

PHONOLOGY OF FAIWOL

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0. Introduction

This paper shows how pertinent units at each level of the phonological hierarchy in Faiwol¹ can be described in terms of contrast, variation and distribution. It will also show how lower level units combine to make higher level units and the pertinent features of each level.

1. Chart of Phonemes

Stops	voiceless		t	k
	voiced	b	d	g
Nasals		m	n	
Fricatives		f	s	
Lateral			l	
Semi-vowels		w	y	
Vowels	high	i		u
	low	e	a	o
Vowel glides		ei	ai	əu
Stress		ˈ (stressed),	v (unstressed is unmarked)	
Pitch		cvc' (high pitch),	cvc (low pitch is unmarked)	

2. Contrasts

2.1. The Consonant Contrasts

The stops contrast at bilabial, alveolar and velar positions. The alveolar and velar stops contrast with voiced and voicelessness. The nasals, fricatives and semi-vowels contrast at bilabial and alveolar positions. The lateral occurs at the alveolar position.

2.2. Examples of Consonant Contrasts

Bilabials:	[b ^h m]	/bim/	'earthquake'
	[fím]	/fím/	'blunt'
	[win']	/win'/	'egg'
	[mén]	/mén/	'string bag'
Alveolars:	[dúp ^h]	/dúw'/	'friend'
	[lúo ^h]	/lúw'/	'tree name'
	[yúřm]	/yúdim/	'banana name'
	[núm']	/núm'/	'our'
	[súm]	/súm'/	'banana'
	[t ^h úp ^h]	/túw'/	'breast bone'
Velars:	[k ^h m]	/kim/	'louse'
	[gim']	/qim'/	'fruit'
Stops:	[gín]	/gíg/	'bark type'
	[k ^h ín]	/kíg/	'your older brother'
	[t ^h gín]	/tikín/	'on top'
	[dígín']	/díkín'/	'wood worm'
	[bígín']	/bíkin/	'explosive'
Fricatives	[fím]	/fím/	'blunt'
	[wím]	/wím'/	'to dance'
	[s(ɭ)']	/sil'/	'needle'
Nasals:	[nam']	/nam'/	'my'
	[mam']	/mam'/	'air'
Semi-vowels:	[wán']	/wán'/	'sweet potatoe'
	[yán']	/yán'/	'leg'

Description of Phonemes continued

Examples of [g] and [ŋ]:

[síŋám] or [sígám] /sígám/ 'far'
 [síŋók^h] or [sígók^h] or [síŋgók^h] /sígók/ 'tapioca'

Example of [ŋ] becomes [g] when high front vowel precedes and follows the [ŋ]:

[níŋ+ -il] = [nígil] /nígil/ 'younger brothers'

The voiceless labio-dental fricative /f/ has one phonetic manifestation as a voiceless labio-dental fricative which occurs word initial, medial between vowels and syllable initial following consonants,

[fáfí'] /fáfí/ 'stone ax'
 [uból'fágóp'nak^h] /uból'fáków'nak/ 'taro name'

The voiceless alveolar grooved fricative /s/ has two allophones:

1. a voiceless alveopalatal grooved fricative which occurs before stressed syllable, high back rounded vowel,

[šúm'] /súm'/ 'banana'

2. a voiceless alveolar grooved fricative occurs in all consonant positions,

[ás] /ás/ 'wood'
 [síl'] /sil'/ 'needle'
 [ápsóm] /áwsóm/ 'doorway'
 [gis'ba] /gis'ba/ 'its becoming cold'.

