

The Tone System of Geviya (Bantu B30/Gabon)

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Abstract

In this paper an updated version of the main lines of the tone system of this language will be presented within the framework of Nonlinear (Lexical) Phonology profitably enlarged by some aspects of Prosodic Domain Theory (cf. Hyman & Mathangwane 1998). The tone patterns observed in the language can probably best be accounted for by a set of lexical rules and constraints, followed by a set of postlexical rules and constraints. Some constraints occur at both levels but do not necessarily apply in the same manner. Particular attention will be paid here to the postlexical rules and constraints.

1. Introduction

Geviya is a nearly extinct Bantu language spoken in the central part of Gabon (opposite the town of Fougamou) and belongs to the southern subgroup of the B30 language group. Within Southern-B30, two basic types of tone systems can be distinguished: one characterized by the absence of tone spreading and another by the presence of such a tonal parameter. Geviya possesses the latter (Van der Veen 1992, 1999a, and forthcoming).

The inventory of surface tones is made up of two level tones (H and L) and two contour tones (falling and rising). The rising tone only occurs before pause as a variant of underlying H¹. The falling tone also has a very limited distribution: it can only be found in penultimate position, for words being underlyingly /LH/ (see below, section 2.3. example (17)). Downdrift occurs but will not be taken into account here.

From the phonological point of view, Geviya has basically four underlying tonal

melodies for the nouns (i.e. /H/, /L/, /HL/ and /LH/) and two for the verbs (i.e. /H/ and /L/). Two additional, far less common underlying melodies have to be mentioned with regard to (mostly) trisyllabic nouns: i.e. /HLH/ and /LHL/. Whereas in many Bantu languages H underlyingly contrasts with the absence of tone, the analysis of Geviya requires a basic three-way distinction between /H/, /L/ and the absence of tone. Absence of (underlying) tone characterizes a great number of grammatical morphemes such as noun prefixes, tense/aspect markers, and clitics.

The domain of these tonal melodies is the phonological word, not the syllable, as has been shown previously (Van der Veen 1992).

<u>Melody</u>	<u>NOUN</u>	<u>Gloss</u>
H	/mo-kwélé/ /tsósó/ /mo-βèyà/ /kòsò/ /mo- ʔéð/ /mw- ʔà/ /mo- ʔéndá/ /nzè ʔó/ /ŋgándó/	'widow' 'chicken' 'servant' 'parrot' 'woman' 'child' 'stranger' 'panther' 'crocodile'

(N.B. Noun prefixes are analyzed as tonally unspecified.)

<u>Melody</u>	<u>VERB</u>	<u>Gloss</u>
H	/-tóm-/	'(to) send'
L	/-pèk-/	'(to) seize'

2. Lexical rules and constraints

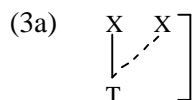
By means of the Universal Association Convention, the tone melodies associate to the Tone-bearing Units (TBU) on the segmental tier in a one-to-one fashion, from left to right, as shown in the examples (1) and (2).

¹ This phenomenon can be explained by the presence of an underlying H boundary tone.

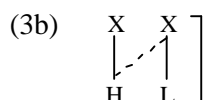
- (1) $\begin{bmatrix} \text{koso} \\ \text{L} \end{bmatrix}$ 'parrot' $\begin{bmatrix} \text{koso} \\ \vdots \\ \text{L} \end{bmatrix}$
- (2) $\begin{bmatrix} \text{nze} \text{ } \text{yo} \\ \text{L} \text{ } \text{H} \end{bmatrix}$ 'panther' $\begin{bmatrix} \text{nze} \text{ } \text{yo} \\ \vdots \\ \text{L} \text{ } \text{H} \end{bmatrix}$

The Obligatory Contour Principle very clearly plays a role at the lexical level: no adjacent identical tones are admitted in the lexical representation of morphemes.

