ON THE SO-CALLED REVERSIBLE TONAL SYSTEM OF CILUBA:
A CASE FOR RESTRUCTURING

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1. Introduction

In 1939 Burssens published a description of the tonal system of Ciluba, a Bantu language of Zone L. Earlier, Hulstaert had written two detailed studies on tonal phenomena in Mongó [1934; 1935] and a grammar of the same language [1938]. The almost simultaneous publication of both grammars in the same Kongó-Overzee Series stimulated the comparison of their respective tonal systems [Hulstaert 1941]. Ciluba, as well as Mongó, seemed to have a fixed system of two basic tonemes, high (H) and low (L). But, curiously enough, Ciluba showed H tonemes where Mongó had L tonemes, and vice versa. This appeared to be consistent for nouns with disyllabic stems, nominal prefixes (L in Mongó and H in Ciluba), and for the connective particle (H in Mongó except for classes 1 and 9, and L in Ciluba except for classes 1 and 9).

Since then, the tonal system of Mongó has been considered as the normal 'etymological' type. That is, a type with almost no differences between the surface tone and its deep representation, with the latter being labeled 'original Bantu'. The Ciluba system, in contrast to Mongó, was then described as a 'reversible' type. Most linguists continue to accept the fact that this is a very exceptional kind of tonal system. Nothing so far in print seems to suggest an explanation for the apparent reversal of the tonemes in Ciluba. It has been vaguely suggested that the cause for the Ciluba 'reversal' may be found in the fact that the Baluba like to reverse tones in their mourning songs [Meeussen and Van Caeneghem 1953].

In the present paper I wish to argue that the so-called reversible

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1This paper deals only with the theoretical aspects of the problem. Only a few examples are cited, and a monograph with a detailed tonal analysis of a body of sentences demonstrating the theory proposed here is now in preparation.
tonal system of Ciluba is the result of an ordered sequence of rules which are very common in Bantu languages. Further, I would like to demonstrate that the formulation of near-surface rules does not help discovering underlying tonemes in Ciluba, but serves only to describe the mechanism of stabilizing a once mobile tonal system.

To this effect I will also use data from some other Bantu languages of Zone L, such as Pende (L.11), Budya (L.20), Binji (L.22), Songe (L.23) and Kanyoka (L.32) as well as supplementary data from languages of other Zones: Tetela (C.71), Horohoro (D.28), Bangobango (LD.27), Shambaa (G.23) and Tonga (M.64). (All Zone numbers refer to Guthrie's [1948] classification.)

I will begin this paper by reexamining and discussing the data which have impelled G. Hulstaert, A. Burssens, A. E. Meeussen, A. Coupez and many others to accept the Ciluba tonal system as reversed in function of the MONGO system.

2. Comparison of the MONGO and Ciluba data

a. Monosyllabic stems. Since I regard sufficient syllabic length as a major condition for an adequate analysis of tonal patterns [Van Spaandonck 1967], nouns with monosyllabic stems cannot be considered as useful material.

(1) Mo. mbwá
    Lu. mbwá
    'dog'

b. Disyllabic stems. Nouns with disyllabic stems usually seem to demonstrate reversal of tonemes in Ciluba. MONGO patterns LHL and LLL for NP-CVCV (NP here means 'noun prefix') structures correspond mostly with Ciluba HLH and HHH.

(2) Mo. lóbáko
    Lu. dóbóko
    'arm, hand'

(3) Mo. nyama
    Lu. nyámá
    'animal, meat'
There are, however, some exceptions to the LHL pattern. They have been noted in the nouns for 'cattle', 'guinea-fowl', 'spear', 'hair', 'eye-brow', 'buffalo', 'shame', etc.\(^2\)

(4) \(\text{Mo. } b\text{\=ngi} \)
\(\text{Lu. } l\text{\=us\=uki} \)
'hair'

(5) \(\text{Mo. } l\text{\=ok\=k\=i} \)
\(\text{Lu. } d\text{\=f\=k\=k\=i} \)
'eye-brow'

For the M\=ongo patterns LLH and LHH (both of rather low frequency) there is no consistent reversing in C\=l\=uba. The data are very confusing. M\=ongo LLH may correspond with C\=l\=uba HHL, which means reversal, but also with HLH, HLL and HHH.

