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
   - Phonology
     - Quantitative Dialectology
     - Qualitative Dialectology
   - Lexicon
     - Quantitative 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

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.:

<table>
<thead>
<tr>
<th>Dialect A : Dialect B</th>
<th>Dialect B : Dialect C</th>
<th>Dialect C : Dialect D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialect A : Dialect C</td>
<td>Dialect A : Dialect D</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>feature (x)</th>
<th>Dialect A</th>
<th>Dialect B</th>
<th>Dialect C</th>
<th>Dialect D</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th></th>
<th>Dialect A</th>
<th>Dialect B</th>
<th>Dialect C</th>
<th>Dialect D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialect A</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialect B</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialect C</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Dialect D</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

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

<table>
<thead>
<tr>
<th></th>
<th>Berlin</th>
<th>Frankfurt</th>
<th>Hamburg</th>
<th>Köln</th>
<th>München</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berlin</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frankfurt</td>
<td>548</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamburg</td>
<td>289</td>
<td>493</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Köln</td>
<td>576</td>
<td>195</td>
<td>427</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>München</td>
<td>586</td>
<td>392</td>
<td>776</td>
<td>577</td>
<td>0</td>
</tr>
</tbody>
</table>

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**:

<table>
<thead>
<tr>
<th></th>
<th>Western</th>
<th>Embu/ Mbeere</th>
<th>Chuka</th>
<th>Mwimbi- Muthambi</th>
<th>Igoji</th>
<th>Miutini</th>
<th>Imenti/ Nkubu</th>
<th>Tharaka</th>
<th>Kamba</th>
</tr>
</thead>
<tbody>
<tr>
<td>*MP</td>
<td>mb</td>
<td>mb</td>
<td>mb</td>
<td>mp</td>
<td>mp</td>
<td>mp</td>
<td>mp</td>
<td>mp</td>
<td>mb</td>
</tr>
<tr>
<td>'cat'</td>
<td>mbaka</td>
<td>mbaka</td>
<td>mpaka</td>
<td>mpaka</td>
<td>mpaka</td>
<td>mpaka</td>
<td>mpaka</td>
<td>mpaka</td>
<td>mbaka</td>
</tr>
<tr>
<td>'maize'</td>
<td>mbembe</td>
<td>mbembe</td>
<td>mpembe</td>
<td>mpempe</td>
<td>mpempe</td>
<td>mpempe</td>
<td>mpempe</td>
<td>mpempe</td>
<td>mbembe</td>
</tr>
</tbody>
</table>

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 

\[ [+/- \text{voice}] \]

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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Western</th>
<th>Embu/ Mbeere</th>
<th>Chuka</th>
<th>Mwimbi-Muthambi</th>
<th>Igoji</th>
<th>Miutini</th>
<th>Imenti/ Nkubu</th>
<th>Tharaka</th>
<th>Kamba</th>
</tr>
</thead>
<tbody>
<tr>
<td>voice</td>
<td>mb</td>
<td>mb</td>
<td>mb</td>
<td>mp</td>
<td>mp</td>
<td>mp</td>
<td>mp</td>
<td>mp</td>
<td>mb</td>
</tr>
</tbody>
</table>

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

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

The series *R/\v, ɛ, ɔ, /u/, in contrast, shows a three-way split in CKB:

(2) 019 throat CB *-mèdò C.S. 1295 > mu.mɛɾ (e.g. Gikuyu) tap
     mu.mɛɛ (e.g. Tharaka) flap
     mu.mɛɔ (Kamba) zero
113 husband CB *-dúmè C.S. 697 > mu.rume (e.g. Gikuyu) tap
     mu.rume (e.g. Tharaka) flap
     mu.rume (Kamba) zero

The series *P₁ shows yet another three-way split in CKB:

