Some Karkar-Yuri Orthography and Spelling Decisions

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0. Introduction

Karkar-Yuri is a non-Austronesian language isolate spoken by over 1000 Yuri people in the swamp plains and Border Mountains between Green River in the West Sepik Province of Papua New Guinea and the border with Irian Jaya. It is complex phonetically and grammatically, with a unique stress system, and, though I have been associated with this language for 12 years, I still think that many speak it with humanly-impossible speed.

This article is the result of having spent many years battling with a multitude of orthography and spelling problems. I hope that, in sharing my findings and conclusions, I can save others not so far on in the journey much time and energy, and that these findings might throw light on specific problems in other languages and help to bring about more speedy solutions.

1. Orthography

When I began working on the phonology I expected to be able to complete the analysis in six months. When I had finished Price (1975) nine months later, I was still uneasy about some decisions, not at all confident that I had found the truth. I had discovered Karkar-Yuri was stress-timed, not syllable-timed, with shorter words slower and longer words faster. Though an earlier investigator had thought it was a tonal language, I discovered it to be one with remarkably varied intonation. It also had some unusual sounds in it, as in [pɬgx] and [ompO].

1.1. Vowels

Fairly early in my investigations I discovered a central vowel. Not wishing to deal with more than one, I shut my ears to the possibility that there were more. By accidentally mispronouncing [kɨr̥] 'big bird' as [kər̥], however, I discovered the three-way contrast among central vowels shown in (1).

1) a. [kɨr̥] 'big bird'
   b. [kər̥] 'snake'
   c. [kʌr̥] 'swamp'

My language teacher also produced several other examples of three-way contrasts. I could see this would be an orthographic challenge and a rarity in Papua New Guinea. Healey and Taylor (1977) indicated the preferred symbol for any central vowel in Papua New Guinea was ɨ. But there were three central vowels in Karkar-Yuri, all slightly rounded and spoken with force, not relaxed as is usual. At this point the vowel inventory was as shown in the following chart.

i	ɨ	u/ʊ
eˆ	ə	
ɛ/æ	ʌ	ɔˆ
a	ɑɒ	ɒ

At the time of writing Price (1975) I was still wondering what the status of [ao] and [wɒ] were. Sometimes it was impossible to tell which of the two were in a word. I was convinced that [mɒɔˆr̥] and [mwɒr̥] were dialectal variants, and I even suggested [ao] and [wɒ] might be allophones. Some time later I discovered that [ɒ] was an allophone of /a/, occurring after the segments [w kw pw mw fw] when followed by bilabials and velars as in (2a-c), but not when followed by alveolars as in (2d).

2) a. [kwɒbwe^] 'good'
   b. [ŋgwɒgwe^ mage^] 'various kinds of'
   c. [wɒp] 'fungus'
   d. [waɽ] 'white ant'

In (2a-b) [a] is so rounded by the [w] that it causes labialisation before the front open vowel [e^]. Since, however, alveolars tend to annul influenced roundness as in (2d), I found a way to distinguish between [ao] and [wɒ] in forms like those in (3).

3) a. ['fɒɔ^ŋgwe^] /faonkwe/ 'hill' (labialised e)
   b. [fwɒ'ŋgawe^] /fwankawe/ 'lady's name' (plain a)

The initial vowel sounds in 'hill' are [ao] since the following vowel is labialized. Similarly, the initial vowel sounds in 'lady's name' are [wɒ] since the following vowel is not labialized.

Two or three years after Price (1975), my partner and I noticed that while we would consistently write some words with [u/ʊ] /u/ or [ɔ^] /o/, we wrote others inconsistently. So we made a list of the ones we vacillated on, and asked our language teacher whether they should be written **o** or **u**. After a period of puzzlement, he decided they were neither. Instead, he found three-way contrasts as illustrated in (4-5).

4) a. [yʌ'mar kʊx] 'midday'
   b. [ko] 'pig'
   c. [kɔ^x] 'in the middle of'

5) a. [pu] 'leg'
   b. [pu'ɽi fe^k] 'of the same height'
   c. [por] 'tulip greens'
   d. [nʌɽʌp pɔ^ɽ] 'for his own benefit'

So, at this late stage, another vowel was added to the chart.

