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# Phonological Formulae for the Verb in Limbu as a Contribution to Tibeto-Burman Comparison

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R. K. SPRIGG

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Not much systematic comparison of contemporary spoken Tibeto-Burman languages has yet been attempted; but an increasing number of phonological analyses has made clear some of the difficulties with which the comparatist in this field will be faced. One of these difficulties arises out of differences in the phonetic form of particular lexical items in accordance with differences in junction;<sup>1</sup> another, not present in Burmese and Arakanese but a prominent feature of Tibetan and of Limbu, one of the Kiranti languages of eastern Nepal, is that of differences in verb root.<sup>2</sup> The main purpose of this article is to demonstrate from Limbu material that prosodic analysis not only can surmount this second difficulty but does in fact surmount it in such a way as to simplify the task of a comparatist in the Tibeto-Burman field. Whatever success it achieves will go some way towards justifying the hopes placed in this his theory by the late Professor J.R. Firth.<sup>3</sup>

This article has also a subsidiary aim: to examine the extent of those stretches of the continuum, pieces, for which a prosodic statement can usefully be made.

## PROSODIC AND PHONEMIC ANALYSES

It is clear from the present dominance of the phoneme theory that the analyses on which future comparison in the Tibeto-Burman field will be based can hardly fail to be most of them phonemic; any advantage that prosodic analysis has to offer must therefore be at the expense of the phoneme theory and of phonemic forms of lexical items.<sup>4</sup> One such advantage is that prosodic analysis can lead to the establishing of a single formula, a lexical-item phonological formula, for each lexical item, and thus bypasses difficulties arising out of a possible multiplicity of phonemic forms for that item reflecting phonetic diversity from one context to another, or a difference of root, or both. By this means the

comparatist avoids the problem of having to make a choice from among two or more phonemic forms, and of having to set up a criterion to govern his choice.

That the problem of choice of form is real enough in phonemics-based comparison appears from the verb lexical items of such Limbu words as the following:<sup>5</sup>

TABLE 1

	1.	2.	3.
i. <b>kε-jεp</b>	/yεp/	<b>kε-jεp-pi:</b>	/yεp/
ii. „ <b>dzεp</b>	/cεp/	„ <b>dzεp-pi:</b>	/cεp/
iii. „ <b>sεt</b>	/sεt/	„ <b>sεp-pi:</b>	/sεp/
iv. „ <b>mεt</b>	/mεt/	„ <b>mεp-pi:</b>	[mεtt-ε /mεt/
v. „ <b>ghεm</b>	/khεm/	„ <b>ghεm-bi:</b>	/khεps-ε /khεps/
vi. „ <b>lεm</b>	/lεm/	„ <b>lεm-bi:</b>	/lεm-ε /lεm/ <sup>6</sup>
i. you stand		do you stand	stand up
ii. he cuts you		does he cut you	cut it
iii. „ kills you		„ „ kill you	kill it
iv. „ speaks to you		„ „ speak to you	speak to him
v. „ listens to you		„ „ listen to you	listen to him
vi. you are lazy		are you lazy	laze about

The verbs in (ii)–(v) have each more than one phonemic form: (ii) /cεp/, /cεpt/; (iii) /sεt/, /sεp/, /sεr/; (iv) /mεt/, /mεp/, /mεtt/; (v) /khεm/, /khεps/; the comparatist would be obliged to choose one form in preference to the other or others.<sup>7</sup>

Phonemic analyses commonly give preference to the isolate (or absolute) form, and derive whatever variant phonemic forms there may be from it; or, in the absence of an absolute form, they give preference to those phonemes which are appropriate to open juncture;<sup>8</sup> but in dealing with Limbu the comparatist would be ill-advised to follow them in this: it is in the imperative forms, in which the syllable final is not in the open juncture, that verb lexical items are maximally distinguished. In the examples in Table 1 it will be seen that the verbs that translate *stand* and *cut* (i and ii), that translate *kill* and *speak to* (iii and iv), or *listen to* and *laze* (v and vi), are not distinguished each from the other in open juncture (col. 1); but each member of each of these pairs is distinguished in the imperative form (col. 3) from the other member by syllable-final consonant features. In fact it is the imperative

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form that is the key to the formal scatter of all regular verbs.<sup>9</sup> If, therefore, one were obliged to choose one phonemic form rather than another, the examples in Table 1, powerfully reinforced by those of Table 2 (p. 437), show that the imperative form is as suitable for comparison as any other, and better than most; but prosodic analysis does not require the comparatist to make such a choice: lexical-item phonological formulae arrived at by prosodic analysis are equally representative of all variant phonetic forms, both those which reflect a difference of root and those which can be treated as co-variants (junction variants and tempo variants) of the same root.

### DISYLLABIC PIECES

The prosodic systems of prosodic analysis, as opposed to the phonematic systems, are set up in order to state syntagmatically associated features 'of more than one segment';<sup>10</sup> clearly, then, much turns on the definition of the term segment, or, alternatively, on the extent of a single segment. Where, however, syntagmatically associated features characterize more than one syllable, and therefore cross a syllable boundary, there is general agreement among the adherents of prosodic analysis that more than one segment must be concerned, and that a prosodic statement can therefore properly be made.

Since the type of piece that comprises two or more syllables is least controversial, it is from this type of piece that the first examples to illustrate the prosodic analysis are drawn; more controversial types of piece are considered later (pp. 444-50).

The contribution of prosodic analysis to lexical-item phonological formulae is illustrated in this article mainly from syllable-final features of monosyllabic verbs. The examples at Table 1 (p. 432) have already given some indication of the phonetic diversity of verbs in this respect; a comprehensive series of examples appears at Table 2 (p. 437). The examples in Table 2 are Limbu words each of which contains one of twenty-three verbs, all twenty-three of them of the same prosodic type as regards quantity.

### *Quantity*

Limbu is a quantity language; and every verb can be classified prosodically in terms of a two-term quantity system as either *s* (so named from *short*) or *l* (from *long*). The verbs in the examples in Table 1 are *s* verbs.

The exponents of the two terms *s* and *l* are not drawn only from the verb syllable: exponential features can also characterize the negative-particle syllable *mɛ(:)*, which precedes the verb. The exponents of *s* and of *l*, then, can be drawn from a disyllabic as well as from a monosyllabic piece, and can therefore transcend syllable boundaries.

In the particle syllable the exponential features are:

- s*: long/short vowel duration; same pitch as the verb  $\sim mɛ(:)$   
*l*: short                    „                    „ ; lower pitch than the verb  $\_mɛ$

(for examples see p. 435).

In the majority of examples of this particle syllable in the disyllabic *s* piece in the available material the vowel duration was in fact short; but the minority of examples in which long duration was observed (about a third of the total) is large enough to be significant. The *l* piece too was, admittedly, not entirely without examples of long vowel duration; but they were so few that they can fairly be dismissed as accidental.