Whenever after the initial association one or more TBUs remain without tone, the final tone (H or L) will spread to the right, so as to have all TBUs tonally specified (see constraint WFC_{min} hereafter). An underlying tone may thus be associated, as the result of initial linking and subsequent spreading, to more than one TBU (see 3a). Only vowels function as TBUs in Geviya.



Once all TBUs are tonally specified, any H-tone followed by a L-tone will spread to the right. This rightward spread only occurs within the domain of the noun or verb stem (see formalization in 3b). The L-tone will be delinked later on, at the postlexical level (see hereafter WFC_{max})². This implies that two tones will be associated to the final TBU of a disyllabic stem, and more generally explains why the H-tone does not spread across the stem boundary at the postlexical level: the Line Crossing Ban inhibits spreading. The H-tone will spread to the right (by cyclic application) as far as possible. In two-syllable and three-syllable stems the (right) edge of the domain is reached. Four-syllable stems however strongly suggest that this H-spreading never exceeds two TBUs.



In short, the following rules and constraints apply to words at the lexical level of this language: UAC (in all cases) > WFC_{min} (if

necessary) > H-spreading (if possible) within the stem.

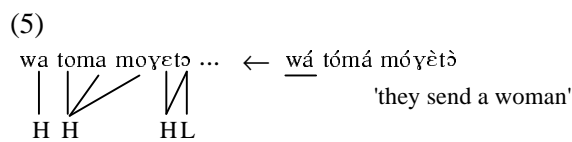
3. Postlexical rules and constraints

3.1 Tone spreading

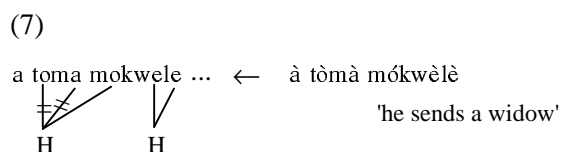
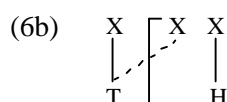
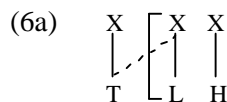
At the phrase and sentence level, rightward tone spreading also occurs, but in slightly different and more complex conditions.



The process of rightward spread is entirely conditioned by the nature of the underlying tone situated immediately at the right. If the subsequent morpheme is tonally unspecified (as in 4a) or if the following structural tone (which may be floating or linked) is low (as in 4b), spreading takes place (without immediate delinking). In case a H-tone follows immediately at the right, the tone(s) remain linked to their initial skeletal position and spreading is blocked (cf. example 5 where the H-tone associated to the initial pronominal clitic (underlined in the example) remains linked before the H-toned verb stem).



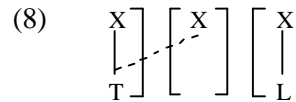
Spreading ceases when the moving tone reaches a H-tone, as formalized in (6a/b) and shown in example (7):



(Also see the example given in (24a/b Spreading rule).) The dissociations observed in (7) will be explained hereafter.

². In case the L-tone is multiply linked, only the non-final association lines will be automatically deleted.

In accordance with the Line Crossing Ban (or No-Crossing Principle), spreading won't go beyond the first association line in case the following tone is a multiply linked L-tone. Neither is tone allowed to spread across a second word boundary as formalized in (8):



(9) Tòmà yó pèndò á Pùvàmù. 'Send him into the forest of Fougamou.'

In example (9) the underlying H-tone of the verb stem (-toma H '(to) send') spreads to the tonally unspecified clitic yó ('into') on its right without going beyond.

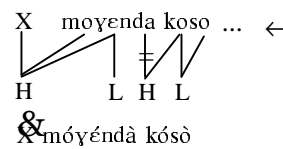
It should also be noticed that tone spreading never occurs between the lexical subject (lexical noun phrase) and the following main verb. The strong phonosyntactic boundary (or possibly a L boundary tone) that separates the verb phrase from the subject noun phrase clearly blocks spreading. Tone spreading is also prohibited between a noun phrase and a following adverbial phrase.