1.2. Symbolisation of vowels

In the early days when we had discovered only one central vowel, symbolisation was not difficult. We chose symbols that were available on all typewriters.

[ɨ]	**ii**			[u/ʊ]	**u**
[eˆ]	**i**	[ə]	**e**	[ɔˆ]	**o**
[ae]	**ai/ae**			[ɒɔˆ]	**au/ao**
[a]	**a**				

We were unsure how to symbolise [ʍɒ], but this problem disappeared when we analysed it as coming from /wa/. After discussion with a writers' course group, they chose **ae** and **ao** for [ae] and [ɒɔˆ] on the basis that Pidgin has **ai** and **au** and they wanted to be unique. This is a good choice as **ae** and **ao** are more accurate phonetically.

When we discovered two more central vowels, we wrote [ɨ] as **i** and [eˆ] as **e**, and wrote [ə] as **é**, [ʌ] as **á** and [ɨ] as **ɨ**. Now the vowels are symbolised as follows.

[ɨ ɪ]	**i**	[ɨ]	**ɨ**	[u ʊ]	**u**
[eˆ eˆɪ]	**e**	[ə]	**é**	[o oᵘ]	**ou**
[ɛ ɛɪ aeˆ]	**ae**	[ʌ]	**á**	[ɔˆ]	**o**
[a ɑ ɒ]	**a**			[ɒɔˆ]	**ao**

The symbol **ae** is fitting since the [ɛ] is the word medial norm, showing the phoneme is between [a] and [eˆ]. In the same way **ou** is fitting since a pure [o] occurs word medially whereas finally there is a slight upglide with factors of both the higher and lower vowels. The combination **ao** is similar. Though /ɨ ə ʌ/ are phonemes in their own right, each frequently occurs with the front vowel on the same parallel (see section 2.6), which again confirms the choice of symbols as a wise one.

Examples of this symbolisation are given in (6).

6) a. ['farʌgʌp] farákáp 'to recount'
b. [fʌ'ragɔˆp] fárakop 'to run'
c. [fʌrʌ'gap] fárákap 'to cut (string, etc.)'
d. [pɬ'nɪ] pɬni 'frog'
e. ['yɪrɬrˀ] Yirɬr 'the Green River'
f. [fə're^] fére 'shoulder, ten'
g. ['seˆrəm] serém 'sago rib bark'

1.3. Consonants and symbolisation

Medial [p] and medial [k] were problems because of their extreme rarity. At the same time, [f] appeared only word-initially except for one or two medial occurrences in men's names, and glottal stop contrasted with its absence word-finally after vowels, [m], [n], and [r], but disappeared context-medially. It improved the distributional pattern to make [f] and [-p-] allophones of one phoneme and [-k-] and [ˀ] allophones of another. Although I analysed it that way in Price (1975), however, I felt guilty. I was by no means convinced that it accurately portrayed the language system.

Although there were plausible arguments for this analysis and beautiful patterns resulted, it did not seem to give a clear picture of how the language works. Although I will search diligently for pattern, as it is second nature to an artist, I settled for an asymmetry here that seemed nearer the truth. Now /f/ and /ˀ/ are analysed as odd-balls. As medial /p/ is [ɓ] and medial /k/ is [g], I now perceive medial [-p-] and [-k-] as two segments in adjacent syllables, and write them **pp** and **kk**.

In many PNG languages, [p t k] occur along with their voiced counterparts [ᵐb ⁿd ᵑg], the voiced set generally occurring with short prenasalisation word-initially, but with nasal and voiced stop of equal length word medially and finally. In most of these languages the six symbols **p t k b d g**

are chosen for these stops, with the nasal frequently written before the medial voiced stop as in **bandu** for [ᵐbandu].

But, as usual, Karkar-Yuri is atypical. To be as economical as possible with symbols we have written unvoiced stops only, adding the nasal for the nasalised one. Why not use **b d g**? Because as shown in (7-8), in some words the final stop is not even pronounced unless a suffix is added.

