Max Planck Institute for Evolutionary Anthropology/Linguistics
"Speaking (of) Khoisan"
A symposium reviewing African prehistory

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Southern Africa as a phonological area

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1. Introduction

Phonological similarities

**Naro** [nhr] (Khoe-Kwadi; Botswana, Namibia; Visser in Vossen 2013: 60ff. and others)

### Consonants

<table>
<thead>
<tr>
<th></th>
<th>bilab</th>
<th>alv</th>
<th>alv affr</th>
<th>pal</th>
<th>vel</th>
<th>velar/uv affr</th>
<th>glott</th>
<th>dent</th>
<th>ingr al-lat</th>
</tr>
</thead>
<tbody>
<tr>
<td>stop, vls.</td>
<td>(p)</td>
<td>t</td>
<td>ts</td>
<td>k</td>
<td>kx</td>
<td>kg</td>
<td>?’</td>
<td>c</td>
<td>! q</td>
</tr>
<tr>
<td>stop, aspir.</td>
<td>(pʰ)</td>
<td>tʰ</td>
<td>th</td>
<td>tsʰ</td>
<td>tsh</td>
<td>kʰ</td>
<td>kh</td>
<td>h ch</td>
<td>! h qh</td>
</tr>
<tr>
<td>stop, vd.</td>
<td>b</td>
<td>~w d</td>
<td>~rdz</td>
<td>g</td>
<td>gh</td>
<td></td>
<td>[↓ dc</td>
<td>↓ dq</td>
<td>‡ dtc</td>
</tr>
<tr>
<td>stop, ejective</td>
<td>t’</td>
<td>ts’</td>
<td></td>
<td>kx’</td>
<td>kg’</td>
<td></td>
<td>![’ c’</td>
<td>![’ q’</td>
<td>![’ tc’</td>
</tr>
<tr>
<td>nasal, voiced</td>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[nc</td>
<td>![ nq</td>
<td>![ ntc</td>
</tr>
<tr>
<td>fricative, vls.</td>
<td>(f)</td>
<td>s</td>
<td>x</td>
<td>g</td>
<td></td>
<td></td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lateral approx.</td>
<td>(l)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>trill, voiced</td>
<td>[r]</td>
<td>r</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>approximant</td>
<td>[w]</td>
<td>j</td>
<td>y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- large consonantal inventory (45 c.)
- clicks
- aspirated and ejective stops
- dorsal affricate
1. Introduction

Phonological similarities

**Zulu [zul]** (Bantu S.42, Nguni/Zunda; South Africa; Taljaard & Bosch 1988, and others)

<table>
<thead>
<tr>
<th></th>
<th>bilab</th>
<th>lab-dentalv</th>
<th>alv affr</th>
<th>alv later</th>
<th>p-alv (affr)pal</th>
<th>vel</th>
<th>vel/uv affr</th>
<th>glott</th>
<th>ingr dent</th>
<th>ingr pal</th>
<th>ingr al-lat</th>
</tr>
</thead>
<tbody>
<tr>
<td>stop, vls.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>stop, aspir.</td>
<td>$p^h$ $ph$</td>
<td>$t^h$ $th$</td>
<td></td>
<td></td>
<td></td>
<td>$k$</td>
<td>$k$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stop, breathy</td>
<td>$b^h$ $bh$</td>
<td>$d$ $d$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stop, ejective</td>
<td>$p'$ $p$</td>
<td>$t'$ $t$</td>
<td>$ts'$ $ts(kl')$</td>
<td>$kl't'$</td>
<td>$tsh$</td>
<td>$k'$ $k$</td>
<td>$kx'$ $kl$</td>
<td>$c'$</td>
<td>$q'$</td>
<td>$x'$</td>
<td></td>
</tr>
<tr>
<td>stop, vd. impl.</td>
<td>$b$</td>
<td>$b$</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>nasal, voiced</td>
<td>$m$</td>
<td>$m$</td>
<td></td>
<td></td>
<td></td>
<td>$n$</td>
<td>$n$</td>
<td>$n$</td>
<td>$ng$</td>
<td>$c$</td>
<td>$n$</td>
</tr>
<tr>
<td>nasal, other</td>
<td>($m$)</td>
<td>($m$)</td>
<td>($n$)</td>
<td>($n$)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>fricative, vls.</td>
<td>$f$</td>
<td>$f$</td>
<td>$s$</td>
<td></td>
<td>$hl$</td>
<td>$sh$</td>
<td>$h$</td>
<td>$h$</td>
<td>$h$</td>
<td>$h$</td>
<td>$h$</td>
</tr>
<tr>
<td>fricative, vd.</td>
<td>$f$</td>
<td>$v$</td>
<td>$z$</td>
<td>$z$</td>
<td>$\delta$</td>
<td>$dl$</td>
<td>$h$</td>
<td>$h$</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>lateral approx.</td>
<td>$l$</td>
<td>$l$</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>lateral, other</td>
<td>($l$)</td>
<td>($l$)</td>
<td></td>
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<td></td>
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<tr>
<td>approximant</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$j$</td>
<td>$y$</td>
<td>$w$</td>
<td>$w$</td>
<td></td>
</tr>
<tr>
<td>approx., other</td>
<td>($j$)</td>
<td>($y$)</td>
<td>($w$)</td>
<td>($w$)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- large consonantal inventory (50 c.)
- clicks
- aspirated, slack voiced, ejective and implosive stops
- (dorsal affricate)
- lateral obstruents
1. Introduction

