

The Segmental Phonemes of Sinhalese

THIS paper describes the segmental phonemes of Sinhalese as they occur in single words. The language on which the analysis is based is the ordinary conversational style of educated people ; occasional note is taken of other forms of the language.

The subject has been treated previously in the following works, the only ones we know of : the introduction to Perera and Jones' *Colloquial Sinhalese Reader*,¹ the same authors' article "The Application of World Orthography to Sinhalese,"² and the relevant sections of Passé's thesis ;³ particular points are discussed in Jones' *The Phoneme*,⁴ while much can be learned of Perera's point of view in 1932 from his use of phonetic symbols in his *Spoken Sinhalese*.⁵ The phonemes are listed and certain details discussed in the first three, but none of them purports to be a full treatment of the phonemic system. No two of the five works are in complete agreement with each other ; both Perera and Jones evidently changed their minds on certain points in the course of the years. The present treatment is nearly in agreement with that in the *Colloquial Sinhalese Reader* as regards the number and identity of the phonemes ; it differs only in not including two nasal vowel phonemes (which Perera and Jones later rejected).

Present-day Sinhalese uses many words borrowed from foreign languages, principally Pali, Sanskrit, Portuguese, Dutch, and English. Portuguese and Dutch words are almost always fully assimilated to the Sinhalese sound system. Pali and Sanskrit words are also assimilated by many speakers, but some educated speakers (who naturally use many more such words) often pronounce them in a way closer to the pronunciation in

1. H. S. Perera and Daniel Jones, *A Colloquial Sinhalese Reader in Phonetic Transcription* (Manchester University Press, Manchester, 1919).

2. Daniel Jones and H. S. Perera, "The Application of World Orthography to Sinhalese." *Bulletin of the School of Oriental Studies*, IX, Pt. 3 (1938), pp. 705-707.

3. Hector A. Passé, *The English Language in Ceylon* (unpublished Ph.D. thesis, University of London, 1948).

4. Daniel Jones, *The Phoneme : Its Nature and Use* (W. Heffer and Sons, Ltd., Cambridge, 1950)

5. H. S. Perera, *Spoken Sinhalese in Phonetic Characters* (Education Office Press, Colombo, 1932)

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the original languages. Some earlier English loan-words have been assimilated, thus /isteesəmɔ/ 'station'; recent loans from English are usually pronounced by all speakers about as they are in Ceylon English.

The use of borrowed words has affected the Sinhalese sound system in three ways : the introduction of a new sound, [f]; the increased use of sounds rare in original Sinhalese words, [c j ñ š]; and the use of Sinhalese sounds in new combinations.

Sinhalese has a total of twenty-eight segmental phonemes ; there are twenty-one consonants and seven vowels.

Consonants. The consonant phonemes are shown in Fig. 1.

	<i>labial</i>	<i>dental</i>	<i>alveolar</i>	<i>retroflex</i>	<i>palatal</i>	<i>velar</i>	<i>glottal</i>
<i>voiceless stops</i>	p	t		ʈ		k	
<i>voiced stops</i>	b	d		ɖ		g	
<i>voiceless affricate</i>					c		
<i>voiced affricate</i>					j		
<i>nasals</i>	m		n			ɳ	
<i>flap</i>			r				
<i>lateral</i>			l				
<i>spirants</i>	f		s		š		h
<i>semivowels</i>	v				y		

Fig. 1

Voiceless stops may be slightly aspirated initially, but much less so than in English ; in other positions they are unaspirated. Finally they are usually unexploded ; some speakers, however, when trying to speak very distinctly or when citing forms in isolation, not only explode them but pronounce them with strong aspiration. Voiced stops are fully voiced in all positions.

The labial stops /p b/, nasal /m/, and spirant /f/ are all bilabial. The spirant occurs only in borrowed words, and many speakers regularly substitute /p/ for it. Since the sound was introduced from English, it is odd

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that it should have this bilabial pronunciation (the same pronunciation, however, is found in Ceylon English). Examples : /paarə/ 'road,' /api/ 'we,' /lip/ 'ovens'; /baalə/ 'young,' /labənə/ 'next'; /mamə/ 'I,' /atkam/ 'handicraft'; /foʔoograaf/ 'photograph', /koʔa/ 'type of curry.'