7) a. [aŋgaŋ] ~ [aŋgaŋʔ] /ankank/ 'thing'
   b. [mʌteˆ ɔˆnɔˆm aˈŋgaŋgɔˆnɔˆ] /máte onomp ankankono/
   'This is my thing'

8) a. [mɔt̲eˆ ˈɔˆnɔˆm] /mʌte onomp/
   'this is mine' (brief form)
   b. [mʌt̲e ˈɔˆnɔˆmbɔˆnɔˆ] /mɔte onompono/
   'this is mine' (stative)

It would not suit to use a symbol that is not even pronounced in some cases.

Glottal stop, though phonemic, can only be heard in utterance final position. As context makes the choice of the word clear, if glottal stop is not written, no confusion results.

The consonant symbols, then, are as follows.

[p ɓ]	/p/	p
[t]	/t/	t
[k kx gx g x]	/k/	k
[mp mb]	/mp/	mp
[nt nd]	/nt/	nt
[ŋk ŋg]	/nk/	nk
[mbw]	/mpw/	mpw
[ngw]	/nkw/	nkw

[f]	/f/	f
[s]	/s/	s
[y]	/y/	y
[w]	/w/	w
[m]	/m/	m
[n]	/n/	n
[pw bw]	/pw/	pw
[fw]	/fw/	fw
[kw gw]	/kw/	kw
[mw]	/mw/	mw
[-k-]	/kk/	kk
[-p-]	/pp/	pp

To a native speaker of Karkar and those outsiders who have absorbed the system, writing stress is unnecessary. The stress system is so intricate that it was necessary to deal with it in a separate paper (Price 1981) which it was only possible to begin to write with comprehension after the system had been absorbed through seven years of contact.

1.4. Orthographic guidelines

By now I have learned some important guidelines.

1. Never close your phonetic ears.

2. Don't be in a hurry to make final phonemic and orthographic decisions.

3. Be flexible. You can then improve on earlier findings without struggle.

Every language has a pattern. How we marvel at it, and how exciting it is to find the patterns, and how satisfying when we have discovered them! Some languages' phoneme charts have beautiful balance and symmetry, and the resultant economy of symbolisation is most satisfying. But some are not so

accommodating. There does not appear to be much balance, or some phonemes are used very rarely in the language, sometimes necessitating many orthographic symbols.

2. Spelling Decisions

For a number of languages, writing problems are over once the orthography is settled. But with its myriad spelling and word break problems, the Karkar-Yuri orthography was merely the beginning. The writer has taken even more time and effort to conquer the many spelling problems encountered in the process of making an adequate writing system.

I am listing and describing the spelling decisions following the items in the latter part of Price (1975).

2.1. Medial /f/ and /p/

Word-medial /p/ is [ɓ]. The native speaker relates [ɓ] to /p/ and expects it to be written that way. We recognise a medial /f/ when the initial /fV/ of a syllable reduplicates as in (9-10).[1]

9) a. [fu] 'flower'
   b. ['fuɓu] 'to blossom all over the tree'

10) a. [fuk] 'to hit (with wood)'
    b. [fu'ɓuᵏ] 'to hit many times'

One or two people who read English have written the [ɓ] as **f**, but most write **p**. Our decision to write it as **p** has been strengthened by the fact that in a few men's names there <u>is</u>

[1] ED: Evidently /p/ and /f/ are generally neutralised to [ɓ] intervocallically. The resulting [ɓ] is written as **p** regardless of its source.

medial [f]. One such name, **Tafa**, is used throughout the Primer series.

2.2. Labialisation

Besides the many words with initial labialised consonants, phonemic labialisation occurs word-medially in the two words [apwar] 'weeds, to weed', and [aŋkwap] 'another'. It is necessary to write this phonemic labialisation.

In addition to phonemic labialisation, 'influenced' labialisation as discussed in section 1.1 is also a common phenomenon in Karkar-Yuri. In forms like [ɒɔˆɓweˆ] 'a kind of', the rounded vowel causes rounding on the following front unrounded vowel in the form of an inserted labialization between the bilabial and that unrounded vowel. It would be most satisfying phonemically <u>not</u> to write 'influenced' labialisation. But it may be difficult for the native speaker to write [pwɑeˆ] 'leaf' and [aɓwaʃˇ] as **pwae** and **apwar**, then write [ɒɔˆɓweˆ] as **aope**. Much of the influenced labialisation is strong. Further contrasts are given in (11a-b) vs. (11c) and (12a) vs. (12b).