Phonological similarities

**Tsonga ~Changana, Thonga** [ts] (Bantu S.53, RSA, Mocambique; Baumbach 1987: 3-20 and others)

### Consonants

<table>
<thead>
<tr>
<th></th>
<th>bilab</th>
<th>lab-dent</th>
<th>alv</th>
<th>alv affr</th>
<th>alv later</th>
<th>p-alv (affr)</th>
<th>vel</th>
<th>glott</th>
<th>ingr dent</th>
<th>other (+ secondary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>stop, vls.</td>
<td>p</td>
<td>pf</td>
<td>pf</td>
<td>t</td>
<td>ts</td>
<td>tl</td>
<td>tl</td>
<td>tf</td>
<td>c</td>
<td>k</td>
</tr>
<tr>
<td>stop, aspir.</td>
<td>p&lt;sup&gt;ʰ&lt;/sup&gt;</td>
<td>ph</td>
<td>pf&lt;sup&gt;ʰ&lt;/sup&gt;</td>
<td>t&lt;sup&gt;ʰ&lt;/sup&gt;</td>
<td>th</td>
<td>ts&lt;sup&gt;ʰ&lt;/sup&gt;</td>
<td>tsh</td>
<td>th&lt;sup&gt;ʰ&lt;/sup&gt;</td>
<td>t&lt;sup&gt;ʰ&lt;/sup&gt;ch</td>
<td>k&lt;sup&gt;ʰ&lt;/sup&gt;kh</td>
</tr>
<tr>
<td>stop, vd.</td>
<td>b</td>
<td>bv</td>
<td>bv</td>
<td>d</td>
<td>dz</td>
<td>dl</td>
<td>dl</td>
<td>dʒ</td>
<td>j</td>
<td>g</td>
</tr>
<tr>
<td>stop, breathy*</td>
<td>b&lt;sup&gt;ᵢ&lt;/sup&gt;</td>
<td>bh</td>
<td>bv&lt;sup&gt;ʰ&lt;/sup&gt;</td>
<td>bv&lt;sup&gt;ʰ&lt;/sup&gt;d</td>
<td>dh</td>
<td>dz&lt;sup&gt;ʰ&lt;/sup&gt;dzhd</td>
<td>dhl</td>
<td>dz&lt;sup&gt;ʰ&lt;/sup&gt;j</td>
<td>g&lt;sup&gt;ʰ&lt;/sup&gt;gh</td>
<td>dz&lt;sup&gt;y&lt;/sup&gt;*</td>
</tr>
<tr>
<td>stop, vd. impl.</td>
<td>ɓ*&lt;sup&gt;ᵢ&lt;/sup&gt;</td>
<td>b'</td>
<td>d*&lt;sup&gt;ᵢ&lt;/sup&gt;</td>
<td>d'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nasal, voiced</td>
<td>m</td>
<td>[m]</td>
<td>n</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>nasal, other*</td>
<td>m</td>
<td>mh</td>
<td>n'h</td>
<td></td>
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<tr>
<td>fricative, vls.</td>
<td>φ*</td>
<td>ff</td>
<td>f</td>
<td></td>
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<tr>
<td>fricative, vd.</td>
<td>β~&lt;sup&gt;ᵢ&lt;/sup&gt;</td>
<td>vv</td>
<td>vh</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>fricative, other*</td>
<td>v</td>
<td>vh</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>lateral approx.</td>
<td>l</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>trill, voiced</td>
<td>r</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>intermittent, other*</td>
<td>r&lt;sup&gt;ʰ&lt;/sup&gt;</td>
<td>rh</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>approximant</td>
<td>w</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>approx., other*</td>
<td>w</td>
<td>wh</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*Uncertain.

- large consonantal inventory (68 c.)
- (clicks)
- aspirated, breathy and implosive stops
- lateral obstruents
1. Introduction

Example: Distribution of ejectives/glottalized consonants

Clements & Rialland (2008: 62)  
Maddieson (2013)
1. Introduction

Africa/South: Phonological characteristics
(Clements & Rialland 2008: 81)

- ejective stops \textit{very common}
- aspirated stops \textit{very common}
- clicks \textit{common}
- two series of high vowels \textit{infrequent}
- nasal vowels \textit{Khoisan: very common}
- 3+ tone levels \textit{Khoisan: infrequent}
- slack voiced stops \textit{Bantu: common}
- implosives \textit{Bantu: infrequent}

Linguistic features of the Kalahari Basin:
Phonetics-phonology (Güldemann & Fehn, in prep.)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Tuu</th>
<th>Kx’a</th>
<th>Khoe-Kw.</th>
<th>Nguni</th>
<th>Tswana</th>
</tr>
</thead>
<tbody>
<tr>
<td>- ejectives</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>(X)</td>
</tr>
<tr>
<td>- aspirates</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>- clicks</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>(X)</td>
</tr>
<tr>
<td>- nasalization</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>- register tone system</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>- uvular stops</td>
<td>X/--</td>
<td>X/--</td>
<td>X/--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>- obstruent-obstruent clusters</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>- pharyngealization</td>
<td>X</td>
<td>X</td>
<td>X/--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>- specific lexical root phonotactics</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

\((X = \text{frequent}, \ -- = \text{absent}; \text{list includes non-phonological features not given here})\)
1. Introduction

Problems

- data basis of previous studies, e.g.: ejectives in all languages of South Africa and Botswana?

- conflicting conclusions:

  "A third zone, the South, is sharply delineated by the remaining features ....: ejective and aspirated stops, clicks, and slack voiced stops. To these features we could add their characteristic series of lateral affricates and fricatives. All these features are widely shared by Khoisan and Bantu languages in the region."

  Clements & Rialland (2008: 82)

  "... [S]ubstrate interference contributed repeatedly to creating linguistic similarities [in Nguni, Tswana, and Afrikaans] with Kalahari Basin languages (or at least maintaining existing ones) but has not been strong enough to make the newcomers "full" members of the area."

  Güldemann & Fehn (in prep.: 18; cf. also Güldemann 2010: 572f.)

(Note: Clements & Rialland (2008) refer to phonological areas, Güldemann & Fehn (in prep.) are concerned more generally with linguistic areas.)
1. Introduction

This study

- more systematic investigation of phonological features (phoneme inventories, syllable structure)
- Southern Africa vs. Kalahari Basin ("Khoisan") vs. Southeastern Bantu
- compared to other languages further north (subequatorial Africa)

- Are there sufficient features to treat Southern Africa as one clearly delineated area?
- Can we recognize neat subareas?
- Is it possible to compare their validity on quantitative data?
- Are there South African languages that are not part of the linguistic area? (Why?)
- Are there links to areas outside of the region?
1. Introduction

Linguistic and phonological areas

- phonological areas: linguistic areas claimed on the basis of phonological traits
- linguistic areas (Campbell 2006: 6)
  - several (marked) linguistic features
  - shared by two or more languages (unrelated, or from different subgroups of the family)
  - in a geographically contiguous area
  - < diffusion (borrowing)

Qualifications

- I agree: "linguistic areas are after-the-fact constructs based on the residue and accumulation of borrowed traits" (Campbell 2006:14)
- I do not fully agree:
  - "... [I]t would be more productive just to investigate the facts of linguistic diffusion without the concern for defining linguistic areas." (Campbell 2006:2)
  - "the whole notion of 'areal phenomena' is built on the convenient fiction that each language has a specific location in space, that no more than one language is spoken in each place, and that language contact takes place between adjacent languages. However, language contacts typically occur in densely [multilingual] populated places ..." (Dahl 2001, cited in Campbell 2006: 14)

