

Since each Burmese orthographic syllable contains an indication of pitch and of voice-quality features, usually in the form of symbols, such as ချီလိန်, အောက်မြင့်, and ဝသ်, but also in the form of absence of such symbols, e.g. က 'dance', ဝ 'rise', and ချ 'drop', it might at first sight seem that the three assumptions could claim the support of the phonological analysis implicit in the Burmese orthography but it will be shown later in this article that these indications can also be interpreted in a way that is opposed to the three assumptions.

### A. The First Assumption

As regards the first assumption it is clear that the syllable is the tonal unit of such grammarians as Brown, Bridges, and Lonsdale, because it is implied by their tone-marking, which is syllabic;<sup>4</sup> and in

#### tone I

i	ii
low, level/rising	—

#### tone II

i	ii
high, falling/level/rising	—

#### tone III

i	ii
high, falling	slow or not so slow glottal closure, or not glottal closure

#### tone IV

i	ii	iii
high	—	extremely short

#### tonelessness

i	ii	iii
—	—	—

more recent analyses Armstrong and Pe Maung Tin, Cornyn, McDavid, and Bernot specifically state that the syllable is the unit on which their tonal analyses are based: (i) 'the tone of a certain syllable pronounced in isolation, together with all its variants in connected speech, may be said to form one tone-family or *toneme*';<sup>5</sup> (ii) 'each syllable consists of a consonant or a cluster plus a vowel, spoken on one of the four tones or *atonically*';<sup>6</sup> (iii) 'chaque syllabe est affectée d'un ton et celui-ci suffit à différencier deux syllabes au phonèmes identiques'.<sup>7</sup>

### B. The Second Assumption

As for the second assumption Cornyn, for example, describes his four tones (I, II, III, IV) and his tonelessness as having the following combinations of (i) pitch, (ii) voice quality, (iii) vowel duration, and (iv) final vocalic and consonantal features:

iii	iv
long	plain/nasal
iii	iv
long	plain/nasal
iii	iv
short	plain/nasal
iv	
sharp glottal closure, assimilated, in certain types of juncture, to the following consonant	

iv  
neutral vowel only

(the absence of any description under the heading (ii) can be taken to imply that tone-I, tone-II, tone-IV, and toneless syllables do not have the 'slow or not so slow glottal closure' that Cornyn attributes, under certain conditions, to tone-III).<sup>8</sup> McDavid's description corresponds closely to Cornyn's, except that he gives the name 'tone-V' to Cornyn's 'toneless' syllables.<sup>9</sup> Mme. Bernot's tones 1, 2, and 3 correspond to Cornyn's III, I, and II respectively, her architoneme in stressed syllables to his tone IV, and her architoneme in unstressed

syllables to his tonelessness; but apart from these differences of nomenclature her phonetic description differs from his only in two details: 'une syllabe au ton 3 est caractérisée par --- une note moyenne (intermédiaire entre celles des tons 1 and 2)' and '1' architonème [de syllabe accentuée] a les caractéristiques du ton (1) portées à un degré supérieur: la note est légèrement plus haute'.<sup>10</sup> Armstrong and Pe Maung Tin's also differs from Cornyn's and McDavid's analyses, and from Bernot's, in number of tones and in nomenclature:

i	ii	iii	iv
toneme I			
high/mid/low	(a) "creaky"	medium	weak closure of glottis
slight fall	(b) -	extremely short	abrupt closure of glottis
toneme II			
mid/low/very low	"breathy"	very long	
level/slight rise			
toneme III			
high/mid/low	"breathy"	very long	-
falling/level			
toneme IV			
low	-	extremely short	/ə/ and /e/ only. <sup>11</sup>

It is not, however, the difference in number of tones and in nomenclature that is relevant at this point but the fact that pitch features, voice-quality features, vowel-duration features, and such syllable-final features as vocalicity (Cornyn's 'plain final'), nasality, and glottal and other types of occlusive, are not treated separately from each other but combined in phonetic descriptions of each tone.

### C. The Third Assumption

As regards the third assumption, Cornyn, for example, distinguishes particles from free forms (nouns and verbs) in his

grammatical analysis, but applies a single tonal analysis to both categories: in *ládé* for instance, he gives to the particle *dé* the same tonal classification (tone I) as to the verb *lá*; in *?ashei? mašidè mwéilè* the particle *dè* has the same classification (tone III) as the verb *si*.<sup>12</sup> In his example *mahmì tahmì* 'not quite reaching' the verb *hmì* is analysed as tone-III, like, for example, the verb *pyèi* of *pyèidé* 'is full'. Unlike the verb-and-particle pair *lá* and *dé* both *hmì* and *pyèi* are admittedly verb lexical items; but the grammatical function of *hmì* in the phrase *mahmì tahmì*, which Cornyn terms a noun expression, is very different

from that of, for example, *pyèi* in *pyèidé*, which Cornyn terms a verb expression (while it is true that the *hmi* of *mahmè tahmí* is the same in grammatical function as *pyèi* in the noun expression *mapyèi tabyèi* 'not quite full', it nevertheless differs from *pyèi* here in pitch behaviour: falling *versus* level; see section III, ex. (c)).<sup>13</sup> Similarly McDavid's noun examples /θù/ 'his, her' and /mín/ 'your' differ in grammatical function from his noun example /chà/ 'termites', /θù/ and /mín/ being qualifying in function, while /chà/ is non-qualifying; but all three are given the same tonal classification (tone III).<sup>14</sup> By the same principle Armstrong and Pe Maung Tin mark the noun lexical item θu' 'his', for example, as toneme-I, the same toneme as, for example, for the verb lexical θi' 'know', though the noun lexical item is here discharging a grammatical function (qualifying) that the verb is not.<sup>15</sup> Bernot marks the interrogative-particle lexical item /la as having the same tone (her tone 3) as the verb /tu, though, as the final syllable of interrogative sentences its characteristic, though not its only, pitch features in the material on which this article is based are low pitch and rising pitch, e.g. ထိုင်ပါသလား [- - - ' ] 'does he sit down', လေးပါပြီလား [- - - ' ] 'is it enough', လမ်းအရှေ့ဘက်က အပင်ကြီးလား [- - ' ] '(is it) the big tree to the east of the road'; but neither of these features is attributed to her tone 3.<sup>16</sup>

## II. Tone Change; Basic Forms

### A. Tone Change

A result of making these three assumptions is that some of Cornyn's, McDavid's, Bernot's, and Armstrong and Pe Maung Tin's lexical items show an alternation in the tones attributed to them; e.g. 'when

the members of a doubled verb are a negated verb first member followed by a verb with prefixed *ta-*, - - - the first member, if tone I, changes to tone III: - - - *hmíde* 'reaches': *mahmè tahmí* 'not quite reaching';<sup>17</sup> 'when a noun expression formed with the enclitic *-té* precedes a noun which it modifies (126), the enclitic changes to *-té* (tone III): *hmándè* is correct': *hmándè aphyéigóu lóujíndè* '(I) want the correct answer';<sup>18</sup> 'some personal nouns, and a few other noun forms, when indicating possession or followed by particles, may undergo tone-change; that is certain forms in tone-I or tone II are sometimes replaced by forms in tone III. For example, /θú/ 'he', 'she', /θù/ 'his', 'her'; /mín/ 'you' (familiar), /mín/ 'your'.<sup>19</sup> Bernot does not specifically refer to tone change; but she symbolizes an alternation of her tone 1 with her archineme for the lexical item သ် as θi' (her tone 1) in [θi'ʔu'] 'racine' as opposed to θi'ʔ 'bois' and, for example, θik- and θiθ-, as in [θik'kain] 'branch' and [θiθ/θi] 'fruit' respectively.<sup>20</sup>

Cornyn attributes the change of tone in verbs only to certain of his tone-I verbs; but there are Burmans for whom such verb lexical items as ကောင်း and လင်း (Cornyn's tone-II) also alternate in voice quality, being characterized by the constricted voice quality in the first word of each of the two phrases မကောင်း တကောင်း 'fairly good' and (မိုင်း) မလင်း တလင်း 'just about dawn', and by the clear in the second word.<sup>21</sup> The constricted voice quality is a criterion of their tone III for Cornyn and for McDavid, and would oblige them to analyse ကောင်း and လင်း as tone-III in the first word of each phrase (just as it does in the case of

Cornyn's *hmi* in the preceding paragraph) but as tone-II in the second word.

All such tonally alternating lexical items must needs have a double (or tonemic) classification, as tone-I/III, e.g., *-tè* and *-té*, / $\theta\grave{u}$ / and / $\theta\acute{u}$ /, *hmi* and *hmí*, or as tone-II/III, e.g., / $m\grave{m}$ / and / $m\grave{m}$ /, and presumably *lín* and *lín*, and *kâun* and *kâun*, too (the alternatives being in each case grammatically determined).

This double classification would be a nuisance for the lexicographers; for it would add to the complexity of many of his dictionary entries.<sup>22</sup> It would also be a nuisance for the comparatist, who would be faced with a choice between two tonally different phonemic forms for many lexical items. On what grounds are they to prefer Cornyn's and McDavid's tone-I or tone-II phonemic forms to their tone-III forms, or vice versa?

