Nasalization in the Verbal Endings in Spoken Sinhalese

THE choice of the 'Verbal Endings' presupposes the threefold abstraction made of the verb as *stem*, *junction* and *ending*, which was outlined in my 'Verbal Categories in Spoken Sinhalese.'[1] The delimitation of the material to the verbal endings is to correlate phonology and grammar by exhibiting certain phonological exponents of the grammatical abstraction set up as 'ending.' It does not, however, imply that this statement is a result of examining the segment in question only ; in making phonetic observations, I shall always fall back upon the utterance as a whole. The delimination is in grammar and consequently in phonology, but not in the phonic data.

Verbal endings are either C-initial or non-C-initial, and monosyllabic or disyllabic in structure. Altogether eight different generalized structures are stated for the endings in Colloquial Sinhalese verbal forms. (In the examples quoted, the sections in transcription corresponding to the ending structures are italicized for convenience of reference).

	C-initial		*Non-C-initial*	
Monosyllabic	—CV	ka*nnu*	—V	ka*i*
	—CVQ[2]	ka*tot*	—VQ	kææ*vot*[3]
Disyllabic	—CVə[4]	ka*nəva*	—Və	kææ*vaave*
	—CVCCə[5]	kaa*palla*	—VCCə	kaa*halla*[6]

All these endings are statable as nasalized and non-nasalized, using the notations n- and ñ- respectively. n- and ñ- are, then, prosodies of the ending as a whole. In this paper I propose to discuss the phonetic criteria corresponding to the stating of this two-term prosodic feature characterizing the verbal endings in Sinhalese.

1. See U.C.R., Vol. 18, Nos. 3 and 4, 1960.
2. For Q as an element of structure, See my 'Syllable Structure in Spoken Sinhalese,' U.C.R, July-October, 1959. pp. 112 ff.
3. For the treatment of [v] as a prosodic feature, see my 'Syllable Structure in Spoken Sinhalese,' pp. 109—10.
4. For ə as an element of structure, see my 'Syllable Structure in Spoken Sinhalese,' p. 106.
5. For italicization of *CC*, see my 'Verbal Categories in Spoken Sinhalese,' p.
6. For [h] as a prosodic feature, see my 'Syllable Structure in Spoken Sinhalese,' pp. 115—16.

Where n- is stated as a prosody of the ending, nasality is observable throughout or for the greater part. Where ñ- is stated as a prosody of the ending, all articulations are non-nasal. Thus, the endings in kapɔ*nɔvɔ*, kapa*nnai*, kapɔ*pan* and k æpu*not* are n- prosodic, and the endings in kapɔ*piyɔ* and k æpu*vaave*, are ñ- prosodic.

It is only for the endings which involve simple consonantal articulations, that is —CV, —VQ, —CVQ and —CVɔ, that the two-term prosodic system of n- and ñ- has to be stated side by side. For the endings which involve vocalic and semi-vocalic articulations only, that is —V and —Vɔ, or for those which involve long consonantal articulations, that is —CVCCɔ and —VCCɔ, it is not necessary to make this two-term distinction.

The eight ending structures given above may now be stated in tabulated form with reference to the n- and ñ- prosodies.

Endings for which the ñ- ñ- distinction is stated

			n- endings	ñ- endings
Endings involving Simple consonantal articulations	Disyllabic Monosyllabic	*a*)	—^{n}CVɔ	—^{ñ}CVɔ
			—^{n}CV	—^{ñ}CV
			—^{n}CVQ	—^{ñ}CVQ
		b)	—^{nn}CVQ	
			—^{nn}CVQ	
		c)	—^{n}VQ	—^{ñ}VQ

Endings for which the n- ñ- distinction is not stated.

Endings involving long consonantal articulations	Disyllabic	—VCCɔ —CVCCɔ
Endings involving vocalic and semi-vocalic articulations only	Disyllabic	—Vɔ
	Monosyllabic	—V

In stating the phonetic criteria for making this classification, I shall first discuss the endings for which the n- ñ- distinction is stated side by side, and those for which that distinction is not stated afterwards.

Endings for which the n- ñ- distinction is stated :

In section (*a*) of the Table, the n- ñ- distinction is stated for —CVə, —CV and —CVQ all of which are C- initial. Thus

—^{n}CVɔ	≠	—^{ñ}CVɔ.
—^{n}CV	≠	—^{ñ}CV
—^{n}CVQ	≠	—^{ñ}CVQ.