The labial semivowel /v/ has two allophones, one bilabial and one labiodental, both having neutral (i.e. mid central) tongue position. For the bilabial articulation the lips are rounded somewhat but not protruded. Initially the two allophones are in free variation ; medially only the labiodental articulation occurs. /v/ does not occur finally. For further discussion see below under *Diphthongs and semivowels*. Example : /venəva/ 'become.'

The dental stops /t d/ are articulated by the tip of the tongue against the upper teeth. Examples : /taatta/ 'father', /pot/ 'books'; /dannəva/ 'know', /tadə/ 'hard'.

The alveolar nasal /n/ and lateral /l/ are articulated by the tip of the tongue against the tooth-ridge. Both have dental allophones occurring before dental stops and retroflex allophones occurring before retroflex stops. Examples : /noona/ 'lady'; /laməya/ 'child', /malə/ 'flower', /mal/ 'flowers'.

The /r/ phoneme has two allophones. Initially it is a voiceless alveolar spirant ; the tip of the tongue is raised towards the tooth-ridge or even a point slightly further forward, while the front of the tongue is depressed. In sound it somewhat resembles the voiceless portion of the /r/ in the usual American pronunciation of *tree*. In all other positions /r/ is a voiced flap or trill consisting of one or two taps with the tip of the tongue against the tooth-ridge. In original Sinhalese words /r/ does not occur finally, but there are now borrowed words in which it does occur in that position. Examples : /ratu/ 'red', /hari/ 'correct', /kaar/ 'cars.'

The alveolar spirant /s/ is a voiceless groove sibilant, articulated with the tip of the tongue approaching the toothridge. Examples : /savəsə/ 'evening', /gas/ 'trees.'

The retroflex stops /ʈ ɖ/ are articulated by curling the tip of the tongue back to make contact with the hard palate just back of the tooth-ridge. Examples : /ʈikak/ 'a little', /paatə/ 'color', /koot/ 'coats'; /ɖiɪŋgak/ 'a little', /baɖuə/ 'thing.'

The palatal affricates /c j/ are palatal stops released as palatal spirants. For the stop portion the front of the tongue makes contact with the hard palate; the spirant portion is pronounced like /š/ or its voiced counterpart respectively. The spirant /š/ is pronounced with the blade of the tongue, without lip-rounding. Its status among Sinhalese phonemes is questionable. It occurs almost exclusively in loan-words from Sanskrit and English, and, particularly in the former, many speakers regularly substitute /s/ for it; but, probably owing to the influence of English, the use of /š/ seems to be gaining. There are, however, two words in which only /š/ occurs: /šook/ 'grand' and /šip/ 'scat, shoo' (the latter is best considered part of the paralinguistic system of Sinhalese). The palatal semivowel /y/ is pronounced with the tongue position for /i/; for further discussion see below under *Diphthongs and semivowels*. Examples: /caai/ 'plain,' /koccəɾə/ 'how much?'; /janeel/ 'window,' /gejjə/ 'small bell'; /šook/ 'grand,' /aašik/ 'jolly good'; /yanəva/ 'go,' /naya/ 'cobra.'

The velar stops /k g/ and nasal /ŋ/ are articulated by the back of the tongue against the soft palate. /ŋ/ has a palatal allophone which occurs initially, medially between vowels, and before palatal stops. The cluster /ŋy/ is usually realized as a doubled nasalized [y]. Examples: /kaakka/ 'crow,' /tikak/ 'a little'; /gee/ 'house,' /mage/ 'my'; /ñaane/ 'wisdom,' /yaññañ/ 'I shall go.'

The phonemic status of [ɲ] and [ɳ] calls for comment. [ɲ] is of fairly frequent occurrence but has a limited distribution, while [ɳ] has a more normal distribution but is of relatively infrequent occurrence. Most of the words in which [ɳ] occurs are borrowed words. In native Sinhalese words it occurs only in future forms such as [yaññañ] 'I shall go' (and for every such form there exists an alternate form in [-nnañ]; their use is a stylistic matter, [-ññañ] usually occurring in more popular speech), and in the word [iñjə] 'word used to call dogs' (which is best considered part of the paralinguistic system of Sinhalese). [ɲ] and [ɳ] are in complementary distribution. Initially only [ɳ] is found, finally only [ɲ]. Medially both occur before stops, [ɳ] with palatals and [ɲ] with velars; medially between vowels only [ɳ] occurs (and only doubled), before consonants other than stops only [ɲ]. Certain of the phenomena discussed below under *Consonant clusters* and *Simplification of clusters* might suggest the possibility of contrast between [ɲ] and [ɳ] in medial position: the first element of a cluster is regularly doubled, and /v/ or /y/ as the second element of a cluster is often replaced by /u/ or /i/ respectively; if both of these happened together in words containing [ɲv] or [ɲy], the result would be a double [ɲ] between vowels.

