# AN INTERPRETATION OF THE TEMNE TONE SYSTEM

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In his article 'Lexical analysis in Temne' (JWAL 3.2.1966), David Dalby takes me to task for my 'apparent lack of awareness' of certain tonal features, in my 'Outline of the Temne language' (1961). In the Outline, as I stated, I was not giving any tonal analysis, but simply drawing attention to certain points of tonal behaviour that seemed 'particularly important in the word or construction concerned' (p. 6). At that time I had not yet discovered a key to the analysis of Temne sentence tone, and so had not been able to determine how many tonal phonemes should be postulated.[1]

Through his painstaking examination of tonal data, Dalby has been led to differ from me as to what is 'particularly important' in the system. I question, however, whether his enthusiasm has not run away with him when he says his findings 'invalidate' mine (Dalby p.5, fn.5) or whether his system of class concord exponents does in fact 'differ substantially' from mine (Dalby, p.8).

The main purpose of this article is to present a preliminary statement of the tonal structure of the language, to which a key now suggests itself. A recent visit to Temne country, after several years away from the language, has offered a brief opportunity for a fresh look at some of the problems. Dalby's article has also been used as a source of data.

## TWO-TONE TERRACED-LEVEL SYSTEM

Temne can be characterized as having a terraced-level system of tones, though in comparison with such a 'classical' example as Twi, this is largely obscured by the fact that the descending pitch contours typical of this type of system are in general quite short, so that sentences frequently have a tone pattern composed of two or more such contours, each having approximately the same highest pitch.

The tone patterns of individual items are often complex, in that there frequently are glides on the last syllable. All patterns, however, appear analysable in terms of two tonal phonemes, Low (L or ˋ) and High (H or ˊ),[2] and of a juncture phoneme of Downstep (ꜜ).[3] It is possible, then, to regard Dalby's 'High-falling' as High-Low, and his 'Low-rising' as Low-High.

Dalby's lexical sample includes monosyllabic noun stems of five tonal patterns, and disyllabic noun stems of seven tone patterns. They may be analysed as follows, each noun being quoted in its indefinite form, with Low tone on its class prefix:

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[1] For this reason I used the term 'middle tone' ('Outline', p. 23), rather than mid tone, to avoid implying that I postulated three contrastive tones. Dalby uses the expression 'relative mid or mid-falling tone' to show that he too is talking in phonetic rather than phonemic terms. He does not state how many tones he postulates, contenting himself with indicating tonal contours by means of six 'tone-marks' (Dalby, p. 7). [Further to his article referred to here, David Dalby has been preparing "A Tonal Analysis of Temne", to appear in this journal in a later issue. In the course of that article, he will take the opportunity of commenting on W. A. A. Wilson's article.—ED.]

[2] Dalby leaves his High tone 'unmarked', and uses ˊ for his 'upstep' or ultra-high pitch.

[3] It is for typographical reasons that Downstep is indicated by the sign ꜜ instead of the more usual raised exclamation mark.

| Stem tone | | | Stem tone | | |
|---|---|---|---|---|---|
| L | ù-bày | 'chief' | LL | kà-gbɛ̀ŋgbɛ̀ | 'pepper' |
| H | kà-bép | 'spoon' | HH | à-bóká | 'cutlass' |
| LH | mà-sŏy | 'soap' | LH | kà-lɔ̀mɛ́ | 'sheep' |
| HL | kà-bâp | 'axe' | HL | rà-béŋà | 'rope' |
| H'H | à-sə́'ĺ | 'finger' | H'H | à-tɔ́'kɔ́ | 'fowl' |
| | | | LHL | ù-làŋgbâ | 'young man' |
| | | | HHL | kà-bárî | 'twin' |

In verb stems Dalby's sample includes fewer tone patterns:[4]

| | | | | | |
|---|---|---|---|---|---|
| L | -bàl | 'drive away' | | | |
| H | -gbál | 'quarrel' | HH | -béŋpá | 'make' |
| HL | -fâl | 'fly' | HL | -fəŋthà | 'lie down' |
| | | | LHL | -sɔ̀kɔ̂ | 'be awake at night' |
| | | | HHL | -búkɔ̂ | 'bathe' |

GLIDES

In stems ending with a HL glide, this L component affects a following tone in a way a syllabic L tone does not. This can be accounted for by regarding the L of a glide as a realization of a tone carried by a zero segment terminating the stem. Such glides occur principally in pause.