### B. Basic Forms

It is clear from Cornyn's and McDavid's phraseology that in all such cases they prefer the tone-I or tone-II form to the tone-III: it is Cornyn's tone I that is said to 'change', not the other way about; it is McDavid's tone-I and tone-II forms that are 'replaced', not the tone-III; and it is Cornyn's tone I that is indicated for the particles *-té* and *-mé* when these are cited in isolation.<sup>23</sup> That is to say, Cornyn and McDavid treat one of their alternative tonal classifications as basic for these lexical items, and subordinate the other classification to it.

The grounds for their choice are not stated; but a more serious objection is not to the absence of explicit criteria governing the choice but rather to the very concept of 'basic form'. What makes this concept

difficult to justify is the fact that it is just as un-Burmese, or, rather, anti-Burmese, to use the tone-I or the tone-II form of a lexical item in the grammatical conditions appropriate to the alternative tone-III form as it is to use the tone-III form in the grammatical conditions appropriate to the tone-I or the tone-II. It is just as un-Burmese to use the tone-II form *lin* and the tone-I forms *-té* and / $\theta u$ / in the grammatical conditions appropriate to the tone-III forms *lin*, *-tè*, and / $\theta u$ /, for example, as it would be if one used *lin*, *-tè*, and / $\theta u$ / where grammatical conditions required *lin té*, or / $\theta u$ /. That is to say, each of the alternative tones is, as it were, basic in the grammatical or phonological conditions appropriate to that alternative; and this fact must necessarily give each alternative equal status with the other alternative. This means that the phonetic form appropriate to the conditions in which a particular lexical item is named or cited, the citation form of that lexical item, is not to be regarded as in any way superior to other phonetic forms of that item: the citation phonetic form has a monopoly of the citation context, but is inappropriate in any other context. To disregard the unique status of each alternative phonetic form in the environment appropriate to it by choosing one phonetic form in preference to the other, or to the others, and treating it as basic, whether or not it is so designated, cannot be other than arbitrary; and, furthermore, this disregard leads to the use of process terms such as 'change' and 'replacement', which suggest processes that do not, and cannot, take place. It is now recognized that the terms 'replacement' and 'change' do not refer to articulatory processes and the actual replacement of one phoneme by another, the superceding, in e.g. the

first word of the phrase *mahmi tahmī*, of tone I by tone III, or, in the case of /θu/, the abandoning of tone I and instantaneous adoption of tone III; for the 'replaced' tone I, is unattested, and unattestable, in the environment in which it is said to have been 'replaced'. Rather, these quasi-process terms refer to a distributional relationship whereby the two phonemes are distributed complementarily in relation to grammatical or phonological environment for the lexical items concerned.<sup>24</sup> In fact the general principle of treating one of alternative tones as basic raises such difficulties that it should be used only if such a concept is unavoidable.

The type of phonological analysis introduced by Professor J.R. Firth (prosodic analysis) provides a means of avoiding the awkward concepts of 'tone change' and 'basic form', and at the same time relieves the comparatist and the lexicographer of the necessity of choosing between variant forms of the same lexical item; for the sort of classification that it produces for lexical items bypasses these and other concepts inherent in

phonemic analysis.<sup>25</sup> It does this by taking into account grammatical differences wherever these can be shown to be significant for the phonological analysis, and by singling out for special attention syntagmatic associations of the phonetic features concerned.<sup>26</sup>

### III. Syntagmatically associated Pitch Features

In Burmese the pitch behaviour of the component syllables of polysyllabic words is frequently inter-related;<sup>27</sup> and the pitch features of a syllable at one place in the word can be associated syntagmatically with the pitch features of a syllable at another place in it, sometimes quite far removed from the place of the first syllable. Thus, in such types of word as the following two (tone-1 word and tone-2 word) the monosyllabic particle lexical items (i) ဖို့, (ii)-(iii) သည်/သည့် (iv) တော့, and (v) နှင့် can vary in pitch in association with differences in the pitch of, in this case, the verb syllable, which is commonly the first syllable of each word (two pitch levels, high and low, are distinguished):<sup>28</sup>

i.			
tone-1 word	ကောင်းပါဖို့	[ <sup>ˈ</sup> - -]	
tone-2 "	ကော်ပါဖို့	[ - - <sup>ˈ</sup> ]	
ii.			
tone-1 word	ကောင်းပါပေသည့်	[ <sup>ˈ</sup> - - -]	
tone-2 "	မုန့်ပါပေသည့်	[ - - - <sup>ˈ</sup> ]	
iii.			
tone-1 word	တွေ့သည့်	[ <sup>ˈ</sup> -]	အခါ
tone-2 "	လာသည့်	[ - <sup>ˈ</sup> ]	လူ
iv.			
tone-1 word	ခပ်တော့	[ <sup>ˈ</sup> -]	
tone-2 "	ပြန်တော့	[ - <sup>ˈ</sup> ]	
v.			
tone-1 word	မပို့ပါနှင့်	[ <sup>ˈ</sup> - -]	
tone-2 "	မလာပါနှင့်	[ - - <sup>ˈ</sup> ]	

all right  
enough

it is good all right  
it is true all right

the time that I met him  
the man that came

when I drew out  
when I return

please do not send it  
please do not come

The way in which, in these examples, the pitch features of the verb syllable, which is the first syllable of the words in (i)-(iv) and the second syllable of the

words in (v), are linked with the pitch features of the final syllable appears in the following table:

		verb syllable	last syllable
i. tone-1	word	ကောင်း high	level ပြီ
tone-2	"	တော် low	falling "
ii. tone-1	"	ကောင်း high	level သည်
tone-2	"	မှန် low	falling "
iii. tone-1	"	တော့ high, falling	low, level သည်
tone-2	"	လာ low, level	high, falling "
iv. tone-1	"	ခပ် high, falling	low, level တော့
tone-2	"	ပြန် low, level	high, falling "
v. tone-1	"	ပို့ high, falling	low, level နှင့်
tone-2	"	လာ low, level	high, falling "

The pitch features of the verb and of the final-particle syllables in these, and in certain other grammatically comparable (verb-dependence in pitch behaviour is most satisfactorily accounted for by treating pitch behaviour as a feature of the word as a whole, of tone-1 and tone-2 words, however many syllables they contain.

In other words, from the examples (i)-(v) one might say that ပြီ, သည်/သည်, တော့, and နှင့် have each two possible selections of pitch features, one selection appropriate to the tone-1 word, and one appropriate to the tone-2; and until the tone-class of the word is known, it is not possible in a given instance to say what pitch features appropriate to each of these particles.<sup>29</sup>

The types of pitch behaviour shown at (i)-(v) above for the verb lexical items in the tone-1 word (ကောင်း, တော့, ခပ်, ပို့) and in the tone-2 word (တော်, မှန်, လာ, ပြန်), and for the particle lexical items in either type of word, are not, however, the only possible pitch patterns for these and other comparable lexical items. The following is a representative series of examples of pitch patterns appropriate to tone-1 and to tone-2 verb-and-particle words in which the particle category is represented in (a), the sentence-final clause, by သည်, in (b), the qualifying clause, by သည်, and in (c), a noun phrase comprising two verb-and-particle words, by and by တော့:

a. sentence-final clause (three-term intonation system)

		int. 1	int. 2	int. 3	
tone-1 word	ကောင်းသည်	[ ^ - ]	[ ^ ^ ]	[ - ^ ]	is good
tone-2 word	လာသည်	{ [ - ^ ]	[ - - ]	[ - ^ ]	comes

## b. qualifying clause

tone-1 word	ကောင်းသည့်	[ ' - ]	လူ
tone-2 word	လာသည့်	[ - ' ]	လူ

a man who is good  
the man who comes

## c. negative reduplicated-verb noun phrase

tone-1 word	{ မပြည့် တပြည့် မကောင်း တကောင်း }	[ - - - ' ]
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not quite full  
not too good

tone-2 word	{ မမှီ တမှီ မထိုင် တထိုင် }	[ - ' - - ]
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not quite reaching  
not quite sitting

It should first be explained that the upper of the two pitch patterns shown at (a) under intonation 1 for the tone-2 word လာသည့်, in which သည့် is characterized by a low-and-falling pitch, appears to be possible only when all preceding words in the clause have low-and-level pitch; e.g.

ရွာ (ကို) လာသည့် [ - ( - ) - ] he come to the village; where, on the other hand, a high-and-falling pitch is a feature of one or more syllables of the preceding words in the intonation-1 clause, the appropriate pitch features for သည့် are low-and-level; e.g.

ဈေး (ကို) လာသည့် [ ' ( - ) - - ] he comes to the market. Thus, လာသည့် and other tone-2 words containing သည့်, e.g. မှီသည့်, ထိုင်သည့်, have alternative pitch patterns for the intonation-1 clause; and which of the two patterns is appropriate depends on the tone classes of the words of which that clause is composed. That is, each of the alternative patterns is a function of the tonal composition of the clause.