Where the endings are stated as n- prosodic, that is, ^{n}CVə, ^{n}CV and ^{n}CVQ, all articulations concerned are characterized by nasality. Where the endings are stated as ñ- prosodic, that is, ^{ñ}CVə, ^{ñ}CV and ^{ñ}CVQ, all articulations concerned are characterized by absence of nasality.

These phonetic criteria will now be discussed in greater detail with reference to some kymograms made for some one-word verbal sentences. The generalized ending structures of the verbal forms chosen are CVə. These kymograms are typical of my pronunciation of the respective sentences.

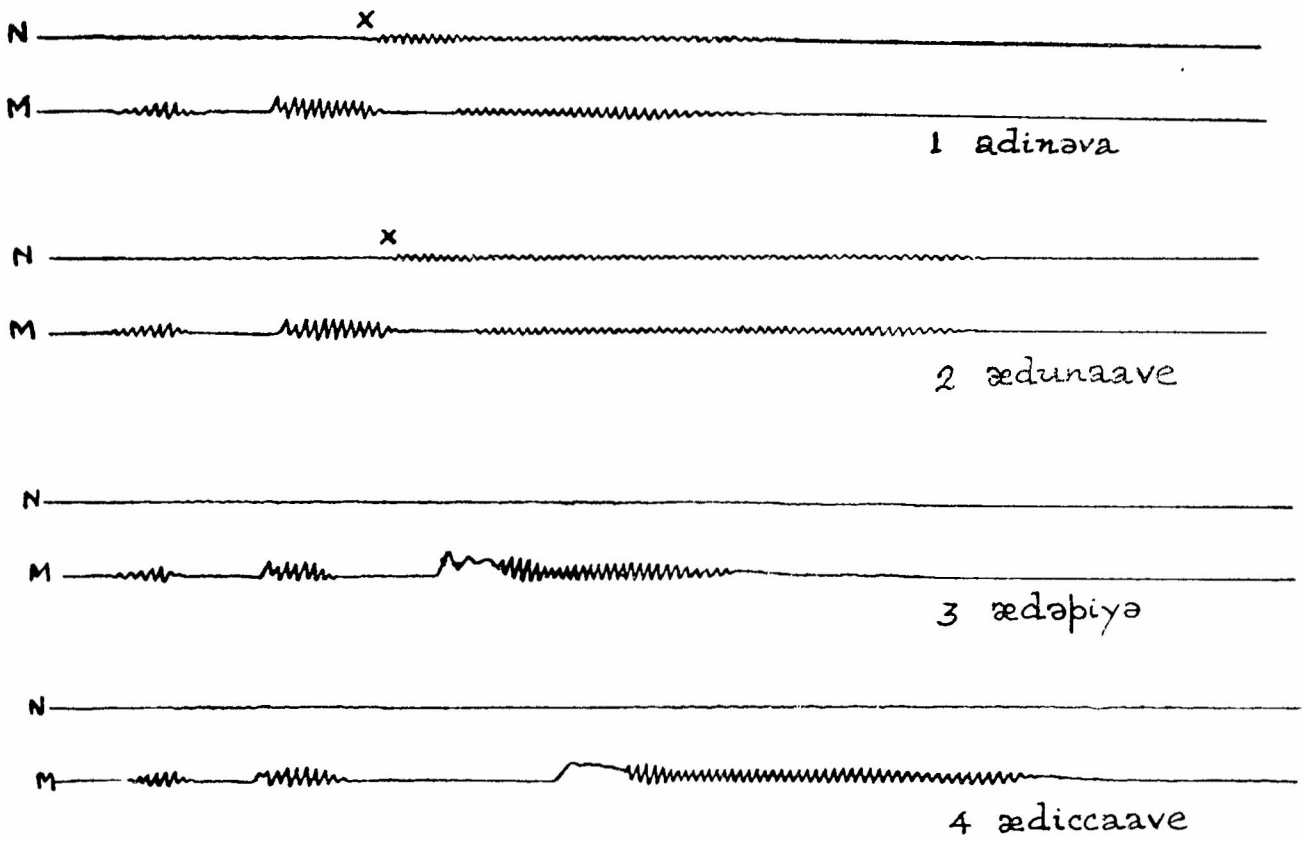
The following kymograms are cited :

1.	adi*nəva*	—^{n}CVɔ
2.	ædu*naave*	—^{n}CVɔ
3.	æd*əpiyə*	—^{ñ}CVɔ
4.	æd*iccaave*	—^{ñ}CVɔ

These kymograms provide simultaneous nose (N) and mouth (M) tracings.

