A REANALYSIS OF FORE ACCENT

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1. Introduction

Current approaches to prosodic analysis have centred on viewing the relevant phenomena on separate tiers, as patterned in their own right. Patterns on a prosodic tier then need to be mapped onto the consonants and vowels of a relevant utterance. One advantage of such a non-linear approach is that the analyst is encouraged to look at alternative explanations for the data to hand. In some cases, as I will claim here, the seemingly ad hoc constraints of a previous analysis can be more adequately explained.

2. Tone versus accent in Fore[1]

The Fore language has a contrastive system of prominence that appears to be mainly pitch based. There is, however, a considerable amount of variation within this system, with both mid and contour pitches analysable as variants of either high or low. There is also some contrast in intensity, particularly on phrase-final syllables. At the time of our investigation (Pike & Scott 1963), it proved better to think in terms of targets of prominence rather than either pitch or intensity alone. Consequently, we analysed this system in Fore as one of contrastive 'pitch-accent', in which syllables were seen to be either prominent ('accented') or not. Even so, spectrographic analysis confirmed that pitch rather than intensity was the basic determinant (see Pike 1967:1552).

The number of patterns to be expected with an analysis based on prominence may well be limited, in the case of disyllabic words, to two: 'accent' falling on either the first or the second syllable. Allowing multiple accents may extend this to three (both syllables prominent), or possibly even four (if words with no accented syllables are also allowed).

A tone analysis, utilising a basic high or low tone possible on each syllable, not only allows four patterns for two-syllable words, but expects them. Four such patterns occur in Fore, as seen in (1), taken from Scott (1978:23).[2] I use the labels L (low tone) and H (high tone) to represent the patterns under discussion. When bracketted, they also allude to the earlier analysis, with H (or acute over a vowel) representing any syllable which was considered to be prominent.

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[1] Fore is a Papuan language with approximately 20,000 speakers. It is a member of the East-Central family of the Trans-New Guinea phylum (see Wurm 1975: 19, 468).

[2] Unbracketted Fore examples are given in their current orthography, except that aa is retained for /a:/ where current orthography ignores the contrast between /a:/ and /a/, and accented syllables are marked with an acute. Otherwise, intervocalic /p, t, k/ are written as b, r, g; preglottalised /ˀp, ˀt, ˀk/ are written simply as p, t, k; pre-sonorant glottal stops are written as ' ; and y represents the glide /j/.

Each word is given in its citation form, with the final syllable consisting of a morpheme representing class (-n or -w) and one representing mood (-e). Mood morphemes occur only sentence finally, and thus are part of any citation form. Class markers are overt only when preceding a mood morpheme. Elsewhere the class of a morpheme is indicated by sandhi between it and its following morpheme (see Scott 1978, chapter 3).

(1)   (LL)   kaone   [kaone]   'your friend'

      (LH)   kené   [ke:ne]   'path'

      (HL)   káane   [ka:ne]   'one'

      (HH)   kíné   [kine]   'maggot'

2.1   Tri-syllabic patterning

Limitations of patterning begin to appear when we look at tri-syllabic words. In a fully-fledged two-tone system, with one tone per syllable (either H or L), one would expect eight possible patterns among words of three syllables. A minimal prominence system (one 'accent' occurring on only one of the syllables) would suggest only three patterns. In Fore, however, six contrastive patterns are found, as seen in (2). These examples are also taken from Scott (1978:23). The discussion which follows will generally refer to Fore 'accent' as a tone system.

(2)   (LLL)   antaawe   [anta:we]   'his intestines'

      (LLH)   awawé   [awawe]   'his tooth'

      (LHL)   waníne   [wanine]   'water'

      (LHH)   amáné   [amane]   'his shadow'

      (HLL)   á'none   [a?no:ne]   'his head'

      (HLH)   nónoné   [no:no:ne] 'breast'

The reader will note that the two patterns missing are HHH and HHL. To account for this lack of full symmetry, Fore tone was analysed (Scott 1978:20-1) as having two constraints: (i) that no more than two adjacent high tones may occur; and (ii) that in words of more than two syllables, a first-syllable high tone could not precede a second-syllable high tone. The first of these constraints prevented the sequence HHH, which was then analysed as HLH. The second constraint prevented the sequence HHL, which was analysed as LHL.