From examples (a)-(c) it will be seen that the approximate pitch behaviour of the verb lexical items ကောင်း and ပြည့် in the tone-1 word and လာ, မှီ, and ထိုင်, in the tone-2 word can be summarized as follows:

(tone-1 word) ကောင်း, ပြည့်,	{ high, falling " , level
(tone-2 word) လာ, မှီ, ထိုင်,	{ low, level high, falling

the relevant examples are: (i) tone-1 word, high and falling: example (a) in intonations 1 and 2, example (b), and the second word of example (c); high and level: example (a) in intonation 3, and the first word of example (c); (ii) tone-2 word, low and level: examples (a) and (b), and the second word of example (c); high and falling: the first word of example (c) ).

It is important to note the following two points: (i) that the tone-2-word lexical item, e.g. မှီ, ထိုင်, can be characterized by a high pitch as well as by a low pitch, as in the first word of examples of type (c); and (ii) that it therefore resembles the tone-1-word verb lexical item as regards height of pitch but differs from it in being characterized by a fall in pitch as opposed to the level pitch, in corresponding circumstances (type (c) ), of the tone-1-word lexical item. In fact, as far as the examples so far given are concerned (i-v and a-c), the verb lexical item of the tone-1 word is always distinguished from the verb lexical item of the tone-2 word by one or other of its pitch features, if not by height of pitch then by



level *versus* falling pitch; but there are grounds for believing that pitch differences between the tone-1 and the tone-2 words are not as clear-cut as they appear to be in the examples given so far.

The examples just given include some tone-2 words in which, against the usual run of their pitch behaviour, the verb lexical item is characterized by a high pitch (in, and only in, the negative reduplicated-verb noun phrase as at (c) above); but no examples have yet been given of tone-1 words in which, against the usual run of their pitch behaviour, the verb lexical item is characterized by a low pitch. There is, however, enough evidence in the material obtained from U Tin Maung to suggest that there is a type of clause in which the verb syllable of a tone-1 verb-and-particle word is regularly characterized by low pitch, in which case tone-1 word and tone-2 word share an identical pitch pattern. Indeed, the use of the term 'representative', rather than 'comprehensive', for the examples of the tone-1 word thus far given, (i)-(v) and (a)-(c), was deliberate; for a comprehensive statement would need to take account of such tone-1-word verb-and-particle examples as the following, in which the verb category is represented by (1) များ; (2) ရှိ;

(3) စိုက်; and the particle by သည်:

1. ကိစ္စ များသည် [ - \ - \ ] he is busy
2. တသန်း ရှိသည် [ - \ - \ ] there area million
3. ကျွဲ စိုက်သည် [ - \ - \ ] it is *nakywai* that they plant

The pitch pattern of each of these three tone-1 words is identical with that of intonationally comparable tone-2 words; e.g. (the verb is represented by လာ, ထိုင်, and လို, and the particle by သည် and ပါ):

ရိုးက လာသည် [ ' - - \ ] he came from the court

သည်မှာ ထိုင်ပါ [ - - - \ ] please sit here

နှစ်ချပ် လိုသည် [ - \ - \ ] he needs two (plates)

Nevertheless, the pitch pattern in the following examples is sufficient to establish the words containing များ, ရှိ, and စိုက် in examples (1)-(3) as tone-1 words; for this pattern is not shared with the tone-2 word (cf. the examples at (a) above), and is therefore a criterion of the tone-1 word:

အလုပ် များလို့ [ \ - ] there being much work to do

တသန်း ရှိသည် [ ' - ] there are a million

ကျောက်စိုက်သည် [ ' - ] they plant *nakyok*

It should be mentioned, in passing, that the low pitches of the verb syllables in examples (1)-(3) would presumably oblige Cornyn, McDavid, and Bernot (but not Armstrong and Pe Maung Tin), for whom low pitch is a tone-I (Bernot's tone-2) criterion, to treat these examples as showing change of tone from their tone II, tone III, and tone IV respectively (Bernot's tone 3, tone 1, and archi-toneme) to their tone I (Bernot's tone 2); but such a statement would encounter two difficulties: (i) there seem to be no environmental or grammatical conditions to which the tone change could be attributed; indeed ရှိသည် is characterized by both [ - \ ] and [ \ - ] under, what appear to be identical environmental and grammatical conditions; and (ii) in the case of ရှိ the tone-I (Bernot's tone 2) criterion, low pitch, would conflict with the tone-III (Bernot's tone-1) criterion slow glottal closure, while, in the case of စိုက်, the tone-I criterion would conflict with the tone-IV (Bernot's archi-toneme) criterion sharp glottal closure assimilated



in certain types of juncture, to the following consonant, with the result that the tonal classification of ခို and ခိုက်, and corresponding examples, would be in doubt.<sup>30</sup>

While it is conceded that the alternation of high with low pitch for မှား, ခို, ခိုက်, and other such verb lexical items requires a more detailed study than is possible from the relatively few examples in the available material, yet the solution that a prosodic analysis suggests is clear.

noun (-ဝ, -ဆန်း, -ကျဲ)  
falling

verb (မှား, ခို, ခိုက်)  
low, level

particle (သည်)  
rising-falling

A specimen exponent of the non-emphatic term, on the other hand, drawn from the three tone-1-word examples in

noun (-လုပ်, ဆန်း, -ကျော်)  
level

verb (မှား, ခို, ခိုက်)  
high, falling

particle (လို့, သည်)  
level

The low pitch of the tone-1-word verb syllable in the emphatic clause, in contrast with its alternative high pitch, combined with the falling pitch of the preceding noun syllable, in contrast with its alternative level pitch, bring the emphasized noun word into prominence.

The high and low pitches characterizing the verb syllable of the verb-and-particle words မှားသည်, မှားလို့, ရှိသည်, etc., in conjunction with the matching features characterizing the particle syllables, are to be treated as alternative, and equal, tone-1-word features, the low pitch being appropriate to the tone-1 word in an emphatic clause in which a preceding word (ကိစ္စ, တဆန်း, ကျဲ) is emphasized, and the high pitch being appropriate to all other circumstances.

If it is treated in this way, there is

It is a syntagmatic solution, linking the pitch features of the verb syllable to those of the following particle syllable or syllables within the word, and also to pitch features of other words within the clause. Associating the pitch features of words within the clause in this way would require two types of clause intonation to be distinguished; these two are here termed emphatic and non-emphatic. A specimen exponent of the emphatic term, drawn from examples (1)-(3), would include the following syllable pitch features:

the paragraph following that of the emphatic-clause examples, would include such contrasting features as:

no need to attribute the low pitch that characterizes the verb syllable in the tone-1 word in examples (1)-(3) to a change of tone but merely to an alternative exponential feature, drawn from the exponency of the emphatic clause in which the emphasized word precedes the word in question. Thus, မှားသည်, ရှိသည်, and ခိုက်သည် in the examples (1)-(3), with the pitch pattern [ \_ ], are just as much examples of the tone-1 word as are မှားလို့, ရှိသည်, and ခိုက်သည် in the following paragraph, in which they are characterized by the pitch pattern [ \\_ ]; the difference in pitch pattern is a function of the difference in clause intonation (emphatic *versus* non-emphatic).

It is of course true that one of these tone-1-word pitch patterns, the one in

which the verb syllable has a low pitch ([ $\_ \wedge$ ]; examples (1)-(3)), is thereby identical with the pitch pattern of the tone-2 words လာသည်, ထိုင်ပါ, and လိုသည် in the paragraph following those examples; but there is in a prosodic analysis no objection to the sharing of features by two or more terms of the same system, provided that there is at least one context in which those terms are phonetically distinguished.

4. ချောင်းရိုးထဲမှာ ချုံကွယ်နေသည် ( $\_ \wedge \_$ ) it is in the bed of the creek hidden by bushes<sup>31</sup>  
 5. ဆရာကို မျှော်နေသည် ( $\_ \wedge \_$ ) I am looking out for Teacher<sup>31</sup>  
 6. နွားကို ရှာနေသည် ( $\_ \wedge \_$ ) he is searching for the cattle

This feature also appears to be appropriate to emphatic clauses, but emphatic clauses in which it is the verb-and-particle word, and not one of the words preceding it, that is emphasized.

The two emphatic-clause features, the low pitch characterizing the verb syllable of the tone-1 word and the rising-falling pitch characterizing the verb syllable of the tone-2 word, complete the list of features that can characterize verb syllables in these two types of word.

high, falling	exx. (i)-(v), (a) int. 1-2, (b), (c) second word
„, level	(a) int. 3, (c) first word
low, „	(1)-(3). <sup>32</sup>

All three sets of features, the total pitch potentiality of the tone-1-word verb lexical item, are summarized by the classification '1'.

The verb lexical items တော်, မှန်, လာ, ပြန်, မှီ, ထိုင်, ကွယ်, မျှော်, and ရှာ (examples (i)-(v), (a)-(c), (4)-(6)), on the other hand, are, as

low, level	exx. (i)-(v), (a)-(b), (c) second word
„, rising-falling	(4)-(6)
high, falling	(c) first word.

