instead of

adding upwards of 30 more "phonemes". Some phonological analyses make prenasalized consonants phonemes and leave out palatalized and labialized consonants. To me this seems arbitrary. Since the nasal consonants /m, n/ exist[1], and the palatal consonant /j/ exists, and the labial (-velar) consonant /w/ exists, and since there is no new consonant sound produced when separated from the nasal consonant which precedes it, or the palatal or labial consonant which follows it, these sounds are analysed as a sequence of two consonant phonemes. For example, the approximates /β, l, j, ɣ, w, h/ become /b, d, d͡ʒ, g, pʷ, p/ respectively, when prenasalized (see p.29). If these plosive sounds did not occur on their own as phonemes, then perhaps these prenasalized sounds could be analysed as distinct phonemes. But the plosive, approximate, and nasal sounds do occur in non-prenasalized, non-palatalized, and non-labialized environments. If there is a distinct sound in the sequence of prenasalized, palatalized, or labialized consonants, then perhaps the complex sound could be considered a phoneme. But the phoneme inventory covers all the sounds in prenasalized, palatalized, or labialized sequences. Therefore the complex consonant sounds can be analysed as sequences. As a consequence, two new syllable patterns are added: NCV where N stands for the nasal consonants /m, n/ and CSV where S stands for the semi-vowels /j, w/. A third pattern NCSV also exists in roots in a few roots, e.g. [βʊ̀-máˑⁿt͡ʃʲàˑᵑkú] "food in the teeth", and [βʊ̀-kúˑᵑgʷîˑsí] "under the bed".

A word about phonetic transcription: Phonemic vowel length will be written with double vowels, e.g. [kù-sììmà] "to thank, or accept" instead of the IPA long vowel symbol (i:). There are three environments for causing phonetic (not phonemic) vowel length: 1. Preceding prenasalized consonants, 2. Following palatalized consonants, 3. Following labialized consonants. Phonetic vowel length will be represented by the IPA half-length symbol (ˑ) as in the word [kù-lìˑᵐbà] "to bend."

I use /j/ instead of 'y' for the palatal approximate and for representing palatalization. LuBwisi consonants are spoken with about the same amount of aspiration/force as similar English consonants. An exception is 'h' which is spoken very softly. LuBwisi back vowels are generally more rounded than English back vowels. A glottal stop is often heard on a high tone syllable utterance-final. It is not phonemic.

I still find it difficult at times to hear a difference in vowels which may be affected by +ATR spread. I depend heavily on native speakers to tell me the difference between /b and ɓ, d and ɗ/. I need informants to whistle tone. Errors in transcription are regretted, but inevitable.

Roots for LuBwisi nouns are generally disyllabic with a Pfx-CVCV structure. In the examples, nouns will be written with the prefix separated by a hyphen, e.g. [kɪ̀-mɔ̀lɛ̀] "flower". Nouns without a prefix will be marked with a zero-prefix, e.g. [Ø-sɛ̂ˑⁿtɛ̀] "money (Cl 10)" and [Ø-nònɪ̀] "bird/s (Cl 9-10)".

Roots for LuBwisi verbs are generally -CVC- with a FV. Verbs will be given in the infinitive form with the prefix separated, e.g. [kù-kúnà] "to fold". Adjectives will be written with a hyphen before the root without a prefix, e.g. [-sɛ́mɛ́ɛ́jɛ̀] "good".

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[1] The nasal sound [ŋ] exists but only preceding velar consonants. ŋ is not a phoneme in LuBwisi but is an allophone of /n/, and follows the common rule of nasal assimilation to the place of articulation of the following consonant.

Examples of Consonant Sequences: Roots only. An effort will be made to give root-initial and root-medial examples if they exist. (Orthographic 'y' in 'Cy' is used for phonetic/phonemic /j/)

Phoneme: C[2]	Prenasalized: NC		Palatalized: Cy		Labialized: Cw	
p~h	Ø-tá·ᵐpí	sword	kì-hʲá·ká	new (Cl 7)		
t	mù·-ⁿtʊ̀ mà-tâ·ⁿtá	person saliva	kù-tʲâ·lìà	to sharpen	kù-tʷâ·là	to take
t͡ʃ	kì-t͡ʃɛ́·ⁿt͡ʃɛ́ʔ	rag	kʷ-ɛ̀·t͡ʃʲâ·mùlà	to sneeze	kùt͡ʃʷá·ᵑgànìd͡ʒà	to interrupt
k	mù·-ᵑkɛ̀βɛ̀ kù-t͡sɔ̀·ᵑkà	banana wasp to tease	mù-kʲâ·là	respected lady	kù-kʷâ·mà	to follow
k͡p	kì·-ᵑk͡pɔ̀ɔ̀ɣà	big green toad				
b~β	kʲ-à·ᵐbúʔ	watering place	kù-βʲâ·là	to give birth	lù-βʷî·síʔ	language of the Babwisi people
d~l	kà·-ⁿdíɣà kì-há·ⁿdáʔ	Bicoloured Mannikin (bird) path	mù-lʲà·ᵑgɔ̀ mà-dɛ̀ɛ̀ɗélʲá·nɛ́	gate affectionate teasing	kù-lʷâ·là	to be ill
d͡ʒ~j	kì·-ⁿd͡ʒílà mù-sà·ⁿd͡ʒù	nest seven			kù-d͡ʒʷì·kìlà	to hold on strongly
g~ɣ	βù·-ᵑgó·ᵑgóʔ kà-sú·ᵑgúʔ	brain match	kù-gʲà·nà	to play	βù-gʷá·nì·ᵐbɛ̀ kù-ɣʷɛ̀·sàɣìlà	soybeans to sleep
g͡b	kì·-ᵑg͡bà·ᵑgà kì-má·ᵑg͡bó·ᵑg͡bóʔ	cassava fallen trunk of banana tree				
ɓ			ɓʲà·níʔ	well		
s	mù·-ⁿsà·ᵑgúʔ kì-fɛ̀nɛ̂·ⁿsì	marrow jackfruit	mù-sʲá·nà	slave	kù-sʷɛ̂·là	to marry
f					kà-fʷî·fʷî kù-fʷɛ̂·lùà	chaff to lose somebody /s.thing
m			kù-mʲɔ̀·là	to twist		

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[2] These approximates (the second in the series C~C) plus /j, w/ become stops as the approximate assimilates the manner of articulation of the nasal (stop) and the nasal assimilates the place of articulation of the approximate in prenasalized consonants. This seems to be the case in all approximates except /h/ (see p.29) Historically only one phoneme in the series existed, but now LuBwisi has both. The phonemes /j, w/ cannot be palatalized or labialized; /n, ɗ/ are not prenasalized, palatalized, or labialized according to my data.

List below any phonemes which are rare or not clearly integrated, e.g. because they occur only or primarily in loan words (describe the nature of the rarity/marginality possible):

Phoneme	Nature of rarity or restricted occurrence
/ɾ/	This sound exists in RuNyoro-RuTooro from which LuBwisi borrows. It is not a true phoneme in LuBwisi. This sound can be heard word-initially and word-medially in borrowed words and word-medially in free variation with /l/ in LuBwisi. In free variation it is more likely to be heard following a front vowel.
/z/	This phoneme exists in RuNyoro-RuTooro from which LuBwisi borrows. LuBwisi also borrows from English, ex. [k�̀záàmʊ̀, kɪ̀dʒáàmʊ̀] "exam". This is not a true phoneme in LuBwisi. LuBwisi will often have /d͡ʒ/ where RuTooro has /z/ ex. [kʷì·kɪ̀rɪ̀zà] [kʷì·kɪ̀lɪ̀d͡ʒà] "to believe"; [à-mà-sàɲàɾàzɪ̀][mà-sànàlɪ̀d͡ʒɪ̀] "electricity". It is reported that KiTalinga has prenasalized /ⁿz/ Paluku, 1998 p. 47. KwAmba which is spoken in the same area as LuBwisi has /z/ as shown by the word /zɪ̀ɗɪ́zɪ̀ɗɪ́/ "very much".
/v/	This phoneme exists in RuTooro from which LuBwisi borrows. LuBwisi will often have /f/ where RuTooro has /v/, e.g. *kufuga, kuvuga* "to drive", respectively.
/ɲ/	This phoneme might have come into LuBwisi due to RuTooro influence. Younger speakers use it more often than older speakers. It is rare. In a few LuBwisi words, this sound is spoken in free-variation with /n/. Ex. [búɲà, búnà] "Bunia, DRC", [Ø-ɲáànà, Ø-náànà] "tomato/es", [kù-màɲà, kù-mànà] "to know". For this last pair, the pronunciation the former is preferred as the latter can mean "small vagina." It contrasts with /n/ in [mʷ-à·ɲáʔ, mʷ-à·náʔ] for the words respectively, "space" and "leg of an animal". It also contrasts partially with /n/ in [kù-náɣáʔ] "small pot", and [kù-ɲàɣà, kù-nàɣà] "to fail to pay a debt, cheat".

Describe any allophonic variation in consonant phonemes in the table below. In the third column, state the environment where the allophone occurs using prose descriptions, e.g. "intervocalically," "word-finally," "syllable-finally," "intervocalically in non-stressed syllables," etc. In the last column, provide examples to show both cases where the allophone occurs ("positive examples") and those to show where it does not occur ("negative examples"), i.e. where the phoneme has its more usual realization because it occurs in some environment which does not trigger the allophonic pronunciation.

Phoneme	Allophone	Environment where allophone occurs	Conditions on allophonic realization	Examples
/l/	[ɾ]	The allophone occurs word-medially (intervocalically) in free variation, it occurs most often following front vowels. It is also heard in borrowed words from RuTooro, KiSwahili, and English.	inter-speaker variation -- describe: Speakers with more exposure to RuTooro may pronounce the flap more often. Occurs before front vowels. May be heard more often in fast speech. Borrowed words: -- describe: Proper names as Robert or Rwanda	Positive examples (allophonic realization applies): [mù-βɪ̀ɾɪ̀]　　　body [mù-lɪ̀ɾɔ̀]　　　fire [kʊ̀ʊ̀-mírɪ̀rà]　　to stand Negative examples to illustrate free-variation by two different informants when a 170 wordlist was elicited from them at the same time. [mù-lɪ̀lɔ̀]　　　fire [kʊ̀ʊ̀-mɪ̀lɪ̀rà]　　to stand Negative examples to show that the allophone is not always realized in productive environments. [mù-kílà]　　　tail [mù-ɓɪ̀lì]　　　village [kʷ-é·lì]　　　moon [ɛ̀-βéɛ̀lɛ̀]　　　breast Negative examples (allophone not realized in other environments): [kʊ̀ʊ̀-sʊ́là]　　to be full [mù-húlíʔ]　　nose [lʊ̀-là]　　　intestine [kɪ̀-sɔ̀lɔ̀]　　animal [m̩búlà]　　　rain [kʷ-á·là]　　to be dark
/h/	[Ø]	This phoneme is often spoken very lightly and is often transparent.	free-variation optional at all speech rates	Positive examples (allophonic realization applies): First pronunciation more common: [kù-hàlàlà, kù-àlàlà]to fly/jump [kʷ-ɔ̀·βáhà, kʷ-ɔ̀·βáà] to fear [kʷ-ì·kà, kù-hìkà]to be correct, right

/n/	[ɲ]	This phoneme is appearing due to RuTooro influence and among younger speakers.	☒ inter-speaker variation -- describe: As described above, this phoneme is rare. If the #1 is uttered, it is usually by an older speaker. When the verb "to know" is used in the perfect aspect, then the palatalization by all speakers disappears. (But this occurs across morpheme boundaries.) It is not known the effect sociolinguistics has on the avoidance of saying #1 since in another context it has a derogatory meaning on a taboo subject.	Positive examples (allophonic realization applies): #1. [kù-mànà] to know [kù-màɲà] to know Negative examples (allophone not realized in other environments): [ámáníɛ] he/she knows
/f/	[fʷ]	Free variation	☒ optional at all speech rates describe: F is a relatively rare phoneme. Regarding free-variation, this phenomenon is also reported in Luganda. (Ashton et al, p.4) I have not heard this variation preceding /u, ʊ/.	Positive examples (allophonic realization applies): Positive examples of free-variation: H. Bahemuka uttered the first of the pair in elicitation: [kà-fʷɨ̂·fʷɨ̂·] chaff from coffee, ground nuts, or cotton [kà-fɨ̂fɨ̂] chaff from coffee, ground nuts, or cotton [kì-fáálìsì] mattress [kì-fʷá·lìsì] mattress [kì-fɛnɛ̂·ⁿsì] jackfruit [kì-fʷɛ̂·nɛ̂·ⁿsɨ̩̀] jackfruit [kù-fʷɛ̂·lʊ̀à] to lose someone in death [kù-fɛ́ɛ̀lʊ̀à] to lose someone in death [kù-fɔ̀ɔ̀là] to make something become [kù-fʷɔ̀·là] to make something become Negative examples (allophone not realized in other environments): [kù-fúgà] to drive [mà-fútà] oil
/l/	[Ø]	Across morpheme boundaries in perfect aspect 'l' drops out of some verb roots. This may be analysed as coming from irregular verbs; the process is common. See rule in Paluku, 1998 p.99.	This happens consistently for all verbs in this (irregular?) class: -- describe: [kʊ̀ʊ̀-ɣʊ̀là] "to open" contrasts with [kù-ɣʊ̀là] "to buy" in verb classes. [kʊ̀ʊ̀-ɣʊ̀là] has the 'l' drop-out in perfect, [kù-ɣʊ̀là] does not.	Positive examples (allophonic realization applies): [kʊ̀ʊ̀-ɣʊ̀là] to open [áàɣúújɛ̀] he has opened Negative examples (allophone not realized in other environments): [kù-ɣʊ̀là] to buy [ááɣʊ̀líɛ̀] he has bought

| [Ø] | [β] | LuBwisi doesn't allow the normal /-ʊ/ passive suffix to stand next to a vowel-final verb root. The bilabial approximate is inserted between the root vowel and the passive suffix vowel. (Why the extra vowel has been inserted is not yet known, but seems to happen in monosyllabic verb roots.) | | Positive examples (allophonic realization applies):
[kù-ɣùlìà]   to sell
[kù-ɣùlìβùà] to be sold