(6) \(\text{Mo. } f\text{af\=a} \)
\(\text{Lu. } t\text{\=a\=atu} \)
'father'

(7) \(\text{Mo. } j\text{\=o\=k\=e} \)
\(\text{Lu. } b\text{\=o\=ik\=i} \)
'honey'

(8) \(\text{Mo. } b\text{of\=a\=la} \)
\(\text{Lu. } m\text{upa\=ala} \)
'antelope'

(9) \(\text{Mo. } m\text{pu\=l\=u} \)
\(\text{Lu. } n\text{y\=a\=ny\=u} \)
'bird'

\(c. \) **Verbal stems.** As for verbal stems in the infinitive structures NP-CVCV and their extended forms (verbal and nominal) NP-CVCV(CV\(*\)), the comparison is made difficult by the tonal difference in the prefix:

\(^2\)It really is too easy to explain these exceptions as errors in tone-marking or in printing, or even to attribute them to the influence of some surrounding dialects.
134

ń- in Mọngọ and ků- in Cfuţba. If, therefore, one confines oneself to the comparison of the tonal patterns of the -CVCV stems, it becomes clear that the two possible patterns in Mọngọ, LL and HL, correspond mostly with Cfuţba HH and LH.

(10) Mo. -kėnda
    Lu. -ędndá
    'go'

(11) Mo. -tóma
    Lu. -tumá
    'send'

However, -VCV stems show some inconsistencies.

(12) Mo. -éta
    Lu. -f mó 'call by name'

Other stems have a different meaning:

(13) Mo. -amba
    Lu. -ámőba
    'accept, receive'
    'curse'
    'speak, say'

The derived (extended) verbal and nominal forms of these basic stems seem to fit into the reversive type:

(14) Mo. -kɛndɛlə
    Lu. -ɛndɛlá
    'go'  applicative

(15) Mo. -tómɛlə
    Lu. -tumfɛná
    'send'  applicative

(16) Mo. bokɛndo
    Lu. Ĭşɛndo
    'journey'

d. Affixes. Tonemes on verbal prefixes in Mọngọ differ according to
tenses, while in Cĩlũba they are L for the 3rd person (classes) and H for the 1st and 2nd person [Meeussen 1954a].

Object infixes are L in Mũngo and in Cĩlũba L too, except for the 2nd pers. sing. and the 3rd pers. sing. classes 1 and 3 [Meeussen 1960].

e. **Word groups.** Comparison of identical word groups demonstrates clearly that tonal patterns in Cĩlũba must be governed by other rules than simple reversal of tones.

(17) **Mo.** wĩla wĩ ngandó  
**Lu.** mũkĩla wa gándu  
'tail of a crocodile'

f. **Exceptions.** Hulstaert [1941] and Coupez [1954] noted a number of exceptions. Hulstaert suggested borrowing and Coupez mentioned influences from neighbouring languages as a possible explanation for these exceptions. But Hulstaert also drew attention to the fact that personal pronouns had exactly the same tonemes in both Mũngo and Cĩlũba. There was no explanation offered for this important exception.

Reexamining the data makes it clear that tone reversal in Cĩlũba is far from 'complete'. A few vocabulary items have created the impression of a reversive system.

3. **Phonological rules in tone systems of Bantu languages**

Elsewhere I have described in great detail three important tonological rules common in Bantu languages:

a. **Displacement.** Progressive displacement, or surface tone delayed by one, two or more syllables: H → 1, 2, ... H(H...)

(18) **So.** kuku'na butongo → kukuna bũtongo  
'to plant cotton'

b. **Repetition.** Progressive repetition or spreading of the surface tone (tone copy) on one or more syllables: H → HH(H...)

(19) **Sh.** mukal’ma mubabashi → mukal’ma múbâbâshi  
'a dumb hunter'

c. **Anticipation.** Regressive displacement or anticipation of the surface
tone on one or more of the preceding syllables: \( H \rightarrow (\ldots H)H\ldots 2,1 \)

(20) **To.** izína + ízína
    'name'

The rules (a) and (c) can be combined with (b).

4. **Tonology rules in Cítúba**

a. **Phonological reduction rule.** In his description of Cítúba, Burssens [1939] mentioned the use of a copular morpheme \( n- \) with a morphophonemic variant \( m- \) before labial stops.

