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Inheritance and Contact in Central Kenya Bantu (CKB): Qualitative Phonological Dialectology

Map 1: The location of CKB

Language	Number of Speakers
Gikuyu	7 Mio.
Kamba	4 Mio.
Meru etc.	2 Mio.
Embu/Mbeere	500.000
Tharaka	140.000
Chuka	70.000

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

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

The Dissertation Project in a Nutshell

- Survey of synchronic dialectal differences (quantitative dialectology)
- Distinguishing between inheritance and contact (qualitative dialectology)
- Correlating linguisting findings with extra-linguistic evidence

The Structure of this Talk

1. An Introduction to the Quantitative Dialectology of CKB
2. Theories and Methods in Qualitative Dialectology
   2.1 Language Change
   2.2 Parameters in Qualitative Dialectology
3. Application of the Qualitative Methods: Inheritance and Contact in CKB
4. Conclusions

1. An Introduction to Quantitative Dialectology

How similar are the dialects of CKB to each other?

- The varieties under scrutiny show considerable **synchronic variation**, e.g. in regard to the **size** of their phoneme inventories:

MERU (22 consonants)	Labial	Dental	Alveolar	Retroflex	Palatal	Velar	Glottal
Voiceless stops			/t/			/k/	
Voiced stops	/b/					/g/	
Prenasalized voiced stops	/mb/		/nd/			/ng/	
Prenasalized voiceless stops	/mp/		/nt/			/nk/	
Affricate			/c/				
Fricatives		/ð/	/j/				/ɦ/
Prenasalized voiced fricatives		/nð/	/nj/				
Prenasalized voiceless fricatives			/nc/				
Flap				/r/			
Nasals	/m/		/n/		/ɲ/	/ŋ/	

Table 2: The consonant system of Meru (Möhlig 1974: 77)

EMBU (17 consonants)	Labial	Dental	Alveolar	Retroflex	Palatal	Velar	Glottal
Voiceless stops			/t/			/k/	
Voiced stops	/b/					/g/	
Prenasalized stops	/mb/		/nd/			/ng/	
Affricate			/c/				
Fricatives		/ð/					/ɦ/
Prenasalized fricatives		/nð/	/nj/				
Flap				/r/			
Nasals	/m/		/n/		/ɲ/	/ŋ/	

Table 3: The consonant system of Embu (Möhlig 1974: 81)

- Meru and Embu show differences in **phonetic realization**:

	Meru (Imenti-Dialect)	**Embu**
/c/	[ɖʃ] = voiced alveo-prepalatal affricate	[ʃ] = voiceless prepalatal fricative

Table 4: Phonetic realizations of /c/ in Meru and Embu

- Meru and Embu show differences in **phonological rules**:

	Meru (Imenti-Dialect)	**Embu**
/c/ _/i,u/	[ɖʃ] = voiced alveo-prepalatal affricate	[tʂ] = voiceless addental postalveolar affricate

Table 5: Phonetic relaization of /c/ in front of the high vowels /i, u/ in Meru and Embu

Synchronic variation of the above kind may be systematically evaluated ('measured') by applying the method of **dialectometry**. The different sound systems are correlated through **recurrent sound correspondence**, e.g.

020 neck	**nk**i:ngɔ	Chuka, Meru, Tharaka
	ngi:ngɔ	Gikuyu, Embu, Mbeere, Kamba
045 heart	**nk**ɔrɔ	Chuka, Meru, Tharaka
	ngɔrɔ	Gikuyu, Embu, Mbeere
	ngɔɔ	Kamba

*Table 6: 'neck' and 'heart' in Central Kenyan Bantu (attesting to series *NK)*

➔ *NK is realized as **nk** prenasalized, **voiceless**, velar plosive (north of Thuci River)
ng prenasalized, **voiced**, velar plosive (south of Thuci River)

The **phonetic difference** above is measured by applying the method of *feature analysis* (Jakobson et al. 1952, Chomsky & Hall 1968):

		WESTERN						**EMBU/ MBEERE**			**NITHI**			**MERU**			**THARAKA**		**KAMBA**		
	Feature	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*NK	[voice]	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	+
realized as		ng	ng	ng	ng	ng	ng	ng	ng	nk	nk	nk	nk	nk	nk	nk	nk	nk	ng	ng	ng

*Table 7: Feature Analysis of Correspondence Series *NK*

➔ Some dialects do <u>not</u> have /nk/ at their disposal, they use /ng/ instead.
In these dialects, /ng/ respresents two correspondence series *NK and *NG**.**

002 head	kɪ.ɔ**ng**ɔ	all of CKB
030 back (of body)	mu.gɔ**ng**ɔ	all of CKB except for
	mu.ɔ**ng**ɔ	Kamba

*Table 8: 'head' and 'back' in Central Kenya Bantu (attesting to series *NG)*

➔ *NG is represented by /ng/ all throughout CKB.
South of river Thuci (Western, Embu/Mbeere, Kamba), the two series *NK and *NG are phonetically identical:

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
	Feature	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*NK	[voice]	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	+
*NG	[voice]	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

*Table 9: Feature Analysis of the two Correspondence Series *NK and *NG*

➔ The Western dialects as well as Embu-Mbeere and Kamba show smaller phoneme inventories than the rest of CKB (**difference in size**) – two series collaps in certain dialects!

In order to account for **differences in phonological rules**, relevant correspondence series are set up, e.g. /mb/_/i, u/ > [mv] in Embu (while all other varieties show [mb]):

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
	Feature	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*MB _/i,u/	[stop]	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+

*Table 9: Feature Analysis of Correspondence Series *MB/_/i, u/*

In this study of CKB, a total of 42 *correspondence series* has been established (= 95 *feature series,* 1.900 tokens in the database). The dialectal differences are measured by **counting concurrences** in **pair-comparison** (which are registered in a distance matrix), cf. Möhlig (1974, 1980).