The voiced bilabial nasal /m/ has one phonetic manifestation and occurs in all consonant positions,

[mam'] /mam/ 'air'

Description of Phonemes continued

[ím(n)]	/ímin/	'taro'
[k ^h úmsóp ^h]	/kúmsów/	'cassowary'
[t ^h álmáŋ]	/tálmág/	'slippery'

The voiced alveolar nasal /n/ has one phonetic manifestation and occurs in all consonant positions,

[néni ^h p ^h]	/néniw'/	'mother'
[mín]	/mín/	'son'
[bámmak ^h]	/bámmak/	'older brother'
[t ^h é ^h n'sé]	/téin'sé/	'he was there'

The voiced alveolar lateral /l/ has one phonetic manifestation and occurs in all consonant positions,

[lúm]	/lúm'/	'dream'
[fál]	/fál/	'door'
[sálbálúm]	/sálbálúm/	'rainbow'
[t ^h ámlaŋ]	/támlág/	'slippery'

The voiced alveo-palatal semi-vowel /y/ has one phonetic manifestation and occurs word initial, word medial between vowels and syllable initial following consonants,

[yán']	/yán'/	'foot'
[k ^h á'yóp ^h]	/káiyów'/	'moon'
[namyál]	/namyál/	'crazy'

The voiced rounded bilabial semi-vowel /w/ has four allophones:

1. a voiced rounded bilabial semi-vowel occurs word initial, medial between vowels when contiguous to rounded vowel, and word medial following consonants,

Description of Phonemes continued

- | | | |
|------------------------|-----------|-------------|
| [wítwít ^h] | /wítwít'/ | 'bird name' |
| [áwón] | /áwón'/ | 'bird' |
2. a voiced bilabial fricative occurs word medial between unrounded vowels,
- | | | |
|---------------------|---------|--------|
| [b̥t ^h] | /íwít'/ | 'sore' |
|---------------------|---------|--------|
3. a voiceless bilabial aspirated stop occurs word final,
- | | | |
|---------------------|-------|--------|
| [fíp ^h] | /fíw/ | 'odor' |
|---------------------|-------|--------|
4. a voiceless bilabial unaspirated stop occurs word medially preceding consonants,
- | | | |
|------------------------|---------|---------|
| [sʌpk ^h ál] | /sawká/ | 'devil' |
|------------------------|---------|---------|

There are other possible phonemic solutions for these phonetic data but the above solution has been adopted because it accords best with the morphophonemic processes, e.g.

[t ^h ʌfʌp ^h]	/tadaw'/	'you come'
[t ^h ʌfá'bé]	/tadáwé/	'you come?'
[tʌfawó]	/tadawó/	'you must come!'

/tad -áw' -é/ 'come -you -question marker'

/tad' -aw -ó/ 'come -you -imperative marker'

The /w/ was chosen for the phonemic symbol because the [w] allophone occurs the most frequent, although morphophonemic process may indicate that the [p^h] and [p] are the basic allophones.

4.2. Vowels

The vowel /i/ has two allophones;

1. a voiced high close front unrounded vocoid [i] occurs word initial, medial in stressed syllable and word final,

Description of Phonemes continued

[imin']	/imin'/	'taro'
[atím']	/atím'/	'lizard'
[wát ^h i]	/wáti/	'fence'

2. a voiced high open front unrounded vocoid [ɨ] occurs medial in unstressed syllable,
[sinik^h] /sinik'/ 'shadow'.

The vowel /e/ has two allophones:

1. a voiced mid open front unrounded vocoid [ɛ] occurs word final or when followed by a voiced velar nasal,
[t^hég'] /tég'/ 'arm'
[uná'bé] /uná'wé/ 'you go?'
2. a voiced mid close front unrounded vocoid [ɜ] occurs elsewhere,
[mén] /mén/ 'string bag'
[él'ám] /él'ám/ 'tree house'

The vowel /a/ has two allophones:

1. a voiced low open central unrounded vocoid [a] occurs word initial, medial, final in stressed syllables,
[abál] /abál/ 'sweet'
[ábalím'] /ábalím'/ 'stairs'
[bá] /bá/ 'no'
2. a voiced closed central unrounded vocoid [ʌ] occurs word initial, medial and final in unstressed syllables,
[atán] /atán/ 'sun'
[átabʌ] /átaba'/ 'he sees it'