[kù-líá]   to eat
[kù-líìβùà]   to be eaten

[kù-táʔ]   to place
[kù-táàβùà]   to be placed
[kù-tɛ̀ɛ̀βùà]   to be placed[3]

[kù-háʔ]   to give
[kù-háàβùà]   to be given
[kù-hɛ́ɛ̀βùà]   to be given[4]

[kù-núà]   to drink
[kù-núɛ̀βùà]   to be drunk

Negative examples (allophone not realized in other environments):
[kù-ɣùlà]   to buy
[kù-ɣùlùà]   to be bought

[kù-lúmà]   to bite
[kù-lúmúà]   to be bitten |

Discuss any cases in which it is unclear whether a particular consonant sound should be treated as a phoneme in its own right or an allophone of some other phoneme:

Sound	Nature of difficulty or uncertainty
[ɾ]	This sound is represented as /r/ in the neighboring RuTooro orthography. RuTooro also has 'l' and trilled-'r'. It has been introduced as a distinct sound in previous efforts to develop an orthography/alphabet for LuBwisi. It never occurs word or root-initially except in borrowed words. There were some rules to write 'r' in these orthographies, but writing was not consistent and was made more difficult. In some environments, especially following front vowels, this sound is produced. It is an allophone of /l/ and should not be considered as a phoneme.
[v]	This is a phoneme in RuTooro. It occurs also in LuBwisi proper names. Though not native to LuBwisi and therefore not a true phoneme, it should be allowed to be written in borrowed words e.g. [kì-vɛ̀ɛ̀là] "tarpaulin", and proper names, e.g. *Vasta, Vaketi, Evadesi*. This sound has not been elicited in a LuBwisi word list.

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[3] Dialect difference, H. Bahemuka gave this variant.

[4] Same as above, I have heard the variant above.

[z]	This is a phoneme in RuTooro. It occurs also in LuBwisi proper names, e.g. *Suuza*. Though not native to LuBwisi and therefore not a true phoneme, it should be allowed to be written in borrowed words and proper names. This sound has not been elicited in a LuBwisi word list.
[ɲ]	This is a phoneme in RuTooro. In a few LuBwisi words it is spoken in free-variation with /n/, see information above. It should be considered a LuBwisi consonant phoneme.

In summary, there are 23 consonant phonemes, most of which can be prenasalized, palatalized, or labialized. The phonemes /β, ɣ, h/ are spoken softly with no audible friction. They undergo a sound change unlike the fricatives /f, s/ when prenasalized. The phonemes /l, w, j/ also undergo a morphophonemic change when prenasalized. For these reasons they are classed and grouped together as approximates.

1.2 Vowels

Complete the vowel chart below for your language by modifying or deleting phonemes in the cells. **Ignore long vowels and nasal vowels; include only short oral vowels at this point.**

	front	central	back
high, +ATR	i		u
high, -ATR	ɪ		ʊ
mid, +ATR			
mid, -ATR	ɛ		ɔ
low		ɑ	

Phonemic nasal vowels:

Check here if no phonemic nasal vowels occur; otherwise, complete the chart below. ☒
          Phonemic long or short nasal vowels do not occur in LuBwisi.

Phonemic long vowels:

Check here if no phonemic long vowels occur; otherwise, complete the chart below. ☐
          Phonemic long vowels are common in LuBwisi (see examples, p.22.)

	front	central	back
high, +ATR	ii		uu
high, -ATR	ɪɪ		ʊʊ
mid, +ATR			
mid, -ATR	ɛɛ		ɔɔ
low		ɑɑ	

Discuss any vowel phonemes which are rare or marginal (e.g. occur only in loan words):
          The seven vowel qualities are common, though short vowels are more common than long vowels. Diphthongs exist however, but most are rare (54 entries out of 1930+ entries). Distribution is mostly word-final and this distribution may in part be due to transparency of an approximate

consonant. In RuTooro "pocket" is *ensaho*, in LuBwisi it is *nsau*. A diphthong in LuBwisi should be considered as a sequence of two vowel phonemes and not as an individual phoneme. The rationale for this is for economy of phonemes and because the individual phonemes which make up the diphthong exist in LuBwisi. A list of the diphthongs is found on page 23.

Describe any allophonic variation in vowel phonemes in the table below, following the model used above for consonants.

Phoneme	Allophone	Environment where allophone occurs	Conditions on allophonic realization	Examples

/ɪ/	[i]	The -ATR phoneme has a +ATR allophone when it precedes or follows a +ATR vowel /i, u/.	☐ other: -- describe: This appears to be a change by all speakers. There are three conditions in which this happens: 1. Roots with /ɪ/ may be changed by /i/ in suffixes, especially the +ATR causative suffix in verbs and the +ATR agentive suffix in nouns (derived from verbs); 2. Prefixes with /ɪ/ may be changed by /i, u/ in the root or verbal suffix. The two conditions above illustrate leftward ATR spread, and is the most common directional spread. The third condition, 3. A normally -ATR verbal suffix e.g. Applicative /-ɪl/ undergoes a shift in the ATR value from -ATR to +ATR when the root has a +ATR vowel. This is rightward ATR spread.
			☒ gradient. The farther the usually affected vowel is from the +ATR vowel, the less it is affected, but this may need instrumental confirmation. [kɪ̀-fɛ̀nɛ́·ⁿsɪ̀] "jackfruit" has been transcribed and speakers say that the vowel in the prefix is -ATR.
				Positive examples (allophonic realization applies):
				1,2.[kù-kílà] to be healed
				  [kù-kílíà] to heal
				
				1. [kù-lìmà] to dig
				  [mù-lìmì] a digger, farmer
				
				2 .[ßì-kíà] traps
				2. [kì-kúlù] fingernail
				
				3.[kù-ßúɣà] to speak
				  [kù-ßúɣírà] to speak for
				
				3.[kù-kúà] to die
				  [kù-kʷî·là] to die for/from
				
				3.[kù-sí·ⁿdà] to groan
				[kù-sí·ⁿdílà] to groan for/from
				
				Negative examples (allophone not realized in other environments):
				[ßɪ̀-kɪ́à] neck
				[kɪ̀-kʊ́lʊ́] important (Cl 7)
				
				[mʊ̀-sɪ̀lɪ̀] garden
				[kɪ̀-d͡ʒɪ̀ßʊ̀] problem
				[kɪ̀-hʊ́lʊ́] hole
				[kɪ̀ɪ̀-hʊ̀lɔ̀] meal
				[ßʊ̀-lɪ̀mɛ́ʔ] cleared ground
				
				[kʊ̀-sɪ́·ⁿdà] to praise
				[kʊ̀-sɪ́·ⁿdɪ̀là] t. praise for/from

| /ʊ/ | [u] | The -ATR phoneme has a +ATR allophone when it precedes or follows a +ATR vowel /i, u/. | ☐ other: -- describe: This appears to be a change by all speakers. There are three conditions in which this happens: 1. Roots with /ʊ/ may be changed by /i/ in suffixes, especially the +ATR causative suffix in verbs and the +ATR agentive suffix in nouns (derived from verbs); 2. Prefixes with /ʊ/ may be changed by /u, i/ in the root or verbal suffix. The third condition, 3. A normally -ATR verbal suffix undergoes a shift in the ATR value from -ATR to +ATR when the root has a +ATR vowel.
☒ gradient. It may be that /a/ 'blocks' the leftward spread of +ATR suffixes upon roots and prefixes if it stands to the left of the +ATR vowel. The /ʊ/ in the prefix would normally be changed to /u/, but is not perhaps because of gradient influence and a blocking effect by the most open vowel, i.e., /a/. E.g. [mù-kálí] "woman" has been transcribed, yet also [mù-kálí] "woman" has been transcribed. Vowel quality shift due to ATR spread is perhaps the biggest challenge for orthographic development. | Positive examples (allophonic realization applies):
1,2.[kùù-súlà] to be full
　　[kùù-súlìà] to fill

1. [kù-fúgà] to drive
　 [mù-fúgì] driver

1. [kù-βúlà] to be lost
　 [ááβúlíɛ̀] He is lost.

2. [kù-lúʔ] knee

3. [kù-sú·ⁿdà] to land
　 [kù-sú·ⁿdúkà] to descend

Negative examples (allophone not realized in other environments):
[mù-kù·ⁿdì] navel

[kù-túɨ̀] ear

[kù-tà·ᵑgùlà] to crush
[kù-tà·ᵑgùkà]to be crushed

[kù-ɓɛɣà] to break
[kù-ɓɛɣúlà] to break suddenly
[kù-ɓɛɣúkà] to be broken

[Ø-kúlùɓà] Ross's Turaco
[kà-tùlɛ̀gɛ̀] small giraffe
[kɨ̀-túùlɔ̀] grave
[Ø-mùtùkúʔ] red |

| /ɛ/ | [e] | The -ATR phoneme has a +ATR allophone when it precedes or follows a +ATR vowel /i, u/. | ☒ inter-speaker variation -- describe: This occurs more noticeably in some speakers than in others. The ATR influence is believed to be gradient.
☒ gradient | Positive examples (allophonic realization applies):
[mù-ɣè·ⁿd͡ʒì] sibling
[kì-tèlí] type of weed
[ŋ̀-kèkì] woodcutting insect
[kà-lèlù] chin
[kìì-g͡bèlù] goiter
[mù-ɣènù] visitor

Example of free-variation as spoken by H. Bahemuka:
[mù-ɣɛ̀·ⁿd͡ʒì] sibling

Negative examples (allophone not realized in other environments):
[ǹ-sɛ́kʊ́ʔ] arrow
[kɛ̀-hɛ̀mʊ́ʔ] shame
[ŋ̀gɛ̀sɔ̀] behavior |
| /ɔ/ | [o] | The -ATR phoneme has a +ATR allophone when it precedes or follows a +ATR vowel /i, u/. See the transcriptions of two speakers for the word "rope". | ☒ inter-speaker variation -- describe: Same as above. It seems that the sound [o] is more common than [ɔ] in V syllable types which are found at the beginning and ending of words. Tucker and Bryan state that there is a "Sound shift between ɪ and i, ʊ and u, ɛ and e, ɔ and o in Prefixes."
☒ gradient | Positive examples (allophonic realization applies):
[ǹdóótíʔ] dream
[βù-tòkì] authority, power
[Ø-nònì] bird
[ŋ̀-kólú] scar
[βù-sòlú] spear grass
[ǹd͡ʒòɣù] elephant
[òmù-hòlò] the curved knife
[òlʷ-è·hèlèlìò] the broom
[kì-tìβò] rope
[kì-tìβò] rope
[kì-tógì] shirt collar

Negative examples (allophone not realized in other environments):
[kù-lóòtà] to dream
[Ø-ɛ̀sóʔ] yesterday
[kù-fòòlà] t. make s.thing become
[lù-gɪ́ɪ́gò] spoon
[kà-ɣàβò] small shield |

/a/	[a̤]	The low central vowel phoneme becomes slightly raised when it precedes /i,u/.	☒ inter-speaker variation -- describe: Spoken by the same speakers who utter mid +ATR allophones of mid -ATR phonemes. This raised allophone is transcribed in Tucker & Bryan, 1957. ☒ gradient /a/ needs to be in a contiguous preceding syllable to a syllable containing a +ATR vowel.	[mù-ká̤lí] woman [kù-kámà] to squeeze [mù-ká̤mí] squeezer Negative examples (allophone not realized in other environments): [mù-kálɪ̀] brave person
[i]	[ɪ]	In -ATR verb roots, the normally +ATR Perfective suffix is neutralized to be -ATR when it follows the -ATR applicative suffix. This doesn't apply in +ATR verb roots.		Positive examples (allophonic realization applies): [kù-hà·ⁿdɪ̀ɪ̀kà]to write [ááhà·ⁿdííkíɛ] He has written. [kù-hà·ⁿdɪ̀ɪ̀kɪ̀là]to write to/for [ááᵐpà·ⁿdííkíɪ̀ɛ]He has written me. Negative examples (allophone not realized in other environments): [kù-sɪ̀ɪ̀mà] to accept [áásɪ̀ɪ̀míɛ] He has accepted. [kù-pɪ̀ɪ̀mà] to measure [kù-pɪ̀ɪ̀mɪ̀ɾà] to measure for [ááβápɪ̀ɪ̀mííɛ]He measured for them.

