

A PHONEMIC STATEMENT OF MAI ENGA

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Note: This paper was written by the Rev Hintze in 1966; it is the most comprehensive account to date of Enga phonology and it is likely to remain so for some time to come. Rev Hintze, therefore, has kindly allowed us to publish the paper here and with his consent I have inserted the prenasals in the phonemic transcription and replaced his original orthographic /r/ with orthographic /l/, in accordance with the recommendations of the 1969 Enga Orthography Conference which are included as an appendix. I have not changed his orthographic conventions regarding the rendering of vowel clusters and labialization, even though the recommendations of the Orthography Conference are quite clear on this. At the request of the editor of Kivung and with Rev Hintze's consent, I have also written the Introduction.

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INTRODUCTION

Enga is the language of approximately 180,000 speakers in the Enga and Western Highlands Provinces of Papua New Guinea. There are approximately seven major dialects, Mai being the most important demographically, but these are, with little difficulty, mutually intelligible. Only one dialect, Kyaka, is sufficiently different from the others to warrant an orthography of its own and speakers from other Enga dialects who have not been exposed to Kyaka have some difficulty initially in understanding it.

Enga is a member of the East New Guinea Highlands Stock within the Trans-New Guinea Phylum (Wurm 1975). It is a language with subject-object-verb order, with the nominal modifiers (including relative clauses) following the noun. The language has been studied extensively by the missions in the area, but little has been formally published. Burce (1965) has dealt with the main characteristics of Enga syntax, Larson (1970) with principles of Enga rhetoric, Brennan (1970) with verbal symbolism, Cupit (1970 and 1971) with Kyaka grammar in general, and Hintze (1962) with Mai grammar in general. A. Lang (1973) has published both a dictionary with a short grammatical sketch by R. Lang (1973), and a monograph on the semantics of nouns and classificatory verbs (1975).

A. SEGMENTAL PHONEMES AND THEIR BEHAVIOR

Mai Enga has 21 contrastive significant units of sound that are its phonemes. Thus it has 21 letters in its alphabet. Its phonemes may be divided into vowels and consonants. First, we shall consider the vowels.

1. The Syllabic Vowels

a. Phonemes:	/a/,	/e/,	/i/,	/o/,	/u/
	<u>Front</u>	<u>Central</u>	<u>Back</u>		
<u>High</u>	i		u		
<u>Mid</u>	e		o		
<u>Low</u>		a			

b. Allophones: /a/: (a, a, ʌ, ʌ) /e/: (ɛ, e, ɛ) /i/: (i, ɪ, I, L) /o/: (o, ɔ, O) /u/: (u, U)

	Front		Central		Back	
	Un- rounded	Rounded	Un- rounded	Rounded	Un- rounded	Rounded
High	close i I					u U
open	ɪ ɪ					
Mid	close e					o O
open	ɛ ɛ		ʌ ʌ			ɔ
Low	close					
open	a		a			

c. Description and Occurrence of Allophones

/a/ [a] Voiced low open (more relaxed) central unrounded vocoid occurs except in utterance final or prepausal positions, and except where [a] occurs.

/kápa/ kápaʌ 'enough, okay'

English: as in 'father', but not as far back.

[a] Voiced low open front unrounded vocoid.

English: as in eastern New England 'half', or in southern U.S. at the beginning of 'eye'. [a] does not occur utterance - finally or prepausally, but does occur immediately following semi-consonant /y/, nonsyllabic /i/ that is written with a 'y' (as in /pyátá/ 'he will strike'), alveolar affricates /s/ and /tʃ/, alveo-palatals /ny/ and /ly/, and front vowels /i/ and /e/.

- /yáŋgi/ [yáŋkɪ̃] 'kunai grass'
 /pyátá/ [piáɾʌ̃] 'he will strike'
 /sáká/ [tsákʌ̃] 'green, healthy'
 /anjalámo/ [ándzǎɾámó] 'he has just fastened, tied up'
 /nyakáma/ [ñáɣomʌ̃] 'you pl.'
 /lyambí/ [lʲámpɪ̃] 'a type of grass'
 /láiakama/ [ɾaiáɣámʌ̃] 'name of place'
 /aeangé/ [áé áŋkɛ̃] 'wife's mother-in-law'

[ʌ̃] Voiced mid open central unrounded vocoid. English: as in 'up', but more openly relaxed. Occurs only utterance-final or prepausal.

/láma/ [ɾá m ʌ̃] 'two', 'lamp'

[ʌ̃] Voiceless mid open central unrounded vocoid. English: as in that above, but voiceless.

/láma/ [ɾá m ʌ̃] 'two', 'lamp'

/e/ [ɛ̃] Voiced mid open front unrounded vocoid. English: as in 'set'. Occurs except utterance-final and prepausal, and except where [ẽ] occurs.

/énda/ [ɛ̃ ntʌ̃] 'woman' /petengé/ [p é ɾ é ŋkɛ̃] 'sits'

[ẽ] Voiced mid close (tensed) front unrounded vocoid. English: as in 'late'. Occurs only in place of (allophone substitution) the [ã] in the second and third person plural far past tense person-number suffixes /-ámí/ of Mai Enga. /peteámí/ [p é ɾéémɪ̃] 'sits, is' Note that the substitution [ẽ] in turn affects the preceding [ɛ̃], causing it to become the tensed form [ẽ].

Also, it occurs in a less tensed form than above before /ly/, especially in the first syllable that is stressed and is spoken with a high pitch. /lélyo/ [ɾéɾó] 'I am speaking'. This form tends to occur again preceding contiguous mid vowels /e/ and /o/

when it is said with high pitch and stressed. /téé/ [téẽ] 'you were burned' FP. /léó/ [léó̃] 'I spoke' FP. Note that in the first instance subsequent [ɛ̃] becomes [ẽ].

[ɛ̃] Voiceless mid open front unrounded vocoid. English: as in 'set', but voiceless. Occurs only utterance-final and prepausal.
/méndé/ [m é̃ nt é̃] 'a, an'

/i/ [ĩ] Voiced high close front unrounded vocoid. English: as in 'feet'. Occurs except utterance-final and prepausal, and except where [ɬ] occurs.

/ítá/ [í̃tá] 'tree, wood'

/pilyámo/ [pí̃lámó̃] 'he is striking'

[ɬ] Voiced high open front unrounded vocoid. English: as in 'fit'. Occurs only preceding /k/.

/ikiníngi/ [ɬ̃ gíníngkɪ̃] 'son'

[ɪ̃] Voiceless high close front unrounded vocoid. Occurs only utterance-final or prepausal.

/nyíngi/ [ní̃ngkɪ̃] 'takes, receives'

[ɛ̃] Voiceless high open front unrounded vocoid. Occurs only utterance-final or prepausal, as in the case where [ɬ] has been substituted for [ɛ̃]: /épé/ [ɛ̃ p é̃] 'good'

/o/ [õ] Voiced mid close back rounded vocoid. English: as in 'boat'. Occurs except utterance-final or prepausal, and except where [ɔ̃] occurs.

/ómo/ [ómó̃] 'that'

[ɔ̃] Voiced mid open back rounded vocoid. No English equivalent, except perhaps in some pronunciations of 'dog'. Occurs only preceding /k/ and following /a/ [ã].

/dóko/ [nd̃ ɔ̃ k̃ó̃] 'the, that'

/páo/ [pá̃ɔ̃] 'going'

[O] Voiceless mid close back rounded vocoid. Occurs only utterance-final and prepausal.