3.2 Delinking rules

Tone-delinking rules apply in two cases: (1) as a repair strategy applying when WFC_{max} is violated (see hereafter, example (11)), (2) when multiply linked H are preceded by L. More precisely, in the latter case, delinking applies to all association lines of a multi-linked H-tone except for the final one (which will be maintained) whenever this particular H-tone is preceded by a (floating or associated) underlying L-tone, a tonally non-specified morpheme or an utterance-initial boundary.

This automatic partial delinking of multiply linked H following L results in tone lowering on the surface. This can be clearly seen in examples (10) and (11). In (10) the H-tone of mo-yenda ('stranger') which has undergone spreading, is partially delinked (i.e. the non-final association line) because of the underlying L-tone that precedes. (It should be stated here that in the next stage of derivation, this L-tone will undergo delinking (in order to satisfy WFC_{max}) and subsequently reassociation. See also example (19) below.)

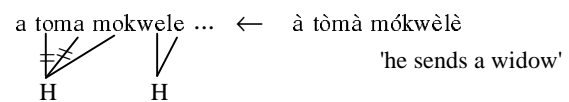
(10)



'(verb) a parrot to the stranger'

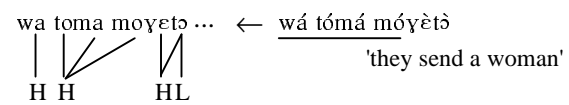
In a similar way in (11) all non-final association lines linking the H-tone of the verb stem (/toma/ '(to) send') to the segmental tier are deleted because of the preceding morpheme (i.e. a subject marker) that is tonally unspecified. (This is also exemplified in (7), (15), and (16).)

(11)

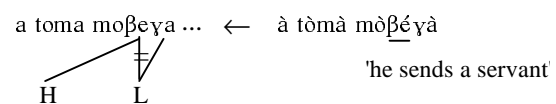


No delinking will occur whenever a H-tone precedes. In these cases, a plateau of H-tones will appear, as can be seen from (12). In (13), contrastively, the absence of such a plateau is accounted for by the delinking rule described above (cf. (10) and (11)).

(12)



(13)



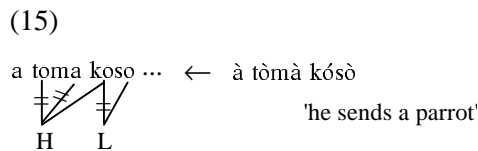
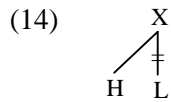
The delinking of the L-tone in this example will be explained in the next paragraph.

3.3 The Well-formedness Condition and repair strategies

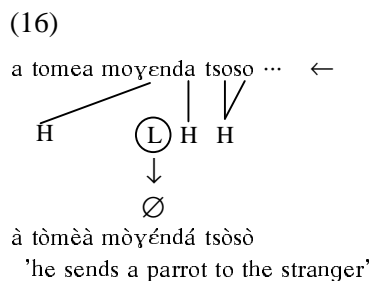
Another important aspect is the language-specific *Well-formedness Condition* (WFC) according to which in Geviya not more and not less than one tone should be associated to each TBU. This WFC, which applies to items at both the lexical and the postlexical level, implies an efficient way of avoiding contour tones and downstep in Geviya. It comprises two constraints: one concerning the maximum number of tones (i.e. WFC_{max}) and another concerning the minimum number of tones (i.e. WFC_{min}).

Violations of these constraints will be repaired by the application of special rules. If for some reason during derivation WFC_{max} is

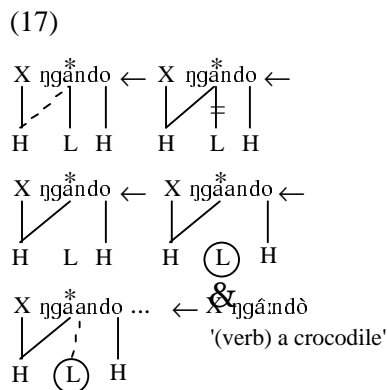
violated (i.e. two tones linked to one TBU), the second (L-)tone is delinked, as formalized in (14) and exemplified in (15) where the first association line of the multiply linked L-tone is deleted following the propagation of the preceding H-tone.