Discuss any cases in which it is unclear whether a particular vowel sound should be treated as a phoneme in its own right or an allophone of some other phoneme:

Sound	Nature of difficulty or uncertainty
[e]	This sound only occurs when uttered by some speakers in words with /i,u/. It is not found it nouns with the usual Pfx-CV_1CV_2 form where $V_1=V_2$. It should be considered as an allophone of /ɛ/.
[o]	This sound only occurs when uttered by some speakers in words with /i,u/. It is not found it nouns with the usual Pfx-CV_1CV_2 form where $V_1=V_2$. It should be considered as an allophone of /ɔ/.
[diphthongs]	Diphthongs should be considered as a monosyllabic sequence of two vowel phonemes

In summary, for vowels there are seven distinct qualities, two phonemic lengths, and monosyllabic vowel sequences (diphthongs).

2   Illustrative examples of phonemes (with sound files)[5]

2.1 Consonants

LuBwisi generally has a CV syllable structure. Therefore consonants cannot be word-final or syllable final. There are a limited number of consonants which can begin words. LuBwisi nouns can only begin with m, b, k, n, l, t, h which are the initial letters in LuBwisi's 18 noun classes. Nouns which

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[5] On cassette tape.

begin with other consonants are generally borrowed from other languages and are usually in class 9-10 where most borrowed words are classed. For verbs, the infinitive form begins with kừ- or kừ- depending on the ATR value of the root. There are two imperative forms in LuBwisi. One is more polite and the subject is named. This form occurs with an -e FV (Final Vowel). The other form is more harsh. The subject is implied and has an -a FV. For example, [kừkɔ́là] means "to work", [ɔ́kɔ̀lɛ́] means "you (sg) work!", and [kɔ́là] means "work!" Therefore, for verbs it is possible to get most if not all the consonant phonemes to begin a word if used in the harsher imperative form.

Because of LuBwisi's syllable structure and limited number of consonants and vowels which are word-initial for nouns, the template was changed to list meaningful environments for LuBwisi phonemes. The template listed the following four environment categories: word-initial, word-medial (syllable-initial), word-medial (syllable-final), and word-final. With LuBwisi's basic CV syllable pattern, consonants cannot be syllable-final, nor word-final. Therefore those two environments are not applicable to LuBwisi. The environments meaningful to LuBwisi are root-initial and root-medial. The template will be changed to list these two applicable environments for LuBwisi.

If the usual form of the noun is class 9-10 with a Nasal prefix, the noun class will be changed to the diminutive singular class 12 to avoid complications due to morphophonemic change with preceding nasal consonants. For example: with ḿ̩pừnʊ́ʔ "pig/s" one might think that 'p' is the initial consonant of the root as in the erroneous example, *[m̩̀-pừnʊ́ʔ]. In [kằ-hừnʊ́ʔ], "small pig", the initial consonant 'h' is clearly seen when put in class 12.

The number to the right of the phoneme is the number of words the phonetic sound is in from a database of approximately 1930 entries. The sound may be prenasalized, labialized, or palatalized. The number is given to give an approximation of frequency, but it can be deceptive. The words which have /b,d,g/ have inflated numbers since these sounds are common in prenasalized sequences, but rare in isolation. For example the sound [d] is found in 116 words; [^{n}d] occurs 98 times; [d] occurs only 18 times.

	/p/ (76)		/f/ (24)		/m/ (474)	
root-initial:	i	[kù-pììmà] to measure	[Ø-fìlî·ᵐbì] whistle	[kù-mìɣà] to squeeze
	ɪ	[kù-pɪ̀lì·ᵑgà] to revolve	[kù-fɪ́nà] to cheat	[kù-mɪ́ìmà] to tighten
	ɛ	[ɛ̀-péɛ̀là] guava	[kù-fɛ́ɛ̀lʊ̀à] t. lose sthg., someone	[kù-mèlà] to swallow
	a	[kù-pà·ᵑgà] to camp	[kɪ̀-fáálìsì] mattress	[kù-màlà] to finish
	ɔ	[kà-pɔ̀ɔ̀pɔ̀] gossiper	[kù-fɔ̀ɔ̀kà] to become	[kɪ̀-mɔ̀lɛ̀] flower
	ʊ	[ ] ?	[kù-fúβílà] to punish	[Ø-mùtʊ̀kúʔ] red
	u	[kà-pù·ⁿd͡ʒà]fragrant soap	[mà-fútà] oil	[kɪ̀-mùkóóɓúʔ]pestle
root-medial:	i	[mù-t͡ʃípíʔ] belt	[Ø-òfíìsì] office	[ɛ̀-kúmì] ten
	ɪ	[ ] ?	[ ] ?	[kɪ̀-límɪ̀] tongue
	ɛ	[kɪ̀-pɛ̀péɛ̀pɛ̀] type of banana	[ ] ?	[βù-lìmɛ́ʔ] cleared ground
	a	[ɛ̀-pàpáʔ] wing	[ ] ?	[mù-tímà] heart
	ɔ	[kà-pɔ̀ɔ̀pɔ̀] gossiper	[Ø-kófùlò] padlock	[mù-lìmò] work
	ʊ	[lù-páápùlò] piece paper	[Ø-kàlɪ̀fúà] tea spice	[kɪ̀-hèmúʔ] shame
	u	[Ø-t͡sàpùlíà] metal pot[6]	[kɪ̀-tóòfù] cotton tree	[mù-límù] spirit

	/b/ (177)		/β/ (192)		/ɓ/ (92)	
root-initial:	i	[kìì-bì·ᵐbóʔ] dove	[kù-βínà] to dance	[kù-ɓí·ᵐbà] to swell
	ɪ	[Ø-bínɪ̀kà] kettle	[kù-βílíkìlà] to call	[kù-ɓíʔ] to be bad
	ɛ	[kù-bɛnìà] to shine	[kù-βɛ̀·ᵐbà] to offer	[kù-ɓɛ́·ᵑgà] to refuse
	a	[kù-bàlà] to want	[kù-βàlà] to count	[kù-ɓásúkà] t. cross water
	ɔ	[kù-bóɔ̀tà] to weaken	[kù-βónà] to see	[kù-ɓókánà] to be narrow
	ʊ	[kù-bùùkà] to be covered with	[kù-βúlà] to be lost	[kù-ɓùlà] to pull
	u	[kù-bùkà] to search	[kù-βúɣà] to speak	[Ø-ɓùùsúʔ] forehead
root-medial:	i	[Ø-sàbíìtɛ̀] week	[βù-lùβì] rodent hole	[kù-túɓítà] to pierce
	ɪ	[ ] ?	[kɪ̀-βàβì] leaf	[kù-kúɓítà]to throw down
	ɛ	[ ] ?	[kɪ̀-βɛ́βɛ́ʔ] hawk	[kɪ̀-héɓɛ́ʔ] big noise
	a	[Ø-kábà] shirt yoke	[kà-kóβáʔ] skin	[mù-láɓáʔ] truss
	ɔ	[ ] ?	[kɪ̀-tàβò] book	[kìì-ɓìɓò] louse
	ʊ	[Ø-sàbúùnì] soap	[kɪ̀-d͡ʒìβù] trouble	[mà·-ᵑkéɛɓú] uncleared land
	u	[Ø-gìlóòbù] lightbulb	[kɪ̀-sáβúʔ] fat	[Ø-sààɓúʔ] hat

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[6] On tape H.B. gave a dialect variation, i.e., [sàpùlíà]

		/t/ (280)		/s/ (308)		/n/ (287)	
root-initial:	i	[kù-tíɣà]	to leave	[kù-sìmà]	to be straight	[kù-níìnà]	to climb
	ɪ	[kù-tíníkà]	to overturn soil	[kù-síˑⁿdà]	to praise	[kù-nìhìlà]	to hope
	ɛ	[kù-tɛ́mà]	to slash	[kù-sɛ́ˑⁿdà]	to flow	[kù-nɛ̀ɛ̀tà]	to be big
	a	[kù-tàkà]	to cry out	[kù-sáˑⁿdà]	to pass diarrhea	[kù-nàà́ßà]	to wash
	ɔ	[kù-tóɗà]	to repeat	[kù-sɔ̀ˑⁿdà]	to peck	[kù-nɔ̀ɣà]	to pick coffee
	ʊ	[kù-túmà]	to send	[kù-sùˑⁿdà]	to subside	[kù-núà]	to drink
	u	[kù-túà]	to spit	[kù-súˑⁿdà]	to light upon	[kù-nùˑᵑkà]	to stink

root-medial:	i	[mù-lùùtì]	girl	[ɛ̀-sásì]	bullet	[Ø-nònì]	bird
	ɪ	[kì-sùtì]	tail (bird, fish)	[-ßísì]	fresh	[Ø-níníʔ]	master
	ɛ	[kìì-g͡bètɛ̀]	plain	[mà-ɓɛ́sɛ̀]	palm oil	[mù-sɛ́nɛ̀]	sand
	a	[kì-lìßàtà]	duck	[mù-sáásà]	man	[mù-sàná́ʔ]	sun
	ɔ	[kì-tàɣàtɔ̀]	sweat	[kà-líɣísɔ̀]	ankle	[mù-kónɔ̀]	arm
	ʊ	[ɛ̀-sátʊ̀]	three	[mù-súsúʔ]	type of rat	[kà-hùnúʔ]	small pig
	u	[kìì-g͡bútù]	tree	[Ø-ɓùùsúʔ]	forehead	[mà-húnúʔ]	pus

		/d/ (18/116)		/ɗ/ (44)		/l/ (628)	
root-initial:	i	[Ø-dìlísà]	window	[kù-ɗìˑᵑgìà]	to shake	[kù-lìˑᵐbà]	to bend
	ɪ	[kù-dìmà]	to deceive	[kì-ɗìàɗìà]	cord made from vines	[kù-líˑᵐbà]	to sing
	ɛ	[kù-dɛkà]	t. lack sweetness	[kù-ɗɛ̀ɛ̀ɗùà]	to be happy	[kù-lɛ̀mà]	to rule
	a	[Ø-dàkíìkà]	minute	[ɛ̀-ɗáàlà]	step, rung	[kù-láˑᵐbà]	to taste
	ɔ	[ßìì-dóɗɔ̀]	mud	[kù-ɗɔ̀ɔ̀tà]	to be easy	[kù-lɔ̀là]	to look at
	ʊ	[kù-dùɗà]	t.fix in the ground	[kù-ɗùùkà]	to emerge	[kù-lúmà]	to bite
	u	[kù-dúɗà]	to be blunt	[Ø-ɗúˑᵑgú]	stringed instrument	[kù-lùɣà]	to come from

root-medial:	i	[kù-dìdìmààgà]	t. hesitate	[mù-d͡ʒɛ̀lɛ́ɗì]	slingshot	[mù-ká̰lí]	woman
	ɪ	[ ]	?	[ßùù-ɗíɗííɗí]	squinting	[tù-kálì]	urine drops
	ɛ	[ ]	?	[kì-bóɗɛ́ʔ]	wound	[ßù-hɛ̀lɛ̀]	scabies
	a	[ ]	?	[mù-gùùɗà]	rich person	[mù-ɣálà]	lazy person
	ɔ	[ ]	?	[mù-góɗɔ́ʔ]	earthworm	[mù-hɔ̀lɔ̀]	curved knife
	ʊ	[ ]	?	[kà-ɣùɗù]	cigarette butt	[mà-kúlúʔ]	news
	u	[ ]	?	[kìì-kùɗù]	shade	[kì-kúlù]	fingernail

	/t͡ʃ/ (37)		/d͡ʒ/ (105)		/ɲ/ (7)	
root-initial:	i	[mù-t͡ʃípíʔ] belt	[mù-d͡ʒì·ⁿdì] murderer		[ ]	?
	ɪ	[kù-t͡ʃɨ̀t͡ʃɨ̀lɨ̀là] dance in place	[kù-d͡ʒɨ̀ɨ̀kà] to bury		[ ]	?
	ɛ	[bù-t͡ʃɛ̀kɛ́ʔ] weakness	[kù-d͡ʒɛ́ɛ̀mà] to revolt		[ ]	?
	a	[kù-t͡ʃàmùlà] to provoke	[kù-d͡ʒà·ᵐbà] to be long		[Ø-ɲáàɲà]	tomato/es
	ɔ	[kù-t͡ʃɔ̀·ᵑkà] to tease	[kù-d͡ʒɔ̀·mbà] to cut		[mù-ɲóɾóʔ]	mister
	ʊ	[kù-t͡ʃú·ⁿdà] to churn	[kù-d͡ʒʊ̀nà] to save		[ ]	?
	u	[mù-t͡ʃúʔ] judge	[kà-d͡ʒùmáʔ] tablet		[ ]	?
root-medial:	i	[mʷ-ê·t͡ʃíà] sneeze	[kà-húùd͡ʒì] stitch		[ ]	?
	ɪ	[ ] ?	[ɛ̀-sáàd͡ʒɨ̀] grazing place		[ ]	?
	ɛ	[ ] ?	[kà-kɛ́d͡ʒɛ́ʔ] type of fish		[ ]	?
	a	[kù-t͡ʃàt͡ʃààβà] visit m.places	[ɛ̀-sàd͡ʒà] county		[mʷ-à·ɲáʔ]	space
	ɔ	[mú-t͡ʃɔ̀ɔ̀t͡ʃɔ̀] fermented juice	[kɨ̀-súmúlɨ̀d͡ʒɔ̀] key		[ ]	?
	ʊ	[mù-t͡ʃʊ̀ʊ̀t͡ʃúúlɛ́ʔ] herb	[mù-ɣààd͡ʒúʔ] tradition. belt		[ ]	?
	u	[ ] ?	[lù-bàd͡ʒù] side		[ ]	?