/epelyámo/ [ɛ̥béɫámO] 'he is coming'.

/u/ [u] Voiced high close back rounded vocoid. English: as in 'boot'.

/úpa/ [úpʌ] 'they, those'

/kútá/ [kúʔʌ] 'woman's reed skirt'

[U] Voiceless high close back rounded vocoid. Occurs only utterance-final and prepausal.

/kámbú/ [k á mpÚ] 'mouth'.

2. The Nonsyllabic Vowels

In the two words /mwáa/ 'let us go!' and /dyóo/ 'giving' the /w/ and /y/ have been purposely chosen to represent either a one-segment labialized /m/ and palatalized /d/, or two segments of sound that consist of a consonant plus nonsyllabic /u/ and /i/ respectively. This was done, because at the time the structural pressures and other evidence seemed too inconclusive to warrant a firm interpretation either one way or the other. Both interpretations still have room under this orthography which is in current usage.

However, after a few more years of experience, this author feels that the phonological considerations, structural pressures, phonemic, etymological and morphological reasons favor the two-segment interpretation.¹

The following consonant-nonsyllabic vowel combinations are possible:

/bw/, /dw/, /gw/, /kw/, /mw/, /pw/, /sw/, /tw/;

/by/, /dy/, /gy/, /ky/, /my/, /gy/, /py/, /sy/, /ty/.

/ly/ and /ny/ are different. They do not represent two sound segments. They are digraphs for the one-segment phonemes /lʲ/ and /nʲ/, as in /lyíngi/

[lʲíŋkʲ] 'strikes off', 'picks', and /nyíngi/ [nʲíŋkʲ] 'takes, receives'.

3. General Behavior of the Syllabic Vowels

- a. In utterance final position, or before a pause, the last vowel tends to become voiceless.

The last /a/ in the utterance /kápa/ 'enough, okay' normally loses its voicing, but may be voiced and still be acceptable. A certain amount of free fluctuation is common.²

/leámoaka dóko, doko nakándeá./ 'Although he spoke, he did not see it.' At the comma the second /o/ in /dóko/ is devoiced.

- b. Otherwise, all vowels are voiced.

/kápa daá./ 'Not enough.' The second /a/ in /kápa/ is now in utterance medial position and thus is voiced. Usually the double vowels — as in /pií/ 'talk', /máa/ 'taro' — in utterance-final position are voiced, but occasionally they are not, as in /púu/ [púú] 'you go!'

- c. Utterance-final vowel may be elided completely.

/pelyám./ 'He is going ' is usually /pelyámo./ Mai Enga speakers tend to do this more frequently than others and it is more noticeable among them.

One of two like adjacent vowels may be omitted.

/ángé énda/ 'This (is a) woman ' becomes /áng énda/.

One of two dissimilar adjacent vowels may be elided.

/dóko áki./ 'What is that?' is often said, /dók áki/.

- d. Words may be contracted.

/dópa pétala.../ 'Having done thus...' is said /dopétara.../, where both a vowel and consonant are omitted.

- e. Two similar vowels at the border of words usually combine into one (coalesce).

When /énda/ 'woman' is combined with /akáli/ 'man' to form the word for 'person', the two /a/'s coalesce, making it /endakáli/.

f. Vowels are conditioned by their environment.

In addition to the conditioning that has been described above under the discussion of each vowel phoneme, there is a type of modification that needs mentioning. The vowel that is used in both of the indicators for a question and for the actor in a clause is dependent upon whether the preceding vowel is either in an upper (high in the mouth) or lower (mid and low in the mouth) category. This is a kind of vowel harmony that operates in the following manner: Preceding high vowels /i/ and /u/ will cause the Enga speaker to use the high vowel /i/ in both of the subsequent suffixes mentioned above, and he will use the mid vowel /e/ in them when the preceding vowel is either /e/ or /a/ or /o/.

/peámi/ 'they went' /peamípi/ 'did they go?'

/anasúu/ 'God' /anasúupi/ 'God?'

/péó/ 'I went' /peópe/ 'did I go?'

/péé/ 'you went' /peépe/ 'did you go?'

/péá/ 'he went' /peápe/ 'did he go?'

/ikí/ 'man's name' /ikimí/ 'Íki' (as actor or agent)

/anasúu/ 'God' /anasúumi/ 'God' (as actor)

/yána/ 'dog' /yáname/ 'dog' (as actor)

/keké/ 'tongue' /kekemé/ 'tongue' (instrument)

/kamóngo/ 'rich man' /kamóngome/ 'rich man' (actor)

g. Vowels also change their environment.

Aside from the affectation of the consonant phonemes described below that is concerned with voice and point of articulation, there is an important change in the production of the /ly/ and /l/ consonants when they occur between preceding front vowels /i/ or /e/ and following non-front /a/, /o/, or /u/. Note the different pronunciation of the /ly/ in these two words:

/kalyámo/ 'he is standing' [kályámò]

/lelyámo/ 'he is speaking' [lélyámò]

(The difference is obvious only when both words are spoken at the normal rate of speech.)

Also, the /l/ is affected when in the environment just described, across the borders of words, as in :

/poó láa./ 'you blow!' [pòò ɾáà]

/pií láa./ 'you speak (talk)!' [piì ɾáà]

Precisely how the /ly/ and /l/ are changed may be found below under the description and occurrence of consonants.

- h. A nonphonemic transitional vowel, voiced [ʌ], is heard in certain environments.

It is heard between a high or mid vowel and consonant /k/ at the border of words.

/pií káe./ 'you don't talk!' [piìʌ káè]

/aé káyo./ 'I am here.' [áéʌ kátʌyò]

/auú kaelyó./ 'I am loving.' [áúʌ kábé ɾó]

- i. Certain allophones and full phonemes may be substituted for others.

Some speakers tend to substitute [ɫ] for [ɛ] in words like /épe/ [épeɫ] 'good', and /kénge/ [kéŋkɫ] 'name'.

This is a matter of free variation with them, and in slower speech or in contrastive environments they return to the [ɛ] allophone.

Another allophone substitution that has become a dialectical trademark — [e] for [a] in the Mai Enga 2nd and 3rd person plural person-number marker /-ami/ of the far past tense — has been mentioned above under the phoneme /e/.

The following is an example of full phoneme (vowel) substitution :
 /takáŋge/ 'father' plus /-pi/ 'and' becomes /takáŋgipi/ instead
 of /takáŋgepi/, which would be the expected form. This takes
 place in other words that end in a single /e/, e.g. /nengé/ 'eats',
 /nengipí/ 'eats and', and is no doubt due to a feeling of vowel
 harmony.

i. Vowels cluster.

1) Similar Vowels

Phonological and morphological considerations³ force us to
 interpret the long vowels as structurally two similar vowels,
 each being a syllable nucleus.

/áá/ 'ah!'	/kaá pingí/ 'is bitter'
/eé/ 'garden'	/keé pingí/ 'butchers'
/íí/ 'excrement'	/kií pingí/ 'sews'
/óó/ 'sound made by falling rain'	/koó pingí/ 'does badly'
/úú/ 'sound made by wind or fire'	/kúú lengé/ 'snores'

Three similar vowels never occur together.

2) Dissimilar Vowels

Two contiguous dissimilar vowels is a strong characteristic of
 phoneme distribution: CVV.