Before leaving the emphatic-intonation clause and its exponents it is also perhaps worth mentioning that there is some evidence, not only in the material supplied by U Tin Maung but also in that obtained from other Burmans, that a further feature, rising-falling pitch, can characterize the verb syllable of the tone-2 verb-and-particle word; e.g.,

As far as verb-and-particle words are concerned, the verb lexical items တော်, တွေ့, ခပ်, ပို, ပြည့်, များ, ရှိ, and စိုက် (examples (i)-(v), (a)-(c), (1)-(3)) are confined to the tone-1 word, and have a share in the pitch patterns appropriate to it. They, and all other lexical items that behave like them in this respect, can be classified as tone-1-word lexical items; and the pitch features that are their share, as verb lexical items, in the pitch patterns of the tone-1 verb-and-particles word comprise:

far as verb-and-particle words are concerned confined to the tone-2 word, and share in the tone-2-word pitch patterns. They, and all lexical items of similar behaviour, are accordingly classified as tone-2-word; and the pitch features that characterize them as components of the tone-2 word are:

These three sets of features, the total pitch potentiality of the tone-2-word verb lexical item, are summarized by the classification '2'.

Before a verb lexical item can be pronounced with the appropriate set of pitch features, in a verb-and-particle word, it is essential to know : (i) its tone classification, that is, whether it is '1' or '2'; (ii) whether the clause containing it is emphatic or non-emphatic, and, if emphatic, whether it is the word containing this lexical item that is emphasized or a preceding word; (iii) if the clause should be sentence-final, whether its intonation is type-1, type-2, or type-3 (examples (a) ); and (iv) whether the phrase containing it is or is not a negative reduplicate-verb noun phrase (examples (c) ). The actual pitch features in a given instance depend on these four conditions.

If one compares the three sets of features that characterize the tone-1-word verb lexical item with the three that characterize the tone-2-word verb lexical item, two sets of pitch features, the low-and-level and the high-and-falling, will be found to be common to both. The low-and-level set is common to both in the same conditions, in the emphatic clause in which a preceding word is emphasized; but this set can of course characterize the tone-2-word lexical item in other conditions besides this. The high-and-falling sets, on the other hand, never characterizes both classes of lexical items under the same conditions, and is therefore a criterion by which each class can be identified, provided, of course, that these different conditions are carefully distinguished. The two remaining sets are exclusive to one or the other class of lexical item, the high-and-level to the tone-1-word, and the low-and-rising-falling to the tone-2-word; these sets are therefore criteria in all conditions.

In other words, where the verb lexical item has high-and-level pitch, it can be immediately identified as class-1, and where it has low-and-rising-falling pitch, as class-2. Where it is characterized by high-and-falling pitch, it can be identified as class-2 if contained in the first word of a negative reduplicated-verb noun phrase, e.g. ဝံ့ [ - \ ] ဝံ့, but otherwise as class-1. Where it is characterized by low-and-level pitch, it can be identified as class-2, except in the emphatic clause. In the emphatic clause these pitch features provide no clue to identification, though other features may do so: the constricted voice quality characterizing the verb syllable in example (2) above is sufficient to establish ခိုသ် [ \_ ^ ] as a tone-1 word in spite of the low pitch that accompanies it; and the same is true for the short vowel duration and the final occlusion characterizing the syllable in စိုက် သ် [ \_ ^ ] (example (3) ).

Expressed in terms of the orthography tone-1-word and tone-2-word verb lexical items are indicated by one or other of the following symbols:

#### *Tone-1-word verb ('1')*

- |   |  |
|---|--|
| i. ချ ပေါက်   | e.g. သေး, ပိုး, မီး, ကား, ကူး<br>ထောင်း, ကျိုး |
| ii. နောက် ဝစ်   | မဲ, မဲ   |
| iii. သေ ထိုး ရေး ချ   | ပြော, ပျော့, တော, တော့                         |
| iv. အောက် မြစ်  | သွေ, ပွဲ, ထောင်း, ကျိုး                        |
| v. လုံးကြီးတင်, တချောင်းငင်                                 | ပိ, က  |
| vi. absence of any of the vowel and final-consonant symbols | က, ချ  |
| vii. က သတ်, စသတ်, တသတ်, ဝသတ်                                | စိုက်, ဝစ်, ပိတ်, ခပ်                          |

*Tone-2-word verb ('2')*

- i. သဝေထိုး ရေး ချ ရွှေထိုး      e.g. ပျော်, တော်
- ii. ယ သတ်      ရယ်, ဝယ်
- iii. absence of ရွှေ ပေါက် or  
အောက် မြစ်, combined  
with: င သတ်, ည သတ်,  
ညကလေး သတ်, န သတ်,  
မ သတ်, သေးသေး တင်;      ထောင်, ကြံ  
သဝေ ထိုး, လုံးကြီး တင်  
တချောင်း ငင်      သေ, ပို
- iv. absence of ရွှေ ပေါက်  
combined with:  
လုံးကြီး တင် ဆန်ခတ်, ရေး ချ,  
နှစ်ချောင်း ငင်      ပီ, ကာ, ကူး

	1st syll. (verb)	2nd syll. (particle)
tone-1 word: ဝိ high, falling	low, level	[' -]
tone-2 word: နိ low, level	high, falling	[- \]

Although the two symbols ဝိ and နိ are orthographically part of the first (verb) syllable, of ခပ် and ပြန်, their influence extends to the second (particle) syllable, တော့; and, in reading, the correct pitch features cannot be given to တော့ without first examining the verb syllable in order to find out the tone of the word as a whole.

The same principle applies to the other examples at (i)-(v) above. In ကောင်းပါပြီ and ကောင်းပါပေသည် (examples (i)-(i)) ရွှေ ပေါက် of the first syllable (verb) indicates that these three-syllable and four-syllable words are tone-1, that the pitch of the verb syllable, the first syllable, is therefore high (except, possibly, in an emphatic clause), and that the pitch of the final syllable, the particles ပြီ and သည်, can be low-and-level, high-and-level, or

but these two sets of symbols, the tone-1-word set and the tone-2-word, do more than distinguish one tone class of verb lexical item from another: as far as verb words and verb-and-particle words are concerned, they also indicate the tone of the whole word, however many syllables it may contain, and thereby indicate the pitch features of certain particle syllables in addition to the verb syllable. Thus, in the examples ခပ်တော့ (tone-1 word) and ပြန်တော့ (tone-2 word) given at (iv) above, the tone-1-word symbol ဝိ, and the tone-2-word symbol နိ unaccompanied by either ရွှေ ပေါက် or အောက် မြစ် indicate the following pitch features of both syllables of each word:

low-and-rising-falling, but cannot be low-and-falling; in တော်ပါပြီ and မှန်ပါပေသည်, on the other hand, the ရေး ချ ရွှေ ထိုး in the verb syllable of the first word, and the absence of ရွှေ ပေါက် and အောက် မြစ် from the verb syllable of the second word indicate that these words are tone-2, that the pitch of the verb syllable is therefore low and level, and that the pitch of the final (particle) syllables ပြီ and သည် can be low and falling, as one of several possibilities, which also include low and level, high and level, and low and rising-falling. Similarly, in တွေ့သည့် and in ဖို့ ဝါနှင့် (examples (iii) and (v)) the အောက် မြစ် of the verb syllable indicates that these words are tone-1, that the verb syllable in each therefore has a high pitch, and that the final (particle) syllable has a low and level pitch; but the ရေး ချ unaccompanied by ရွှေ ပေါက် of လာသည့် and မလာပါနှင့်

indicates that these words are tone-2, that the pitch of the verb syllable is therefore low, and that the pitch of the final (particle) syllable is high and falling.

The same sort of statement can be made for words containing a monosyllabic noun and a particle. In the following examples the tone of the word is indicated in the noun syllable by (i) in the tone-1

tone-1 word [ ' - ]	ထားနှင့်
tone-2 word [ _ \ ]	ရေနှင့်

(tone-1: with a knife, from the town, with a stick; tone-2: by water, with him).

The noun-and-particle and the verb-and-particle examples thus far given are enough to show, as far as pitch behaviour is concerned (the pitch not only of the noun syllable but also the syntagmatically associated pitch behaviour of, for example, the verb particles သည်/သည့် and တော့, and the noun particle နှင့်), that such verb lexical items and noun lexical items as ကောင်း and ထား (Cornyn's and McDavid's tone-II, Bernot's tone-3, Armstrong and Tin's toneme-III), တော့ and မြို့ (Cornyn's and McDavid's tone-III, Bernot's tone-1, Armstrong and Tin's toneme-I), and ခပ် and တုတ် (Cornyn's and McDavid's tone-IV, Bernot's architoneme, Armstrong and Tin's toneme-I) cannot be distinguished, and should be classed together. The pitch-behaviour of the words containing them can in all cases be accounted for as tone-1; hence ကောင်း, တော့, and ခပ် can all alike be classified as tone-1-word verb lexical items, and ထား, မြို့, and တုတ် as tone-1-word noun lexical items.