In case this delinked tone cannot reassociate it will be deleted towards the end of the derivation, as shown in (16).

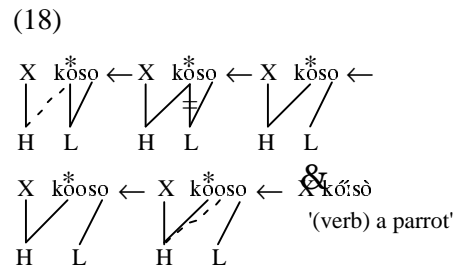


The prosodically marked penultimate position (marked '*' in the examples hereafter, if relevant) is the only place where a falling HL-tone can surface. It is characterized by mora insertion. This penultimate lengthening has previously been analyzed as a licensed violation of WFC_{max} (see Van der Veen 1992). This view can no longer be upheld. An up-to-date analysis is proposed here, exemplified by the examples (17) and (18).



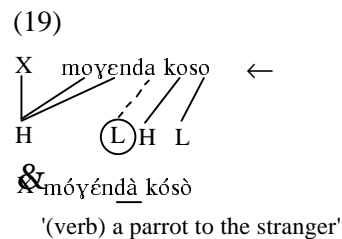
In this example, the initial L-tone of ngando ('crocodile') is delinked after the spreading of the preceding H. This floating L-tone can then reassociate after the mora insertion rule has

applied. A falling HL-tone appears on the surface. In (18) however, the initial L is also delinked, but this delinking does not give rise to a floating tone. The mora insertion is followed here by a non-initial spread rule and a H-tone surfaces on the lengthened vowel (see below, WFC_{min}).



This particular example also clearly indicates the priority of H rightward spread. For the sake of convenience, the lengthening of the penultimate vowel has not been represented in the examples of this paper, with the exception of examples (17) and (18).

Finally, violations of WFC_{min} are repaired either by a non-initial spreading rule or by a default L-insertion rule, as exemplified by example (19).



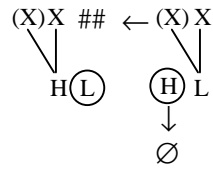
Also, compare examples (17) and (18).

3.4 H-replacement in utterance final position

H-replacement occurs in final position for declarative utterances. Every H-tone in this position will be systematically replaced by a L-tone. Underlyingly, this L-tone must be a floating boundary tone that spreads to the left and consecutively delinks the H associated to the final syllable. In case this H-tone is multiply linked to the final stem, all association lines will be deleted. (N.B. Reduplicated noun stems may be lowered either partially or completely.) The rule (formalized in (20)), which applies after most of the other tonal rules, accounts for this specific lowering process observed in utterance final position. Interrogative sentences on the contrary block the application of this rule and

can be accounted for by some additional rules, which cannot be commented on here.

(20)

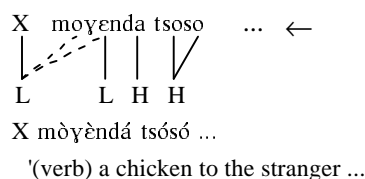


The derivations in (24a and 24b) exemplify how and at what stage this rule applies.

3.5 The asymmetry of H and L

From what precedes, it is obvious that underlying H and L (along with the absence of tonal specification) behave *asymmetrically*. A H-tone can delink a L-tone initially linked to the segmental tier through a single association line, but things will not occur vice versa. This is even more clearly shown in (21) where the underlying L-tone of moyenda ('stranger') is incapable of delinking the following H. (The non-final position of this sequence should be noticed.)