Nicholson & Nicholson (1962:143) also indicated a limitation in patterning, listing only five patterns for tri-syllabic words: HHH, HLL, LHL, LLH and LLL. Their HHH sequence is equivalent to my earlier HLH sequence, in that they described the final tone of an all-high sequence as being of higher pitch, while I considered the second position to be non-contrastive. They included no LHH sequence.

Nicholson & Nicholson (1962:140) stated that a high tone preceding a low tone is phonetically mid. This would allow any mid-low-high sequence to be interpreted as HLH, but they also state that the first low in a LLH series is phonetically mid (and thus also mid-low-high). This still leaves us with the problem of a phonetic low-mid-high which is opposed to mid-low-high with a fairly high functional load. I listed low-mid-high as a LHH sequence, which would fill the Nicholson & Nicholson gap. Minimal pairs taken from Scott (1978:19) show the distinctiveness of mid-low-high from low-mid-high (3), and from high-mid-high (4).

(3)	(LLH)	nayaané	[naya:ne]	'my hair'
	(LHH)	nayáané	[naya:ne]	'my kidney'

(4)	(LLH)	nabaawé	[naba:we]	'my father'
	(HLH)	nábaawé	[naba:we]	'my marriageable cousin'

The main problem for tri-syllabic words has been the interpretation of patterns high-mid-high, low-mid-high, mid-low-high, and mid-high-low. Each of these patterns manifests quite a degree of variation, with a general tendency for pitches to rise or fall towards the starting pitch of a following syllable. Interpretation possibilities, and the choices made by Nicholson & Nicholson (1962) and Scott (1978) are summarised in (5).

		possibilities	Nicholsons	Scott
(5)	Low-low-low:	LLL	LLL	LLL
	Low-mid-high:	LLH or LHH	LLH ?	LHH
	Mid-low-high:	LLH or HLH	LLH	LLH
	Mid-high-low:	LHL or HHL	LHL	LHL
	High-mid-low:	HLL or HHL	HLL	HLL
	High-mid-high:	HLH or HHH	HHH	HLH
			- - - - - - - - - - - - - -	
	Patterns missing:		HHL	HHL
			HLH	HHH
			LHH	

2.2 Reanalysis

As Pike used to say during his seminars, if there are holes in the matrix, then try another matrix. The autosegmental approach to prosody suggests another matrix or grid through which to view these data. Durand (1990:242), among others, points out that the general concept of non-linearity is not new. It has, however, been given new focus and attention via its new label, 'autosegmental', and has some new conventions to facilitate the display of processes which have defied easy formulation. Basic to its assumptions is the separation of underlying systems which are then associated or mapped together when realised linearly. It is being applied effectively to a variety of phenomena which were never limited to the domain of single consonants or vowels.

Concerning tone, Goldsmith (1990:10) simply states that "there is no need for the number of tonal segments to match the number of vowels or syllables." By lifting Fore tone out of the individual syllables (where it might otherwise be considered as a feature of each syllable nucleus), we may view its patterning as a system in its own right.

The simplest system which may be hypothesised for Fore is one in which only changes between high and low tone are recognised as being contrastive. If we also assume what is common between Fore analysts to date, that no two tones may be mapped onto the same syllable

(i.e. there are no phonemic contour tones), the possibilities for patterning in which only changes in tone are recognised will be: L (all syllables), H (all syllables), LH (for words of two syllables or more), HL (for two or more syllables), LHL (for words of at least three syllables), HLH (also for three or more syllables), and so on.
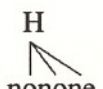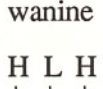
For disyllabic words, the full range would be the four patterns: LL, HH, LH and HL, which Fore manifests. For tri-syllabic words under this simplest of tone systems, the full range would be six patterns, which is the maximum number claimed for tri-syllabic words in Fore! The six patterns predicted by this approach are LLL, HHH, LLH or LHH, HLL or HHL, LHL, and HLH. Also predicted is that there would be no distinction between HHL (which is missing from both Nicholson & Nicholson 1962 and Scott 1978) and HLL (included in both analyses), and none between LLH and LHH, both of which appear in Scott (1978). Both also appear to be allowed for by Nicholson & Nicholson, although they do not list LHH. But an opposition between these two patterns does exist, as already shown in (3). It appears that some reanalysis would be in order!