/léá/ 'he spoke'	/laé/ 'name of a river'
/liá/ 'it bore fruit'	/laimá/ 'cassowary bird'
/sóá/ 'man's name'	/láó/ 'speaking'
/lúá/ 'you do wrongly!'	/lau pingí/ 'spreads open'
/léó/ 'I spoke'	/líembenge/ 'assembles'
/líó/ 'I danced'	/gôe lengé/ 'swallows'
/lúilyámo/ 'he is being naughty'	

Three or more contiguous dissimilar vowels is also a characteristic pattern :

/aeangé/ 'wife's mother-in-law'	/kaéá/ ⁴ 'he left (it)'
/aiá/ 'cassowary-feather head-decoration'	/kaéó/ 'I left (it)'
/áieé/ an exclamation	/kaéé/ 'you left (it)'
/aiúu/ 'rain'	/kaeáo/ 'leaving (it)'
/áoa/ 'spinach'	/kaíó/ 'I lit' (torch)
/aoái/ 'red clay'	/kaíí/ 'you lit'
/auá/ 'kind of bird'	/kaíá/ 'he lit'
/auíá/ 'uncle'	/kaióo/ 'lighting'
/auialámo/ 'he just liked'	/kaóá/ 'you string the bow'
/auiáo/ 'liking'	/kaoéó/ 'I strung t.b.'
/muió/ 'I was short'	/kaoéé/ 'you s.t.b.'
/muií/ 'you were short'	/kaoéá/ 'he s. t. b.'
/muiá/ 'he was short'	/koeá/ 'he became bad'
/muióo/ 'being short'	/koeá/ 'becoming bad'

Consonants

a. Phonemes :

/b/, /d/, /g/, /i/, /k/, /l/, /m/, /n/

/ny/, /ŋ/, /p/, /r/, /s/, /t/ and semi-consonants

/w/ and /y/.

	<u>Bi-</u> <u>Labial</u>	<u>Alveolar</u>	<u>Alveo-</u> <u>Palatal</u>	<u>Velar</u>
<u>Unaspirated Stops</u>	<u>Voiceless</u>	p	t	k
	<u>Voiced</u>	b	d	g
<u>Affricates</u>	<u>Voiceless</u>		s	
	<u>Voiced</u>		ʃ	
<u>Nasals</u>	m	n	ny	ŋ
<u>Lateral</u>			ly	
<u>Flap</u>		l		
<u>Semi-Consonants</u>	w		y	

∟Note: Regarding the orthographic rendering of the voiced stops and affricates, the reader is referred to recommendation 4 of the Appendix.

b. Allophones:

/b/ [mb, mp]

/d/ [nd, nt, nd, nt]

/g/ [ŋg, ŋk, ŋg, ŋg, ŋk, ŋk]

/j/ [ndz, nts]

/k/ [k, g, ḳ, ḳ, g̣, g̣, kx, kx, kx, g̣g̣, g̣g̣, g̣g̣,
x, x̣, x̣, g̣, g̣, g̣]

/ly/ [lʲ, lʲ, ḷ, ḷ]

/m/ [m]

/n/ [n]

/ny/ [ŋ]

/ŋ/ [ŋ]

/p/ [p, b, pp, p, b]

/l/ [ḷ, ḷ, ḷ, ḷ, ḷ]

/s/ [ts, dz, s, z]

/t/ [t, t, ṭ, ṭ, ṭ]

/w/ [w]

/y/ [y]

Alveo-

		Bilabial	Alveolar	Retroflex	Palatal	Palatal	Velar	Back Velar
Stops	Unaspirated vl	p	t	ṭ		k̟	k	k̠
	vd	b	d	ḍ		ɡ̟	ɡ	ɡ̠
Affricated	vl	pp̟	ts			kx̟	kx	kx̠
	vd		dz			ɡɡ̟	ɡɡ	ɡɡ̠
Fricatives	Central Flat vl	ɸ				x̟	x	x̠
	vd	β				ʂ̟	ʂ	ʂ̠
Central Grooved	vl		s					
	vd		z					
Frictionless	Nasal vl							
	vd	m	n	ṇ	ɲ	ɳ̟	ɳ	ɳ̠
Lateral	vl				ɬʏ			
	vd				ɮʏ			
Vibrants	Flapped vl		ɹ̥ ɻ̥	ɻ̥̣				
	vd		ɹ̣ ɻ̣	ɻ̣̣				
Trilled	vl		ɹ̣̣̣ ɻ̣̣̣					
	vd		ɹ̣̣̣̣ ɻ̣̣̣̣					
Semi-Consonants	vl							
	vd	w			y			

c. Description and Occurrence of Allophones.

/b/ [mb] Homorganic nasal plus voiced bilabial unaspirated stop.

English: as in 'jumbo'. Occurs except utterance-final or prepausal, and except where [mp] occurs.

/kambilyo/ [k̄ á mbíʔ] 'butterfly, moth' (generic).

Word- and utterance-medially the nasal [m] is pronounced distinctly. However, it is usually weak, if said at all by some speakers, at the beginning of utterances, as in /baá/ [m̄ b̄ á á] 'he, she'. In both cases it is still considered to be a single complex phoneme.

[mp] Homorganic nasal plus voiceless bilabial unaspirated stop.

English: as in 'jump'. Occurs only utterance-final or prepausal. /mámba/ [m̄ á mp̄ ʔ] 'tree oil'

/d/ [nd̄] Homorganic nasal plus voiced slightly retroflexed

unaspirated stop. English: as in 'sand', but with a small amount of retroflexion. Occurs except utterance-final or prepausal. /ándalámo/ [ā nd̄ á ʔ á m̄ ʔ] 'he just grew'. Word- and utterance-medially the nasal [n] is much more pronounced than at the beginning of an utterance, as in /daá/ [nd̄ á á] 'no, not'. It is in the environment of back and central vowels that the retroflexion is more noticeable; it is less, if at all, noticeable in the vicinity of front vowels. Cf. /dolápo/ 'those two' and /dĩngi/ 'gives'.

[nt̄] Homorganic nasal plus voiceless slightly retroflexed

unaspirated stop. English: as in 'grant', but with the 'nt' slightly retroflexed. Occurs only utterance-final or prepausal. /ánda/ [á nt̄ ʔ] 'breast', /énda/ [é nt̄ ʔ] 'woman'.

/g/ [ŋg] Homorganic nasal plus voiced velar unaspirated stop.
 English: as in 'bungalow'. Occurs except utterance-final or prepausal, and except where [ŋk] occurs.

/pangáí/ [páŋgáí] 'man's walking stick'. As with /b/ and /d/, the nasal [ŋ] is more pronounced word- and utterance-medially than utterance initial, as in /gíi/ [ŋgíi] 'time'. Front high vowel /i/ makes the /g/ more palatal [ŋg, ŋk], as does the /e/ also to a lesser extent: /kíngi/ [kíŋkí] 'hand'. Low central /a/ and back vowels /o, u/ draw it back to varying degrees of back velar [ŋg, ŋk], as in /angamáe miníngi/ [áŋgá máé miníŋkí] 'yawns', /kungúma/ [kúŋgúm] 'trash, dirt'.

[ŋk] Homorganic nasal plus voiceless velar unaspirated stop.
 English: as in 'bunk'. Occurs only utterance-final or prepausal. /ánga/ [áŋk] 'pandanus'. The vowels affect it in the same manner as its voiced counterpart.