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

➔ Quantitative phono-dialectology (Dialectometry) systematically measures variation between different languages and dialects: **- phonetic differences**
- phonological differences
- rule-based differences

The *multidimensional scaling* of the statistical outcome reveals four areas of relatively low phonological variation:

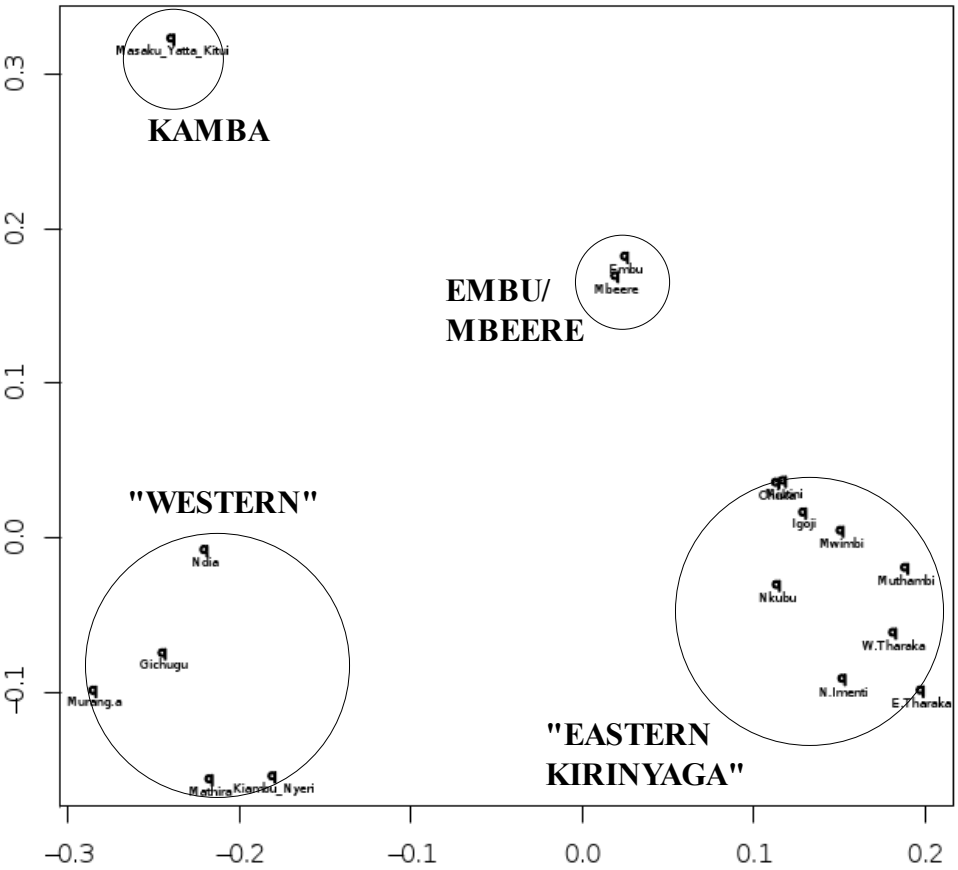


Diagram: The Phonological Distances within CKB (multidimensional scaling showing 4 areas of relatively low variation)

Note: Dialectometry measures **synchronic variation**! For any historical claims (e.g. how the areas of low variation have come into being), the data need to be analyzed qualitatively!

2. Theories and Methods in Qualitative Dialectology

If two (or more) dialects show no variation in regard to a specific linguistic feature, this may be due to (Aikhendvald & Dixon 2006):

- Universal Properties
- Chance
- Parallel Development
- **Borrowing / Diffusion**
- **Genetic Retention**

In other words, the two varieties must have undergone the same kind of **language change**, which may be induced

vertically	or	**horizontally**
Inheritance		Contact
Shared Innovation		Borrowing / Diffusion

2.1 Language Change

- Language Change and the Size of Phoneme Inventories

  The phoneme system of any language variety may change its size (= number of contrasts) throughout history, both due to **(a) internal developments** and **(b) language contact**:

(1) **a)** Phonemic Split (increase)

2 Allophones > 2 Phonemes, e.g.

Old Eng. [li:f] 'life' – [li:vlic] 'lively'

Modern Eng. /laɪf/ 'life' – /laɪv/ 'live'

(Hamann 2015: 250)

Phoneme Merger (decrease)

2 Phonemes > 1 Phoneme, e.g. *l, *r > r

PIE *p**l**neHti 'fills' > Vedic p**r**náti

PIE *bh**r**to- 'carried' > Vedic bh**r**tá-

(Sihler 2000: 44)

b) Loan Phoneme (increase), e.g.

recent English loans in German:

/ɛɪ̯/ in *Em**ai**l*, *Homep**a**ge* vs.

/e:/ in *okay* [o.'ke:] (older loan)

(Hamann 2015: 250)

Merger under Contact (decrease)

/nk/ > /ng/ in Maasai (Heine 1980) >

*NK realized as /ng/ south of Thuci River in Cenral Kenya Bantu

(my hypothesis, see below)

- Language Change and Phonetic Properties

  Synchronic phonetic variation (and the lack thereof) may be due to both **(a) internal developments** and **(b) language contact**, e.g. variation in vowel quality in CKB:

(2) **a)** Shared Innovation

590 black CB *yi̱dù C.S. 2037 > *-iru* in Mwimbi and Imenti

Divergence

554 to hear CB *yi̱gu̱ C.S. 2043

> ***-i**:gwa* Imenti

> ***-ɪ**:gwa* Mwimbi

b) Mutual Borrowing

408 rice Swahili *mchele* > *mʊ.cɛ:rɛ* in Mwimbi and Muthambi

Parallel Borrowing

415 shorts Swahili *suruali* >

*curua:r**ɪ*** Mwimbi

*curua:r**i*** Muthambi

- Language Change and Phonological Rules

  Specific phonological rules may emerge due to **(a) internal developments** and under the influence of **(b) language contact**:

(3) **a)** Shared Innovation

Most dialects of American English agree in the rule

/t/ → [ɾ] / [+vowel, +stress] _ [+vowel, -stress],

e.g. in 'butter' [ˈbʌɾɹ] and 'notable' [ˈnoʊɾəbl].

b) Rule borrowing (following lexical transfer)

Latin Sg. *alumnus* > English Sg. *alumnus*

Latin Pl. *alumni* > English Pl. *alumni*

The massive borrowing of Latin words (second declension) ending in *-us* (Plural: *-i*) has resulted in a minor English rule of plural formation – even for words that never had such a plural /-i/ etymologically, e.g. English *octopus,* Plural: *octopi* (Thomason 2006)[1].