(3) 067 to vomit CB *-tápik- C.S. 1684 > -taɦika (e.g. Gikuyu, Tharaka)
     -tavɪka (Embu-Mbeere)
     -taβɪka (Kamba)
516 short CB *-kúpí C.S. 1274 > -kuɦi (e.g. Gikuyu, Tharaka)
     -kuvi (Embu-Mbeere)
     -kuβi (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 which this segment is lenited. In some cases, however, /r/ corresponds to Kamba /l/. This is due to external language change, i.e. borrowing (series *R₂):

(4) 082 to remain CB *-kàd- 'dwell' C.S. 974 > -i.kara (e.g. Gikuyu, Embu)  
    ↓ borrowed as -i.kala (Kamba)

148 to refuse CB *-déγ- 'avoid' C.S. 521 > -reγa (e.g. Gikuyu, Embu)  
    ↓ borrowed as -leγa (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 > -oγa all of CKB
    563 corpse CB *-bìγbà C.S. 145 > ki.imba all of CKB

If Kamba and the other varieties of CKB concur in the use of /β/, borrowing is the case (*P₂):

(6) 457 road Swahili barabara ➔ βalafala (Kamba)  
    ↓ borrowed as βarafara (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:

<table>
<thead>
<tr>
<th>Correspondence Series</th>
<th>realized as</th>
<th>Number of Attestations</th>
<th>Distribution of Attestations</th>
</tr>
</thead>
<tbody>
<tr>
<td>*R₁ (Regular) &lt; CB *d</td>
<td>r, ɽ, Ø</td>
<td>86 items (50 CB cognates)</td>
<td>mostly widespread</td>
</tr>
<tr>
<td>*R₂ (Irregular)</td>
<td>r, ɽ, l</td>
<td>37 items (12 CB cognates)</td>
<td>partially restricted</td>
</tr>
<tr>
<td>*P₁ (Regular) &lt; CB *p</td>
<td>fi, v, β</td>
<td>56 items (21 CB cognates)</td>
<td>widespread</td>
</tr>
<tr>
<td>*P₂ (Irregular)</td>
<td>β</td>
<td>20 items (5 CB cognates)</td>
<td>restricted</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Word Form</th>
<th>A₁</th>
<th>A₂</th>
<th>A₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>025 left hand</td>
<td>1. u:ma</td>
<td>A₁ (class 14)</td>
<td></td>
</tr>
<tr>
<td>150 to give</td>
<td>1. -nɛŋ.a</td>
<td>A₁ (no verbal extension)</td>
<td></td>
</tr>
<tr>
<td>015 mouth</td>
<td>1. ka.nua</td>
<td>A₁</td>
<td></td>
</tr>
<tr>
<td>068 to cough</td>
<td>1. -u:ma</td>
<td>A₁</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Word Form</th>
<th>A₁</th>
<th>A₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>015 mouth</td>
<td>1. ka.nua</td>
<td>A₁</td>
</tr>
<tr>
<td>068 to cough</td>
<td>1. -u:ma</td>
<td>A₁</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Word Form</th>
<th>A₁</th>
<th>A₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>138 language</td>
<td>1. ru:díəmi</td>
<td>A₁ (class 11)</td>
</tr>
<tr>
<td>136 to call</td>
<td>1. -r:t.a</td>
<td>A₁ (no verbal extension)</td>
</tr>
</tbody>
</table>

3. Full divergence (= 0 points), e.g. A:B
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-shūk borrowed as ➔ -cɔː:ka, -sɔː:ka
  -cɪɔ:ka
  -sʊɔːka
  -cɔːka, -sɔːka
  -sʊɔːkɛdya
  -sɪɔːka

---

Diagram 3: Lexical distances of CKB
Highly restricted distribution may indicate borrowing, e.g.