It will be seen that all kymograms show some disturbance in the N tracing at some place or other. But in 1 and 2 these disturbances begin to increase in amplitude at the place marked ×, and continue as prominent wave-forms till the end of the tracing. This does not happen in 3 and 4.

The prominent wave-forms to the right of × in the N tracings of 1 and 2 correlate with the stating of n- prosody for the endings in *adinəva* and *ædunaave*, and correspond to the lowering of the soft palate and regular passage of air through the nasal cavity during all articulations in the ending. The absence of prominent wave-forms in the N tracings of 3 and 4 correlates with the stating of ñ- prosody for the endings in *ædəpiyə* and *ædiccaave*, and correspond to the raising of the soft palate and absence of regular passage of air through the nasal cavity in the articulations concerned.


N
X
M
1 adinəva
N
X
M
2 ædunaave
N
M
3 ædəbiyə
N
M
4 ædiccaave

Going over to section (*b*) of the Table, it will be seen that the generalized structure of the two endings concerned is —CVQ. One is stated as $^{\tilde{n}n}$- and the other as $^{n\tilde{n}}$-. Both fall within n- prosody. The implication of ñn- is that the initial articulation of the ending is non-nasal, but the other articulations are nasal. The implication of nñ- is that the final articulation is non-nasal, but the other articulations are nasal. An example of a word with a -$^{\tilde{n}n}$ CVQ ending structure is *ædepaŋ*. *ædmot* is an example of a word with a— $^{n\tilde{n}}$CVQ ending structure. —$^{\tilde{n}n}$CVQ and —$^{n\tilde{n}}$CVQ endings may be contrasted with the —^{n}CVQ and —$^{\tilde{n}}$CVQ endings given in section (*a*) of the Table, and discussed above.

Altogether, then, there are three types of nasalized endings whose generized structure is —CVQ, viz.,

(i) —^{n}CVQ
(ii) —$^{\tilde{n}n}$CVQ
(iii) —$^{n\tilde{n}}$CVQ.

I propose to discuss the phonetic criteria distinguishing between these three types of n- endings with reference to some kymograms. I shall first state the criteria distinguishing —$^{\tilde{n}n}$CVQ endings from —^{n}CVQ endings, and then criteria distinguishing —$^{n\tilde{n}}$CVQ endings from —^{n}CVQ endings.

Phonetic criteria for distinguishing between —$^{\tilde{n}n}$*CVQ and* —^{n}*CVQ endings :*

The following kymograms are cited in discussing these :

1. ad*inna*ŋ —^{n}CVQ.
2. æd*ɔpa*ŋ —$^{\tilde{n}n}$CVQ.

See Figure 2.
These kymograms provide simultaneous N and M tracings.

As a convenient point of reference common to both kymograms I have chosen the first prominent wave-form of the last set of wave-forms in the M tracings. From this point a vertical line × is drawn to the N tracing. It will be seen that in both kymograms there is a period of absence of prominent wave-forms in the M tracings immediately to the left of ×. This corresponds to the last intermediate articulation involving oral closure in the pronunciation of these sentences. This last intermediate oral closure is alveolar for *adinnaŋ* (1), and bilabial for *ædɔpaŋ* (2). These articulations are the initial articulations of the endings in these words.[7]

7. The long alveolar nasal in *adinnaŋ* corresponds to the prosody of gemination as a juncture feature which will not be discussed in this paper.

Figure 2

In kymogram 1 there are prominent wave-forms in the N tracing immediately to the left of ×, parallel with the period of absence of prominent wave-forms in the M tracing. The wave-forms in the N tracing continue till the end of the tracing. This correlates with the stating of the ending of *adinnaŋ* as —^{n}CVQ, and corresponds to nasality characterizing all articulations in the ending.

In kymogram 2 there are no prominent wave-forms in the N tracing immediately to the left of × parallel with the period of absence of prominent wave-forms in the M tracing. But there are prominent wave-forms in the N tracing to the right of × till the end of the tracing. This correlates with the stating of the ending of *ædəpaŋ* as —$^{n\tilde{n}}$CVQ, and corresponds to the beginning of nasality along with the release of the initial plosive articulation of the ending and not before.

Phonetic criteria for distinguishing between —$^{n\tilde{n}}$CVQ and —^{n}CVQ endings :

The following kymograms are cited in discussing these :

1. ad*inn*aŋ —^{n}CVQ.
2. æd*un*ot —$^{n\tilde{n}}$CVQ.