In the verb syllable the exponency of *s* and of *l* is not so easily stated; for the vowel-duration features of certain sub-classes of both *s* verb and *l* verb are variable, and have to be related to other features of the following (particle) syllable or to differences in tempo. In detail the exponents are:

- s*
- i. short duration + *i/ɪ ɛ a ɔ ʊ*
  - ii.  $\left[ \begin{smallmatrix} \text{short} \\ \text{long} \end{smallmatrix} \right]$  „ + constricted voice quality + *i e ɛ a ɔ u*<sup>11</sup>
  - iii. long „ + clear „ „ + *ɛ a ɔ u*<sup>12</sup>
  - iv. „ „ +  $^? p t k m n \eta$ <sup>13</sup>
- l*
- i. long duration + clear voice quality + *i e ɛ a ɔ u*
  - ii. short „ + „ „ „ + *i e*<sup>14</sup>
  - iii. absence of vowel
  - iv. „ „ „ , initial palatality (*tɕ/dʒ tʃ/dʒ lʃ*)<sup>14</sup>
  - v. long duration (:), of a vowel (*ɛ:*) shared with the following (particle) syllable<sup>15</sup>
  - vi. other vowel features shared with the following (particle) syllable<sup>16</sup>
  - vii. where a dental (*t n*) follows, centrality: *ɪ ʌ ɔ ʊ*
  - viii. short duration + syllable-final  $^? p t k$ <sup>13</sup>
  - ix. short/long duration + syllable-final *m n \eta*<sup>13</sup>

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e.g.

	s
i. -mɛ:-dʰiɔŋɛnnɛ do not drink it	-mɛʔ-ʔiɔŋɛnnɛ; do not buy it;
ii. piʔmaʔ to give	ʃiʔmaʔ; to teach;
iii. ʔaʃia:suʔ we two share it	ʔaʃu:suʔ; we two touch it;
iv. piʔʔaʔ he gives me	tsɔmmaʔ; I meet;
	l
i. -mɛ-gʃiʊ:ndɛnnɛ do not steal it	-mɛ-be:ɛnnɛ; do not go;
ii. siah he died	-mɛ-gʃieɛnnɛ; do not quarrel;
iii. sjah he died	jah; he descended;
iv. tɛɕh eat it	tjɛ come;
v. -mɛ-jɛ:nnɛ; do not descend;	
vi. (ʃiɛɛ) tsɔ:ʔ he eats it	tsaŋ; I ate it;
vii. kɛʔuət he calls you	(ʃiɛn) noən; he is ashamed;
viii. ju:ʔaʔ I descend	jɛ:taʔ; I laugh;
ix. tu:(ŋ)ŋaʔ I stoop	lɔ:(m)maʔ; he beats me;

(for further examples of s-piece exponents (i)–(iii) see p. 437, Table 2: (i), 1–18; 19–20, col. 3; (ii), 21–23; (iii), 19–20, cols. 1–2; for exponent (iv) see p. 442).

To summarize, s verbs have either (i) short vowel duration in all contexts (Table 2, 1–18), or (ii) short in most contexts but long in some (19–20), or (iii) in the case of those s verbs which are characterized by constricted voice quality (21–23), either short or long, the short duration being a fast-tempo feature; l verbs, on the other hand, all have clear voice quality, and either (i) long vowel duration in all contexts, or (ii) long in most contexts but short in some, alternating, in fast-

tempo utterances, with non-syllabic vocality, or even with complete absence of vowel.

Thus, not all s verbs are invariably characterized by short vowel duration, and not all l verbs by long duration;<sup>17</sup> e.g.

s: i. short:	təjɔŋ:	təjɛ	kɛdɔju?
	I sewed it	sew it	you sew it
long:	tə:ma?	ʔadɔ:su?	
	to sew	we two sew it	
ii. short:	fiasɔŋ?	fiasɛ	kɛfiasu?
	I share it	share it	you share it
long:	fia:ma?	ʔafia:su?	
	to share	we two share it	
l: i. long:	si:ma?	si:ʔa?	si:bi:
	to die	I die	does he die
cf.	[mesiɛnne mɛsɛnne	sjaŋ <sup>18</sup>	siah sjah <sup>18</sup>
	do not die	I died	he died
ii. long:	ju:ma?	ju:ʔa?	fɛn ju:?
	to descend	I descend	he descends
cf.	mɛjɛ:nne	jaŋ	fɛn jah
	do not descend	I descended	he descended
iii. long:	ta:ma?	ta:ʔa?	kɛda:(?)
	to come	I come	you come
cf.	mɛdɛnne	tjɛh	[tiah [tjah <sup>18</sup>
	do not come	come	he came
iv. long:	tsa:ma?	ʔadza:su?	
	to eat	we two eat it	
cf.	mɛdzɛnne	tsaŋ?	fɛllɛ tsɔ:
	do not eat it	I eat it	he ate it <sup>19</sup>

From a comparison of the two statements of exponency it will be seen that, while most vowels are common to both s-piece verb and l-piece verb, the vowels ɪ and ɔ are exclusive to the s-piece, and are therefore s-piece criteria. So, too, are the syllable-final consonants ks, ss, and md, and the non-syllabic vowel j, while syllable-final ŋkt, on the other hand, serves as an l-piece criterion. The remaining syllable-final consonant sequences are part of the exponency of either term, and, since there is an example of each in Table 2 (p. 437), they have not been listed among the exponential features.

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Every verb can be prosodically classified as s or as l according as it is exemplifiable in the (disyllabic or monosyllabic) s, or l, piece. The

TABLE 2

	1. interrogative does he — you? does he —? + -pi/-bi:	2. indicative he —s us two <sup>20</sup> we two — + -si <sup>2</sup> /-təhi <sup>2</sup> <sup>20</sup>	3. imperative — it! —! + -ε/-hε	4. transln. tr. int.
1	jəppi: pp	<sup>2</sup> ajəpsi <sup>2</sup> ps	jəbε bε	int. stand
2	kədʒəppi: „	„ dʒəpsi <sup>2</sup> „	təɛptε ptε	tr. cut
3	„ lakpi: kp	„ laksi <sup>2</sup> ks	lagε gε	„ lick
4	„ dʱəkpɪ: „	„ dʱəksi <sup>2</sup> „	thəktε ktε	„ fight
5	„ səppi: pp	„ sɛ(t)təhi <sup>2</sup> (t)təh	sɛrε rε	„ kill
6	„ məppi: „	„ mɛ(t)təhi <sup>2</sup> „	mɛ(t)tε (t)tε	„ tell
7	„ dəmbi: mb	„ dəntəhi <sup>2</sup> ntəh	tərə rε	„ abuse
8	„ bʱəmbi: „	„ bʱəntəhi <sup>2</sup> „	phəndε ndε	„ untie
9	„ bʱəmbi: „	„ bʱəntəhi <sup>2</sup> „	phə(t)təhε (t)təh	„ employ
10	no suitable form	„ bəntshu <sup>2</sup> ntsh	pəntəhε ntəh	„ bevel
11	kəfɪŋbi: ŋb	„ fɪŋsi <sup>2</sup> ŋs	fɪ(k)khε (k)kh	„ rock
12	„ „	„ „	fɪŋkhε ŋkh	„ rear
13	kəŋbi: „	„ gɛŋsi <sup>2</sup> „	kəŋε ɲε	int. fall
14	kədʱəŋbi: „	„ dʱəŋsi <sup>2</sup> „	thəksε ksε	tr. make fight
15	ləmbi: mb	„ ləmsi <sup>2</sup> ms	ləmε mε	int. laze
16	kəjəmbi: „	„ jəmsi <sup>2</sup> „	jəmde mdε	tr. tattoo
17	„ dəmbi: „	„ dəmsi <sup>2</sup> „	təmse mse	„ seize
18	<sup>2</sup> imbi: „	„ <sup>2</sup> imsi <sup>2</sup> „	<sup>2</sup> ipse pse	int. sleep
19	no suitable form	„ lɛ: su <sup>2</sup> V:s	lɛsse sse	tr. know
20	wə:bi: V:b	„ wə:si <sup>2</sup> „	wəjε jε	int. be
21	no suitable form	„ də(:) <sup>2</sup> su <sup>2</sup> V(:) <sup>2</sup> s	tə(:) <sup>2</sup> jε V(:) <sup>2</sup> jε	tr. dig
22	kəbi(:) <sup>2</sup> bi: V(:) <sup>2</sup> b	„ bi(:) <sup>2</sup> si <sup>2</sup> „	pi(:) <sup>2</sup> rε V(:) <sup>2</sup> rε	„ give
23	no suitable form	„ bɛ(:) <sup>2</sup> su <sup>2</sup> „	pɛ(:) <sup>2</sup> sε V(:) <sup>2</sup> sε	„ vomit