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In actuality, while the doubling does take place, the vowel is never substituted for the semivowel after [ɲ]. There is thus no contrast between [ɲ] and [ɲ̃] in this environment, and the two are in complementary distribution throughout their ranges.

[ɲ̃] contrasts with both /m/ and /n/. The question might be raised whether [ɲ̃] can be analyzed as /ny/. This is not the case, however. They differ phonetically, [ɲ̃] being a true palatal nasal, while /ny/ consists of the alveolar nasal plus the palatal semi-vowel; the two contrast in pairs such as [ɲ̃aane] 'wisdom' and /nyaaɣə/ 'method,' in which the auditory difference is easily noted. Further, medial /ny/ alternates with /nni/ in accord with the phenomena mentioned in the preceding paragraph, thus /anyə/ : /anniə/ 'other'; this never happens with [ɲ̃]. [ɲ̃] is therefore in contrast with /n/ as well as with /m/.

With [ɲ] the case is different: it is very nearly in complementary distribution with both /m/ and /n/. [ɲ] contrasts with /n/ in only one environment, medially before /yV/; the existence of such a contrasting pair as [saɲyamə] (usually pronounced with a doubled nasalized [y]) 'restraint' and /sanyaasi/ 'mendicant' guarantees that the two belong to different phonemes. It should be noted, however, that all such words are learned words and may not occur in the vocabulary of uneducated speakers; such speakers then have no contrast between [ɲ] and /n/. The contrast between [ɲ] and /m/ is similarly tenuous. Normally [m] does not occur finally, but is replaced by [ɲ]. However, final [m] does occur in [atkam] 'handicraft.' This word is used primarily in discussions of school curricula, and it seems clear that originally it was a spelling-pronunciation introduced by over-meticulous school teachers; it has now come into general use, however, and its position is strengthened by the existence of words borrowed from English such as /kælsiəm/ 'calcium.' Thus /m/ and [ɲ] do contrast in final position. Again there are doubtless many speakers who do not know these words, and who therefore have no contrast between [ɲ] and /m/.

To sum up, both [ɲ] and [ɲ̃] contrast with both /m/ and /n/, while they are in complementary distribution with each other. Since there is a reasonably close phonetic similarity, both articulatory and auditory, between them, they may be assigned to the same phoneme. The symbol /ɲ/ may be used for it, since [ɲ] is of more frequent occurrence. This is also the best phonemic solution even for speakers who have [ɲ] in complementary distribution with [ɲ̃], [n], and [m], since [ɲ] bears considerably less phonetic resemblance to [n] and [m] than it does to [ɲ̃].

Historically, of course, there is no connection between [ɲ] and [ɳ]; all occurrences of [ɲ] derive from either /n/ or /m/ (for a similar development cf. the dialects of Spanish in which final /n/ becomes [ɲ]). This is exemplified by the morphophonemic changes which take place in /liumə/ 'letter': /liuɳ/ 'letters' and /uyənə/ 'garden': /uyaɳ/ 'gardens.'

The glottal spirant /h/ usually has partial voicing. As in English, the tongue and lips take up the position of the vowel that follows; /h/ thus has seven allophones. Under these circumstances the most reasonable solution seems to be to class it as a glottal spirant. Examples: /hari/ 'correct,' /gaha/ 'tree.'

Doubled consonants. Long consonants occur in Sinhalese, but only in medial position (with one exception, discussed below under *Consonant clusters*). While they are phonetically long, they may be considered as doubled from a phonemic point of view.

Weakened articulation of consonants. Sinhalese has a strong tendency towards weakened articulation of single consonants between vowels. This applies to the nasals, to all stops except retroflex, and to /v/. The stops may be so weakly articulated as to emerge as the homorganic spirants; /m/ becomes [v] with nasalization, while /n/ may remain only as nasalization of the vowels; /v/ is reduced to a slight murmur. The weakening tendency is especially strong when the consonant occurs before a stressed vowel, in which case it may disappear completely.

