Humboldt-Universität zu Berlin
Seminar für Afrikawissenschaften
Linguistik-Kolloquium

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Final Results: Inheritance and Contact in Central Kenya Bantu

- Vast amount of empirical language data for all of Central Kenya Bantu (CKB)
- Solid methods and electronic implementation: Dialectometry & MDS Upgrade
- Current trends in the study of language contact: Loanword Typology

- Confirming linguistic findings with historical accounts (oral traditions)

The outline of this talk:

1. Data & Method

2. Application of the Method

   2.1 Phonology
   - Quantitative Dialectology
   - Qualitative Dialectology

   2.2 Lexicon
   - Quantitaive Dialectology
   - Qualitative Dialectology

   2.3 Inheritance in CKB
   - Formal Factors
   - Distributive Factors
   - Semantic Factors

   2.4 Contact in CKB
   - Formal Factors
   - Distributive Factors
   - Semantic Factors

3. Conclusions

The outline of the thesis:

1. Introduction

2. Presentation of the Data

3. Approaches and Methods

4. Application

5. Conclusions

WESTERN		EMBU/ MBEERE	CHUKA	MERU	IGOJI	NITHI	THARAKA	KAMBA
GIKUYU: Kiambu Murang'a Nyeri Mathira	Ndia Gichugu			N-Imenti Nkubu Miutini		Mwimbi Muthambi	Tharaka-East Tharaka-West	Masaku Kitui Mumoni

Figure 1: Classification of Central Kenya Bantu (based on Möhlig and Heine 1980: 14)

1. Data & Method

The Empirical Language Data

- published (Möhlig 1974) and archival[1] material as well as my own elicitations (conducted in the field in the summer of 2012)
- Elicitation of a 600-wordlist in a total of 127 locations in Central Kenya since 1970; 104 entries have proven to be unsuitable for comparison > 496 lexical items compared
- The lexical data base comprises almost 63,000 tokens (110 pages or more than 8m^2 of data)

The Method of Dialectometry = the measurement of dialects
= statistical assessment of the phonological and lexical **proximity** between dialects on the **synchronic** level, carried out through **pair-comparison**, e.g.:

Dialect A : Dialect B Dialect A : Dialect C Dialect A : Dialect D	Dialect B : Dialect C Dialect B : Dialect D	Dialect C : Dialect D

For example, the fictitious dialects A, B, C, and D are compared in regard to a feature *x*:

	Dialect A	Dialect B	Dialect C	Dialect D
feature *x*	+	-	+	-

Table 1: Distribution of feature x *in the dialects A, B, C, and D*

If two dialects concur (both show either + or -), they are counted as 1; if they disagree, the relationship between two dialects is counted as 0 ▸ a similarity matrix can be set up:

Dialect A	0			
Dialect B	0	0		
Dialect C	1	0	0	
Dialect D	0	1	0	0
	Dialect A	Dialect B	Dialect C	Dialect D

Matrix 1: Similarity Matrix showing the affiliations between A, B, C, and D in regard to feature x

▸ The sum of all similarity matrices renders the overall dialectometric result.

1 The Kamba data are provided by courtesy of Wilhelm Möhlig (University of Cologne), who kindly granted me access to his archives.

Multidimensional Scaling (MDS)

Berlin	0				
Frankfurt	548	0			
Hamburg	289	493	0		
Köln	576	195	427	0	
München	586	392	776	577	0
	Berlin	Frankfurt	Hamburg	Köln	München

Matrix 2: Distances between five German cities (in km)

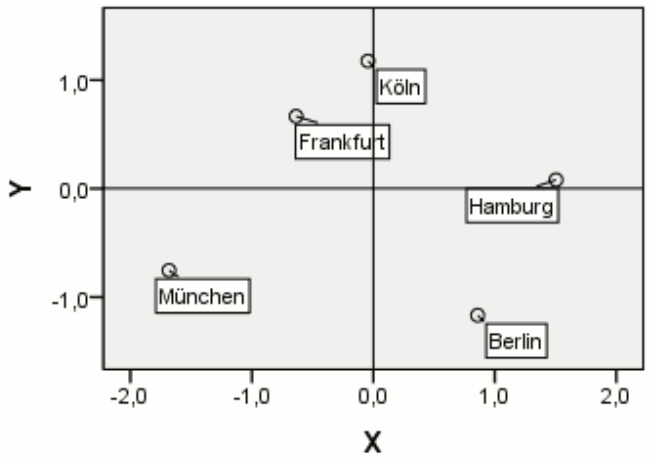


Diagram 1: Multidimensional Scaling of Matrix 2
(picture licensed under public domain)

2. Application of the Methods to the Language Data

2.1 Phonology

Quantitative Dialectology: Phonological dialectometry measures

(1.) phonetic variation,

(2.) differences in phonological rules, and

(3.) differences in size

between phoneme systems.

The basis of phonological dialectometry are **recurrent sound correspondences**:

	Western	Embu/ Mbeere	Chuka	Mwimbi-Muthambi	Igoji	Miutini	Imenti/ Nkubu	Tharaka	Kamba
*MP	mb	mb	mb	mp	mp	mp	mp	mp	mb
'cat'	**mb**aka	**mb**aka	**mp**aka	**mp**aka	**mp**aka	**mp**aka	**mp**aka	**mp**aka	**mb**aka
'maize'	**mb**ɛ**mb**ɛ	**mb**ɛ**mb**ɛ	**mp**ɛ**mb**ɛ	**mp**ɛ**mp**a	**mp**ɛ**mp**ɛ	**mp**ɛ**mp**ɛ	**mp**ɛ**mp**ɛ	**mp**ɛ**mp**ɛ	**mb**ɛ**mb**a

*Table 2: Phonetic realization of *MP (attested by items 291 and 406)*

Table 2 shows that *MP in CKB is realized as

mp prenasalized, **voiceless**, bilabial plosive

mb prenasalized, **voiced**, bilabial plosive

- The phonetic differences are measured by applying the method of **feature analysis** (Jakobson et al. 1952, Chomsky & Hall 1968). The two sounds above are only distinguished by the feature [+/- voice]:

Feature	Western	Embu/ Mbeere	Chuka	Mwimbi-Muthambi	Igoji	Miutini	Imenti/ Nkubu	Tharaka	Kamba
	mb	mb	mb	mp	mp	mp	mp	mp	mb
voice	+	+	+	-	-	-	-	-	+

*Table 3: Contrastive feature analysis for the correspondence series *MP*

- A total of 42 *correspondence series* has been established
- 12 of these series show no variation and are considered non-diagnostic, i.e. they have been disregarded in the dialectometric calculations
- 95 *feature series* are compared (i.e. the phonological database comprises 95 rows)