➔ Inheritance and Contact may play an **equally important role** in language change resulting in phonetic, phonological and rule-based congruence.

➔ There seem to be **no general constraints** that enable us to distinguish between inheritance and contact.

➔ The structurally refined phonological data (= correspondence series) do not suffice as basis for qualitative analysis: **additional information** and a set of **parameters** is needed.

2.2 Parameters in Qualitative Dialectology

- Sound Correspondence

***Recurrent* Sound Correspondence**

Synchronically, two (or more) dialects show some sort of recurrent agreement, e.g.

Dialect A feature *x* = Dialect B feature *y*

Regular Correspondences	**Irregular Correspondences**
- based on vertical relations	- based on horizontal relations
- retention / divergence	- transfer / convergence
tend to show:	tend to show:
- relatively large number of attestations	- relatively small number of attestations
- mostly widespread attestations	- less widespread attestations
- many CB / archaic forms	- relatively few CB / archaic forms

1 Note that the example above does not constitute rule borrowig per se, as the rule under concern is created by English speakers and does not enter English as part of the lexical transfer from Latin. Uncontroversial examples are, however, hard to come by, cf. Thomason (2006) for a further discussion.

- What would Guthrie do?

  Malcolm Guthrie (1967-71) classifies **formal aberrancies** as follows:

Guthrie's term	divided into	divided into	Example	Comment
inadmissible not quite suitable as a valid entry in a particular C.S. (Vol. 2: 28 ff.)	skewed meaning	---	*-pet-* 'to bend' M.42 'to acheive' K.21 'to pay' S.12	Semantic Change, possibly conceptual issues in CKB
	skewed shape	eccentric	*-cèk- > *-sɛ**k**-* B.31 (expected: *-sɛɣ-)	Items unsuitable for <u>one</u> particular reason
		extraneous	e.g. clicks in Xhosa	Items unsuitable based on patterns or single units
multi-valent an items can be entered into more than one C.S. (Vol. 2: 20)	---	---	*379 cheap* Gikuyu Kamba *raiðɨ* *laiʂi* $*C_1$ = ð $*C_2$ = ʂ ➔ entered into $*C_3$	Multi-valent forms possibly indicate multi-regionals origins (convergence), see below for parallel series

Table 10: Guthrie's classification of irregular forms

➔ In order to identify diffused lexical items (that attest to recurrent sound correspondence), the following parameters are to be taken into account: **- number of attesting items**

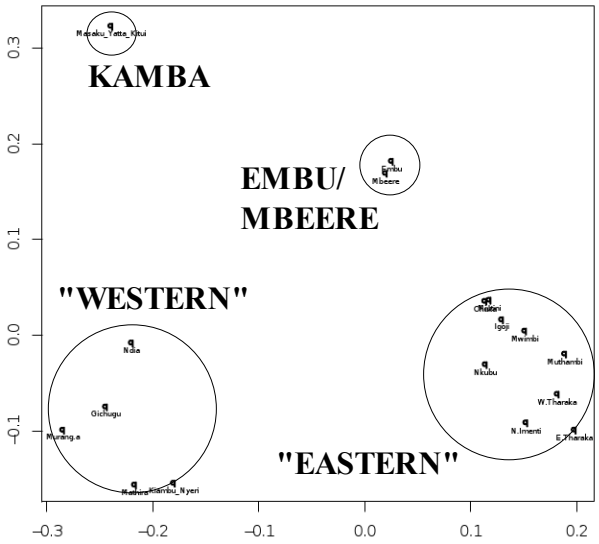
- distribution of attesting items

- formal aberrance of attesting items

(- semantic background)

3. Application of the Qualitative Methods

How did inheritance and contact contribute to the synchronic picture of CKB?



Kamba	Masaku, Mumoni, Yatta
Embu/Mbeere	Embu, Mbeere
Western	GIKUYU (Kiambu, Murang'a, Nyeri, Mathira) + Ndia, Gichugu
Eastern	CHUKA NITHI (Mwimbi, Muthambi) MERU (Imenti, Nkubu, Miutini) IGOJI THARAKA

Diagram: Phonological Distances of CKB

- **Retention** (shared innovation)

  Out of a total of 42, twelve correspondence series show no variation within CKB, e.g.

CASE 1

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
		Kiambu	**Muarŋa**	**Nyeri**	**Mathira**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*M	realized as	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

*Table 11: Correspondence Series *M in CKB*

(4) *019 throat* mu.**m**ɛ(r)ɔ all of CKB < CB *-**m**èdò C.S. 1295

025 left hand u.**m**ɔðɔ all of CKB < CB *-**m**ócó C.S. 1316

➔ CB *m > /m/ all of CKB

CASE 2

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
		Kiambu	**Muarŋa**	**Nyeri**	**Mathira**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*C_1	realized as	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð

*Table 12: Correspondence Series *C_1 in CKB*

(5) *006 face* u.**ð**iu all of CKB < CB *-**c**ịu C.S. 347

025 left hand u.mɔ**ð**ɔ all of CKB < CB *-mó**c**ó C.S. 1316

➔ CB *c > /ð/ all of CKB

Note: The series *C_1 is attested by a total of 62 items (16 CB cognates). Five items are borrowed from (colonial) Swahili, e.g.