(8) 435 rain CB *-búdá C.S. 225 > mbura 7, 9, 11-44, 98-105
     mbua 45-97

Maasai ngai 'God' ➔ ngai 1-6, 8, 10

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

(9) 238 to pound -wraga 301 to kill, 361 to break
    -hura, -bua 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 loanwords

**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.
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 -ọna < CB *-bón- C.S. 164
591 red all of CKB -tone < Common CKB

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

(12) 548 smell 6 / 5 forms < *-nünk- C.S. 1386 / *-nŭk- C.S. 1380
549 to stink 4 / 1 forms < *-nünk- C.S. 1386 / *-nŭk- C.S. 1380
554 to hear 4 forms < *-yĩgu- C.S. 2043
557 to touch 1 form < *-kúát- C.S. 1172
590 black 3 forms < *-yídũ C.S. 2037
594 sweetness 2 forms < *-dio C.S. 554
596 coldness 5 forms < *-pé pó C.S. 1492

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

(13a) 590 black CB *-yídũ C.S. 2037 > -iru Mwimbi and Imenti
(13b) 554 to hear CB *-yíg- C.S. 2043 > -i:gwa Imenti
      > -i:gwa Mwimbi

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

(14) 555 noise Swahili kelele ➔ kelele Kamba
      unknown donor ➔ kle.lɔnzɔ Kamba

558 to taste Maasai à-ìshám ➔ -cama, -sama all of CKB except for
      ➔ -cem a 'North Meru'

592 white unknown donor ➔ -e(ř)u all of CKB except for
      ➔ -eru Igoji, Mwimbi, Muthambi
      ➔ -ceru Embu, Mbeere
      ➔ -yeru Tharaka

594 sweet Sw. sukari ➔ dukari 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 \(-(r)\text{uma}\) < CB *-dùm- C.S. 696
315 buffalo \(mbɔ(g)ɔ\) < CB *-bògó C.S. 157
316 elephant \(njɔgu / nzɔu\) < CB *-jògù C.S. 951
335 bee \(njʊkə / nzʊkə\) < CB *-jʊkì C.S. 962
338 house fly \(ngɪ\) < CB *-gi C.S. 819
346 guinea fowl \(nkànga / ngànga\) < CB *-kánγá 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 *-dùmè C.S. 697 only in Nyeri
291 cat CB *-pákà 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 \(ndɛːgwa, ndɛ\) 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) 288 pig CB *-gùdùbè C.S. 888 > ngùrue
     borrowed as \(- buoyka\)
     \(- buvoyka\)
     \(- buyoka\)

345 to fly CB *-bùdùk- p.s. 43 > ?
    \(- buoyka\)
    \(- buvoyka\)
    \(- buyoka\)

Embu, Mbeere:
    \(- guyoka\) \(\Rightarrow\) \(- ulōka\)
Internal borrowing **uphill** is attested by the following item:

(20) 321 lion *munjambu* (Kamba) $\rightarrow$ *munjambu* (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. pund**a $\rightarrow$ *mbunda* Chuka, Embu, Mbeere, Ndia

Gikuyu, Gichugu

317 giraffe **Sw. twiga** $\rightarrow$ *ntwi:ga* Chuka

Embu, Mbeere

Kiambu, Mathira, Gichugu

321 lion **Sw. simba** $\rightarrow$ *cimba* Chuka, Embu, Mbeere, Nyeri

Murang’a, Ndia, Gichugu

326 fish **Sw. samaki** $\rightarrow$ (n)d*amaki* Embu, Mbeere, Gikuyu

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

(22a) 285 donkey o-síkírìà $\rightarrow$ *ntigiri*

328 crocodile ol-*kinyaŋ* $\rightarrow$ *ki.ŋa:ŋi, ki.ŋaŋi*

331 lizard o-*loiruri* $\rightarrow$ *mu.uru.ru*

(22b) 317 giraffe $\rightarrow$ *njiraβu*

329 python $\rightarrow$ *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.