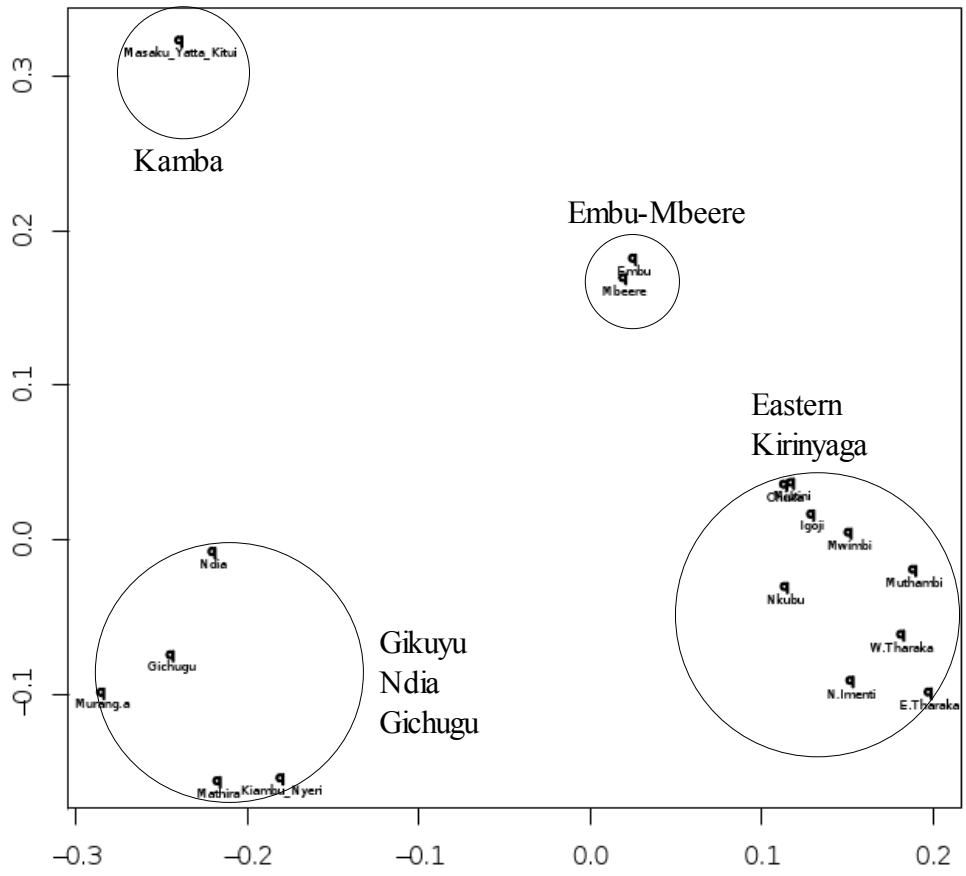


Diagram 2: Multidimensional scaling of the phonological distances in CKB

Qualitative Dialectology: The object of qualitative dialectology is to distinguish **regular** (vertical) from **irregular** (horizontal) sound correspondences. In other words, it is to be determined for each series whether it is characterized by **internal** or **external language change** (divergence versus convergence).

‣ Additional information is required, i.e. the number and distribution of attestations (see below)

a) Internal Language Change: Regular Series

As mentioned above, 12 series show no variation in CKB (no language change), e.g. series *M:

(1) 040 flesh CB *-yàmà C.S. 1909 > *ɲama* all of CKB

095 to send CB *-túm- C.S. 1831 > *-tʊma* all of CKB

‣ Common Bantu *m > /m/ in all of Central Kenya Bantu

The series ***R**$_1$**/_/a, ɛ, ɔ, ʊ**/, in contrast, shows a three-way split in CKB:

(2) 019 throat CB *-mèdò C.S. 1295 > *mʊ.mɛɾɔ* (e.g. Gikuyu) tap

mʊ.mɛɽɔ (e.g. Tharaka) flap

mʊ.mɛɔ (Kamba) zero

113 husband CB *-dúmè C.S. 697 > *mʊ.ɾʊmɛ* (e.g. Gikuyu) tap

mʊ.ɽʊmɛ (e.g. Tharaka) flap

mʊ.ʊmɛ (Kamba) zero

CB *d

ɾ	**ɽ**	**Ø**
WESTERN	**EAST KIRINYAGA**	**KAMBA**
Kiambu	Embu/Mbeere	Masaku
Murang'a	Chuka	Kitui
Nyeri	Mwimbi/Muthambi	Mumoni
Mathira	Igoji	
Ndia	Miutini	
Gichugu	North-Imenti/Nkubu	
	Tharaka	

The series ***P**$_1$ shows yet another three-way split in CKB:

(3) 067 to vomit CB *-tápik- C.S. 1684 > *-taɦıka* (e.g. Gikuyu, Tharaka)

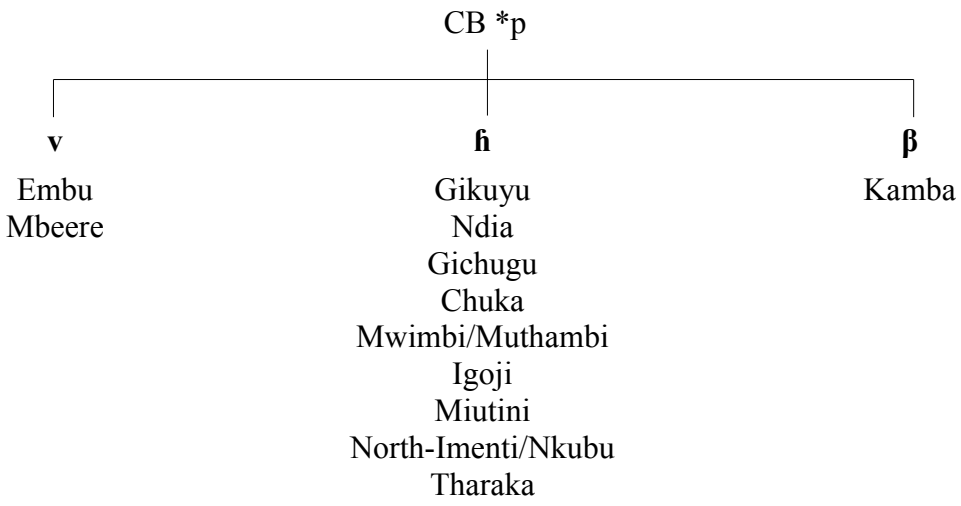
-tavıka (Embu-Mbeere)

-taβıka (Kamba)