Description of Phonemes continued

The vowel /u/ has two allophones:

1. a voiced high closed rounded vocoid [ʷ] occurs word initial, medial and final in stressed syllables,

[ʷgáp ^h]	/úkáw/	'pumpkin'
[ʷnsú']	/ʷnsú'/	'she was there'

2. a voiced high open rounded vocoid [ʊ] occurs word initial, medial and final in unstressed syllables,

[ʊbál']	/ubál'/	'possum name'
[sun']	/sun/	'seed'
[ámgu']	/ámgu'/	'mountain'

The vowel /o/ has one phonetic manifestation as a voiced mid closed back rounded vocoid [ɔ] which occurs word medial and final as in

[bó'málɔ]	/bó'malɔ/	'you wash!'
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The vowel glide /au/ has two variations:

1. a voiced central unrounded closed vocoid [ʌ] followed by a glide to the high back open rounded [ʊ] position which occurs word initial and medial and fluctuates in these positions with

[ʌrál'] or [ʊrál']	/áudál'/	'ancestors'
[ʌʎ'] or [ʊʎ']	/dáuŋ'/	'flame',

2. a voiced back low rounded vocoid [ɔ] followed by a glide to the high back open rounded [ʊ] position and occurs word final,

[móʊ]	/móu/	'banana name'.
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The /ei/ glide has one phonetic manifestation as a voiced mid front unrounded open vocoid [e] followed by a glide to the high front unrounded open [ɪ] position and occurs word

Description of Phonemes continued

medial and final,

[lé ^h p ^h]	/léiw'/	'road'
[sé ^h]	/séi/	'childless woman'

The vowel glide /ai/ has one manifestation as a voiced central unrounded closed vocoid [ʌ] followed by a glide to the high front unrounded open [i] position, and occurs word initial, medial and final,

[á ^h m]	/áim/	'pandanus'
[k ^h á ^h t ^h]	/káit'/	'flower or ornament'
[k ^h á ^h]	/káí/	'you mean'

5. Interpretations

5.1. Consonant

The labialized velar stops [g^w], [k^w] are interpreted as consonant plus vowel for two reasons. There are no non-suspect consonant clusters. Also it has been noted [u] actually becomes [w] when a verb stem ends with [u] and has a suffix added with an initial vowel, e.g.

[k ^h ú ^h + imak ^h]	= [k ^w ímak ^h]	/kuímak/	'he must give it to them'.
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The /w/ has been interpreted as a consonant because it does occur in consonant slot and it is an allophone with [p], [p^h] and [b]. The /y/ has been interpreted as a consonant because it falls in a consonant slot. It could alternatively be interpreted as /i/ since no contrast with /i/ occurs. However, this creates a word pattern like cv^vvc as in [k^há^hyóp^h] becoming /káíow'/. The syllable break is undeterminable. Therefore it was decided to interpret it as a consonant because it seems to pattern as a consonant and indicates syllable break, i.e. /káíow/.

5.2. Vowel Sequence Items

/ai/, /ei/, and /au/ have been interpreted as one unit glides because they take the timing of a single vowel and fill the nucleus of one syllable. The /i.a/, /i.o/ are interpreted as a sequence of two vowels each vowel taking the timing of a single vowel and each filling the nucleus of a separate syllable.