Occurrence of consonants. All stops, affricates, and nasals may occur initially; medially between vowels all may occur doubled, and all but the velar nasal may occur single. Finally only the voiceless stops (not the voiceless affricate) and the labial and velar nasals occur.

The alveolar flap /r/ occurs initially and medially; in native Sinhalese words it does not occur finally, but now does so in borrowed words. It does not occur doubled.

The alveolar lateral /l/ occurs initially, medially single or doubled, and finally.

All the spirants occur initially and single medially; only /f/ and /s/ occur finally, and only /s/ can be doubled.

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The semivowels /v/ and /y/ occur initially and medially ; they cannot be doubled. For further discussion see below under *Diphthongs and semivowels*.

Consonant clusters. Sinhalese can have consonant clusters in initial and medial position. Medial clusters consist of only two consonants ; however, the first of them is always pronounced long (unless it is a nasal : see below). Since the difference between single and doubled consonants is phonemic intervocalically, medial clusters may be analyzed phonemically as beginning with doubled consonants ; however, it is convenient to establish the convention that these doubled consonants are represented by single letters only (except for the nasals).

Initial clusters also consist of only two consonants, with a unique exception. The first member of an initial cluster is pronounced very short, except /s/, which in some words is pronounced long, as in a medial cluster. The only case of an initial cluster of more than two consonants occurs in the word /sstrii/ 'woman.'

The following types of cluster occur both initially and medially : stop plus /r/, /l/, spirant, or semivowel ; nasal plus /r/, /l/, or semivowel ; and spirant plus stop, nasal, /r/, /l/, or semivowel. The following occur only initially : /v/ plus /r/ or /y/. The following occur only medially : stop plus stop or nasal ; nasal plus stop or spirant ; /r/ plus stop, nasal, or semivowel ; and /l/ plus stop, nasal, spirant, or semivowel. In the clusters of stop plus stop or nasal the stop appearing as the first element is not exploded.

The only medial clusters in which the first element ever appears short are those composed of nasal plus voiced stop ; the normal type of doubled nasal plus voiced stop also occurs, the two types contrasting : /kandə/ 'trunk' : /kannədə/ 'mountain.' Since there is contrast, the doubled nasal must be represented by a double letter. With voiceless stops only the normal type of cluster with doubled nasal occurs ; in such cases the above-mentioned convention can be followed and the doubled nasal written with a single letter. The length of the nasal in a cluster of single nasal plus voiced stop varies from normal to very short ; in the latter case the pronunciation is parallel to that of initial clusters. The shortened pronunciation occurs particularly when a stressed vowel occurs in the next syllable, as in /bindénəva/ 'break.' It has been customary in Sinhalese studies to treat the single nasals in these clusters as a special class of sounds to which was

given the name "half-nasals"; this is in accord with the traditional Sinhalese orthography, which uses special signs for the "half-nasals" and the regular nasal letters for the "full-nasals" in the same position. Daniel Jones concluded that the four "half-nasal" clusters [mb nd ñḍ ṅḅ] each constituted a single phoneme.⁶ This is an unnecessary complication of the system, increasing the number of consonant phonemes by nearly 20 per cent.⁷ Phonemically the nasal element in these clusters is a single nasal, contrasting with a doubled nasal in similar clusters; the single nasal has an extra-short allophone which alternates with the normal-length allophone either under given conditions or in free variation (by "normal length" is meant the length the nasal has initially before a vowel).

Sinhalese is notable among the major Indo-Aryan languages of the past and present in having no aspirate stop phonemes or clusters. Historically the aspirate series disappeared from the language long ago (cf. Wilhelm Geiger, *A Grammar of the Sinhalese Language*,⁸ p. 40). Sinhalese now has, of course, many words borrowed from Pali and Sanskrit which had aspirate stop phonemes in those languages; however, most Sinhalese speakers ignore the aspirate element and pronounce the words with simple stops. Some speakers, especially those with classical educations, pronounce the aspirates; as far as the Sinhalese phonemic system is concerned, the resulting sounds are best considered as clusters.

Simplification of clusters. Most of the words in which clusters occur are not native Sinhalese words; Sinhalese has a marked preference for simple alternations of the CVCV type. Consequently many speakers regularly simplify initial clusters; uneducated speakers (to the extent that they use such words at all) usually do so, while educated speakers often do so in ordinary conversation, but pronounce the clusters in more formal styles of speech. Some medial clusters may also be simplified, but this is less frequent, and some, such as the nasal-stop-clusters (of either type) are never simplified.