à-séth` > à-sêth 'house'

Two other features of the behaviour of this L zero segment were noted:

(a) It prevents the raising of a following L tone to H (or, should the reverse interpretation prove preferable when adequate base forms have been developed: it lowers certain H tones to L). As observed, this generally affects class exponents. No glide terminates the previous word when this rule applies.

à-séth` + à-fínɔ̀ > à-séth à-fínɔ̀ 'a fine house'
cf. à-féth + à-fínɔ̀ > à-féth á'-fínɔ̀ 'fine children'

(b) It is deleted before a boundary between tonal phrases (q.v.)

ɔ́làŋgbá` + ɔ́'dér > ɔ́làŋgbá | ɔ́'dér 'the man has come'
cf. ɔ́bɔ̀rkɔ́ + ɔ́'dér > ɔ́bɔ̀rkɔ́ | ɔ́'dér 'the young woman came'

In stems ending with LH or H'H glides the second component may presumably be treated comparably, as a H tone carried by a zero segment. The effect on neighbouring words was not observed.

mà-sòy' > mà-sòý 'soap'
à-sə́'l' > à-sə́'ĺ 'finger'[5]

This treatment of the glides would seem to allow for simpler statements of class exponent tonal behaviour,[6] by making possible a general statement of the effects of zero segments.

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[4] In the sample, Low and High monosyllabic nouns are of approximately equal occurrence, together totalling about three-quarters of the monosyllabic nouns cited. In the verbs, on the other hand, almost all the monosyllabic stems cited are Low, High stems being very few.

[5] It must be said that there is no perceptible difference between the H'H glide in (ɑ)səl 'finger' and the HL glide in təl 'hear'. In such instances, it is the effect on a following initial Low tone that would most clearly reveal how the glide concerned should be analysed.

[6] See below, page 9.

## Downstep[7,8]

In Temne, downstep may be postulated not only between adjacent H tones that differ in pitch, but also, as Stewart proposes for Twi, after any H that is followed by a tone of lower pitch, whether H or L. This results from attributing to downstep any lowering of a H tone pitch in relation to the previous H, whether a L tone intervenes or not. In the sequence [˜ -], analysable as H'H, the downstep is regarded as non-automatic, and distinctive; while in the sequence [˜ - -], analysable as H'LH, the downstep is regarded as being automatic, and non-distinctive. In the latter instance, the downstep is not marked, the sequence therefore being noted as HLH.

Dalby recognizes (p. 7) the existence of downstep, as occurring 'between two High tones', the second of which is depressed in pitch. He however also uses the term 'downslide', which he describes as 'A tonal variant of downstep, occurring, not between two syllables, but within one CVC or CVŋC syllable (the tone of the affected syllable falling from high to mid).'

In fact the only examples of his so-called 'downslide' in his sample are two monosyllabic noun stems having H'H glides, instead of the more common HL glides. It is possible that Dalby's equating of downstep and 'downslide' is due to his oversimplifying his position, for otherwise he seems to be implying that an H'H glide is a variant of the downstep juncture itself, rather than the monosyllabic equivalent of a disyllabic H'H sequence. In any case it is difficult to see how an intertonal downstep as usually understood can have a variant.

## The tonal phrase

Within a sentence, a word or word sequence having a single pitch contour analysable in terms of High and Low tones and downsteps constitutes a 'tonal phrase'. In such a phrase the first H tone is on the highest pitch, this pitch being maintained until the first downstep.

A sentence comprises one or more tonal phrases, in each of which the first H tone has approximately equal pitch. The boundary between tonal phrases is here shown by a vertical rule (|).

The subject and predicate of a clause generally each form one tonal phrase. Other clause types will be considered in due course.