particle  $\text{m}\epsilon(:)/\text{m}\epsilon$  clearly cannot be classified in this way; but its alternative phonetic forms can:

s-piece:  $\text{m}\epsilon \text{ m}\epsilon:$       l-piece:  $\text{m}\epsilon$

The remaining prosodic and phonematic systems are, for convenience, illustrated solely from s-piece verbs, or, rather, from words that include them; and the examples in Table 2 (p. 437) show some of the phonetic forms of twenty-three s-piece verbs, with one verb to each line. These examples are arranged in three columns, (1) interrogative, (2) indicative, and (3) imperative, with the relevant phonetic features abstracted from each word; the right-hand column (4) contains the classification of the verb as transitive (tr.) or as intransitive (int.), together with a translation meaning. It is on the grammatical classification that the translation of a given example depends. Bracketed features (5-6, 9, 11, 21-23) are not appropriate to fast-tempo utterances.

### *Interrogative Forms*

The alternation of initial voice with voicelessness for the interrogative particle  $\text{pi}/\text{bi}$  (col. 1) in association with differences in final feature in the preceding verb syllable qualifies for prosodic treatment under the conditions stated above (p. 433), a syntagmatic association of features extending over a syllable boundary. For these interrogative words two prosodic types of piece, temporarily termed I and II, need to be distinguished; they comprise the verb syllable and the following particle syllable. The exponents of the terms I and II are:

verb		particle	
I: final voicelessness	<b>p k</b>	initial voicelessness	<b>p</b>
II: „ voice	<b>m ŋ V</b>	„ voice	<b>b</b>

In the type-I piece the interrogative particle is characterized initially by voicelessness (**p**, 1-6), and in the type-II by voice (**b**, 7-9, 11-18, 20, 22). The verbs of lines 1-6 are appropriate to the type-I piece but not the type-II, and can therefore be classified prosodically as I-piece; the verbs of the remaining lines can be classified correspondingly as II-piece. The Roman numerals I and II could then, at this stage, be used in phonological formulae to express the relationship of the I-piece verb to the disyllabic I piece, and of the II-piece verb to the II.

### *Indicative Forms*

Column 2, however, presents a rather different picture. Here it is an alternation in phonetic features of the dual particle  $\text{si}^?/\text{t}\epsilon\text{hi}^?$  (lines 10,

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19, 21, 23, su<sup>2</sup>/tshu<sup>2</sup>) in association with a difference in the final features of the preceding verb syllable that provides grounds for prosodic statement. For words such as these a further two prosodic types of piece, temporarily termed A and B, are distinguished; and again the piece comprises verb syllable and following particle syllable.

The exponents of the temporary terms A and B are:

	verb		particle
A:	final non-alveolarity	p k ŋ m V	[friction s voiced vowel i/u]
B:	[ „ alveolarity/vocalic <sup>21</sup>	t n V	voiceless vowel h
		affrication	tɕ/ts

In the type-A piece the dual particle is characterized initially by friction (s) and the vowel by full voicing (i/u) (1-4, 11-23); in the type-B piece the particle is characterized by partial voicelessness of vowel (h, alternatively i/u), while both particle and verb share the affrication feature (tɕ/ts) (5-10).

Those verbs which can be contained in the type-A piece (1-4, 11-23) can be prosodically classified as A-piece; the remaining verbs, which are restricted to the type-B (5-10), are classified as B-piece. This second classification overlaps the previous classification of these verbs as I-piece or as II-piece, and, if the two classifications are combined, yields the following four prosodic classes:

IA	IB	IIB	IIA
1-4	5-6	7-10	11-23

A comparison of the phonetic form of each verb lexical item as between columns 1 and 2 shows that type-IA and type-IIA verbs are characterized by the same syllable-final features in either type of piece; but the other two classes of verb differ in phonetic form from one type of piece to the other: final labiality (p) is appropriate to the type-IB verb in the type-I piece, but alveolarity ((t)tɕ) in the type-B; final labiality (m) is also appropriate to the type-IIB verb in the type-II piece, but alveolarity (ntɕ/nts) in the type-B.

## Imperative Forms

The imperative particle ɛ/hɛ alternates in phonetic form between complete voicing (ɛ) and partial voicelessness (hɛ); and the alternative features can again be associated with phonetic differences in the final

of the preceding verb syllable, thus producing a fourth set of syntagmatically associated features extending over syllable boundaries.

The two prosodic types of piece required to account for these associations of features are termed, temporarily, 1 and 2. The exponents of these terms are:

	verb		particle
1:	[i. final velarity + voice ii. „ non-(alveolarity + affrication)	[g ŋ, or b t r d s m V]	voiced vowel
2:	[i. „ velarity + voicelessness ii. „ alveolarity + affrication	[k, or tʃ/ts]	voiceless vowel

The phonetic form  $\varepsilon$  of the imperative particle, with full voicing, is appropriate to the type-1 piece, and the phonetic form  $h\varepsilon$  (or  $\varepsilon\varepsilon$ ), with partial voicelessness, to the type-2.

The verbs can again be classified by type of piece just as they were for the three preceding types of disyllabic piece, as 1-piece (1-8, 13-23) or as 2-piece (9-12).

The particle of column 3,  $\varepsilon/h\varepsilon$ , unlike those of columns 1 and 2, is vowel-initial, and the matching final features of the preceding verb syllable are, in consequence, different from those appropriate to the verb in the I-II piece (col. 1) or the A-B piece (col. 2) for all except verbs 10, 13, and 15. It is not only, therefore, from the point of view of phonetic variation in the initial of the particle syllable that the three types of piece exemplified in columns 1-3 are important.

The particle  $\varepsilon/h\varepsilon$  is not the only one that can be contained in the 1-2 type of piece; there are also the vowel-initial particles  $\varepsilon n n \varepsilon / h \varepsilon n n \varepsilon$  (imperative-negative),  $u^2 / h u^2$  and  $u: / h u:$  (third-person-object, present and past respectively),  $a \eta / h a \eta$  (first-person-past, intransitive-subject or transitive-object), and  $a h / h a h$  (second/third-person-past, intransitive-subject or transitive-object), all of which can be given the same prosodic classification (1-2 piece) as  $\varepsilon / h \varepsilon$ . An exception, the particle  $a^2$ , is considered at pages 441-2 below.