11) a. **porokwap** [pɔˆʃˇɔˆˈgwɒP] 'to hit'
b. **korokwap** [ˈkɔˆʃˇɔˆgwɒP] 'to come up out of'
c. **karákap** [ˈkaʃˇʌgaP] 'to split (trans.)'

12) a. **kar tokwae** [kar tɔˆˈgwɑeˆ] 'big talk'
b. **ém tákae** [əm tʌˈgɛˡ] 'cry incessantly'

Some people have omitted influenced labialisation. But the most recent group decision was to write all labialisation.

As can be seen by comparing (14, 16) with (13, 15), wherever possible when adding morphemes we try to preserve the original appearance of each morpheme and let the reader automatically supply the labialisation.

13) a. **pɬk** [pɬgx] 'go down'
b. **pɬkea** ['pɬgeˆa] 'going down'

14) a. **pok** [pɔˆx] 'go up'
b. **pokea** ['pɔˆgweˆa] 'going up'

15) a. **pánánkár** ['pʌnʌŋgʌr̆] 'push down'
b. **pánánkarea** [pʌnʌ'ŋgareˆa] 'pushing down'

16) a. **kununkur** ['kunuŋgur] 'stretch open'
b. **kununkarea** [kunu'ŋgwareˆa] 'stretching open'

2.3. Intervocalic [w] and [y]

We have found a number of principles helpful in determining when to write [w] and [y]. First, we are guided by knowledge of the number of syllables and the morphemes as in (17).

17) a. **yao** + **war** = **yaowar** / **yao war** 'wood stacking place'
b. **kou** + **an** = **kouan** [ko^{w}an] 'to the pig'

Second, all vowels that can stand alone as syllables word-initially can begin a word-medial syllable. Those that cannot (/i/ and /u/) need to be preceded by the semivowel at the same point of articulation. Thus, there are semivowels in (18b-d) but not in (18a).

18) a. **keao** 'Sooty owl'
b. **kiaeyi** 'a giant lizard'
c. **ouwur** 'bird's head crest'
d. **ouwi** 'wind'

Third, if one of two contiguous vowels is rounded, the semivowel between them will be **w** as in (19).

19) **naewo**[2] 'native lime tree'

[2] This rule does not apply in (18a) since 'Sooty owl' is /ke.ao/, while 'native lime tree' is /nae.o/.

The occasional intermorphemic **w** necessitates individual decisions. In (20) three syllables conflate to two.

20) **amo** 'you (sg.)' + **an** 'to' → **amwan** 'to you'

Amoan would be pronounced as three syllables.

Similarly, I would prefer to spell **wao** 'to hear' + **ae** 'sg. command' as **waoae**, as it is phonetically more accurate, but have accepted the speakers' preferred **wawae**.

One other area of uncertainty is how words like those in (21) should be spelled.

21) a. **aeae**, **ayae**, **aeyae** 'Mummy'
b. **aear**, **ayar**, **aeyar** 'centipede'

At least one speaker prefers the second choice.

2.4. **Yi** and **wu**

Only three of the 11 vowels (or vowel complexes) do not occur word-initially. These are /ɨ ɪ u/. But, as all other consonants may precede /ɪ/ and /u/, so do /w/ and /y/. The phonetic [yɪ] is perceived by many older native speakers as /ɪ/, and [wu] is perceived as /u/. So we needed to decide whether we would write **i** or **yi**, and **u** or **wu**. Because /y/ and /w/ occur before vowels in the same way that consonants do, and because of the phonetic reality, strongly felt by many readers, we have opted for **yi** and **wu**.

This meant that when planning primers, we had no drills building **yi** on **i** and **wu** on **u**. I was cautious in contrasting **yi** and **wu** with **y** and other vowels and **w** and other vowels lest some felt the contrast to be V versus CV, but feel it will be safe enough.