The same principle can be applied to words containing disyllabic verbs and to

## *Tonal Classification of Burmese Lexical Items*

word, ငွေ ခေါက်, အောက် မြင့်, and တဆတ်, to be interpreted as high and falling pitch for the noun syllable and as low and level pitch for the particle syllable နှင့်, and (ii) in the tone-2 word, သေစေ ထုံး unaccompanied by either ငွေခေါက် or အောက် မြင့်, to be interpreted as low and level pitch for the noun syllable, and as high and falling pitch for the particle:

မြို့နှင့်	တုတ်နှင့်
သေနှင့်	

words containing disyllabic or trisyllabic nouns.<sup>53</sup>

Thus, although the various prosodic symbols of Burmese orthography are associated with individual syllables, those which are contained in verb-lexical-item and noun-lexical-item syllables have a function extending beyond the (orthographic) syllable containing them. In other words, they have a syntagmatic function; and this function extends to the whole word. When reading, Burmans do indeed apply them to the word as a whole unit, allowing them to determine the pitch features of those particle lexical items which alternate in pitch (under the same intonational conditions). That is to say, Burmese orthography has word tone marks, located in verb and in noun lexical items; and these tone marks each imply a permitted range of pitch features for the particle lexical items that can be associated with them.

## **IV. The Third Assumption and the Grammatical Classification of Lexical Items**

The range of pitch features that characterizes particle lexical items does not correspond at all closely to the range that is appropriate to verb and to noun lexical

items. The particle lexical item သည်/သည့်, for example, has a multiplicity of possible pitch behaviour far outstripping that of either the tone-1-word or the tone-2-word

verb lexical item; these particle features, and the prosodic conditions appropriate to each, are (the references are to section III, examples (a)-(c)):

low, level	(a) int. 1, tone-1 word
	(a) int. 1, tone-2 word, lower alternative
	(b) tone-1 word
" , falling	(a) int. 1, tone-2 word, upper alternative
" , rising	(a) int. 2, tone-1 word
" , rising-falling	(a) int. 3, tone-2 word
high, level	(a) int. 2, tone-2 word
" , falling	(b) tone-2 word
" , rising-falling	(a) int. 3, tone-1 word

(associated differences in voice quality, clear *versus* constricted, are considered in section V).

When these seven sets of pitch features are compared with the three stated in section III for the tone-1-word verb lexical item (high - and - falling, high-and-level, low-and-level) and the three stated for the tone-2-word verb lexical item (low-and-level, low-and-rising-falling, high - and - falling), it will be seen that in aggregate the pitch behaviour of this particle lexical item differs considerably from that of either the tone-1-word or the tone-2-word verb lexical item: in one context or another all three potential features of each of the two classes of verb lexical item are shared with the particle သည်/သည့်. It is not, therefore, possible to follow Cornyn and McDavid here, and give it the same tone classification as a verb lexical item (Cornyn classifies it as tone-I, like the verbs *lá* and *tháin*, and as tone-III, like the verbs *pyèi* and *št*, with tone I as basic).<sup>54</sup> Neither of the figures '1' and '2', by which the verb lexical items were classified in section III, will serve for the much greater range of pitch

variation of this particle lexical item; and furthermore သည်/သည့်, and indeed all particle lexical items; are not restricted to the tone-1 word or the tone-2, or to words of any tone. As far as the verb and the verb-and-particle type of word is concerned, the verb lexical items ကောင်း, တော့, and သ် are restricted to the tone-1 word, while လာ, မှီ, and ထိုင် are restricted to the tone-2; but သည်/သည့်, တော့, and နှင့် can be exemplified in words of either tone (III, i-iv, a-b), with of course appropriate differences in pitch features accordingly. In short the particle lexical items cannot be given a tone classification.

Furthermore, the alternation in pitch of those particle lexical items which do alternate, e.g. ပြီ, သည်/သည့်, တော့, နှင့်, is a function of word tone; the alternation in pitch of verb and of noun lexical items is not.

The phonological distinction between tonally classifiable and tonally non-classifiable lexical items runs parallel to the grammatical distinction of verb and noun from particle, and illustrates Firth's contention that phonological analysis should

be congruent with grammatical analysis: the difference in the pitch behaviour of particle lexical items from verb and from noun lexical items supports his insistence on making provision for the separate phonological analysis of different grammatical categories. The pitch potentiality of သည်/သည့်, for example, would have to be formulated in terms of its grammatical designation: it belongs to a small sub-category of verbal particle whose two members, သည်/သည့် and မည်/မည့် can occur not only in sentence-final clauses but also in non-sentence-final clauses that precede, and qualify, a noun (III, b). In order, therefore, to distinguish it from other sub-categories of verbal particle this sub-category could be named, from its distinctive qualifying function, the qualifying sub-category. In a given instance the actual pitch features (and voice quality) of these two qualifying particles have to be considered in relation to grammatical function (qualifying clause *versus* non-qualifying clause), word tone (tone 1 *versus* tone 2), and, in the sentence-final clause, intonation (intonation 1 *versus* 2 *versus* 3) (examples (a)-(b) of section III).

## V. The Second Assumption and the Classification of Lexical Items by Features other than those of pitch.

### A. Particle Lexical Items: Voice-quality Classification

The two qualifying particles သည်/သည့် and မည်/မည့် are characterized not only by the considerable diversity of pitch behaviour already illustrated but also, unlike most other particles, by an alternation in voice quality between constricted ('creaky' or glottal-trill), on the one hand, and clear (or breathy), on the other.

For the remaining sub-categories of verbal particle (and of noun particle too), except for ဝါ/ဝါ, there is no such alternation of voice quality; and the voice quality difference is exploited for purely lexical differentiation: lexical items belonging to them are constantly characterized by one type of voice quality or the other, and by that type only. For these latter particle lexical items, therefore, a voice-quality system, storable for the syllable, can be established, comprising the two terms *g* and *g̃* (non-*g*), the letter *g*, the initial letter of *glottal trill*, being adopted for this purpose as a mnemonic. Each particle lexical item can then be classified as *g* or as *g̃* by reference to the two terms of this system according as they are characterized always by constricted voice quality, e.g. the verbal-particle lexical items ကြ and လိမ့်, as in သွားကြ လိမ့်မည် 'they will probably go', and the nominal-particle lexical items က and တော့, as in ဟိုတုန်းကတော့, 'as for that time', or always by clear voice quality, e.g. the verbal-particle lexical items ဖြစ် and ဆူး, as in မသွားဖြစ်ဘူး 'he did not in fact go', and the nominal-particle lexical items ထဲ and မှာ, as in ဟိုထဲမှာ 'inside there'.

For the two qualifying-particle lexical items သည်/သည့် and မည်/မည့်, on the other hand, the alternation in voice quality has a strictly grammatical significance: the constricted voice quality characterizes them in the qualifying clause (non-sentence-final; examples III (b)), and the clear voice quality in all other circumstances (examples III (a)). Precisely the same alternation of features characterizes certain monosyllabic-noun lexical items and the final syllable of the final lexical item of certain polysyllabic nouns according



as they too are or are not qualifying a following noun; e.g. ငါ 'I' *versus* ငါ/c 'my'; ခင်ဗျား 'you' *versus* ခင်ဗျား/ခင်ဗျာ 'your'; ရှင်ဘုရင် 'king' *versus* ရှင်ဘုရင် 'king's'. In fact the final syllable of the qualifier, whether word or clause, can be characterized by constricted voice quality unless it is characterized by final occlusion (symbolized in the orthography by က်, ဝ်, ဝ်, ဝ်). The alternation in voice quality is therefore best accounted for by classifying သည်/သည့် and မည်/မည့် as  $\bar{g}$ , which classification, taken in conjunction with

their grammatical classification as members of the qualifying sub-category of verbal particle, deals with their alternation in voice quality: clear, but constricted when qualifying a noun.

This will mean that the classification  $\bar{g}$  will have a different significance for the qualifying verbal-particle lexical items သည်/သည့် and မည်/မည့် from all the other (non-qualifying)  $\bar{g}$  lexical items (e.g. the verbal-particle lexical items ပြီ, ဗေ, သူး, ဖြစ်) save only ဝါ/ဝါ; for these latter do not alternate in voice quality:

#### Verbal-particle lexical items

$\bar{g}$  { သည်/သည့်, မည်/မည့်  
other lexical items (except ဝါ/ဝါ)

qualifying	not qualifying
constricted	clear
	clear

For the honorific particle ဝါ/ဝါ the classification  $\bar{g}$  also signifies, as for သည်/သည့် and မည်/မည့်, alternative voice qualities, constricted and clear; but the

constricted voice quality is appropriate to the occurrence of this lexical item in emphatic clauses, and the clear voice quality to all other circumstances; e.g.

