

## Preamble:

The following paper was read at a meeting of the Linguistic Society of Papua New Guinea in July 1983. Given a renewed interest in Papuan languages and the accommodating emergence of the Internet, it seemed a good idea to make these data more easily available. The paper has only been slightly edited in favour, hopefully, of greater clarity. The Fas language was studied at intermittent periods from 1978 to 1988. The rather abrupt and untimely end of the research program, meant that much data and rough drafts remained unpublished and unavailable. This publication is part of an attempt to remedy that to some extent.

For more information consult the SIL [PNG Language Resource Site](#).

See [kwomtari](#) for general information on Fas and the Kwomtari phylum language area.

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Hoogezand, the Netherlands      October 2007

Orthographies and Orthographic Mismatches: Fas vs. Melanesian Pidgin  
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Orthographies should, ideally, meet a number of requirements. An obvious one is that orthography should reflect the phonological system of a language. Less obvious, yet of considerable importance, especially for "minor languages", is the requirement that orthographies accommodate transition between the vernacular and the "major language(s)"

Apart from pure pictographic and logographic systems (and even Chinese is not "pure" in that respect (cf. L. Henderson 1982:17) ), orthographies have generally reflected the phonological system of the represented languages at least to some degree. Following a more or less final definition of the Phoneme in the 1930's<sup>(1)</sup>, the phonological basis of especially newly devised orthographies became more formalized, as reflected in Pike's "Phonemics: A device for reducing languages to writing" (1947).

Despite such documentation, uneasiness with stringent application of the "Phonemic Principle" to writing systems persisted, especially in so far as its application required "Bi-uniqueness". The "Bi-uniqueness" principle (BI) was formulated by Z. Harris, who explained it as follows:

"The term bi-unique implies that the one-to-one correspondence is valid whether we start from the sounds or from the symbols: for each sound one symbol, for each symbol one sound." (1944a: § 4.1)

The following Fas<sup>(2)</sup> data illustrates the principle:

cf.	[nəkɨ]	"papaya"	[nək]	"lime"
	[nək pətɔ]	"a little papaya"	[nək pətɔ]	"a little lime"
	[nəkɨ anɔw]	"a big papaya"	[nək anɔw]	"a lot of lime"

*(The [ɨ] has been interpreted as a realisation of /y/!!)*

Notice that /nəkɨ/ and /nək/ neutralize before a consonant. Accepting the BI principle also for orthographic purposes, we would have to write /nəkɨ/ differently depending on the phonological context (cf. 'nəkɨ' and 'nək'). That this may not necessarily be the best solution had already been pointed out by Y-R Chao, who was the first to formulate the given principle, albeit calling it "Symbolic Reversibility":

"The use of symbols has two aspects, the aspect of reading, or the determination of the object from the given symbol, and the aspect of writing, or the determination of the symbol from the object.... Given a phonemic symbol, the range of sounds is determined... It would also be a desirable thing to make this reversible, so as to include the aspect of writing; that is, given any sound in the language, its phonemic symbol is also determined."

(1934/56.49)

Earlier in the same article he had observed:

"It may not be necessary to outlaw the writing of two alternate forms for one word. But it would be an advantage not to have to do so."

(id.46)

He concludes then:

"The reversibility is therefore only partial. Usage is by no means uniform in such cases. Sometimes, symbolic reversibility is secured at the expense of word identity, ... At other times, identity of word form is secured at the expense of reversibility, .."

(id.50)

Since Bloch (1941) and until the arrival of Generative Phonology, American Structuralism remained more or less stuck with the BI principle. This in turn affected field models like Tagmemics, which in turn affected orthographic practice.

As already stated, uneasiness remained, and orthographic solutions were adopted on the basis of "native intuition", even when they violated the BI principle. Generative Phonology seems to have given some further theoretical justification to this otherwise somewhat "illicit" practice. The issues in fact seem to be open again, but experimentation is difficult to carry out. Questions requiring an answer are many and varied:

e.g.

What is native intuition and how can it be isolated from other factors (like previous training)?

Do underlying forms have psychological reality, and if yes, are they as readily available to the speaker/hearer as (more) surface forms?

To what extent does the teaching model determine spelling/reading strategies? (e.g. If someone had learned to spell Fas following a word model, he would be likely to write words according to the concept he has in his mind and not so much according to the actual sounds. Hearing [nək pətə] when the reference is clearly to "a little papaya", he would be likely to write 'nəky'. Writing the underlying form in this case would not so much have reflected an awareness of the underlying form as be the result of the teaching model.

Would a strict sound-symbol teaching model stifle the search for basic forms and if so, would this be a disadvantage?

Should semantic reference be integrated in teaching models?