/i/ [ndz] Homorganic nasal plus voiced alveolar affricated stop. English: as in 'spends'. Occurs except utterance-final or prepausal. /konjíngi/ [kóndzínkí] 'cuts or breaks off'. Again, the nasal is not as prominent utterance initial as word and utterance medial. Compare:

/anjána lelyámo/ 'where? he says' and
 /jáa lelyámo/ 'cracks, creaks'.

[nts] Homorganic nasal plus voiceless alveolar affricated stop.
 English: as in 'pants'. Occurs only utterance-final or prepausal. /kónja/ [kónts] 'breaks off'. Preceding and/or subsequent central and back vowels draw this phoneme back slightly, but never so much as to make it alveo-palatal.

/k/ [k] Voiceless velar unaspirated stop. English: as in 'school'. Occurs except where [g] does.

/kánda/ [k á n t á] 'you look!'

/keké/ [k é k é] 'you look!'

[g] Voiced velar unaspirated stop. English: as in 'gun'. Occurs never where [k] does, but only word-medially between voiced vowels.

/lakíngí/ [l á g í n k í] 'tears down'

Vowel environment (preceding, subsequent, or both) affects both [k] and [g] in the same manner as it does [ŋg.] and [ŋk]. Front vowels /i/ and /e/ draw them forward to [k̟] and [g̟]: /keké/ [k̟ é k̟ é] or [k̟ é g̟ é] 'tongue'; while central and back vowels make more or less back velars out of them [k̠] and [g̠]: /waká/ [w á g̠ á] or [w á k̠ á] 'other', /kukúmá/ [k̠ ú g̠ ú m á] 'night time'.

Speakers may freely fluctuate to one of the affricates [kx, k̟x, k̠x], as in /káka/ [k̟ á k̟ x á] 'foliage' or /siki/ [ts̟ í k̟ x í] 'vegetable climbing pole', in utterance-final or prepausal position, and to voiced counterparts

[g̟g, g̟g̟, g̟g̟] between voiced vowels, as in /waká/ [w á g̟g̟ á].

Or they may fluctuate to fricatives [x, x̟, x̠, ʒ, ʒ̟, ʒ̠], as in /waká/ [w á x̠ á] or [w á ʒ̠ á] 'other', /siki/ [ts̟ í x̠ í] or [ts̟ í ʒ̠ í].

ʎ/ [ʎ]

Voiced one-segment alveo-palatal lateral, sometimes heard with a little friction. English: no exact equivalent. Occurs except utterance-final or prepausal, and except where [j̟] and [j̠] occur.

/kalyámo/ [k̟ á ʎ á m ò] 'he is standing'

/lyangá/ [l ʎ á n k̠ á] 'old'

[tʰ] Voiceless one-segment alveo-palatal lateral, also heard at times with friction. English: no exact equivalent. Occurs only utterance-final or prepausal, and except where [tʰ] and [tʰ̥] occur.

[tʰ̥] Voiced ballistic-type alveolar flapped lateral. English: no exact equivalent. Occurs except utterance-final or prepausal, and only between a front vowel /i, e/ and a central /a/ or back vowel /o, u/. Compare: /kalyámō/ [ḳá̃lʲám̥ō] 'he is standing' and /kandelyámō/ [ḳá̃ndélʲám̥ō] 'he is looking'. It occurs also at the border of words utterance-medially between the voiced combination of front and non-front vowels as described above, when spoken at a little faster than normal rate of speed, as in /wái lyádá/ [wáĩ lʲádá̃] 'you sow seed!'

[tʰ̥̥] Voiceless ballistic-type alveolar flapped lateral. English: no exact equivalent. Occurs only utterance-final or prepausal, and in between the same vowel combinations as does [tʰ̥] (except that the last vowel is voiceless).

/kandélyo/ [ḳá̃ndélʲō̥] 'I am looking'.

/m/ [m] Voiced bilabial nasal. English: as in 'man'.

/máa/ [ṃá̃à] 'taro'

/kamé/ [ḳáṃé̃] 'fence'

/n/ [n] Voiced alveolar nasal. English: as in 'nut'.

/nambá/ [ṇáṃp̣] 'I'

/ny/ [ɲ] Voiced alveo-palatal nasal. (This is a one-segment sound whose point of articulation is the contrastive feature in comparison with the other nasals.) English: as in 'canyon'.

/nyakáma/ [ɲ̣á̃gáṃ] 'you pl.'

/ŋ/ [ŋ] Voiced velar nasal. English: as in 'singer' or 'sung'.

/ŋáŋa/ [ŋ̣á̃ŋ] 'infant'

As the other velars are affected by their environment, the [ŋ] is also affected to a more fronted position [ɲ] by front vowels and backed [ŋ] by back vowels, as well as by the low central one.

/pingí/ [píŋgi] 'does'

/pungí/ [púŋgi] 'liver'

Note: It is a rare occurrence when an utterance-final or prepausal nasal is completely devoiced. Usually the affectation in this direction is only slight, if present at all.

/p/ [p] Voiceless bilabial unaspirated stop. English: as in the second 'p' in 'paper'. Occurs except where [b] does.

/patáŋge/ [páʔáŋkɛ̃] 'young unmarried'

[b] Voiced bilabial unaspirated stop. English: as in 'abbot'. Occurs medially between voiced vowels.

/pepélyó/ [pɛ̃ bɛ̃ ʔ] 'fireplace'

At the beginning of an utterance or after a pause, free fluctuations of the [p] allophone occur either in the form of a voiceless bilabial affricated stop [pp̚] or a voiceless bilabial fricative [p̚], as in /paká/ [pp̚á k̚] or [p̚á k̚] 'forked post'. Occasionally the voiced bilabial fricative [b̚] may be heard between voiced vowels, as in /ípange/ [ib̚áŋkɛ̃] 'juice', but they are rare. These variations are not phonemic.

/l/ [ɻ̥] Voiced retroflex flap. English: no equivalent. Occurs except where [ɻ̥] occurs.

/lāa/ [ɻ̥ á à] 'you speak!'

/nalímba/ [n á ɻ̥ ímp̚] 'we two'

[ɻ̥] Voiceless retroflex flap. English: no equivalent. Occurs utterance-final or prepausal, and never where [ɻ̥] or [ɻ̥] occur.

/láló/ [ɻ̥ á ʔ] 'I just spoke'

[ɣ̃] Voiced ballistic-type alveolar flapped lateral. English : no exact equivalent. Occurs only between a voiced front vowel /i, e/ and non-front /a, o, u/ at the border of words that are spoken at a normal or slightly faster than normal rate of speed :

/wii lãa/ [wii ɣ̃ãã] 'you call out!'
 /kalyépale lão/ [kãl'ɛbãɣ̃ɛ lãõ]
 'in order that you pl. might be'.

When [ɣ̃̂] occurs between central or back vowels its retroflexion is distinctly seen and heard. However, when it occurs between front vowels nearly all of its retroflexion is lost, and it becomes an alveolar flap [ɣ̃̂] : /tĩli/ [tĩɣ̃̂] 'spottedness'. In utterance-final position its voicing tends to disappear [ɣ̃̂̄], along with the final vowel, as in /tĩli/ [tĩɣ̃̂̄] 'spottedness'.

/s/ [ts] Voiceless alveolar affricated stop. English: as in 'cats'. Occurs except where [dz] occurs.

/sãka/ [tsãkʌ] 'green, living'

[dz] Voiced alveolar affricated stop. English : as in 'suds'. Occurs only word medially between two voiced vowels.