2.5. Noun-final [ɒ]

In some animal and plant names and men's names word-final /a/ has a rounded [ɔˆ] colouring. This contrasts slightly with word-final [ɒɔˆ] in words such as [yɒɔˆ] 'tree'. Some speakers pronounce more of an [a], and advised me to write it that way, whereas other rounded it more. One boy wrote his name **Samifo.** We have decided to write **a** only, partly because the distant vocative suffix after [ɒ] and all rounded vowels is /-o/. Thus, the vocative of **Samefa** is **Samefao.**

2.6. Indeterminate vowel

One of the most difficult decisions we made was to identify the non-stressed vowel in the first syllable of a two-syllable word, or the second syllable in a three-syllable word. Originally I wrote all these unidentifiable vowels as **é.** It was a convenient start. Since then, I have developed three guidelines to determine how to write these vowels.

One is the common feature of vowel harmony. As I was testing some two-syllable words with new Karkar-Yuri literate I wrote a few possible spellings of the word [yɩ'ɓu] 'woman'. She felt the first vowel was the same as the second both in this word and in [yɩ'rɔˆ] 'to make'. Others too feel comfortable about this decision to use vowel harmony.

The second guideline refers to vowel families. As pointed out in section 1.2, the central vowels are closely related to the front vowels on the same level in the chart. The vowel /o/ relates to the labialised front vowels (cf. Section 1.1) in the same way. Examples showing these relationships are given in (22).

22) a. **kárae kour** 'ribs'
b. **pɨni** 'frog'
c. **yére** 'rafter'

d. **ankárap** 'a sore'
e. **fárapor** 'to pierce many times'
f. **tolwae** 'big'
g. **pu topwe** 'toes'
h. **yopwar** 'garden'

The third guideline applies to three-syllable words. Usually, when the first and last syllables are from different positions on the vowel chart, the middle vowel will be the central vowel **é**.

23) a. **manékir** 'first'
b. **wunépir** 'crocodile'
c. **takére** 'to be sticky'
d. **kirékap** 'to drift down'
e. **worékap** 'to remove an article of clothing'

In some forms there is disagreement on which guideline should be followed. For example, there are idiolectal preferences for the word for 'mercy, pity, compassion': **aropomp** with vowel harmony, **arápomp** with the front-central vowel relationship, or **arépomp** with the intermediary **é**. Recently literates have shown preference for vowel harmony in words such as this.

2.7. Transitional schwa

One problem we have vacillated over for many years has been the transitional schwa between consonants in contiguous morphemes. Because of (24a, 25a), I would like to spell (24b, 25b) with no transitional schwa.

24) a. **ye** + **no** → **yeno** ['yeˆnɔˆ] 'yes (indic.)'
b. **sik** + **no** → **sikno** / **sik no** [sɨgᵊnɔˆ] 'not yet (indic.)'

25) a. **nke** + **ré** → **nkeré** [ŋgeˆɾ̃ə] 'see (prog.)'
b. **tank** + **ré** → **tankré** [taŋgᵊɾ̃ə] 'sit (prog.)'

For some reason I cannot explain, the people are happy to write as I wish in the forms like (25), but usually prefer to write forms like (24) as **sikono** with vowel harmony. It might be good to present this situation, with its possible alternatives, to a pastors' and leaders' meeting for their consideration.

2.8. Nasal and adjacent consonant

Some species names and people's names follow a CVC.CVC pattern rather than the general CV.CV.CVC word pattern, and so usually require slight transition in most cases between the consonant borders of the syllables. Following a nasal, not only do we hear something like a transitional schwa, but also a nasal homorganic to the following consonant. The question is whether to write this homorganic nasal in forms like (26).

26) a. [wɒmᵘŋgar] as **wamkar** or **wamnkar**[3]
b. [kwanᵊmbɛˡ] as **kwanpae** or **kwanmpae**
c. [kamⁿdɛˡ] as **kamtae** or **kamntae**
d. [meˆmᵘŋgwaᵉˆ] as **memkwae** or **memnkwae**
e. [yamᵘŋgwɒ] as **Yamkwa** or **Yamnkwa**
f. [kom ⁿtiwoˆ] as **koum tiou** or **koum ntiou**

In (26) we have used the former successfully, though we first wrote them the second way. But forms like the (27a) and (28a,b) involving [n] followed by [ŋg] require us to write in the second nasal for correct pronunciation because of contrasts with forms like (27b,c) and (28c).