516 short CB *-kʊ́pí C.S. 1274 > *-kuɦı* (e.g. Gikuyu, Tharaka)

-kuvı (Embu-Mbeere)

-kuβı (Kamba)



b) External Language Change: Irregular Series

Example (2) above showed that CB *d is reflected as /r/ in all of CKB with the exception of Kamba, in wich this segment is lenited. In some cases, however, /r/ corresponds to Kamba /l/. This is due to external language change, i.e. borrowing (series **$*R_2$**):

(4)	082 to remain	CB *-kàd- 'dwell' C.S. 974 >	*-i.kara*	(e.g. Gikuyu, Embu)
			⬇	borrowed as
			-ɪ.kala	(Kamba)
	148 ro refuse	CB *-dég- 'avoid' C.S. 521 >	*-rɛga*	(e.g. Gikuyu, Embu)
			⬇	borrowed as
			-lɛa	(Kamba)

Example (3) above showed that CB *p is reflected as /β/ in Kamba, while it is reflected as /ɦ/ in most other CKB languages. In some cases, however, all of CKB shows /β/, which is due to external language change. The following example attests to the lenition of CB *b in all of CKB:

(5)	556 to see	CB *-bón- C.S. 164 >	*-ɔna*	all of CKB
	563 corpse	CB *-bi̩mbà C.S. 145 >	*kɪ.imba*	all of CKB

If Kamba and the other varieties of CKB concur in the use of /β/, borrowing is the case (**$*P_2$**):

(6)	457 road	Swahili *barabara*	➔	*βalaβala*	(Kamba)
				⬇	borrowed as
				βaraβara	(e.g. Nyeri)
	456 grave	Swahili *kaburi*	➔	*kaβuli*	(Kamba)
				⬇	borrowed as
				kaβuri	(e.g. Nyeri)

- Regular and irregular series are distinguished by reviewing the amount of attestations and their general distribution in CKB:

Correspondence Series	realized as	Number of Attestations	Distribution of Attestations
*R_1 (Regular) < CB *d	ɾ, ɽ, Ø	86 items (50 CB cognates)	mostly widespread
*R_2 (Irregular)	ɾ, ɽ, l	37 items (12 CB cognates)	partially restricted
*P_1 (Regular) < CB *p	ɦ, v, β	56 items (21 CB cognates)	widespread
*P_2 (Irregular)	β	20 items (5 CB cognates)	restricted

Table 4: Regular versus irregular sound correspondence series in CKB

- In total, 30 series out of 42 seem to be regular, the remaining 12 are, consequently, considered irregular in this study.

2.2 Lexicon

Quantitative Dialectology: Lexical dialectometry measures phonological and morphological differences between word forms. In general, words may be (1.) identical, (2.) partially divergent, or (3.) fully divergent. In this analysis, the procedure follows the principles described in section *1. Data & Methods.* However, lexical variation is often gradual (not binary) and is, consequently, rated as follows:

1. Identity (= 4 points), e.g. A:A

2a. Morphological divergence (= 3 points), e.g.

025 left hand	1.	ᴜ.mɔðɔ	A_1	(class 14)
	2.	kɪ.mɔðɔ	A_2	(class 7)
150 to give	1.	-nɛng.a	A_1	(no verbal extension)
	2.	-nɛng.ɛra	A_2	(applicative)
	3.	-nɛng.ana	A_3	(reciprocal)

2b. Phonological divergence (= 2 points), e.g.

015 mouth	1.	ka.ɲua	A_1
	2.	ka.nua	A_2
	3.	ka.ɲwa	A_3
068 to cough	1.	-uːma	A_1
	2.	-uma	A_2
	3.	-ᴜma	A_3

2c. Accumulated (phonological <u>and</u> morphological) divergence (= 1 point), e.g.

138 language	1.	rᴜ.ðiɔmi	A_1	(class 11)
	2.	kɪ.ðyɔmɔ	A_2	(class 7)
136 to call	1.	-ɪːt.a	A_1	(no verbal extension)
	2.	-ɪt.ana	A_2	(reciprocal)