Are different orthographic approaches suitable for different groups?

e.g. learners vs. fluent readers

writers vs. readers

If so, what are the implications?

To complicate all of this, another strong determinant presents itself:

In the case of minor languages, should an orthography not be devised so as to facilitate transition between the represented vernacular and the major language(s)?

This transition principle seems important in that adequate time for vernacular literacy is often lacking, and conversely, where vernacular preschool training is implemented, introduction to the major language would be facilitated. Smooth transitions, in turn, might make authorities more ready to adopt such approaches.

Unfortunately the Phonemic and the Transition principles are often at odds. In the rest of this paper we would like to illustrate how the two principles clash in devising a Fas orthography. As literacy in the Kilifas area has so far been restricted to Melanesian Pidgin (henceforth MP), it will be considered the "major language" for the purpose of this study. "The Jacaranda Dictionary and

Grammar of Melanesian Pidgin" by F. Milhalic S.V.D. has been taken as the authority on MP spelling.

Fas has the following phoneme inventory:

Consonants:

Stops	p	t	k	ʔ
Fricatives	f	s		
Vibrants	<b>B</b>	r		
Nasals	m	n		
Semivowels:	w	y		

Vowels:

e	(ə)	o
ɛ	a	ɔ

Notes:

1. **B** represents the bilabial trill which occurs in Fas without prenasalisation.
2. w and y have voiceless vowel allophones (ɸ and ʃ respectively). These only occur word finally following consonants.
3. A fuller analysis of stress may render schwa non-phonemic.
4. Orthographically /e/ is written 'é' and /ɛ/ 'e', /o/ as 'ó' and /ɔ/ as 'o'.

The absence of high vowel phonemes is somewhat unusual and a brief explanation is required. First of all the non-low vowels /e/ and /o/ are higher than their English counterparts. Secondly, and more substantially, all occurring high vowels can, and it seems should, be analyzed as underlying non-low vowels following a semivowel.

For more extensive documentation see Baron (1979, 1981).

cf. /pən/ + thematic vowel /-o/	→	[pəno]	"came .."
/kɛy/ + thematic vowel /-o/	→	[kɛyu]	"I came down ..."
/kɛw/ [kɔw] + thematic vowel /-o/	→	[kɔwu]	"he came down ..."

The semivowel (or corresponding voiceless vowel) disappears following a consonant and preceding a high vowel:

cf. /at/ + possessive /-o/	→	[ato]	"of the uncle"
/ʔaty/ + possessive /-o/	→	[ʔadu]	"of the banana"
/nəs/ + thematic vowel /-o/	→	[nəso]	"he showed them... "
/nɛsy/ + thematic vowel /-o/	→	[nɛsu]	"I put on string..."

[nəsu] is analyzed and derived as follows:

Underlying	/nəsyo/
Raising	nəsyu
Semivowel drop	[nəsu]

The fact, of course, that high vowels in certain cases can be derived from non-low vowels does not need to imply that they have non-phonemic status. What indicates such an analysis is the typical behaviour of stops preceding any high vowel in non (morphologically) complex words. Whenever stops precede high vowels they are voiced (or tense), as are those stops which precede non-final semivowels.

cf.	[bi ]	"a raven"
	[gi ]	"a kind of sago"
	[sugu ]	"male name"
	[fəgwɔ]	"sago stem"
	[kɛdya]	"leave"
	[nabwəse]	"they came"

The postulation of an underlying non-low vowel plus preceding semivowel for all occurring high vowels seems therefore highly instructive.

Initially, however, another pair of "high vowels" was recorded. As they are clearly distinct from the ones already discussed we will symbolize them I and U. It turned out that these high vowels correspond to MP high vowels in stressed (open) syllables.

cf.	/swo/	[su]	"it burned"
	/sU/		"brains"
	/sU/	(MP:'su')	"shoe"
	/kye/	[gi]	"they ate" (short form for /kəsi/)
	/kI/		"I ate"
	/kI/	(MP:'ki')	"key"

The "high vowels" /U/ and /I/ turned out to be complex vowel-semivowel sequences. The nature of the vowels was established on morphological grounds, although an experienced phonetician might have established them directly.

Third person singular is differentiated from first person singular, where applicable, by a change of final front non-low non-consonant to its rounded counterpart:

e.g	/taty/	"I shot (pl.obj)"
	/tatw/	"he shot (pl.object)"
	/ke/	"I slept"
	/ko/	"He slept"
	/kɛy/	"I went down *
	/kɛw/ [kɔw]	"He went down"
Also:	/kI/	"I ate"
	/kU/	"he ate"

As rounding before /w/ is a general feature of Fas, the ɔ in [kɔw] can be interpreted as underlying /ɛ/ making this form also regular.