27) a. [pɔˆnᵊŋkɔˆ̍] 'wild breadfruit' is **ponnkor**
b. [poŋgo̍] '(many) play (drums)' is **pounkour**
c. [pɔˆnɔˆŋgɔˆ̍] 'fall from a tree' is **pononkor**

[3] This was once written **wamunkar**.

28) a. [kanᵉŋgan] 'scabies' is **kannkan**
b. [panᵉŋgap] 'rock shelf' is **pannkan**
c. [kʌŋgʌreˆ] 'grille' is **kánkáre**

2.9. Phoneme absorption and retention

The principles we have tried to follow concerning adjacent vowels or adjacent consonants across morpheme boundaries are to write the word as the number of syllables dictates and/or as pronunciation rules require. In (29), segments are deleted, while in (30) segments are retained because the pronunciation requires it.[4]

29) a. **ono** + **-ént** → **onént** ['ɔˆnənt] 'to me'
b. **ae** + **eaka** → **aeaka** [ɛˈʰaga] 'and then'
c. **oncmp** + **por** → **oncmpor** [ɔˆnɔˆmbɔˆɽ] 'for my own benefit'
d. **samp** + **korop** → **sankorop** [saŋgɔˆɽɔˆp] 'take and come'

30) a. **samp** + **pok** → **samp pok** [sampɔˆx] (*[sambɔˆx])
'take up and go'
b. **ae** 'do' + **epo** 'dual' → **ae epo** [aeˆeˆɓɔˆ]
'they two having done that...'
c. **náráp por** 'for his own benefit'

A recent spelling change in such words as **sér** + **ré** 'saying' compromises between the River dialect pronunction [səɽə] and the Mountain dialect pronunciation [səɽᵉɽə] (which they wrote **séréré**). While the mountain dialect struck me as extravagant, and not true to the morpheme combination, because of their feel for a repetition of the [r] we changed **sére** to **sérré**.

[4] We observe in sections 2.8 and 2.9 that homorganic consonant repetitions generally require the repeating of the symbol.

2.10. Alveolar deinfluencing

An important feature of the Karkar-Yuri language is the power that rounded vowels, in conspiracy with bilabial and velar consonants, have on front unrounded vowels. This is touched on in section 2.2. However, an alveolar near or between the vowels allows the front vowel to stay unrounded, to retain its true identity. A few examples are given in (31).

31) a. **sukwi** ['sugwɪ] 'tough (leaves, fungus)'
b. **Yuri** ['yuɽɪ] 'the Yuri people/mountains'
c. **paokop** ['pɒɔˆgɔˆp] 'to go along (pl.)'
d. **atop** ['aʈɔˆp] 'to spit'

Each of the three words in (32) could be expected to have **ao** before the **o** syllable, but because of the alveolar, they are written as **a**.

32) a. **tapokwap** [ʈaɒˆgwɒp] 'to put together'
b. **ponankor** [pɔˆnaŋgɔˆɽ] 'all'
c. **yapokwap** [yaɒˆgwɒp] 'to be curled up, curved'

An alveolar deinfluencing problem arose recently in a group story-writing session. As can be seen in (33), 'mouth' is **top**.

33) a. **top kour** [ʈɔˆɒɔˆ kor] 'mouth (bone)'
b. **top koupour** [tɔˆp koɒoɽ] 'full to the brim (mouth)'

Considering the meaning, I wanted to write **top yépi** [təbəɒɪʔ] for 'lips' (literally 'mouth skin'), but the two men expressing an opinion could not see the relationship at all. They were quite adamant that it should be one word, spelled **tépépi**.

2.11. Morphemes

Linguists need to make decisions in this area in most languages. The perennial question is whether to write what we hear, or as in the uninflected form. (The example at the end of section 2.10 was of this nature.) We have tried, as much as possible, to write the morphemes as they are in uninflected forms.