Cf. also Heine & Leyew (2008: 16)
1. **Introduction**

"(South African) Khoisan" languages: 3 distinct families

**Khoe-Kwadi** (≈ "Central Khoisan")

- Kwadi†
- Khwe (Caprivi Khwe, ||Ani ...; Ts'ixa ?)
- Shua (Cara, Deti†, |Xaise, Danisi ...)
- Tshwa (Kua, ...)
- Naro
- Gǁana (Gǀui, Gǁana)

Namibian Standard Khoekhoe

(Nama-Damara, Haiǁom, †Aakhoe)

- !Ora-Xiri (†)
- Eini†
- Cape Khoekhoe†

**Kx’a** (≈ "Northern Khoisan")

- Ju (NW !Xun, Juǀhoan, ...)
- †Amkoe (Nǃaqriaxe, †Hoan, Sasi)

**Tuu** ("Southern Khoisan")

- Taa (West !Xoon, East !Xoon, ...)
- Lower Nossob† (|Haasi, †Auni)
- Nǁng (≈ Nǀuu, †Khomani, ...)
- |Xam† (Strandberg, Achterveld, ...)
- †Ungkue†
- †ǀXegwi†

Güldemann (2014: 7), modified
1. Introduction

No accepted genealogical classification of Bantu languages

The referential system by Guthrie (1967-71) (revised by Maho 2009)

- geographic zones: A - S
- local groupings, e.g. A10, S40
- individual languages, e.g.

  - Ewondo A.72
  - Bulu A.74
  - Fang A.75(1)
  - Lingala C.30b
  - Kinyarwanda D.61
  - Kirundi D.62
  - Luganda E.15
  - Gikuyu E.51
  - Kamba E.55
  - Sukuma F.21
  - Swahili G.42-43
  - Kikongo H.14-16
  - Kimbundu H.21
  - Chokwe K.11
  - Luba-Kasai L.31
  - Chichewa N.31
  - Tonga (Zambia) M.64
  - Makhuwa P.31
  - Umbundu R.11
  - Ovambo R.21-24
  - Herero R.31
  - Shona S.11-15
  - Tswana S.31
  - N. Sotho S.32
  - S. Sotho S.33
  - Xhosa S.41
  - Zulu S.42

Möhlig (1981: 81)
No accepted genealogical classification of Bantu languages

E.g.


Bantu
I. Tiv

VIII. Kongo Branch
1. Upper Kongo Group

8. East Highlands Group

u. Shona Subgroup [S10]
v. Rue [Sena, N.40?]
w. Venda [S20]
x. Tsonga Subgroup [S50]
y. Inhambane Subgroup [S60]
z. Sotho-Zulu Subgroup [S30 + S40]


Bantu
?A11-4, A20-30 less A31

... K10-30 less K31, L10-50-60, H21, R

... S10

S20-30-40-?S50-?S60, P30

cf. Hammarström et al. (2014)

Narrow Bantu
[1.] Ababuan

[6.] East Bantu
• Botatwe

• Shona [S10]
• Southern Bantu-Makua
  o Chopi [S60]
  o Nguni-Tsonga [S30 + S50]
  o Sotho-Makua-Venda
    – Sotho-Makua [S30 + P30]
    – Venda [S20]
1. Introduction

Bantu languages of Southern Africa (local, largely non-controversial genealogical groupings)

(Zone K)
K10: Ngangela, Chokwe, Luchazi, ...
K30: Kwangali, Manyo, Mbukushu, ...
K40: Fwe, Ikuhane (=Subiya), Totela

(Zone R)
R20 (Wambo): Kwanyama, Ndonga, ...
R30 (Herero): Central Herero, Mbanderu, ...
R40 Yeyi

(Zone S)
S10 (Shona): Standard Shona, Ndau, Kalanga, ...
S20 Venda
S30 + K20 (Sotho-Tswana): Tswana, Kgalagadi, Northern Sotho, Pai, Southern Sotho, Lozi
S40 (Nguni): Xhosa, Zulu, Swati, Phuthi, Transvaal Ndebele, Ndebele of Zimbabwe
?S50 (Tswa-Rhonga): Tswa, Tsonga (=Changana), Rhonga
?S60 (Copi): C(h)opi, Gitonga

1. Introduction

Other languages

**Indo-European**

*Germanic: Afrikaans*

Ignored:

- sign languages
- restructured urban varieties and contact languages
- other Indo-European languages

Notes:

- maps intended as abstraction of majority languages (plus selected minorities and extinct languages)
- Afrikaans also in Namibia (Khoekhoe/Afrikaans bilingualism)
2. Procedure

- data collection: extraction of phoneme inventories and syllable types from published sources
- language sample: 138 languages
  - aimed at maximal number of documented languages of Southern Africa (cf. above)
  - Sandawe & Hadza (Greenberg's "Khoisan": clicks)
  - 'Southern' Cushitic: Dahalo (clicks), Burunge, Iraqw
  - 3 – 6 languages of different groupings in the remaining Bantu zones (A – P)
  - exemplary languages for other subequatorial and adjacent lineages (Non-Bantu Bantoid [Niger-Kordofanian]; Gbayic, Bandic, Ngbandic, Mbaic, Baka-Mundu, Zandic [Niger-Kordofanian/"Ubangian"]; Lowland East Cushitic [Afroasiatic]; Western, Eastern and Southern Nilotic, Moru-Mangbetu, Kuliak ["Nilo-Saharan"])
  - each language: coding of 81 numerical or categorical phonological features, e.g. "number of consonants" (14 – 88) or "whistled obstruents" (0 absent, 1 present)
  - value plots for each feature (Hans-Jörg Bibiko, in "R")
  - visual inspection: assessment of areally distributed features and recurring areas (of similar distributions) > Kalahari Basin, Southeastern Bantu, and Southern Africa
  - for each language, counting how many features are shared with these areas, e.g. "How many of the 15 typical Kalahari features are found in language A, B, C ...?" > listing and histograms
- summary for language groups (cf. handout)
## 2. Procedure

### Phoneme inventories

- special arrangement of consonant charts: affricates and clicks parallel to place of articulation, following the "cluster analysis" of clicks (Nakagawa 2006); e.g. for Taa/West !Xoon below