In the 1-2 type of piece (col. 3) such final features as the following characterize verbs 1-5:

- 1, 3: voice + plosion ( $b g$ ), cf. voicelessness + occlusion ( $p^l k^l$ )
- 2, 4: labiality, or velarity, + occlusion, and dentality + plosion ( $p^l t k^l t$ ), cf. labiality, or velarity, + occlusion ( $p^l k^l$ )
- 5: voice + flap + alveolarity ( $r$ ), cf. voicelessness + occlusion + labiality or alveolarity ( $p^l t^l$ )

The space available does not allow the variant features of each of the

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remaining verbs to be stated for this type of piece, and contrasted with the features appropriate to other types of piece; but, since they have been abstracted from each of the examples in Table 2, they can be arrived at without much difficulty.

This third prosodic classification of s verbs, as either type-1 or type-2, overlaps both the preceding classifications, as I-piece or II-piece and as A-piece or B-piece, and, when conjoined, gives the following six classes:

IA1	IB1	IIB1	IIB2	IIA2	IIA1
1-4	5-6	7-8	9-10	11-12	13-23

A six-term prosodic system, to which the name quality system is given, would therefore be adequate for the purpose of dealing with differences in the initial features of the various classes of particle syllable represented in Table 2 by *pi:/bi:*, *ɕiʔ/tɕhiʔ*, and *ɛ/hɛ* in association with matching differences in the final of the preceding verb. The temporary names used above to designate the six terms (IA1, IB1, IIB1, etc.) could of course be discarded at this point in favour of single-letter names, preferably of some mnemonic value, and therefore probably best based on some characteristic orthographic, or phonetic, feature of each class. It is on this principle that the following six names are given:

IA1	IB1	IIB1	IIB2	IIA2	IIA1
p	t	n	s	ŋ	m

Some of the twenty-three verbs of Table 2 show the same set of syllable-final features in all three types of piece (13: *ŋ*; 15: *m*); others show two sets of features (1-4, 10-12, 14, 16-21, e.g. 1: *p/b*; 2: *p/pt*; 3: *k/g*); yet others show three (5-9, e.g. *p/(t)tɕ/r*, *p/(t)tɕ/(t)t*, *m/ntɕ/r*). The prosodic statements made thus far, summarized in the six-term quality system, account for that variation in each lexical item; but this need not necessarily mean that the range of syllable-final variant features of each verb is limited to the two sets, or the three, shown in Table 2. On the contrary most of those verbs have additional variant features; and further contexts, both phonetic and grammatical, remain to be accounted for; but it is also true that these additional contexts do not affect the number of terms stated for the quality system above. The six terms are valid for them too.

In the course of stating the exponents of the 1-2 type of piece (Table 2, pl. 3), in which the verbs are characterized by final features appropriate to a syntagmatic relationship with a vowel-initial type of particle syllable (*ɛ/hɛ*, *ɔŋʔ/hɔʔŋ*, *ah/hah*, etc.), an exception was made of the

particle aʔ (first-person-present). Not only does this particle not show the initial voice-voicelessness (V/h) alternation that is characteristic of the other vowel-initial particles; the matching final features of the verb syllable are quite different for this particle from those shown in Table 2, column 3. No phonetic reason can be given for this difference in syntagmatically associated features; so the difference must be dealt with at the grammatical level, as a difference of grammatical context, of the first-person-present particle versus the remaining vowel-initial particles.

When colligated with the sub-class of verbal particle of which aʔ is the only member in the available material the verbs of Table 2 are characterized by long duration (cf. also s exponent (iv), p. 434) together with the following features:

1-2 labiality	+	voicelessness	+	plosion	pp
3-4 velarity	+	„	+	„	kk
5-6 dentality	+	„	+	„	tt
7-9 „	+	(voice +)	nasality		nn
11-14 velarity	+	( „ +)	„		ŋŋ
15-18 labiality	+	( „ +)	„		mm
20, 22 glottality,		short vowel duration			Vʔʔ

e.g.

TABLE 3

pp:	1 jɛppaʔ	2 tɛppaʔ	
	I stand	he cuts me	
kk:	3 lakkaʔ	4 thəkkaʔ	
	it licks me	he fights me	
tt:	5 səttaʔ	6 məttaʔ	
	he kills me	he tells me	
nn:	7 tənnaʔ	8 phənnaʔ	9 phənnaʔ
	he abuses me	he unties me	he employs me
ŋŋ:	11 fɪŋŋaʔ	12 fɪŋŋaʔ	
	he rocks me	he rears me	
	13 kɛŋŋaʔ	14 thəŋŋaʔ	
	I fall down	he makes me fight	
mm:	15 lɛmmaʔ	16 jɛmmaʔ	
	I laze about	he tattoos me	
	17 tɛmmaʔ	18 ʔimmaʔ	
	he seizes me	I sleep	
ʔʔ:	20 waʔʔa ʔ		22 piʔʔaʔ
	I am		he gives me

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Thus far the syllable-final variation in s verbs has been related to initial features of the following (particle) syllable *within the word*, i.e. in intraverbal junction (Tables 2-3), to syllable-initial consonance in the particle versus vocality (Table 2, cols. 1-2 versus Table 2, col. 3, and Table 3), and to syllable-initial labiality versus alveolarity in the particle (Table 2, col. 1, p/b versus Table 2, col. 2, s/ts/ts); but it is also possible for the verb to be final in the word. In this type of junction, junction between words (interverbal), verbs 1-18, 20, and 22, there being no examples of the others, are characterized by the same final features as for junction with a<sup>2</sup>, but with short duration instead of long, e.g.

TABLE 4

p:	1 fiɛn jɛp he stands	2 kɛdʒɛp he cuts you	
k:	3 kɛlak it licks you	4 kɛdʃɔk he fights you	
t:	5 kɛsɛt he kills you	6 kɛmɛt he tells you	
n:	7 kɛdɔn he abuses you	8 kɛbfɛn he unties you	9 kɛbfɔn he employs you
ŋ:	11 kɛʃuŋ he rocks you	12 kɛʃuŋ he rears you	
	13 fiɛn kɛŋ he falls down	14 kɛdʃɔŋ he makes you fight	
m:	15 fiɛn lɛm he lazes about	16 kɛjɛm he tattoos you	
	17 kɛdɛm he seizes you	18 fiɛn ʔim he sleeps	
:	20 fiɛn wa <sup>2</sup> he is	22 kɛbi <sup>2</sup> he gives you	

A syntagmatic relationship can be stated for the syllable-final features of each of the word-final verbs in the above examples in association with initial features of the initial syllable of the following word, unless, of course, those verbs happen to be not only word-final but utterance-final as well. The available Limbu material is limited to study of the verb, and does not therefore include those matching features of the following syllable; for these will generally be initial features of the initial noun of the following sentence.<sup>22</sup>

The interverbal term forms with the intraverbal a (two-term) junction system. The I-II, A-B, and 1-2 disyllable pieces (Table 2) and the disyllabic pieces in a<sup>2</sup> (Table 3) are equally examples of intraverbal junction; they cover most of the different types of intraverbal junction, not all of which can be exemplified here.