See Figure 3.

These kymograms provide simultaneous N and M tracings.

As a convenient point of reference common to both kymograms I have chosen the last prominent wave-form in the M tracing. From this point a vertical line × is drawn to the N tracing.

It will be seen that in kymogram 1 there are prominent wave-forms in the N tracing to the right of × as well as to the left of ×. In kymogram 2 there are prominent wave-forms in the N tracing to the left of ×, but not to the right of ×.

The prominent wave-forms both to the left and right of × in the N tracing of kymogram 1 correlate with the stating of the ending of *adinnaŋ* as —^{n}CVQ, and correspond to the presence of nasality in the articulations concerned. The presence of prominent wave-forms to the left of × in the N tracing, but not to the right of × in kymogram 2 correlates with the stating of the ending of *ædunot* as —$^{n\tilde{n}}$CVQ, and corresponds to the presence of nasality in the ending articulations preceding the final dental stop only.

Figure 3

Going over to section (*c*) of the Table now, we are also going over to initial endings from the C-initial endings so far discussed.

Where the ending is stated as —^{n}VQ, both the vocalic and consonantal articulations of the ending are characterized by nasality. Where the ending is stated as —$^{\tilde{n}}$VQ, the final consonantal articulation of the ending is non-nasal, but the vocalic articulation concerned may or may not be characterized by nasality, depending upon the stem-final features : where the stem-final consonant is nasal, the vocalic articulation in question is characterized by nasality ; if not, it is non-nasal.

The following kymogram is cited to illustrate nasality characterizing both vocalic and consonantal articulations of the endings stated as —^{n}VQ :

1. ædi*yaŋ* —^{n}VQ.

See Figure 4.

This kymogram provides simultaneous N and M tracings.

As a convenient point of reference in this kymogram I have chosen the last prominent wave-form in the M tracing. From this point a vertical × is drawn to the N tracing. There are prominent wave-forms in the N tracing both to the left and to the right of ×. The wave-forms in the N tracing to the right of × parallel with the absence of prominent wave-forms to the right of × in the M tracing correspond to nasality in the final consonantal articulation involving oral closure. The wave-forms in the N tracing correspond to nasality characterizing the vocalic articulation concerned. These characteristics in this kymogram correlate with the stating of the ending of *ædiyaŋ* as —^{n}VQ, with the implication that both the vocalic and the consonantal articulations are characterized by nasality. It is to be noted that nasality starts with the release of the voiced dental stop, [d].

The following kymograms are cited to illustrate the absence of nasality characterizing the final consonantal articulation of the endings stated as —$^{\tilde{n}}$VQ. They will also be employed to illustrate that the vocalic articulation of the ending is characterized by nasality where the stem-final —C is a nasal unit, and non-nasal everywhere else.

Figure 4

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1. *ebuvot* ^{n}VQ (stem-final—C is a plosive unit).
2. *ænuvot* $^{\tilde{n}}$VQ (stem-final—C is a nasal unit).

See Figure 5.

These kymograms provide simultaneous N and M tracings.

As a convenient point of reference common to both kymograms I have chosen the last prominent wave-form in the M tracing. From this point a vertical line [illegible] is drawn to the N tracing. In both kymograms there are no prominent wave-forms to the right of [illegible] in the N tracings.

The wave-forms to the left of [illegible] in the M tracing of these kymograms correspond to the vocalic and semi-vocalic articulations preceding the final stop articulation of the ending. The sections in these kymograms corresponding to the final stop articulations fall to the right of [illegible] which cannot be delimited any further as the stop articulation is not released providing some change in the contour. The absence of prominent wave-forms to the right of [illegible] in the N tracing corresponds to the absence of nasality during the final stop articulation.

It will be seen that in the kymogram of *ebuvot*, the stem-final—C of which word is not a nasal unit, there are no prominent wave-forms to the left of [illegible] in the N tracing. In the kymogram of *ænuvot*, however, the stem-final—C of which is a nasal unit, there are prominent wave-forms to the left of [illegible] in the N tracing. These characteristics in the kymograms correspond to the absence of nasality in the vocalic articulation of the ending in *ebuvot*, and the presence of nasality in the vocalic articulation of the ending in *ænuvot*.

These two words are good illustrations of the point that, in making phonetic observations, the whole utterance must be taken into account. The presence or absence of nasality in the vocalic articulation of the ending is dependent on the structure of the whole word.