	/j/ (18)	
root-initial:	i	[ ] ?
	ɪ	[ ] ?
	ɛ	[mù-jɛ̂·ᵐbɛ̀] mango
	a	[kù-jàɣà] to scratch
	ɔ	[lù-jɔ́kɨ̀] honeybee
	ʊ	[kù-jʊ̀·ᵑgà] to join
	u	[ɛ̀-júùnì] yam
root-medial:	i	[ ] ?
	ɪ	[ ] ?
	ɛ	[ɛ̀jɛ́ʔ] he/she
	a	[lù-sàjáʔ] side of face
	ɔ	[mʷ-ɔ̀jɔ̀] spirit/soul
	ʊ	[ ] ?
	u	[ ] ?

		/k/ (862)		/g/ (252)		/ɣ/ (182)	
root-initial:	i	[kù-kìɗà]	to arrive	[Ø-gìlóòbù]	light bulb	[kù-ɣìà]	to draw water
	ɪ	[kù-kílà]	to get healed	[kù-g�̀·ᵐbà]	t. insert between	[kù-ɣɪ̀là]	to say, do
	ɛ	[kù-kɛ̀sà]	to harvest rice	[kù-gɛ̀gà]	t. care for the sick	[kù-ɣɛ̀·ᵐbà]	to shave
	a	[kù-kámà]	t. squeeze liquid	[kù-gàmà]	to defend	[kù-ɣà·ᵐbà]	to say
	ɔ	[kù-kɔ̀mà]	to pick	[kù-gɔ̀là]	to make noise	[kù-ɣɔ̀nà]	to snore
	ʊ	[kù-kú·ⁿdà]	to love	[kù-gùɓà]	to be able	[kù-ɣʊ̀là]	to buy
	u	[kù-kù·ⁿdà]	to punch	[kù-gù·ⁿdà]	to be rotten	[kì-ɣùmáʔ]	fruit
root-medial:	i	[mù-síkíʔ]	earthquake	[kì-tógì]	shirt collar	[mù-híìɣì],	hunter[7]
	ɪ	[kìì-g͡bííkíʔ]	grudge	[ ]	?	[lʷ-ì·ɣì]	door
	ɛ	[kà-kɛ́ɛ́kɛ̀]	local spoon	[kà-tùlɛgɛ̀]	small giraffe	[kì-ɓɛ́ɣɛ́]	piece
	a	[kì-káká?]	sugar cane	[lù-gàgá?]	jaw	[mù-náɣá]	clay pot
	ɔ	[kì-kókó?]	scab	[kà-tógó?]	mixture	[mù-lɔ̀ɣɔ̀]	sorcerer
	ʊ	[mù-nákù]	poor person	[lú-ᵐbùgù]	type of crabgrass	[mù-sɛ̀ɛ̀ɣú]	obstinate person
	u	[kìì-g͡bèèkú?]	large lizard	[ɛ̀-gógú]	hunchback disease	[kà-jòɣù]	small elephant

		/k͡p/ (22)		/g͡b/ (29)		/w/ (23)	
root-initial:	i	[ ]	?	[kà-g͡bí·ndí?]	small catapult	[ ]	?
	ɪ	[kì-k͡pì·ⁿd͡ʒà]	dancing bell	[kìì-g͡bííkì]	grudge	[kù-wîsà]	to forge
	ɛ	[kù-k͡pɛ̀tà]	to step on	[mù-g͡bɛ̀ɛ̀kà]	caregiver	[kà-wɛ́ɛ̀lɛ̀lìò]	type of vine
	a	[kù-k͡pálà]	to scrape clean	[kù-g͡bààtɪ̀kànà]	to be wide	[Ø-wálàgì]	distilled liquor
	ɔ	[kà-k͡pókíà]	narrow space, gap	[kù-g͡bómà]	to bark	[ ]	?
	ʊ	[ ]	?	[kàà-g͡bùà]	tender maize	[ ]	?
	u	[kù-k͡pùlà]	to nick, graze	[kìì-g͡bútù]	tree	[ ]	?
root-medial:	i	[ ]	?	[ ] root medial prenasalized only		[ ]	?
	ɪ	[ ]	?	[ ]		[ ]	?
	ɛ	[mù-k͡pɛ̀ɛ̀k͡pɛ̀]	roasted food	[ ]		[kʲ-â·wɛ́]	your (Cl 7)
	a	[ ]	?	[ ]		[kìì-gààwà]	hornbill
	ɔ	[ ]	?	[ ]		[ ]	?
	ʊ	[kà-k͡pɛ́ɛ̀k͡pú]	body flea	[ ]		[ ]	?
	u	[ ]	?	[ ]		[ ]	?

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[7] This is an apparent dialect difference, e.g. [mù-hííɣíʔ] "hunter'

/h/ (135)

root-initial:

i [kù-hìɣà]   to push aside
ɪ [kù-hɪ́ɪ̀ɣà]   to hunt
ɛ [kù-hɛ̀ɛ̀kà]   to carry
a [kù-hálà]   to swim
ɔ [kù-hɔ́nà]   to descend
ʊ [kù-hùmà]   to chase away
u [kì-hùlúúlù]   lung

root-medial:

i [kù-kéèhìà]   to reduce
ɪ [ ]   ?
ɛ [ßáá-màhɛ́ʔ]   soldiers
a [Ø-sààhà]   hour
ɔ [kì-hòhóólì]   butterfly
ʊ [ ]   ?
u [ ]   ?

2.2 Vowels

Give examples to demonstrate contrast among the different vowel phonemes in the language, filling in the tables below. For now, deal only with short oral vowels; do not provide examples for long vowels or nasal vowels. Give forms showing vowels in each position (word-initial, word-medial, word-final) in which it occurs. (Of course, some vowels may not occur in all positions; where a vowel does not occur in a particular position, the chart should be left blank.) Where possible, provide as many forms as there are blank cells in the chart.

Instead of filling in the blanks giving seven examples which illustrate the vowel phoneme in word-initial, word-medial, and word-final position, I have attempted to give the vowels in environments where they precede or follow other vowels in the word. Thus blanks do not mean there are insufficient examples to show that the phoneme exists in abundance in that position, but rather that there is a gap in a co-occurrence with that vowel in either the V1, V2, or V3 position.

For both nouns and verbs, only /ɛ, a, ɔ/ can be word-initial. For nouns the three phonemes exist as the Initial Vowel (IV) or sometimes called the pre-prefix, or augment. For verbs the three phonemes can function as the subject of the verb i.e., /a, ɔ/ as 3Sing. and 2Sing. respectively. /ɛ/ can be word initial in verbs when the verb root begins with a reflexive prefix with a 3Sing. subject, e.g. [ɛ́ɛ́gɛ́·ᵑgà] "he falls" [kʷɛ̀·gɛ́·ᵑgà] "to fall". /ɛ/ can begin the word when the harsher imperative form is used on verbs with long-vowel infinitive prefixes, e.g. [ɛ̀múkà] "Get up!",[kùùmùkà] "to get up."

		/i/ (489)		/ɪ/ (374)		/ɛ/ (393)	
word-initial:	i	[ ]	xxx	[ ]	xxx	[ɛ̀mì-ɣèlú]	the waists
	ɪ	[ ]	xxx	[ ]	xxx	[ɛ̀-tímà]	envy
	ɛ	[ ]	xxx	[ ]	xxx	[ɛ̀-sɛ́sɛ̀]	burning coal
	a	[ ]	xxx	[ ]	xxx	[ɛ̀-βá·ⁿd͡ʒáʔ]	debt
	ɔ	[ ]	xxx	[ ]	xxx	[ɛ̀-sókɛ̀]	hair
	ʊ	[ ]	xxx	[ ]	xxx	[ɛ̀-hʊ̀lì]	egg
	u	[ ]	xxx	[ ]	xxx	[ɛ̀-kúmì]	ten
word-medial:	i	[kì-sìlì]	roof ring	[ ]	xxx	[mù-ɣɛ̀·ⁿd͡ʒì]	sibling
	ɪ	[ ]	xxx	[kì-límì]	tongue	[ ]	xxx?
	ɛ	[mù-sìlɛ̀]	insane person	[βʊ̀-lɪ̀mɛ́ʔ] cleared ground		[ɛ̀-sɛ́sɛ̀]	burning coal
	a	[è-líɣà]	teardrop	[mʊ̀-tímà]	heart	[ɛ̀-βɛ̀ɣà]	shoulder
	ɔ	[kì-tìβò]	rope	[kà-síɣɔ̀]	small seed	[kà-ɣɛ̀sɔ̀]	small behavior
	ʊ	[ ]	xxx	[kì-d͡ʒɪ̀βʊ̀]	problem	[kì-hɛ̀mʊ́ʔ]	shame
	u	[è-tímù]	spear	[ ]	xxx	[mù-ɣèlú]	waist
word-final:	i	[kì-sìlì]	roof ring	[ ]	xxx	[mù-sìlɛ̀]	insane person
	ɪ	[ ]	xxx	[kì-límì]	tongue	[βʊ̀-lɪ̀mɛ́]	cleared ground
	ɛ	[mù-ɣɛ̀·ⁿd͡ʒì]	sibling	[ɛ̀ɣì] that one (Cl 4, 9)[8]		[ɛ̀-sɛ́sɛ̀]	burning coal
	a	[mù-ká̧lí]	woman	[kì-βàβì]	leaf	[kà-tálɛ̀]	market
	ɔ	[βù-tòkì]	power	[mʊ̀-ɣɔ̀líʔ] bride/groom		[kì-mɔ̀lɛ̀]	flower
	ʊ	[ ]	xxx	[mʊ̀-kúβíʔ]	sauce	[βʊ̀-d͡ʒúnɛ́ʔ]	sorrow
	u	[ɛ̀-kúmì]	ten	[ ]	xxx	[kì-tʊ̀·ᵐbɛ́ʔ]	cassava dough

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[8] This a demonstrative and not a normal noun with a disyllabic root. This /ɛ,ɪ/ combination appears to be rare. H. Bahemuka has given [mà-ɣɛ́d͡ʒì] "wisdom", but reports that others pronounce this word with /i/ word-final.

		/u/ (318)		/ʊ/ (572)		/ɔ/ (285)	
word-initial:	i	[ ]	xxx	[ ]	xxx	[ólì·ᵐbɛ́ʔ]	you bend!
	ɪ	[ ]	xxx	[ ]	xxx	[òlî·ᵐbɛ́ʔ]	you sing!
	ɛ	[ ]	xxx	[ ]	xxx	[ólɛ̀kɛ́ʔ]	you stop!
	a	[ ]	xxx	[ ]	xxx	[òlâ·ᵐbɛ́ʔ]	you taste!
	ɔ	[ ]	xxx	[ ]	xxx	[ólɔ̀lɛ́ʔ]	you look!
	ʊ	[ ]	xxx	[ ]	xxx	[òmʊ̀-tímà]	the heart
	u	[ ]	xxx	[ ]	xxx	[òkù-lúʔ]	the knee
word-medial:	i	[ɛ̀-kúmì]	ten	[ ]	xxx	[ßù-tòkì]	power
	ɪ	[ ]	xxx	[mù-kúßíʔ]	sauce	[mù-ɣɔ̀líʔ]	bride/groom
	ɛ	[kì-tù·ᵐbɛ́ʔ]	cassava dough	[ßù-d͡ʒúnɛ́ʔ]	sorrow	[kì-mɔ̀lɛ̀]	flower
	a	[kì-ɣùmáʔ]	fruit	[kì-kúsà]	maize	[kì-ɣɔ̀nà]	valley
	ɔ	[kà-ɣúlò]	starling	[ɛ̀-ßúnɔ̀]	buttock	[Ø-t͡ʃɔ̀kɔ̀lɔ̀]	bottlecap
	ʊ	[ ]	xxx	[mù-kúlúʔ]	adult	[ ]	xxx?
	u	[mà-húnú]	pus	[ ]	xxx	[mù-nòkù]	fillet steak
word-final:	i	[è-tímù]	spear	[ ]	xxx	[kì-tìßò]	rope
	ɪ	[ ]	xxx	[kì-d͡ʒìßù]	problem	[kà-síɣò]	small seed
	ɛ	[mù-ɣèlú]	waist	[kì-hɛ̀múʔ]	shame	[kà-ɣɛ̀sò]	small behavior
	a	[ɛ̀-kákú]	representative f. witchcraft	[mù·-ⁿsà·ᵑgúʔ]	marrow	[kì-tàßò]	book
	ɔ	[mù-nòkù]	fillet steak	[ògù]	that one (Cl 1,3)[9]	[Ø-t͡ʃɔ̀kɔ̀lɔ̀]	bottlecap
	ʊ	[ ]	xxx	[mù-kúlúʔ]	adult	[ɛ̀-ßúnɔ̀]	buttock
	u	[ßù-kúmúʔ]	witchcraft	[ ]	xxx	[kà-ɣúlò]	starling

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[9] See footnote above. I could not find the combination /o~ɔ, ʊ/ anywhere else.