3. Full divergence (= 0 points), e.g. A:B

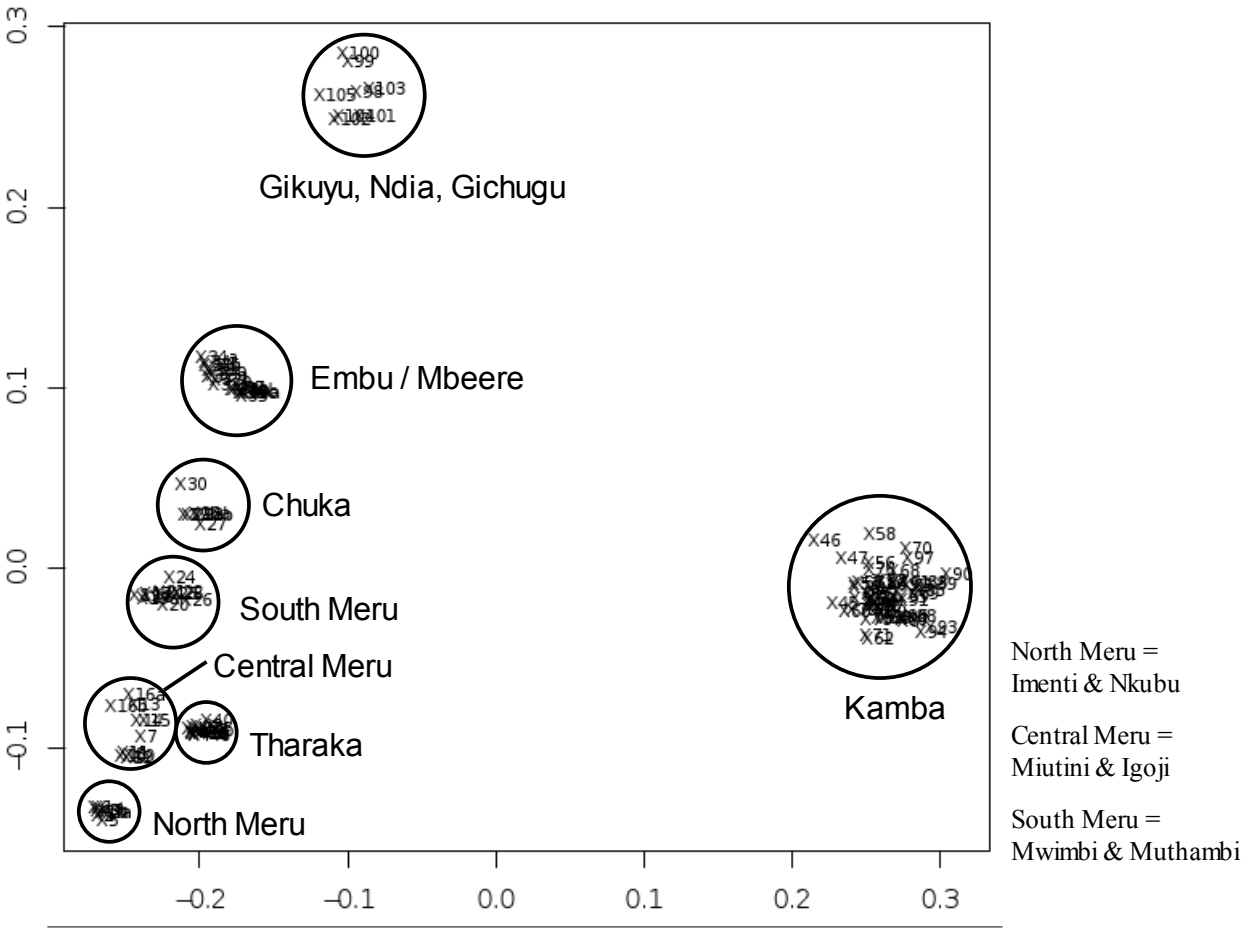


Diagram 3: Lexical distances of CKB

Qualitative Dialectology:

The object of qualitative dialectology is to distinguish **inherited** from **diffused** lexical material.

"Contact is a source of linguistic change if it is less likely that a particular change would have happened outside a specific contact situation." (Thomason 2010: 32)

- The question whether a specific word is a loan is a question of **likelihood!**
- It needs to be assessed individually for every keyword if contact is plausible:

  formal aberrancies, **marked distribution**, **semantics**

Unusually high / 'quirky' variation may indicate borrowing, e.g.

(7) 094 to return Maasai *a-shúk* borrowed as ➔ *-cɔ:ka, -sɔ:ka*
-ciɔ:ka
-syɔka
-cɔka, -sɔka
-syɔkɛðya
-siɔka

Highly restricted distribution may indicate borrowing, e.g.

(8)	435 rain	CB *-bṷdá C.S. 225 >	*mbura*	7, 9, 11-44, 98-105
			mbua	45-97
		Maasai *ngai* 'God' ➔	*ngai*	**1-6, 8, 10**

Note: Not every instances of high variation is indicative of borrowing! The use of different concepts may also result in divergent forms, e.g.

(9)	238 to pound	*-ʊːraga*	301 to kill, 361 to break
		-ɦʊra, -βʊa	163 to beat, 164 to strike
		-tumba (tumba)	onomatopoetic form

The use of specific versus generic terms may also result in divergent forms, e.g.

(10)	282 cow	*ŋɔmbɛ*	'cow'
		ŋɔmbɛ (ya) nka	'female cow'
		mɔri, mɔi	'heifer' (i.e. cow in milk)

Additionally, low frequency may result in the emergence of a large number of divergent forms, e.g. 023 armpit, 024 elbow, 037 anklebone (uncommon concepts)
332 snail, 331 lizard, 336 soldier ant (irrelevant concepts)
314 tail, 320 leopard (taboo concepts)

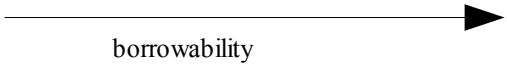
Semantic Background: The Loanword Typology (Haspelmath & Tadmor 2009)

"Is there any 'hierarchy' with respect to which categories are more, and which are less, borrowable?" (Aikhenvald & Dixon 2001: 14)

- **YES !**

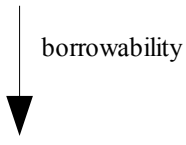
The loanword typology project = quantitative study of **loanwords** in 41 languages worldwide aiming at the identification of (groups of) meanings that are generally **borrowing-resistant**.

- Differences in word classes: nouns > verbs > adjectives and adverbs



- Differences in **semantic fields**, e.g.

'Law'	34,3 % of loanwords
'Animals'	25,5 % of loanwords
'Sense Perception'	11,0 % of loandwords



In short: Haspelmath & Tadmor (2009) confirm that 'core vocabulary' is less susceptible to borrowing than 'cultural vocabulary' (based on 22 semantic domains). In this study, 17 semantic domains are reviewed.

Sense Perception

According to the loanword typology, we are not very likely to find many loans in the field 'Sense Perception'. In total, 14 items are compared (4 nouns, 6 verbs, 4 adjectives) in this domain:

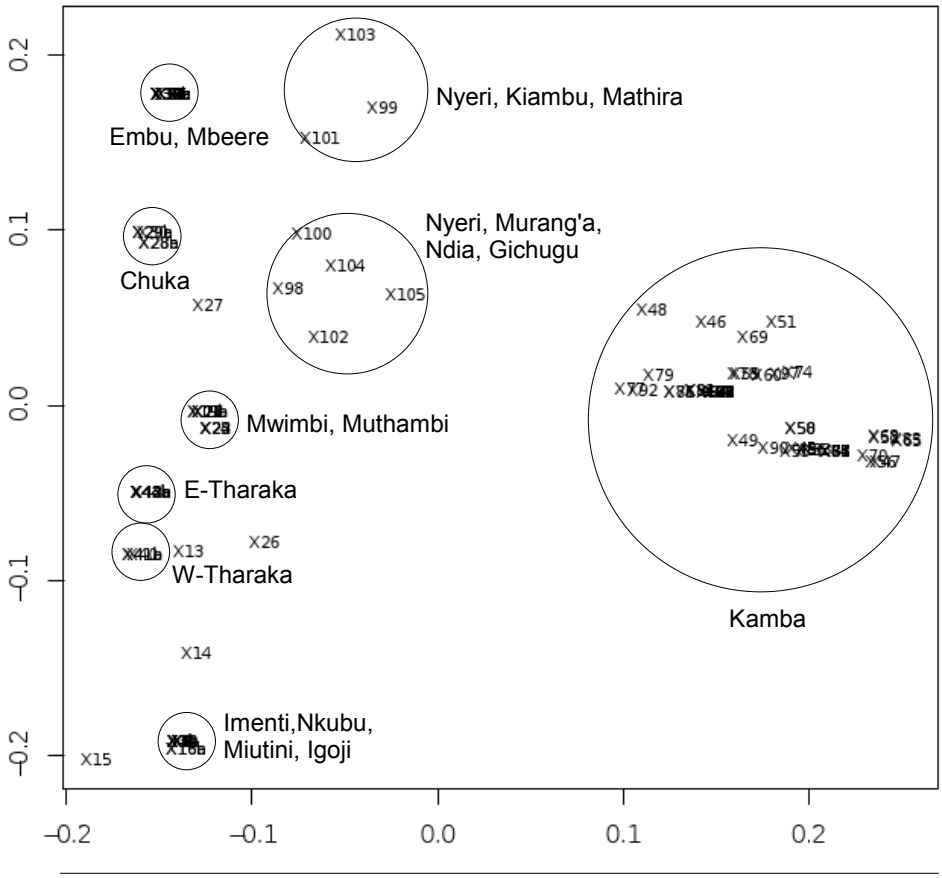


Diagram 4: Lexical distances in the field 'Sense Perception'