Having stated the phonetic implications of n- and ñ- prosodies characterizing —CVɔ, —CV, —CVQ and —VQ endings, we may now go over to those endings for which n- and ñ- distinction is not stated. They are —VCCɔ, —Vɔ, and —V. Where there is any nasalization in these endings they always have a nasal unit as the stem-final—C. Such nasalizations may be referred to as *sympathetic nasalization*.

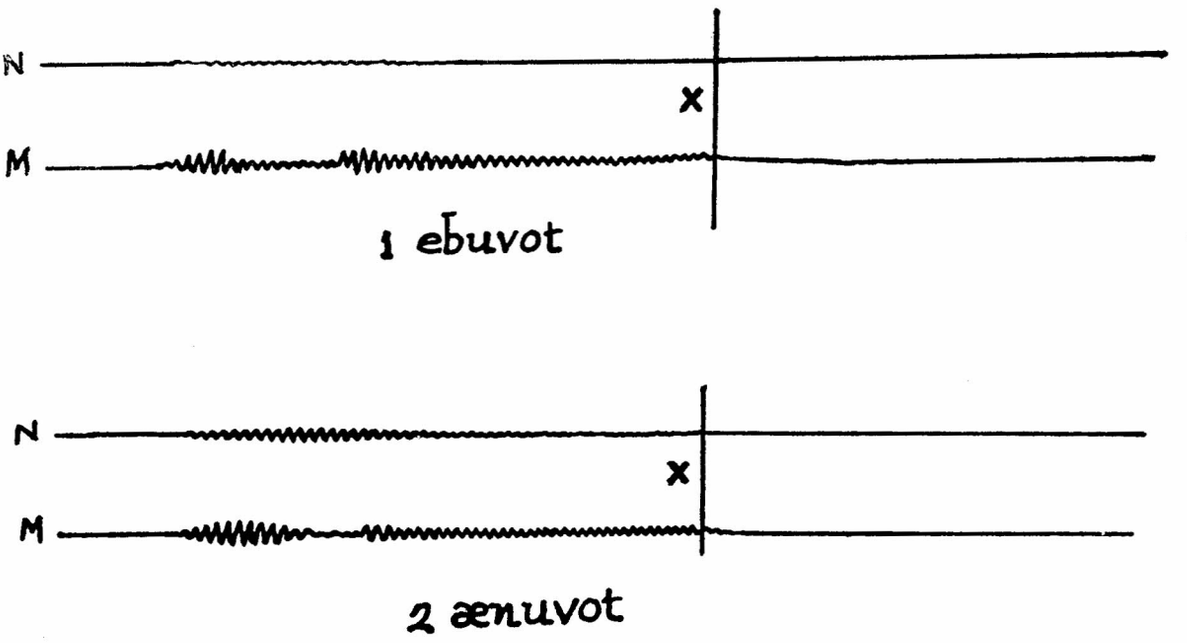

Figure 5

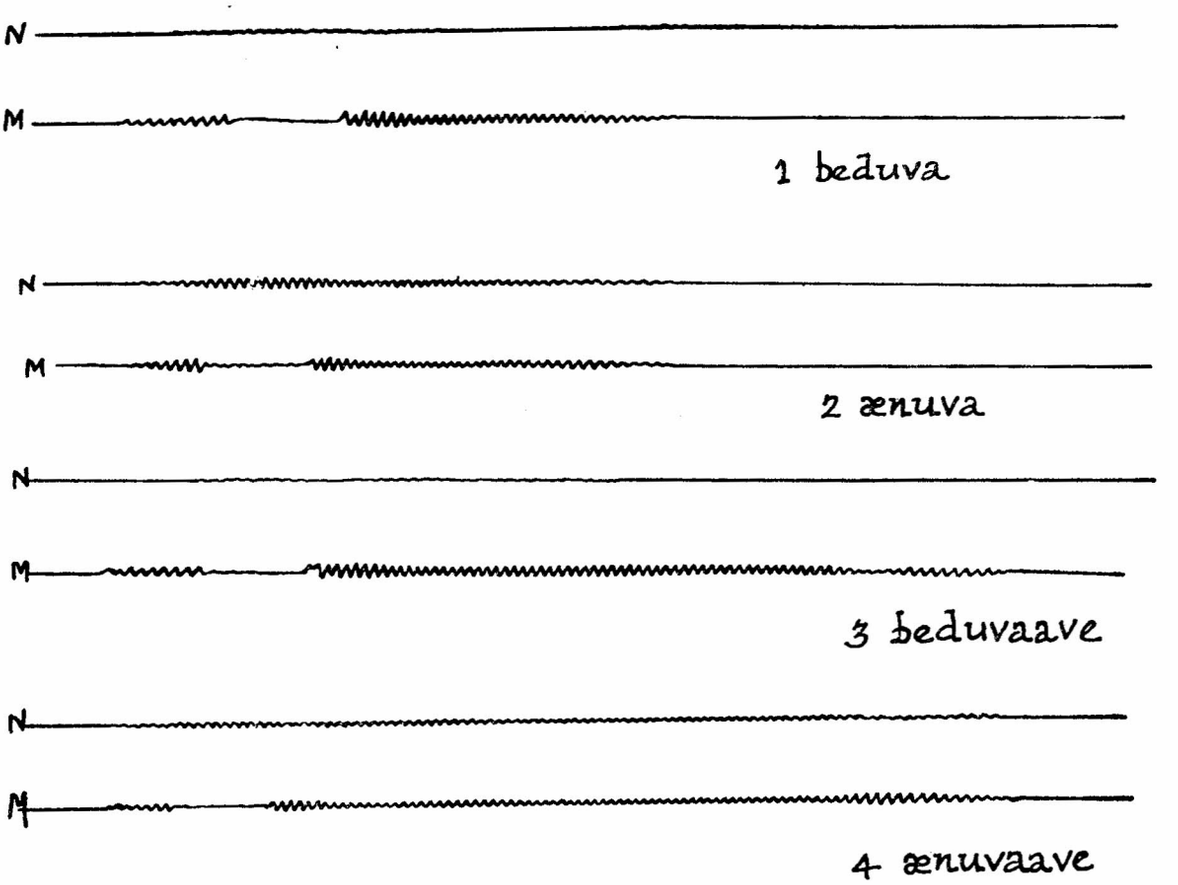

Figure 6

—CVCCɔ endings are always non-nasal, e.g., kapɔpa*lla*. In —VCC endings, the initial vocalic articulation is nasal where the initial syllable o the ending is *h*- prosodic[8] and the stem-final—C is a nasal unit, e.g. æni*yall* Everywhere else it is non-nasal, e.g. kapɔ*halla*, æn*ɔhalla*.

A further case of sympathetic nasalization is observed in —Vɔ an —V endings. Presence or absence of nasality in the articulations corres ponding to the stating of the ending structures in words whose generalize ending structure is —Vɔ or —V is dependent on the structure of the wor as a whole. Where the stem-final —C is a nasal unit, the vocalic and sem vocalic articulations in the endings are characterized by nasality. Whe the stem-final —C is a plosive, liquid or sibilant unit, the vocalic and sem vocalic articulations in the endings are non-nasal.

The following kymograms, providing N and M tracings, are cited i illustrating this point :

1.	bedu*va*	CV Plosive-stem + — V ending.