(6) *156 to teach* Sw. *-**s**omesha* > **-ð**ɔ:mıðia (e.g. Gikuyu, Embu, Meru)

372 market Sw. ***s**oko* > ı.**ð**ɔkɔ (e.g. Gikuyu, Embu, Meru)

➔ In a few cases, Swahili loans showing /s/ are integrated into the vertical sound systems.

- **Divergence**

  Some series represent phonological isoglosses that may divide CKB into a varying number of individual groups, e.g.

CASE 3

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
		Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
$*P_1$	realized as	ɦ	ɦ	ɦ	ɦ	β	β	v	v	ɦ	ɦ	ɦ	ɦ	ɦ	ɦ	ɦ	ɦ	ɦ	β	β	β

Table 13: Correspondence Series $*P_1$ in CKB

(7) *067 to vomit* CB *-tápik- C.S. 1684 > -ta**ɦ**ıka (Gikuyu, all of Eastern)

> -ta**β**ıka (Ndia, Gichugu, Kamba)

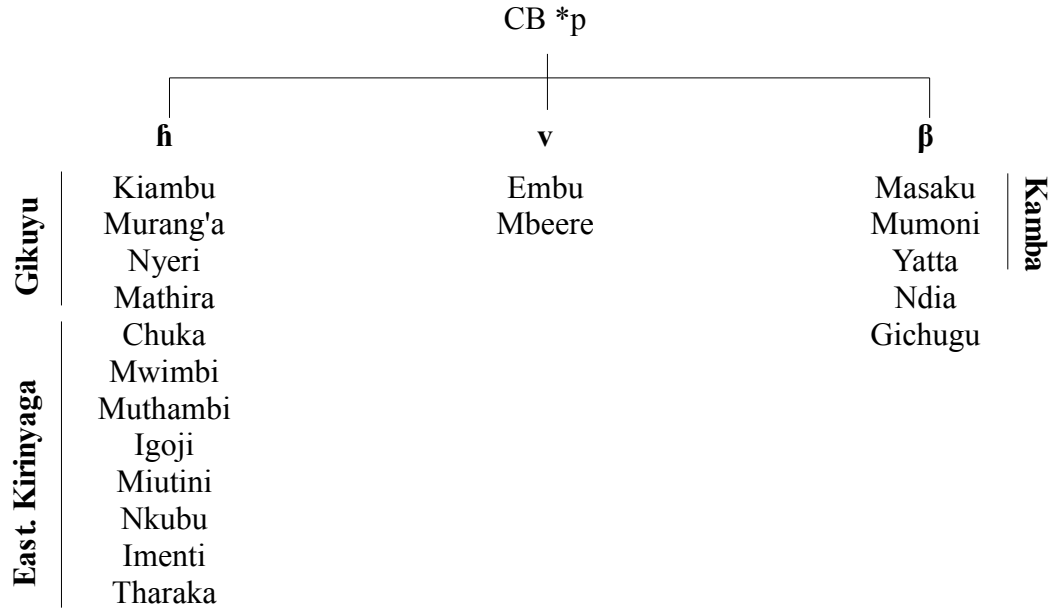
> -ta**v**ıka (Embu, Mbeere)

227 to draw water CB *-táp- C.S. 1681 > -ta**ɦ**a (Gikuyu, all of Eastern)

> -ta**β**a (Ndia, Gichugu, Kamba)

> -ta**v**a (Embu, Mbeere)

➔ CB *p is reflected as follows:



No bundled isoglosses - $*R_1$/_/a, ɛ, ɔ, ʊ/ represents yet another division into three groups:

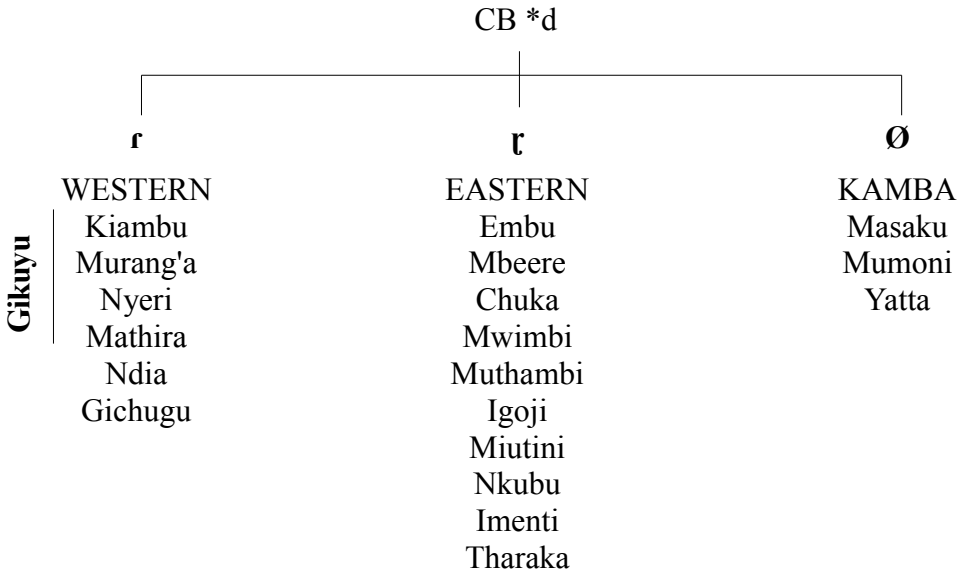
CASE 4

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
		Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
$*R_1$ /_ /a, ɛ, ɔ, ʊ/		ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø

