Preamble 1:

The following paper was read at a meeting of the Linguistic Society of Papua NewGuinea 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 The rather abrupt and untimely end of the research program, meant that much data and rough drafts remained unpublished and unavailable.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 languagearea.

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Hoogezand, the Netherlands October 2007

Preamble 2:

This is a revised version of the original article and has, hopefully, gained in clarity. No final orthography had been established for Fas/Momu. The paper meant to raise awareness of complications surrounding the establishment of an orthography for a language within a major language context.

Hoogezand, the Netherlands February 2022

Linguistic Society of
Papua NewGuinea
Congress, July 1983.

Orthographic Mismatches: Fas vs. Melanesian Pidgin
Revised version (February 2022)

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Orthographies should, ideally, meet a number of requirements. An obvious one is that an 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 somedegree. Following a more or less final definition of the Phoneme in the 1930's[(1)], 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 data [(2)] illustrates the principle:

Note: [o^] represents a vowel in between [i] and [o].

Cf.:

[nəkɨ]	“papaya”	[nək]	“lime”
[nək pətô]	“a small papaya”	[nək pətô]	”a small lime”
[nəgy anɔw]	"a big papaya"	[nək anɔw]	"a lot of lime"

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

Notice that /nəky/ and /nək/ neutralize before a consonant. Accepting the BI principle also for orthographic purposes, we would have to write /nəky/ differently depending on the phonological context (e.g. 'nəky' for “papaya” and 'nək pəto' for “small papaya”).

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 [nɔk pɔtô] when the reference is clearly to "a little papaya", he would be likely to write 'nɔky'. 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. As Melanesian Pidgin is pronounced differently throughout Papua New Guinea, this study is based on the local Kilifas pronunciation.

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

For Fas we proposed the following phoneme inventory:

Consonants:

Stops	p	t	k	?
Fricatives	f	s		
Vibrants	ß	r		
Nasals	m	n		
Semivowels:	w	y		

Vowels:

ê	(ə)	ô
ɛ	a	ɔ

Notes:
1. ß represents the bilabial trill which occurs in Fas without prenalization. ? represents the glottal stop.

2. A fuller analysis of stress may render schwa non-phonemic.

3. w and y have voiceless vowel allophones ([i̥] and [u̥]) respectively. The voiceless ones are only observed word final, following a consonant ([ati̥] 'banana'). The semivowels occur preceding vowels(/kɛtya/ [kɛdya] 'leave') and as the final part of a glide (diphthong) (/kɛy/ 'hand').

High vocalic density

The seeming absence of high vowel phonemes is somewhat unusual, but belies the real situation. Initially the front and back high vowels that we recorded as *[i] and *[u], turned out to be for the speakers three clearly distinguishable vocalic units each. We came to realise that we were dealing with a truly high vocalic [i] and a slightly lower distinct one, say [ê], cf.: [si] 'bird' and [sê] 'I smell'. The third high vowel turned out to be very much like the high vowel in English "key". Subsequent analysis of the phonological system made sense of this and the postulation of a glide was established [êy] cf.: [sêy] 'I urinate'

It then turned out that the "purer" high vowel [i] could be interpreted as having underlying [yê]. The same analysis would also work for the back/rounded vowels.

This conclusion was drawn in the early 80-s when abstract underlying forms were still in vogue.

That [i] could result from a combination of [y] and [ê] and [u] from /yô/ or /wô/ was clear.

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

cf. /pɔn/ + thematic vowel /-ô] → [pɔnô] "I came .."

/kɛy/ + thematic vowel /-ô/ → [kɛyu] "I came down ..."

/kɛw/ [kɔw] + thematic vowel /-ô/ → [kɔwu] "he came down ..."

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

cf.

/at/ + possessive /-ô/ -> [atô] "of the uncle"

/?aty/ + possessive /-ô/ → [?adu] "of the banana"

/nɔs/ + thematic vowel /-ô/ -> [nɔsô] "I showed them..."

/nɔsy/ + thematic vowel /-ô/ -> [nɔsu] "I put on a string..."

[nɔsu] is then analyzed and derived as follows:

Underlying	/nɔsyô/
Raising	nɔsyu
Semivowel drop	[nɔsu]

The realisation, 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 could be the typical behaviour of stops preceding any high vowel or semivowel 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"
	[fɔgwɔ]	"sago stem"
	[kɛdya]	"leave"
	[nabwɔn]	"he came" *

* [w] has a rounding effect on adjacent front vowels, but apparently not on [ɔ] even though it may have been derived from /ê/.

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

Then there was the third set of "high vowels", the ones that seemed to sound like the ones in English ‘key’ and ‘shoe’ As they are

clearly distinct from the other ones, we will symbolize them I and U. It turned out that these high vowels correspond to MP high vowels in stressed (open) syllables.

cf.

/swô/	[su]	"it burned"
/sU/	?	"brains"
[sU]	MP:'su'	"shoe"
/kyê/	[gi]	"they ate" (short form for /kəsyi/)
/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/[tatụ]	"he shot (pl.object)"
/kê/	"I slept"
/kô/	"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 possible nature of the "high vowels":

/ôy/ "I cut"
/U/ "he cut"

We would have expected [ôw] 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 /êy/ 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 /kêy/ for /kI/, we would expect [kôw] (via /êw/ and rounding) for "he ate". As /U/ is /ôw/, this seems to present good evidence that /I/ is indeed /êy/. 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"	/kê/	/kətaê/
"ate"	/kêy/	/kətyaê/
"went down"	/kɛy/	/kɛtyaê/
"shot(pl.obj)"	/taty/	/tat(ə)tyaê/

* Note that both [aê] and [ay] occur as diphthongs.