The examples of the verb in interverbal junction (Table 4), and the partial statement of the exponency of the interverbal-junction term that accompanies them, complete the series of disyllabic-piece prosodic statements, in which one syllable is linked to another through features extending over syllable boundaries, and, for the interverbal-junction term, over word boundaries too; but there remains the possibility of further prosodic differentiation for verbs in accordance with internal features of the verb syllable, associations of features that extend over segment boundaries within the verb syllable but without crossing syllable boundaries.

#### INTRASYLLABIC PIECES

At this point one is again faced with the problem of delimiting the segment; but there is general agreement that vowels and consonants belong to different segments, and that where a syntagmatic relationship can be shown between features of a vowel and features of a preceding or a following consonant, a prosodic statement can appropriately be made.

#### *Vowel and Consonant*

A syntagmatic relationship of this intrasyllabic type can be shown for duration and voice-quality features of the vowel in each of the twenty-three verbs of Table 2 and either particular post-vocalic consonant features or non-syllabic vowel features, or absence of either. The examples in Table 2, column 2, can be put into one or other of two prosodic classes, temporarily denominated a and b, according as the verb syllable is characterized by:

a: ɪ i ε a ə ɔ + short dur.

consonance

b: i e ε a ə o u +  $\left[ \begin{array}{l} \text{long dur.} \\ \text{short „ + constricted} \\ \text{voice quality} \end{array} \right]$

no consonance

The vowels ɪ and ɔ provide a type-a criterion, and e, o, and u a type-b

# PHONOLOGICAL FORMULAE FOR THE VERB IN LIMBU

The twenty-three verbs could then be prosodically classified again, as type-a (VC(C), 1-18) or as type-b (V:, 19-20; V(:)ʔ, 21-23); but this classification cannot stand without modification for the column 3 examples: in column 3 verbs 19-20 are distinguished from verbs 21-23 by invariably short vowel duration (ε ʌ), by clear voice quality, and, for 19, by long consonant duration (ss), i.e. by Vss and Vj versus V(:)ʔj/r/s.

Thus, three prosodic types of verb need to be distinguished as a result of syntagmatic associations of features of both vowel and following consonant or consonants or neither in columns 2 and 3 combined:

a: 1-18;

b: 19-20;

c: 21-23.

At this point mnemonically more suitable letters can be used to name these three types: g (from glottal constriction) instead of c, ġ (non-g, from non-glottal constriction) instead of b, and c (from clear voice quality) instead of a. g, ġ, and c will then be the three terms of a voice-quality system statable for an intrasyllabic piece. Every s (quantity) verb can then be classified as g, as ġ, or as c in terms of this system, just as, before, they were classified in terms of the six-term quality system (p, t, n, s, ŋ, m).

The c voice-quality classification correlates with the p, t, n, s, and ŋ, all of which therefore imply c; but a verb classified as m can be either g, ġ, or c. g and ġ both imply m; but m does not imply g or ġ. The quality and voice-quality systems combined give eight prosodic classes of s verb:

p(c)	t(c)	n(c)	s(c)	ŋ(c)	mc	mġ	mg
1-4	5-6	7-8	9-10	11-12	13-18	19-20	21-23

g verbs (21-23) can be characterized by a wider range of vowels (i.e. ε a ə o u) than ġ verbs or c verbs. ġ verbs (19-20) are characterized only by ε, a, ə, and u, and c verbs (1-18) by i/ɪ, ε, a, ə, and ɔ. Half-closeness (e o) is therefore peculiar to g.<sup>23</sup>

The only other intrasyllabic-piece prosodic system that concerns the syllable final of verbs is a two-term system set up for a prosodic subclass of c (voice quality) verbs (Table 2, 1-18) in order to associate a degree of centrality and openness of vowel (ɪ) with syllable-final velar nasality (ŋ) and with velar plosion + voicelessness ((k)k), e.g. Table 2, 1-12 (ɪŋ ɪ(k)k), and ʔɪŋɛ buy it, of the same type as kɛŋɛ (Table 2, 13), while the other term of the system associates frontness and closeness (i) with syllable-final velar plosion + voice (g), e.g. ʔigɛ twist it, with



velar occlusion + voicelessness ( $k'$ ), e.g.  $m\epsilon:dhik'tanne$  do not card (wool), and with non-velarity ( $p\ b\ m\ n\ (t)t$ ), e.g.  $ʔipse$  sleep.<sup>24</sup> The former term ( $i\ \eta\ i(k)k$ ) correlates with the  $\eta$  term of the quality system (p. 441; Table 2, 11-12) and with  $mc$  (Table 2, 13), the latter ( $ip\ ib\ im\ in\ i(t)t$ ) with the  $p$ ,  $t$ , and  $n$  terms (Table 2, 1-8), and with  $mc$  (14-18).

### *Consonant and Consonant*

The prosodic systems stated for disyllabic pieces (quantity, quality; pp. 433-44) and for intrasyllabic pieces in which a syntagmatic relationship has been shown for a vowel segment and a following consonant (pp. 444-6) has produced the eight prosodic classes of verb distinguished above,  $p(c)$ ,  $t(c)$ ,  $n(c)$ , etc. Each of these classes contains two or more lexical items that are phonetically distinguished from each other by final consonant features at least in Table 2, column 3, and, in some cases, in columns 1 and 2, and in Tables 3 and 4, as well. The four  $p(c)$  verbs (1-4), for example, are distinguished from each other by the final-consonant features  $b$ ,  $pt$ ,  $g$ , and  $kt$  in column 3, the two  $t$  lexical items (5-6) by  $r$  versus  $(t)t$ , and the two  $n$  lexical items (7-8) by  $r$  versus  $nd$ . This further degree of phonetic differentiation has still to be dealt with, either prosodically or phonematically. Whether the form of statement is prosodic or phonematic depends on whether such sequences of consonants as  $pt$ ,  $kt$ ,  $tt$ , and  $nd$ , for example, are attributed to one segment or to two; in other words the analysis of these features again raises the question of the segment and its extent. If, for the sake of argument, such sequences as  $pt$ ,  $kt$ ,  $tt$ ,  $nd$ , etc., are ascribed each to a single segment, then the four consonants and consonant sequences  $b$ ,  $pt$ ,  $g$ , and  $kt$  of  $p(c)$  verbs in the 1-2 piece (Table 2, col. 3, 1-4) are all four uni-segmental; in which case no further prosodic statement would be appropriate, and a four-term phonematic system,  $B$ ,  $P$ ,  $G$ , and  $K$ , could be set up for the  $p(c)$  class of verb, for example, while, correspondingly, a two-term system,  $D$  and  $T$ , could be set up for the  $t$  verb (Table 2, 5-6), and a two-term, for which the letters  $D$  and  $T$  might again be used, for the  $n$  verb.<sup>25</sup> Any phonetic differences that there are in final consonant between the four  $p$  verbs in Table 2, column 3, will then be stated as exponents of  $B$ , of  $P$ , of  $G$ , or of  $K$ :

1  $B$ : labiality + plosion + voice

2  $P$ : labiality + occlusion, and dentality + plosion,

+ voicelessness  $pt$

der  
p.  
ib  
nc

- ty;  
la-  
ant  
in-  
wo

the  
ical  
by  
be  
a o

es l  
e a  
oul  
d k  
orr

- b  
pt

distinguishing two segments is the fact that in dental-final sequences (pt kt tt, 2, 4, 6; nd md, 8, 16) either voice or voicelessness is a feature of the whole sequence. Not only does the alternation of voice with voicelessness as co-articulated features of the final dentality in association with voice or voicelessness respectively as a feature of the preceding consonant suggest that a prosodic statement could profitably be made; but it also presents a striking contrast with the sibilant-final sequences (tt̥/tts nt̥/nts ks ms ps ss; 9, 10, 14, 17-19) and the velar-final sequences (kk ŋk; 11-12), in which only voicelessness is coarticulated with the sibilance or velarity, irrespective of whether the preceding consonant is voiced or voiceless.