Table 14: Sound Correspondence Series $*R_1$ /_/a, ɛ, ɔ, ʊ/ in CKB

(8)	*028 finger*	CB *-yádá C.S. 1893	>	kɪ.aɾa	(Western)
			>	kɪ.aɽa	(Eastern)
			>	ky.aa	(Kamba)
	044 intestines	CB *-dà C.S. 442	>	ma.ɾa	(Western)
			>	ma.ɽa	(Eastern)
			>	ma.a	(Kamba)

➔ CB *d is generally reflected as follows:



In addition, the dialects on the eastern slopes of Mt. Kenya show a further distinction in the realization of CB *d, e.g. *R_1/_/u/ > [l] in Igoji:

(9)	*019 throat*	CB *-mè**d**ò C.S. 1295	>	mʊ.mɛ**ɽ**ɔ	(= *R_1/_/a, ɛ, ɔ, ʊ/)
	172 to curse	CB *-**d**ụ̀m- C.S. 740	>	**l**umana	(= *R_1/_/u/)

Muthambi, in turn, shows yet another rule *R_1/_/i/ > [l] (while <u>not</u> obeying *R_1/_/u/ > [l]):

(10)	*019 throat*	CB *-mèdò C.S. 1295	>	mʊ.mɛɽɔ	(= *R_1/_/a, ɛ, ɔ, ʊ/)
	172 to curse	CB *-dụ̀m- C.S. 740	>	**ɽ**umana	(= *R_1/_/u/)
	430 moon	CB *-yédị̀ C.S. 1965	>	mʊ.ɛ:**l**i	(= *R_1/_/i/)

➔ The reflection of CB *d is governed by a set of different phonological rules on the eastern slopes of Mt. Kenya resulting in a highly diverse synchronic micro-picture.

➔ The reflection of CB *d (= the realization of *R_1) in CKB may be broken down as follows:

CB *d

WESTERN	**EASTERN**	**KAMBA**
always [ɾ]	[ɽ] or [l]	always Ø
(no phonologcial rule)	depending on	(no phonological rule)
	$*R_1$/_/a, ɛ, ɔ, ʊ/	
	$*R_1$/_/u/	
	$*R_1$/_/i/	
	$*R_1$/_/ɪ/	

Series statistics: 45 attestations total
29 CB cognates
All items mostly widespread
Semantics: Body, Motion, Basic Actions, Physical World etc.

➔ Both the phonetic variation and the differences in phonological rules within series $*R_1$ seem to be due to divergence, as there is no indication of language contact!

- **Convergence** (Parallel Correspondence Series)
  The examples of $*R_1$ above show that CB *d > /Ø/ in Kamba
  > /r/ in the rest of CKB

CASE 5

In a number of cases, however, /r/ in the montane dialects (= rest of CKB) corresponds with Kamba /l/ (i.e. Kamba shows "**eccentric shapes**"), e.g.

(11) *016 lip* kɪ.**r**ɔmɔ (Gikuyu) kɪ.**l**ɔmɔ (Kamba) (cf. CB *-dòmò C.S. 651)
026 right hand ʊ.**r**ɪɔ (Gikuyu) ʊ.**l**yɔ (Kamba) (cf. CB *-díó C.S. 555)

➔ The "**eccentric shapes**" in Kamba call for the set-up of an additional series $*R_2$:

		WESTERN						**EMBU/ MBEERE**			**NITHI**			**MERU**			**THARAKA**		**KAMBA**		
		Kiambu	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
$*R_2$	realized as	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	l	l	l

Table 15: Correspondence Series $*R_2$ in CKB

Except for Kamba, the series *R_2 and the regular (vertical) series *R_1 collaps in all of CKB:

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
		Kiambu	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*R_2	realized as	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	**l**	**l**	**l**
*R_1	realized as	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	**Ø**	**Ø**	**Ø**

*Table 15: Correspondence Series *R_2 and *R_1 in CKB*

Series Statistics:	*R_1	*R_2
	45 items (mostly widespread)	37 items (less widespread)
	29 CB cognates (65%)	12 CB cognates (32%)
	no Swahili loans	11 Swahili loans

➔ As /l/ in Kamba cannot be regularly derived from CB *d, it seems to be a **loan phoneme** induced through (a) downhill borrowing and (b) Swahili contact, e.g.

(12) **a)** *016 lip*

CB *-dòmò C.S. 651

↓

kɪ.**r**ɔmɔ (e.g. Gikuyu) —borrowed as→ kɪ.**l**ɔmɔ (Kamba)

512 weight

CB *-dị̀tò C.S. 940

↙ ↘

ᴜ.ritu (Gikuyu) ᴜ.itɔ (Kamba)

borrowed as →

ᴜ.**l**itu (Kamba) "talk like a Gikuyu"

b) *379 cheap*

Swahili *rahisi* → **l**aisi (Kamba)

→ **r**aiði (Gikuyu)

➔ /l/ in Kamba is a product of **adaptation**; in the remaining varieties, Swahili loans showing /r/ are simply **integrated** into the vertical sound systems.

The distinction between adaptation and integration may, in some instances, enable us to specify the borrowing direction of certain items, e.g. in the case of certain **multi-valent forms**:

CASE 6

Some Swahili loans tend to cut through the lines of recurrent sound correspondence, e.g. Swahili source words (showing /s/) in the comparison of Gikuyu – Chuka – Kamba:

(13)	**a)** *157 to learn*	Sw. *-soma*	>	-ðɔ:ma	(Gikuyu)	$*C_1 <$ CB *c
	Type A		>	-ðɔma	(Chuka)	$*C_1 <$ CB *c
				-ʂɔma	(Kamba)	$*C_2 \neq$ CB *c ↯!
	b) *378 money*	Sw. *pesa*	>	mbɛca	(Gikuyu)	$*C_2$ ✔
	Type B		>	mbɛ:ca	(Chuka)	$*C_2$ ✔
			>	mbɛʂa	(Kamba)	$*C_2$ ✔
	c) *379 cheap*	Sw. *rahisi*	>	raiði	(Gikuyu)	$*C_1 <$ CB *c ↯!
	Type C		>	raici	(Chuka)	$*C_2 \neq$ CB *c
			>	laiʂi	(Kamba)	$*C_2 \neq$ CB *c

➔ The examples a) and c) constitute **multi-valent forms**:
a) Swahili *-soma* is integrated in Chuka and Gikuyu, while adaptated in Kamba
b) Swahili *-pesa* is adaptated in all three varieties
c) Swahili *rahisi* is integrated in Gikuyu, while adaptated in Chuka and Kamba

➔ According to Guthrie (Vol. 2: 20), multi-valence may indicated multi-regional origins; in the above case, multi-valence of Swahili loans indicates **different waves** of Swahili contact (see below).