5.3. The Syllable

There are five basic syllable types. They are: $v^{(v)}$, vc , $cv^{(v)}$, $c^{(v)}vc$, and $c^{(v)}v^{(v)}c$ and they contrast as follows:

$v^{(v)}$	[ó ^u]	/áu/	'yes'
$v.cv$	[áə ^h ']	/áka'/	'he'
$v.cvc$	[ʌbí ⁿ]	/abín/	'floor'
$vc.cvc$	[ímgáí]	/ímgád/	'co-wife'
$vc.cú$	[ámgu']	/ámgu'/	'mountain'
$cv.cvc$	[mám ⁿ]	/mámin/	'hot'
$cv^v.cvc$	[k ^h á'yóp ^h]	/káiyów'/	'moon'
$v.cvc$	[ʌbí ^f ']	/abíd'/	'sky'
$cv.vc$	[t ^h íóp ^h]	/tíów/	'sour'
$cv.cv$	[wát ^h i]	/wáti/	'fence'
$cvc.cv$	[wʌn'bi]	/wan'bi/	'I was eating'
$cvc.cvc$	[nígb ⁿ ']	/nígbin'/	'gums of mouth'
$cvc.vc$	[nʌgál']	/nagál'/	'shoulder'
cv^vc	[k ^h ám]	/kaim/	'blood'
cvc	[k ^h ám']	/kám/	'your'
c^vc	[k ^w éí]	/kuég/	'grasshopper'
c^vv^c	[k ^w é't ^h]	/kuéit/	'sugar'

Syllable continued

The general pattern for syllable breaks is that they occur: 1. between a vowel and a following intervocalic consonant which starts the next syllable, 2. between two contiguous consonants, 3. between two full vowels such as /i.a/ and /i.o/ and 4. following the intervocalic /g/.

Examples:

- | | |
|-----------------------|-------------------|
| 1. /ta'.dó.ka.bá'.wé/ | 'are you coming?' |
| 2. /ám.gu'/ | 'mountain' |
| 3. /fí.áw/ | 'slowly' |
| 4. /ta.dóg'.in/ | 'not coming' |

6. Distribution

6.1. Consonants

All consonants occur syllable initial and syllable final except for /b/, /f/ and /y/ which occur only syllable initial. All consonants occur intervocalically. However, /k/ and /g/ have never been observed to occur between /u/ and /i/ or between /u/ and /e/, e.g. */uki/, */ugi/, */uke/ and */uge/ are forbidden sequences. The /w/ is not followed by /u/ and /y/ is not followed by /i/. It is only rarely that diverse consonants of the same point of articulation such as /s.n/ or /m.b/ occur as clusters.

6.2 Vowels

All vowels occur in the nucleus of both open and closed syllables with /u/ following a velar stop, and preceding a vowel the /u/ forms part of the onset of the syllable as in /kuina/ 'afternoon'. The vowel glides of /ai/ and /au/ occur word initial, medial and final and /ei/ occurs word medial and final. The vowels /i/, /e/, /a/, /u/ occur word initial, medial and final and /o/ occurs word medial and final.

6.3. Syllable Distribution

The *v* syllable occurs only word initial, other syllable types occur in all positions. The *v*^(v) syllable occurs by itself only in the word /áu/ 'yes' or as nonsense syllables in songs /é/, /á/, /áu/.

The number of syllables in phonological words has been observed to be up to five syllables. The syllables are distributed in the phonological words as stressed or unstressed units. The stressed syllables play an important part with the pitch to make the characteristic rhythm pattern of the phonological phrase.

7. The Phonological Word

The word is determined by the allophones, the pitch and the distribution of syllable types. The [g], [w], [b] and [ŋ] never occur word final. The *v* syllable never occurs word final. There are also certain stress and pitch characteristics which set off words.

7.1. Stress

Stress is determined by loudness, length and clarity of the vowel nucleus. All vowels as well as vowel glide /ai/ can be stressed or unstressed with the exception of /o/ which is always stressed. The vowel glides /au/ and /ei/ are always stressed. Stress is contrastive on the syllable level (see section 2.4. on stress contrasts). When stress is distributed in the phonological phrase it does not perturb except in four instances:

1. if a series of non-stress words are said phrase initial and one of them is high pitch it will be stressed,
/mădănkún kúm kál átabí kó/ becomes
/mădănkún kúm kál átabí ko/ or
/madankún' kum kál' átabí' kó/ 'I see eleven ribs.'
(# indicates low pitch, generally left unmarked.)