However, a few words which had meaningful parts in the past have become fossilised, and we write them in their fossilised forms. Two examples are given in (34).

34a. **éntékam** 'fish' < **ént** + **kamp** 'from the water'
b. **émpikam** 'python' < **émpi** + **kamp** 'from the plain, hollow'

2.12. Word length

Karkar-Yuri is full of long, polymorphemic phonological words. To decide how they could be best written so people could read easily we divided one sample text into separate morphemes, and another into phonological words. We found that chopped-up words produced chopped-up reading, and people frequently reread bits before they could make sense of it. Long combinations of verb suffixes, however, caused panic to the readers, who quickly resorted to guesswork.

Since Karkar-Yuri is a stress-timed language, morphemes are grouped together in various degrees of closeness. We needed to decide at which points to put word breaks. One helpful guide was to note what could stand alone, and what was linked by word-medial allophones. For example, though [name^gam] is three morphemes we broke it into two words: **nap** 'house' and **mekamp** 'out from within' (< **mek** 'in' and **kamp** 'from').

Another guide was stress. As more and more suffixes are added to a verb, the stress shifts further towards the end of

the word. If a verb root with one or two suffixes still retains stress, the suffixes stay with it. If on the addition of another suffix stress shifts to a suffix, a word break usually comes before the stressed syllable or after the stem, as shown in (35). (Stress is indicated by '. The phonetic form of (35b) is given because the medial allophone is a guide here also.)

35) a. **ao'kwap** 'to go'
b. **ao'kwapea** [ɒɔ^'gwɒβe^a] 'go and ...'
c. **aokwap 'riaka** 'go and in order to ...'
d. **aokwap na'nampono** 'I will go'
e. **korop naenomp 'ritea** 'he thought that he was about to come'

Finally, if the additional morphemes sound separate from the stem, we write them that way as in (36).

36) **korop nap kwamp** 'if he intends to come ...'

2.13. Punctuation

Hyphens are used in some cases of reduplication, indicating a juncture shorter than a word break but longer than a morpheme break. They are used particularly where their absence causes mispronunciation as in (37).

37) a. **ném-ném** 'from/in village to village' (< **ném** 'village')
b. **kou-koumour méntép** 'absolutely every night (day)'

If (37b) were written **kou koumour méntép** it could mean 'the pig every day' and if it were written **koukoumour** it would be pronounced [kogomoʧ].

Other interesting oral features require written representation if the reading is to sound alive and natural. When recounting an adventure, a man loves to dramatise by

exaggerating the length of a vowel in a verb to express repeated or continuous action. We symbolise it as in (38).

38) a. **fu...fukea** 'hitting and hitting and hitting'
b. **a...akowapea** 'going and going and going'

2.14. Nonphonemic and extrasystemic symbols

Occasionally in folk tales onomatapoeic words occur with extrasystemic sounds. Examples are [χoʈ! paʈəgabəaʈə] 'gushed out and down' and [haraəmbəm sua]. We use **h** for the [χ] and [h]. We write all Bible names and Pidgin words as in Pidgin, except when the Pidgin transliteration is an inaccurate representation of the source language. For example, we change to Tesalonika, Benisi, Gris.

3. How Do We Choose?

Anyone can make unsatisfactory orthography and spelling choices. If a language worker has made an orthography or spelling system that most satisfyingly reflects phonemic reality, or competently reveals tonal differences, but the people and authorities in the area are discontent over the system and have reservations about using it, the language worker would be wise to compromise even though it will hurt his conscience. Otherwise his efforts may be rejected. On the other hand there are instances where language workers have listened to the opinion of a native speaker and have, against their conscience, taken his advice with unfortunate consequences later.

Someone once said, "Blessed are the flexible, for they shall not be broken." This is true. But as time goes on, and after we have done much testing, true wisdom is knowing when to stop being flexible and start making firm decisions.

Some of us encounter greater challenge in creating an orthographic and spelling system than others. It is stimulating, and can often bond the language worker and native speakers together as they strive for the best solutions. If they thoughtfully create a system, nothing can be surer -- it must be an improvement on English!

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