ɔ'dér [˜ -] 'he has come'

ɔlàŋgbá | ɔ'dér [˜ - - ˜ -] 'the man has come'

Where, as in this second example, the subject consists only of a noun, the initial H of the predicate is on the same pitch as the first H of the subject. If the subject is longer, as in

áŋgbàsá ŋáɔbɔ̀rkɔ́ á'fínɔ̀ àŋé | áŋ'lɔ́sâ 'this girl's fine headtie has got spoilt'

then the initial H of the predicate is at least as high as the penultimate H tone pitch of the previous tonal phrase. It may have the same pitch as the first H of the sentence if a sufficient degree of prominence is given to the predicate.

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[7] For a very full discussion of the status of downstep, see J. M. Stewart's 'Typology of the Twi tone system' (with comments by P. Schachter and W. E. Welmers), University of Ghana, n.d. (1965).

[8] The ultra-high pitch termed 'upstep' by Dalby is not comparable with downstep, since it is purely a form of intensive or emphatic intonation, producing a temporary interruption in the normal pitch contour of the sentence.

When the first tone of a tonal phrase is L, the first H is not apparently as high in pitch as an initial H would be in a comparable context. Thus, when a predicate begins with a L tone, its first H may only be as high in pitch as the last H of the subject; it will be no lower, however, since the boundary between tonal phrases counteracts the downstepping effect of the intervening Low tone(s).

ɔ́bɔ̀rkɔ́ | ɔ̀yémá' dér [ ˉ _ ˗ _ ˗ ˗ ˗ ] 'the young woman wants to come'

TONES OF CLASS EXPONENTS (CEs)

NOUNS. In nouns the tone of the CE is an inherent part of the prefix, definite prefixes being H' and (syllabic) indefinite prefixes being L; this tonal difference is often accompanied by a segmental difference.

áŋ'-bóká : à-bóká 'cutlass (def:indef)'
é'-bóká : è-bóká 'cutlasses (def:indef)'

PRONOUNS. In pronouns, the CE of which is coterminous with the word, there is a high degree of correlation between tone and segmental shape. Of the simple pronouns, class pronouns with the vowel i are HL; personal pronouns, as also class pronouns not ending in i, are L: ŋî, ŋà. Disjunctive pronouns, most of which end in ɑ, are all H(H): ŋá, ŋá.

VERBS. In the verbal system tone plays both a lexical and a morphological role. Morphological tone may override lexical tone, and it also determines the tone of the CE.

Lexical tone is neutralized in the imperative, which is always LH and has no CE.

In the indicative negative, the CE is L and the stem L(H) before the marker -hɛ̂.

ɔ̀-yèmá-hɛ̂ 'he does not want' (cf. ɔ̀-yémá)
ɔ̀-dèr-hɛ̂ 'he did not come' (cf. ɔ́'-dér)

In the indicative 'future', CE and tense affix form a LH sequence, and the lexical tone is maintained.

ɔ̀-tɔ́-yémá 'he would like'
ɔ̀-tɔ́-fáŋthà 'he will lie down'

There are three aspects of the verb, in the indicative non-future form, in which the CE tones are, respectively, L, H and H', according to Dalby (pp. 9, 10). These are:

| | | | | | |
|---|---|---|---|---|---|
| Stative: | L | ɔ̀-yémá | 'he wants' | ɔ̀-tɔ̂l | 'he can understand' |
| Neutral: | H | | | ɔ́-tɔ̂l | 'he understands' |
| Perfective: | H' | ɔ́'-dér | 'he has come' | ɔ́'-tɔ̂l | 'he understands (your statement)' |

The above would suggest that the CE of a verb cannot be said to have an inherent tone; rather it is the bearer of a tone which either a whole conjugational morpheme, or part of one. This tone has no bearing on the operation of class concord, so that it is misleading to indicate it on a table of CEs.

RAISING OF LOW TONE CEs

CEs with L tone are particularly subject to tonal modification according to syntactical or phonological context.

Within a tonal phrase there are several syntactical contexts in which a L tone CE is raised to H, among these being: an indefinite noun directly following a verb of which it is the object; an adjective or demonstrative within a nominal group; and, apparently, the

verb of certain interrogative and disjunctive clauses (q.v.). In every instance the raising is prevented when the previous word ends with a zero segment with L tone.