Out of 14 items, a total of three shows no variation:

(11)	055 to be tired	all of CKB	*-nɔ(g)a*	< Common CKB
	556 to see	all of CKB	*-ɔna*	< CB *-bón- C.S. 164
	591 red	all of CKB	*-tʊnɛ*	< Common CKB

Another seven items are connected to Common Bantu, all showing partially divergent forms:

(12)	548 smell	6 / 5 forms	< *-nụ̀nk- C.S. 1386 / *-nụ̀ụ̀k- C.S. 1380
	549 to stink	4 / 1 forms	< *-nụ̀nk- C.S. 1386 / *-nụ̀ụ̀k- C.S. 1380
	554 to hear	4 forms	< *-yígụ̱ C.S. 2043
	557 to touch	1 form	< *-kúát- C.S. 1172
	590 black	3 forms	< *-yídù C.S. 2037
	594 sweetness	2 forms	< *-dio C.S. 554
	596 coldness	5 forms	< *-pépò C.S. 1492

In these cases, bundled isoglosses are generally hard to find, e.g.

(13a)	590 black	CB *-yídù C.S. 2037 >	*-iru*	Mwimbi and Imenti

(13b)	554 to hear	CB *-yíguⱪ- C.S. 2043 >		*-i:gwa*	Imenti
			>	*-ɪ:gwa*	Mwimbi

In the field 'Sense Perception', only four items show (possible) loanwords:

(14)	555 noise	Swahili *kelele*	➔	*kɛlɛlɛ*	Kamba
		unknown donor	➔	*kɪ.lɔnzɔ*	Kamba
	558 to taste	Maasai *à-ìshám*	➔	*-cama, -sama*	all of CKB except for
			➔	*-cɛma*	'North Meru'
	592 white	unknown donor	➔	*-ɛ(r)ᴜ*	all of CKB except for
			➔	*-ɛru*	Igoji, Mwimbi, Muthambi
			➔	*-cɛrᴜ*	Embu, Mbeere
			➔	*-yɛru*	Tharaka
	594 sweet	Sw. *sukari*	➔	*ðukari*	Nyeri

- Language contact plays a minor role in the field 'Sense Perception', it is rather mainly characterized by **inheritance**!

Animals

The field 'Animals' ranges in the middle of the loanword typology (25,5% of loans). In this study, a total of 44 items (42 nouns, 2 verbs) is compared for this domain:

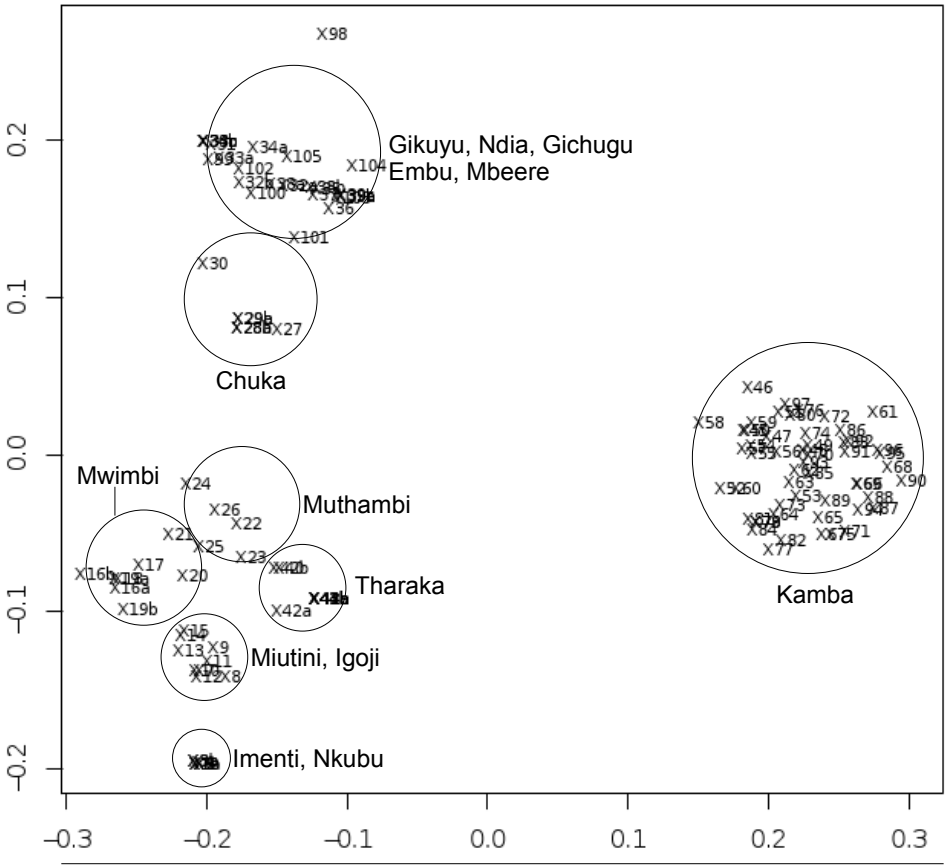


Diagram 5: Lexical distances in the field 'Animals'

Out of the 44 items reviewed in this field, 22 are derived from Common Bantu. In the following six cases, all CKB languages show identical / regular forms:

(15)	311 to bite	*-(r)ʊma*	< CB *-dúm- C.S. 696
	315 buffalo	*mbɔ(g)ɔ*	< CB *-bògó C.S. 157
	316 elephant	*njɔgu / nzɔu*	< CB *-jògù C.S. 951
	335 bee	*njʊkɪ / nzʊkɪ*	< CB *-júkì C.S. 962
	338 house fly	*ngi*	< CB *-gì C.S. 819
	346 guinea fowl	*nkanga / nganga*	< CB *-kángà C.S. 1010

In another seven cases, partially divergent forms are attested, e.g.

(16)	286 goat	2 forms	< CB *-búdì C.S. 185
	289 chicken	2 forms	< CB *-kúkú C.S. 1203
	310 animal	3 forms	< CB *-yàmà C.S. 1910
	337 termite	6 forms	< CB *-cúá C.S. 932

In other instances, only parts of CKB have retained the relevant Common Bantu item, e.g.