/a/ (1229)

word-initial:	i	[àlî·ᵐbà]	s/he bends
	ɪ	[àlí·ᵐbà]	s/he sings
	ɛ	[àlɛ́kà]	s/he stops
	a	[àβà-ⁿtʊ̀]	the people
	ɔ	[àlɔ́là]	s/he looks
	ʊ	[àkʊ́·ⁿdà]	s/he loves
	u	[àkû·ndà]	s/he punches

word-medial:	i	[mù-ká̤lí]	woman
	ɪ	[kì-βàβɪ̀]	leaf
	ɛ	[kà-tálɛ̀]	market
	a	[kà-náɣáʔ]	small pot
	ɔ	[kì-tàβɔ̀]	book
	ʊ	[mù·-ⁿsà·ᵑgʊ́ʔ]	marrow
	u	[ɛ̀-kákúʔ] representative for witchcraft	

word-final:	i	[è-líɣà]	teardrop
	ɪ	[mù-tɪ́mà]	heart
	ɛ	[ɛ̀-βɛ̀ɣà]	shoulder
	a	[kà-náɣá ʔ]	small pot
	ɔ	[kì-ɣɔ̀nà]	valley
	ʊ	[kì-kʊ́sà]	maize
	u	[kì-ɣùmáʔ]	fruit

Give three to five examples (if possible) of each phonemic long oral vowel in the table below.
Words marked with * are minimal pairs to show contrastive vowel length.

/ii/ (41)		/ɪɪ/ (33)		/ɛɛ/ (70)	
[kù-sìmà]*	to be straight	[kù-síɣà]*	to sow seed	[kù-lɛ́ɣà]*	to accuse
[kù-sììmà]*	to thank	[kù-sììɣà]*	to paint, smear	[kù-lɛ̀ɛ̀ɣà]*	to pull tight
[kìì-ná]	hole	[mù-píìlà]	ball	[kù-tɛ́ɛ̀kà]	to cook
[kù-pììmà]	to measure	[kì-síìká]	room, wall	[kù-hɛ̀ɛ̀kà]	to carry
[Ø-díìnì]	religion	[kìì-hùlò]	meal	[Ø-mɛ́ɛ̀lì]	ship/s
[kà-tíì]	small	[kù-sììβà]	to fast	[mɛ́-ɛ́lì]	months
				[ɛ̀-βɛ́ɛ̀lɛ̀]	breast

/uu/ (18)		/ʊʊ/ (48)		/ɔɔ/ (47)	
[kù-lúlà]*	to be stunted	[kù-kúlà]*	to grow	[kù-kólà]*	to work, do
[kù-lúùlà]*	to undress	[kù-kúùlà]*	to de-handle	[kù-kóòlà]*	to cough
[kùù-ɣúà]	to hear	[mù-gùùɗà]	rich person	[nòó?]	but
[Ø-ɓùùsú?]	forehead	[mùù-já?]	co-wife	[kà-sòòlà]	small housefly
[mù-lùùtì]	girl	[kù-núùnà]	to suck	[Ø-sóòɗà]	soda
[kìì-túúbì]	trad. shelter	[kì-túùlò]	grave	[kì-kóòlɛ́?]	bean
[ɛ̀gúúlì]	on top of				

/aa/ (118)	
[kì-káká?]*	sugar cane
[kì-kààkà]*	elephant grass
[kù-sálà]*	to cut
[kù-sààlà]*	to pass
[hàà]	where?
[Ø-sààhà]	hour
[ɛ̀-βààlɛ́?]	stone
[máá-sì]	water

Give three to five examples (if possible) of each phonemic nasal vowel in the table below.
There are no phonemic nasal vowels in LuBwisi.

List the vocoid sequences which occur phonetically:
There are disyllabic vocoid sequences and monosyllabic vocoid sequences. There are two types of monosyllabic vocoid sequences: long vowels and diphthongs. All seven phonemic vowels may be long or short, as seen above. LuBwisi has eleven diphthongs. Diphthongs are relatively rare in LuBwisi and only one word may illustrate the diphthong.

Give examples of these attested vocoid sequences:
Diphthongs will be shown below, followed by disyllabic vocoid sequences.

Diphthongs

Sound   examples

[aɪ]   mʉ̀-táɪ̀   "branch"

[ai]   kà-kàìnà   "small horse"

[aʊ]   ǹ̩-sáʊ̀   "pocket"

[au]   Ø-pàú   "greed for food"

[ei]   mʷ-è·ᵑgéì   "elder"

[ɛʊ]   m̩̀pɛ́ʊ̀   "coldness"   kà-hɛ́ʊ̀   "little coldness"

[eu]   m̩̀pèù   "disease of extended stomach"   kà-hèù "little disease of ext. . . ."

[oi]   ǹ̩dɔ̀góì   "donkey"   kà-lògóì   "small donkey"

[ou]   ǹ̩-g͡bó·ᵑg͡bòú "boss"   kà-g͡bó·ᵑg͡bòú   "small boss"

[ʊɪ]   ǹ̩-súɪ́ʔ   "roofs"   kà-súɪ́ʔ   "small roof"

[ui]   ǹ̩-súì   "fish"   kà-súì   "small fish"

Disyllabic vocoid sequences

/ua/		/uɛ/		/uɔ/	
[kùù-ɣúà]	to hear	[ɛ̀túɛ́]	we	[ ]	
[kù-túà]	to spit	[ɛ̀núɛ́]	you (Pl.)	[ ]	
[kù-kúà]	to die	[mù-kúɛ́ʔ]	drum-string	[ ]	
[kù-hùà]	to search	[ ]		[ ]	
[è-kúà]	bone	[ ]		[ ]	

/ʊa/		/ʊɛ/		/ʊɔ/	
[kù-ɣʊ̀à]	to fail	[mù-túɛ̀]	head	[nʊ́ʊ́βʊ́ɔ̀]	that is when
[kù-túà]	to sprout	[kà-ɣʊ̀ɛ̀]	small leopard	[nʊ́ʊ́kʊ̀ɔ̀]	that is so
[kù-húà]	to get finished	[mù-kúɛ̀]	in-law	[nàlʊ́ɔ́ʔ]	with it (Cl 11)
[m̩̀búà]	dog	[βʊ̀-lʊ́ɛ́ʔ]	millet	[nàtʊ́ɔ́ʔ]	with it (Cl 13)
[kà-d͡ʒâ·ᵑgúà]	cat	[kì-nʊ̀·ᵑgúɛ́ʔ]	yam	[nàβʊ́ɔ́ʔ]	with it (Cl 14)

/ia/		/iɛ/		/iɔ/	
[βì-kíà]	traps	[Ø-βálíɛ̀]	husband	[kì-βúùlìò]	question
[Ø-gùtíà]	half slip	[sìɛ̀]	I, me	[kìì-dìóʔ]	horn
[mù-sìà]	curiosity	[-sɛ̀líɛ̀]	far	[βì-hálíò]	taboo things
[kù-gùmìà]	to make strong	[-hólíɛ̀]	cold, quiet	[kà-híóʔ]	small herd
[kù-líìsìà]	to feed	[-tùùmíɛ̀]	hot	[mù-gìlìò]	totem

/ɪa/		/ɪɛ/		/ɪɔ/	
[βɪ̀-kíà]	neck	[-óɣííɛ̀]	sharp	[ɛ̀-lɪ̀ò]	thirst
[lʊ̀-sɪ̀à]	pubic hair	[sí-ɛ́ʔ] 3Sing. Poss. (Cl 10)		[βɪ̀-líò]	food
[mù-síáʔ]	cliff	[βí-ɛ́ʔ] 3Sing. Poss. (Cl 8)		[kà-híò]	small knife
[βʲ-ó·kùlíà]	food	[ ]		[kà-híóʔ]	small crocodile
[kù-sɪ̀à]	to grind	[ ]		[βʊ̀-líò]	right (side)

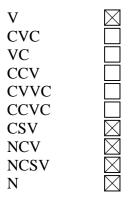## 3   Syllable structure

In addition to the unmarked syllable type CV, which of the following more marked types of syllables occur phonetically? (Check appropriate boxes.)

V	☒
CVC	☐
VC	☐
CCV	☐
CVVC	☐
CCVC	☐
CSV	☒
NCV	☒
NCSV	☒
N	☒

Give examples of these more marked syllable types in the various contexts in which they occur:

/V/

[ɛ̀-tá-mà]   cheek
[ɛ̀-βɛ̀-ɣà]   shoulder
[ó-lɛ̀-kɛ́ʔ]   you stop!
[βɨ̀-lɨ́-ò]   food
[kù-tú-à]   to spit

/CSV/

[kʲá·-là]   finger
[mʷá·-nà]   child
[mʲá·-kà]   years
[kù-βʲâ·-là]   to give birth
[kù-kʷɛ̀·-là]   to build

/NCV/

[mù·-ⁿtù]   person
[kʲà·-ᵐbú ʔ]   watering place
[kà·-ⁿdí-ɣà]   Mannikin (bird)
[βù·-ᵑgó·-ᵑgóʔ]   brain
[kɨ̀-há·-ⁿdáʔ]   path

/NCSV/

[má·-ᵑkʷá·-wá-wá]   armpits
[βù-má·-ⁿt͡ʃʲà·-ᵑkúʔ]   food in the teeth
[βù-kú·-ᵑgʷɨ̂·-sɨ́]   under the bed
[à-kà·-ᵐbʲâ·-là]   She gave birth to me.
[à-kà·-ᵑkʷâ·-tà]   He caught me.

/N/ (not in roots)

[m̩-bɔ̀-ɣóʔ]   buffalo
[n̩-d͡ʒó-kà]   snake
[n̩-sɛ́-lɛ́ʔ]   hippo
[n̩-tù-lɛ̀-gɛ̀]   giraffe
[ŋ̩-kù-ɣɛ̀·-ⁿdà]   I will go.

Is there reason to believe that any of the types of syllables which occur phonetically derive from underlyingly forms which have a different CV structure? (For example, surface [ClV] and/or [CrV] sequences can in some languages be analyzed as underlyingly /CVlV/, /CVrV/.)
    I don't think so.

Discuss any restrictions that exist on where certain types of syllables can occur.
    V syllables only seem to occur word-initial or word-final, CSV syllables occur word-initial and root-initial, NCV syllables occur root-initial and root-medial/word-final, NCSV syllables occur root-initial, and N syllables occur word-initial.

Discuss any significant observations about relative frequency of the different syllable types:
    NCV syllables are common and are distributed most often word-medial or word-final rather than root-initial. CSV syllables are less common in nouns and verbs but very common in possessives. N syllables occur only word-initial in Class 9-10 nouns and as the 1Sing. subject of verbs. V syllables occur word-initial in Class 5 nouns and in the IV. V syllables also occur word-

final (in a CV-V) sequence as LuBwisi doesn't allow CSV syllables to occur word-final except in a few disyllabic conjunctions.

Discuss any restrictions on what segments can occupy different positions in the syllable, e.g. restrictions on coda consonants.

        LuBwisi has open syllables, except for syllabic nasals. Since all syllables are open, no consonant occurs syllable-final. Any consonant may fill the onset of a syllable.

4   Word Structure

Discuss any restrictions on minimal or maximal word size, reckoned for example in terms of number of syllables.

        Restrictions holding of nouns:

        A true LuBwisi noun will have a prefix and a root, so minimally nouns will have two syllables, such as [k�ì-t͡ʃʊ̀] "cloud". In a list of a thousand nouns the longest appeared to have six to seven syllables e.g. : [ßù-d͡ʒùnáníd͡ʒíßúáʔ] "responsibility" and [kà-má·ᵐbásɛ̀líà] "little finger".

        Restrictions holding of verbs:

        Verbs in LuBwisi generally are formed from a -CVC- root with a FV. Roots with more than three syllables probably have extensions imbedded. There are several -VC- extensions which can attach as suffixes. Subject, Object, and Tense can attach as prefixes. Reduplicated verb roots exist. Therefore, verbs can be quite long. Among the shortest infinitives is [kʊ̀-ßá] "to be". An example of a common long word orthographically is: *Oleke nibahelekeeleli̱ye.*" [ólɛ́kɛ́.níßáhɛ́lɛ́kɛ́ɛ́líɛ́ʔ] "Let me accompany you all back from my place."

