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ON THE ORIGIN OF TONAL CLASSES IN KINANDE NOUN STEMS*

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This paper investigates the Proto-Bantu origins of the principal tonal classes in Kinande nonderived mono- and disyllabic nominal stems. The ternary H vs. L vs. 0 distinction in the final syllable of the current language is traced back to a binary H vs. L contrast in Proto Bantu on the basis of two strata of reconstruction: first, a shallow one based on c. 200 PB cognates shared with the closely related Lacustrine languages Runyankore, Haya, and Jita, and second, a deeper one based on c. 100 PB cognates shared with the more distantly related Congolese languages Tembo, Luba, and Lingala. A chronology of tone changes is postulated in which different sequencing of the same changes as well as alternative phonologizations of ambiguous phonetic structures play a key role.

1. Introduction.

In one of the first investigations of the tonology of the Bantu language Kinande (D42), Hyman (1990) isolated the six contrasting tone patterns of (1a) for disyllabic noun stems.[1] They arise principally from a process shifting a high tone (H) one syllable to the left. In addition, to account for the contrast between the stable

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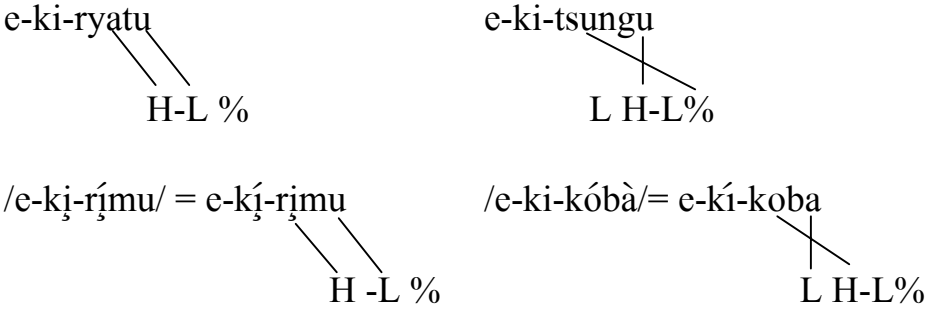
[1] There are actually a few additional minor patterns; see section 5. As a representative of the tonal class of *e-ki-hánde* 'piece of cloth' Hyman (1990) designates *e-ki-tábu* 'book' a Swahili loan ultimately from Arabic.

H of *e-ki-hánde* vs. the alternating H of *e-ki-ryátu*, the phrase-medial form appearing before the modifier *kɨ-rɨ́to* 'heavy' is taken as underlying and a process that attaches H-L% boundary tones to the penultimate and last syllables of the phrase-final form is proposed. Words like *e-ki-tsungu* and *e-kí-koba* that block the attachment of the H-L% are assigned an underlying final low tone (L). As seen in (1b), this structure prevents the H% from reaching the penult by the ban on crossing autosegmental association lines. Kinande thus presents an underlying ternary /H-L-0/ contrast on the final syllable of disyllabic stems in this analysis.

(1) a.

citation	*phrase medial*	*gloss*	*lexical*	*type*
e-ki-ryátu	e-ki-ryatu kɨ-rɨ́to	shoe	/ryatu/	/00/
e-ki-tsungu	e-ki-tsungu kɨ-rɨ́to	potato	/tsungù/	/0L/
e-kɨ́-rɨ́mʊ́	e-kɨ́-rɨmʊ́ kɨ-rɨ́to	spirit	/rɨ́mʊ́/	/H0/
e-kí-koba	e-kí-koba kɨ-rɨ́to	rope	/kóbà/	/HL/
e-ki-hánde	e-ki-hánde kɨ-rɨ́to	cloth	/handé/	/0H/
e-kí-sáka	e-kí-sáka kɨ-rɨ́to	branch	/sáká/	/HH/

b.



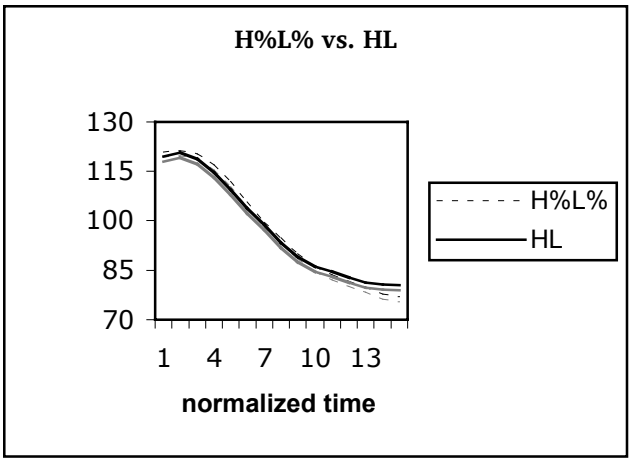
Given that Proto-Bantu (PB) nouns are reconstructed with four contrasting tonal shapes /HH, HL, LH, LL/ by Greenberg (1948) and Guthrie (1967-1971), the question of the diachronic origin of the Kinande stem classes arises. The goal of this paper is to shed light on this matter. The paper has three parts. First, we report the results of an analysis of c. 200 cognates shared between Kinande and several closely related Lacustrine languages based on the material in recently published lexicons of substantial (over 1,000 entries) size for J.31 Runyankore (Kaji 2004), K.12a Haya (Kaji 2000), and E.24, 25 Jita (Downing 1996 Ukewere dialect and Kagaya 2005 Mrangi dialect)–see Appendix A. Second, we explore the origin of the contrast between the final L of /kóbà/ vs. the 0 of /rɨ́mʊ́/ based on the material in the lexicons for the more distantly related Congolese languages D.54 Tembo (Kaji 1986, 1996), L.31 Luba (Yukawa 1992), and C.36 Lingala (Kaji 1992), in order to evaluate the hypothesis of Meeussen (1976) that Kinande

/HL/ corresponds to PB HH while Kinande /H0/ corresponds to PB HL–see Appendix B. Third, we consider the implications of this result with respect to the presumed chronology of tonal changes that must have occurred in the development of Kinande from Proto-Bantu. Finally, we note various extensions of the /L/ vs. /0/ contrast in the contemporary Kinande lexicon.

2. Preliminaries.

In Kinande the attachment of the boundary H-L% to the penultimate and final syllables of the stem neutralizes the contrast with an underlying /HL/ stem. Thus, on the basis of the citation form, one cannot predict if the H on the penult will disappear (or shift), as in *e-ki-ryátu* 'shoe', *e-ki-ryatu kɨ-rɨ́to* 'heavy shoe', or remain attached to that syllable, as in *e-ki-hánde* 'cloth', *e-ki-hánde kɨ-rɨ́to* 'heavy cloth', as the phrasal context is altered. This surface ambiguity is at the basis of several lexical realignments discussed below. In order to substantiate the assertion that there is no phonetic difference between the two forms, we recorded and analyzed a sample of two repetitions of ten stems each from the two classes with the help of our consultant. No discernible difference in either peak height, alignment, or syllable duration was observed: cf. the normalized F0 contours over the last two syllables (employing a Praat script from Xu 2007) in (2).

(2) Time-Normalized F0 contours of H-L% vs. HL nouns



As a purely notational convenience, we follow Mutaka (1994) in transcribing the H% with the umlaut sign (thus, *e-ki-ryätu* 'shoe' vs. *e-ki-hánde* 'cloth'). As seen in (2), there is no phonetic difference between these two structurally different tones.

Simplex (nonderived) nominals come in two basic varieties in Kinande: monosyllabic and disyllabic. As in most other Bantu languages, the latter class outnumbers the former by a considerable degree and indicates that CVCV is the canonical stem shape for nominals. In our hand count of the reconstructed nominal stems in Guthrie (1971), we find c. 998 disyllables vs. c. 111 monosyllables. As far as the disyllabic tonal classes of Proto-Bantu are concerned, they occur in the order /HL/ > /LL/ > /LH/ > /HH/ with the frequencies shown in the table below in (3a). In monosyllables, H outnumbers L. For purposes of comparison we show the Proto-Bantu reflexes that have survived into Kinande in (3b). The relative proportions are comparable to those in (3a) and provide some confidence that the inherited vocabulary more or less faithfully reflects their Proto-Bantu source with no obvious skewing.

(3) a. Proto-Bantu tonal classes (Guthrie 1967)

HL	LL	LH	HH	Total	H	L	Total
344	315	192	147	998	77	34	111
.34	.31	.19	.15		.69	.31	

b. Proto-Bantu reflexes in Kinande

HL	LL	LH	HH	Total	H	L	Total
78	52	28	24	182	14	10	24
.42	.29	.15	.13		.58	.42	

3. PB Reflexes in Kinande and Lacustrine Bantu.

We now turn to the reflexes of the PB tonal classes in our c. 200 word Kinande corpus, starting with the disyllabic stems.

3.1 HL. The corpus contains c. 80 PB HL stems from Guthrie (1967-1971) that have reflexes in Kinande. Over three-quarters are matched by cognates in Runyankore, Jita, or Haya. The regular Kinande correspondence is with a H on the syllable preceding the stem: 69/80. A few examples are shown below in (4). The first group comprises /H0/ stems that host the Kinande H% boundary tone and the second /HL/ stems which repel it. As we see, both classes regularly correspond to H0 stems in Runyankore, Haya, and Jita and to HL in the Guthrie reconstruction, posing an intriguing problem as to the origin of this apparent tonal split. We return to this puzzle in section 3.4. (Aside from the umlaut sign, our transcriptions are faithful to the source.)