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</tbody>
</table>
2. Procedure

Example

Presence (■) vs. absence (□) of non-open central vowels (e.g. ə, i, ø)

> areal distribution
> not very important for subequatorial Africa
3. Results: Kalahari Basin

Kalahari Basin
> 5 clicks
significant click inventories

Presence of clicks
☐ 0
☒ 1-5
◼ > 5
3. Results: Kalahari Basin

> 3 click types
more than three basic click types,
e.g. ⟨ʘ, |, ‡, ‖⟩

*Number of basic click types:*

0 - 5
3. Results: Kalahari Basin

/ejectives/
presence of ejective obstruents contrastive with plain series,
e.g. /k’/ : /k/

*Presence of ejective obstruents*
- □ no ejectives
- □ non-contrastive with plain stops
- ■ contrastive with plain stops
3. Results: Kalahari Basin

Vn
presence of nasalized vowels
e.g. /ã/ (;/a;/)

Presence of nasalized vowels
☐ 0
■ > 0
3. Results: Kalahari Basin

> 2 tones

presence of complex tone systems
including more than 2 tone levels,
e.g. high : mid : low

*Number of distinctive tone levels*
- [ ] non-tonal
- [ ] 2 tone levels
- [ ] > 2 tone levels
3. Results: Kalahari Basin

Kalahari Basin ("South African Khoisan"): 15 (13) typical features

- **>5 clicks**: significant inventory of clicks
- **>3 click types**: more than three basic click types, e.g. ⊙, [, `, ||
- **/ejectives/**: presence of ejective obstruents contrastive with plain series, e.g. /k'/ : /k/
- **Vn**: presence of nasalized vowels, e.g. /ã/ (:/a/)
- **>2 tones**: presence of complex tone systems including more than 2 tone levels, e.g. H : M : L
- **KK**: presence of dorsal (velar or uvular) affricates, e.g. k͡x, q͡χ', k͡χ'
- **uvulars**: presence of uvular obstruents, e.g. q, ɢ, χ, q͡χ'
- **TK onsets**: presence of coronal-dorsal syllable onsets (ignoring plain clicks), e.g t͡k, s+k, šs+x, ts'+χ
- no voiced frics: absence of voiced fricatives, e.g. /s/, /ʃ/, but */z/
- 1 sibilant: presence of one sibilant (place of articulation) only, e.g. /s/ but */ʃ/
- **R, no L**: presence of intermittents (taps, flaps, trills) and absence of lateral approximants
- **Vqh**: presence of non-modal or pharyngealized vowels, e.g. /aˁ/, /ḁ/, /a̤/
- **N coda**: exclusively nasals allowed in syllable codas (C(C)V(N) syllable structure)
- no NC: absence of nasal + obstruent syllable onsets, e.g. *NCV and *ŅCV
- no C+w: absence of obstruent + /w/ onset clusters
3. Results: Kalahari Basin

Kalahari Basin: Features by language
- ideal phonological area: clear boundaries (not fuzzy)
- all "Khoisan" languages show at least 10 out of 15 typical phonological features, no other language has more than 7 > bimodal distribution, discrete boundary

Histogram

"(South African) Khoisan" languages of the sample
"(South African) Khoisan" languages of the sample
### 3. Results: Kalahari Basin

#### Features by language group

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<th>&gt; 5 clicks</th>
<th>&gt; 3 click types</th>
<th>KX</th>
<th>uvulars</th>
<th>/ejectives/</th>
<th>TK onsets</th>
<th>N coda</th>
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</table>

0: wrong/no; < 0.26 infrequent, 0.26 - 0.74 common, > 0.74 very frequent; 1: true/yes

- Average of area: 1.00 0.96 0.93 0.67 0.96 0.92 1.00 1.00 0.75 0.69 0.70 0.62 0.33 0.72 0.79
- Average of languages outside: 0.15 0.00 0.09 0.09 0.23 0.09 0.00 0.16 0.11 0.14 0.16 0.37 0.37 0.24
- Difference: 0.85 0.96 0.79 0.58 0.73 0.82 1.00 0.84 0.64 0.55 0.55 0.47 0.46 0.35 0.55
Southeastern Bantu

> 2 affricated series

more than two series of affricates, e.g. \( t̃s, t̃ʃ, p̃f \) (:t, f)

Number of affricated series
paradigmatic to non-affricated stops in
at least one series (ts/dz :t, tʃ/dʒ :t,
pf/bv :p, kx, qχ, tɬ )

0 - 5
4. Results: Southeastern Bantu

TL

presence of lateral obstruents,

\text{e.g.} \ ťl, ťɬ, ɬ, ɮ

\textit{Number of obstruents with lateral airflow \((t, ť, tl, ɮ)\), (excluding lateral clicks, lateral approximants)}

- 0
- > 1

\text{e.g.}

\text{Dahalo (Cushitic)} /̣, \ ťl'/
\text{Iraqw (Cushitic)} /̣, \ ťl'/
\text{Sandawe (isolated)} /̣, \ ťl, \ ťl', \ ɬ̌/\n\text{Tswana (S31)} /\ ťl, \ ťl', \ ɬ̌/\n\text{N. Sotho (S32)} /̣, \ ťl, \ ťl'/\n\text{Chopi (S61)} /̣, \ ťl', \ ťl', \ ɬ̌/\n\text{Tsonga (S53)} /̣, \ ɮ, \ ťl, \ ťl', \ ɬ̌/\n\text{Xegwi (Tuu)} /̣, \ ɮ, \ kɬ̌, \ kɬ̌', \ kɬ'/\n\text{Zulu (S42)} /̣, \ ɮ, \ (kɬ')/
whistled obstruents (simple [non-velarized] labialized sibilants and affricates, e.g. \( s^v, z^v, ts^v \))

Shona (Zimbabwe): /z/ : /z^v/ : /ʒ/ (:/z+w/)
4. Results: Southeastern Bantu

whistled obstruents
presence of whistled fricatives and affricates, e.g. $s^v$, $z^v$, $\text{ts}^v$

Presence of whistled fricatives/affricates

- 0
- > 1
4. Results: Southeastern Bantu

ph:f
contrast between bilabial and labio-dental continuants,
e.g. /ɸ/:/f/, /m/:/ɱ/, /β̞/:/ʋ/
(excluding p:pf, mp:mf, etc.)