Describe any interesting generalizations about the overall shapes of (different categories of) words and/or roots, in terms of syllable types.

        Lubwisi does not employ the IV in the same way as other Ugandan Bantu languages. For example compare the following:

RuTooro	LuBwisi	gloss
àmáízì̥	máásì	water
òmùnʷà	kànùà	mouth
èríínò	líínò	tooth

RuTooro uses the IV, but LuBwisi does not except when employing the definite article, e.g. [àmáásì] "the water", [àkànùà] "the mouth", [èlíínò] "the tooth".

While RuTooro has an extra pre-root syllable because of the IV, it desyllabifies the ends of words and suffixes so that CSV syllables are common and CV-V syllables are not. LuBwisi on the other hand, generally desyllabifies prefixes only so that CSV syllables do not occur word-final but rather CV-V syllables do. RuTooro is segmentally "heavy" on the front end of words and "light" at the end of words; LuBwisi is segmentally "light" on the front end of words and "heavy" at the end of words. For example:

RuTooro	LuBwisi	gloss
émbʷà	m̩búà	dog
kùràmùkʲà	kùlàmùkìà	to greet
kʷítʷà	kʷì·túà	to be killed
àmáhʷà	màhúá	thorns
àmáárʷà	mààlúá	alcohol
òmútʷè	mùtúɛ̀	head

Discuss any restrictions on the occurrence of particular phonemes in particular word-positions.

The consonants which may begin LuBwisi nouns have already been mentioned. In verbs, the longer words will generally have approximates and vowels towards the end because these segments are used in the composition of most of the verbal extension suffixes. /ĝb/ is not root-medial except prenasalized.

5 Segment co-occurrence restrictions

In some languages there may be nothing particular to add here beyond what has already been said in connection with word and/or syllable structure. In other languages, however, it may be that certain phonemes cannot occur next to others, e.g. in some languages round vowels may not follow labial consonants.

Some questions to address:

- If consonant clusters occur, what restrictions are there on which consonants can co-occur in a cluster? (The restrictions on clusters occurring across syllable boundaries will typically be different from those holding between two consonants in the same syllable.)
  There are no consonant clusters beyond what is found in the CSV, NCV, and NCSV syllable patterns shown above.

- Do certain consonants never precede (or follow?) certain vowels?

    Yes, see the consonant-vowel collocation chart below where the consonants precede the vowels. Roots only.

Consonant Collocation Chart

C (consonants)	i	ɪ	ɛ	a	ɔ	ʊ	u		^{n}C	C^{j}	C^{w}	$^{n}C^{j}$	$^{n}C^{w}$
p	x	x	x	x	x	x	x		x				
t	x	x	x	x	x	x	x		x	x	x		
t͡ʃ	x	x	x	x	x	x	x		x	x	x	x	
k	x	x	x	x	x	x	x		x	x	x		
k͡p		x	x	x	x	x	x		x				
b	x	x	x	x	x	x	x		x				
d	x	x	x	x	x	x	x		x				
d͡ʒ	x	x	x	x	x	x	x		x		x		
g	x	x	x	x	x	x	x		x	x	x		x
g͡b	x	x	x	x	x	x	x		x				
ɓ	x	x	x	x	x	x	x			x			
ɗ	x	x	x	x	x	x	x						
β	x	x	x	x	x	x	x			x	x		
l	x	x	x	x	x	x	x			x	x		
j			x	x	x	x	x						
ɣ	x	x	x	x	x	x	x				x		
w		x	x	x									
h	x	x	x	x	x	x	x			x			
f	x	x	x	x	x	x	x				x		
s	x	x	x	x	x	x	x		x	x	x		
m	x	x	x	x	x	x	x			x			
n	x	x	x	x	x	x	x						
ɲ				x	x								

- Are there any restrictions on what vowels can co-occur in the same word (e.g. "vowel harmony") or in direct contact with each other?

Yes, vowel harmony processes don't allow +ATR close vowels /i, u/ to be in the same root, or in direct contact with -ATR close-mid vowels /ɪ, ʊ/. This occurs at the root level. The effect of +ATR spread is thought to be gradient so it may be possible for a word to contain a high, -ATR vowel in the prefix when there is a +ATR vowel in the root or suffix, e.g. [kɪ̀-fɛ̀nɛ́·ⁿsɪ̀] "jackfruit".

In noun roots with the structure Pfx-CVCV there is a gap where /ɛ/ and /ɪ/ don't occur in the V1-V2 position, nor in diphthongs. There is also a gap where /ɔ/ and /ʊ/ don't occur in the V1-V2 position, nor in diphthongs.

The following vowels do not occur in direct contact in the LuBwisi data (although some of these sequences occur in proper names): /ɛ, a/, /ɔ, a/, /ɛ, ɔ/. See collocation chart below:
Notation: (x = occurs in V_1V_2 sequences, also in noun Pfx-CV_1CV_2 sequences;
y = occurs only in noun Pfx-CV_1CV_2 sequences). Roots only.

Vowel Collocation Chart

V (vowels) V_2 V_1	/i/	/ɪ/	/ɛ/	/a/	/ɔ/	/ʊ/	/u/
/i/	x		x	x	x		y
/ɪ/		x	x	x	x	y	
/ɛ/	x		x	y	y	x	x
/a/	x	x	y	x	y	x	x
/ɔ/	x	y	y	y	x		x
/ʊ/		x	x	x	x	x	
/u/	x		x	x	y		x

- Are there any restrictions on what consonants can co-occur in the same word?
Not that I know of, but this has not been investigated deeply.

6   Morphophonemic alternations & harmony processes

All morphophonemic processes may be seen in the examples below. Approximate consonants are realized as plosives when they follow nasal consonants. The diminutive form of the noun (Class 12) will be given if the normal form is Class 9. If the normal form is not Class 9 but Class 11, then the plural form will be given. In both cases a nasal consonant precedes the consonant or vowel phoneme and produces a morphophonemic change.

Morphophonemic change following nasal consonants

phoneme	allophone	environment	examples	
/ß/	[b]	following nasal consonants	[kà-ßúà]	small dog
			[m̩búà]	dog/s
/l/	[d]	following nasal consonants	[lù-límì]	language
			[n̩dímì]	languages
/j/	[dʒ]	following nasal consonants	[kà-jòɣù]	small elephant
			[n̩dʒòɣù]	elephant/s
/ɣ/	[g]	following nasal consonants	[kà-ɣùɛ̀]	small leopard
			[ŋgùɛ̀]	leopard/s
/w/	[pʷ]	following nasal consonants	[kà-wɛ̀ɣà]	small wind
			[m̩pʷɛ̀·ɣà]	wind
/h/	[p]	following nasal consonants	[lùhạ̀lì]	safari ant
			[m̩pạ̀lì]	safari ants
/V/	[dʒV]	following nasal consonants	[lʷ-ì̀·ɣì̀]	door
			[n̩dʒì̀ɣì̀]	doors

[lʷ-è·hèlèlìò]   broom
[n̩dʒèhèlèlìò] brooms

[lʷ-ò·kìo] scar from burning facial skin
[n̩dʒòkìò]   scars from burning facial skin

[lʷ-à·kìò] the flowering of plants
[n̩dʒàkìò]   the flowerings of plants

Morphophonemic change preceding vowel-initial Roots[10]
Verbs

phoneme	allophone	environment	examples	
/ɪ/	[a]	following /a/	[kʷɪ·sà]	to come
			[áàsà]	he/she comes
			[kʷɪ́·tà]	to kill
			[áátà]	he/she kills
	[ɛ]	following /ɛ/	[ɛ́ɛ̀sà]	it comes (Cl 9)
			[ɛ́ɛ́tà]	it kills (Cl 9)
	[ɔ]	following /ɔ/	[ɔ́ɔ̀sà]	you come[11]
			[ɔ́ɔ́tà]	you kill
/ʊ/	[a]	following /a/	[kʊ̀-ʊ̀jà]	to remove
			[áàjà]	he/she removes
			[kʊ̀-ʊ̀kʊ́tà]	to be full
			[áákʊ́tà]	he/she gets full
	[ɛ]	following /ɛ/	[ɛ́ɛ̀jà]	it removes (Cl 9)
			[ɛ́ɛ́kʊ́tà]	it gets full (Cl 9)
	[ɔ]	following /ɔ/	[ɔ́ɔ̀jà]	you remove
			[ɔ́ɔ́kʊ́tà]	you get full
/u/	[a]	following /a/	[kʊ̀-ʊ̀ɣúà]	to hear
			[ááɣúà]	he/she hears
/a/	[ɔ~o]	preceding /ɔ/	[kʷɔ̀·hà]	to hate
			[óòhà]	he/she hates
			[kʷɔ́·tà]	to warm oneself
			[óótà]	he/she warms self
/a/	[ɛ]	preceding /ɛ/	[kʷɛ̀·ɗà]	to stay long
			[ɛ́ɛ̀ɗà]	he/she stays long
			[kʷɛ́·ɣà]	to learn
			[ɛ́ɛ́ɣà]	he/she learns

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[10] I'm not satisfied with this analysis below, rather I wonder if perhaps there is a floating feature before roots that assigns a long vowel according to the vowel quality in the prefix in LuBwisi, or inserts an 'i' in RuTooro, or doubles the initial consonant of the root in LuGanda. This would apply especially in nouns in LuBwisi, and for verbs with long-u in the prefix, or i-vowel-initial roots. Examples in LuBwisi, RuTooro, and LuGanda respectively:
[kʊ̀ʊ̀kàlà, kʷɪ̀kárà, òkʊ̀βɛ̀ɛ̀rà] "to stay"; [kʷɪ́·tà, kʷɪ́·ṭà, òkút:à] "to kill". Vowel length and tone appears to be tied to the syllable or CV level and not to the segment according to the word game Ludikiya where [máásɪ̀] "water" becomes [sɪ́ɪ́mà], [líísò] "eye" becomes [sóólì], [kɪ̀mɔ̀lɛ̀] "flower" becomes [lɛ̀mɔ̀kɪ̀]. It is necessary to know that 1-3Sing. Subject Prefixes are n-, o-, a- as in
[ŋ̀kʊ̀ɣɛ̀·ⁿdà, òkʊ̀ɣɛ̀·ⁿdà, àkúɣɛ̂·ⁿdà] respectively for "I will go, You will go, He will go."

[11] Dialect difference, see footnote below.

/ɔ/	[w~wɔ]	preceding /ɔ/	[kʷɔ̀·hà]	to hate
			[wɔ́ɔ̀hà]	you hate[12]
			[kʷɔ́·tà]	to warm oneself
			[wɔ́ɔ́tà]	you warm yourself
/ɔ/	[w~wɛ]	preceding /ɛ/	[kʷɛ̀·ɗà]	to stay long
			[wɛ́ɛ̀ɗà]	you stay long
			[kʷɛ́·ɣà]	to learn
			[wɛ́ɛ́ɣà]	you learn
/ɔ/	[w~wa]	preceding /a/	[kʷà·kà]	to be lit
			[wáàkà]	you are lit
			[kʷá·tà]	to split
			[wáátà]	you split
/ɔ/	[w~wɪ]	preceding /ɪ/	[kʷì·sà]	to come
			[wíìsà]	you come
			[ɔ́ɔ̀sà]	you come[13]
			[kʷí·tà]	to kill
			[wíítà]	you kill
			[ɔ́ɔ́tà]	you kill
/ɛ/	[j~jɔ]	preceding /ɔ/	[kʷɔ̀·hà]	to hate
			[jɔ́ɔ̀hà]	it hates (Cl 9)[14]
			[kʷɔ́·tà]	to warm oneself
			[jɔ́ɔ́tà]	it warms itself (Cl 9)
/ɛ/	[j~jɛ]	preceding /ɛ/	[kʷɛ̀·ɗà]	to stay long
			[jɛ́ɛ̀ɗà]	it stays long (Cl 9)
			[kʷɛ́·ɣà]	to learn
			[jɛ́ɛ́ɣà]	it learns (Cl 9)
/ɛ/	[j~ja]	preceding /a/	[kʷà·kà]	to be lit
			[jáàkà]	it is lit (Cl 9)
			[kʷá·tà]	to split
			[jáátà]	it splits (Cl 9)

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[12] I cannot tell if this is phonetic length due to conditioning following 'w' or phonemic vowel length. My informant has said both, but thinks it is phonemic vowel length.

[13] Dialect difference. KiTalinga speakers are more likely to use 'w', LuBwisi speakers use both 'w' and 'o'. In the case of 'o' then /ɪ/ becomes [ɔ] following /ɔ/.

[14] I cannot tell if this is phonetic length due to conditioning following 'y' or phonemic vowel length. My informant has said both, but thinks it is phonemic vowel length.