(4) Reflexes of PB HL stems

PB	*gloss*	*Kinande*	*Runyankore*	*Haya*	*Jita*
gʊ́tà	oil	amágʊ̈ta	amajúta	amajûta	lifú:ta
cʊ́kà	hoe	eyíʂʊ̈ka	efúka	enfûka	i:nsúka
pínì	hoe handle	omúhïni	omuhíni	omuîni	
dímì	tongue	olúlïmi	orurímí	olulîmi	olulímí
kátà	headpad	éngäta	engáta	engâta	i:ngáta
yúmà	iron	ékyüma	ekyô:ma	ekyô:ma	
yánà	child	ómwäna			omwá:na
kádà	charcoal	eríʂkäla	i:kára	eikâra	likára
kídà	tail	omukíra	omúkira	omukîra	omukíra
kʊ́bà	chest	ekíʂkʊ̈ba	ekifúba	ekifûba	ecifúBa
támà	cheek	erítëma	i:táma	eitâma	litáma
kóbà	animal skin	ekíkoba	ekikóba	ekikôba	
pémbè	horn	eríʂhembe	i:hê:mbe	eiyêmbe	liyé:mbe
kókò	chicken	éngoko	enkóko	enkôko	i:nkóko
púŋgù	eagle	ekíhungu	empû:ngu	ekiûngu	
tándà	bed (for wood)	ekítanda	ekitâ:nda	ekitânda	ecitá:nda
tádà	granary	ekítara	ekitára		ecitára
búmbà	clay	eríbumba	i:bû:mba	eibûmba	liBú:mba
kʊ́mʊ̀	medicine man	omʊ́kʊmʊ̀	omufúmu	omufûmu	
pʂ́dà	pus	eríʂhʂira			amaí:ra
tégò	trap	ekítego			omutégo

Thus, Kinande has retracted the H one syllable to the left on to the noun class prefix. If the latter lacks a vowel or has had its vowel devocalized before a vowel-initial stem then the H appears on the pre-prefix, as in *é-n-gäta* 'headpad' and *ó-mw-äna* 'child'. While one might wish to interpret the retraction as a response to crowding by the boundary H%, the fact that it regularly occurs in /HL/ stems that block the attachment of H% indicates that there is no direct connection between these two hallmarks–retraction to the prefix and H-L%–of the Kinande language.

We now turn to the exceptions to the regular correspondence. First, a handful of PB HL items appear with the toneless /00/ reflex in Kinande.

(5) /00/ reflexes of PB HL stems

PB	*gloss*	*Kinande*	*Runyankore*	*Haya*	*Jita*
kókò	crust	oluköko			oBukóko
kúmı̀	ten	erı̨kʉ́mı̨	i:kúmi	eikûmi	
tétè	reed	ekitetë	omutê:te		omwitéte

Seven items appear in the *e-ki-hánde* class (6). The first five are plausibly loans from penultimate-stress Swahili.[2] (The *bh* of *omubhángä* is a digraph indicating that the consonant is a stop; single *b* denotes a fricative intervocalically.)

(6) nonalternating /HL/ reflexes of PB HL stems

PB	*gloss*	*Kinande*	*Runyankore*	*Haya*	*Swahili*
cı̨́mbà	lion	esı̨́mbä			simba
kóópı̀	slap	erı̨kófı̨			kofi
yánı̀	leaf	olʉyánı̨			jani
kómbè	cup	ekikómbe		ekikômbe	kombe
páŋgà	bushknife	omubhángä			panga
yı́nò	tooth	eríno	erî:no	elîno	jino
júbà	sun	eryúba	i:zô:ba	eizô:ba	jua

Finally, three PB HL stems *gímà* ‘monkey’, *tádè* ‘iron ore’, and *pácà* ‘axe’ have Kinande reflexes with a double H: *éngíma*, *erı́tále*, *émbása*. Most lack cognates in the closely related Runyankore, Haya, and Jita.

3.2 LL. The corpus contains 49 Kinande stems that reconstruct as PB LL. Forty-one have the expected development as the /00/ *e-ki-ryätu* category (N=37) or the /0L/ *e-ki-tsungu* (N=4). A few examples are cited below in (7), with cognates

[2] It is interesting that as far as the Kinande citation form is concerned, the penultimate stress of Swahili would be compatible with either the phonologically stable high of *e-ki-hánde* or the boundary H% of *e-ki-ryätu*. Kinande systematically takes the first option. Runyankore makes a similar choice in its adaptation of Swahili (and English) loans. For example, in our hand count of the first fifty loans in Kaji’s (2007) Runyankore lexicon, we find only a handful of items in the alternating class (marked with an umlaut). The vast majority are adapted with the stable accent: *embarâ:si* < Sw *farasi* ‘horse’, *engamíra* < Sw *ngamia* ‘camel’, but *kä:wa* (cf. *ka:wá yangye* ‘my coffee’) < Sw *kahawa* ‘coffee’. This adaptation may indicate a dispreference for alternating H or alternatively that the loan is adapted from a phrase-medial context in Swahili where the penultimate stress = high tone correspondence would require assigning the word to the nonalternating class in Kinande.

from Runyankore, Haya, and Jita, which also show this regular development. It manifests the frequently made observation that L tones tend to be inert in Bantu languages.

(7) /00/ and /0L/ reflexes of PB LL stems

PB	*gloss*	*Kinande*	*Runyankore*	*Haya*	*Jita*
mèdò	gullet	omumëro	omumiro	omumiro	limiro
gòmà	drum	engöma	engoma	engoma	i:ngoma
gùdù	leg	okugülu	okuguru	okuguru	okuguru
nàmà	muscle,meat	enyäma	enyama	eñama	i:ñama
gànjà	palm of hand	ekigänza	ekigaanja	ekiganja	ecigá:nja
bìdì	body	omubïri	omubiri	omubili	omubiri
tàkà	soil	ekitäka	i:taka	eitaka	litaka
dìdò	fire	omulïro	omuriro	omulilo	omuliro
gɩ̨gè	locust	engɩ̨ke	enzigye	enzigye	i:njige
dàgò	mat	ekirago			echirago

The items in (8) have been reclassified into the *e-ki-hánde* class, suggesting that they have been reanalyzed on the basis of the ambiguous citation form. The first five are shared with the Kavutirwaki (1978) dictionary. The last two are the tone patterns assigned by our consultant; the dictionary retains the etymologically expected *enyöndo* and *enzögu̱*.

(8) stable /HL/ reflexes of PB LL stems

PB	*gloss*	*Kinande*	*Runyankore*	*Haya*	*Jita*
dèdu̱	beard	olu̱lérú	ekireju	ekileju	ecirefu
pu̱ŋgà	wind	erihúnga	i:hu:nga		omuyaga
gèmbè	hoe	ekigémbe			
dèŋgè	leg	omulénge			
gòŋgò	back	omugóngo	omugô:ngo	omugongo	omugo:ngo
yòndò	hammer	enyóndo	enyo:ndo	eñondo	i:no:ndo
jògu̱	elephant	enzógu̱	enjojo	enjoju	i:njofu

In this lexical restructuring we see that the stems have been reclassified on the basis of the ambiguous isolation form with a penultimate high tone. Thus, the smaller *e-ki-hánde* class attracts items from the larger *e-ki-ryätu* class in addition

to being the repository of Swahili loans. The reason presumably is that this tonal class is phonologically stable (no alternation).[3]

3.3 LH. Our corpus contains 24 reflexes of the PB LH class. It has a more varied outcome compared to PB HL and LL. Twelve items are reflected as the fixed penultimate H of *e-ki-hánde*, with a retraction of the final H. Several are matched by a Runyankore or Haya cognate whose final accent in phrase-medial position directly mirrors the PB source. Ukerewe Jita is most faithful to PB since it lacks the retraction of the H that is found in the phrase-final forms of Runyankore and Haya.

(9) stable /HL/ reflexes of PB LH stems

PB	*gloss*	*Kinande*	*Runyankore*	*Haya*	*Jita*
nùŋgú	pot	enyúngu	enyu:ngu	eñúngu	i:ñu:ngû
jòjá	bodyhair	olwéya	orwo:ya	omwó:ya	
pàndé	cloth	ekihánde		olupánde	
yìná	hole	ekyú̱na	omwi:na	ekí:na	eli:nâ
yòŋgó	brain	obóngo	obwongko	obwôngo	omwo:ngô
dù̱mbí	long rain	omu̱lú̱mbi̱	omuju:mbi		
gùàdí	partridge	engwáli			i:nkwa:rê
yùmbá	house	enyúmbä		énju	i:ñú:mba
dòŋgó	mud	obudóngo	obudô:ngo	obudongo	

Six Kinande items in the class of PB LH reflexes display the double-H of *e-kí-sáka* 'branch' (10). Several of the Runyankore or Haya cognates belong to the phrasally alternating class (see (20) below) that reflects their LH provenance. They are marked here with an umlaut.

[3] A similar phenomenon appears in Russian where loans systematically join the fixed accent class. The alternating (mobile) class is much smaller (c. 2% of the native Russian lexicon) and so the preference for the fixed class is ambiguous between frequency and stability. The Kinande data suggest that a stable phonological form can be decisive.

(10) double-H reflexes of PB LH

PB	*gloss*	*Kinande*	*Runyankore*	*Haya*	*Jita*
càká	bush	ekísáka	ekishaka	ekisháka	lisakâ
cì̩cá	vein	omú̩sí̩sa	omüsi	omüsi	
pàpá	wing	ekí̩pú̩pa	i:papa	eipäpa	liBaBâ
pùká	insect	ekíhúka	ekihúka	ekiüka	
tì̩kí	stump	ekí̩sí̩ki	ekisï:ku		ecisikî
yàtí̩	grass	obúnyátsi	orunyâ:nsi	akañâ:si	liñási

The Kinande stems in this tone-doubling class all have a voiceless medial consonant–a property that distinguishes them from the *e-ki-hánde* set in (9). Another one, pointed out by both SAL reviewers, is that the initial syllable of the stem in the items of (9) either begins with a glide or is followed by an NC cluster–both common (compensatory) lengthening sites in Bantu, as evidenced by the forms in Runyankore and Jita.