If then, we look back at the options given in (5), the low-mid-high sequence is the best candidate for interpretation as the LH pattern spread over three syllables. Mid-low-high then needs to be reinterpreted as HLH to maintain its contrastiveness. High-mid-high, to maintain its own distinctive pattern, must also be reanalysed, as HHH (i.e. a spreading of H). It also seems better in terms of both universals and the most common variants, to spread L when mapping in preference to H, so that LH appears as LLH when spread over three syllables, and HL as HLL (rather than HHL which neither Nicholson & Nicholson nor I listed). The new analysis for disyllabic words is presented in (6), and for tri-syllabics in (7).

The reader will see immediately that there has been no change whatever in how the tones are mapped onto two-syllable words. It is among the three-syllable patterns where changes are to be seen. Three of the six patterns in (7) no longer have the same tone mappings as they did in (2) under the old analysis. These are *áwawé* 'his tooth' (old analysis: *awawé*), *nónóné* 'breast' (old analysis: *nónoné*), and *amané* 'his shadow' (old analysis: *amáné*).

The advantage of this analysis is that there are no longer holes in the matrix. Only six patterns are predicted for tri-syllabic words; all six patterns are extant, as in (7).

(6)

		L ⋀ kaone	>	kaone	[kaone⁻]	'your friend'
	L					

| | H | H
⋀
kine | > | kíné | [kine] | 'maggot' |

| | LH | L H
\| \|
kene | > | kené | [ke:ne] | 'path' |

| | HL | H L
\| \|
kaane | > | káane | [ka:ne] | 'one' |

(7)   L   L
                ╲
                antaawe   >   antaawe   [anta:we]   'his intestines'

       H   H
                ╲
                nonone   >   nónóné   [no:no:ne]   'breast'

       LH   L H
                ╲ |
                amane   >   amané   [amane]   'his shadow'

       HL   H L
                | ╲
                a'none   >   á'none   [a?no:ne]   'his head'

       LHL   L H L
                | | |
                wanine   >   waníne   [wanine]   'water'

       HLH   H L H
                | | |
                awawe   >   áwawé   [awawe]   'his tooth'

2.3 Four syllable words

We now turn to four-syllable words to see if the new analysis holds. In a full two-tone system, sixteen patterns would be possible. With the constraints given earlier (from Scott 1978:20-1) that no more than two adjacent high tones may occur; and that a first-syllable high tone could not precede a second-syllable high tone in words of more than two syllables, the number of possible patterns was limited to eleven. These constraints prevented the sequences LHHH, HHHL, HHHH, HHLL and HHLH. Examples of these eleven remaining patterns, taken from Scott (1978:23), are reproduced in (8).

(8)   (LLLL)   kabarane   [kabarane]   'bird'

      (LLLH)   amaaginé   [ama:gine]   'his chin'

      (LLHL)   nanogáewe   [nano:gaewe]   'my cousin'

      (LLHH)   nao'mantówé   [nao?manto:we]   'my elder brother (female's)'

      (LHLL)   aenkáu'iwe   [aeŋkau?iwe]   'at what place?'

      (LHLH)   na'náantowé   [na?na:nto:we]   'my younger brother'

      (LHHL)   aa'énáwe   [a:?e:nawe]   'border'

      (HLLL)   káikenawe   [kai?ke:nawe]   'about to rain'

      (HLLH)   nágaantowé   [naga:nto:we]   'my elder brother (male's)'

      (HLHL)   áataenáwe   [a:?taenawe]   'bad'

      (HLHH)   múyaaríné   [muja:rine]   'snake'

A problem obviously arises from our current hypothesis which produces a six pattern matrix for tri-syllabic words. It predicts only eight patterns for words of four syllables! But here we seem to have a set of eleven.

There have always been one or two suspicious patterns. Those which are under suspicion include any with a mid pitch in their phonetic realisation. (Most of the four-syllable patterns have a mid pitch somewhere as a variant of either high or low, again with the added tendency for all tones to vary by rising or falling to meet the pitch of a following syllable.) Which of these mids are variants of high, and which of low?