(21) **Lu.** \( \tilde{n}-\text{nyoka} \)
    'they are snakes'

(22) **Lu.** \( m\text{-bántú} \)
    'they are people'

Other Bantu languages have \( n! \) (Swahili, Shambaa, etc.) so that Cítúba surface structure can be explained by a phonological reduction rule which seems to be essential for the analysis of the tone system:

\( n! \rightarrow n- \)

b. **Tonological progressive displacement rule.** Burssens [1939] established a rule of tonal contrast: \( n- \) has \( L \) tone when the following syllable is \( H \), and \( H \) tone when the following syllable is \( L \), cf. (21) and (22). However, we know that \( n! \) has a structural high toneme (cf. Shambaa [Roehl 1911]) which is represented in Cítúba on the morpheme (or syllable) itself when \( H \) tonemes in the deep level prevent the displacement. The surface representation of \( H \) is then delayed or shifted to one of the following syllables which have no deep \( H \) tonemes. Compare that with languages which have this characteristic phenomenon of tone-shift:

(23) **Bb.** \( n\text{-}b\text{á}ndu \rightarrow *n\text{-}b\text{á}ndu \rightarrow m\text{b}andú \)
    'they are people'

(24) **So.** \( n\text{-}k\text{á}d\text{j}lu \rightarrow *n\text{-}k\text{á}d\text{j}lu \rightarrow nk\text{á}d\text{j}lu \)
    'it is a fire'

It seems possible that \( mbúta \) 'it is a bow' in Cítúba may be the surface
structure of nf-butá because the displacement of the deep H toneme on nf may have caused the progressive displacement of the toneme on -tá (cf. Mo. botá).

c. Tonological progressive repetition rule. In Bantu languages with tonal repetition as a characteristic feature (Shambaa, Tetela, Shona, etc.) the representation of the H toneme of nf will take place accompanied by some echo-tonemes (spreading of tone) on one or more of the following syllables.

(25) Sh. nf muntu → [nf múntu]
   'it is a human being'

(26) nf muhuza → [nf múhuza]
   'it is a sin'

Applying the reduction, displacement and repetition rules one may obtain, for Cîlûba:

(27) Lu. nf-bantu → *n-bántu + mbántó
       'they are people'

The rules changing the deep tone into surface tone depend entirely on the tonological, phonological, and morphological environment. Forms without any underlying H tonemes will easily allow spreading of H echo-tonemes. Forms with underlying H tonemes will prevent eventually the displacement of a toneme [Van Spaandonck 1967]:

(28) Lu. nf-nyoka → *nf-nyoká + h-nyoká
       'it is a snake'

(29) Bb. nf-mbúzi → *nf-mbuzí + mbúzí
       'it is a goat'

d. Phonological deletion rule. Coupez [1955] has mentioned the deletion of the copular nf morpheme in some syntactical or even phonological environments in Horohoro.

(30) Hr. nf beétwé → *nf beétwé + beétwó
       'it is us'

It thus seems possible that múntú 'a human being' in Cîlûba is the
surface structure of: \( n( muntu \rightarrow *n-muntu \rightarrow *n-muntu \rightarrow *m-muntu \rightarrow [muntu]. \)

The deletion of \( n( \) explains the \( H \) toneme on the nominal prefixes, one of the remarkable characteristics of Luba. Comparing then disyllabic noun stems in this language with the same nouns in other languages from Zone L, such as Bangobango and Songe, one finds the same surface patterns after applying the deletion rule:

\[
(31) \text{'cheek'}
\]

\[
\begin{align*}
\text{Bb. } d\ddot{t}\dot{a}ma & \rightarrow d\ddot{t}ama \\
\text{So. } et\acute{a}ma & \rightarrow et\acute{a}ma \\
\text{Lu. } n( d\ddot{t}\dot{a}ma & \rightarrow *n-d\ddot{t}ama \rightarrow d\ddot{t}ama \\
\text{Mo. } l\ddot{t}\dot{a}ma & \rightarrow l\ddot{t}ama
\end{align*}
\]

e. Conclusion. Surface tonal patterns in Luba (the so-called rever­
sive system) can be analysed and explained using a phonological reduc­
tion and deletion rule and a tonological displacement and repetition
rule.

5. Tonological rules in languages geographically and linguistically
related to Luba (L.31.a.)

Most languages surrounding the Luba dialects are marked by tonal
phenomena transforming deep level tonemes into surface tones through
rules akin to those mentioned above. Songe (L.23) and Bangobango
(LD.27) have an ordered combination of displacement and repetition rules
working on all levels [Van Spaandonck 1967]. Binji (L.22), described
by Van Coillie [1948-49], has the same ordered combination of displace­
ment and repetition rules but restricted to a limited number of struc­
tures. Pende (L.11), Budya (L.20) and Kanyoka (L.32) [Stappers 1953;
1955; 1952], show a repetition rule in a limited number of structures.

Some languages geographically in the neighborhood of Zone L, but
linguistically belonging to other Zones, present also sufficient com­
plementary evidence for these same rules: Horohoro (D.28) [Coupez 1955],
with a combined displacement and repetition rule; Tetela (C.71) [Jacobs
1962-64], with a repetition rule only.