Clusters with /v/ or /y/ as the second element are simplified by substituting the corresponding vowel: /dviitiə/ : /duitiitiə/ 'second'; /tyaage/ : /tiaage/ 'gift.'

6. *The Phoneme*, p. 81.

7. The case for considering these clusters as single phonemes would be stronger if they ever occurred initially, like other consonant phonemes, but they do not, with a single very dubious exception: the word /umbə/ 'you' is frequently pronounced without the /u/; however, it remains a two-syllable word with the stress on the first syllable, i.e. the /m/ becomes syllabic; the best phonemic representation of this pronunciation is /mmbə/.

8. The Royal Asiatic Society, Ceylon Branch, Colombo, 1938.

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Most other clusters are simplified by the insertion of a svarabhakti vowel ; the vowel is the same as that of the following syllable : /klaante/ : /kalaante/ 'faintness' ; /plutə/ : /pulutə/ 'protracted' ; /prətəmə/ : pərətəmə/ 'first.' The svarabhakti vowel is never stressed ; the stress remains where it was. When a medial cluster is simplified in this way, the first consonant remains long : /apriə/ ([appriə]) : /appiriə/ 'displeased.'

Initial clusters beginning with /ss/ are simplified not by a svarabhakti vowel but by a prothetic vowel /i/ (since the cluster then becomes medial, the doubled /s/ is represented by a single letter) : /sskanndə/ : /iskanndə/ 'name of god' ; /ssnaane/ : /isnaane/ 'bath' (initial clusters beginning with a single /s/ are simplified in the normal way : /snehe/ : /senche/ 'affection.')

There is a single instance in which initial /kš/ is simplified by dropping the /k/ and substituting /s/ for /š/ : /kšəyərōoge/ : /sayərōoge/ 'tuberculosis' (note also the "normalization" of the vowel : see below under *Vowels*).

In native Sinhalese words initial clusters do not occur at all, and medial clusters are quite rare. In such words (and one or two borrowed words which are now fully a part of the spoken language) clusters are simplified not by a svarabhakti vowel but by assimilation. The assimilation may be either progressive, as in /mahatmeə/ : /mahatteə/ 'Mr.', or regressive, as in /sabde/ : /sadde/ 'sound' or /hətəpmə/ : /hətəmmə/ 'mile' ; we have not been able to discover the factors that determine which pattern is followed. The commonest case is that of the infinitive of the verb ; thus, while most people say /kəranə/ 'to do', there are some who say /kəranə/ and others who say /kəranndə/ ; the latter form (for all verbs) is the only instance of partial assimilation known to us (the original form had /t/, as shown by the written language). Apart from infinitives, pairs of words such as those just cited are quite rare in present-day Sinhalese ; in general it is possible to speak of assimilation in Sinhalese only in a historical sense : the assimilated form is now usually the *only* one used in speaking, for example /tappərə/ 'seconds,' originally /tatpərə/.

Vowels. Sinhalese has seven vowel phonemes, /i e ə u o a/. All seven may occur either short or long ; however, /ə/ occurs long only in words borrowed from English, such as /šəət/ 'shirts.' The long vowels are slightly different in quality from the short vowels, except /ə/. Phonemically the long vowels may be considered as doubled. In final position unstressed long vowels are usually shortened.

Perera and Jones' *Colloquial Sinhalese Reader* contains (p. 5) a chart showing the tongue-positions of the vowels. Jones includes in *The Phoneme* (p. 29) a similar chart which shows slight but not significant differences in the positions for some of the vowels. Passé also gives a vowel chart, which shows one significant difference from the others. The present authors have not undertaken a laboratory determination of the tongue-positions but have relied on auditory and articulatory observation. The positions as described below agree with those given by Perera and Jones and Passé except where noted otherwise.