2.	ænu*va*	CV Nasal-stem + — V ending.
3.	bedu*vaave*	CV Plosive-stem + — Vɔ ending.
4.	ænu*vaave*	CV Nasal-stem + — Vɔ ending.

See Figure 6.

In comparing the kymograms of *beduva* (1) and *beduvaave* (3), th stem-final—C of which words is a plosive unit, with the kymograms o *ænuva* (2) and *ænuvaave* (4), the stem-final—C of which words is a nas unit, it will be seen that there are no prominent wave-forms in the tracings of 1 and 3, whereas there are prominent wave-forms in the tracings of 2 and 4 till the end of the tracings. The nasality which is obser able in the articulations of the endings of *ænuva* and *ænuvaave* is a featu which binds together the stem, junction and ending as one utterance whol It correlates with the phonological statement of nasal as the final C eleme of the stem structure.

So far as these characteristics are concerned, —V and —Vɔ endin are different from C- initial endings. C- initial endings were stated n- or ñ- irrespective of the stem features ; —V and —Vɔ endings are n stated as n- or ñ-, but the corresponding articulations are nasal or non-nas depending upon the structure of the word as a whole. As nasality *ænuva* and *ænuvaave* is a characteristic of the verbal form as a whole, it not necessary to set up a two-term prosodic system for the ending to accou for the observable phonetic differences.

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8. See my ' Syllable Structure in Spoken Sinhalese,' pp. 107—8.