Interestingly, Nicholson & Nicholson (1962:143) in a very brief presentation, actually listed only eight patterns for four-syllable words. The eight patterns they gave were LLHL, LLHH, LHLL, LHLH, LHHH, HLLL, HLHL and HHLL. But these are not the same as those predicted by the approach taken here, which would be: L, H, LH, HL, LHL, HLH, LHLH and HLHL. Nicholson & Nicholson apparently ignored the possibility of an all-L sequence (or treated it as HLLL) and an all-H sequence (or analysed it as LHHH). Even with their limited patterns, they still listed LLHL and LHLL as contrastive (as did I), LLHH as distinct from LHHH, and HLLL from HHLL. Scarcity of data and comment in their paper makes further observations of their analysis unproductive here.

The eleven four-syllable patterns from Scott 1978:23, presented in (8) above, include LLLH as contrastive with LLHH (both of which are possibilities for LH spread over four syllables); LLHL, LHLL and LHHL (all possible expansions of LHL); and HLLH versus HLHH (both are possible interpretations for HLH expansion). Constraints stated above prevented the old analysis from including an all-H sequence, which is predicted under our current hypothesis.

By way of exemplification, the LLLH vs LLHH contrast from the previous analysis is represented by *amaaginé* 'his chin' and *nao'mantówé* 'my elder brother (male's)' in (8). This contrast is a problem which needs attention. Also needing attention is LLHL versus LHLL, which can be seen in *nanogáewe* 'my cousin' and *aenkáu'iwe* 'at what place?' LHHL, the other candidate in (8) for LHL sequencing, is illustrated via *aa'énáwe* 'border.' This word, and one or two others like it, has always been a problem in terms of variation. With its general low-highish-high-low pitch, I have struggled to maintain its contrast with the low-mid-high-low of *nanogáewe* 'my cousin', and am now convinced that allowable pitch variation and long versus short vowels have been factors in perception, and that there is, in fact, no such contrast. There are no minimal pairs, and very few words listed in the published lexicon (Scott 1980) as having the LHHL pattern. The third set of HLLH and HLHH, seen in (8) in *nágaantowé* 'my elder brother (female's)' versus *múyaaríné* 'snake', also needs attention.

If we are to accept the comments just given, four of the old patterns need reanalysis.

Firstly, the old LLHH, which has the general pattern of mid-low-mid-high, needs to be reanalysed as a spreading of HLH. The reader will notice pitch dropping and rising over the pattern of nao'mantówé 'my elder brother (female's)', which will now need to be written as *náo'mantowé*. Its contrast with the old LLLH is retained, but no longer will it be a separate pattern from the old HLLH. In fact, a contrast between these has been difficult to maintain in practice.
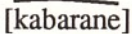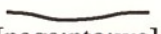
Similarly, the old LLHL, with mid-low-high-low pattern, should be reanalysed as HLHL to represent the general changes in pitch. The old *nanogáewe* 'my cousin' will thus need to be rewritten as *nánogáewe*. No longer will there be a contrast between it and the variable high-mid-high-low pattern of *áataenáwe* 'bad', whose pitches may well have been kept perceptibly higher

by the longer vowels in the first two syllables. Again, a consistent contrast has been difficult to maintain, with very few words recorded as high-mid-high-low.

Thirdly, the old LHHL collapses with LHLL as mentioned earlier, so that the old *aa'énáwe* 'border' will now be given as *aa'énawe*.

Finally, the old HLHH, with high-mid-high-high pattern, contrasts with the high-mid-mid-high of *nágaantowé,* and needs to be reanalysed to fit the all-H vacuum of the new analysis. Thus the old *múyaaríné* 'snake' completes the matrix with its full H-spread *múyáaríné*.

A summary of the new analysis as it applies to four-syllable words in Fore, is presented in (9).

(9)

L	L kabarane	>	kabarane	[kabarane]	'bird'
H	H muyarine	>	múyáaríné	[muja:rine]	'snake'
LH	L H amaagine	>	amaaginé	[ama:gine]	'his chin'
HL	H L kaikenawe	>	káikenawe	[kai?ke:nawe]	'about to rain'
LHL	L H L aenkau'iwe	>	aenkáu'iwe	[aeŋkau?iwe]	'at what place?'
HLH	H L H nagaantowe	>	nágaantowé	[naga:nto:we]	'my elder brother (male's)'
LHLH	L H L H na'nantowe	>	na'nántowé	[na?na:nto:we]	'my younger brother'
HLHL	H L H L aataenawe	>	áataenáwe	[a:?taenawe]	'bad'

3.   'Floating' tones

So far we have looked only at word patterns. But words are composed of morphemes. The assumption then is made that the morphemes themselves contribute underlying patterns of tone which are realised according to the surface limitations stated above. One would expect the same basic system of tonal spreading to be applicable to individual morphemes, such that, for example, two-syllable morphemes would have four possible tone patterns: L spread, H spread, LH or HL. There is, however, one modification that needs to be accounted for – that which was earlier referred to as 'induced' accent. Such accents will now need to be considered as 'floating' tones.