Two possible reconstructions of the single vs. double-high retraction seen in (9) vs. (10) present themselves. If voicing is the critical factor, we may posit a sound change spreading of the word-final H to the preceding syllable that is blocked by an intervening voiced consonant. This is followed by the general H retraction that affected HL stems as well. The steps in (11) show this scenario.

(11) /ki-búga/	/ki-saká/	/ki-pandé/	
_____	ki-sáká	_____	Final H Spreading
kí-buga	kí-sáka	ki-pánde	General H Retraction

Under the alternative interpretation shown in (12), the second mora of the lengthened vowel is the target of Final H Spreading. Then the more general retraction shifts Hs one mora to the left. Finally, long vowels are merged with short ones.

(12) /ki-búga/	/ki-saká/	/ki-pandé/	
_____	_____	ki-paandé	Vowel Lengthening
_____	ki-sáká	ki-paándé	Final H Spreading
kí-buga	kí-sáka	ki-páánde	General H Retraction
_____	_____	ki-pánde	Vowel Shortening

Both alternatives seem plausible on general grounds.[4] They predict different outcomes for stems whose medial consonant is a plain voiced one with no glide onset. Under the first we expect a single H tone analogous to *ekihánde*, while the second predicts doubling in the manner of *ekísáka*. Our corpus contains three possible stems of this shape, which are listed below in (13).

(13)

PB	*Kinande*	*gloss*
pàdi̱	embäli̱	ant
gòdi̱	omúgóle	bride
bògó	embögo	buffalo
	émbógo	
	embógo	

The Kinande reflexes are unfortunately varied and hence inconclusive. For 'buffalo' *embögo* is the tonal assignment offered by our consultant. The Mutaka and Kavutirwaki dictionary lists *embógo* as well as *émbógo*.

The four PB LH stems in (14) have joined the toneless class in Kinande and for the most part in Runyankore, Haya and Jita as well.

(14) PB LH with Kinande toneless reflexes

PB	*gloss*	*Kinande*	*Runyankore*	*Haya*	*Jita*
nòni̱	bird	enyönyu	ekinyonyi	ekiñoñi	i:ñoñi
bògó	buffalo	embögo	embogo	embógo	i:mbogô
pàdi̱	ant	embäli̱	empazi	obwa:zi	i:mpaji
yèndá	nine	omwënda	omwenda	omwenda	

We conclude that for the PB LH class, the H is retracted from its etymological position as either a single (9) or double (10) peak. The split is based on either the voicing category of the medial consonant or alternatively on the length of the preceding vowel. Another important reflex of this class is that it resists the attachment of the H% to the final syllable. As we shall see, this behavior is distinct from the monosyllabic H. That is, while PB *dó* gives *e-kí-rö* 'night', *enyúngu* 'pot' < *nùŋgú* and *o-mú̱-si̱sa* 'vein' < *cì̱cá* block the H% attachment.

[4] The majority of the Runyankore forms in (9) have a long vowel and also have no high tone. This might reflect a dispreference for rising tones **enyŭ:ngu* and final peaks **enyu:ngú* at the cost of deletion of the H.

3.4. PB HL vs. HH and the Kinande /H0/ vs. /HL/ Contrast. In a paper important to our topic, Meeussen (1976) called attention to certain inaccuracies in Guthrie's PB tonal reconstructions, especially with regard to the lexical items belonging to the PB HL and HH classes. Based on material in Greenberg (1948) and his own research, Meeussen proposed for example that Guthrie's HL reconstructions for *kadi̧* 'woman' and *ki̧ngo* 'neck' be replaced with HH while Guthrie's HH for *ki̧ge* 'eyebrow' be replaced by HL. More significantly for our purposes, in the course of his discussion Meeussen states that PB HH is reflected as Kinande H-LL while PB HL is reflected as Kinande H-HL. In other words, the apparent puzzling split of Guthrie's HL class into Kinande stems such as *o-mú-lüme* 'man' with a final /0/ that accepts the boundary tone vs. stems such as *o-mú-kali̧* 'woman' with a final /L/ that repels it can actually be traced back to the /HL/ vs. /HH/ distinction in Proto-Bantu.

In an effort to determine the viability of Meeussen's reconstructions as the basis for the Kinande *o-mú-lüme* vs. *o-mú-kali̧* contrast, we constructed a corpus of c. 100 Kinande cognates drawn from lexicons of the reversing languages Chi-Luba (Yukawa 1992) and Tembo (Kaji 1986) as well as Lingala (Kaji 1992). These are so-called "clear" languages in which the PB four-way tonal distinction is preserved and differ from Lacustrine languages such as Runyankore, Haya, and Jita which have merged HH and HL (Philippson 1998). In the reversing languages, PB H and L appear to have interchanged so that PB HH is reflected as LL and PB HL is reflected as LH. See Appendix B for the corpus.

Here are the results. We find a fairly regular correspondence (29/39) between Kinande /H0/ = H-HL% and PB HL (reflected as LH in the reversing languages). Some examples appear below, showing the Guthrie reconstruction. These correspondences suggest that PB *yádá* 'fingernail' and *dámú* 'sister-in-law' should be reassigned to the HL class.

(15) PB HL reflexes

PB	*gloss*	*Kinande*	*Tembo*	*Luba*	*Lingala*
dúmè	man	omúlüme	múlumé	múlumé	
dɪ́mì	tongue	olúlïmi	lúlimí	lúdimí	lolémo
támà	cheek	erítëma	étamá	dɪ́tamá	litáma
béédè	breast	eríbëre	éberé	dɪ́beelé	libɛ́lɛ
yádá	fingernail	ékyäla		lwáalá	
kṵ̱pà	bone	eri̧kṵ̱ha		máfufwá	mokúwa
kɪ́dà	tail	omúkira	múkirá	múkilá	mokíla
cṵ̱kà	hoe	eyi̧sṵ̱ka		nkasú	

kádà	charcoal	erɨ́käla	ékalá	dɪ́kalá	likála
búdà	rain	émbüla	ḿvulá	mvulá	mbúla
yótà	thirst	ényöta		nyootá	
jókà	snake	énzöka	ńzoká	nyoká	nyóka
tʊ̨kù	day	obʊ́tʊ̨kʊ̨	lúsukú	dítukú	
yánà	child	ómwäna	mwaná	mwáaná	moána
nénè	bigness	obúnëne	búnené	múnené	monɛ́nɛ
dámú	sister-in-law	omúlämu	múlamú		

For the smaller PB HH class, we have 19/21 correspondences between Kinande /HL/ = H-0L and PB HH (reflected as LL in Luba and Tembo). The forms marked M in the table below are Meeussen's (1976) alternative reconstructions to Guthrie's HL. The correspondences suggest that *bumba* 'clay' should be reconstructed as HH. The last two items are anomalous. Kinande *olúhala* is consistent with PB HH while the Tembo and Luba reflexes suggest PB HL, which should yield *olúhäla* in Kinande. Luba *dípasá* is consistent with Guthrie's HL reconstruction but should give *omúhäsa* in Kinande. The words in the final column are from Lingala (L), Lomongo (M) or Bemba (B).

(16) PB HH reflexes

PB	*gloss*	*Kinande*	*Tembo*	*Luba*	*Lingala*
kádɨ̨(M)	woman	omúkalɨ̨	múkasi	múkaji	moásɪ́ (L)
búmbà	clay	erɪ́bumba		lúpeemba	
kókó(M)	chicken	éngoko	ńgoko		kókó (M)
tʊ̨mbɪ́	chair,stool	ekɨ́tʊ̨mbɨ̨	cɪ́fumbi		
yáyú(M)	yawn	émyaya		mwáau	
cɪ́ndɪ́	squirrel	ekɪ́sindi		nshiindi	
kʊ̨pɪ́	shortness	ekɨ́kʊ̨hɨ̨		bwɪ́ipi	
pɨ́dá(M)	pus	erɨ́hɨ̨ira	másira	túfina	mayɪ́ná (L)
kúdú(M)	oldness	obúkulu	múkulu	búkulúumpé	kúlú (M)
bánjá(M)	courtyard	ekɪ́banza	cɪ́banja	banza(M)	
kóbá(M)	skin	éngoba	cɪ́koba	dɪ́koba	
púngú(M)	eagle	ekɪ́hungu			púngú (M)
kʊ̨mʊ́	witchdoctor	omʊ́kʊ̨mʊ		fumu(M)	
kédé(M)	frog	ekɪ́kere	cɪ́kere		
jábʊ́	beer	óbwabʊ	mafu		
júká	breath	ómuka	muka		
jámɪ́ (M)	chief	ómwami			ámɨ́ (B)

c̨ímbá(M)	lion,wildcat	eyį́sįmba		ʃimba(M)	
pádá	baldness	olúhala	lúalá	díbalá	
pácà	twin	omúhasa		dípasá	lipása (L)

We conclude that Meeussen's reconstructions are correct and that the source of the Kinande /H0/ vs. /HL/ contrast is PB HL vs. HH.

3.5. Monosyllables. Our corpus contains 24 stems that can be traced back to monosyllables in the Guthrie PB reconstruction: 17 reconstruct as H and 9 as L. The PB H stems appear in Kinande with the H on the preceding prefix, reflecting the retraction also seen in the disyllabic /LH/ stems. Most also allow the attachment of the H% boundary tone. Nine stems can be traced back to PB L. All except *dì* 'long, tall' have /0/ reflexes in Kinande that allow attachment of the H% boundary tone.[5] We include CVV stems where the first vocoid is realized as a glide and the resultant CGV syllable counts as a single tone-bearing unit. The umlaut indicates Runynakore and Haya stems whose H alternates with phrase-medial forms where it appears on the stem in its etymological position.