The high front vowel /ii/ is a little lower than cardinal vowel No. 1; the short /i/ is lower still, about halfway to No. 2, and somewhat retracted. The high-mid front vowel /ee/ is a little lower than cardinal vowel No. 2; the short /e/ is lower still, about halfway to No. 3. According to Perera and Jones, the low-mid front vowels /ææ/ and /æ/ have the same tongue-position, while Passé gives them as different; we agree with Passé. The long /ææ/ is lower than cardinal vowel No. 3, almost halfway to No. 4; the short /æ/ is a little lower still and somewhat retracted. The mid central vowels /ɔɔ/ and /ɔ/ are at about the same height as /e/. The back vowels /uu u oo o/ are at about the same heights relative to the cardinal vowels as are the corresponding front vowels; /uu/ is slightly advanced, and /u/ a little more so. All four are rounded, but the rounding is less than for cardinal vowels Nos. 8 and 7 respectively, and the lips are very little if at all protruded. The low vowel /aa/ is fully low and about midway between cardinal vowels Nos. 4 and 5. According to Perera and Jones and Passé, the short /a/ is a little higher and rather further forward. This would make it more [æ]-like than /aa/, but to our ears it is *less* [æ]-like; we also find a difference between /a/ in a closed syllable and /a/ in an open syllable. /a/ in a closed syllable is higher than /aa/ and fairly far back, perhaps about halfway between cardinal vowels Nos. 5 and 6; /a/ in an open syllable is about halfway between the latter position and that for /aa/; neither one is rounded.

The phonemic status of /ɔ/ calls for comment. For part of its range, i.e. in all syllables except initial and final, it is in complementary distribution with /a/: /ɔ/ occurs when a single consonant follows, /a/ when two consonants or a vowel follow. The only exceptions to this occur immediately before or after /h/, where in most cases only /a/ is found, and in compound and derived words, which retain the original vocalization of their component parts, e.g. /sañyamɔ/ 'restraint.' In initial syllables /ɔ/ is of infrequent occurrence. It is found in forms of the verb /kəɾəɳəvə/ 'do', and this pro-

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vides a minimal pair for /ə/ and /a/: /kərə/ 'done' and /karə/ 'shoulder' (the two are spelt identically in Sinhalese orthography). It may also occur in the initial syllable of borrowed words with certain initial clusters, and in such cases it also serves as the svarabhakti vowel used to simplify the clusters: /prətəmə/ : /pərətəmə/ 'first.' In final syllables /ə/ and /a/ formerly did not contrast: /ə/ appeared in absolute final position, /a/ before a final consonant. The long /aa/ could also appear in absolute final position, however; thus now that unstressed final long vowels have regularly been shortened, /ə/ and /a/ do contrast in this position: /meekə/ 'this one (inanimate)' and /meeka/ 'this one (animate)'. There are now also words recently borrowed from English in which /ə/ appears in the final syllable before a consonant, e.g. /kælsiam/ 'calcium.' There can thus be no doubt about the phonemic status of /ə/.

Nasal vowels. Sinhalese has no nasal vowel phonemes. Two nasal vowels occur, [ãã] and [ææ]; the nasalization is light, rather less than that of the nasal vowel phonemes of French, Portuguese, or Hindi. The two occur in only three expressions: [hãã] 'OK (agreement to do something)', [ãã] 'oh,' and [ææ] 'huh?'; all three are to be considered as belonging to the paralinguistic system of Sinhalese, and consequently the nasal vowels are not part of the Sinhalese phonemic system (it is interesting to note that the English gloss for one of them, 'huh?', is part of the paralinguistic system of English and also has a non-phonemic nasal vowel). Nasalized vowels may occur when a nasal consonant has been elided by weakened articulation (see above under *Weakened articulation of consonants*), but this is a matter of allophonic variation.

Diphthongs and semivowels. Two vowels frequently come together in Sinhalese words; of the theoretically possible combinations of the seven vowel phonemes, most actually occur, except that /ə/ is never followed by another vowel (in all cases where the processes of grammatical combination would result in /ə/ being followed by another vowel, it is replaced morphophonemically by /a/, e.g. /hondə/ 'good,' /hondai/ 'it is good'). In addition, /v/ and /y/ were listed above among the consonant phonemes as semivowels. What is the phonemic status of the vowel combinations, and what is the justification for setting up semivowel phonemes?