(17)	281 bull	CB *-dúmè C.S. 697	only in Nyeri
	291 cat	CB *-páká C.S. 1420	not in Mwimbi, Embu, Mbeere
	320 leopard	CB *-gò C.S. 834	only in Tharaka and Kamba

Some items show the widespread use of regular forms not related to Common Bantu, e.g.

(18)	278 cattle	*ŋɔmbɛ*	all of CKB
	281 bull	*ndɛːgwa, ndɛᵍwa*	all of CKB
	287 sheep	*ŋɔ(ɔ)ndu*	all of CKB except for Kamba

- **Genetic Inheritance** is a major factor in the field 'Animals'! However, a number of cases attest to internal and external borrowing:

Internal borrowing **downhill** is attested by the following items:

(19)			**Mt. Kenya**		**Kamba**
	288 pig CB *-gùdùbè C.S. 888 >		ngʊrʊɛ		ngʊʊwɛ
			borrowed as	➔	ngʊlʊ(w)ɛ
	345 to fly CB *-bùduk- p.s. 43 >	?	*-buːrʊka*		
			-burʊrʊka		
			-bʊrʊka		
			Embu, Mbeere:		
			-gʊrʊka	➔	*-ʊlʊka*

Internal borrowing **uphill** is attested by the following item:

(20)	321 lion	*mʊ.ɲambʊ* (Kamba)	➔	*mʊ.ɲambʊ*	(Mbeere, Tharaka)
		48-56, 59, 61-72, 75, 91-96 etc.		37, 39, 41, 42c	

The major donor in this field is Swahili. In this case, the relatively low distance between Embu-Mbeere and its western neighbors is mainly due to mutual borrowing from Swahili:

(21)	215 donkey	Sw. *punda*	➔	*mbunda*	Chuka, Embu, Mbeere, Ndia
				βunda	Gikuyu, Gichugu
	317 giraffe	Sw. *twiga*	➔	*ntwi:ga*	Chuka
				ndwi:ga	Embu, Mbeere
				ndʊ:iga	Kiambu, Mathira, Gichugu
				twiga	Nyeri, Ndia
	321 lion	Sw. *simba*	➔	*cimba*	Chuka, Embu, Mbeere, Nyeri
				simba	Murang'a, Ndia, Gichugu
	326 fish	Sw. *samaki*	➔	*(n)ðamaki*	Embu, Mbeere, Gikuyu

In addition, a few items attest to borrowing from (a) Maasai and (b) English:

(22a)	285 donkey	*o-síkìrìà*	>	*ntigiri*
	328 crocodile	*ol-kinyaŋ*	>	*kɪ.ŋa:ŋi, kɪ.ŋaŋi*
	331 lizard	*o-loiruri*	>	*mʊ.ʊrʊ:rʊ*
(22b)	317 giraffe		>	*njiraβu*
	329 python		>	*paiðɔni*

- Even though inheritance is an important factor in this field (both wild and domesticated animals), **external borrowing** is significant. Especially the western dialects have been most severely influenced by Swahili in regard to animal names.

Law

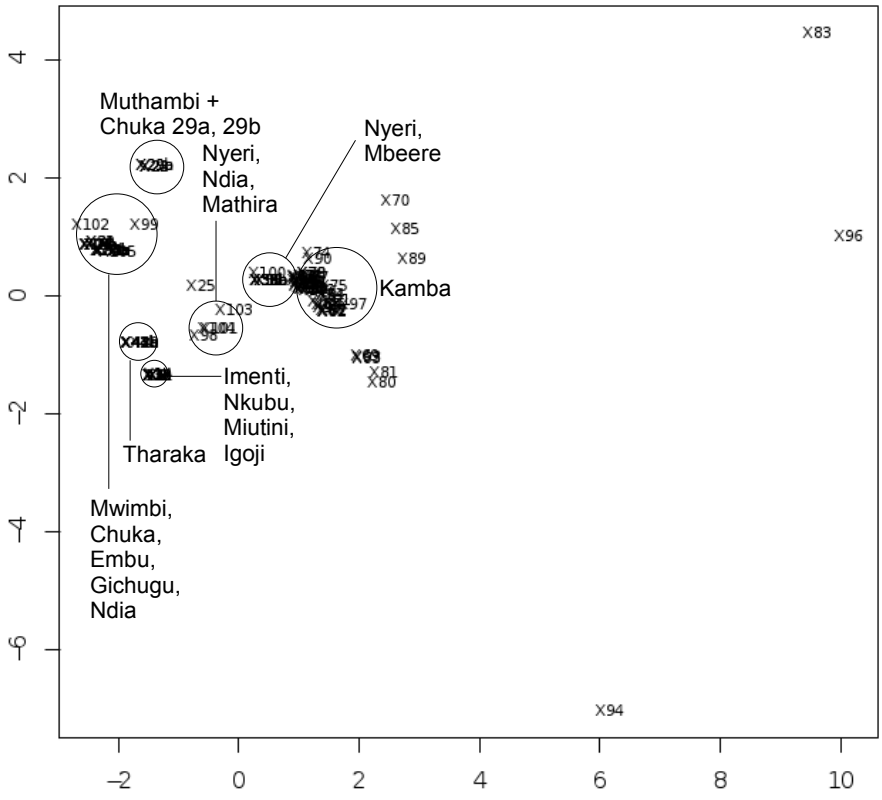


Diagram 6: Lexical distances in the field 'Law'

The semantic domain 'Law' is one of the 'top candidates' in terms of borrowability. In the loanword typology, this field ranks among the top five (34,3 % of loans). In this study, 20 items are reviewed (7 nouns, 13 verbs) in this domain. Three Common Bantu forms have been retained by parts of CKB:

(23)	181 to deny and 185 to forbid	< CB *-dég- 'avoid' C.S. 521
	160 quarrel and 161 to quarrel	< CB *-tét- 'to quarrel' C.S. 1720
	166 to fight	< CB *-dù- 'to fight' C.S. 675

A few items seem to originate from a common CKB stratum as they are regular in shape or widespread in distribution:, e.g.