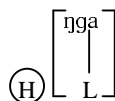
(21)



3.6 Floating tones

In order to account for specific tonal phenomena, analysis claims the existence of lexically marked *floating tones* for certain morphemes. The latter seem to be similar in behavior to tones that become floating through delinking at some stage of the derivation. The future tense morpheme presented in (22) contains an example of a lexically marked floating tone.

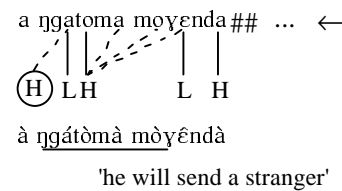
(22)



The following utterance (23) exemplifies the behavior of this floating H-tone. It should be noticed that the underlying L-tone of the future tense morpheme will subsequently be delinked as to satisfy WFC_{max}. This delinked L will automatically trigger the application of the

second type of H-delinking rule described above (i.e. delinking of multi-linked H following L). Only the final association line of the H-tone belonging initially to the verb will be retained.

(23)



The behavior of floating tones is governed by specific constraints that cannot be commented on here in detail. One specific feature of floating tones is that they will be deleted if (re)association is not possible (see example (16) above).

3.7 Rule ordering

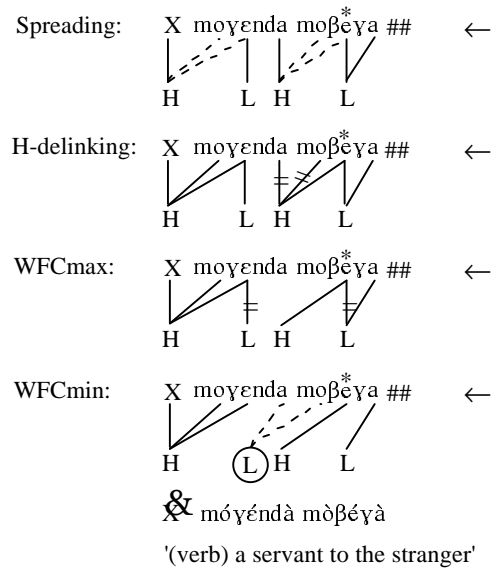
Most tonal rules in Geviya reveal to be *intrinsically ordered*. Postlexical rules apply in the following order: Spreading > H-delinking following underlying L³ > WFC_{max} > WFC_{min} (Default L-insertion or Non-initial Spreading) > Floating-Tone Deletion > H-Replacement.

(N.B. Penultimate Lengthening occurs after WFC_{max} and before WFC_{min} (cf. section 3.3).)

Most of this may be exemplified in a rather straightforward manner by the following set of (nearly) full derivations (24a and 24b, next page).

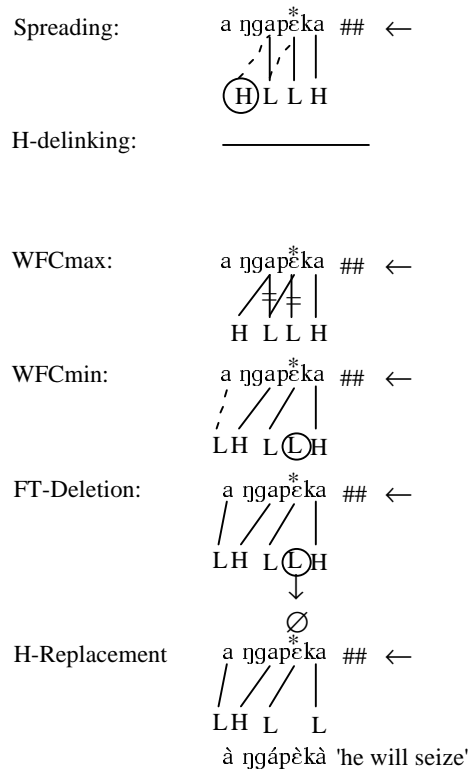
³ H-delinking is presented here as applying before WFC_{max}. This is an arbitrary choice. Actually, these two rules are not intrinsically ordered, and WFC_{max} may apply before H-delinking. In any case, the output will be correct. They do however both apply before WFC_{min}.