/asemãnga pĩngi/ [ã dzɛ mã ngã piŋkĩ]

'sneezes'

Word medially [dz] freely fluctuates with [z] /amãiso/ [ã mãizo] 'man's name', and with [ts] in introduced words such as /anasúu/ [ã nãtsúu] 'God'. In utterance-final or prepausal positions the [ts] freely fluctuates with [s̥], a voiceless alveolar flat fricative which is the voiceless counterpart of [z] : /ósa/ [ósʌ] or [ótsʌ] 'there'. As with /i/, preceding and/or subsequent central and back vowels draw the allophones of /s/ back slightly, but never enough to make them alveo-palatal.

/t/ [ṭ] Voiceless slightly retroflexed unaspirated stop. English : no exact equivalent. Occurs except where [ṭ̂] and [ṭ̂̄] occur.

/tánu/ [ṭá ṇú] 'weeds'

[ṭ] Voiced alveolar trill. English: as when the two 't's' in 'butter' are trilled instead of flapped. Occurs except where [ṭ] or [ṭ̥] occur, and only between voiced vowels word medially. Compare /telyámo/ [ṭéǎ ṃò] 'it is burning' and /nátelyamo/ [ṇáǎǎǎǎ ṃò] 'it is not burning', where the /t/ is set to trilling by the voiced vowels.

[ṭ̥] Voiceless alveolar trill. English: no exact equivalent. Occurs except where [ṭ] or [ṭ̥] occur, but only utterance-final or prepausal.

/kátá/ [ḳá ṭ̥] 'you stand!'

This allophone sometimes fluctuates with the flap [ṭ̥] in fast speech. It may also freely fluctuate to [ṭ] or [ṭ̥].

When [ṭ] is in the environment of front vowels, retroflexion is no longer present: /tíi/ [ṭíi] 'light'. Retroflexion is more noticeable when [ṭ] is near central or back vowels: /tóṃbá/ [ṭóṃp̣] 'abdomen'.

/w/ [w] Voiced high close back rounded nonsyllabic vocoid. English: as in 'wear'; however the lip constriction is less tense in Enga.

/wáne/ [w á ṇ é] 'boy'

/y/ [y] Voiced high close front unrounded nonsyllabic vocoid. English: as in 'yard'.

/yána/ [y á ṇ] 'dog'

Standing alone and not contiguous to a consonant, the [w] and [y] take the place of a consonant in the CV distribution, as illustrated above.

5. General Behavior of the Consonants

- a. Normally, no Enga word ends in a consonant.

It is only at the end of an utterance when the final vowel has been elided that an Enga word ends in a consonant. (Cf. 3c) . This may be the case before a pause also.

/ongóny./ or /ongóny, .../

- b. In utterance-final position or prepausal the last voiced consonant tends to become voiceless.

/lélyo./ [ɽéɽ^ho̰] 'I am speaking.'

The nasals seem to be exceptions to this, although they too are affected slightly.

/lelyámo./ [ɽéɽ^há m^ho̰] 'He is speaking.'

/kándá./ [k^há nt^hʌ] 'You look!'

- c. Voiceless consonants between voiced vowels become voiced.

In abnormally slow speech the above may not hold. However, it does in normal speech. The voicing, of course, is not phonemic.

/dóko daá./ [nd^h o̰ k^hò nd^h á á]

- d. Consonants may be elided.

/lálanya/ becomes /lánya/ 'to speak' (purposive)

/nambá/ becomes /naá/ 'I'

- e. There are no consonant clusters.

- f. Consonants are conditioned by their environment, and they also condition it.

See above under the description of both the syllabic and nonsyllabic phonemes.

B. DISTRIBUTION OF THE SEGMENTAL PHONEMES

1. In the Syllable

The characteristic phonemic syllable structure is illustrated below. Only three types of open syllables occur:

V	-	/é.pé/	'good'
CV	-	/é.pé/	'good'
C ^V V	-	/pyá.tá/	'He shall strike'

There are no closed syllables.

2. In Morphemes

Since words may be morphemes, several of the distributional patterns below will be the same as for words. However, some are distinctive of morphemes only, particularly those ending in consonants, because no unelided word ends in a consonant. The following are the predominant distributional patterns of morphemes:

VVVVV	/aióo/	'liking'
VCV	/énda/	'woman'
VCVCV	/endángi/	'mother'
VVCV	/aípá/	'what?'
VVVCV	/aiómba/	'head'
VCVV	/anjóo/	'fastens'
VCVVV	/ipaóá/	'let me come'
VCVCV...		
CVV	/gíi/	'time'
CVVV	/maúá/	'taboo sign'
CVVVV	/kaoéá/	'he strung a bow'
CVCV	/pánda/	'place'
CVVCV	/maítá/	'back'
CVVVCV	/kaoátá/	'he will string a bow'

CVVVCV	/kəoéámá/	'we shall string a bow'
CVCVV	/yátae/	'sorry!'
CVCVVV	/kataóó/	'let me stand'
CVCVVVCV	/lamaiíngi/	'tells'
CVCVCV	/pangáí/	'man's walking stick'
CVCVCVCV. . .	some words are found to have 10 to 12 syllable patterns of this type in them.	

The possible combinations are myriad, it seems. Conconant and subsequent nonsyllabic vowel (C^V) may occur at the beginning, middle and end of words. A few examples will suffice :

C ^V VCV	/pyáíá/	'he will strike'
CVC ^V V	/lámwá/	'we two spoke (yesterday)'
CVC ^V VCV	/lambwáka/	'we two spoke (yesterday) also'

C. THE SUPRASEGMENTAL PHONEMES AND THEIR BEHAVIOR

1. Tone

a. Tonemes : /^ˊ/ and /_ˋ/

There are two tonemes.⁵ One is essentially high and the other low.

They are marked as above, the acute accent over the vowel denoting higher pitch, and nothing over the vowel indicating a relatively lower pitch. Specifics follow.

b. Allotones :

	High	_____
Upper Mid		_____
Mid		_____
Low		_____

The tone system in general is of the register type, although it could not be considered a pure register system. There is some gliding, but this is not semantically significant. Of utmost significance are the contrasting pitch levels at various places in the word, but especially at the end. A small amount of length and loudness are in evidence along with pitch. However, the semantic load is not carried by these two features, but rather by the much more prominent element of pitch level. Length and loudness freely fluctuate in the speech of the same speaker, and are somewhat conditioned by pitch (high pitch induces loudness and/or length) and stress (stress produces more loudness). Therefore, they are not really significant features, as long as the pitch level comes through clearly.

c. Description of the Tones

/N/ A word-final marked toneme is phonetically mid pitch.

/wanengé/ [w á n é ŋk é̃] 'daughter' (/wānēngē/)

The first non-final marked toneme is phonetically high pitch.

/enéngé/ [é n é ŋk é̃] 'new' (/ēnēngē/)

/ípange/ [í b á ŋk é̃] 'juice' (/īpāngē/)

/alemánda/ [á ɾ é m á nt̃] 'late afternoon' (/ālemāndī/)

All other marked tonemes are phonetically upper mid pitch.

/ādamānā/ [ā nd á m á n ʌ] 'let us grow!' (/āndāmānā/)

/mókātāmo/ [m ó k á ɾ á m ò] 'he shall set free' (/mōkātāmō/)

/N/ A word-final unmarked toneme is phonetically low pitch.

