

A NOTE ON TONE IN TIV CONJUGATION

James D. McCawley
Department of Linguistics
University of Chicago

It is well established that many cases of downstep must be derived synchronically from an underlying high-low-high sequence as follows:

- a. Specific tone levels are assigned to high and low tones by means of rules whereby consecutive highs are on the same pitch, consecutive lows are on the same pitch, and the interval down from a high to a following low exceeds the interval up from a low to a following high (i.e. highs are 'lowered' after a low),
- b. Certain low tones are then either removed or assimilated to the level of a following high or (less commonly) a preceding high.

For example,¹

Twi: mé ðbó → me⁵ ɔ²bo⁴ → me⁵ bo⁴ = mé ¹bó 'my stone'

[Schachter and Fromkin 1968:110]

Tonga: bàlfbàlángìdè → ba²li⁵ba¹la⁴ngi⁰de⁰ →

ba²li⁵ba⁴la⁴ngi⁰de⁰ = bàl¹f¹bàlángìdè 'they look at them' [Meeussen 1963:73]

Shambala: mìví mìhyá → mi²vi⁵ mi¹hya⁴ → mi²vi⁵ mi⁵hya⁴ =

mìví m¹hyá 'new arrows' [Spaandonck 1967:47].

The example of deletion in Twi involved deletion of the syllable that bore the low tone responsible for the lowering of the subsequent highs. A hypothetical example where a tone rather than its bearer was deleted would be bâmá → ba⁵⁻²ma⁴ → ba⁵ma⁴, in which one of a sequence of tones on the same syllable is lost but the syllable otherwise remains unchanged. In this note I will explore the consequences of analysing

¹The underlying forms are quoted directly from the respective authors, though not (except in the Twi example) the intermediate stages. The superscript numerals indicate relative pitch levels, higher numbers corresponding to higher pitches. I follow the standard practise of using ' for high tone, ` for low, ¹ for downstep, ^ for a high-low fall, and v for a low-high rise.

downstep in Tiv as arising from deleted low tones which in underlying structure are parts of tone sequences on single syllables. My source of data and of many features of the analysis will be Arnott's important paper of 1964.

Arnott presents examples both of downstep contributed by the item following the downstep and of downstep contributed by the item preceding the downstep, e.g.

- (1) f lú kwá gá 'It was not a ring of huts'
 it was ring of huts not
 f lú ¹kwá gá 'It was not a leaf'
 it was leaf not
- (2) f lú tóhó gá 'It was not grass'
 it was grass not
 ká ¹tóhó gá 'It is not grass'
 it is grass not

To derive these forms, Arnott set up underlying forms with preposed and postposed downsteps, which I propose to reinterpret as follows:

Arnott	reinterpretation	
kwá	kwá	'ring of huts'
¹ kwá	kwă	'leaf'
lú	lú	recent past copula
ká ¹	kâ	'it is'

The reinterpretation makes it necessary to have rules which eliminate the low part of a rising or falling tone sequence on a single syllable. Since the only rising tones in Tiv are on syllables ending in a sonorant or a voiced spirant (e.g. bër 'pond' [Abraham 1940:3] and since the formulation of tonal rules for conjugation will provide reason for treating such final sonorants and voiced spirants as if they were separate syllables with their own tone (e.g. bër = b^èf), Tiv must be analysed as having no surface rising-toned syllables. Thus, a rule which deleted the low part of underlying rising-toned syllables such as I propose for /kwă/ 'leaf' would not affect anything other than what I want it to affect.

There do exist true falling-toned syllables in Tiv, so that there can not simply be a rule which deletes the low part of every high-low sequence on a single syllable. However, Arnott points out that precisely the words which contribute a following downstep when followed by a high pitch are pronounced with a final falling pitch when at the end of a phrase,² e.g.

mbá 'kásév 'there are women'
 kásév mbâ 'there are women'

Thus, the rule deleting the low part of a high-low sequence on a single syllable is only applicable non-finally, and my underlying form for items contributing a following downstep is identical with their phrase-final alternant.

The proposal to use combinations of high and low to represent downstep allows appreciable simplification in the rules which assign tone to the various forms of the verb. I have reproduced in Table 1, with slight differences in notation and layout, the tabulation of tones given by Arnott for high-toned and low-toned verbs of one, two, and three syllables. I have ignored the distinction between the large H's and L's which Arnott used to represent the tones on full syllables and the small H's and L's which he used to represent tones on the tone-bearing final voiced consonants which occur in four of the tenses, e.g. yévéśèñ 'used to run away'. I have also treated the geminate vowels of the Habitual 3, Habitual 4, and Past Habitual of monosyllabic verbs as units. Thus, I treat vááń 'comes (Habitual 3)' as exemplifying the formula HH rather than Arnott's HH .

Consider first the General Past. The downstep plus high of the first syllable of high-toned verbs will be represented as a low-high sequence on that syllable. Since the low tone on the first syllable of low-toned verbs can equally well be represented as a sequence of two low tones on that syllable, the following generalization can be made

²Except, of course, that for syntactic reasons certain items such as /kâ/ 'it is' can never occur in phrase-final position.