(24a)



N.B. For convenience, Penultimate Lengthening and the subsequent Non-initial Spread rule are not represented here.

(24b)

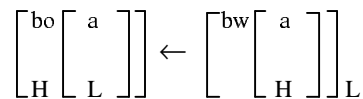


N.B. For convenience, Penultimate Lengthening and the subsequent Tone Association rule are not represented here.

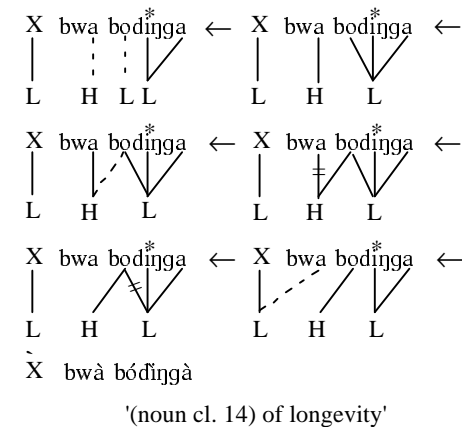
3.8 Displacement rule

At least one addition rule needs to be posited, i.e. a Tone Displacement rule. Its application seems to be restricted to the associative construction, and is triggered by the devocalization or the deletion of the vowel segment of the agreement marker when the latter is prefixed to the associative morpheme /a/. (Devocalization in case of a [+low] vowel and deletion in case of a [-low] vowel.) The associative morpheme must be analyzed as being underlyingly low whereas the agreement marker is undoubtedly underlyingly high, except for noun classes 1 and 9. This Tone Displacement rule, which applies before the initial spreading rule, is exemplified in (25) and (26). In both examples, the noun class 14 agreement marker (/bo-/) is being used.

(25)



(26)



It should be noticed that the application of the tone displacement rule presented in (25) gives rise in (26) to a violation of the OCP: two adjacent L-tones appear, both linked to the second noun (see first stage of derivation). This violation is subsequently repaired by a simplification rule: the two underlying L-tones are replaced by one single L-tone (see second stage). It should however be noted that this postlexical OCP surprisingly only applies within words (i.e. prefix plus stem).

4. Conclusion

Finally, by way of conclusion, it is most certainly worth mentioning that the tonal analysis of Geviya has also allowed to point out that the pronominal markers which precede the verb (i.e. subject or object markers) are in fact clitics of the verb in stead of verbal prefixes, unlike what is habitually assumed for Bantu languages. That is the reason why they have been presented as such in the examples given in this paper. Refer to Van der Veen (1999b) for a detailed demonstration of this particularly interesting point.

5. References

- Hyman, L. M. & J. T. Mathangwane (1998). 'Tonal domains and depressor consonants in Ikalanga', in L. M. Hyman & C. W. Kisseberth (eds.) *Theoretical Aspects of Bantu Tone*, Stanford : CSLI Publications, pp. 195-229.
- Van der Veen, L. J. (1992). 'Le système tonal du ge-via (Gabon)', *Journal of West African Languages*, vol. XXII.2, Dallas, pp. 17-41.
- Van der Veen, L. J. (1999a). *Les Bantous eviya (Gabon-B30): langue et société traditionnelle*, note de synthèse soutenue en janvier 1999 devant l'Université Lumière-Lyon 2 en vue de l'obtention de l'Habilitation à Diriger des Recherches.
- Van der Veen, L. J. (1999b). 'La propagation des tons et le statut des indices pronominaux précédant le verbe en geviya', in D. Creissels & J. Blanchon (eds.) *Issues in Bantu Tonology*, Köln: Rüdiger KÖPPE Verlag, pp. 15-36.
- Van der Veen, L. J. (forthcoming). 'The B30 language group', in D. Nurse & G. Philippson (eds.) *The Bantu Languages*, London : Curzon Press.