CASE 7

It was pointed out above (page 3), that CKB is divided into two groups in regard to prenasalized plosives, e.g.

*NK is realized as	/nk/	prenasalized, **voiceless** plosive	**north** of Thuci River
	/ng/	prenasalized, **voiced** plosive	**south** of Thuci River

Theoretically, the variation [+/- voice] may be explained historically in two possible ways:

<u>A. Phonemic split north of Thuci River</u> or <u>B. Phoneme merger south of Thuci River</u>

➔ Additional information is required in order to assess series *NK

➔ From a **distributional perspective**, it seems plausible that a **merger under contact** happened south of Thuci River (in the Western dialects, Embu/Mbeere, Kamba) due to **Maasai influence** (see below for a plausible scenario).
cf. Maasai rule /p, t, c, k/ → [b, d, dʒ, g] / N_ (Heine 1980: 102)

- **Inconclusive Correspondence Series**

A few cases remain largely inconclusive due to different reasons, e.g. *MB_2:

CASE 8

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
		Kiambu	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*MB_2	real. as	ɦ	ɦ	ɦ	ɦ	mb	ɦ	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
overlaps w/		*P_1				*MB_1	*P_1	*MB_1													

*Table 16: Correspondence Series *MB_2 in CKB (overlapping w/ *P_1 in Gikuyu and Gichugu, and w/ *MB_1 in the rest of CKB)*

➔ The overlapping (multi-valence) indicates horizontal factors; due to the low amount of only two attestations, however, the case remains inconclusive.

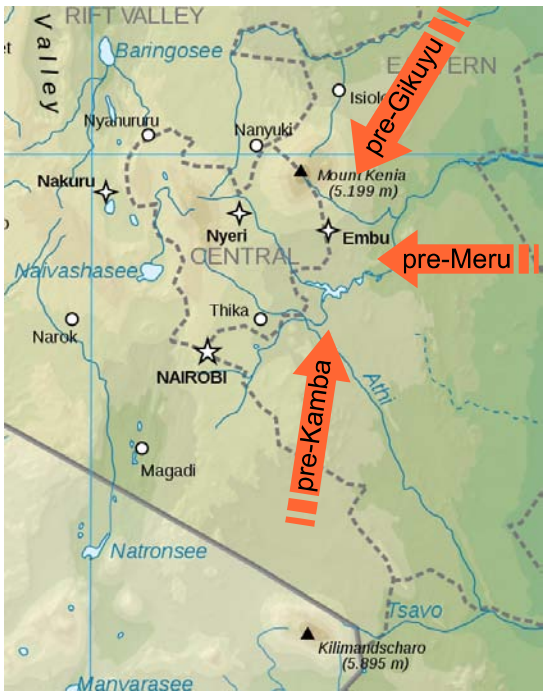
(14) *319 hyena* CB *-píṭị C.S. 1652 > *ɦiti* (regular in Gikuyu, Gichugu)
↝ *mbiti* (skewed shape?)
↝ *mbiti ɲau* (skewed shape?)

362 to tear *-tambʊra* (e.g. Nkubu) versus *-taɦʊra* (e.g. Kiambu)
-tɛmbʊra (e.g. Tharaka) versus *-tɛɦʊra* (e.g. Nyeri)

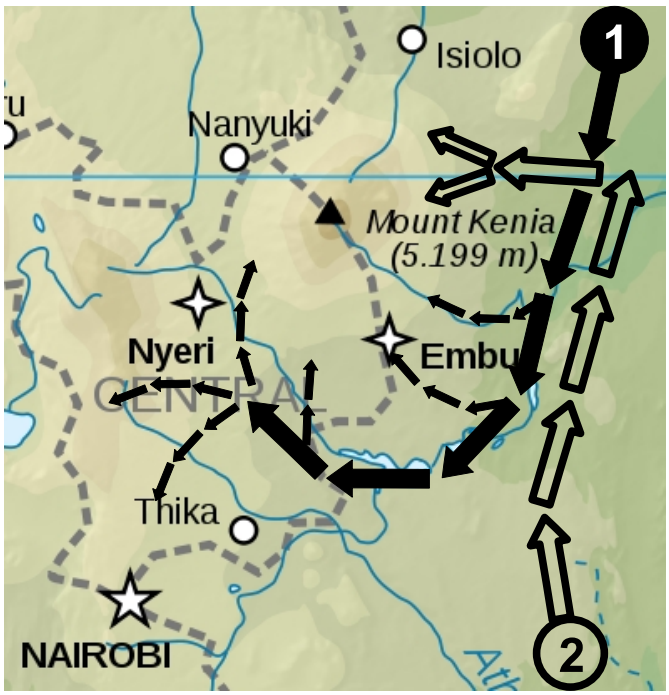
4. Conclusions

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

- **SCENARIO 1: Dialectal Proximity and Migration History**
  - Nurse (1979, 1999) claims common origin for all languages of CKB (divergent picture)
  - The oral traditions of the region paint a convergent picture and speak of at least three major migration routes taken by early Bantu pioneers (starting around 1500 AD).
  - In contrast to Nurse's hypothesis, the phonological results in this study seem to confirm the view presented by the oral traditions.