(17) PB monosyllable reflexes

PB	*gloss*	*Kinande*	*Luba*	*Runyakore*	*Haya*	*Jita*
cú	face	obúsö		obüso	obüso	oBusû
tú	ear	okútü	dícu	okütu	okütwi	okutwî
dó	night	ekírö	dílolo	ekïro	ekíro	
tá	bow	obútä		obuta	akäta	
bi̱	excrement	amábï̱	túufí	amäzi	amäzi	
ku̱	corpse	omu̱kü̱		omüfu	omüfu	omufû
ké	smallness	obúkë	búkése			
já	outside	eyi̱hyä				a:njâ
du̱i̱	knee	eri̱rwï̱		oküju	oküjwi	
di̱ó	food	akályö		ekyókürya	ekya:külya	eBilyô
cu̱é	fish	ekítswë				i:nswî

[5] Aside from *ekïndu* 'thing' monosyllabic stems do not permit the H% boundary tone to associate to the prefix. Working within the framework of Lexical Phonology where word-level phonology precedes phrase-level phonology, Mutaka (1994) postulates an underlying long vowel for the root so that the H% associates to the phonological penult. The more plausible alternative is to allow the phrase-level phonology access to the word-internal structure. See Odden (1996) for other examples in which phrasal phonological processes such as the shortening of a pre-complement long vowel in Kimatuumbi is sensitive to the prefix-stem parse.

bí	badness	obúbï	búbi	obübi	obübi	oBuBiBî
bṵ́	ash	eŕịbṵ̈	bútu			lifû
tí	tree	omúti	múci	omuti	omúti	litî
dó	sleepiness	otúlo		otüro	otülo	i:ntirô
dá	louse	énda				i:ndâ
cé	father	íse				
cúá	termite	omúswa	nswa	omüshwa	omüshwa	omuswâ
mè	dew	ekimë	dímé	orume	olume	ecime
dà	intestine	olulä		orura	amala	oBula
tṵ̀	cloud	ekịtṵ̈		ekicu		
ntù	thing, person	ekïndu	múúntú	ekiintu	ecinu	
jì	village	omṵyï			omüji	ecijíji
bùè	stone	eŕịbwë				liBui
gà	crack	ekigä				
pṵ̀	pit of stomach	ekḯhṵ̈	cífu			
dì	long, tall	omúli	múlé			

The following table summarizes the regular developments of the PB tonal classes in Kinande. Five of the six subtypes for disyllabic stems in the Hyman typology of (1) have been traced. The /0L/ class represented by *e-ki-tsungu* 'potato' remains to be accounted for. See section 5.

(18) PB canonical reflexes

PB	*example*	*Kinande*	*gloss*
HL	dúmè	o-mú-lüme	man
HH	kádị̀	o-mú-kalị	woman
LL	mèdò	o-mu-mëro	gullet
LH	dṵ̀mbé	o-mṵ-lṵ́mbị	long rain
LH	pùká	e-kí-húka	insect
H	tú	o-kú-tö	ear
L	mè	e-ki-më	dew

4. Chronology

In many Eastern Bantu languages the PB H vs. L contrast was reinterpreted as H vs. 0 (Clements & Goldsmith 1984). This restructuring helps to explain the long distance displacement of H tones found in such languages as Digo (Kisseberth

1984) and Chizigula (Kenstowicz & Kisseberth 1990) as well as rhythmic alternations of H such as those found in Kirundi (Goldsmith & Sabimana 1985). With a syllable's L reanalyzed as 0, it no longer blocks the drift of H nor buffers adjacent Hs, which tend to keep a respectable distance from one another. A major motivation for the reanalysis and switch to an accentual system was the merger of the HH class with HL, which Clements & Goldsmith (1984:7) dub "Meeussen's Rule"; cf. Philippson (1998). The result was an inventory of tonal contours with just one H peak, which could be reanalyzed as a "head" governing a domain of toneless syllables. The verb had the potential for an accentual interpretation already in PB since the H vs. L lexical contrast was restricted to the initial syllable.

We may account for the difference between Kinande vs. the Lacustrine languages Runyankore, Haya, and Jita by assuming different chronologies in the HH>HL and L>0 changes, as shown in (19). In the Lacustrine languages HH>HL occurred before the reanalysis of L as 0 so that any trace of a distinction between the PB HH vs. HL stem classes was eliminated. In Kinande, on the other hand, L>0 occurred first with the subsequent HH>HL (perhaps via an intermediate downstepped H$^{!}$H) producing the three-way H vs. L vs. 0 contrast on the final syllable that is the basis of the *o-mú-lüme* vs. *o-mú-kalị* puzzle we have been trying to explain and that prompted Hyman & Valinande (1985) to posit a global rule for a comparable contrast in the verbal inflection.

(19) reconstruction of tonal classes

Lacustrine Bantu

PB	HL	HH	LH	LL
HH>HL	__	HL	__	__
L>0	H0	H0	0H	00
surface	H0	H0	0H	00

Kinande

PB	HL	HH	LH	LL
L>0	H0	__	0H	00
HH>HL	__	HL	__	__
surface	H0	HL	0H	00

The Kinande split of the PB LH class into LH vs. HH on the basis of either the voicing of the medial consonant or the postulated vowel length (recall (9) vs. (10)) allows us to pinpoint the H retraction of PB LH as later in the chronology. The development of the double H must have occurred after HH > HL. Otherwise

PB *ùká* 'insect' would have joined HH *kádị̀* and should appear as Kinande *e-kí-huka* instead of the attested *e-kí-húka*. On the other hand, it must have preceded H-retraction to account for the fact that both H's are shifted one syllable/mora leftward in *e-kí-húka* as well as to ensure that the medial consonant that conditions the split still separates the two stem syllables. As a result of the split of the PB LH class, Kinande had five tonal categories for disyllabic stems (H0, HL, 0H, HH, 00) in contrast to just three for Lacustrine Bantu (H0, 0H, 00).

Subsequently, Kinande as well as Runyankore and Haya (but not Jita) retract H from the final syllable. Poletto (1998) treats the phenomenon in Runyankore as crowding by a L boundary tone. For Haya Hyman & Byarushengo (1984) derive the retracted prepausal form *obugólo* 'snuff' (cf. *obugoló bwange* 'my snuff') via an intermediate form *obugóló* in which the final H has spread to the preceding syllable. This spread H tone appears in certain phrasal contexts such as before a vocative noun: *obugóló káto* '(the) snuff, Kato'. In Runyankore and Haya the retraction occurs at the end of a phrase and leads to regular alternation between a phrase-final retracted form and a phrase-medial form with accent on the final syllable (20). In Runyankore retraction produces surface merger with the original H0 (<HL) class if the penult is short. If the penult is long the contrast is realized as Fall vs. H. Haya maintains the contrast as Fall vs. H for both long and short syllables.

(20)

	pause	*my N*	*gloss*
H0	e-ki-sígye	e-ki-sígye kyangye	eyelid
	e-ki-rô:to	e-ki-ró:to kyangye	dream
0H	e-ki-túgu	e-ki-tugú kyangye	liver
	e-ki-kó:ko	e-ki-ko:kó kyangye	animal

Runyankore (Kaji 2004)

H0	e-ki-fûba	e-ki-fúba kyange	chest
	e-ki-kô:na	e-ki-kó:na kyange	crow
0H	e-ki-géle	e-ki-gelé kyange	sole of foot
	o-mw-ó:ya	o-mw-o:yá gwange	body hair

Haya (Kaji 2000)

In Kinande the retraction of the PB word-final H differs from Lacustrine Bantu in a number of respects, suggesting that it was probably a separate development. First, the language eliminated the PB vowel length contrast (while retaining the [ATR] contrast for high vowels). Thus, a surface contrast in short vs.

long syllables was not available to express the distinction between original and retracted H's. There are other differences as well. First, retraction in Kinande does not result in phrasal alternations: a PB LH stem like *pàndé* 'piece of cloth' from (9) appears as *e-ki-hánde* with a stable H. In contrast PB *pùká* 'insect' alternates in Runyankore (*ekihúka, ekihuká kyange* 'my insect') and Haya (*ekiúka, ekiuká kyange*). Second, in Kinande all stem H tones retracted–not just those on the final syllable–presumably to allow more comfortable phonetic expression of the larger range of tonal classes. The noun class prefixes were all toneless in PB and offered a tempting Lebensraum for the more crowded stem inventory. As shown below, the H retraction allowed a system of surface tonal contrasts to emerge in which there is just a binary opposition for any of the three positions (final, penult, antepenult) in exchange for the earlier (underlying) three-way contrast on final syllables.

(21)	early	0-HL	0-H0	0-0H	0-HH	0-00
	H-retraction	H-0L	H-00	0-HL	H-HL	____

surface tonal oppositions

antepenult:	H vs. 0
penult:	H vs. 0
final:	L vs. 0

Another point worth making concerns the limited distribution of the L in the reconstruction of (21). It is restricted to occur in the context H___#. This phonotactic restriction helps to explain another puzzling asymmetry in Kinande tonal development. In the wake of retraction of the final H, the Kinande system of contrasts allowed two alternative interpretations of the final syllable's nonhigh pitch: /L/ or /0/. There is an interesting difference between the monosyllables and disyllables here. For the LH disyllables with PB cognates, 14/15 chose /HL/, which blocks the H%, as in *e-ki-hánde*. But monosyllables such as *o-kú-tü* < PB *tú* 'ear' chose /H0/ at a 13/17 rate. This difference between the monosyllables and disyllables presumably reflects the fact that /HL/ originated from PB HH structures in the disyllabic stems. Under a minimal generalization learner (Albright & Hayes 2002) such factors as the location of the morpheme junctures could be taken into account in the transmission and reconstruction of the grammar from one generation to the next so that the phonotactic constraint that restricts L to the H___# context could include the tautomorphemic factor as well. If this tautomorphemic property is factored into the phonotactic restriction then a /L/ analysis for the retraction site in monosyllables such as *o-kú-tü* would be precluded since the

H shifted to the prefix and is hence no longer in the stem. However, it should be noted that we still lack an explanation for the uniform /L/ choice for the disyllables since in principle both /HL/ < HH and /H0/ < HL analyses were available. The former preserves an association line, albeit one that is linked to a different tone. If faithfulness to association lines governs input-output relations then this might be a reason to prefer /HL/ over /H0/. The Optimal Domains Model of autosegmental phonology (Cassimjee & Kisseberth 1998) in which a feature specification is accompanied by a domain or span indicating its scope offers another possible interpretation in which two domains are combined into a single one so that (H)(H) > (H 0) is distinct from (H) 0.