6. Stabilization

A language with characteristic displacement and/or repetition of
tonemes has a mobile system because the derivation of deep tone to surface tone depends entirely upon distribution possibilities.

(32a) Bb. ma'fma gashoo + *meemá gashoo + *meemá gáshoo + meema gáshoo
'little water'

(32b) ma'fma gádiba + *meemá gádiba + meemá gadíba
'much water'

A tonal phenomenon like repetition, if it occurs in all environments, may cause much confusion in surface patterns. In Tetela, clauses and sentences have become completely H, so that tonal contrast disappears and deep structure tonemes can no more be established through analysis of the surface patterns. Thus, a deep structure tonal context HLHL would be transformed in surface structure as HHHH. Most languages of this type have consequently developed restructuring devices in environments where tone repetition would obscure deep structure recognition.³

(33a) Tet. 16 nsèngè + 16 nsèngè
'in the millet'

(33b) 16 nkambá + 16 nkambá
'working'

Bantu languages which did not develop some kind of restructuring device show such complicated surface tonal patterns that their deep level tone remains a secret. Some of these languages are no more considered as tone languages.

Cîlúba has no restructuring devices, but seems to have stabilized the mobility of the surface tonal patterns, by employing several near-surface rules, see above.

The surrounding languages with a displacement rule operating near the surface level, have different tonal patterns for the same structure, predictable only by analysing the environment:

³Many other restructuring devices have been noted in several Bantu languages: limitation of the number of echo-tonemes, neutral syllables, localisation, downstep, etc.
(34a) So. muña muána + *muíná muána + *mwine múaná + mwine mwána
 'the same child'
(34b) na muána uósó + *na múaná uósó + na mwána wósó
 'and the child completely'
(34c) múngí muána + *múngí muáná + *múngí muáná + múngí mwána
 'the other child'

Cílúba, on the other hand, has stabilized tonal patterns at a certain level, so that the mobile system (created by the response of near-surface patterns to phonological and tonological environments) has been changed into a fixed system.

(35a) Lu. nf-muána mukúlu + *múaná múkulu + mwáná múkulu
 'the first born'
(35b) nf-búlaalu buá muána + *búlaalu bua múaná + búlaalu bwa mwáná
 'a bed for the child'

New rules for a fixed tonal system could thus be established. Compare the following:

(36a) 'send'
Mo. ṣótôma
Lu. nf-kútôma + kútôma
(36b) Derivational forms:
Mo. passive ṣótômaná
Lu. causative nf-kútômakaja + kútômaná
(37a) 'laugh'
Mo. ọséká
Lu. nf-kuseká + kúséká
(37b) Derivational forms:
Mo. reciprocal ọsékána
Lu. causative nf-kusekeshá + kúsékáshá

In both (36) and (37) deletion, displacement and repetition rules produce Cílúba surface patterns with a H tone on the final morpheme -a. It seemed then logical to formulate a rule stating that the final morpheme
in infinitives is always H and controls the neutral syllables belonging to the verbal extensions of the derivational stems (see [Meeussen 1961]).

7. **Summary**

The Ciluba tonal system is not a complete reversive system. Many questions about its ultimate nature are still wide open.

Tonology rules which have been established for many other Bantu languages in different Zones may work also in Ciluba, thus serving to erase the exceptionality of the system. Ciluba is completely surrounded by languages where these rules need to be formulated in order to describe the relation of deep and surface tone and find the deep tonal patterns.

At a certain level, the mobile near-surface tonal level in Ciluba has been stabilized; this explains in part why the rules are not immediately discoverable.

**REFERENCES**


List of Abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>*</td>
<td>indicates intermediate steps in the tonal derivation</td>
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<td>C</td>
<td>consonant</td>
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<td>H</td>
<td>high</td>
</tr>
<tr>
<td>L</td>
<td>low</td>
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<tr>
<td>NP</td>
<td>nominal prefix</td>
</tr>
<tr>
<td>V</td>
<td>vowel</td>
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<tr>
<td>Bb.</td>
<td>Bangobango</td>
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<tr>
<td>Hr.</td>
<td>Horohoro</td>
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<td>Lu.</td>
<td>Cfi'ba</td>
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<td>Mo.</td>
<td>M'ngo</td>
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<td>Shambaa</td>
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<td>Songe</td>
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<td>To.</td>
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GEOGRAPHICAL DISTRIBUTION OF THE LANGUAGES DISCUSSED

Fixed type: Móngo

So-called reversion type: Cildba

Repetition rule:
Budya, Pende, Kanyoka; Tetela

Ordered combination of displacement and repetition: Songe, Binji, Bangobango; Horohoro