Map 1: The three major migration routes into CK



Map 2: Pre-Gikuyu (1) and Pre-Meru (2) migration within the Kenyan Highlands (ca. 1500-1900 AD)

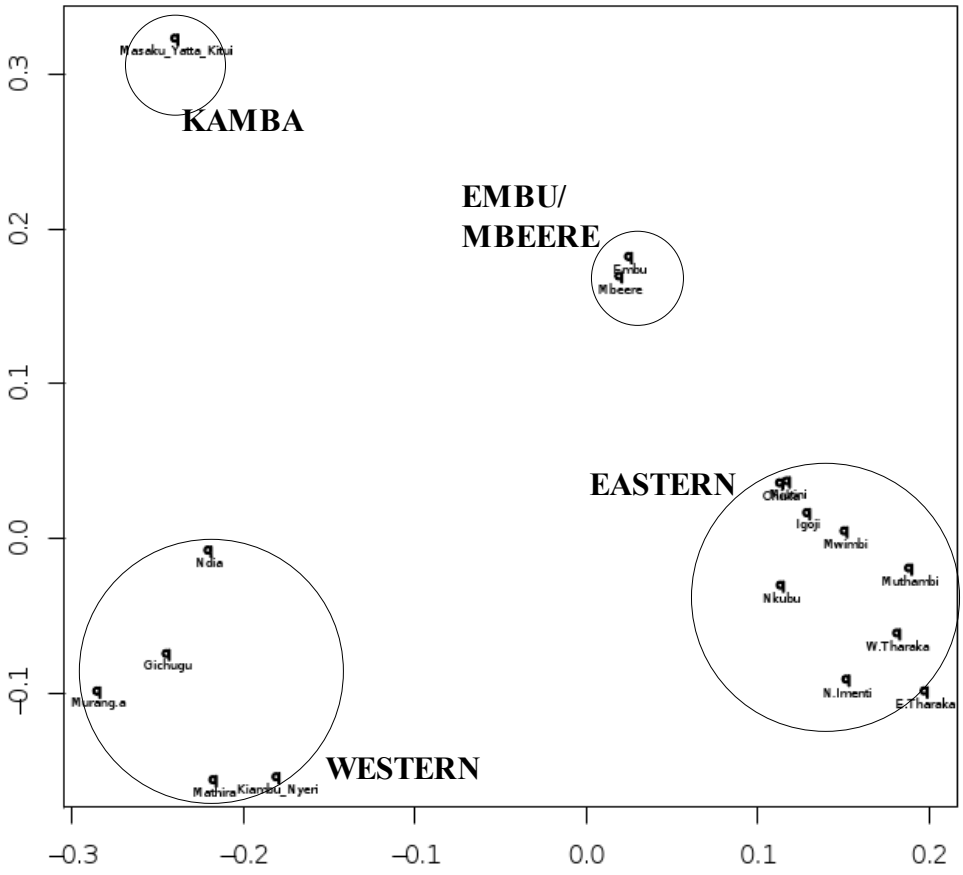


Diagram: Phonological Distances within CKB

Phono-Cluster	Location	Myth of Origin	Linguistic Example
WESTERN	West of Rubingazi River	Descendends of the pre-Gikuyu at Mukurue wa Gathanga (between Nyeri and Murang'a), cf. Muriuki 1974	Unique in regard to $*R_1$, $*J_1$, $*NC_2$
EASTERN	North of Thuci River	Desdendends of the pre-Meru (aka 'Ngaa'), cf. Fadiman 1973	Unique in regard to $*R_1$ and a number of phonological rules
EMBU/MBEERE	Between Rubingazi and Thuci	multi-regional origins, cf. Mwaniki 1974	Unique in regard to $*P_1$, *MB/_/i/
KAMBA	East of Tana River	Contradictory accounts	Unique in regard to the lenition of *R and *G as well as [-Dahl's Law], cf. Coastal Bantu

Table 17: The four areas of low phonological variation explained

- **SCENARIO 2: Swahili contact**

  Example 13 above shows that Swahili loans may be divided into three types:

  - Type B (11 items) seems to be the **oldest kind** of Swahili loans, e.g.

378 money	Sw. *pesa*	>	mbɛca	(Gikuyu)	$*C_2 \neq$ CB *c
Adaptation in all of CKB, possibly via Kamba		>	mbɛ:ca	(Chuka)	$*C_2 \neq$ CB *c
		>	mbɛʂa	(Kamba)	$*C_2 \neq$ CB *c

  - **Type C** (5 items) clearly shows **parallel borrowing** into Gikuyu vs. the rest of CKB, e.g.

379 cheap	Sw. *rahisi*	>	raiði	(Gikuyu)	$*C_1 <$ CB *c ↯!
Integration in Gikuyu, adaptation in the rest		>	raici	(Chuka)	$*C_2 \neq$ CB *c
		>	laiʂi	(Kamba)	$*C_2 \neq$ CB *c

  - **Type A** (4 items) seems to be the **most recent kind** of Swahili loans (colonial times), e.g.