Presence of bilabial continuants contrastive with labio-dental counterparts

- 0
- > 0
implosives

presence of implosives, e.g. /ɓ/ or /b/ [ɓ]

**Presence of implosives**
- no observed implosives
- non-contrastive with voiced stops
- contrastive with voiced stops
4. Results: Southeastern Bantu

Slack voiced stops

slack voice: slightly increased glottal aperture and flow (less than for breathy voice), F0 depression

E.g. Xhosa: voiced implosive /ɓ/ vs. slack voiced /ɓ̤/ (Nguni: main acoustic cue is F0 depression)

\[
\begin{array}{c}
\text{'praise'} \\
[ \text{ɓ ɔ ŋ g a} ]
\end{array} \quad \begin{array}{c}
\text{'to bellow'} \\
[ \text{ɓ (,) ɔ ŋ g a} ]
\end{array}
\]

cf. Breathy voiced stops

breathy voice: more increased glottal aperture and flow, loose form of vibration of vocal folds

e.g. Taa/West !Xoon: voiced /b/ vs. breathy voiced /bʱ/

4. Results: Southeastern Bantu

BH, DH
presence of slack (or breathy) voiced stops,
e.g. /b̥/ or /bʱ/

Presence of breathy or slack voiced stops

- absent
- present

e.g.

NW !Xun (Kx'a) /dʒʰ : tʃ : tʃʰ : tʃ' : dʒ : dʒ'/
ǂ'Amkoe (Kx'a) /dzʰ : ts : tsʰ : ts' : dz : dz'/
Taa/W.!Xoon (Tuu) /gʱ : k : kʰ : k' : g : g'/

Xhosa (S41) /b : p' : pʰ : ɓ/
Swati (S43) /b : p' : pʰ : ɓ/
Tsonga (S53) /d̥ ~ dʱ? : t' : tʰ : d : ɗ/
Shona (S10) /b? : p: b? : ɓ/
Kalanga (S15) /pʱ : p: pʰ : b? /
4. Results: Southeastern Bantu

Southeastern Bantu: 16 (12) typical features

- **>2 affricated series**: more than two series of affricates, e.g. /ts/, /tʃ/, /kx/
- **TL**: presence of lateral obstruents, e.g. Ɂ, Ɂ, Ɂ, Ɂ
- **whistled obstruents**: presence of whistled fricatives and affricates, e.g. sv, zv, tsv
- **phːf**: contrast between bilabial and labio-dental continuants, e.g. /ʰːf/, /mːːŋ/, /ʰ/:/v/
- **implosives**: (phonetic) presence of implosives, e.g. /ɓ/ or /b/ [ɓ]
- **BH,DH**: presence of breathy or slack voiced stops, e.g. /bɦ/ or /bʱ/
- **plain stops ejected**: plain series of (voiceless) stops is ejective
- **> 2 sibilants**: presence of more than two sibilants (places of articulation), e.g. /s/: /ʃ/: /ɕ/
- **> 5 voiced frics**: presence of more than five voiced fricatives, e.g. /v/, /z/, /ʒ/, /zv/, /ɣ/, /ɦ/
- **PS**: presence of labial-coronal onsets, e.g. bz, ps, pʃ
- **dentːalv**: contrast between dental vs. alveolar stops, nasals or laterals, e.g. /t̪/:/t/ (more local?)
- **> 5 vowels**: presence of more than five distinctive vowel qualities, e.g. /i, e, ɛ, a, ɔ, o, u/
- **NC**: presence of nasal + obstruent syllable onsets, e.g. *NCV and *NCV
- **C+w**: presence of obstruent + /w/ onset clusters
- **no C coda**: absence of closed syllables
- **2 tones**: two distinctive tone levels, e.g. high vs. low
4. Results: Southeastern Bantu

Features by language (16 features, including 4 general Bantu features)

- weak phonological area: fuzzy boundaries, but slight bimodal distribution
- languages are not very homogenous (no language has all features, only three languages have more than 12: Tswa, Tsonga and Transvaal Ndebele)
- problem: one genealogical group (clade) cannot be excluded (but unlikely)
4. Results: Southeastern Bantu

Features by language (12 features, northern languages excluded)

- similar assessment, but
  - general Bantu features (NC, C+w, no coda, 2 tones) excluded
  - ignoring northern languages (Bantu A – E, Nilotic, "Ubangian", Nilotic, Cushitic, Sandawe & Hadza)
- > better results: most languages share no feature (0 or 1), languages in contiguous southeastern area share more than 3 features
4. Results: Southeastern Bantu

Features by language (16 features, all languages)

*Southeastern Bantu languages (Bantu S except Tswana, Kgalagadi and Ndebele of Zimbabwe)*
### 4. Results: Southeastern Bantu

#### Features by language group

<table>
<thead>
<tr>
<th>Group</th>
<th>&gt;2 affricated series</th>
<th>plain stops ejected</th>
<th>TI</th>
<th>whistled obstr.</th>
<th>phf</th>
<th>&gt;2 sibilants</th>
<th>&gt;5 vd_fries</th>
<th>pr,bs,psh</th>
<th>implosives</th>
<th>dentalv</th>
<th>BH,DH</th>
<th>&gt;5 vowels</th>
<th>NG onsets</th>
<th>C+ w clusters</th>
<th>no C code</th>
<th>2 tones</th>
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</table>

0: wrong/no; <0.26 infrequent, 0.26 - 0.74 common, >0.74 very frequent; 1: true/yes

| average of area | 0.76 | 0.72 | 0.62 | 0.50 | 0.46 | 0.38 | 0.36 | 0.38 | 0.33 | 0.55 | 0.25 | 0.39 | 0.22 | 0.09 | 1.00 | 1.00 | 1.00 |
| average of languages outside | 0.05 | 0.04 | 0.21 | 0.00 | 0.12 | 0.00 | 0.00 | 0.07 | 0.37 | 0.09 | 0.09 | 0.50 | 0.45 | 0.55 | 0.34 | 0.51 |
| difference | 0.71 | 0.68 | 0.41 | 0.50 | 0.35 | 0.36 | 0.36 | 0.31 | 0.16 | 0.16 | 0.30 | -0.27 | 0.44 | 0.45 | 0.66 | 0.49 |
Southern Africa
large C inventory
large consonantal inventory
(> 33 phonemic consonants)

Number of distinctive consonants
14 – 88

clicks: cf. above
> 5 plain stops
more than 5 places of articulation or configurations for plain series of stops,
e.g. /p, t, tʃ, k, q, |/