Upon the completion of H retraction and in the absence of any alternations between the penult and final syllable for the *e-ki-hánde* class, we assume that the inventory of tonal classes was restructured, as indicated in (22). The Kinande disyllabic tonal classes deployed a surface L vs. 0 contrast in final position and a ternary H vs. floating H vs. 0 contrast initially.

(22)	*PB*	*HL*	*HH*	*LH*		*LL*
	Kinande	/^{H}00/	/^{H}0L/	/HL/	/^{H}HL/	/00/
	example	mú-lüme	mú-kalị	mụ-lụ́mbị	mụ́-sị́sa	mu-mëro
	‘man’	‘woman’	‘rain’	‘vein’	‘gullet’	

The phonotactic constraint restricting L to the H__# context is a relatively complex one since it is composed of three terms and crucially refers to both a left-hand and right-hand context (cf. the model of constraint induction in Hayes & Wilson (2008) where constraints are preferentially restricted to two terms). Furthermore, a stem’s specification as /L/ or /0/ could not be predicted on the basis of phrase-medial contexts such as preadjectival (recall 1). As we will now see, both of these factors played a role in the evolution of the system to its current state.

5. Extensions.

The discussion to this point has been restricted to the portion of the Kinande lexicon for which PB cognates are available. This of course is a small fraction of the current lexicon–one that managed to survive many cycles of transmission from one generation of Kinande speakers to the next. What is the inventory and population of the tonal classes in the current language? Here we are indebted to Jones (2007) who classified the nouns (and verbs) in the Kavutirwaki (1978) lexicon with respect to their tonal patterns. In (23) we have reorganized his tabulation of

the data according to the PB origin of the tonal classes and our postulated reconstruction. Hyman & Valinande (1985) find a similar distribution for a sample of c. 225 disyllabic noun stems, indicated in the last column of (23). The second last column indicates the class in the Kavutirwaki (1978) lexicon.

(23)

PB	*example*	*gloss*	*size*	*rep*	*class*	*H&V*
HL	o-mú-lüme	man	184	/^{H}00/	B	52
HH	o-mú-kalį	wife	221	/^{H}0L/	D	50
LL	e-m-bëba	rat	298	/00/	A	59
	o-mu-genda	moon	76	/0L/		11
LH	e-ki-hánde	piece	48	/HL/		24
	e-ki-dóngö	wall	20	/H0/		9
	é-m-bása	axe	64	/^{H}HL/	C	21
	o-mú-kékä	mat	8	/^{H}H0/		1

We make several observations with regard to (23). First, the *o-mú-kalį* class originating from PB HH with the final /L/ has increased considerably to even surpass the *o-mú-lüme* class containing descendants of PB HL. This is a rather dramatic change since according to the count in (3) the HH class was the smallest in PB. It reflects at least in part the ambiguity of the phrase-medial forms (cf. *o-mú-kalį mu-rį́to* vs. *o-mú-lume mu-rį́to*). If a lexical item is first encountered in this context, the Kinande learner must guess whether or not the stem blocks the H% attachment and hence has an underlying final /L/. A more evenly balanced distribution across the two classes would be a natural outcome of this ambiguous state of affairs. Moreover, the extension of the *o-mú-kalį* class has proceeded along phonetically natural lines. It has a larger proportion of stems whose medial consonant is a voiced obstruent D or prenasal ND–segments which are known to depress the tone of a following vowel in Bantu (Downing 2009). The specific distribution is shown in (24).

(24)

	T	*R*	*D*	*ND*
o-mú-lüme	48	84	25	27
o-mú-kalį	60	62	36	63

T = voiceless
R = sonorant
D = voiced obstruent
ND = prenasal voiced

A chi-square 2x2 contingency table for the voicing factors T+R vs. D+ND over the *o-mú-lüme* vs. *o-mú-kalį* classes is statistically significant: chi-sq = 13.6, df = 1, p = 0.000.

The second observation with respect to (23) is that the /L/ vs. /0/ contrast has spread to each of the other classes so that now every tonal category is cross-classified with respect to the dual phonological interpretation of the final syllable–a type of feature economy (Clements 2003). But in each case, the class that represents the original development in our reconstruction outnumbers the innovating class to which the 0/L contrast has been extended. As a result, the PB LL>00 now has a /0L/ counterpart–the presumed origin of the *e-ki-tsungu* class from (1). This development indicates that the postulated phonotactic restricting L to the H__# context in the reconstruction of (22) has been simplified by dropping the initial term. Moreover, the PB LH class which originally had almost exclusively the final /L/ that blocks the H% boundary tone has now gained /0/ counterparts too. This is true for both the double H from voiceless medial consonants like *o-mú-kékä* as well as the single H from voiced medials like *e-ki-dóngö*.

The third observation is that the voicing category of the medial consonant that originally defined membership in the double-high *e-kí-sáka* vs. single-high *e-ki-hánde* reflexes of the PB LH class continues to play a role in the extension of the class. In (25) we tabulate the distribution of voicing categories for the medial consonant. The data indicate a strong bias for the *e-kí-sáka* class with double H to contain a medial voiceless consonant or voiced sonorant while the *e-ki-hánde* class contains a disproportionate number of ND. This difference is statistically significant: chi-square = 57.5, df=1, p=0.0001.

(25)

	T	*R*	*D*	*ND*	
e-kí-sáka	26	34	2	1	T=voiceless
e-ki-hánde	11	4	1	34	R=sonorant
					D=voiced obstruent
					ND=prenasal voiced

This finding suggests that the voicing or compensatory lengthening contributed by the medial consonant that originally defined membership in the two classes continues to play a role.

A similar finding holds for the split of the PB LL class to /00/ *e-ki-ryätu* ‘shoe’ vs. /0L/ *e-ki-tsungu* ‘potato’ (26). While the /0L/ class is much smaller, the low-tone favoring ND forms its largest subclass. A contingency table over the

same T+N vs. D+ND yields a less robust but still significant difference: chi sq = 4.09, df=1, p=0.043.

(26)

	T	*R*	*D*	*ND*	
e-ki-ryätu	56	139	23	79	T=voiceless
e-ki-tsungu	22	12	7	24	R=sonorant
					D=voiced
					ND=prenasal voiced

Finally, the /L/ vs. /0/ contrast has also been extended to the monosyllables (27), dropping the tautomorphemic restriction in the postulated original state of (22). Once again both terms of the contrast have been extended so that the PB H class now has a final /L/ counterpart to the original /0/ and the PB L class now has a /L/ counterpart to the original /0/. As with the disyllables, the extensions are smaller than the original classes.

(27)

PB	*example*	*gloss*	*size*	*representation*
H	e-rí̩-bü̩	ash	32	/^{H}0/
	o-bú-swa	white mushroom	9	/^{H}L/
L	e-rı̩-bwë	stone	24	/0/
	o-bu-do	mushroom	2	/L/

6. Summary and Conclusions.

This paper has traced the Proto-Bantu origin and the development of the six contrasting Kinande tonal classes of disyllabic nominal stems in (1) on the basis of two cognate sets. First, comparison with several closely related Lacustrine languages shows that the six classes originate from a HL, LH, LL contrast. Second, a deeper comparison with several Congolese languages suggests that the puzzling split of the HL class with respect to the presence or absence of a H% boundary tone can actually be traced to a HH vs. HL contrast in Proto-Bantu, confirming a hypothesis in Meeussen (1976). We proposed a chronology of tonal changes leading to a reconstructed state with a ternary H vs. L vs. 0 contrast on the final syllable and a phonotactic constraint restricting the L tone to the context H___#. The current Kinande lexicon has extended the ternary contrast by dropping the H restriction. Various lexical items have changed their tonal class affiliation based on alternative analyses of ambiguous phrase medial or phrase-final forms.

The research reported here depends entirely on the availability of large and accurate lexicons such as Yukawa (1992), Kaji (1986, 1992, 2000, 2004), and Kagaya (2005). The construction of such lexical materials for a greater variety of languages is an urgent task for Bantu linguistics and will help to put the reconstructions by such pioneers as Greenberg, Guthrie, and Meeussen on a more solid footing.

Appendices

The first column is the assumed PB tonal reconstruction. The second grades the Kinande correspondence: a marks an expected reflex; b denotes an anomalous tonal or segmental correspondence. The next column shows the number of the Guthrie reconstruction followed by the actual form and then the reconstruction from Meeussen (1980). The Kinande forms are primarily from our consultant but were also checked with the Kavutirwaki (1978) and Mutaka & Kavutirwaki (2006) lexicons. The Runyankore forms are taken from Kaji's (2004) lexicon and the Haya ones from Kaji (2000). Jita-U is from Downing's (1996) glossary based on the Ukerewe dialect and Jita-M is from Kagaya (2005) based on the Mrangi dialect. In appendix B, the Tembo data are taken from Kaji (1986, 1996) and the Luba data are from Yukawa (1992). For the Lingala column the forms labeled with M are Lomongo forms from Meeussen (1976) while the remaining data are Lingala words from Kaji (1992).