Treating the Limbu final-consonant sequences, including tt, kk, and ss, as bi-segmental naturally opens up the possibility of further prosodic statement, of syntagmatic associations of features extending over both segments. One such statement was suggested in the previous paragraph as a means of accounting for the alternation of voice with voicelessness in dental-final syllables (pt kt tt versus nd md); but it is first necessary to distinguish dental-final verbs from others.

Verbs having two syllable-final consonant segments can be grouped by final feature into (i) dental (pt kt tt nd md), (ii) sibilant (tt̥/tts nt̥/nts ks ms ps ss), and (iii) velar (kk ŋk). Dentality, sibilance, and velarity as features of the second of the two segments can then be associated with features of the first segment as follows:

- i. dentality (t/d): labiality (p m), velarity (k), dentality (t n)
- ii. sibilance (t̥/ts s): labiality (p m), velarity (k), palato-alveolarity (t n), alveolarity (s)
- iii. velarity (k): velarity (k ŋ)

Translated into systemic terms these three sets of syntagmatic relations extending over the two segments can be ascribed to three terms of a system, the terms being named t (pt kt tt nd md), s (tt̥/tts nt̥/nts ks ms ps ss), and k (kk ŋk); these three terms contrast further with the single-final-consonant type of syllable to be seen in 1, 3, 5, 7, 13, 15, 20-23 (b g r r ŋ m j j r s), which type gives to the system a fourth term, named z (from zero). Since it has to do with syllable-final features this four-term prosodic system is named the final system.

The twenty-three verbs of Table 2 are classified in terms of the final system as:

z	t	s	k
1 3 5 7 13 15 20-23	2 4 6 8 16	9-10 14 17-19	11-12

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The *k* term correlates exclusively with the *ŋ* term of the quality system, and vice versa, the *z* term with the quality terms *p*, *t*, *n*, and *m* (the *g* term of the voice-quality system, 21–23, correlates exclusively with *z*), and the *s* final term with the *s* quality term and the *m* (*mc* and *m̄g*, but not *mg*).

When the final system (*z*, *t*, *s*, *k*) is combined with the prosodic systems that have preceded it, the following fourteen prosodic classes of verb emerge:

pz	pt	tz	tt	nz	nt	s(s)	ŋ(k)	mcz	mcs	met	m̄gs	m̄gz	mg(z)
1 3	2 4	5	6	7	8	9 10	11 12	13 15	14 17 18	16	19	20	21–23

Two further prosodic systems are statable, one applicable only to *t* (final) verbs (2 4 6 8 16) and the other only to *s* (final) verbs. The system set up for *t* verbs is designed to associate either voice or voicelessness as features of the final segment with voice or voicelessness respectively as a feature of the preceding segment: (i) *nd md* (8 16); (ii) *pt kt tt* (2 4 6). This system will not, however, affect the classification given in the preceding paragraph; for the *t* verbs with final voice (*-nd -md*) are already in different classes (*nt* and *m(c)t* respectively) from the *t* verbs with final voicelessness (*-pt -kt*, *pt*; *-tt*, *tt*).

The further prosodic system to be set up for *s* verbs is designed to associate affrication (*tʃ*) as a feature of the second segment with dorso-alveolarity (*t n*) as a feature of the first (*ttʃ ntʃ*; 9 10) as opposed to friction (*s*) as a feature of the second, with velarity, labiality, or alveolarity as a feature of the first (*ks ms ps ss*; 14, 17–19). This system too leaves the fourteen prosodic classes unaffected; for the *s* verbs in *ttʃ* and *ntʃ* are already in a different class, *s(s)*, from those in *ks*, *ms*, *ps*, and *ss* (*mcs*, but *m̄gs* for *ss*).

There being no further prosodic systems to state that are relevant to syllable-final features, phonematic analysis can now be carried out where appropriate. For verbs of the prosodic classes *tz* (5), *tt* (6), *nz* (7), *nt* (8), *m(c)t* (16), *m̄gs* (19), and *m̄gz* (20), phonematic analysis is not appropriate; for there are no further syllable-final phonetic distinctions; such verbs are already fully distinguished by prosodic classification alone. Phonematic systems can, however, and must be stated for the remaining prosodic types of verb:

pz:	P:	labiality (b) (1);	K:	velarity (g) (3)
pt:	P:	„ (p) (2);	K:	„ (k) (4)
s(s):	T:	voicelessness + occlusion (t) (9) <sup>27</sup>		
	N:	voice + nasality (n) (10)		

- η(k): K: voicelessness + occlusion (k) (11)<sup>27</sup>  
       D: voice + nasality (η) (12)  
 mcz: M: labiality (m) (13); D: velarity (η) (15)  
 mcs: K: velarity + occlusion + voicelessness (k) (14)  
       P: labiality + „ + „ (p) (18)  
       M: „ + nasality + voice (m) (17)  
 mg(z): Y: palatality + non-syllabic vowel + voice (j) (21)  
       R: alveolarity + flap + voice (r) (22)  
       S: „ + friction + voicelessness (s) (23)

These exponents are valid for the 1-2 type of disyllabic piece (Table 2, col. 3), in which the following syllable is vowel-initial. In other types of piece the exponential features of each phonematic unit may or may not be different from those given here, and may or may not be identical with those of the other term or terms of the system. Thus, in the A-B type of disyllabic piece (Table 2, col. 2) the exponents of the units of the pz, pt, and s(s) phonematic systems, for example, are:

- pz: P: labiality (p) (1); K: velarity (k) (3)  
 pt: P: „ („) (2); K: „ („) (4)  
 s(s): T: voice + nasality (n) (9)  
       N: „ + „ („) (10)<sup>28</sup>

Here, the exponents of Ppz and Kpz (p, k) do not differ from those given for these two units in the preceding paragraph (b, g; 1-2 piece); but the exponents of Ts (n) not only differ in this type of piece from those given in the 1-2 type (t) but are here identical with those of N.