L tone CEs are not affected when they are preceded by a tonal phrase boundary. This accounts for the tonal difference between attributive and predicative adjectives.[9] The tonal phrase boundary before the latter is further marked by a slight intonational pause.

áŋ'-féth | à-fínɔ̀ 'the children look fine'
áŋ'-féth á'-fínɔ̀ 'the fine children'

This difference is neutralized after a L zero segment.

áŋ'-séth | à-fínɔ̀ 'the house is fine'
áŋ'-séth à-fínɔ̀ 'the fine house' (cf. áŋ'-séth`)

Here, all that marks the difference is the intonational pause in the first sentence, at the tonal phrase boundary.

RELATIVE CLAUSE

The subject and predicate of an embedded relative clause each form a distinct tonal phrase. If the antecedent is followed by a demonstrative this too seems to form a distinct tonal phrase, since the initial tone of the demonstrative remains L even after a H-final noun.

áŋgbàsá | àŋé | ɔ́bɔ̀rkɔ́ | ɔ̀wáy é | áŋ'lásâ
'the headtie which the young woman bought has got spoilt'

In this sentence the three phrase-initial H tones have approximately the same pitch. The (non-initial) H tones of the other two tonal phrases are on about the pitch of the H that terminates the previous phrase. It seems that the beginning of the main clause predicate is signalled by some form of stress on the first H tone, as well as by a definite return to the pitch of the sentence initial H tone. This would need to be verified.

The verb of a relative clause begins on a L tone, whatever intervenes between it and the antecedent, and whether or not there is a verbal CE. When this L falls on the CE it neutralizes the L/H/H' distinction noted by Dalby. If the L falls on the initial of a HH(L) verbal stem, both H tones are changed to L.[10]

With the above example, compare the following one-clause sentence:

ɔ́bɔ̀rkɔ́ | ɔ́'wáy áŋgbàsá áŋê 'the young woman bought this headtie'

Further examples illustrating verbal behaviour are:

ɔ́bɔ̀rkɔ́ | yèmà wày áŋgbàsá é | ɔ́'dér
'the young woman who wants to buy this headtie has come'

cf. ɔ́bɔ̀rkɔ́ | ɔ̀yémá wày áŋgbàsá áŋê 'the young woman wants to buy this headtie'

ɔ́bɔ̀rkɔ́ | ɔ̀yémá' náŋk é | kɔ́nɔ̀wê 'this is the young woman she wants to see'

cf. ɔ́bɔ̀rkɔ́ | ɔ̀yémá' náŋk kɔ̂ 'the young woman wants to see her'

In this last pair of examples the L tone of the relative clause predicate produces no change in the verbal tone, since it coincides with the initial L of the stative aspect.

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[9] Description of the overall system of CE tones is greatly simplified if the basic tone of the latter is taken as Low rather than High; the contexts in which the raising takes place can then be specified briefly. With certain H-initial stems the CE is raised to H' rather than H. (cf. Dalby, pp. 9, 10).

[10] There are further changes, which cannot be considered here.

NONVERBAL PREDICATORS

Of the nonverbal predicators, those incorporating pronouns and demonstratives are self standing, and form a distinct tonal phrase, even when preceded by their controlling noun.

| | |
|---|---|
| ɔ́bɔ̀rkɔ́ \| kɔ́'nɔ́ŋ : ɔ́bɔ̀rkɔ́ \| kɔ̀nthâ[11] | 'it is (: is not) the young woman' |
| áŋgbàsá \| ŋíàŋê | 'this is the headtie' |

On the other hand, the corresponding indefinite predicators are not self standing, and form part of the same tonal phrase as their controlling noun.

| | |
|---|---|
| ùbɔ̀rkɔ́ wɔ́ŋ : ùbɔ̀rkɔ́ thâ | 'it is (: is not) a young woman' |

INTERROGATIVE AND DISJUNCTIVE CLAUSES[12]