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

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

i (ə) u

e a o

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

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

Orthographic clashes

1. Fas ‘i’ and ‘u’ clash with MP ‘e’ and ‘o’for the same sound.

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

e.g.

'go' (local [kô]) /kô/ "he slept” ‘ku’

'me' (also May) /mê/ "mother" ‘mi’

The transition principle would force the use of the symbols 'o' and 'e' for the Fas phonemes /ô/ and /ê/and lead to awkward representations of /ɛ/ and /ɔ/, like using diacritics. In other words, if Fas would accommodate the MP-spelling, “he slept” would be written as ‘ko’ and “mother” as ‘me’, but if it were to reflect its own phonological system we would want to write ‘ku’ and ‘mi’.
(MP-orthography 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)

2. MP ‘i’and ‘u’ clash with Fas ‘iy’ and ‘uw’ in their syllable final counterparts.

MP	English	Fas Homophones	Suggested spelling	
ki	key	/kêy/	‘kiy’	“I eat”
ti	tea	/têy/	‘tiy’	“hurry!”
si	sea	/sêy/	‘siy’	“I urinate”
su	shoe	/sôw/	‘suw’	“brains”
tu	two	/tôw/	‘tuw’	“black pig”
nu (as in ‘nupela’)	new	/nôw/	‘nuw’	“he shot”

The transition approach would suggest that we symbolize the /êy/ and /ôw/ complexes by 'i' and 'u'respectively, e.g. ‘ki’ “I eat” and ‘su’ “brains”

The phonetically pure high vowels [i] and [u] then have to be represented differently, e.g. immediately reflecting their suggested underlying composition: /yê/ and /wô/.

E.g.:

Phonetic	Underlying	Gloss	Suggested spelling
[gi]	/kyê/	"they ate"	'kyi'
[di]	/tyê/	"a bone"	'tyi'
[si]	/syê/	"bird"	'syi'
[su]	/swô/	"burned"	'swu'
[du]	/twô/	"gave"	'twu'
[nu]	/nwô/	"plural possessive suffix"	'nwu'

However, /êy/ and /ôw/ in Fas only occur in stressed open syllables.

In closed syllables we find [i] an [u], where ‘i’ and ‘u’ may be found in MP:

E.g.	MP	Fas homophones Underlying	Spelling	Gloss
tin	“container”	/tyên/	‘tyin’	“carry (pl. subject)”
bun	“bone”	/pwôn/	‘pwun’	“to get”

High vowels occurring in closed MP syllables can therefore not be associated with the complexes /êy/ and /ôw/. MP ‘u’, in fact, is also associated with Fas /ôCy/, where /y/ represents the voiceless [ị]:

e.g.

MP: 'sut' "hunting" is homophonous with /sôty/ [sôtị]"ridge pole"

MP: 'fut' "foot" is homophonous with /fôty/ [fôtị] "a grub"

MP 'i' in closed sy11ab1es is associated with /yê/ [i] only, probably because the front parallel of Fas /ôCy/ is phonetically not [êCị]* but [əCị], /ê/ going to schwa in closed syllables. So we have:

MP: 'sit' "seed" homophonous with Fas /syêt/ [sit] 'we poured’
MP: 'tit' "teeth" homophonous with Fas /tyêt/ [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.

E.g.:

MP based spelling	Gloss	Fas system spelling	Gloss
‘su’	“shoe”	suw	“He urinates”
‘sut’	“hunting”	swut	“we burn”
‘fut’	“food”	futy/fuyt	“a grub”
‘ki’	“key”	kiy	“I eat”
‘tit’	“teeth”	tyit	“we hang”
Also:		sity/siyt [sətị]	“we urinate”

Note: /sity/ is phonetically [sətị], but as there is reasonable evidence that it is derived from underlying /sêyt/, it cold be orthographically represented by ‘siyt’

In short:

MP “u’ would be used for Fas systemic ‘u, wu and uw’ and MP “i” for ‘i and yi’

Though such an approach would be indicated from a Transition point of view, didactically it would create quite a challenge.

3. 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. Forthe 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 'kew'.

cf.	'key'	"I came down"
	'kefy'	"You came down"
	* 'kau' [kɔw]	"He/she came down"
	'kety'	"We came down"
	'ketyai'	"We (2) came down"
	'kemy'	"You (pl) came down"
	'kemyi' [kɛmi]	"You (2) came down"
	'kesyi' [kɛsi]	"They came down"
	'kefyi' [kɛfi]	"Yhey (2) came down"

Furthermore, if 'au' were used for /ɔw/, 'mau' would be pronounced [mɔw] like MP ‘kau’ and not as ‘[ma-ôw] “he cut us”. Cf. ‘ma-uy’ I cut us (us-I cut)

4. 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 glottalitself should be symbolized. 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 a1so force an extra symbol to differentiate /wan/ from /ʔwan/. We tentatively proposed the use of ‘h’ for absence of glottal as the use of ‘?’ would prevent its use as a question mark. ‘q’ may be an option …

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 further research in this direction.

Notes:

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

   "A family of sounds which from an objective point of view may be regardedas 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 NewGuinea.
   Fiona Blake (2007) carried out a research programme for her BA thesis in the Fas speaking village of Mori, in the North. She met with reluctance amongst the villagers to use the name of another village, i.e. Fas, for their language. Upon which she/they decided to christen the language **"Momu"**, the Fas word for **"NO"**. There is a tradition in the Sepik region to do so, and I am sympathetic to the idea of another name, but we may well have to wait till the various villages can come together and decide on their own name. A change of names has the problem of breaking a linguistic classificatory tradition, as the language has been called Fas in all of the preceding literature. Also using the word for **"NO"** is potentially problematic in that related languages may employ the very same term. This is actually the case for Fas, where the closely related language Baibai also uses the negation **"Momu"**

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