(24)	146 to steal	*-iːya*	most of Eastern Kirinyaga
		-ɪːya	Embu, Mbeere
		-ya	Kamba
		-iya	Kamba, Gikuyu
	163 to beat	*-ɦuːra, -βʊa*	e.g. Imenti, Embu, Gikuyu, Kamba
		-kʊna	Kamba
	164 to hit	*-ringa*	e.g. Imenti, Tharaka, Gikuyu
		-kuna	Embu, Mbeere

The particularly low lexical distances in this field are, however, mainly due to internal borrowing (facilitated by missionaries and the colonial regime):

(25)	118 to obey	*-aːðɛka* (Imenti)	➔ scattered along the eastern slopes
			➔ *-ɪtɪkɪria* (Miutini)
		-aðɪka (Gikuyu)	➔ *-ɪtɪkia* (Embu, Mbeere)
			➔ *-ɪtɪka* (Mwimbi)
			➔ *-ɪtɪki(l)a* (Kamba)
	148 ro refuse	*-rɛga* (Gikuyu)	➔ *-lɛa* (Kamba)
	160 quarrel	*ngarari* (Embu)	➔ *ngalali* (Kamba)
	161 to quarrel	*-kararania* (Embu)	➔ *-kalalaia, -kalalia* (Kamba)

In addition, a number of Swahili terms seems to have been introduced in colonial times:

(26)	175 lawsuit	Sw. *mashtaka*	➔ scattered on the eastern slopes
			➔ widespread forms in Embu, Gikuyu
			➔ Kamba (some metahesis)

179 to accuse	Sw. *-shtaki*	➔ 1 form scattered in most of CKB
		➔ similar in Embu, Mbeere, Kamba
184 to command	Sw. *-amuru*	➔ Kamba and Gikuyu
	Sw. *-lazimisha*	➔ Kamba

- The establishment of colonial rule had a major impact on the CKB languages in the field 'Law'. This is attested by internal borrowing from the towns of Nyeri and Meru respectively into the rest of CKB as well as the introduction of Swahili legal terminology. Inheritance, in contrast, plays a relatively minor role in this domain.

2.3 Inheritance in CKB

In this study, inheritance is classified along the lines of **formal**, **distributive**, and **semantic** factors.

From a formal perspective, variation in **phonetic realization** and differences in the application of **phonological rules** can be observed.

Divergence has, in some cases, led to a difference in vowel quality and / or length (without there being any bundled isoglosses, though), e.g.

(27)	083 to come	CB *-kʉ́m- C.S. 1262 >	*-uːma*	1-44c, 103-105
			-uma	45-97, 99
			-ʊma	101, 102
	136 to call	CB *-yít- C.S. 2017 >	*-ɪːta*	13, 16-24, 26, 30, 31, 35-39, 40-44
			-ɪːtana	1-12, 14, 15, 25, 27, 28, 29, 32-34, 40-44
			-ɪta	45-101, 103-105
			-ɪtana	102

One prominent factor in phonetic variation is **weakening** of segments, especially in the Kamba dialects, where CB *d and CB *g are lenited. In regard to Dahl's Law[2], however, Kamba is the only variety that shows <u>no</u> weakening:

(28)	022 arm	CB *-bókò C.S. 158 >	*gʊ.ɔkɔ*	Gikuyu
			***k**ʊ.ɔkɔ*	Kamba
	244 mat	CB *-kéká p.s. 290 >	*mʊ.gɛka*	all of CKB except for
			*mʊ.**k**ɛka*	Kamba

2 Dahl's Law is a dissimilatory process attested in a number of East African Bantu languages: In short, if there are two syllables (in a stem), both beginning with a voiceless plosive, the first one is voiced (Meinhof 1903: 299). In CKB, this process is rather restricted, i.e. only /k/ is affected (cf. Bennett 1967).

- Kamba is mainly set apart from the remaining varieties of CKB by weakening of two CB segments as well as the complete absence of Dahl's Law.

The varieties on the eastern slopes of Mt. Kenya ('Eastern Kirinyaga dialects') are, in turn, separated from Gikuyu and Kamba respectively by phonological rules:

Series	Gikuyu	Kamba	Embu	Miutini	Tharaka
*R_1/_/a, ɛ, ɔ, ʊ/	ɾ	Ø	ɽ	ɽ	ɽ
*R_1/_/u/	ɾ	Ø	ɽ	l	ɽ
*R_1/_/i/	ɾ	Ø	l	l	ɽ
*R_1/_/ɪ/	ɾ	Ø	ɽ	ɽ	ɽ
*G/_/a, ɛ, ɪ, ɔ, ʊ/	ɣ	Ø	ɣ	ɣ	ɣ
*G/_/u/	ɣ	Ø	ɣ	ɣ	g
*G/_/i/	ɣ	Ø	g	g	g

Table 5: Differences in phonological rules

Finally, the inherited material can be categorized into different **semantic domains**. A large amount of lexical material is inherited from Common Bantu. Retention of CB forms is especially prominent in the following fields:

the body · the physical world · animals · basic actions

In addition, a number of items seem to originate from a common CKB stratum, especially in the following fields:

basic actions · social relations · the house · agriculture & vegetation

- What is this Common Central Kenya Bantu Stratum?

A word is considered to originate from this stratum on formal and distributional grounds, e.g.

(29a)	526 daytime	*mʊ.ðɛɲa*	all of CKB	≠ CB *-tʊ́kù C.S. 1864
(29b)	211 to kindle	*-ɦuɦa*	Chuka, Kiambu, Nyeri	≠ CB *-gʊ̀bà C.S. 905
		-βuβa	Kamba	

The exact historical nature of such items is, however, generally **beyond our experience**, as "propagation" (Croft 2006) can not entirely be ruled out in some cases, e.g.

(30)	198 wall	*rʊ.ðingɔ*	all of CKB except for Kamba
	298 to shoot	*-(r)aða*	all of CKB

In any case, we are safe to assume that these are fairly old forms, as they are regular and mostly widespread in distribution. We can, however, not rule out that some cases are *Wanderwörter* or 'common roots' (cf. the concept of "areal roots" by Wolff et al. 2009)[3].

2.4 Contact in CKB

Contact processes are also classified along the lines of **formal**, **distributive**, and **semantic** factors.

Formally, borrowing may result in (a) variation of vowel length / quality and, in some cases, (b) metathesis:

(31a)	094 to return	Maasai *a-shúk*	➔	*-cɔːka*	Tharaka
			➔	*-cɔka*	Gikuyu
	200 window	Swahili *dirisha*	➔	*ndɪrica*	Meru
			➔	*ndɪlɪʃa*	Kamba
(31b)	175 lawsuit	Swahili *mashtaka*	➔	*ᴜ.sitaka*	Kamba
			➔	*ᴜ.sikata*	Kamba

In general, borrowing is carried out by **incorporation** into the vertical sound system or by **adaptation**:

(32)	379 cheap	Swahili *rahisi*	➔	*raiði*	Gikuyu (CB *d > /r/)
			➔	*laisi*	Kamba (CB *d > /Ø/)

This observation may enable us to unravel the borrowing direction of some items. For example, Swahili /s/ is incorporated into the Gikuyu sound system as /ð/, while most other varieties use /c/ and /s/ respectively (adaptation), e.g.