Stating the phonematic systems, and the exponents of the terms contained in those systems, for each prosodic type of piece for which a phonematic statement can in fact be made is the final stage of this prosodic analysis, an analysis limited to the syllable-final features of Limbu verbs; but, limited though it is, it is hoped that it will have been sufficient to demonstrate that Firth's phonological theory can offer the comparatist the advantage of working from a single formula for each lexical item summarizing its whole range of phonetic variation, e.g.:

I-II piece	A-B piece	1-2 piece	a <sup>2</sup> piece	inter.	formulation
5 kɛ-sɛp-pi:	ʔa-sɛ(t)tɛ-hiʔ	sɛr-ɛ	sɛtt-aʔ	kɛ-sɛt	stz
7 kɛ-dəm-bi:	ʔa-dəntɛ-hiʔ	tər-ɛ	tənn-aʔ	kɛ-dən	snz
9 kɛ-bfiəm-bi:	ʔa-bfiəntɛ-hiʔ	phə(t)tɛ-hɛ	phənn-aʔ	kɛ-bfiən	sTs(s)

(quantity: s; quality: t, n, s; final: z (s)).

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## Notes

<sup>1</sup> For this difficulty in Burmese see Richard K. Sprigg, 'Prosodic Analysis, and Phonological Formulae, in Tibeto-Burman Linguistic Comparison', *Linguistic Comparison in South East Asia and the Pacific* (School of Oriental and African Studies, London, 1963), pp. 91-2 and 93-5, and for Tibetan the examples given on pages 136-142 of 'The Tonal System of Tibetan (Lhasa Dialect) and the Nominal Phrase', *BSOAS* xvii (1955), 1, and P.M. Miller, 'The Phonemes of Tibetan (U-Tsang Dialect) with a practical romanized orthography for Tibetan-speaking readers', *Journal of the Asiatic Society* (Calcutta), *Letters* xvii (1951), 3, p. 201: "nʏo" "buy" changes to "nʏop" in "nʏop.čá" "purchases"; "sá" "earth" becomes "sáp" in "sáp.tʳá" "map"; and, further, 'every syllable in Tibetan may be assigned one or other of these [two] tonemes or inherent tones . . .' (p. 200), but 'Final Intonation: . . . Natural tone is often disregarded' (p. 206).

<sup>2</sup> First classified as Tibeto-Burman by E.L. Brandreth ('On the Non-Aryan Languages of India', *JRAS*, New Series x (1878), p. 31) the Kiranti languages were re-classified by Przyluski as Munda, 'bien que saturées de mots indo-aryens et tibéto-birmans' (*Langues du Monde*, Paris, 1924, p. 400). In the 1952 edition of *Langues du Monde* (p. 558), however, Maspero returned to the earlier classification, which also has the support of Konow and Wolfenden, and of Shafer, who assigns Limbu to the East Himalayish Section of the Bodic Division (Robert Shafer, 'East Himalayish', *BSOAS* xv (1953), 2, pp. 356-357).

Shafer's solution to the problem presented by the Tibetan verb roots is to use the perfect, usually with the omission of postpositions, in his comparisons ('Newari and Sino-Tibetan', *SL* 6 (1952), p. 95). Phonological formulae summarizing all roots of each Tibetan verb are proposed as the solution to it in my 'Prosodic Analysis, and Phonological Formulae' (pp. 79-84).

<sup>3</sup> 'I venture to hope that some of the notions I have suggested may be of value to those discussing laryngals in Indo-European, and even to those engaged on field-work on hitherto unwritten languages' (John R. Firth, 'Sounds and Prosodies', *TPS* 1948, 1949, p. 150). On prosodic analysis compare also his 'A Synopsis of Linguistic Theory', *Studies in Linguistic Analysis* (Blackwell, Oxford, 1957), pp. 15-17, and Robert H. Robins, 'Aspects of Prosodic Analysis', *Proceedings of the University of Durham Philosophical Society*, vol. 1, Series B (Arts), 1957, 1, pp. 1-12.

For an application of prosodic analysis to language comparison see Richard K. Sprigg, 'A Comparison of Arakanese and Burmese Based on Phonological Formulae', *Linguistic Comparison in South East Asia and the Pacific* (School of Oriental and African Studies, London, 1963), pp. 109-32.

<sup>4</sup> It is phonemes and phonemic forms, and not, for example, morpho-phonemes (with which the lexical-item phonological formulae of this article clearly have something in common; pp. 433-44), that are the sole basis of Henry J. Hoenigswald's reconstructions in his recent *Language Change and Linguistic Reconstruction* (The University of Chicago Press, Chicago, 1960).

<sup>5</sup> These examples are of the Pantharea dialect, as spoken by Randhoj Nembang, *pujāri*, of Imbung village, Panthar (or Panchthar), Dhankuta District, Nepal; the material from which they are taken was collected during a month's stay in the neighbouring villages of Sartap and Powa during 1956. Randhoj was literate in both Limbu and Nepali, writing the former in the modern form of the so-called Kiranti script ('Limbu Books in the Kiranti Script', *Akten des XXIV. Internationalen*

*Orientalisten Kongresses München 1957*, Deutsche Morgenländische Gesellschaft, Wiesbaden, 1959, pp. 590-592).

Limbu words can be monosyllabic or polysyllabic; the words in Table 1 comprise members of both verb and particle categories, the verb syllable being separated from the other syllables of the word by hyphens.

<sup>6</sup> In the phonetic transcription used here *t*, *d*, and *n* symbolize dorsality and alveolarity when followed, respectively, by *ɛ*, *z*, and *tɛ*, apicality and alveolarity when followed, respectively, by *s*, *z*, and *ts*, and apicality and dentality in all other circumstances; *r* symbolizes an alveolar flap (I.P.A. *r*); when followed by *fi* the symbols *g*, *d*, and *b* indicate lax plosives that were occasionally heard as fully voiced, and identical with the 'voiced aspirates' of Nepali (I.P.A. *gfi*, *dfi*, *bfi*), but more commonly heard as at least partially voiceless (I.P.A. *ḡfi*, *ḍfi*, *ḃfi*); the symbol <sup>◌</sup> is used for constricted (or 'creaky') voice quality; *k*, *g*, and *s* in front-vowel (*i* *e* *ɛ*) syllables symbolize some degree of palatalization; *V* symbolizes vowel, and *C* consonant.

<sup>7</sup> In the phonemic analysis of these examples *p* and *b*, *tɛ* and *dz*, and *kh* and *gfi* have been treated as allophones of */p/*, */c/*, and */kh/* respectively; for no lexical distinctions are involved provided that the analysis is restricted to verb forms; but, since in nouns voice + plosion (*g dz d b gfi dfi bfi*) is a possible initial combination of features in lexically significant contrast with *k*, *kh*, *tɛ*, *t*, *th*, *p*, *ph*, e.g. *ga* I, cf. *kaʔkoʔwa* [kidney?], *kham* earth, *b*, *dz*, and *gfi* would have to be assigned to different phonemes (*/b/*, */j/*, and */gh/* respectively) from *p*, *tɛ*, and *kh* in an overall transcription. The phonetic forms *jɛb*, *dzɛp*, and *gfiɛm* (*i*, *ii*, *v*) would then have to be analysed as */jɛb/*, */jɛp/*, and */ghɛm/*, thus further increasing the number of phonemic forms of each of the lexical items concerned.

<sup>8</sup> E.g. William Cornyn, 'Outline of Burmese Grammar', *Lg* xx (1944), 4, suppl., p. 9 (25, 28-29); Raven I. McDavid, 'Burmese Phonemics', *SIL* iii (1945), 1, pp. 6 (1), 11 (8.1), 15 (9.2); P. M. Miller, 'The Phonemes of Tibetan', p. 451, n. 1 above.