In Scott (1978:20) I stated that morphemes in Fore may induce accents across morpheme boundaries onto that which follows. Some morphemes appeared to carry this potential; others did

not. Since each of the words already given in (1-9) has been presented in its citation form, each has consisted of at least a root plus one other syllable (either *-we* or *-ne*, with or without accent). Any accent carried by this final syllable has been induced there by the patterning of the morpheme preceding it.

Goldsmith (1990:20f) discusses this phenomenon as it occurs in Mixtecan, under the general label of 'floating' tones. Fore 'floating' tones act in a similar way to those in Mixtecan – they displace the first tone of a following morpheme. Now, rather than stating that only some morphemes carry the possibility of inducing an accent, the simplest hypothesis is that each morpheme in Fore carries a 'floating' tone, either H or L.

Consequently, we hypothesise that, for single syllable morphemes, there will be a choice not of two, but of four tone patterns: L, H, LH or HL. Two of these, H and LH, will spread a high tone or 'accent' onto the syllable which follows. The other two, L and HL, spread their low tone (or 'non-accent') onto a following syllable. Similarly, for two syllable morphemes, there will not be four, but six possible tone patterns: L, H, LH, HL, LHL and HLH. Examples of single-syllable morphemes are given in (10), and of two-syllable morphemes, in (11). These are restatements of examples given above in (6-7).

(10)	L	kao(ne)	'(It is) your friend.'	[kaoL[3]-n-e[4] 'your friend-CLASS-INDICATIVE']
	H	kí(né)	'(It is a) maggot.'	[kiH-n-e 'maggot-CLASS-INDICATIVE']
	LH	ke(né)	'(It is a) path.'	[keLH-n-e 'path-CLASS-INDICATIVE']
	HL	káa(ne)	'(It is) one.'	[kaaHL-n-e 'one-CLASS-INDICATIVE']

(11)	L	antaa(we)	'(It is) his intestines.'	[antaaL-w-e 'his intestines-CLASS-INDICATIVE']
	H	nónó(né)	'(It is) a breast.'	[nonoH-n-e 'breast-CLASS-INDICATIVE']
	LH	ama(né)	'(It is) his shadow.'	[amaLH-n-e 'his shadow-CLASS-INDICATIVE']
	HL	á'no(ne)	'(It is) his head.'	[a'noHL-n-e 'his head-CLASS-INDICATIVE']
	LHL	waní(ne)	'(It is) water.'	[waniLHL-n-e 'water-CLASS-INDICATIVE']
	HLH	áwa(wé)	(It is) his tooth.'	[awaHLH-w-e 'his tooth-CLASS-INDICATIVE']

4.   Association of tones

Four questions immediately arise as underlying tone patterns are mapped into syllable structure:

(i)   What basic mapping principle is involved?

(ii)   What principle governs spreading of patterns when there are more syllables than underlying tones?

(iii) Does the number of tones ever exceed the number of syllables available?

(iv)   What happens when similar tones from adjacent morphemes are juxtaposed?

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[3] *kaoL* 'your friend', along with *antaaL* 'his intestines', *amaLH* 'his shadow', *a'noHL* 'his head' and *awaHLH* 'his tooth' in (11), are noun stems composed of an obligatory referent prefix plus noun root. For convenience, such noun stems are treated as unit morphemes, and are discussed briefly in section 5.

[4] It seems best to consider the final citation suffix toneless. This is also discussed in section 5.

Firstly, as with many Papuan languages, Fore allows each syllable nucleus to have no more than one tone. There are no contrastive contours. The underlying tones are associated with their relevant morpheme, with the floating tone replacing the first tone of the next morpheme.

Secondly, tones appear to be spread by increasing the domain of the L tones in preference to the spreading of H tones. This can be seen in the examples given in (9), noting that LH over four syllables tends to become LLLH (with mid variants as discussed previously), and HL falling overall via HLLL. HLH understandably tends to HLLH. LHL is the interesting one. The example given: *aenkáu'we* 'at what place?' appears to vary somewhat randomly between *aenkáu'iwe* and *aenkau'íwe*. From this it appears that H tones are to be considered as peaks of prominence or pitch targets, in keeping with our earlier analysis.