*Number of stops in the plain (usually voiceless or aspirated; sometimes ejected) series*

3 - 12
5. Results: Southern Africa

aspirated stops

presence of aspirated stops contrastive with plain series, e.g. /pʰ, tʰ/ vs. /p, t/

*Presence of aspirated stops*
- □ no
- ■ yes

Ejectives: cf. above
5. Results: Southern Africa

UV or KX
presence of uvular obstruents or dorsal affricates,
e.g. q, χ, kx, or qχ’

*Presence of uvular obstruents or dorsal affricates*

- 0
- > 0
5. Results: Southern Africa

dorsal fricatives
presence of velar or uvular fricatives,
e.g. χ, γ, χ, κ

*Presence of dorsal fricatives*
- ☐ absent
- ■ present
double obstruent onsets
presence of double obstruent onsets disregarding simple labial-velars (kp), clicks (ǀ) and whistled obstruents (tsv),
e.g. labial-coronal, labial-dorsal, or coronal-dorsal double articulations or clusters such as ps, bg, tf or ǀχ

Presence of double obstruent onsets
☐ 0
☐ analyzed as clusters (C1 + C2)
■ analyzed as units (C*C)
5. Results: Southern Africa

no C+y
absence of clusters C + /j/

*Presence of clusters C+/j/**
- absent
- present
Southern Africa: 10 typical features

- **large C inventory:** large consonantal inventory (> 33 phonemic consonants)
- **clicks:** presence of ingressive stops (clicks), e.g. /ǀ, ǃ̬ or ǁ̃
- **> 5 plain stops:** presence of more than 5 places of articulation (or configurations) in the plain series of stops, e.g. /p, t, tʃ, k, q, ǀ/
- **aspirated stops:** presence of aspirated stops contrastive with plain series, e.g. /pʰ, tʰ/ vs. /p, t/
- **ejectives:** presence of ejective obstruents, e.g. /p'/ (vs. /p/) or simply /p/ [p']
- **BH,DH:** presence of breathy or slack voiced stops, e.g. /bɦ/ or /b̤/
- **UV or KX:** presence of uvular obstruents or dorsal affricates, e.g. q, χ, kx, or qχ'
- **dorsal frics:** presence of dorsal fricatives, e.g. x, χ, γ
- **double obstruent onsets:** presence of double obstruent onsets disregarding simple labial-velars (kp), clicks (ǀ) and whistled obstruents (ts̩), e.g. labial-coronal, labial-dorsal, or coronal-dorsal double articulations or clusters such as ps, bg, tf or ǀχ
- **no C+y:** absence of obstruent + /j/ onset clusters

**other potential features (more local distributions or secondary?)**

- presence of voiceless, breathy or slack voiced nasals (cf. below)
- palatalization of dental/alveolar coronal series (t > c; cf. below); palatalization more generally?
- presence of palatalized units (C')
5. Results: Southern Africa

Features by language
- bimodal distribution, although no clearcut boundary
- most languages in the sample share no or few features
- languages of Southern Africa (including 'Southern' Cushitic, Sandawe and Hadza) share more than half of the features (5-10)
- "best languages" are Khoisan > clear relation to Kalahari Basin > "2nd layer"?!

Histogram

Languages of Southern Africa (Bantu S, Bantu R40, parts of Bantu K30, "Khoisan"), including 'South' Cushitic, Hadza and Sandawe; excluding Afrikaans, Bantu R10-30 and Gitonga

N of features out of 10 phonological features typical for languages of Southern Africa
5. Results: Southern Africa

Features by language
### 5. Results: Southern Africa

#### Features by language: Languages sharing 5 features and more

<table>
<thead>
<tr>
<th>Language</th>
<th>Features Shared</th>
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<tbody>
<tr>
<td>Bushman</td>
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## 5. Results: Southern Africa

Features by language group

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<thead>
<tr>
<th>Language Group</th>
<th>Large C inventory</th>
<th>Clicks</th>
<th>&gt; 5 plain stops</th>
<th>Aspirated stops</th>
<th>Ejectives</th>
<th>BH, DH</th>
<th>UV or KX</th>
<th>Double obstr. onset</th>
<th>Dorsal fric.</th>
<th>No C+y</th>
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<td>Ku'a (3)</td>
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<td>Tua (6)</td>
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<td>0.33</td>
<td>1</td>
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</tr>
</tbody>
</table>

0: wrong/no; < 0.26 infrequent, 0.26 - 0.74 common, > 0.74 very frequent; 1: true/yes

Average of area:
- 0.86 0.69 0.93 0.80 0.81 0.28 0.43 0.54 0.66 0.67

Average of languages outside:
- 0.13 0.01 0.18 0.01 0.19 0.00 0.06 0.13 0.41 0.60

Difference:
- 0.72 0.68 0.75 0.79 0.62 0.28 0.37 0.40 0.24 0.07

Page 54
6. Results: Local and dependent features

Features excluded above
Features of minor distribution and features strongly correlated to others
> more subareas within Southern Africa?

example: glottalized nasals
(Kalahari Basin, possibly Yeyi)

Presence of glottalized (incl. preglottalized, laryngealized) nasals contrastive with plain voiced nasals (including nasal clicks)

- absent
- present

e.g.
NW !Xun: /ʔm, ʔn, ʔ̃, ʔ̃̃ /
Yeyi: /ʔʔ̃, ʔ̃ʔ̃/ (cluster?)
Shua: /ʔɲ/?
ǂ’Amkoe: /ʔʘ, ʔ̃, ʔ̃̃, ʔ̃̃̃, ʔ̃̃̃̃/
Taa: /ʔm, ʔn, ʔʘ, ʔ̃, ʔ̃̃, ʔ̃̃̃, ʔ̃̃̃̃/

(cf. Hadza (ŋ̥)|ʔ, (ŋ̥)|ʔ, (ŋ̥)|ʔ "ejective stops")
6. Results: Local and dependent features

absence of /ŋ/
(Kalahari Basin)

Presence of the velar nasal
☐ absent
■ present

Velar nasal /ŋ/ absent in
- Khoekhoe (Khoe-Kwadi/Khoekhoe)
- !Ora (Khoe-Kwadi/Khoekhoe)
- Naro (Khoe-Kwadi/Kalahari Khoe/W)
- Gǀui (Khoe-Kwadi/Kalahari Khoe/W)
- Taa/East !Xoon (Tuu/Taa-Lower Nossob)

(cf. ‡’Amkoe: marginal (ŋ), Gerlach p.c.)
6. Results: Local and dependent features

retroflex consonants
presence of retroflex consonants, e.g. /ʈ, ɖ, ʂ, ɽ/ (Southeastern Bantu?)