<sup>9</sup> An exemplary feature of Major H. W. R. Senior's *A Vocabulary of the Limbu Language of Eastern Nepal* (Government Monotype Press, Simla, 1908) is that he gives an imperative form of each verb, when known, in addition to the infinitive. Imansingh Chemjong, in his *Limbu-Nepali-English Dictionary* (Nepal Academy, Kathmandu, [2018?] V.S.), gives a past-tense form, which is equally helpful.

<sup>10</sup> Robins, 'Aspects', pp. 3-4.

<sup>11</sup> Short in fast-tempo utterances.

<sup>12</sup> Applicable only to a sub-class of *s* verb, in disyllabic pieces in which the following (particle) syllable is characterized initially by a consonant (pp. 444-5).

<sup>13</sup> Applicable only to a sub-class of verb, when followed by *aʔ* (first-person particle). The alternative short duration in *l* exponent no. ix is thought to be a fast-tempo feature.

<sup>14</sup> Applicable only to a sub-class of *l* verb in words in which the following particle is vowel-initial, e.g. *ɛ/he* (imperative-affirmative), *ɛnne/henne* (imperative-negative), and, for intransitive verbs, the past particles *aŋ* (first-person) and *ah* (second/third-person). The features stated at (ii) are thought to be slow-tempo.

<sup>15</sup> Applicable only to a sub-class of *l* verb, when colligated with the imperative-negative particle (*ɛnne/henne*).

<sup>16</sup> Applicable only to a sub-class of *l* verb, when colligated with the third-person-object particle (vowel-initial): (i) second/third-person-subject, *uʔ* (present) and *u* (past); (ii) first-person-subject, *oŋʔ* (present) and *oŋ* (past).

# PHONOLOGICAL FORMULAE FOR THE VERB IN LIMBU

17 This is an additional reason for preferring the names *s* and *l* for these two phonological terms to *short* and *long*, which are more readily confused with the terminology of the phonetic level. The decisive reason, though, is that letters are suitable for formulae; words are not.

18 *tj* and *dj* are not possible initials in a phonological syllable, nor is *sj* in a phonological syllable of which the vowel is *a*; though monosyllabic phonetically *sjah*, *sjan*, *-djen-*, *tjah*, and *tjeh* must therefore be examples of two phonological syllables.

19 The vowels of *tsaŋ*<sup>2</sup> and *tsə:* serve for both verb and particle, the backness and rounding of *tsə:*, for example, being attributable to the particle (*u:* in other prosodic types of piece) and the half-openness to the verb (alias *tsa:*); there are no forms *\*tsa:ŋ*<sup>2</sup> and *\*tsa:u:*.

20 In a few instances (nos. 10, 19, 21, 23) it has been necessary to give words in *-su*<sup>2</sup>/*-tshu*<sup>2</sup> (we two — it) instead.

21 The vocalic feature (V) applies only to fast-tempo utterances.

22 Cf. p. 452, n. 5. Since the time available was so limited, I thought it preferable to make a complete analysis of verb forms rather than incomplete analyses of forms from all grammatical categories.

23 For *l* verbs no voice-quality system can be stated; and, apart from a small subclass, they are characterized by the vowel features *i: e: ɛ: a: ɔ: o: u:* in all types of piece (for examples see pp. 435–6).

24 This system is not statable for all *s* (quantity) verbs but only for syllables in which the vowel is front and close (*i/ɪ*), i.e. only for *s* (from *spread*) syllables, so classified from the *s* term of the four-term initial prosodic system, whose function it is to associate initial-consonant and vowel features. *s* (initial) syllables are distinguished from the other three types by absence of initial semi-vowel: *je/ɛ/a/ə/o/u* and *we/ɛ/a*, but no *\*ji/ɪ* or *\*wi/ɪ*.

25 Phonematic units are symbolized by capital letters. Additional exponents of the suggested phonematic units can be found on p. 442 (words in *a*<sup>2</sup>) and on p. 443 (interverbal junction). Ideally it would be better to use different letters for terms in different systems; but the Roman alphabet is insufficient for this.

26 I owe these examples and the analysis of them to my colleague Mrs. E. M. Whitley.

27 Nil in fast-tempo utterances.

28 The exponent shown here for each of the six phonematic units is also valid for it in interverbal junction (p. 443) and, with the addition of long duration, in the *a*<sup>2</sup> type of piece (p. 442).



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IN MEMORY OF

J. R. FIRTH

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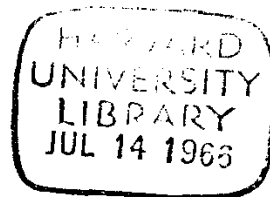
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*Lucy Osmond*

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## Preface

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Professor John Rupert Firth died suddenly on 14th December, 1960, only four years after his retirement from the Chair of General Linguistics in the University of London. It is an irony of history that his death should have occurred just on the eve of an unprecedented expansion of general linguistic studies in this country, an expansion largely due to his untiring efforts and devotion to his subject during his professional life.

Firth's career in linguistics in Great Britain dates from 1928, when, on his return from India, he was appointed to the Department of Phonetics in University College London. In 1938 he moved to the School of Oriental and African Studies, and in 1944 he was appointed to the Chair of General Linguistics, the first chair of that title in this country. His standing in the subject, and his position in the university, enabled him to establish general linguistics as an academic discipline in its own right, accepted among university studies in Great Britain as it had already been accepted in the inter-war years in the United States, through the work of such scholars as Boas, Sapir and Bloomfield. His success can be measured by considering the present position. There are now some ten professors of linguistics, and as many departments of linguistic studies, in British universities; this does not include those whose titles relate to such older established fields as comparative philology, phonetics, and the study of particular languages, and work in general linguistics goes on in several universities under different titles or within other departments. This is by no means the end of the expansion; indeed, its limits are now more likely to be set by the insufficiency of trained personnel than by lack of interest in the subject on the part of universities.

This interest is in great part the result of Firth's enthusiasm and of his wide-ranging coverage of his subject, both in lectures and publications. At least three dominant strands can be traced in his work: his attention to the history of linguistics and its growth in and through the cultural environment of successive generations in India, western antiquity, and modern Europe; the contextual theory of language, whereby meaning, interpreted as function in context, was made the centre of his analysis both of linguistic form and of linguistic function; and prosodic phonology, the first reaction against what appeared at the time as the excessive

## PREFACE

rigidity of the phoneme theory of the 1940s, encased within the dogmas of separation of levels and biuniqueness of transcription.

Firth as a teacher and colleague was unmatched, and all those who studied under his direction or worked with him owe to him many original insights into the working of language in human society and into the place of linguistics within the sciences of man. He was not, how-

ever, it must be admitted, the clearest of writers, and one regrets the absence of a major book from him setting out in full and in detail his standpoint and his methods. He lives best in the work of those whom he

inspired and stimulated, and the present volume, dedicated to his memory, is intended as a tribute to him from some of those who, as pupils, colleagues, or associates, at some time fell under his influence.

No directives were given on the subjects to be selected by the authors, but the editors hope that the scope of the topics and languages covered will give some idea of the wide field of linguistic interest that Firth both exhibited himself and fostered in others.

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