/etanéngé/ [é ɾ á n é ŋk é̃] 'wife' (/ētānēngē/)

The unmarked toneme immediately preceding the first single non-final marked toneme is phonetically high pitch, yet not quite as high as the marked one.

/mendatúpa/ [m é nd á rúp ʌ] 'some' (/mēndātupa/)

Note that the unmarked toneme immediately preceding two contiguous marked tonemes, which, in word-final position, act as a team to denote a certain very common tone pattern, is not high in pitch, but mid. /langálú/ [ř á ŋg á rú] 'forehead' (/lāngalū/)

All other unmarked tonemes are phonetically mid pitch.

/étenge/ [é ř é ŋk é] 'tail' (/ētēnge/)

2. General Behavior of the Tonemes

- a. The overall pitch in words tends to equal or to ascend to the first non-final marked toneme, and thereafter to descend to the end.

/wambāke/ 'old' (/wāmbāke/). In this instance the pitch of the first vowel very nearly equals that of the first non-final marked toneme.

Notice how the pitch ascends and descends in this word:

/watandakālanona/ 'we shall (Immed. Fut.) touch for you (Dir. Quotation)' (/wātāndakalāmānōng/). The mid pitches are not all exactly mid pitch, but ascend to and descend from the high pitch in the center. The differences are not indicated in the phonetic transcription. Only upper mid pitch is marked: [V[†]]. Varying heights of high pitch are also not marked in the phonetic transcription.

- b. The overall pitch of an utterance between pauses begins high and descends all along until the next pause.

/akāli dokómé baá lamaía./ 'The man told him.' If the above is said without a pause between the first and last words, all the pitch patterns of the words are relative to a general descent of pitch from /akāli/ to /lamaía/.

- c. The tone pattern of certain words freely fluctuates in the speech of the same speaker, among speakers of the same dialect, and among those who speak different dialects.

/anasúu/ 'God' fluctuates to /ánasuu/, etc. Many of the foreign words that have been introduced into Enga are highly susceptible to varying pronunciations, as the word above.

/baá/ 'he, she' fluctuates to /báa/ in the Raeapo dialect.
/kapílyingi/ and /kapilyíngi/ 'turns around'.

- d. Affixes generally alter the tone pattern of a word, but not necessarily.

- 1) The Prefix (only one in Enga: /na- ~ nae-/. When /na- ~ nae-/ is prefixed to the vast majority of verbs that are able to take it, the former tone pattern is changed to only one unalterable type, that of one high tone mark on the first syllabic vowel in all conjugations:

/piá/ 'he did' to /nápia/ 'he did not do';

/pítá/ 'he shall do' to /nápita/ 'he shall not do'.

However, there are a number of verbs that assume the fixed pattern of a high tone mark only on the second syllabic vowel in all their conjugations. A partial list of these is:

/kandengé/	'looks'	to /nakándenge/
/kaeengé/	'auxiliary verb'	to /nakáeenge/
/katengé/	'stands'	to /nakátenge/
/petengé/	'sits'	to /napétenge/
/palengé/	'lies inside'	to /napálenge/
/mandengé/	'carries, bears'	to /namándenge/
/maíngi/	'gives'	to /namáíngi/
/miníngi/	'holds'	to /namíngi/

2) Suffixes

As a rule, the tone pattern alterations in two syllable words that result from suffixing establish a guide for the behavior of tone on suffixed words of more than two syllables. But on longer words with complex tone patterns the tonemes contiguous to the suffix are those that are affected. For example, three, four, or five syllable words, like /nápatamo/ 'he shall not go (sent. med.)', and two syllable words, like /tóko/ 'bridge', follow the same pattern when suffixed. /tóko/ 'bridge', /tókonya/ 'on bridge', /nápatamo/ 'he shall not go', /nápatamopa/ 'sent. med. change of actor form'.

Or, the longer word with complex tone pattern: /atókatámábá/ 'we two shall pierce' to /atókatambáno/ 'we two shall pierce (sent. med.)'

Patterns with one or more single non-final marked tonemes usually remain unchanged when suffixes are added.

/tóko/ 'bridge' to /tókonya/ 'on bridge'
/etanéngé/ 'wife' to /etanéngenyá/ 'wife's'
/mókátámo/ 'he shall set free (sent. med. form)'
to /mókátámopa/ 'sent. med. change of actor form'.

However, there are a few exceptions to this:

/dóko/ 'the, that' to /dokónya/ 'on that',
or, /dokópa/ 'with that', but, /dókopi/
'and that' that follows the general rule.

Word-final single marked toneme usually moves onto the suffix, forming the same type of tone pattern as before.

/yokó/ 'leaf', /yokohyá/ 'on leaf', /yokonyapí/
'and on leaf'

/siá/ 'he carried (on shoulder), /siamó/ 'sent. med. form',
/siamopá/ 'sent. med. change of actor' /injéteá/ 'he became
like (completive)', /injéteamó/ 'he became (sent. med.)'

However, when suffixed with certain affixes, the word-final
single marked toneme attracts another marked toneme that is
phonetically high pitch on the syllable immediately preceding
it:

/yokó/, /yokópé/ 'leaf?'
/yokonyá/ 'on leaf', /yokonyápé/ 'on leaf?'

Question marker /-pe ~pi/ does this except in a few cases
like /siá/ 'he carried', /siapé/ 'did he carry?'. Exceptions must
be noted and learned. Further examples of the general rule:

/piá/ 'he did', /piápé/ 'did he do?'
/injéteá/ 'he became like (compl.)',
/injéteápé/ 'did he become like (compl.)'

Direct quotation or semicolon marker does it:

/yokó/, /yokóná/ '"leaf"' or 'leaf';
/piá/ 'he did', /piáná/ '"he did"'
/injéteá/ 'he became like' (compl.)
/injéteáná/ '"he became like (compl.)"'

But not: /siá/ 'he carried', which is one of the few
exceptions, /sianá/ '"he carried" '.

Change of actor, or temporal clause marker does it:

/píamó/ 'he did (sent. med.)', /píamópa/
'he did (sent. med. change of actor)', or,
'when he did'.

But not: /siamó/ 'he carried (sent. med.)' which
becomes /siamopá/.

Cause or result suffix /-sa/ does it:

/piamó/ 'he did (sent. med.)', /piamósá/
'resulting from what he did'.

Again, this is not the case with /siamó/ 'he carried
(sent. med.)' which becomes /siamosá/.

The two contiguous word-final marked toneme pattern loses the
next to last mark when it encounters one or more suffixes.

/mókó/ 'leg', /mokónya/ 'on leg', /mokónyape/
'on leg?' /pongéná/ 'fly', /pongenánya/ 'on
fly', /pongenányana/ '"on fly" '
' /mókatámá/ 'we two shall set free', /mókatambáno/
(sent. med. form), /mókatambánopa/ (change of actor suffix
has been added).

However, there are a few exceptions:

/méndé/ 'a, an', /mendényá/ 'on a', but when another
suffix is added, it follows the general rule, as, /mendenyápe/
'on a?'. /néá/ 'he ate', /néali/ 'if he had eaten (contrary
to fact)', where the tone marking is a part of the system used to
indicate contrary to fact condition.

Suffixes affect tone placement in other ways also.⁶

When the question indicator /-pe ~ -pi/ is suffixed to the verb
in the present and immediate past tenses, taking the place of the
augment /-Ø, -no, -mo/ that is characteristic of their
person-number suffixes, the marked toneme generally moves one
syllable closer to the root of the verb, if possible. It may move
onto the vowel of a VC root also. /silyámo/ 'he is listening',
' /silyape/ 'is he listening?'