#### Honorific-particle lexical item ဝါ/ဝါ

$\bar{g}$  { non-emphatic clause: clear  
emphatic clause: constricted

e.g. လာပါမည် I will come  
လာပါမည် I will certainly come

For verbal-particle lexical items there is therefore this difference between the classification  $\bar{g}$  and the classification  $\bar{g}$ :  $\bar{g}$  means that the lexical item so classified, e.g. နှင့်, တော့, ကြ, can be characterized by constricted voice quality in all circumstances;  $\bar{g}$  means that the item so classified is characterized by clear voice quality in all circumstances, unless that lexical item is သည်/သည့်, မည်/မည့်, or ဝါ/ဝါ, in which case  $\bar{g}$  means clear voice quality or constricted voice quality in accordance with the grammatical or the phonological conditions stated above.

#### B. Verb Lexical Items: Voice-quality Classification

For verb lexical items too the voice-quality difference, constricted *versus* clear, has an almost exclusively lexical significance: monosyllabic-verb lexical items are regularly characterized either by one type of voice quality or by the other; and these can be classified accordingly as  $\bar{g}$ , e.g. တွေ့ 'find', က 'dance', ကု 'treat medically', or as  $\bar{g}$ , e.g. ကောင်း 'good', တော် 'sufficient', မှန် 'correct', ကူ 'help', ဆွဲ 'draw out'.

For monosyllabic-verb lexical items in general, then, the classification *g* is indicated in the orthography by:

- i. အောက် မြစ် e.g. သေ, ထောင်
- ii. လုံးကြီး တင်, တချောင်း ငင် ပီ, ကု
- iii. absence of any of the vowel and final-consonant symbols က, ချ;

the corresponding  $\bar{g}$  lexical items are indicated by:

- i. ရှေ့ ပေါက် e.g. သေး, ထောင်း
- ii. absence of အောက် မြစ် combined with: နောက် ပစ်, သဝေ ထိုး ရေး ချ မဲ, တော
- iii. ကသတ်, ဝ သတ်, တ သတ်, ပ သတ် စိုက်, ပစ်
- iv. သဝေ ထိုး ရေး ချ ရှေ့ ထိုး ပျော်, တော်
- v. ယ သတ် ရယ်, ဝယ်
- vi. absence of ရှေ့ ပေါက် or အောက် မြစ် combined with: င သတ်, ည သတ်, ည ကလေး သတ်, န သတ်, မ သတ်, သေးသေး တင်; ထောင်, ကြံ  
သဝေ ထိုး, လုံးကြီး တင် တ သေ, ပို  
ချောင်း ငင်
- vii. လုံးကြီး တင် ဆန် ခတ်, ရေး ချ မီး, ပီး; ကား, ကာ;  
နှစ်ချောင်း ငင် ကူး, ကူ

Unlike the tone marks, which apply to the word as a whole and have syntagmatic implications for syllables in addition to the syllable containing the tone mark (section III), the voice-quality symbols of the orthography apply only to the syllable containing them.<sup>35</sup> Thus, for example, သေ and ပီ are *g*-syllable verb lexical items, မြစ် and လိပ် *g*-syllable verbal-particle lexical items, နှင့် and က *g*-syllable nominal-particle lexical items, and ခု 'item' and မြို့ 'town' *g*-syllable noun lexical items, while သေး and ထောင်း are  $\bar{g}$ -syllable verb lexical items, မြစ် and ဖေ *g*-syllable verbal-particle lexical items, မှာ and များ  $\bar{g}$ -syllable nominal-particle lexical items, and လက် 'hand' and ငေ 'water'  $\bar{g}$ -syllable noun lexical items.

From this it follows that each of the symbols contained in an orthographic syllable symbolizing a verb or noun lexical item has two functions, a tonal function, in relation to the word as a whole, indicating a tone-1 or a tone-2 word, and a voice-quality function, in relation to the individual syllable, indicating a *g* or a  $\bar{g}$  syllable; e.g.

	word tone	syllable voice quality	examples
a. အောက် မြစ်	1	<i>g</i>	သေ, ထောင်
b. လုံးကြီးတင်, တချောင်း ငင်, absence of any of the vowel and the final- consonant symbols	"	"	ပီ, ကု, က
c. ရှေ့ ပေါက်	"	$\bar{g}$	သေး, ထောင်း

d. absence of အောက် မြစ်  
combined with နောက်

ပစ်, သဝေ ထိုး ရေး ချ — — — 1

e. က သတ်, စ သတ်, etc. — — — "

f. သဝေ ထိုး ရေး ချ ရှေ့ ထိုး — — — 2

g ယ သတ် — — — — — "

h. absence of ရှေ့ ပေါက် or  
အောက် မြစ် combined  
with c သတ်, ည သတ်, etc.,

သဝေထိုးလုံးကြီး တင် တချောင်း ငင် — "

$\bar{g}$  မဲ, တော

" စိုက်, ပစ်

" ပျော်, တော်

" ရယ်, ဝယ်

" ထောင်, သေ

Each of the symbols that indicates a g syllable (a-b) also indicates that the word containing it is tone-1; each of the symbols that indicates a tone-2 word (f-h) also indicates that the syllable containing it is  $\bar{g}$ . Thus the symbolization of g correlates with the symbolization of tone 1 (the reverse is not true); and the symbolization of tone 2 correlates with symbolization of  $\bar{g}$  (the reverse is not true).

Some of the  $\bar{g}$  symbols (c-e) indicate tone 1; others (f-h) indicate tone 2. Some of the tone-1 symbols (a-b) indicate g; others (c-e) indicate  $\bar{g}$ .

To summarize, pitch features and voice-quality features are altogether different in their syntagmatic implications, and therefore in their relations with the word and the syllable; they should therefore be kept distinct, even though Burmese orthography uses a single symbol to perform both a tonal and a voice-quality

function, and achieves a notable and praiseworthy economy in so doing.

### C. Pitch Features of g and $\bar{g}$ Lexical Items (Particle, Verb, Noun)

The impossibility of making general statements associating constricted voice quality with high pitch can be shown by contrasting the pitch features of g-syllable verb and noun lexical items with the pitch features of g-syllable particle lexical items. Though Cornyn's, McDavid's, and Bernot's descriptions of Cornyn's and McDavid's tone-III syllable and of Bernot's tone-1 syllable, as having slow glottal closure at least in some types of juncture, and as beginning high or as being high, is in the main justified when made for verb and for noun lexical items (but see section III, ex. 2),<sup>38</sup> the part of the description that concerns pitch cannot, in the material on which this analysis is based, stand for particle lexical items: their pitch is a function of word tone; and is either high or low accordingly; e.g.

verb	particle	tone-1 word	tone-2 word
တော့	မပို့တော့ဘူး	[- ' - -]	မပြန်တော့ဘူး [- - ' -]
နှင့်	မပို့ပါနှင့်	[- ' - -]	မလာပါနှင့် [- - - ']

In these examples, (i) the constricted voice quality of the verb lexical item ဝှ် is accompanied by high pitch, (ii) the constricted voice quality of the particle lexical items တော့ and နှင့် differs from that of ဝှ် in that the accompanying pitch alternates, from low in the tone-1 word to high in the tone-2 (cf. also section III, examples (iii)-(v)), and (iii) the g-syllable particle lexical item နှင့် has same (low) pitch in မဝှ်ပါနှင့် as ဝှ်, which is Cornyn's and McDavid's tone 1 and Bernot's toneme 2.

For particle lexical items, therefore,

		tone-1 word	tone-2 word
တော့	g vbl. part.	ခပ်တော့ [ ˈ - ]	ပြန်တော့ [ - ˈ ]
နှင့်	" noml. part.	ထားနှင့် [ ˈ - ]	ရေနှင့် [ - ˈ ]
လျှင်	ḡ vbl. part.	ခင်းလျှင် [ ˈ ˈ ]	ဆိုလျှင် [ - - ]
မှာ	" noml. part.	ကျောင်းမှာ [ ˈ - ]	ယာမှာ [ _ - ]

(the translation of the g examples is as in section III; the ḡ examples translate as: if you spread, if you say; at school, in the field).

#### D. Alternation of Voice Quality in Verb Lexical Items

It was stated at (B) above that for verb lexical items the function of the voice-quality difference, constricted *versus* clear, is, in general, lexical: it distinguishes one class of lexical items from another. There are however a number of verb lexical items, mainly, and perhaps exclusively, intransitive verb lexical items, that are characterized by an alternation of voice quality. In this respect they resemble the particle lexical items သည်/သည့် and မည်/မည့် and the noun lexical items referred to in section (A) above, but of course without their associa-

the symbols illustrated at (a)-(h) above do not have the tonal function; but they do have the voice-quality function, with appropriate associated pitch features, though seldom the fixed register features attributed to them by Cornyn's McDavid, and Bernot.<sup>37</sup> Apart from သည်/သည့် and မည်/မည့်, which have already been dealt with, the symbols at (a)-(b) indicate for particle lexical items that they are g-syllable, and can therefore be characterized by constricted voice quality, while, the remaining symbols (c)-(h) indicate ḡ-syllable particles, always characterized by clear voice quality; e.g.

ted difference in grammatical function (qualifying *versus* non-qualifying). These verb lexical items are those which can occur in the negative reduplicated-verb noun phrase. They comprise both tone-1-word and tone-2-word lexical items, but excluding tone-1-word lexical items that have the potentiality of syllable-final occlusion (these excluded tone-1-word lexical items, which do not alternate in voice quality, are indicated in the orthography by the symbols န်, ဖ်, ဝ်, and ဖ်).