Stress continued

2. The person tense suffix of the verb is unstressed except when followed by question marker suffix and then it is stressed,

/un'-baw/ /un'baw/ 'you go.'

/un-báw-ako/ /unbá'wakó/ 'you go?'

/un-báw-e/ /unbá'wé/ 'you go?'

3. If the verb stem is unstressed then in the 2nd person singular imperative form in which the first syllable of the imperative suffix is normally unstressed, it becomes stressed,

/téin'-aló/ /téin'aló/ 'you stay!'

/wan'-álo/ /waná'ló/ 'you eat!'

4. In verb stems which end with a consonant and add a vowel consonant for the punctiliar suffix the stress on the stem becomes unstressed and the punctiliar suffix is stressed.

/bák'/ 'to talk'

/bak=ód'/ /bakód'/ 'to talk completed action'.

7.2. Pitch

The pitch pattern is one of the unique features of this language. The three classes of words noun, modifier, and verb each have their own patterns of pitch. The functional load of pitch is low with only a few minimal pairs with pitch differences. There are, however, many analogous pairs with pitch differences.

7.2.1 Pitch on Nouns

The nouns have one level pitch except in the case of the compounded nouns and then the two nouns put together retain their original pitch e.g. /kun'/ 'bone' is a high pitch word and the various body parts having high or low pitch are said with /kun'/ retain their pitch giving the word two pitches if it is low pitch,

Pitch on Verbs continued

If the first stressed syllable is high pitch then low, high follows on succeeding syllables. Unstressed syllables do not have a distinctive pitch except on the verb stem or the last syllable of the verb. The number of syllables, or what type of stressed or unstressed syllable are added to the verb stem, determine whether the first stressed syllable is low or high pitch. The verb stems have one or two syllables, some are unstressed, some have one stressed syllable and some have two stressed syllables. The verb stem is on a level pitch of high or low even if it has two stressed syllables.

Rules and examples for verb pitch:

1. If one syllable follows the verb stem, the stem which has a basic pitch of high will perturb the following syllable to low, and if low it will perturb the following syllable to high. If an unstressed verb stem is followed by a high pitched stressed syllable, the stressed syllable will perturb the stem to low. A stressed low pitch syllable following the verb stem has not been observed.

Stem	Stem plus one syllable		
/fúː/	/fúːdi'/	= /fúdi'/	'I just now cooked it.'
/fé/	/fé'di/	= /fé'di/	'I just now looked for it'
/fásúː/	/fásúːdi'/	= /fásúdi'/	'I just now grew it.'
/un'/	/un'bi/	= /un'bi/	'I was going.'
/un'/	/un'sé/	= /un'sé/	'He was there going.'
/fúː/	/fúːsé/	= /fúsé/	'He was there cooking.'
/fé/	/fén'sé/	= /fén'sé/	'He was there looking.'

2. When the verb stem is followed by two or more syllables, pitch difference on the verb stems disappear. When the verb stem is followed by more than one unstressed syllable the stem is perturbed to all high with the suffixal

Rules and examples of verb pitch continued

syllables progressively falling to low.

/fú' /	/fú'namsa /	'He was cooking it for me some time before today.'
/fé' /	/fé'namsa /	'He was finding it for me some time before today.'
/fású' /	/fású'namsa /	'He was growing it for me some time before today.'

3. When the verb stem with the punctiliar suffix is followed by more than one unstressed syllable, the verb stems which end with vowel are perturbed to high and the verb stems which end with consonant are perturbed to low.