/salámo/ 'he just heard', /sálope/ 'did he just hear?'
/epéno/ 'you just came', /épepe/ 'did you just come?'

It is not possible for the marked toneme to move to a syllable already marked with tone :

/sólo/ 'I just heard', /sólope/ 'did I just hear?'
/épo/ 'I just came', /épope/ 'did I just come?'

Nor is it possible to move onto a syllable contiguous to a marked one :

/mókelyámo/ 'he is setting free', /mókelyape/
/atókalámo/ 'he just pierced', /atókalape/

Nor is it possible for it to move onto one of the vowels of a verb root that contains three or more phonemes :

/minílyo/ 'I am holding', /minílyope/
/kolandalámo/ 'he just entered', /kolandálope/
/kolandálo/ 'I just entered', /kolandálope/

Aspect suffixes and those that indicate direction attract a high tone mark when contiguous to the verb root, and either the general tone pattern of the word changes or remains the same.

/minilyámo/ 'he is holding', /minályilyámo/ 'he is holding up';
/minílyo/ 'I am holding', /minályilyo/ 'I am holding up';
/minilyámo/ 'he is holding', /minátelyamó/ 'he is holding (completed action)'. (Marked tone on the completive aspect suffix and on the last vowel is the peculiar tone pattern that results when the completive aspect suffix is added.)

/nelyámo/ 'he is eating'
/nápelyamó/ 'he has just finished eating'
/minátelyamó/ 'he is holding (compl. action)'
/minályatelyamó/ 'he has just finished holding up'

The tone pattern of compound words is often, but not always, different from the sum of its components.

/pánenge/ 'reveals' plus /sǐngi/ (auxiliary verb)

/pánasǐngi/ 'causes to reveal'

/ítá/ 'wood, tree' plus /pókó/ 'cross piece'

/ítapokó/ 'a cross'

/énda/ 'woman' plus /ándá/ 'house'

/éndanda/ 'women's house'

3) Stress

- a. Syllabic intensity or emphasis is semantically insignificant. Therefore, it is unmarked, since its occurrence is predictable.
- b. Both light and heavy stress occur. /N/ light, /N/ heavy
- c. Stress Behavior
 - Relatively heavy stress occurs only where there is high tone.
 - Relatively light stress occurs elsewhere.
 - Relative stress that is light/heavy occurs in every word.

Two syllable words:

Some stress is always on the first syllable.

/yokó/ 'leaf' · /mókó/ 'leg' /tókó/ 'bridge'

Three syllable words:

Word-final single marked toneme words are stressed relatively lightly on the second syllable.

/wané/ 'daughter' /pitá/ 'all'

All others are stressed relatively heavily on the syllable with high pitch, and relatively lightly on those with high mid pitch.

/pánenge/ 'reveals' /yambále/ 'man's net loin cloth'

/létea/ 'he spoke (compl. action)'

/pánámbá/ 'let us two reveal!'

Four, Five, Six, Seven, Eight, etc. syllable words:

Word-final single marked toneme words are stressed relatively lightly on the first and next to last syllables.

/lyákanálí/ 'little finger'

/kyákalamanó/ 'we have just been out of our minds'

/lyákanalinyápí/ 'and on little finger'

All others are stressed relatively heavily on the syllable with high pitch, and relatively lightly on those with high mid pitch and/or on the first and next to last syllables that are two or more syllables distant from high and high mid pitch ones.

/kéndemanénya/ 'belonging to an indebted servant'

/kolándalápá/ 'you pl. enter!'

/képákatámbá/ 'we two shall cut it off for you'

/pánátámó/ 'he shall reveal (sent. med.)'

/méndatúpanyá/ 'belonging to some'

/kolándatamínó/ 'they shall enter (sent. med.)'

/atókalambánó/ 'we two have just pierced (sent. med.)'

APPENDIX

ENGA ORTHOGRAPHY CONFERENCE

Irelya Lutheran Mission Station

June 12 and 13, 1969

Present:

Apostolic Mission

Rev. John Hewitt
Mr Paul Wanako

Australian National University

Mrs Adrienne Lang
Mr Ranier Lang

Baptist Mission

Rev. Garth Manning
Mr Kepaka
Mr Kyapo
Mr Palangene

Lutheran Mission

Rev Gerald Arndt
Dr Paul Brennan
Rev Harley Kopitske
Rev James Larson
Rev Robert Meyer
Mr Kamene
Mr John Nete
Mr W. Waesa

Roman Catholic Mission

Rev Fr Henry Feldkoetter
Rev Fr A. Krol
Mr Gabriel Pake

Rev. Manning served as Chairman of the Conference. Dr Brennan was appointed Secretary.

The four sessions of the Conference were a consideration of various aspects of Enga orthography which have:

- 1) never been sufficiently resolved, or
- 2) are in need of being standardized in the literature.

Discussions concerned problems with palatalization, labialization, vowel clusters, prenasalization, the velar nasal /ŋ/, proper names, punctuation marks, and word division.

The following actions were taken :

1. Palatalization - All consonants which are palatalized will be written with the digraph symbol, i.e. the "y" following the consonant.

Explanation and application: When a consonant is palatalized its sound is modified by having the tongue raised towards the roof of the mouth (the position it would assume for the vowel [i]). Consonants in Enga which are occasionally palatalized are - among others - /d/, /p/, /n/, and /l/.

When palatalized they will be written as in the following examples :

- dyaa - "to give" (but "no" will be written daa)
- pyaa - "you (s) strike!" (but "time" will be written paa)
- nyeleno - "you (s) just took" (but "you (s) are eating" will be written neleno)
- lyaa - "nose" (but "you (s) speak" will be written laa)

2. Labialization - All consonants which are labialized will be written not with the digraph, but with the single consonant symbol followed by "u".

Explanation and application: When a consonant is labialized its sound is modified by the rounding of the lips. Several of these occur in Enga, e.g. /b/, /k/, and /m/ among others. Because of a predilection on the part of the informants, it was decided to represent this sound modification by "u", as in the following examples :

- buaa - "let's (dual) go" (but "very" will be written baa)
- kuua - "to be vacant" (but "to be bitter" will be written kaa)
- muua - "let's (pl) go" (but "taro" will be written maa)

3. Vowel Clusters

- A. When two dissimilar vowels occur phonetically in a cluster, the semivowel /y/ will not be written, either between the vowels or as a substitute for the first vowel. Examples :

<u>peo</u>	-	"I went" (not <u>peyo</u>)
<u>kandeo</u>	-	"I saw" (not <u>kandeyo</u>)
<u>gio</u>	-	"I laughed" (not <u>giyo</u>)
<u>neambi</u>	-	"they (dual) ate" (not <u>neyambi</u>)
<u>epeaka</u>	-	"good also" (not <u>epeyaka</u> or <u>epyaka</u>)
<u>londeaka</u>	-	"tall also" (not <u>londeyaka</u> or <u>londyaka</u>)

- B. When two identical vowels (either interpreted as length or rearticulation) occur phonetically in a cluster in word-final position, doubling will be written. When the suffix -aka is added, a single vowel will represent the doubling in the uninflected form. Examples :