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  
-ɪya  
Kamba, Gikuyu  
163 to beat -hʊːra, -βʊa  
e.g. Imenti, Embu, Gikuyu, Kamba  
-kʊna  
Kamba  
164 to hit -rɪŋa  
e.g. Imenti, Tharaka, Gikuyu  
-kʊna  
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 -aːdeka (Imenti)  
scattered along the eastern slopes  
-ɪtɪkɪria (Miutini)  
-aðɪka (Gikuyu)  
-ɪtɪkia (Embu, Mbeere)  
-aðɪka (Kamba)  
148 ro refuse -rɛga (Gikuyu)  
-лёa (Kamba)  
160 quarrel ngarari (Embu)  
ngalali (Kamba)  
161 to quarrel -kararanja (Embu)  
-kalalaja, -kalalja (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)
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 *-kúm- C.S. 1262 > -uma 1-44c, 103-105
     -uma  45-97, 99
     -üma  101, 102

136 to call CB *-yít- C.S. 2017 > -íta 13, 16-24, 26, 30, 31, 35-39, 40-44
     -ítana 1-12, 14, 15, 25, 27, 28, 29, 32-34, 40-44
     -íta  45-101, 103-105
     -ítana 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, however, Kamba is the only variety that shows no weakening:

(28) 022 arm CB *-bókò C.S. 158 > gu.ako Gikuyu
     ku.ako Kamba

244 mat CB *-kéká p.s. 290 > mu.geka all of CKB except for
     mu.kéka 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:

<table>
<thead>
<tr>
<th>Series</th>
<th>Gikuyu</th>
<th>Kamba</th>
<th>Embu</th>
<th>Miutini</th>
<th>Tharaka</th>
</tr>
</thead>
<tbody>
<tr>
<td>*R₁_/a, e, ɔ, u/</td>
<td>r</td>
<td>Ø</td>
<td>l</td>
<td>l</td>
<td>l</td>
</tr>
<tr>
<td>*R₁_/u/</td>
<td>r</td>
<td>Ø</td>
<td>l</td>
<td>l</td>
<td>l</td>
</tr>
<tr>
<td>*R₁_/i/</td>
<td>r</td>
<td>Ø</td>
<td>l</td>
<td>l</td>
<td>l</td>
</tr>
<tr>
<td>*G₁_/a, e, i, ɔ, u/</td>
<td>Y</td>
<td>Ø</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>*G₁_/u/</td>
<td>Y</td>
<td>Ø</td>
<td>Y</td>
<td>Y</td>
<td>g</td>
</tr>
<tr>
<td>*G₁_/i/</td>
<td>Y</td>
<td>Ø</td>
<td>g</td>
<td>g</td>
<td>g</td>
</tr>
</tbody>
</table>

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  \textit{mv.ðena} all of CKB ≠ CB *-tùkù C.S. 1864

(29b) 211 to kindle \textit{-ɦuɦa} Chuka, Kiambu, Nyeri ≠ CB *-gùbà 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 \textit{ru.ðingɔ} all of CKB except for Kamba

298 to shoot \textit{-ðaða} all of CKB

16
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).

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 → -cɔ:ka Tharaka
      200 window Swahili dirisha → ndirica Meru

(31b) 175 lawsuit Swahili mashtaka → u.sitaka 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 → ðuruarï Gikuyu
     → curua:ri Meru
     → suluali 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 → -ðɔ:ma (Gikuyu) → -ðɔ:ma (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 kɔfi → CB *-kóópì 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.
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 oath⁴, 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 stops⁵, e.g.:

<table>
<thead>
<tr>
<th>Series</th>
<th>Gikuyu</th>
<th>Embu-Mbeere</th>
<th>Kamba</th>
<th>versus e.g.</th>
<th>Chuka</th>
</tr>
</thead>
<tbody>
<tr>
<td>*MP</td>
<td>mb</td>
<td>mb</td>
<td>mb</td>
<td></td>
<td>mp</td>
</tr>
<tr>
<td>*NT</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td></td>
<td>nt</td>
</tr>
<tr>
<td>*NK</td>
<td>ng</td>
<td>ng</td>
<td>ng</td>
<td></td>
<td>nt</td>
</tr>
</tbody>
</table>

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 children⁶ 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 *ki.kɔyɔ* (cf. Watuma 2008: 22)
     321 lion *mu.pambu* (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 Mungiki 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.
References