The type of noun phrase in question comprises two words, in the first of which these lexical items are characterized by constricted voice quality, but in the second, and indeed in all other circumstances, by clear voice quality (alternative orthographic forms are possible in the first word); e.g.

constricted		clear	
မကောင်း } မကောင်း }	[- -]	တကောင်း [- ']	not too good
မလင်း } မလင်း }	[- -]	တလင်း [- ']	(dawn) not quite breaking
မမှီ } မမှီ }	[- ']	တမှီ [- -]	not quite reaching
မထိုင် } မထိုင် }	[- ']	တထိုင် [- -]	not quite sitting down.

At the grammatical level of analysis it will in any case be necessary to group together in a sub-category all verbs that can be exemplified in the negative reduplicated-verb noun phrase; and for all lexical items classified in this way *g* formularizes clear voice quality, save only in the first word of the negative reduplicated-verb phrase, while the classification *g* formularizes constricted voice quality in all circumstances, and, in particular, in both words of the negative reduplicated-verb phrase; e.g.

constricted constricted

မပြည့် [- -] တပြည့် [- '] not quite full

မထိ [- -] တထိ [- '] not quite touching.

In other words, the constricted voice quality that characterizes the *g* syllable, e.g. ကောင်း, လင်း, မှီ, ထိုင်, in the first word of the phrase is to be analysed differently from the constricted voice quality that regularly characterizes the *g* syllable; and the question of change of tone, on the lines of Cornyn's tone change of *hmi'* (tone I) to *hmi* (tone III), does not arise.

In any case the difference in the pitch behaviour of မှီ and ထိုင် when characterized by constricted voice quality from that of, for example, ပြည့် and ထိ, in the first word

of the phrase, would present something of a problem for the tone-change concept:

	voice quality	pitch
(မ)ပြည့်	constricted	high, level
(မ)ထိ	"	"
(မ)မှီ	"	falling
(မ)ထိုင်	"	"

Since မှီ has constricted voice quality here. Cornyn analyses it as an example of his tone III (*hmi*); and yet it differs in pitch behaviour (falling *versus* level) from ပြည့် and ထိ, which Cornyn also analyses as tone-III (*pyè, thi*), even though all three are in the same type of juncture ('open'). If မှီ and ထိုင် are to be analysed as having changed into tone III here, one would expect them to be identical in pitch features with all other examples of tone III. In other words, constricted voice quality is not to be regarded as a criterion of *g* in all circumstances: one must also take into account pitch features (falling *versus* level, as here), and, at the grammatical level, the special conditions appropriate to the negative reduplicated-verb noun phrase.

The constricted voice quality characterizing the *g*-syllable lexical items ကောင်း, လင်း, မှီ, etc. in the first word of the negative reduplicated-verb phrase is sufficiently

indicated by the symbols ခ and က, and by the reduplication of the verb lexical item; and it is not surprising that Burmese orthography commonly dispenses with any indication of this voice quality apart from these. If more specific symbolization were thought necessary, it would be preferable to add အောက်မြစ်, to form ကောင်း, လင်း, မှီ, and ထိုင်; the ရှေ့ပေါက် and the လုံးကြီးတင်ဆန်ခတ် would then preserve the voice-quality classification of the lexical item as g, while the အောက်မြစ် would have the purely phonetic, and non-lexical, function of indicating the constricted voice quality peculiar to this grammatical environment. In the case of ထိုင် and similar lexical items in င်, ည်, ည်, န်, မ်, and သေးသေးတင် the function of the အောက်မြစ် would unfortunately be ambiguous; for င်, ည်, န်, etc. without ရှေ့ပေါက် or အောက်မြစ် plus the phonetic အောက်မြစ် cannot be distinguished from the lexically classifying အောက်မြစ်; but adding the အောက်မြစ် would in any case be an over-phonetic and superfluous device for anyone with some knowledge of Burmese.

#### E. Alternation of Voice Quality in Noun Lexical Items

Taken in conjunction with the grammatical analysis the tone classifications '1' and '2', and the voice-quality classifications g and ḡ, dispose of any need to introduce the concept of tone change or tonal replacement for verb lexical items; and from the way in which the alternation in voice quality of e.g. the verb lexical items ကောင်း and လင်း, and the alternation in both voice quality and pitch of e.g. the verb lexical items မှီ and ထိုင်, and, a fortiori, the particle lexical items သည်/သည့် and မည်/မည့်, have been so analysed as to exclude the tone-change concept, the reader will probably have guessed that the same treatment is to be given to the well-known alternation

in the voice-quality and the pitch features of certain noun lexical items. This alternation, and the grammatical categories qualifying and non-qualifying of which the constricted and the clear voice quality are, respectively, exponents, have indeed already been mentioned in the course of dealing with သည်/သည့် and မည်/မည့် (at (A)). The tone-change concept has been used to account for it: 'certain noun expression attributes, which consist of a syllable in tone I or II, change to tone III before a head noun: - - - *khínbyā badūlê* 'who are you?': *khímbyā θaṇéjīn badūlê* 'who (is) your friend';<sup>38</sup> 'some personal nouns, and a few other noun-forms, when indicating possession or followed by particles, may undergo tone-change; that is, certain forms in Tone I or Tone II are sometimes replaced by forms in Tone III. For examples, /θú/ 'he, she', /θù/ 'his, her', /mín/ 'you' (famil.), /mìn/ 'your'.<sup>39</sup> A like change is implied by Armstrong and Pe Maung Tin's phonemic form /θu:/ (toneme II) 'he' as compared with /θu/ (toneme I) 'his'; and by Bernot's phonemic form *na* 'je' (toneme 2) as compared with *na'* 'de moi, mon' (toneme 1). Cornyn's and McDavid's tone-III form, and Armstrong and Pe Maung Tin's and Bernot's tone-1, thus have the effect of identifying their forms /θù/ 'his', /mìn/ 'your', and *na'* 'my' tonally with such forms as ဆု 'reward', မြွေ 'rhinoceros', and the second syllable of ဝနေ 'today', though the first three examples are qualifying, and the last three are not, and though the first three are each one of a pair of phonemic forms of the same lexical item, while the last three are constant.<sup>40</sup>

In a phonological analysis of the type proposed by Firth there is no obstacle to analysing the noun forms ဆု (or ဆု.) 'his', မြွေ

(or မင်း) 'your', င (or ငါ) 'my', and the final syllable of ခင်ဗျာ (or ခင်ဗျား) 'your', or of ရှင်ဘုရင် 'king's', differently from ဆု 'reward' and ကြံ 'rhinoceros', for example, or from the second syllable of ဝနေ, 'today' or of မိန်းမ 'woman', in spite of their having identical voice-quality and pitch features. This difference in analysis (i) reflects the grammatical difference between the forms ဆု, မင်း, ခင်ဗျာ, for example, which are qualifying and emphatic forms only, and such forms as ဆု, ကြံ, and ဝနေ, which are not restricted to qualifying and to emphasis, and (ii) attempts to relate different phonetic forms of the same lexical item, as for example ဆု and ဆူ, ခင်ဗျာ and ခင်ဗျား, to a single common formula.<sup>41</sup> The constricted voice quality of ဆု and of the second syllable of ခင်ဗျာ, for example, which has either a grammatical or an emphatic significance, need not be analysed identically with the constricted voice quality of, for example, ဆုကြံ, and the second syllable of ဝနေ, which has a purely lexical significance: ဆု, ကြံ, and နေ are thereby classified as  $\bar{g}$ -syllable lexical items, and as such are regularly characterized by constricted voice quality, while ဆု/ဆူ, မင်း/မင်း, င/ငါ, and -ဗျာ/-ဗျား, for example, are classified as  $\bar{g}$  lexical items, and therefore characterized by either constricted or clear voice quality under differing grammatical and phonological conditions, and so is the second syllable of the disyllabic lexical item -ဘုရင်/-ဘုရင် contained in ရှင်ဘုရင်.

Such an analysis can claim the occasional support of Burmese orthogra-

phy, which sometimes distinguishes the  $\bar{g}$  lexical item and the final  $\bar{g}$  syllable of a disyllabic lexical item by combining အောက် မြစ် with one of the  $\bar{g}$  symbols listed in section (B) above (though stated there for verb lexical items they are equally valid for noun lexical items). Thus, ဆု 'his', မင်း 'yours', and င 'my' can also be symbolized as ဆူ, မင်း, ငါ, in which the အောက် မြစ် indicates the grammatical or emphatic function of these forms, and therefore, at the phonetic level, the constricted voice quality appropriate to that function, while the နှစ်ချောင်း ငင်, the ရွှေ ပေါက်, and the ရေး ချ indicate that their lexical classification is  $\bar{g}$ , and associate them with ဆူ, မင်း, and ငါ (the final syllable of ရှင်ဘုရင် 'king's' is ambiguous: it is not possible in Burmese orthography to make a distinction between (i) absence of both ရွှေ ပေါက် and lexical အောက် မြစ် plus grammatical and phonetic အောက် မြစ်, as in ရှင်ဘုရင်, 'king's' and (ii) lexical အောက် မြစ်, as in လင် 'stage').