We may note, first, that Sinhalese has no contrasts of the type shown for Bengali by Ferguson and Chowdhury, where, for example, /cay/ 'I want' contrasts with /cai/ 'the very tea'.⁹ In Sinhalese there appears to be

9. Charles A. Ferguson and Munier Chowdhury, "The Phonemes of Bengali," *Language* 36 (1960), p. 41. The transcription has been changed for typographical reasons.

no reason for setting off one group of vowel combinations as diphthongs over against the rest. It is true that certain combinations sound more diphthong-like than others, but this appears to be entirely a question of the distance between the tongue-positions of the components, and a given combination often sounds more diphthong-like at a fast rate of speech than it does at a slow rate. There seems to be a continuous spectrum of combinations, from close combinations like [ei], which sounds about like English /ey/, to distant ones like [io]. Phonemically, then, they are all to be considered simply as combinations of vowel phonemes. How many syllables such combinations constitute is a question calling for further investigation.

The semivowels [v] and [y] have a limited distribution, occurring only initially and medially; further, [v] never occurs next to /u/ or /o/ and [y] never occurs next to /i/. It should be noted that while [y] is articulated in the position of /i/, [v] has a different articulation from /u/: [v] may be either bilabial, like /u/, or labiodental, but the tongue-position is always mid central, not high back as for /u/. In initial position [v] and [y] do not contrast with the corresponding vowels. Following another consonant they may be replaced by the vowels, as described above under *Simplification of clusters*; this is a matter of either free variation or stylistic variation, and so there is no contrast here either. Accordingly it might be possible to consider [v] and [y] as allophones of /u/ and /i/ respectively, thus dispensing with semivowel phonemes altogether. The combinations */ui/ and */iu/ would then represent possible ambiguous cases; there is, in fact, at least one minimal pair, [uyənə] 'garden' and [viənə] 'awning.' This contrast could be satisfactorily accounted for by introducing a stress phoneme; 'garden' and 'awning' would then be distinguished as /úíənə/ and /uíənə/ respectively. However, stress in Sinhalese, though not automatic, does not otherwise appear to be phonemic in single words, and so it might be preferable to introduce two new segmental phonemes rather than one new suprasegmental one.

There is, however, one environment where the semivowel and the vowel do contrast, namely between two other vowels. For the semivowel there are among others the very frequent cases of the present form of verbs, e.g. [enəva] 'come,' for the vowel such cases as [kiua] 'said.' A near-minimal pair is provided by [kæəva] 'ate' and [pæəua] 'shone.' In addition to the difference in quality described in the preceding paragraph, there is a difference in length: [u] is about twice as long as [v] (the normal length ratio between vowels and consonants). What are the possibilities for phonemic analysis?

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Assuming no semivowel phonemes, /u/ has a labiodental allophone with mid central tongue-position, which *may* occur initially and which does occur in cases like [kææva] and [enəva]. Notation would present a problem because of the difference in length: [kææva] and [pææua] would have to be represented as **/kææua/* and **/pææua/* respectively, with the conventions that /u/ between vowels represents the labiodental allophone (short in length), while /uu/ between vowels represents the normal vowel allophone, but equal in length to /u/ between consonants, not /uu/; this is obviously complicated and confusing. The analysis has the further disadvantage of introducing a new type of vowel combination, seen in **/enəua/*, since /ə/ does not otherwise occur before another vowel.

Analysis in terms of vowels only thus appears to be possible, but it has several drawbacks: it requires phonemic stress; it requires three vowel lengths and complicated conventions for representing them; it requires /u/ to have allophones differing markedly from the normal one; and it introduces a new type of vowel combination. Analysis in terms of semivowels avoids all these difficulties and introduces no new ones. The semivowel analysis is consequently simpler and to be preferred.

The case of [kiua] still requires to be re-examined in the light of the semivowel analysis: does it perhaps after all contain /v/? It might be analyzed as **/kivva/*. However, this would introduce a new allophone of /v/, with high back tongue-position. And this, in turn, would raise the question of whether [au] and all similar vowel combinations should be analyzed as **/av/*, etc. But we saw above that the vowel combinations themselves offer no basis for analyzing [au] any differently from [io], etc.; consequently analysis of any these combinations in terms of semivowels is to be avoided if possible. Analysis of [kiua] as **/kiuva/* has the same disadvantages, and the additional one that /v/ does not otherwise occur next to /u/. Thus /kiua/ appears to be the best phonemic analysis.

So far as we know, /y/ and /i/ offer no case comparable with that of /kiua/, and so analysis in terms of vowels only would be more feasible here. However, [y] is quite parallel with /v/ in structural terms; once /v/ is established as a semivowel phoneme, it seems best to admit /y/ also for the sake of consistency and symmetry.

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