*Presence of retroflex consonants*
- □ absent
- ■ present

e.g.
Fwe (K402): /ɽ/
Ikuhane incl. Subiya (K42): /ɽ/
N.Transvaal Ndebele (S408): /ndɽ, nd̥ɽ, nɽ/?/*
Pai (S303): /ʈʂ’, ʈʂʰ, ɖ, ɳɖʐ, (ʐ)/*
Rhonga (S54): /ʈ’, tʰ, ɖ, ɳ, ṭ/ *Prenasalized stops analyzed as units.*
6. Results: Local and dependent features

> 1 glottal fricative

presence of more than one glottal fricative,
e.g. /h/ : /ɦ/  
(Southeastern Bantu)

*Number of glottal fricatives*

0 - 2

Tonga (M64): /h, ɦ/
Ndebele of Zimbabwe (S44): /h, ɦ/
Yeyi (R40): /h, n̥h/
Tswana (S51): /h?, ɦ/
Gitonga (S62): /h, ɦʷ/
Swati (S43): /h, ɦ/
ǁXegwi (Tuu): /h, ɦ/
Zulu (S42): /h, ɦ/
Xhosa (S41): /h, ɦ/
6. Results: Local and dependent features

sound change \(/t/ \rightarrow /c/\) palatalization of dental/alveolar coronal series,
e.g. \(/t, t^h, d/ \rightarrow /c, c^h, j/\)
(Southern Africa)

**Sound change dental/alveolar to palatal**
- □ not observed
- ■ observed

Gǀui, Gǁana (\(c^h\u00e6\) vs. Naro \(t^h\u00e6\) "sore")
ǂAmkoe (Nǁaqriaxe \(c^\dagger\u00e6\) vs. Sasi \(t\'am\) "sew")
Kgalagadi (\(ch\u00e6\u00f1\) vs. Setswana \(th\u00f1\u00e6\) "caracal")
Nǁng (\(cuu-ke\) "men" vs. Taa \(t\u00e6\u00f1\) "people")
(S.Kua \(t\u00e6\u00f1\) vs. N.Kua \(t\u00e6\) "swallow")

cf. larger area of palatalization (Traill 1980: 174ff.), e.g. also Xhosa \(c(\dagger)c\u2019ala\) vs. Zulu \(t\u2019ala\) "plant" (additional palatal series in Xhosa)

6. Results: Local and dependent features

voiceless or breathy nasals
presence of voiceless, breathy or slack voiced nasals,
e.g. /ŋ, ɲ̃, η̃/ (Southern Africa)
- strongly correlated to presence of breathy/slack voiced stops?

Presence of nasals contrastive with plain voiced nasals (voiceless, breathy, slack voiced nasals; excluding glottalized nasals; including clicks)

- absent
- present

e.g.
Sukuma (F21) /mʰ, nʰ, ɲʰ, ηʰ/
Kwanyama (R21) /m̥, n̥, ɲ̥, η̃/
NW !Xun (Kx’a) /mʰ?, nʰ?/ (ʔh̃, ʔɭh̃, ʔɭh - clusters?)
Taa (Tuu) /ʃ̃, Ʒ̃, ʃ̃, ʃ̃/ (ʃ̃h, ... as clusters)
Shona (S11-15) /mʰ, nʰ, ɲ̃/
Tsonga (S53) /m̃, ñ, ɲ̃/ ("murmured")
Chopi (S61) /m̃, ñ, ɲ̃/
Zulu (S42) /(m, ɲ)/
6. Results: Local and dependent features

(cf. BH,DH)

presence of slack (or breathy) voiced stops,
e.g. /ʰ/ or /b̥/  

**Presence of breathy or slack voiced stops**

- □ absent
- ■ present
3 phonological areas

- **Kalahari Basin**: best

- Southern Africa: recognizable; Kalahari Basin languages with most complying features; several features related to features of Kalahari Basin (e.g. presence of clicks ~ large number of clicks)
  - If 'contiguous area' is not a criterion: Sandawe, Hadza, and South Cushitic included!

- Southeastern Bantu: weakest; strong genealogical component (shared innovations?) cannot be excluded
7. Results: MDS

Multidimensional scaling (MDS) and k-means clustering

- based on 59 (/81) features with areal distributions in subequatorial Africa
- including features NOT relevant for Southern Africa, e.g. labial-velar consonants (kp), non-sibilant dental fricatives (θ, δ), or bilabial rhotics (v, b)
- probably biased to Southern Africa, however:
  - several features related to clicks
    - presence of double-articulated consonants (incl. clicks, kp, pk, etc.)
    - presence of ingressive consonants (clicks)
    - number of click types (ʘ, , !, †, ‖)
  - only one feature related to implosives
    - presence of implosives
7. Results: MDS

MDS plot

+ Southern Africa p.a.  
-Southern Africa p.a.

+ Kalahari Basin p.a.  
-Kalahari Basin p.a.

-Southeastern Bantu p.a.

+ Southeastern Bantu p.a.
7. Results: MDS

k-means clustering (2)
7. Results: MDS

k-means clustering (3)

Subequatorial Africa
'Southern Africa'
Rest
Kalahari
'Southeastern Bantu'
'South-Basen'
7. Results: MDS

k-means clustering (4)

Subequatorial Africa

'Southern Africa'

Kalahari Basin

'Southeastern Bantu'

'Common Bantu'
7. Results: MDS

'Hand-made' analysis

Similar: MDS-based analysis
8. Summary

Conclusions

- 3 phonological areas: Kalahari Basin, Southeastern Bantu (?), Southern Africa
  - 'Southern Africa' related to the 'Kalahari Basin' (>Khoisan substrate as main factor?)
- Kalahari Basin ≈ ideal linguistic area (clear boundary/ definition)
  - but: only second to 'Southern Africa' in MDS and k-means clustering
- 'Southeastern Bantu' - weakest area, but recognizable
  - largely excluding Sotho-Tswana
  - multiple relations to East African languages?
- Southern Africa
  - Kalahari Basin + SE Bantu + Sotho-Tswana + Yeyi + Bantu K.30? (+East Africa)
  - primary phonological area within subequatorial Africa > Southern Bantu languages DO constitute one phonological area with Kalahari Basin (+partially E.Africa)
  - some Southern African languages outside the phonological area
    - Lozi (Sotho-Tswana language)
    - Herero, Wambo languages
    - Afrikaans
  - various relations to East African languages < multiple relations? (Sandawe - Khoe-Kwadi?, S.Bantu - E.Bantu, especially Shona - Rundi/Kinyarwanda and Gitonga - Mijikenda?)
  - > due to (?)
    - Khoisan substrate
    - increased network of relations
    - repeated historical relations to East Africa
### 9. Contact scenarios