(33)	415 shorts	Swahili *suruali*	➔	*ðuruarɪ*	Gikuyu
			➔	*curuaːrɪ*	Meru
			➔	*sulualɪ*	Kamba

In some cases, however, /ð/ is used in all of CKB, indicating that these items were incorporated into CKB via Gikuyu, e.g.

(34) 156 to learn Swahili *-soma* ➔ *-ðɔma* (Gikuyu) ➔ *-ðɔːma* (rest of CKB)

3 Even Guthrie misjudged some items to be inherited forms when they are, in fact, diffused, e.g.

162 to slap	Sw. *-piga* ***kofi***	➔	Gik. *-ringa* ***ɪ.kɔβi***	➔	CB *-kóópị- C.S. 1156
159 to write	Sw. *-andika*	➔	Gik. *-andika*	➔	CB *-yàndik- C.S. 1932

Such CB items are generally considered poorly reliable by most Bantuists today.

- **Gikuyu** is the center of dispersion of **colonial** Swahili (law, school, clothing & grooming)
- **Kamba** is the center of disperson of Swahili in **precolonial** times (trade)

The lexical influence by Maasai and English, in contrast, is only marginal (13 items each). Maasai loans are mainly restricted to the northern slopes of Mt. Kenya.

In addition, a number of items seems to be borrowed from unknown external donors (especially in Kamba), whose exact origin remains, however, unclear.

Internal borrowing may be classified as follows (in order of significance):

- **downhill** (Mt. Kenya ➔ Kamba)
- **uphill** (Kamba ➔ Mt. Kenya)
- **montane** (between the **ridges** in the foothills of Mt. Kenya)

3. Conclusions

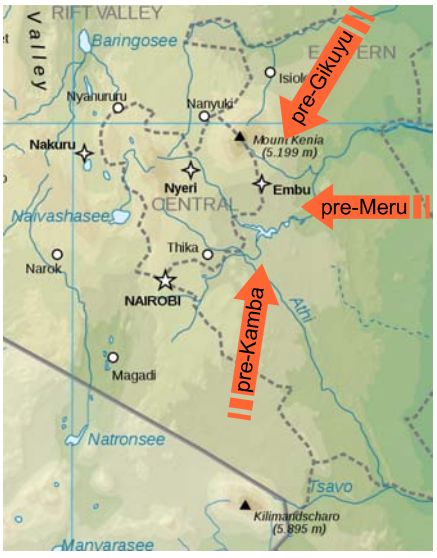
How do the linguistic findings relate to the (social) history of Central Kenya?

Scenario 1: Immigration into the Kenyan Highlands

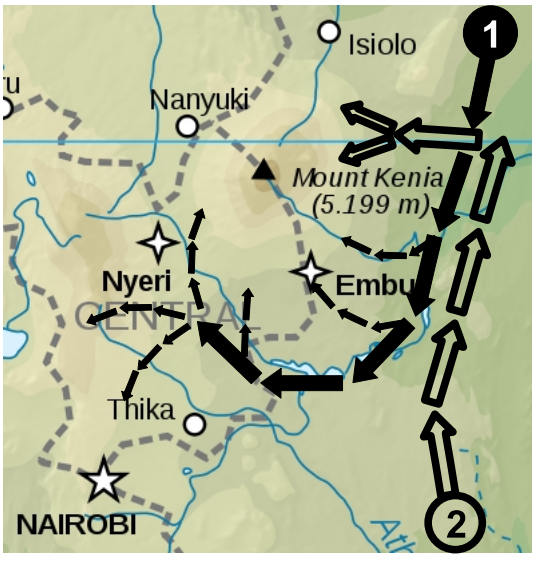
Gikuyu and Kamba respectively are distinct phonologically and lexically from the remaining varieties. Borrowing has never been able to bridge this genealogical gap.

In regard to the lexicon, Embu-Mbeere 'oscillates' between its western and eastern neighbors (due to both inheritance and contact).

- The oral traditions speak of at least three major immigration routes into Central Kenya.
- From this period (prior to1500 AD) originate a number of lexical items relating to social matters, the house, and agriculture.



Alledged migration routes into CK



Pre-Gikuyu (1) and Pre-Meru (2) migration

Scenario 2: Maasai contact (Bilingualism / Diglossia)

Maasai vocabulary is mostly restricted to the dialects on the north-eastern slopes. Some items, e.g. 043 blood, 094 to return, 108 friend, and 183 oath[4], seem to symbolize the reciprocal social affiliations between Meru and Maasai. Bilingualism, however, can be assumed to have been restricted to certain communities (e.g. clans) on the eastern slopes. [high prestige]

In the western dialects of Gikuyu, Ndia, Gichugu as well as in Kamba and Embu-Mbeere, the amount of Maasai loans is much smaller than in Meru. However, Maasai seems to have had a substantial influence on the sound systems of these varieties, i.e. voicing of prenasalized stops[5], e.g.:

Series	Gikuyu	Embu-Mbeere	Kamba	versus e.g.	Chuka
*MP	mb	mb	mb		mp
*NT	nd	nd	nd		nt
*NK	ng	ng	ng		nt

Table 6: Voicing of prenasalized stops in CKB

- Only varieties (that used to be) adjacent to Maasai territory are affected. For Maasai, this type of voicing is attested by Tucker and Mpaayei (1955) as well as Heine (1980).
- According to Muriuki (1974), the pawnship of Maasai women and children[6] was a common measure of crisis control in the Kenyan Highlands (= classic substrate influence). [low prestige]

Scenario 3: The influence by vernacular teaching

Some words in Kamba seem to compete over distribution. Interestingly, these items seem to spread from Masaku into the rest of Kamba, e.g.

(35) 290 cock *nzamba* (cf. Mwende 2006: 14)
320 leopard *kɪ.kɔyɔ* (cf. Watuma 2008: 22)
321 lion *mʊ.ɲambʊ* (cf. Mwende 2006: 23)

- The first government school was opened in Machakos Town in 1915 (Ssekamwa & Lugumba 2001: 4).

4 Swearing oaths, for example, has always been very important in Kenyan politics as a basis of political alliances: e.g. 'blood brotherhoods' between Meru and Maasai in precolonial times, Mau-Mau activists during the 'Emergency', Gikuyu dominated Nairobi street gangs such as the Mũngĩkĩ today.

5 This particular type of external language change results in the decrease of phonemes in the relevant dialects due to the merger of two correspondence series, i.e. *ND = *NT.

6 some of whom to never *094 return* to their Maasai home.

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