Appendix A

R	*T*	*G no.*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Runyakore*	*Haya*	*Jita-U*	*Jita-M*
H	a	14	cú	ʧu	face	obúsö	obúso	obúso	oBusû	obusu
H	a	97	bí		badness	obúbï			oBuBiBî	obubíibi
H	a	135	bʤi	bʤi	excrement	amábʤi	amázi	amázi		amafwi
H	a	215	bʧ	bʧ	dust	erʤibʧ	í:ju			
H	a	216	bʧ		ash	erʤibʧ			lifû	rifu
H	b	446	dá	dá	louse	énda			i:ndâ	inda
H	a	633	dó	dóo	sleep	otúlö	otúro	otúlo	i:ntirô	
H	a	634	dó	dóo	night	ekírö	ekíro	ekíro		
H	a	915	já	jái	outside	eyʤihyä			a:njâ	aanja
H	a	1023	ké		smallness	obúkë				
H	a	1247	kʧ		corpse	omʧkʧ	omúfu	omúfu	omufû	orufu
H	a	1631	tá	táa	bow	obútä	obuta	obúta		
H	b	1729	tí	tí	tree	omúti	omuti	omúti	litî	riti
H	a	1801	tú	túi	ear	okútü	okútu	okútwi	okutwî	okutwi
14										
L	a	360	nò		toe	erʤinö	ekinono			
L	a	390	cù	cu	urine	amasü				
L	a	443	dà		intestine	olulä	orura	amala	oBula	inda
L	a	750	gà		crack	ekigä				
L	a	936	jì	gi	village	omʊyi			ecijíji	
L	a	1290	mè	me	dew	ekimë	orume	olume	ecime	echime
L	a	1798	ntù	ntu	person	omündu			omunu	omunu
L	a	1799	ntù	ntu	thing	ekïndu	eki:ntu		ecinu	ecinu
L	a	1855	tʊ̀	tʊ	clouds	ekʤitʧ	ekicu	ekichwi		
L	a	1856	tʊ̀	tudi	dust	olʊtʊtʧ	omucu:cu	echu:chu		
10										

R	*T*	*G no.*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Runyakore*	*Haya*	*Jita-U*	*Jita-M*
HL	a	71	béédè	béede	breast	eríbëre	i:bê:re	eibê:le	liBé:re	ribeére
HL	a	148	bi̱nà	bi̱n-	dance	amábi̱na			i:mbína	ribína
HL	a	174	búà	búa	dog	émbwä	émbwa	émbwa	imbwâ	imbwa
HL	a	192	búgà		garden	ekíbüga	embúga	ekibûga		
HL	a	200	búmbà		clay	eríbumba	i:bû:mba	eibûmba	liBú:mba	
HL	b	290	kékà	kéka	mat	omukékä	omukye:ka	omuke:ka	omuke:ka	omukeeka
HL	a	296	cápò	cápo	bag	eyi̱säho	esháho		ecikápo	echikápo
HL	a	311	cégé	ceke	sand	omúsëge	omushê:nyi		omuséñi	omusényi
HL	a	324	kúmù	kumu(a)	thumb	ekíkümo	orukúmu	olukûmu		echikúmu
HL	a	347	ci̱ú̱	ti̱u	face	obú̱si̱			oBusû	
HL	a	388	pínì	píni̱	hoe handle	omúhïni	omuhíni	omuîni		
HL	a	436	cú̱kà		hoe	eyi̱si̱ka	efúka	enfûka	i:nsúka	isúka
HL	a	512	yídò	(j)údu	nose	énïndo	enyî:ndo	eñîndo		
HL	a	572	dímì	dími̱	tongue	olúlïimi	orurímí	oluîîmi	oluîímí	orurímí
HL	a	697	dúmè	dúme	man	omúlüme			omulúme	omurúme
HL	a	729	dú̱i̱	dú̱(i)	knee	eri̱rwi̱	okúju	okújwi		
HL	b	746	cúpà	cúpa	bottle	etsúpä	ecúpa	echûpa	i:ncúpa	
HL	a	914	gú̱tà		oil	amágüta	amajúta	amajûta	lifú:ta	amafúta
HL	a	952	jókà		worm	énzöka	enjóka	ekijôka	i:njóka	injóka
HL	b	955	júbà	júba	sun	eryúba	i:zô:ba	eizô:ba	lisú:Ba	risuúba
HL	a	980	kádà	káda	charcoal	eri̱käla	i:kára	eikâra	likára	rikára
HL	a	1016	kátà	káta	headpad	éngäta	engáta	engâta	i:ngáta	ingáta
HL	a	1053	kídà	kída	tail	omúkïra	omúkira	omukîra	omukíra	omukíra
HL	b	1079	ki̱gé	ki̱ge	eyebrow	eki̱ki̱ge			ecisíge	
HL	a	1120	kódù̱	kodu̱	scar	éngolu̱			likófu	ing'ófu
HL	b	1208	kúmi̱	kúmi̱	ten	eri̱kü̱mi̱	i:kúmi		ekúmi	
HL	b	1125	kókò	koko	crust	oluköko			oBukóko	obukóko
HL	b	1156	kóópi̱		slap	eri̱kófi̱			likó:fi	
HL	a	1181	kú̱i̱	kúni̱	firewood	olúkwë	orúku	olúkwi	olukwî	orukwi

R	*T*	*G no.*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Runyakore*	*Haya*	*Jita-U*	*Jita-M*
HL	a	1258	kʊ́bà	kʊ́ba	chest	ekʊ́kʊ̈ba	ekifúba	ekifûba	ecifúBa	echifúba
HL	b	1260	kʊ́dʊ̀	kʊ́dʊ	tortoise	ekʊ́lʊ̈			liñawakúru	bawakúru
HL	a	1273	kʊ́pà	kʊ́pa	bone	erʊ́kʊ̈ha	i:gúfa	eigûfa	ligufwa	riwa
HL	a	1350	nénè	néne	bigness	obúnëne			oBunéne	obunéne
HL	a	1547	pʊ́dà	pʊda	pus	erʊ́hʊira			amaí:ra	obufira
HL	a	1548	pʊ́gà		hearth	erʊ́hʊ̈iga	i:héga	eîiga		
HL	a	1551	pʊ́mbò		stick	omʊ́hʊ̈mbo			insí:mbo	isĭmbo
HL	a	1576	tʊ́nà		base of tree	éndïna				amasína
HL	a	1650	tákò	táko	buttock	erʊ́täko	i:táko	eitâko		ritáko
HL	a	1652	támà	táma	cheek	erítëma	i:táma	eitâma	litáma	ritáma
HL	a	1666	tándà	canja	bed for wood	ekítanda	ekitâ:nda	ekitânda	ecitá:nda	echtănda
HL	a	1692	tébè		stool	ekíbete				echitébe
HL	a	1699	tégò		trap	ekítego			omutégo	omutégo
HL	b	1723	tétè		reed	ekitetë	omutê:te			omwitéte
HL	a	1738	tʊ́mà	tʊ́ma	heart	omútʊima	omutʊ́ma	omutîma		omutʊ́ma
HL	a	1808	túè	túe	head	omútwë	omútwe	omútwe	omutwê	omutwe
HL	a	1863	tʊ́kù	túku	day	obʊ́tʊ̈kʊ			olusíku	orusíku
HL	a	1867	tʊ́mò	tʊ́mo	spear	erʊ́tʊ̈mo				richúmu
HL	a	1894	yádá	jáda	fingernail	ékyäla	ekyâ:ra	ekyâ:la	olujára	injára
HL	a	1904	yákà	(j)áka	year	ómwäka	omwâ:ka	omwâka	omwá:ka	omwăka
HL	a	1922	yánà	jána	child	ómwäna			omwá:na	omwăna
HL	a	1966	yédù		white	óbwëru			éra	
HL	a	2010	yímbò		song	ólwïmbo			olwí:mbo	orwĭmbo
HL	a	2025	yʊ́bʊ̀	jʊ́b-ʊ	thief	ómwʊ̈bʊ			omwí:fi	omwĭfi
HL	a	2030	yʊ́cò	jʊ́co	eye	érʊ̈iso	erî:sho	elî:sho	elí:so	eríiso
HL	a	2054	yʊ́kʊ̀	jʊ́ki	smoke	ómüki	omwî:ka	omwî:ka		
HL	a	2068	yʊ́nà	jʊ́na	name	érʊ̈ina			lisí:na	risíina
HL	b	2073	yʊ́nò	jʊ́no	tooth	eríno	erî:no	elî:no	elí:no	eríino
HL	a	2080	yʊ́nyù	uɲu	salt	ómünya	omwô:nyo	omwô:ñu	omú:ñu	omuúnyu

R	*T*	*G no.*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Runyakore*	*Haya*	*Jita-U*	*Jita-M*
HL	a	2113	yókì	júki	bee	énzüki	enjóki	enjôki	i:njóki	
HL	a	2137	yótà	jó(n)ta	thirst	ényöta			lili:yo	
HL	a	2162	yúmà	(j)úma	iron	ékyüma	ekyô:ma	ekyô:ma		echuúma
HL	b	ps153	dàŋgò	ɗiango	door	omulángo	omuryâ:ngo			omuryango
HL	a	ps40	búdà	bu̱da	rain	émbüla	enjúra	enjûla		
HL	a	ps133	cúé	cúi	fish	ekítswë			i:nswî	iswi
HL	a	ps9	bépò	pépo	cold	émbëho			i:mbé:o	
HL	a	ps336	kúmù		medicine man	omúkumu	omufúmu	omufûmu		omufúmu
HL	a	141	bídò	bido	soot	émbïro				
HL	a	166	bónò	bono	castor beans	olúböno				
HL	a	211	bútò	búto	seed	émbüto				
HL	a	222	bu̱i̱	bui	white hair	émbwï				
HL	a	619	ɗímù	ɗímu	spirit	ekírímu				
HL	a	1078	kídù	tidu	stupidity	ekíkíru				
HL	a	1407	pácà	páca	twin	omúhasa				
HL	b	1408	pácà		axe	émbása				imbasa
HL	a	1549	pígò		kidney	émbiko				ifígo
HL	a	1615	púdò	púdo	foam	eríhu̱lo				
HL	b	1643	tádè	tádi	iron ore	erítále				
HL	a	1765	títù	títú	forest	omúsi̱tu				
HL	a	2056	yíkò		fireplace	éri̱ko				
HL	b	ps221	gímà	kíma	monkey	éngíma				
HL	b	ps553	yúci̱	ji̱ji̱	river	ólúsi̱				
						olúsi				