<u>p<i>i</i></u>	-	"speech" (not <u>p<i>i</i></u>);	<u>p<i>i</i>aka</u>	(not <u>p<i>i</i>iaka</u>)
<u>l<i>a</i></u>	-	"you (s) speak!" (not <u>l<i>a</i></u>);	<u>l<i>a</i>aka</u>	(not <u>l<i>a</i>aaka</u>)
<u>t<i>e</i></u>	-	"pig exchange" (not <u>t<i>e</i></u>);	<u>t<i>e</i>aka</u>	(not <u>t<i>e</i>eaka</u>)
<u>d<i>a</i></u>	-	"no" (not <u>d<i>a</i></u>);	<u>d<i>a</i>aka</u>	(not <u>d<i>a</i>aaka</u>)
<u>k<i>o</i></u>	-	"bad" (not <u>k<i>o</i></u>);	<u>k<i>o</i>aka</u>	(not <u>k<i>o</i>oaka</u>)
<u>e<i>p</i>e</u>	-	"you (s) came" (not <u>e<i>p</i>e</u>);	<u>e<i>p</i>eaka</u>	(not <u>e<i>p</i>eaka</u>)

- C. When three vowels, the final two of which are not identical, occur phonetically, semivowel /y/ will be written after [i], semivowel /w/ will be written after [u], /y/ will replace [e], and /w/ will replace [o]. Examples :

<u>k<i>a</i>i<i>y</i>a</u>	-	"he lit" (not <u>k<i>a</i>i<i>a</i></u> or <u>k<i>a</i>y<i>a</i></u>)
<u>k<i>a</i>y<i>a</i></u>	-	"he desisted" (not <u>k<i>a</i>e<i>a</i></u> or <u>k<i>a</i>e<i>y</i><u>a</u>)</u>
<u>k<i>o</i>y<i>a</i></u>	-	"left" (not <u>k<i>o</i>e<i>a</i></u> or <u>k<i>o</i>e<i>y</i><u>a</u>)</u>

- auwa - "spinach" (not aua or awa)
ayomba - "head" (not aeomba or aeayomba)
yuu awai - "red earth" (not yuu aoi or yuu aowai)
yawea - "he mumbled" (not yaoea or yaoweya or yaowea)
olaiyole - "jew's harp" (not olaiole or olayole)

(Note : The decision for the representation stated in this rule was taken at the 1966 Orthography Conference, but continuing practice suggests that the rule is in need of implementation.)

- D. When three vowels, the final two of which are identical, occur phonetically in a cluster in word-final position of verbs in the indicative mood, vowel doubling will be written; elsewhere (i.e. word-final position but not indicative mood, or medially regardless of mood), a single vowel will be written. Examples :

- mai - "you (s) give (him)!" ; (not maii)
mai - "you (s) gave (him)" ; (not mai)
maingi - "give (him, customarily)" ; (not maingi)
mailyo - "I am giving (him)" ; (not mailyo)
maimbipi - "did you (dual) just give (him)?" ; (not maimbipi)
epeaka - "he also came" ; (not epeaka)

4. Prenasalization - The homorganic nasal of the voiced stops and the voiced affricate will be written in word-medial position, but not in word-initial position.

Explanation and application : The voiced stops /b/, /d/, /g/, and the voiced affricate /j/ are all prenasalized (slightly so in initial position and rather strongly so in medial position). They will be written as in the following examples :

- dilyambano - "we (dual) are giving (him)"; (not dilyabano)
- kandenge - "see (customarily)"; (not kadege)
- petenge - "sit (customarily)"; (not petege)
- anja - "where"; (not aja)

5. Velar Nasal /ŋ/ - The symbol will be retained in the orthography.
 Explanation and application : The nasal phonemes are /m/, /n/, and /ŋ/.
 Although /ŋ/ occurs relatively infrequently, the phoneme will be retained
 and written as in the following examples :

- gaja - "infant"; (not nganga or ganga or nana)
- gau - "out-of-breath"; (not ngau or nau)
- ŋee - "forgetful"; (not ngee or nee)

6. Proper Names - Presently they will be written as in the list prepared by Rev R. Meyer. By February of 1970 a standardized list, most consistent with Enga phonological patterns, will be circulated. Brennan, Cupit, Hewitt and Krol were appointed to work with informants toward standardization.

7. Punctuation Marks - As the need arises, all punctuation marks common to English — with the exception of quotation marks — will be permitted. (In time, as pressure from English continues and as Nupela Testamen becomes more familiar, it may be necessary to write quotation marks.)

8. Word Division - No decisions were made by the Conference re word division. They requested that the sub-committee which will study Enga prosody also investigate this matter.

Miscellaneous :

A committee composed of Brennan, Cupit, Larson and Osborne were appointed to study in detail all features of Enga prosody, critically reviewing especially the existing analyses. They will present their findings at the next Orthography Conference, scheduled in August of 1970.

All individuals present were encouraged to exert full influence towards the implementation of the decisions of the Conference.

Appreciation was extended to New Guinea Lutheran Mission for hosting the Conference.

Respectfully submitted,

Paul W. Brennan
Secretary

FOOTNOTES

1. **Phonetic considerations:** nonsyllabic vowel articulation is plainly heard at times, especially in slow speech.

Structural pressure: the CVV distributional pattern, as in /péá/ [p é ʌ] 'he went', or in /poó/ [póó] 'wind', has been recognized to enjoy a much greater usage than formerly; CVVV and CVVCV also occur, e.g., /kaíá/ 'he lit', /náima/ 'we', /yáiná/ 'sickness'.

Phonemic reasons: there are fewer postulated phonemes: /pyáa/ 'you hit!' contrasting with /páa/ 'time, instance' would not necessitate the postulation of two phonemes.

Etymological reasons: /díó/ 'I gave' and /dyóo/ 'giving' both come from /dĩngi/ 'gives'. The /i/ used in many of its forms simply becomes nonsyllabic /i/ — /y/ — as in /dyúá/ 'let me give!' Note also that /wapungí/ 'makes' has an alternate form /wapwingí/, as do many other verbs of this type. It is obvious that the /w/ represents nonsyllabic /u/.

Morphological reasons: /kandéamí/ 'they saw' plus /-aka/ 'also' becomes /kandeamyáka/ 'they also saw'. Should the person-number suffix be interpreted to end in a palatalized consonant, it would complicate the morphology with an unnecessary allomorph and an unprecedented person-number suffix that ends in a consonant. Note also /kandapú/ 'I saw (yesterday)' + /-aka/ → /kandapwaká/.

2. **Voiced vs. voiceless vocoids** are not phonemic, i.e., they do not denote a significant contrast of meaning in words.
3. One often hears the rearticulation of the segments in the long vowels, faintly at times and then in other instances very plainly. Compare /tée/ 'pig exchange custom' and /téé/ 'you were burned' and /deengé/ 'corner'. Also, the three tone patterns used on the long vowels prove that two vowels are involved. /tée/ 'pig exchange custom', /teé/ 'ant', and /téé/ 'you were burned'. Morphologically, the first /e/ in /téé/ is the tense indicator and the second the person-number marker.
4. /kae-/ is the root of /kaeéngé/ 'leaves (it)', as are /kai-/ , /kao-/ , and /koe-/ roots of other verbs to which are suffixed tense (a vowel), person-number (a vowel), and participial (two vowels) indicators. Two similar vowels are coalesced, while the others are not.

5. This analysis of Enga pitch was worked out by Dr Alan Healey (Wycliffe Bible Translators, Papua New Guinea), the writer and his colleagues.
6. Not all these ways are considered here, but will be as they are brought up in connection with grammatical points later on.

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