If interpreted in the way suggested in this article ရွှေ ပေါက်, အောက် မြစ်, နှစ်ချောင်း ငင်, က သတ်, and the other Burmese orthographic symbols considered here are opposed to the three assumptions challenged at the beginning of the article, and appear as an economical set of symbols in some cases discharging more than one prosodic function simultaneously (word tone, syllable voice quality), within certain grammatical limitations, and with at least the capability of distinguishing the grammatical and emphatic functions of constricted voice quality from the lexical, and thereby facilitating the classification of lexical items.



## 'Burmese Orthography'—Notes

1. These examples are taken from J. A. Stewart, *An Introduction to Colloquial Burmese*, Rangoon, 1936, 68-9.
2. Referred to below by the single terms 'clear' and 'constricted'.
3. In criticism of these assumptions see also R.K. Sprigg, 'Junction in Spoken Burmese', *Studies in Linguistic Analysis*, Oxford, 1957, 126.
4. R. Grant Brown, *Half the Battle in Burmese*, London, 1909, 12-15; J. E. Bridges, *The Burmese Manual*, London and Rangoon, 1906, 182; A.W. Lonsdale, *Burmese Grammar*, Rangoon, 1899, 33-4.
5. Liliās E. Armstrong and Pe Maung Tin, *A Burmese Phonetic Reader*, London, 1925, 20.
6. William Cornyn, 'Outline of Burmese Grammar', *Language*, 20, 4 suppl., Oct. - Dec., 1944, 7 (3).
7. D. Bernot, 'Esquisse d'une description phonologique du birman', *Bulletin de la société linguistique de Paris*, 58, 1, 1963, 164. Cf. also J. R. Firth, 'Notes on the Transcription of Burmese', *Bulletin of the School of Oriental Studies*, VII, 1, 1933, 137-9; Raven I. McDavid, Jr., 'Burmese Phonemics', *Studies in Linguistics*, 3, 1, 1945, 7 (4); J. A. Stewart, *Manual of Colloquial Burmese*, London, 1955, 2.
8. op. cit., 7-10.
9. op. cit., 7-8.
10. op. cit., 222.
11. op. cit., 21-6.
12. op. cit., 9 (27), 29 (i54.1).
13. op. cit., 31-2 (163) (170); 12 (36).
14. op. cit., 17 (note 4), 8 (6.3).
15. op. cit., 28.
16. I owe this material to U Tin Maung, an Upper-Burman from Sagaing, and, in section V (D), to my colleague Dr. Hla Pe, a Lower-Burman from Moulmein.  
  
On the corresponding difficulty, in Karen, of analysing sentence-final particles on the same terms as verbs cf. Eugénie J. A. Henderson, 'Tone and Intonation in Western Bwe Karen', BRSFAP, I, Jan., 1960.
17. Cornyn, op. cit., 32 (170).
18. Cornyn, op. cit., 29 (154.1).
19. McDavid, op. cit. 17 (4a); see also Cornyn, op. cit., 23 (125), and cf. Armstrong and Tin, op. cit., 28 (/θu/ 'his', /θu:/ 'he').
20. My own material suggests that the vowel quality characterizing သ် in သ်  
၃ would be the same as in သ်, သ်ၵ်း, and သ်း; but Bernot's θi' would require the same vowel quality, in fact, as in သ် 'know'.
21. cf. Stewart, *An Introduction*, 84; for the pronunciation of these examples I am indebted to Dr. Hla Pe.
22. cf. also, on a similar problem in Karen, Henderson, op. cit., 61 (1a).
23. op. cit., 12 (36).
24. cf. also H. A. Gleason, *An Introduction to Descriptive Linguistics*, New York, 1961, 82-3.

The reference to phonological environment, as distinct from grammatical environment, is intended to cover the sort of phonetic variation that characterizes the final syllable of, for

- example, ဆရာ/ဆရာ, in ဆရာ(ကို) မျှော်နေဆဲ 'I am looking out for Teacher', cf. ဆရာ(ကို) ရှာနေဆဲ 'I am looking round for a teacher' (Stewart, *An Introduction*, 26-7), and that characterizes အိမ်/အိမ် in အိမ်ရှင် 'householder', cf. also အိမ်ရှင်. Such variations as these are attributable to differences of emphasis.
25. See R. H. Robins, 'Aspects of Prosodic Analysis', *Proceedings of the University of Durham Philosophical Society*, I, series B (Arts), 1957, 1, 1-12.
  26. cf. also R. K. Sprigg, 'Prosodic Analysis, and Phonological Formulae, in Tibeto-Burman Linguistic Comparison', *Linguistic Comparison in South East Asia and the Pacific*, London, 1963, 79-81.
  27. Phonetic criteria for the delimitation of the word, based on junction features, are stated in 'Junction in Spoken Burmese'. On the basis of these phonetic criteria, supported by grammatical criteria, မဆောင်းပရစေနှင့်, for example, is a single six-syllable word. The first five syllables can be shown to be in intraverbal junction with each other by such features as central vowel quality (ə, ʊ) initial voicing (ʊ, ʁ), and final nasality homorganic with the following initial (ဆောင်း). The syllable နှင့် is the only one that is not linked by junction to the preceding syllable; but it is, in some utterances, linked, by its low pitch, to the verb syllable (here ဆောင်း; cf. III, example (v), မပို့ပါနှင့်), and is also to be linked with it on grammatical grounds: verb and particle regularly form part of the same word.
- The term word as used in this article corresponds equally to the 'high words', 'lexigrams' and '(lexical) words' of Minn Latt's recent 'Second Report on Studies in Burmese Grammar', *Archiv Orientalni*, 31, 1963, 257-62.
28. See also 'Junction in Spoken Burmese', 126-7. For words containing disyllabic verbs a four-term tone system is statable ('Junction', 128).
  29. Certain verbal-particle lexical items, e.g. ဆူး: 'ever', ခိုး: 'still', ဆေး: 'still', do not, perhaps, have two selections of features; if not, they lie outside the statement made in this paragraph.
  30. From the features listed at (IB) above it will be seen that Armstrong and Tin do not invariably associate a high pitch with their tonemes I and III or a low pitch with their tonemes II, but that the former two tonemes can.
  31. From Stewart, *An Introduction*, 95, 26.
  32. This article does not deal with the pitch features characterizing verb lexical items contained in polysyllabic noun words and noun-and-particle words; e.g. ကောင်း and ကို in the trisyllabic noun word သူကောင်းကို 'benefactor', ရှိ in the trisyllabic noun word ပညာရှိ 'wise man', စော and ကြီး in the trisyllabic noun word ဆော့ကြီး 'very early'.
  33. cf. Sprigg, 'Junction', 128, where ဆည် can be characterized by a low and falling pitch in the tone-I disyllabic-verb-and-particle word, but not in the tone-II, tone-III, or tone-IV.
  34. op. cit., 29 (154).
  35. There is however a possibility that interaverbal junction presence or absence of constricted voice quality may be linked to presence or absence of

glottal plosion as an initial feature of a following syllable: in e.g. ပို့ခိုးတော့ 'send it, then' and in တောင့်ခိုးမည် 'I will go on waiting' the syllable ခိုး, which follows the constricted-voice-quality syllables ပို့ and တောင့်, has a glottal-plosive initial; but in နေခိုးတော့ 'wait for me then', in which it follows the clear-voice-quality syllable နေ, it has a vowel initial. Similarly, ဆောင် has a vowel initial in နိုင်ဆောင် 'so as to win', in which it follows နိုင်, which has clear voice quality. If such a relationship could be established between the syllable with constricted voice quality and the alternation of initial glottal plosion with initial vowel in the following syllable, it would become necessary to treat *g* and *g̃* as applying not to a single syllable but to a sequence of two syllables.

36. Cornyn, op. cit., 9 (26-8); McDavid, op. cit., 8 (6.3); Bernot, op. cit., 221-2.

37. Certain verbal particles, however, e.g. ဆေး 'still', သူး 'ever', ခိုး 'still', seem to be regularly characterized by high pitch.

38. Cornyn, op. cit., 23 (125).

39. McDavid, op. cit., 17.

40. It is not only in their qualifying function that these noun lexical items of variable voice quality are characterized by their constricted alternative: this alternative also characterizes them in other circumstances; e. g. မခွင့်(ကံ) ငါ မပြောဘူး 'I do not speak to you', သူ(ကံ) ပြပါ 'show to him' (Stewart, *An Introduction*, 27). In these examples the function of the constricted voice quality is taken to be emphatic.

41. cf. A.E. Sharp, 'Stress and Juncture in English', *Transactions of the Philological Society* 1960, 108.