R	*T*	*G no.*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Runyakore*	*Haya*	*Jita-U*	*Jita-M*
HH	a	55	bánjà	bánjá	yard	ekíbanza	ekibâ:nja			
HH	a	392	cúá	cúá	termite	omúswa	omúshwa	omúshwa	omuswâ	
HH	a	399	púá		thorn	eríhwa	í:hwa	amá-wa	liwâ	riwa
HH	b	479	dámú	damu	sister-in-law	omúlämu				omurámu
HH	a	555	ɗíó	ɗío	right hand	omáli			okulyô	okuryo
HH	a	986	káɗi̱	káɗi̱	woman	omúkali̱			omugási	omugási
HH	a	1032	kédè	kédé	frog	ekíkere			likére	
HH	a	1095	kóbà	kóbá	hide	ekíkoba	ekikóba	ekikôba		orukóba
HH	a	1126	kókò	kókó	chicken	éngoko	enkóko	enkôko	i:nkóko	ing'óko
HH	a	1274	ku̱pí	ku̱pi	shortness	eki̱ku̱hi̱			fú:i	obufúi
HH	a	1412	pádá		baldness	olúhala	oruhára	oluâra		echipara
HH	a	1476	pémbè	pémbé	horn	eri̱hembe	i:hê:mbe	eiyêmbe	liyé:mbe	oruyĕmbe
HH	a	1603	púŋgù	púngú	eagle	ekíhungu	empû:ngu	ekiûngu		ipúngu
HH	a	1640	tádà	tádá	granary	ekítara	ekitára		ecitára	echitára
HH	a	1761	ti̱ndi̱	ti̱ndi̱	heel	akásinẓiro	ekisínsi:no			risisínyo
HH	a	1982	yénjé		cockroach	ényenze	ekiyê:nje	eñênje	liyé:nje	riyĕnje
HH	a	2091	yi̱púá	ji̱pua	niece, nephew	ómu̱hwa				omwĭwa
HH	a	2180	yu̱ídí	ju̱ídí	hair	olúywïri			i:mfwí:ri	orufwĭri
HH	a	340	cíndí		squirrel	ekísindi				
HH	a	1481	pèné	péné	goat	émbene				
HH	a	1562	pi̱ti̱	pi̱ti̱	hyena	émbi̱ti̱				
HH	a	1882	tu̱ú̱tu̱		bump	ekísu̱su̱				
HH	a	ps2	cánju̱		branch	ekísanza				

R	*T*	*G no.*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Runyakore*	*Haya*	*Jita-U*	*Jita-M*
LH	b	157	bògó	bogó	buffalo	embögo embógo ébógo	embogo	embógo	i:mbogô	imbogo
LH	a	260	càká		bush	ekísáka	ekishaka	ekisháka	lisakâ	risaka
LH	a	349	cị̀cá		vein	omų́sį̣sa	omúsi	omúsi		omusiya
LH	b	361	nòní̧	(j)uní̧	bird	enyönyu	ekinyonyi	ekiñoñi	i:ñoñi	inyonyi
LH	a	667	dòŋgó	dongó	mud for building	obudóngo	obudô:ngo	obudongo		
LH	a	744	dụ̀mbí		long rain	omụlų́mbį	omuju:mbi			
LH	b	839	gòdí̧		bride	omúgóle	omugóre	omugóle		
LH	a	865	gùàdí	kuadé	partridge	engwáli			i:nkwa:rê	ing'wǎre
LH	b	992	kààká	kaka	grand-parent	múkakä			káka	bakaáka
LH	a	1017	kàté		bread	omukáti	omuga:ti	omukâ:te	omuká:te	omukaáte
LH	b	1415	pàdí̧		ant	embälį			i:mpaji	
LH	a	1450	pàpá	papá	wing	ekį́pų́pa	iipapa	eipápa	liBaBâ	orubaba
LH	a	1596	pùká	puka	insect	ekíhúka	ekihúka	ekiúka		
LH	b	1749	tị̀kí		stump	ekísį̈kį	ekisî:nsi	ekisîbu	ecisikî	
LH	a	1749	tị̀kí		stump	ekį́sį́ki	ekisí:ku			
LH	a	1948	nyàtí̧		grass	obúnyátsi	orunyâ:nsi	akañâ:si	liñási	rinyaási
LH	b	1977	yèndá	kenda	nine	omwënda	omwenda			
LH	a	2013	yìná	jị̀ná	hole in ground	ekyų́na	eki:na	ekí:na		
LH	a	2133	yòŋgó	jongó	brain	obóngo	obwongko	obwôngo	omwo:ngô	obwongo
LH	b	2140	yòyá	jojá	body hair	olwéya	orwo:ya	omwó:ya		
LH	a	2167	yùmbá		room	ekyúmba			ecú:mba	
LH	a	2168	yùmbá	(j)umbá	house	enyúmbä		énju	i:ñú:mba	inyǔmba
LH	a	2173a	nyùŋgú		pot	enyúngu	enyu:ngu	eñúngu	i:ñu:ngû	inyǔngu
LH	b	788	gàŋgá		root	erį̣hánga				
LH	a	1436	pàndé		piece	ekihánde				echipande

24

R	*T*	*G no.*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Runyakore*	*Haya*	*Jita-U*	*Jita-M*
LL	a	35	bòkà	boga	vegetable	emböka	emboga		i:mboga	
LL	a	44	bàmbò		peg for hide	olumämbo	orubambo	emambo	oluma:mbo	
LL	a	65	bèbà	beba	rat	embëba	embeba	embeba	i:mbeBa	imbeba
LL	a	112	bìdì	bidi	body	omubïri	omubiri	omubili		omubiri
LL	a	176	bùè		stone	eri̱bwë			liBui	ribuyi
LL	b	289	càŋgà		island	ekisanga			lisí:ngâ	risĭnga
LL	a	351	nàmà	(ɲ)ama	muscle, meat	enyäma	enyama	eñama	i:ñama	inyama
LL	a	460	dàdò	dado	bridge	ekilälo			oluda:ra	
LL	a	470	dàgò	dago	mat	ekirago				echirago
LL	b	519	dèdù̱	dedu̱	beard	olu̱lérų̱			ecirefu	echirefu
LL	b	544	dèŋgè	denge	leg	omulénge				echirenge
LL	a	565	dìdò	dido	fire	omulïro	omuriro	omulilo	omuliro	omuriro
LL	a	567	đìdò		mourning	ekirïro				
LL	a	631	đi̱tò	di̱to	heaviness	obuli̱to			sito	obusíto
LL	a	664	dòŋgò	dongo	line of objects	omulöndo				amaroongo
LL	a	756	gàbò	gabo	shield	engäbo		ekigabo	i:ngaBo	inguba
LL	a	774	gànà	gana	hundred	eri̱gäna			eligana	egana
LL	a	776	gànò	gan-o	tale	olugäno				
LL	a	784	gànjà	ganja	palm of hand	ekigänza	ekiga:nja	ekiganja	ecigá:nja	echiganja
LL	b	786	gàŋgà	ganga	medicine man	omúganga		omugánga		
LL	a	802	gègò	gego	molar	ekiÿigo	ekigigo	ekigino	amagigo	rigigo
LL	b	803	gèmbè	gembe	hoe	ekigémbe				
LL	a	805	gèni̱		stranger	omu̱gëni̱				omugenyi
LL	b	827	gi̱gè	gi̱ge	locust	engi̱ke	enzigye	enzigye	i:njige	isige
LL	a	842	gòdò	godoci	evening	eri̱gölo				keegoro
LL	a	844	gòmà	goma	drum	engöma			i:ngoma	ing'oma
LL	b	854	gònò	gono	fish-trap	engäna			omugono	omugono
LL	b	858	gòŋgò	gongo	back	omugóngo	omugô:ngo	omugongo	omugo:ngo	omugongo
LL	a	866	gùè	goi̱	leopard	engwë				ingo

R	*T*	*G no.*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Runyakore*	*Haya*	*Jita-U*	*Jita-M*
LL	a	884	gùdù	gudu	leg	okugülu	okuguru	okuguru	okuguu	okuguru
LL	a	888	gùdùbè	gudube	pig	engulübe			i:ngurúBe	ingurúbe
LL	a	894	gùmbà		barren	omugümba			omugu:-	omugu-
LL	b	894	gùmbà		woman	omugúmbä			mba	mba
LL	a	905	gù̱bà	gu̱ba	bellows	omu̱gü̱ba				
LL	a	917	jàdà	jada	hunger	enzäla	enjara	enjala	i:njara	
LL	b	951	jògù̱	jogu̱	elephant	enzógu̱	enjojo	enjoju	i:njofu	injofu
LL	b	1103	kòcùè		rat	engotsi̱				
LL	a	1295	mèdò	mido	gullet	omumërо	omumIro	omumiro	limiro	echimiro
LL	a	1308	mì̱dà	mi̱da	mucus	ebi̱mï̱ra	ebImIra			
LL	b	1369	nòkù̱		flesh	omu̱nyökų				
LL	a	1395	nyòkò	ɲoko	mother	nyöko				
LL	a	1415	pàdí̱	padi̱	ant	embäli̱	empazi	obwa:zi	i:mpaji	
LL	a	1649	tàkà		soil	ekitäka	i:taka	eitaka	litaka	
LL	b	1900	yàdò		land	ekihäro				
LL	a	1920	yàmbò	gambo	bait	ekyämbo			eca:mbo	obwambo
LL	b	1938	yàŋgù		quickness	obwängu				
LL	b	2039	yì̱gì	ji̱gi	door	olüyi	orwi:gi	olw:igi	olwi:gi	orwigi
LL	b	2126	nyòndò	(j)undo	hammer	enyóndo	enyo:ndo	eñondo	i:no:ndo	inundo
LL	a	1379	nùà		lip	omunywä	omunwa	omunwa		omunwa