	1-syllable		2-syllable		3-syllable	
	High	Low	High	Low	High	Low
General Past	[!] H	L	[!] H L	L L	[!] H L L	L L L
Recent Past A	[!] H	[!] H	[!] H H	L H	[!] H H L	L H L
Recent Past B	H	H	H H	H [!] H	H H L	H H L
Subjunctive	same as Recent Past B					
Habitual 1	[!] H	[!] H	[!] H H	L H	H H L	L H L
Habitual 2	[!] H [!]	[!] H [!]	[!] H H [!]	L H [!]	[!] H H H	nonexistent
Habitual 3	[!] H H	[!] H H	[!] H H H	L H H	[!] H H H (H)	L H H (H)
Habitual 4	H L	H L	H H L	H H L	H H H L	H H L
Past Habitual	[!] H L	[!] H L	[!] H H L	L H L	[!] H H H L	L H H L
Continuous	H L	H L	H L L	H L L	H L L	H L L
Imperative	H	H	H L	L H	H H L	L H L
Future	[!] H	L	H L	L L	H L L	L L L

Table 1

about General Past_s: the first syllable has a low tone plus the basic tone of the verb (i.e. high in the case of a high-toned verb and low in the case of a low-toned verb), and any subsequent syllables are on a low tone. I summarize this generalization with the formula $\widehat{LB} L_0$. In this formula, the tie indicates being in the same syllable, and the subscript 0, to be read 'zero or more', means that if there are any subsequent syllables, lows are to be put on all of them.

Consider now the Recent Past A. Disyllabic verbs obviously fit the formula $\widehat{LB} H$ and trisyllabic verbs the formula $\widehat{LB} H L$. A single formula which covers both of these cases and also the monosyllabic case can be set up by regarding the \widehat{LB} and H of the last two formulas as obligatorily present in the Recent Past A but the L of the trisyllabic case as merely filling up leftover syllables. If \widehat{LB} and H were combined on a single syllable, [!]H would result regardless of whether B were H or L: both \widehat{LHH} and \widehat{LLH} would bring about lowering of the H('s), and the rule about deleting the low part of a rising tonal sequence would leave the equivalent results [!] \widehat{HH} and [!]H. Thus, the following formula covers all

Recent Past A's, regardless of number of syllables: $\widehat{LB} H L_0$. The proper interpretation of these formulas requires the convention that when a formula containing two syllables worth of obligatory tonal material is applied to a monosyllabic form, these tones are stuck together on that single syllable (NB: tones with the subscript 0 are not involved in this convention: they are only assigned to whatever syllables are left over after the obligatory material has been assigned).

A single formula is also possible for the Habitual 3. Since the first syllable of disyllabic and trisyllabic verbs can be interpreted as \widehat{LB} and the subsequent syllables are all high, the formula $\widehat{LB} H_0$ suggests itself. That formula will not do for the monosyllabic case, since it would incorrectly predict *L H for a monosyllabic low-toned verb. To get a formula that covers this case too, it is necessary to regard two H's as obligatorily present in this tense and only the final H of trisyllabic verbs as 'filler' material. The formula is thus $\widehat{LB} H H H_0$. The convention about combining tones on a single syllable if there are not enough separate syllables to accommodate them will have to be refined slightly in order to insure correct application of this formula to monosyllabic verbs (NB: a monosyllabic verb has a disyllabic Habitual 3): when three syllables worth of obligatory material is distributed over two syllables, it is necessary to combine the tone in the middle with the preceding tone rather than the following tone, since otherwise *L H would result as the Habitual 3 of a monosyllabic low-toned verb.

In six of the twelve tenses, a single formula covers all cases, and in three of the remaining tenses a formula covering two of the three verb lengths is possible. As in the formulas given on page 49 of Arnott, it is nowhere necessary to give separate formulas for high-toned and low-toned verbs, and in only one instance (the imperative of disyllabic verbs) is it necessary to resort to an at all ad-hoc notational device to avoid treating high-toned and low-toned verbs by different formulas. The formulas are:

General Past	$\widehat{LB} L_0$
Recent Past A	$\widehat{LB} H L_0$
Recent Past B	H (1-syll), H \widehat{BH} (2-syll), H H L (3-syll)
Subjunctive	(same as Recent Past B)
Habitual 1	$\widehat{LB} H$, except B H L (3-syll)
Habitual 2	$\widehat{LB} \widehat{HL}$, except $\widehat{LB} H H$ (3-syll)
Habitual 3	$\widehat{LB} H H H_0$
Habitual 4	$H_0 L$
Past Habitual	$\widehat{LB} H H_0 L$
Continuous	H L_0
Imperative	H (1-syll), B \bar{B} (2-syll; \bar{B} = opposite of basic tone), B H L (3-syll)
Future	B L_0 , except \widehat{LB} (1-syll).

The treatment of downstep in Tiv as arising from the lowering effect of underlying low tones that are eventually deleted partially explains one striking feature of the Tiv verb paradigms, namely that there are several tenses in which the contrast between high-toned and low-toned verbs is neutralized only in monosyllabic verbs, but there are no tenses in which it is neutralized only in disyllabic verbs or only in trisyllabic verbs. The above discussion shows that in a tense which is covered by a single formula, tonal contrasts which are manifested in verbs of two or more syllables are neutralized in monosyllabic verbs if the combining of two syllables worth of tones on a single syllable sandwiches the basic tone between a L and a H.

REFERENCES

- Abraham, R. C. 1940. The principles of Tiv. London: Crown Agents for the Colonies.
- Arnott, David W. 1964. "Downstep in the Tiv verbal system." African Language Studies 5:34-51.
- Meeussen, A. E. 1963. "Morphotonology of the Tonga verb." Journal of African Languages 2:72-92.
- Schachter, Paul, and Victoria Fromkin. 1968. "A phonology of Akan: Akuapem, Asante, and Fante." Working Papers in Phonetics 9. University of California at Los Angeles.
- Spaandonck, Marcel van. 1967. Morfotonologische analyse in Bantutalen. Leiden: E. J. Brill.