The following paradigm gave the clue to the nature of the "high vowels":

/oy/ "I cut"  
/U/ "he cut"

We would have expected [ow] for third singular, and it seems quite clear now that this is indeed the phonemic (if not also phonetic) nature of /U/. The step from there to /ey/ for /I/ was only a logical extension and is supported by paradigms of the following type:

/kI/ "I ate"  
/kU/ "he ate"

If we postulate /key/ for /kI/ we would expect [kow] (via /ew/ and rounding) for "he ate". As /U/ is /ow/, this seems to present good evidence that /I/ is indeed /ey/. The presence of a final /y/ is also supported by the fact that only paradigms with /y/ final 1st person stems have /y/ crop up in the set of person affixes.

cf.

	"I"	"we (dualis) "
"slept"	/ke/	/kətae/
"ate"	/key/	/kətyae/
"went down"	/kɛy/	/kɛtyae/
"shot(pl.obj) "	/taty/	/tat(ə)tyae/

As schwa may result from /e/ in closed or unstressed syllables, the occurrence of schwa in the "sleep" as well as "eat" paradigms also points to the presence of /e/ in /I/.

Notice that if orthographies could be devised in isolation, the vowel system of Fas would not be hard to represent. We would have the following five (or six) vowel system:

i	(e)	u
e	a	o

Phonetic/phonemic value	Orthographical symbol
Phonetic i	yi
" u	wu
Phonemic ey	iy
" ow	uw
" e	i
" ɛ	e
" o	u
" ɔ	o
" a	a

(schwa is at present represented by: v)

The requirement that symbolisation correlate with the sound system representation of other languages might make such an orthography ill-advised.

To start off, /e/ and /o/ could not possibly be represented by 'i' and 'u' as their MP counterparts are represented by the symbols 'e' and 'o'.

e.g. MP: 'go' (local pronunciation [ko]) is a homophone of /ko/ "he slept"

MP: 'me' (also May) "May" is a homophone of me "mother"

That forces the use of the symbols 'e' and 'o' for the Fas phonemes /e/ and /o/ and leads to awkward representations of /ɛ/ and /ɔ/. (MP does not reflect a phonemic distinction between the low and non-low non-central vowels. This may not matter for a trade language with varying local pronunciations, but it is unlikely to be a good idea for vernaculars)

In what follows we will discuss a selection of three additional pertinent symbolisation dilemmas.

1. The use of MP high vowel symbols 'I' and 'u'.

MP words like 'ki' "key", 'ti' "tea", 'si' "sea", 'su' "shoe", 'tu' "two", and 'nu' "new" (as in 'nupela') are homophonous with Fas /key/ "I eat", /tey/ "hurry!", /sey/ "I urinate", /sow/ "brains", /tow/ "a black pig" and /now/ "he shot", respectively.

This would suggest that we symbolize the /ey/ and /ow/ complexes by 'i' and 'u' respectively. The phonetically pure high vowels [i] and [u] then have to be represented alternatively, e.g. immediately reflecting their underlying composition: /ye/ and /wo/.

E.g.

Phonetic	Gloss	Spelling
[gi]	"they ate"	'kye'
[di]	"a bone"	'tye'
[si]	"bird"	'sye'
[su]	"burned"	'swo'
[du]	"gave"	'two'
[nu]	"plural possessive suffix"	'now'

However, /ey/ and /ow/ only occur in stressed open syllables.

High vowels occurring in closed MP syllables can therefore not be associated with the complexes /ey/ and /ow/. In fact, they correlate with diverse Fas homophones.

MP high vowels in closed syllables which are preceded by voiced consonants tend to be associated with the Fas phonetic high vowels [i] /ye/ and [u] /wo/, e.g. [bun] "bone" is homophonous with Fas /pwon/ [bun] "grow". Elsewhere MP 'u' is associated with Fas /oCy/:

e.g. MP: 'sut' "hunting" is homophonous with /soty/ "ridge pole"  
 MP: 'fut' "foot" is homophonous with /foty/ "a grub"

MP 'i' in closed syllables is associated with /ye/ [i] only, probably because the front parallel of Fas /oCy/ is phonetically not [eCy]\* but [əty], /e/ going to schwa in closed syllables. So we have:

MP: 'sit' "seed" homophonous with Fas /syet/ [sit] 'we poured'  
 MP: 'tit' "teeth" homophonous with Fas /tyet/ [dit] 'we hung'

In order to parallel MP/Fas homophony with symbolic identity, we would have to use the symbol 'u' to represent three phonemically distinct units, the symbol 'i' for two phonemically distinct units, and use different symbols in different contexts to represent the same phonemic unit.