Appendix B

R	*T*	*G no*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Tembo*	*Luba*	*Lingala*
H	a	97	bí	bú	badness	obúbï	búbí	búbi	
H	b	135	bi̱	bi̱i̱	excrement	amábi̱	másí	túufí	
H	b	216	bu̱	(g)i̱bu̱	ash	eri̱bü̱	lufúfú	bútu	
H	a	392	cúá	cúá	termite	omúswa	míhwáhwa	nswa	
H	b	402	cúcú		chick	omusü		cíkúkú	sósó
H	a	634	dó	dóo	night	ekírö	lúóloolo	dílolo	butú
H	b	1023	ké		smallness	obúkë	múke	búkése	
H	a	1729	tí	tí	tree	omúti	múcí	múci	
H	a	1801	tú	tu̱i	ear	okútü	kútsú	dícu	litói
H	a	1808	túè	túe	head	omútwë	étswé	mútu	motó
10									
L	a	176	bùè	bue	stone	eri̱bwë		díbwé	
L	a	1290	mè	me	dew	ekimë		dímé	
L	b	1610	pu̱		pit of stomach	eki̱hü̱	cúfú	cífu	
L	a	1798	ntù	ntu	person	omündu	múndzú	múúntú	moto
L	b	ps166	dì		long, tall	omúli	búre	múlé	
5									
HL	a	71	béédè	béede	breast	eri̱bëre	éberé	díbeelé	libɛ́lɛ
HL	a	174	búà	búa	dog	émbwä	mbwá	mbwá	mbwá
HL	a	311	cégé	ceke	sand	omúsëge	músheé	lúsééngá	
HL	b	436	cu̱kà		hoe	eyi̱su̱ka	fuká	nkasú	
HL	a	479	dámú	damu	sister-in-law	omúlämu	múlamú		
HL	a	512	yídò	(j)údu	nose	énïndo		dyúulú	zólo
HL	a	572	dímì	dími̱	tongue	olúlïmi	lúlimí	lúdimí	lolémo
HL	a	697	dúmè	dúme	man	omúlüme	múlumé	múlumé	
HL	b	865	gùàdí	kuadé	partridge	engwáli		nkwáadi	
HL	b	914	gu̱tà		oil	amágu̱ta	máfutá	mafúta	mafúta
HL	a	952	ɟókà	ɟóka	snake	énzöka	ńzoká	nyoká	nyóka

R	*T*	*G no*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Tembo*	*Luba*	*Lingala*
HL	b	955	júbà	júba	sun	eryúba	ésubá	dííbá	
HL	a	980	kádà	káda	charcoal	erị̈käla	ékalá	díkalá	
HL	a	1053	kídà	kída	tail	omúkïra	múkirá	múkilá	mokíla
HL	a	1181	kṹị	kúnị	firewood	olúkwë		lúkunyí	
HL	b	1260	kụ́dụ̀	kụ́dụ	tortoise	ekụ́lụ̈	ngúru	nkudú	
HL	a	1273	kụ́pà	kụ́pa	bone	erịkụ̈ha		máfufwá	mokúwa
HL	a	1350	nénè	néne	bigness	obúnëne	búnené	mú-nené	monɛ́nɛ
HL	b	1407	pácà	páca	twin	omúhasa		dípasá	lipása
HL	b	1412	pádá		baldness	olúhala	lúalá	díbalá	
HL	a	1615	pụ́dò	pụ́do	foam	erịhụ̈lo			fúlo
HL	a	1650	tákò	táko	buttock	erịtäko	étakú	dítakú	lisɔ́kɔ́
HL	a	1652	támà	táma	cheek	erịtëma	étamá	dítamá	litáma
HL	a	1738	tímà	tíma	heart	omútïma			motéma
HL	a	1765	tị́tù	títú	forest	omụ́sịtụ	músitsú	díítú	
HL	a	1864	tụ́kù	túku	day	obụ́tụ̈kụ	lúsukú	dítukú	
HL	b	1867	tụ́mò	tụ́mo	spear	erịtụ̈mo		dífuma	
HL	a	1893	yádá	jáda	fingernail	olúyäla		lwáalá	
HL	a	1922	yánà	jána	child	ómwäna	mwaná	mwáaná	moána
HL	a	2010	yímbò		song	ólwïmbo			nzémbo
HL	b	2025	yị́bị̀	jị́bị	thief	omwị́bị		mwíibí	moyíbi
HL	a	2030	yị́cò	jị́co	eye	érịso	lihó	díisú	líso
HL	a	2068	yị́nà	jína	name	érịna	ésiná	díiná	
HL	b	2073	yị́nò	jị́no	tooth	eríno	linó	díinú	líno
HL	a	2137	yótà	jó(n)ta	thirst	ényöta		nyootá	
HL	b	ps327	kúŋgù		hoe	ekịkụngụ			kóngo
HL	a	ps40	búdà	bụ́da	rain	émbüla	ḿvulá	mvulá	mbúla
HL	b	ps553	yúcị	jị́jị	river	olụ́si		músulú	
HL	b					ólụ́sị	lwishí		

38

R	*T*	*G no*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Tembo*	*Luba*	*Lingala*
HH	a	55	bánjà	báɲjá	courtyard	ekíbanza	cíbanja	banza (M)	
HH	b	200	búmbà		clay	eríbumba		lúpeemba	
HH	a	340	cíndí	kindi	squirrel	ekísindi		nshiindi	
HH	a	986	káḏi̱	káḏi̱	woman	omúkali̱	múkasi	múkaji	moásí
HH	a	1032	kédè	kédé	frog	ekíkere	cíkere		
HH	a	1095	kóbà	kóbá	skin	éngoba	cíkoba	díkoba	
HH	a	1126	kókò	kókó	chicken	éngoko	ŋgoko	cíkúkú	kókó (M)
HH	a	1197	kúdù	kúdú	oldness	obúkulu	múkulu	búkulúúmpé	kúlú (M)
HH	a	1274	kṵ́pí	kṵ́pi	shortness	ekí́kṵhi̱		bwíipi	
HH	a	1547	pí̱dà	pi̱da	pus	erí̱hi̱ra	másira	túfina	mayíná
HH	a	1603	púŋgù	púngú	eagle	ekíhungu			púngú (M)
HH	a	1874	tṵ́mbí		chair	ekí̱tṵmbi̱	cífumbi		
HH	b	1952	yáyù	jáju	yawn	émyaya		mwáau	
HH	a	ps336	kṵ́mṵ́		witchdoctor	omṵ́kṵmṵ		fumu (M)	
HH	b				belt	omukábä	cíkábá	múkaba	
HH	a				beer	óbwabṵ	mafu		
17									
LH	a	349	cí̱cá		vein	omṵ́sí̱sa			mosisá
LH	b	1450	pàpá	baba	wing	ekí̱pṵ́pa		díipwáapwá	lipapú
LH	a	1450	pàpá	papu	lungs	ekíháha	ciáa		
LH	b	1630	tá	táa	war	efí̱tä	bitá	mvíta	
LH	b	1686	tàátá	taatá	father	abótatä	bátatá	táátu	
LH	a	1895	jàḏí	jaḏí	young girl	omwáli	mwályi		
LH	b	2013	yìná	ji̱ná	hole	ekyúna	mwíná	cíiná	
HH	b	2133	yòŋgó	jongó	brain	obóngo	bóngó	bóonko	
LH	a	2140	jòjá	jojá	body hair	olwéya	lóya	bóoya	
LH	a	2168	yùmbá	(j)umbá	house	enyúmbä	nyúmba		

R	*T*	*G no*	*PB-G*	*PB-M*	*gloss*	*Kinande*	*Tembo*	*Luba*	*Lingala*
LH	b	ps110	cɟ́mbí	tɟimbi	cowry	eyisímbi eyɟisɟimbi	lúsémbe		
LH	b	ps361	nòn̰ɟ́	(j)uɲ́	bird	enyönyu		nyúúnyú	
LH	b		kɟ̀mbú		bad smell	ekikümbo	esímbu		
12									
LL	a	112	bìdì	bidi	body	omubïri	múbílí	múbídí	
LL	b	519	dèdɥ̀	dedɥ	beard	olɥlérɥ	lúréfú		mandɛ́fu
LL	a	664	dòŋgò	dongo	line of objects	omulöndo	múlóngó	múlóóngú	molɔngɔ́
LL	a	756	gàbò	gabo	shield	engäbo	ngábó	ngábú	
LL	b	786	gàŋgà	ganga	doctor	omúganga			móganga
LL	a	844	gòmà	goma	drum	engöma	ngómá	ngómá	
LL	b	855	gòndè	gonde	moon	omugenda		ngóóndó	
LL	a	884	gùdù	gudu	leg	okugülu	kúúlú	múkolu	likolo
LL	a	888	gùdùbè	gudube	pig	engulübe	ngúlúbé	ngúlúbé	ngúlu
LL	a	894	gùmbà		barren woman	omugümba	ngúmbá	nkúúmbá	
LL	a	917	jàdà	jada	hunger	enzäla		nzálá	
LL	a	ps351	nàmà	(ɲ)ama	meat	enyäma	nyámá		nyama
LL	a	ps89	cèká		laughter	amasëka		díséká	
LL	a			bata	duck	ekibata		díbátá	libata
LL	a			dɟito	heavy	ekɟilɟ̈to	búsító	bújítú	mozito
15									

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