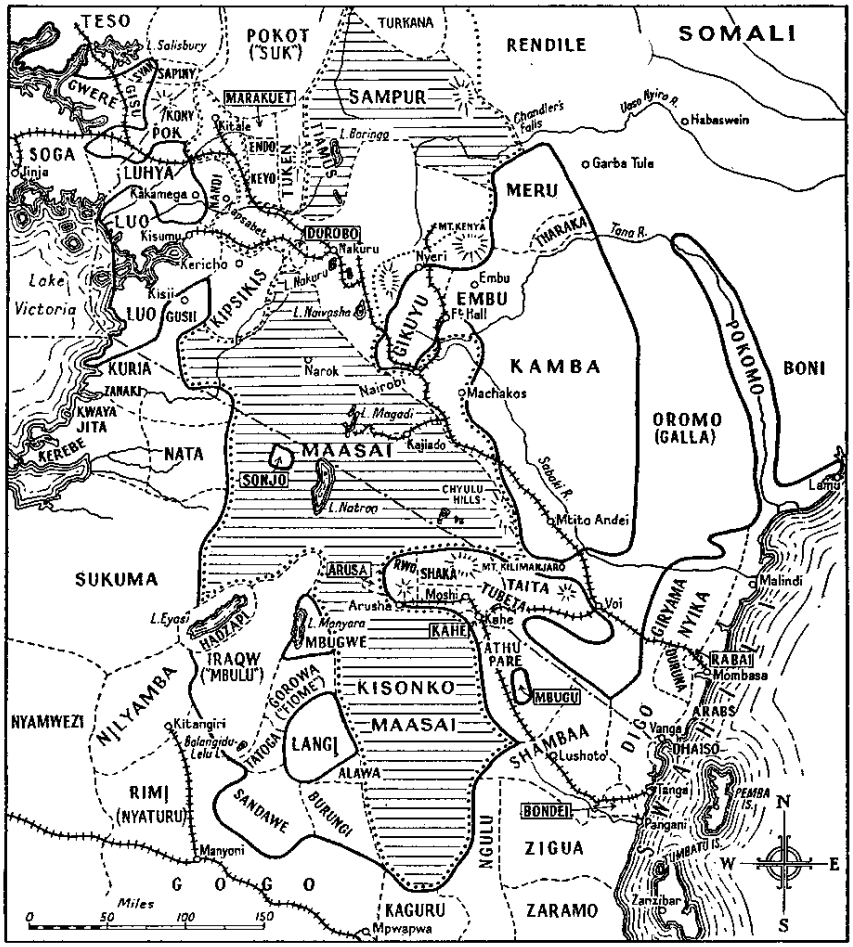
57 to learn	Sw. *-soma*	>	-ðɔ:ma	(Gikuyu)	$*C_1 <$ CB *c
Colonial terms spread around Mt. Kenya		>	-ðɔma	(Chuka)	$*C_1 <$ CB *c
		>	-ʂɔma	(Kamba)	$*C_2 \neq$ CB *c ↯!

  ➔ Colonial projects (e.g. Uganda Railway) gave rise to the Gikuyu area as a center of administration, business, and education in Central Kenya (eventually outstripping Ukambani).

- **SCENARIO 3: Maasai contact**

  Case 7 above showed that south of Thuci River no prenasalized voiceless plosives occur, i.e. the Western dialects, Embu/Mbeere, and Kamba show only /ng/.

  Hypothesis: The voicing of *NK in these varieties is due to Maasai substrate influence.



Map of Maasai Area

— Bantu border line

.... Historical boundaries of the Maasai

Shaded area occupied by Maasai today

Map 4: Maasai Language Area and its Historical Border (Tucker & Mpaayei 1955)

The Extra-Linguistic Background: Human Pawnship as a means of crisis control

Bovine plague in Maasai area > Desperate measures: women and children in exchange for food > Integration of Maasai immigrants into Bantu communities > the new arrivals shift from Maasai to Gikuyu, Embu/Mbeere, or Kamba (= classic substrate scenario).

References:

Aikhenvald, A. & R. Dixon 2001. Introduction. In: *Areal Diffusion and Genetic Inheritance. Problems in Comparative Linguistics*, ed. by A. Aikhenvald & R. Dixon. Oxford: Oxford University Press. 1-26.

Chomsky, N. & M. Halle 1968. *The Sound Patterns of English.* New York: Harper & Row.

Fadiman, J. 1973. Early History of the Meru of Mt Kenya. *Journal of African History*, 14(1): 9-27.

Guthrie, M. 1967-71. *Comparative Bantu: an introduction to the comparative linguistics and prehistory of the Bantu languages*. 4 vols. Farnborough: Gregg Press.

Hamann, S. 2015. Phonological Changes. In: *The Routledge Handbook of Historical Linguistics*, ed. by C. Bowern & B. Evans. New York: Routledge. 249-263.

Heine, B. 1980. The Non-Bantu Languages of Kenya. *Language and Dialect Atlas of Kenya* (Vol. 2), ed. by W. Möhlig & B. Heine. Berlin: Reimer.

Jakobson, R. et al. 1952. *Preliminaries to Speech Analysis. The Distinctive Features and their Correlates*. Technical Report, Acoustic Laboratory, Massachusetts Institute of Technology, 13.

Muriuki, G. 1974. *A History of the Kikuyu 1500-1900*. Nairobi: Oxford University Press.

Mwaniki, H. 1974. *Embu Historical Texts*. Kampala: East African Literature Bureau.

Möhlig, W. 1974. *Die Stellung der Bergdialekte im Osten des Mt. Kenya*. Berlin: Reimer.

Möhlig, W. & G. Guarisma. 1980. *La méthode dialectométrique appliquée aux langues africaines*. Berlin: Reimer.

Möhlig, W. & B. Heine. 1980. Geographical and Historical Introduction. *Language and Dialect Atlas of Kenya*, Vol. 1. Berlin: Reimer.

Nurse, D. 1979. *Classification of the Chaga Dialects*. Hamburg: Helmut Buske.

Nurse, D. 1999. Towards a Historical Classification of East African Bantu Languages. In: *Bantu Historical Linguistics*, ed. by J.-M. Hombert and L. Hyman. Standford: CLSI Publications. 1-41.

Sihler, A. 2000. *Language History. An Introduction*. Amsterdam: Benjamins.

Thomason, S. 2006. Rule Borrowing. In: *Encyclopedia of Languages & Linguistics*, Vol. 10, ed. by K. Brown. Amsterdam: Elsevier. 671-677.

Tucker, B. & J. Mpaayei 1955. *A Maasai Grammar.* London: Longman.