/fú' /	/fú'dawsa /	'He cooked for him some time before today.'
/fé' /	/fé'dawsa /	'He looked for it for him some time before today.'
/fású' /	/fású'dawsa /	'He grew it for him some time before today.'
/bák' /	/ba'kó'dawsa /	'He said it to him some time before today.'
=	/bakó'dawsa /	

4. When there is more than one syllable following the stem with the continuative aspect and the first stressed syllable in the suffixes is a low pitched syllable, the verb stem is perturbed to high pitch and the unstressed syllables in between graduate from high to low and any unstressed syllables following the low pitch will graduate to high.

/fú' /	/fú'kamó'kabi' /	= /fú'kamókabi' /	'I will be cooking for you.'
/fé' /	/fén'kamó'kabi' /	= /fén'kamókabi' /	'I will be finding it for you.'
/bák' /	/bá'kakamó'kabi' /	= /bá'kakamókabi' /	'I will be talking to you.'

Rules and examples of verb pitch continued

5. When there is more than one syllable following the stem with the punctiliar suffix, the first stressed syllable of the suffixes being a low pitched syllable, the verb stem which ends with vowel is perturbed to high pitch, the verb stem which ends with consonant is perturbed to low pitch and the punctiliar suffix takes high pitch. The unstressed syllables graduate in pitch between the stressed syllables and following the stressed syllable.

/fú' / /fú'dawó[~]kabi' / /fú'dawókabi' / 'I will have cooked for him.'

/fású[~] / /fású'dawó[~]kabi' / /fású'dawókabi' / 'I will have grown it for him.'

/bák' / /ba[~]kó'dawó[~]kabi' / /bakó'dawókabi' / 'I will have said it to him.'

6. When more than one syllable follows the stem and the first stressed syllable of the suffixes is high pitch then the stem and stressed punctiliar suffix is perturbed to low pitch with unstressed syllables graduating to the high pitch.

/fú' / /fú[~]dawasé' / /fúdawasé' / 'He cooked it there for him.'

/bák' / /ba[~]kó[~]dawasé' / /bakódawasé' / 'He said it there to him.'

The suffixes which follow the stem and are stressed are as follows:

- ókab future tense marker is low pitch and does not perturb.
- akó question marker is low pitch and does not perturb.
- é question marker is low pitch or high pitch which is *determined by the kind of question asked, see section 8 on phonological phrase*. Also the number of syllables following the stem determines it's pitch.
- ógin negative marker with high pitch and does not perturb.

Stressed verb suffixes continued

- bé, -sé,
-sí, -sú tense, aspect, and person marker are high pitch but are perturbed when they are the only syllable following the stem, see section 7.2.3. page 18.
- ód, -éd punctiliar aspect has a pitch determined by the syllables which follow, see rules 5. and 6. page 20.

8. Phonological Phrase

The phrase retains the stress of the syllables with added stress on the first and last stressed syllables. The end of the phrase is characterized by a low pitch on /ko/ and a pause. Any word said in isolation can take the characteristics of the phonological phrase. Therefore, pitch of nouns can not be deduced from their citation forms.

/Béla' kinim' dú* kúm' fén'kamó* kabi' kó*./

/Béla' kinim' dúkúm' fén'kamókabi' kó./

'This big man I will find for you.'

/Dú* kúm' kó*./ /Dúkúm kó./ 'It is big.'

There are two phrases which are exceptions to the general pattern and they are the ones which state an alternative or inclusive idea. These phrases also alter the pitch pattern.

/unó* kabáwé' ± ta' dó* kabáwé' / or /unókabáwé' ± tadókabáwé' /
'Are you going or are you coming?'

/kínim* é wánag* é/ becomes /kínim é' wánag' é/ 'man or woman'

The inclusive phrase takes the same pitch pattern as the alternative phrase.

/kínim só' wánag' só/ 'the men and the women too.'

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Footnote #1.

The Faiwol language is spoken by approximately 2500 people who live at the headwaters of the Fly river, the northern part of the Western District of Papua. Olsobip is the government patrol post. The language has been studied by the author from 1968 to May, 1970 with the help of several informants from the central dialect which is in the area of the patrol post.