Thirdly, because of the principle of replacement under which floating tones operate, there should never be more underlying tones than there are syllables. Floating tones are assigned prior to vowel fusion, as can be seen in (12) where *aa* fuses with *e*. The retention of this floating tone is part of the system's stability. Some vowel-less morphemes occur, such as *-y* 'he' and the *-n* and *-w* class markers (13), but no tone needs be assigned to these, except for the anomalous *-ntLH* 'perfect tense' which carries a floating H tone for induction on the mood morpheme (14).[5]

(12) igaawé   'It is sweet.'   [igaaLH-w-e 'sweet-CLASS-INDICATIVE']

      igáenawe   'It is a sweet thing.'
                                          [igaaLH-enaL-w-e 'sweet-NOMINALISER-CLASS-INDICATIVE']

(13) aegúye   'He hits him.'   [a-eguLH-y-e 'him-hit-he-INDICATIVE']

      naamáne   'It is a house.'   [naamaLHL-n-e 'house-CLASS-INDICATIVE']

      igaawé   'It is sweet.'   [igaaLH-w-e 'sweet-CLASS-INDICATIVE']

(14) kanauwe   'I come.'   [kanaL-uwL-e 'come-I-INDICATIVE']

      kanantuwé   'I have come.'   [kanaL-ntLH-uwL-e 'come-PERFECT-I-INDICATIVE']

Fourthly, when similar tones appear adjacently, they conform to the general patterns applicable to words as described in section 2. This means that two high tones will merge, as exemplified in (15). It can be seen from the second example in (15) that the same principles seem to apply to close-knit phrases, but further investigation here is needed.

(15) araganené   'It is my daughter.'   [aragaLH-neLH-n-e 'girl-my-CLASS-INDICATIVE']

      yaku ntamáne[6] 'It is a fire house.'
                                          [yakuLH 'fire'; naamaLHL-n-e 'house-CLASS-INDICATIVE']

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5 *ntLH* 'perfect tense' is the only morpheme which may be analysed as vowel-less, but must be assigned a tone pattern since it incorporates a floating high tone. To assign it an underlying vowel causes even more problems! This morpheme was previously analysed as *-nt˝*, but the two highs are now unnecessary as the first is replaced by a floating tone.

6 The *n* of *naamaLHL* 'house' changes to *nt*, and the *aa* to *a*, under normal morphophonemic rules. These are set out in full in Scott (1978: chapter 3).

5.   Aberrations

As with most human systems, there will be some lack of fit. Two types of morpheme do not fit into the system as described thus far. Prefixes do not influence the roots to which there are attached. Rather, the reverse is true. And mood morphemes, which occur sentence-finally, exhibit their own peculiar behaviour.

5.1 Prefixation

Prefixation in Fore is extremely limited. In nouns it is limited to inalienable possession, and in verbs to object reference. These are similar systems with identical morphology. Neither fits the tone system so far described. These prefixes always occur obligatorily with the roots which carry them, and never elsewhere. Since they are so closely knit, I have treated these combinations as complex units within Fore morphology (see Scott 1978:51,70). Thus stems are composed of roots plus any obligatory prefixation.

Stems also function as units within the tone system. The referent prefixes do not induce tones on their associated roots; rather the reverse is the case. The root influences the final syllable of the prefix. Consequently, it seem best to analysis these prefixes as toneless.

Inalienable possession is demonstrated in (16), the first two examples of which were given earlier in (4). Object reference, in which bi-transitives refer to the direct object, and di-transitives to the indirect object, is illustrated in (17).