Though such an approach would be indicated from a Transition point of view, didactically it creates enormous problems, especially if a syllable model is used. In spelling, Kilifas literates would isolate CVs even from closed syllables, so that 'si' in 'sit' "we poured" parallels /sye/ [si] 'bird' and not /sey/ 'I urinate'. This aspect would require [si] in [sit] to be spelled like [si] 'bird'. The transition principle, however, requires [si] in [sit] and [si] 'bird' to be spelled differently.

## 2. The use of MP 'au'

Though the choice of symbol for the second part of diphthongs like 'au', 'ai', 'oi', etc. is non-trivial, we will in our discussion of 'au' not focus on it. For the present purpose 'au' and 'aw' will be considered interchangeable, noting that 'u' is used in MP and 'w' in Fas. The MP lexical items 'nau' "now" and 'kau' as in ('kaukau' "sweet potato" or 'bulumakau' "cow") are homophonous with Fas /nɛw/ [nɔw] "he went outside" and /kɛw/ [kɔw] "he came down". Stem identity would be rather lost if 'kau' were used instead of 'kɛw'.

cf. 'kɛy'	"I came down"
'kɛfy'	"You came down"
'kau' [kɔw]	"He/she came down"
'kɛty'	"We came down"
'kɛtyae'	"We (2) came down"
'kɛm'	"You (pl) came down"
'kɛmye' [kɛmi]	"You (2) came down"
'kɛsy'e' [kɛsi]	"They came down"
'kɛfy'e' [kɛfi]	"They (2) came down"

Furthermore, if 'u' were used for /ow/, 'mau' would be pronounced /maow/ "he cut us".

## 3. The use of 'h'.

Word initial glottals appear crucially in Fas, at least preceding /a/, /wa/ and /ye/, cf.

/ʔa/	"a tree"
/a/	"name of land area"
/wan/	"block (someone's luck)"
/ʔwan/	"dam (fishing area)"
/yen/	"follow"
/ʔyen/	"pull"
/ʔat/	"we are"
/at/	"uncle"

The form /at/ "uncle" is perceived of as homophonous with MP 'hat' "hot" OR "hat" and would indicate that in Fas absence of glottal rather than the glottal itself should be symbolised. There is a slight aspiration in words like /at/ [ʰat].



Unfortunately MP 'wan' "one" is homophonous with Fas /wan/ rather than /ʔwan/, which prevents consistent use of 'h' symbolizing absence of glottal. Following the Transition principle we would write /ʔat/ "we are" as 'at' and /at/ "uncle" as 'hat'. The logical extension of that solution dictating 'hwan' for /wan/ "to block luck" and 'wan' for /ʔwan/ "dam" is prevented by the same principle in that it requires /wan/ to be spelled 'wan'. Not only would adherence to the Transition principle violate sound/symbol consistency and in that sense complicate the learning process, it would also force an extra symbol to differentiate /wan/ from /ʔwan/.

It has been the purpose of this paper to point out orthographic mismatches in the light of the dual requirements not to offer solutions or weigh the importance of each requirement. Hopefully it will stimulate research in this direction.<sup>4</sup>

Notes:

1. For instance Otto Jespersen's compromise definition at the Copenhagen Conference reported in Twaddell (35/56.59):

"A family of sounds which from an objective point of view may be regarded as distinct, but which are felt naturally by the speakers of a certain language as identical, because they are not used to keep words apart."

2. The Fas language is spoken in the West Sepik (Sandaun) Province of Papua New Guinea.

## Bibliography

- Baron, W. 1979. Light from the dark ages of Chomsky and Halle's "Abstract phonology". *Kivung* 12.89-95.
- Baron, W. 1982. Cases of counter-feeding in Fas. Submitted to LLM.
- Bloch, B. 1941. Phonemic overlapping. Reprinted in: *Readings in linguistics*. M.Joos (ed.) 1957.93-96.
- Chao, Y-R. 1934. The non-uniqueness of phonemic solutions of phonetic systems. Reprinted in: *Readings in linguistics*. M.Joos (ed). 1957.38-54.
- Harris, Z. 1944. Simultaneous components in phonology. *Language* 20.181-205.
- Henderson, L. 1982. Orthography and word recognition in reading. New York: Academic press.
- Milhalic, F. S.V.D. 1971. The Jacaranda dictionary and grammar of Melanesian pidgin. Milton, Queensland: The Jacaranda press.
- Pike, K. 1947. Phonemics: A technique for reducing languages to writing. Ann Arbor: The University of Michigan press.
- Twaddell, W. 1935. On defining the phoneme. Reprinted in: *Readings in linguistics*. M.Joos (ed) 1957.55-80.