Nouns			
phoneme	allophone	environment	examples
/a/	[e~ɛ]	preceding /ɛ/	[kʷé·lì] month (Cl 15)
			[mé-élì] months (Cl 6)
/a/	[o~ɔ]	preceding /ɔ/	[lʲó·lì] type of pumpkin (Cl 5)
			[mɔ́-ɔ́lì] type of pumpkins (Cl 6)
/i,ɪ/	[a]	following /a/	[lí-ísò] eye (Cl 5)
			[má-ásò] eyes (Cl 6)
			[à-má-ísò] eyes (RuTooro)
			[lí-ínò] tooth (Cl 5)
			[má-ánò] teeth (Cl 6)
			[à-má-ínò] teeth (RuTooro)
			[tʷ-í·sì] small amount of water (Cl 13)
			[má-ásì] water (Cl 6)

Devocalization/Desyllabification	
(Class 3-4 will be used for examples where possible)	
[mù-tímà] (Cl 3) "heart"	[mì-tímà] (Cl 4) "hearts"

phoneme	allophone	environment	examples
/ʊ,u/	[w]	preceding /V ≠ ʊ,u /	
/ɪ,i/	[j]	preceding /V ≠ ɪ,i /	
/ʊ/	[w]	preceding /a/	[mʷá·kà] year
		preceding /ɛ/	[mʷɛ̀·nà] mountain
		preceding /ɔ/	[mʷɔ̀·jɔ̀] soul, spirit
		preceding /ɪ/	[kʷí·tà] to kill, killing (Cl 15)
		preceding /i/	[mʷìɣóʔ] stick
			Negative Examples
/ʊ/	≠[w]		[kùùkútà] to be full
			[kùùɣúà] to hear
/ɪ/	[j]	preceding /a/	[mʲá·kà] years
		preceding /ɛ/	[mʲɛ̀·nà] mountains
		preceding /ɔ/	[mʲɔ̀·jɔ̀] souls, spirits
			Negative Example
	≠[j]	preceding /i/	[mììɣóʔ] sticks

Vowel Height Harmony

phoneme	allophone	environment	examples
/-ɪl/ Applicative Sfx.	[-ɛl]	Verb roots with mid vowels	Positive examples (allophonic realization applies):

[kù-ɣɛ·ⁿdà] to go

[kù-ɣɛ·ⁿdɛlà] to go for

[kù-sɛ́·ᵑgà] to harvest maize

[kù-sɛ́·ᵑgɛlà] to harvest maize for

[kù-kɔ̀·ⁿdà] to chop

[kù-kɔ̀·ⁿdɛlà] to chop for

[kù-kɔ́·ⁿdà] to become small

[kù-kɔ́·ⁿdɛlà] to become small from

phoneme	allophone	environment	examples
/-ɪl/	[-ɪl]	Verb roots with non-mid vowels	Negative examples (allophone not realized in other environments):

[kù-d͡ʒìɪ̀kà] to bury

[kù-d͡ʒìɪ̀kɪ̀là] to bury for

[kù-sí·ᵑgà] to win

[kù-sí·ᵑgílà] to win for/from

[kù-túmà] to send

[kù-túmílà] to send for/from

[kù-tàkà] to cry out

[kù-tàkɪ̀là] to cry out for

Coalescence in Fast Speech[15]

Slow to "Normal" speech	Normal to "Fast" speech	Meaning
mùká̰lí.ɔ̀ɣù	mùká̰lúúɣù	that woman
mùká̰lí.ɔ̀múɪ́	mùká̰lúùmúɪ́	one woman
mùkálí.ɔ̀ɣù	mùkálúúɣù	that brave person
ɔ̀lɪ̀.ɔ̀tíá	ɔ̀lùùtíá	How are you?
ɛ̀lɪ́.ètíá	èlíìtíá	How is it? (Cl 9), How are they? (Cl 4)
βùtɛ́βɛ́.ní.ɔ̀βù	βùtɛ́βɛ́.m̩búβù	There are (the) chairs.
ṇ̀tɛ́βɛ́.ní.ɛ̀ɣì	ṇ̀tɛ́βɛ́.ŋ̩gíɣì	There is a chair.
kàtɛ́βɛ́.ní.àkà	kàtɛ́βɛ́.ŋ̩kákà	There is a small chair.
àlɪ́.ɛ̀k á	àlɪ́ɪ̀ká	S/he is at home.

---

[15] This data is given not to be explained, but to be documented. The examples show that a V-V sequence is necessary to trigger the effect. The term "fast" is deceptive; in normal speech what is listed under "fast" speech is the norm, especially in sentences like "There are the chairs."

7 Tone or accent

There is much more to present and to find out than is possible for this survey at this time. There are certain principles about tone:

1. LuBwisi has minimal pairs which contrast only by tone or pitch:

kù-kómà	to go up	kù-kòmà	to pick, choose
mʷá·nà	child	mʷà·ná?	leg of an animal
kì-ɣóɣó	banana fiber	kì-ɣòɣò	rotten tree trunk
kù-sí·ⁿgà	to win	kù-sì·ⁿgà	to ache
méélì	months	méèlì	ship/s

2. There is generally one tone per vowel: H or L, except in cases of compensatory lengthening, or vowel sequences. Long vowels and diphthong sequences have the following tone patterns within the syllable:

Tone Pattern	Long Vowel	Gloss	Diphthong	Gloss
HH	mà-tíítì	milk	ǹ-súí?	roofs
LL	kù-fòòlà	to make something become	kà-hèù	small disease of extended stomach
HL	ɛ̀-ßɛ́ɛ̀lɛ̀	breast	ǹ-súì	fish
LH[16]			ßììd͡ʒàí	animal dung

3. In disyllabic noun roots all possible tone patterns exist:

Tone Pattern	Word	Gloss
Pfx-HH	kì-ɓílí	forest
Pfx-HL	kì-kúlù	fingernail
Pfx-LL	kìì-kùɗù	shade
Pfx-LH	kì-ɣùmá	fruit

4. CVC Verb roots are either H or L with toneless extensions which can be influenced by tone spreading.[17]

[kù-ɣɛ̀·ⁿdà]	to go	[kù-ɣɛ̀·ⁿdɛ̀là]	to go for
[kù-sɛ́·ⁿgà]	to harvest maize	[kù-sɛ́·ⁿgɛ́la]	to harvest maize for/from

5. Noun Prefixes are usually L. Rare examples of H Pfx in CVCV roots (3 examples from over 1,000 nouns). I cannot account for these anomalies:

ká-làsà	type of cassava (Cl 12)	ßú-làsà	type of cassavas (Cl 14)
mú-t͡ʃòòt͡ʃò	fermented juice (Cl 3)	mí-t͡ʃòòt͡ʃò	fermented juices (Cl 4)
kíí-nìɣá?	anger (Cl 7)	ßíí-nìɣá?	angers (Cl 8)

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[16] Rare.

[17] Applicative only shown here.

6. H tones following L are lower than preceding H's. (Downstepped H's)

    ex. [kùɣùlà]   to buy

         [ááɣùlꜜíɛ̀]   He has bought.[18]

    (underlying HL Perfective suffix is downstepped following L verb root)

7. FV on verbal infinitives with CVC roots utterance-final is always L.

8. Polar tones

In LuBwisi there are two kinds of imperatives, one states a subject (usually 2Sing. or 2Pl.), includes the root of the verb, and -e FV. The second type leaves the subject implied and is harsher in its intent and effect. It consists of the root of the verb and an -a FV. Hypothesis: In the first type of imperative, the root is polar to the H 2Sing. subject (/ó-/), and the -e FV is polar to the root. In the second type of imperative the FV is carries a polar tone in relation to the tone of the root.

Infinitive	gloss	Imperative 1 (all 2Sing.)	gloss	Imperative 2 (subject implied)	gloss
kùkólà	to work	ókòlɛ́	you work!	kólà	work!
kùβísà	to hide	óβìsɛ́ʔ	you hide!	βísà	hide!
kùlíà	to eat	ólìɛ́ʔ	you eat!	líà	eat!
kùlìmà	to dig	ólìmɛ́ʔ	you dig!	lìmá	dig!
kùlɛ̀kà	to stop	ólɛ̀kɛ́ʔ	you stop!	lɛ̀ká	stop!
kùɣɛ̀·ⁿdà	to go	óɣɛ̀·ⁿdɛ́ʔ	you go!	ɣɛ̀·ⁿdá	go!

9. Data for further study

Prefixes

L root	gloss	H root	gloss	Hypothesis
kùɣɛ̀·ⁿdà	to go	kùlíà	to eat	
ǹkùɣɛ̀·ⁿdà	I will go	ǹkùlíà	I will eat	ǹ-
òkùɣɛ̀·ⁿdà	You will go	òkùlíà	You will eat	ò-
àkúɣɛ̀·ⁿdà	He/she will go	ákùlíà	He/she will eat	tense Pfx polar to root
tùkùɣɛ̀·ⁿdà	We will go	tùkùlíà	We will eat	tù-
mùkùɣɛ̀·ⁿdà	You (pl) will go	mùkùlíà	You (pl) will eat	mù-
bákúɣɛ̂·ⁿdà	They will go	bákùlíà	They will eat	bá-, tense Pfx polar to root

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[18] Downstepped High has not been marked in the text except here by example. Even though not marked properly with this IPA symbol, every H following L with preceding H is downstepped.

Tense

L root	gloss	H root	gloss	Hypothesis
kùɣɛ·ⁿdà	to go	kùlíà	to eat	
ŋ̀kàɣɛ·ⁿdá	I went	ŋ̀kàlíá	I ate	Past kà-, FV?
ǹdíɣɛ̂·ⁿdà	I will go (far fut)	ǹdílíà	I will eat (far fut)	Fut lí-
ŋ̀kùɣɛ·ⁿdà	I will go	ŋ̀kùlíà	I will eat	Fut/Inf toneless
ǹdìmàɣɛ·ⁿdà	I am going	ǹdìmàlíà	I am eating	toneless
ŋ̀ɣɛ·ⁿdà	I go	ǹdíà	I eat	

Vowel-initial Verb roots

L root	gloss	H root	gloss	Hypothesis
kʷì·sà	to come	kʷí·tà	to kill	
ŋ̀kààsá	I came	ŋ̀kààtá	I killed	Past kà-, FV H
ǹdíìsà	I will come (far fut)	ǹdíítà	I will kill (far fut)	Fut lí-
ŋ̀kʷì·sà	I will come	ŋ̀kʷí·tà	I will kill	Fut/Inf toneless
ǹdìmààsà	I am coming	ǹdìmáátà	I am killing	toneless
níìsà	I come	níítà	I kill	?

8 Word list

The words below were transcribed in October, 2000 by Waller Tabb, an SIL Linguist. The informant was Rev. Hannington Bahemuka, born 21 March 1955. His father and mother spoke LuBwisi as their mother tongue. He lived for the first 18 years of his life in Busunga, Bubandi sub-county, Bwamba County, Bundibugyo District. Busunga is on the border between Uganda and Democratic Republic of Congo. He has lived in Mbarara and Kabarole Districts for schooling and training. He speaks LuBwisi as his mother tongue. He also speaks KiSwahili, RuKonjo, RuNyoro-RuTooro, RuNyankore-RuKiga, LuGanda, and English.

1. me   [sìɛ̀]

2. you   [ùɛ̀]

3. we   [ètúɛ̀]

4. this   [kínì̀]

5. that   [ɛ̀kì̀]

6. who   [àní]

7. what   [kìkí]

8. not   [bàà]

9. all   [ßʲô·nà]

10. many   [ßíkànìɛ̀]

11. one   [ɛ̀mùí]

12. two   [ɛβílí]

13. (be) big   [kùnɛɛtà]

14. (be) long   [kùd͡ʒà·ᵐbà]

15. (be) small   [kànàβʷá·nà]

16. woman   [mùká̰lí]

17. man   [mùsáásà]

18. person   [mù·ⁿtù]

19. fish   [ǹsúì]

20. bird   [nònì]

21. dog   [m̩búà]

22. louse   [kììɓìɓɔ̀]

23. tree   [kììg͡bútù]

24. seed   [ǹsíɣɔ̀]

25. leaf   [kìβàβì]

26. root   [mùlì]

27. bark   [kìkùkù]

28. skin   [kàkóβáʔ]

29. flesh   [nàmà]

30. blood   [sáɣámà] [sámaɣ́à] dialect difference, the latter pure LuBwisi

31. bone   [èkúà]

32. oil / grease   [màfútà]

33. egg   [ɛhùlì]

34. horn   [ɛhɛ́·ᵐbɛ́ʔ]

35. tail   [mùkílà]

36. feather   [kʲò·háʔ]

37. hair   [ɛsókɛ]

38. head   [mùtúɛ]