Clauses incorporating interrogative words or disjunctive pronouns are similar to relative clauses in a number of ways. Tonally, however, there are significant differences affecting the verb. Firstly it does not initiate a tonal phrase, even, apparently, when preceded by its controlling noun subject; secondly the first syllable (be it a CE or not) is raised to H' in most contexts where there is no noun subject. Compare the following clause types:

| | | |
|---|---|---|
| Interrogative: | kó ɔ́'yémá é | 'what does he want?' |
| Disjunctive: | ŋá ɔ́'yémá | 'it he wants' (='it's what he wants') |
| Simple: | ɔyémá ŋî | 'he wants it' |
| Relative: | àŋé \| ɔyémá é | 'the one he wants' |

Since the disjunctive pronouns all have H tones and a following verb begins with H', the pitch sequence would be the same whether or not the two words were in the same tonal phrase. Among the interrogatives only two[13] give phonetic evidence of the absence of a following tonal phrase boundary. These are kó'éŋ 'why?', and mɔ̀lɔ́ 'how many?', which is followed by the noun it qualifies.

| | |
|---|---|
| kó'éŋ ɔ́'dér é[14] | 'why did he come?' |
| mɔ̀lɔ́ éséth ɔbá é[15] | 'how many houses does he have?' (cf. èséth') |
| mɔ̀lɔ́ áféth ɔ́'bá é | 'how many children[16] does he have?' (cf. àféth) |
| mɔ̀lɔ́ tábós ɔ́'bá é | 'how many gourds does he have?' (cf. tàbòs) |

These last three examples illustrate the tonal attraction between mɔ̀lɔ́ and the following noun, and also show that, in the absence of a tonal phrase boundary, the verb is subject to the influence of a preceding noun.

Where a verb has no CE, the interrogative or disjunctive being its subject, a H or HH stem becomes HL, and a L stem is raised to H'.

| | |
|---|---|
| kàné yémà dér é | 'who wants to come?' |
| kàné dêr é : kɔ́nɔ́ dêr | 'who came? : *he* came' |
| kàné náŋk' é | 'who saw?' |

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[11] The glide on tha may well be H'H rather than HL (see fn. 5).

[12] See 'Outline', pp. 31–33.

[13] The other interrogatives being kàné 'who?', kó 'what?', tó 'how?', thèthé 'when?', rèké 'where?'.

[14] The final marker é, which ends questions having interrogative words, may optionally have a question intonation consisting of an upward glide beginning on the pitch of the previous H tone.

[15] Questions beginning with mɔ̀lɔ́, also regularly have the final marker à.

[16] The word denotes children who are not one's offspring.

When the controlling noun precedes a disjunctive, a tonal phrase boundary intervenes.

ɔ́bɔ̀rkɔ́ | kɔ́nɔ́ dêr 'it was the young woman that came'

The stem -rèké 'which?' raises a special problem, since its tonal behaviour reflects its two functions, as an attributive adjective, and as an interrogative.

Like other attributives its CE is affected tonally by the preceding word. Its final H tone, however, is level with the first H of the sentence, thereby showing itself also to be the first H of a tonal phrase. Since the CE shows the normal behaviour to be expected when no tonal phrase boundary precedes, it is necessary to postulate a phrase boundary between the CE and the stem, in this particular instance. The stem itself then shows a tonal behaviour comparable with other interrogatives:

àféth á|rèké dêr é 'which children came?'
èbáŋp ŋàrəŋ à|rèké ɔ́'yémá nəŋk é 'which two birds does he want to see?'

SUMMARY

Temne has a type of terrace-level tone system, its tone patterns being analysable in terms of High and Low tones and Downstep. Downstep occurs distinctively between High tones, and automatically between a High and a Low.

The tone of the class exponent in verbs is governed, not by the exponent itself, but by other morphological factors.

Within a tonal phrase the downsteps produce the descending pitch contour characteristic of terraced-level languages. A sentence may consist of one or more tonal phrases, each of which occupies approximately the same pitch band.

The subject and predicate of simple main clauses each constitute a tonal phrase. In an embedded relative clause the subject and predicate are marked off from each other and from the main clause by tonal phrase boundaries.