(16)   nabaawé   '(It is) my father.'   [na[7]-abaaLH-w-e   'my-father-CLASS-INDICATIVE']

       nábaawé   '(It is) my cousin.'   [na-abaaHLH-w-e   'my-cousin-CLASS-INDICATIVE']

       tasibaawé '(It is) our father.'   [tasi-abaaLH-w-e   'our(dl)-father-CLASS-INDICATIVE']

       tasíbaawé '(It is) our cousin.'   [tasi-abaaHLH-w-e 'our(dl)-cousin-CLASS-INDICATIVE']

(17)   nabigáye   'He asks me (s.t.)'   [na-abigaLH-y-e   'me-ask-he-INDICATIVE']

       nagaye   'He sees me.'   [na-agaL-y-e   'me-see-he-INDICATIVE']

       tasibigáye 'He asks us (s.t.)'   [tasi-abigaLH-y-e 'us(pl)-ask-he-INDICATIVE']

       tasigaye   'He sees us.'   [tasi-agaL-y-e   'us(dl)-see-he-INDICATIVE']

5.2 Mood morphemes

It also seems simplest to regard the citation suffix (INDICATIVE mood marker) as underlyingly toneless. In the earlier analysis it was given as unaccented. It needs to be analysed either as toneless or as losing its tone. Any inherent tone it may have had will be replaced by a floating tone from a preceding morpheme, and any floating tone which might have been part of its underlying form will never be realised, as the suffix is always sentence-final. Consequently it seems best to consider it as underlyingly toneless.

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[7] It may be possible to analyse *na-* as *n-* only, and thus appear to circumvent the problem, but *tasi-* is not reducible. Neither can it incorporate a floating tone. Tonelessness appears to be the simplest solution.

There is, however, another factor. The other mood markers consistently occur with high tone. They function the same way for both verbs and non-verbs. When a verb or non-verb is changed from a statement (with Indicative mood marker) into a question (with Interrogative marker), the Interrogative suffix carries its own high tone which is not replaced by any morpheme which precedes it. Neither is the H tone of the Imperative mood suffix replaced. Rather, these override any floating tone. Furthermore, when a questioner such as *naaná* 'What?' is used, the mood marker is -*é*, seemingly Indicative's -*e* with a H tone trace from the Interrogative -*ó*.[8] It may well be that this high is a general sentence-end marker, added whenever the mood of the sentence indicates a non-statement. As illustrated in (18), I have simply added an H following the relevant mood suffix.

(18)   Ago waye.   'He has already gone.'   [agoL 'already'; waL-y-e 'go-he-INDICATIVE']

       Ago wayó.   'Has he already gone?'
                                    [agoL 'already'; waL-y-o+H 'go-he-INTERROGATIVE']

       Aetá wayé.   'Where has he gone?'
                                    ['aeLH-ta 'where-at'; waL-y-e+H 'go-he-INDICATIVE']

       Wáo!   'Go!'   [waL-Ø-o+H 'go-you(sg)-IMPERATIVE']

6. Conclusion

Quite an amount of reanalysis of underlying forms is needed, in order that the surface forms now expected may be realised.[9] However, with appropriate reanalysis of underlying forms, both verb and non-verb suffixation appears to fit the analysis hypothesised here.

The autosegmental analysis presented here appears to explain why there is a limitation on the number of tone patterns in Fore words. It also helps explain why there is so much variation in pitch, with changes in the direction of pitch as the key. Fore does not easily fit a theory which assigns accents or tones to individual syllables underlyingly, since it fails to capture the generalities highlighted by this non-linear approach.

How one would indicate such a system in a practical orthography is not in focus here. It is interesting, though, to speculate that a word-tone indicator may be better than a series of acutes. Fore literates long ago forsook the writing of any type of accent, probably because of the lack of such diacritics in Papua New Guinea's national language, English. Just possibly, though, the frustration caused by seeking to write acutes where they did not really occur may well have had a hand in this practical decision. Is it not marvellous that language contains sufficient redundancies to override our inadequacies!

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8   All yes/no questions take -ó 'INTERROGATIVE' in place of -e 'INDICATIVE', as seen in the second example in (18). All examples of citation forms may also be changed into yes/no questions in this way, e.g. (from 10-11): kaone 'It is your friend.' > kaonó 'Is it your friend?'; áwawé 'It is his tooth.' > áwawó 'Is it his tooth?'

9   As an example, the possessive suffixes given earlier in Scott (1978:77) need to be reanalysed, not as HH (for bisyllabic suffixes) and HLH (for trisyllabics) as previously, but as LH for both:
    e.g. naamákaané 'It is your house.' [naamaLHL-kaaLH-n-e 'house-your(sg)-CLASS-INDICATIVE']
         naamátesiné 'It is our house.' [naamaLHL-tesiLH-n-e 'house-our(dl)-CLASS-INDICATIVE']

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