39.	ear	[kùtúì]	
40.	eye	[líísò]	
41.	nose	[mùhúlí]	
42.	mouth	[kànùà]	
43.	tooth	[líínò]	
44.	tongue	[kìlímì]	
45.	claw	[kìkúlù]	
46.	leg, thigh	[kùɣùlù, kìβèlò]	leg also 127, included thigh
47.	knee	[kùlúʔ]	
48.	hand	[ŋ̀gàlò]	
49.	belly	[ɛ̀tú·ⁿdú]	
50.	neck	[βìkíà]	
51.	breast	[ɛ̀βɛ́ɛ̀lɛ̀]	
52.	heart	[mùtímà]	
53.	liver	[βùnɛ̀]	
54.	(to) drink	[kùnúà]	
55.	(to) eat	[kùlíà]	
56.	(to) bite	[kùlúmà]	
57.	(to) see	[kùβónà]	
58.	(to) hear	[kùùɣúà]	
59.	(to) know	[kùmàɲà]	
60.	(to) sleep	[kùɣʷɛ̀sàɣìlà]	
61.	(to) die	[kùkúà]	
62.	(to) kill	[kʷí·tà]	
63.	(to) swim	[kùhálà]	
64.	(to) fly	[kùhàlàlà]	
65.	(to) walk	[kùlùβàtà·ᵑgà]	

66. (to) come   [kʷɪ·sà]

67. (to) lie down   [kùlà·ŋgààlà]

68. (to) sit   [kùsítámà]

69. (to) stand   [kùùmírìrà]

70. (to) give   [kùháʔ]

71. (to) say   [kùɣà·ᵐbà]

72. sun   [mùsànáʔ]

73. moon   [kʷé·lì]

74. star   [n̩sòòlíà]

75. water   [máásɪ]

76. rain   [m̩búlà]

77. stone   [ɛβààlɛʔ]

78. sand   [mùsɛnɛ̀]

79. earth   [n̩síʔ]

80. cloud   [kɪt͡ʃù]

81. smoke   [mʷí·kà]

82. fire   [mùlɪlɔ̀]

83. ash   [kɪβúʔ]

84. (to) burn   [kʷò·kɪà]

85. path   [kàhá·ⁿdáʔ]

86. mountain   [mʷɛ̀·nà]

87. red   [mùtʊkú]

88. green   [kɪsɪkà.kɪβísɪ]

89. yellow   [kɪ·ⁿd͡ʒáàlì]

90. white   [kɪd͡ʒélù]

91. black   [kɪd͡ʒɪláɣúlɪ]

92. night   [kɪlóʔ]

93. (to be) hot   [kùtʊ̀ʊ̀mà]

94. (to be) cold   [kùhólà]

95. (to be) full   [kùùsúlà]

96. new   [kìhʲá·ká]

97. (to be) good   [kùsɛ́mɛ́là]

98. (to be) round   [kùβílí·ᵑgìtìlànà]

99. (be) dry   [kʷó·mà]

100. name   [líínà]

101. ye   [ù̀ɛ̀]

102. he/she   [ɛ̀jɛ́ʔ]

103. they   [ɛ̀bɔ́ʔ]

104. how?   [kútìà]

105. when?   [ɗí]

106. where?   [háá]

107. here   [hánɪ̀]

108. there   [ààláʔ]

109. other   [kí·ⁿd͡ʒí]

110. three   [ɛ̀sátʊ̀]

111. four   [ɛ́nà]

112. five   [ɛ̀táànɔ̀]

113. few   [βɪ̀kɛ́]

114. sky   [ɛ̀ɣ̀ùlʊ̀]

115. day   [kìlóʔ]

116. fog   [mùlù·ᵐbíʔ]

117. wind   [m̀pʷɛ̀·ɣà]

118. flow   [kùsɛ́·ⁿdà]

119. sea   [nà·ⁿd͡ʒáʔ]

120. lake   [nà·ⁿd͡ʒáʔ]

121. to rain   [kùtóɔ̀nà]

122. (to be) wet   [kùdɔ̀dà, kùg͡bɔ̀·ⁿdà]

123. (to) wash   [kùnààβìà]   slow speech prefix vowel is light -ATR

124. snake   [ǹd͡ʒókà]

125. worm   [mùgóɗóʔ]

126. back   [mùɣɔ̀·ᵑgɔ̀]

127. leg   [kùɣùlù]   leg is also #46

128. arm   [mùkónɔ̀]

129. wing   [ɛpàpáʔ]

130. lip   [mùnùà]

131. fur   [βʲòháʔ]

132. navel   [mùkù·ⁿdì]

133. guts   [màlà]

134. saliva   [màtâ·ⁿtá]

135. milk   [màtíítì]

136. fruit   [kìɣùmáʔ]

137. flower   [kìmɔ̀lɛ̀]

138. grass   [kìsì·ᵑgɔ̀]

139. with   [nà]

140. in   [mù]

141. at   [àà, hàà]

142. if   [kùβáʔ]

143. (my) mother   [máàhá]

144. (my) father   [tìtáʔ]

145. husband   [β̰álíɛ̀]

146. wife   [mùkáá]

147. salt   [kɪ̀sʊ̀là]

148. ice   [bàláàfʊ̀]

149. snow   [βɪ̀lɪ̀kà]

150. (to) freeze   [   ]   no word for this in LuBwisi

151. child   [mʷá·nà]

152. (to be) dark   [kʷá·là]

153. (to) cut   [kùd͡ʒɔ̀·ᵐbà]

154. (to be) wide   [kùg͡bàà tɪ̀kànà]

155. (to be) narrow [kùɓókánà]

156. (to be) far   [kùsɛ̀là]

157. (to be) near   [hààí]

158. (to be) thick   [kùɓí·ᵐbà]

159. (to be) thin   [kùɗɛ́ɛ̀hà]

160. (to be) short   [kùdíìdà]

161. (to be) heavy   [kùlʲɔ̀·tà]

162. (to be) dull   [kùdúɗà]

163. (to be) sharp   [kʷɔ̀·ɣíà]

164. (to be) dirty   [kʷɛ̀·láɣùlà]

165. (to be) bad   [kùɓíʔ]

166. (to be) rotten [kùgù·ⁿdà]

167. (to be) smooth [kùtɛ̀lɛ̀lùkà]

168. (to be) straight [kùsɪ̀mà]

169. (to be) correct / true   [kʷì·kà, kùhɪ̀kà]   h mostly not pronounced

170. left   [βùmɛ̀súʔ]

171. right   [βùlɪ́ɔ̀]

172. (to be) old   [kùkáàkùlà]

173. rub   [kùlàɣàlìà]

174. (to) pull   [kùɓùlà]

175. (to) push   [kùtí·ᵑgítà]

176. (to) throw   [kùkúβà]

177. (to) hit   [kùhúùlà]

178. (to) split   [kʷà·tíà]

179. (to) pierce   [kùtúɓítà]

180. (to) dig   [kùlìmà]

181. (to) tie   [kùβɔ́hà]

182. (to) sew   [kùsɔ̀nà]

183. (to) fall   [kʷɛ̀·gɛ́·ᵑgà]

184. (to) swell   [kùɓí·ᵐbà]

185. (to) think   [kʷè·lílíkànà]

186. (to) sing   [kùlí·ᵐbà]

187. (to) smell   [kùkáɣà]

188. (to) vomit   [kùtánákà]

189. (to) suck   [kùnúùnà]

190. (to) blow   [kùhùùhà]

191. (to) fear   [kʷɔ̀·βáhà]

192. (to) squeeze   [kùmìɣà, kùkámà]   squeeze an object, squeeze for juice

193. (to) hold   [kùkʷâ·tà]

194. down   [hà·ⁿsí, à·ⁿsí]   heard h sometimes, mostly not

195. up   [ɛ̀ɣùlù]

196. (to be) ripe   [kʷɛ́·là]

197. dust   [tùùtù]

198. (to be) alive   [kʷɔ̀·míìlà]

199. rope   [kìtìβɔ̀]

200. year   [mʷá·kà]

9   Annotated Bibliography

(The books listed below will be reviewed briefly and limited to sociolinguistic or phonological issues relating to LuBwisi.)

Ashton, E.O. et al: *A Luganda Grammar.* **Longmans. Kampala (?).1953. 514+ P.** I have just skimmed this book. Ashton records labialization of "f" by many speakers, as does LuBwisi (p.4). He makes a good explanation of down-stepped tones close to fifty years ago (p.6). The book gives some spelling rules that are incorporated in the LuBwisi Spelling Guide (p.13).

Cullen, Wendy R.: *Tense and Aspect in Lubwisi Narrative Discourse.* **Ph.D. Dissertation, The University of Texas at Arlington, Arlington, 1999. 263 P.** Cullen gives a consonant phoneme chart of LuBwisi (p.55). She includes /ɓ, ɗ/, but she accidentally omits the voiceless fricatives /f, s, h/ which are found in her data. She adds /ŋ/ which I have not found except preceding velar or labial-velar consonants. There are numerous LuBwisi texts which are interlinearized and helpful for understanding morphology, syntax, and grammar.

Kwamba/Lubwisi Development Association: *The Lubwisi Spelling Guide.* **P.O. Box 1124, Bundibugyo, Uganda. 2000. 32 P.** This booklet lists the previous works for the writing of LuBwisi. It lists the vowels and consonants. It gives spelling rules for long vowels, word division, and the use of the apostrophe. It has a brief word list illustrating each LuBwisi letter. The orthography is tentative and minor changes are still being made to this work.

Ladefoged, Peter et al.: *Language in Uganda.* **London, Oxford University Press, 1972. 168 P.** This is a very good volume for listing the languages spoken in Uganda. It includes a language map. From wordlists, Ladefoged made a lexicostatistical analysis for words in common of the languages within their appropriate language families. LuBwisi and other Bantu languages are compared on page 71. Ladefoged gives the criterion that 75% words-in-common is the threshold below which two speech varieties are determined to be distinct languages. With this criterion, Ladefoged lists 30 distinct native languages spoken in Uganda.

Paluku, André Mbula: Description grammatical du Kitalinga: (langue bantu du Nord-Est du Zaïre). München; Newcastle: LINCOM Europa, 1998. KiTalinga and LuBwisi are dialects of the same language. Therefore what he writes about Kitalinga is very pertinent to LuBwisi. He gives data on classification where it is assigned at J 21 (p.23). He gives some information on speaker population which helped me to make an estimate of number of speakers (p.23). He has a thorough section on phonology running seventy pages. This volume has the most phonological and grammatical information on KiTalinga-LuBwisi to date.

The volume is in French; I don't know French, so I may misinterpret him. I also have my data from LuBwisi and not from Kitalinga. It is possible for phonetic/phonological differences to exist in the dialects, but I don't think differences exist with respect to number of phonemes and vowel length.

Paluku lists seven distinct vowel phonemes (p.36) for KiTalinga, LuBwisi also has seven. Leaving aside prenasalized consonants, Paluku has 21 consonant phonemes. LuBwisi has 23. His list does not include /ɓ, ɗ/ (p.48).

Paluku says long vowels do not have a distinctive function (p.37). In LuBwisi I have found that long vowels make a distinction and list minimal pairs for vowel length in this paper.

Other than these two differences, I agree with Paluku's findings for the most part. His rules are clear and have several examples.

Tabb, Waller C. (Jr.): *A Sociolinguistic Survey of Six Bantu Languages of Uganda.* **M.A. Thesis, Makerere University, Kampala. 1993. 221 P.** In Appendix III (p.138ff.) I give a 170 Word list for LuBwisi and 22 other Bantu languages or dialects. My skill for phonetic transcription has gotten better in seven years since this earlier work. Transcriptions, therefore, are not to be trusted. The purpose of the work was to gather sociolinguistic information to determine the need for Bible translation and vernacular literature in six Bantu languages. Lexicostatistics agree with Ladefoged. Intelligibility testing was done to determine comprehension of the language of wider communication. Sociolinguistic questionnaires were administered to determine language use and attitudes. Findings are given. Appendix I gives Ugandan population by Ethnicity from the *1991 Population and Housing Census*. Baamba population is 62,926 in Uganda (both Babulebule and Babwisi). In Appendix II, the same census gives Literacy Rate by District. Bundibugyo's literacy rate is 40%.

Tucker, A.N., and Bryan, M.A.: *Linguistic Survey of the Northern Bantu Borderland.* **Oxford. International African Institute. 1957. PP. 17-20 (Characteristics of the Inter-Lacustrine Group).** This is a useful 4-page guide for LuBwisi, RuTooro, RuNyoro, LuGanda, and LuSoga. They list LuBwisi as having a seven-vowel system (p.17). They also note that final vowels are whispered in LuBwisi and RuTooro. I can verify this, though this varies according to the speaker. They state that vowel length is significant (p.17). Although /ɓ/ is mentioned, /ɗ/ is not. However, they don't clearly list consonant phonemes for each of the five languages. Their transcription of words in the first fifteen noun classes is of good quality, but curiously they write the IV for LuBwisi which functions as the definite article.

Winter, Edward H.: *Bwamba. A Structural-Functional Analysis of a Patrilineal Society.* **Published for the East African Institute of Social Research by W. Heffer & Sons Ltd. Cambridge. 1956. 264 P.** This is a good ethnography of the BaAmba, the people who speak KwAmba. KwAmba speakers and LuBwisi speakers often intermarry and culturally have many things in common. Therefore it is worth reading this book to get information about the BaBwisi people. The book gives an estimate on the ratio of BaAmba to BaBwisi so that population estimates may be made (p.4).