Donohue (2013: 222): Typology of unbalanced contact scenarios

<table>
<thead>
<tr>
<th>Table 3. Results of different superimposition scenarios on local inhabitants</th>
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</thead>
<tbody>
<tr>
<td><strong>Sociopolitics</strong></td>
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<td>Intruder dominant</td>
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<tr>
<td>Intruder subordinate</td>
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</tbody>
</table>
9. Contact scenarios

Kalahari Basin (cf. Traill & Nakagawa 2000: 2-9)

- residual zone: high genetic density, deep language families, structural diversity, areal features, "relative equilibrium"
- small, mobile groups (similar cultures and technology)
- "... the population history of South Africa, ..., is one of expansions and contractions that are related to environmental conditions..." (:4, citing Deacon & Deacon 1998)
- no lingua franca, but local bilingualisms to bridge linguistic barriers
- > long-range stability of varying contact situations and bilingualism

- e.g. peripheral Gǀui group (near Okwa, Botswana): isolation and increasing contact with Taa > language shift of the entire group to Taa (Traill & Nakagawa 2000)
- e.g. trilingual speaker from Tswaane (ǂ’Amkoe, Taa, Gǀui)
- cf. probably 4 language shifts in Rappelspan-Bokspits/SW Botswana (Nǁng/Lower Nossob > Khoekhoe > Afrikaans > Tswana)
9. Contact scenarios

Xhosa and Nguni (Lanham 1964)

- Xhosa consonant inventory: made up of Proto-Nguni plus Khoekhoe (except for: 4 > 3 click types; simplification of clusters [click + dorsal affricate] > simple clicks)

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<td>B</td>
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<td>2. V’less stop</td>
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<td>t</td>
<td>ts</td>
<td>ty</td>
<td>ċk</td>
<td>kx</td>
</tr>
<tr>
<td>3. Voiced stop</td>
<td>b</td>
<td>d</td>
<td>dz*</td>
<td>dy</td>
<td>ġ</td>
<td>ġ</td>
</tr>
<tr>
<td>4. Aspirates</td>
<td>ph</td>
<td>th</td>
<td>tsh*</td>
<td>tyh</td>
<td>ċh</td>
<td>kh</td>
</tr>
<tr>
<td>5. V’less spirant</td>
<td>f</td>
<td>s</td>
<td>š</td>
<td>x</td>
<td>ġ</td>
<td>ġ</td>
</tr>
<tr>
<td>6. V’d spirant</td>
<td>v</td>
<td>z</td>
<td>ġ</td>
<td>ġ</td>
<td>ġ</td>
<td>ġ</td>
</tr>
<tr>
<td>7. Non-nasal res.</td>
<td>w</td>
<td>l</td>
<td>y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Nasal resonant</td>
<td>m</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Nasal aspir.</td>
<td>mh*</td>
<td>nh</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Correlation according to affrication indicated by ± −. * = low frequency.)

(not framed): consonants inherited from Proto-Nguni

(framed): consonants borrowed from Khoekhoe

Lanham (1964: 388)

Several important factors

- bidirectional **language shifts** Khoekhoe $\rightarrow$ Xhosa ("assimilation of Khoekhoe into Xhosa lineages and Xhosa into Khoe chiefdoms"), final incorporation of eastern Khoekhoe into the Xhosa kingdoms (early 1700s) (Traill 2002: 29)

- "**Bilingualism**, which opened the door to Khoisan linguistic influence, was nurtured in a different setting from that of Western culture. In the extended polygamous family of the Nguni there was not one, but several "families", each clustering around one of several wives. The father was an occasional visitor to these families and in the linguistically formative years of the child, the predominating influence was that of the [Khoekhoe or San] mother. Only later was the influence of the father and the extended family strongly felt. There was, therefore, an aspect of separation in time and place in acquiring the two languages ..." (Lanham 1964: 383)

- **hlonipha avoidance register** (Xhosa, Zulu, S.Sotho): women obliged to avoid names of husband and other male family members, and all syllables thereof $\rightarrow$ high rate of idiolectal manipulation of majority language (lexical replacement or substitution of sounds $\rightarrow$ often by clicks) (Herbert 2002)
Other cases

- Lozi (K20, Zambia)
  - original Sotho group (S.Sotho)
  - Mfecane (warfare, ca. 1815-1840): moving to the upper Zambezi
  - domination of local groups
  - > Sotho morphosyntax, but complete loss of South African phonological profile

- Ngoni (N12, Malawi):
  - Nguni group
  - Mfecane: moving north, incorporating people of diverse origins
  - influencing other groups (clicks > Tumbuka)
  - > linguistically completely absorbed, maintenance of distinct identity/ethnonym
  - (dominant language lost)

- Afrikaans, Wambo languages, Herero (R20, R30)
  - little phonological influence (outside the phonological area)
  - < latest newcomers
  - frequent discriminatory attitudes towards local groups (cf. (non-)adoption of children of mixed relationships, cf. 'Basters')?

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- Linda Gerlach (sharing unpublished data)
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Güldemann, Tom & Anne-Maria Fehn (eds.). in prep. *The Kalahari Basin area as a “Sprachbund” before the Bantu expansion - an update.*


References (sources mentioned in this talk)
References (sources mentioned in this talk)


Other areal features

- Presence of labial-velar consonants (e.g. kp, gb, ñm): □ absent, ■ present
- Presence of labial taps, flaps and trills (ⱱ, ʙ): □ absent, ■ present
Other areal features

presence of dental non-sibilant fricatives (e.g. θ, δ, nð, nθ): □ absent, ■ present

presence of N + C onsets analyzed as units (e.g. m̪b, mp, m̪f): □ absent, ■ present
Other areal features

presence of ATR vowel harmony:
☐ absent, ■ present

presence of length distinction in vowels (/V/ : /V:/):
☐ absent, ■ present