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# Porohanon phonology: An acoustic description

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## 1. Porohanon: A Bisayan variety

Porohanon (ISO 639-3 code prh) is spoken in the Camotes Islands, situated between the provinces of Cebu and Leyte, in the Visayas Region, Central Philippines. Classified as “Vigorous” (6a) on the Expanded Graded Intergenerational Disruption Scale (EGIDS) (Simons & Fennig 2017), it was reported to be spoken by around 23,000 people in 1960 (Wolff 1967).

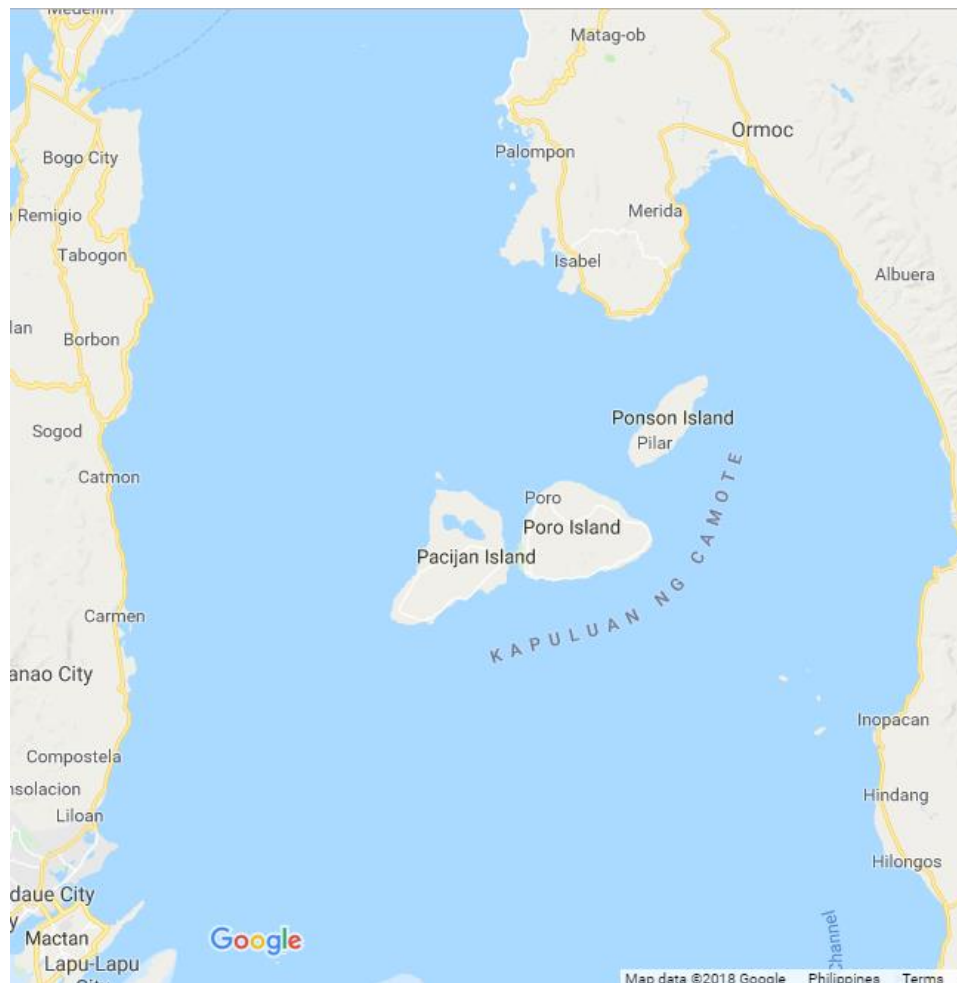


Figure 1. Google Maps. (2018). *Camotes Islands*. Map data ©2018 Google. Retrieved 16 May, 2018

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It was Wolff (1967) who first published a linguistic description of Porohanon—calling it the “Camotes dialect” (p. 63). Despite his recognition of a substantial number of shibboleths including Porohanon’s (1) case-marking system (*construction markers and the meanings which they distinguish*), (2) deictic expressions (*the conjugation and distribution of adverbs referring to place*), and (3) intonation (*the way in which slow, careful speech forms and the rapid forms alternate*), Wolff considered Porohanon already a dialect of Cebuano Bisayan. Nevertheless, he forwarded the hypothesis that Porohanon could be what remains of an earlier, non-Cebuano Bisayan substrate due to the very nature of these acknowledged shibboleths. According to him, “These features are not of a type that can be transferred from language to language” (p. 64).

Zorc (1977) also accounted for Porohanon in his monumental study of the Bisayan languages and dialects. His seems to be the first published work that recognized the endonym “Porohanon” (*puruhánun*) (Zorc 1977, p. 14) alongside Wolff’s “Camotes dialect”.

Setting aside pending questions on internal subgrouping and mutual intelligibility with other surrounding languages, I will be referring to Porohanon as simply a “Bisayan *variety*” for now.

## 2. Objectives and Scope

This paper is a preliminary investigation of some of the salient features of Porohanon’s phonology. Past accounts of Porohanon’s phonemic inventory and syllable structure are reviewed using the methods of acoustic phonetics. In particular, the Praat Speech Analyzer Program and JPlot Formants were used to aid in the analyses.

## 3. Articulatory accounts of the Porohanon phonemic inventory

Wolff (1967) and Zorc (1977) present nearly identical inventories for Porohanon’s consonants and vowels. Uncontroversial (and typical Central Philippine) are the following 16 consonants present in both linguists’ inventories:

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d				k g			ʔ
Nasal	m			n				ŋ			
Trill				r							
Tap or Flap											
Fricative				s							h
Lateral fricative											
Approximant	W						j				
Lateral approximant				l							

Figure 2. Inventory of Porohanon Consonants (Initial)

As with the majority of Bisayan varieties, Porohanon mainly distinguishes three vowels: a high front vowel /i/, a low vowel /a/, and a high back vowel /u/ (Wolff 1967, p. 67; Zorc 1977, p. 48).

### 3.1. A closer look at Porohanon /z/

One sound merits special attention in the Porohanon system: a voiced alveolar fricative /z/. Figure 3 is an extracted token of /z/ from the word [ma. 'ʔa:.zu] 'good' showing (1) the distinctive turbulent waveform typical of sibilants and (2) the spectral slice displaying traces of a voice bar.

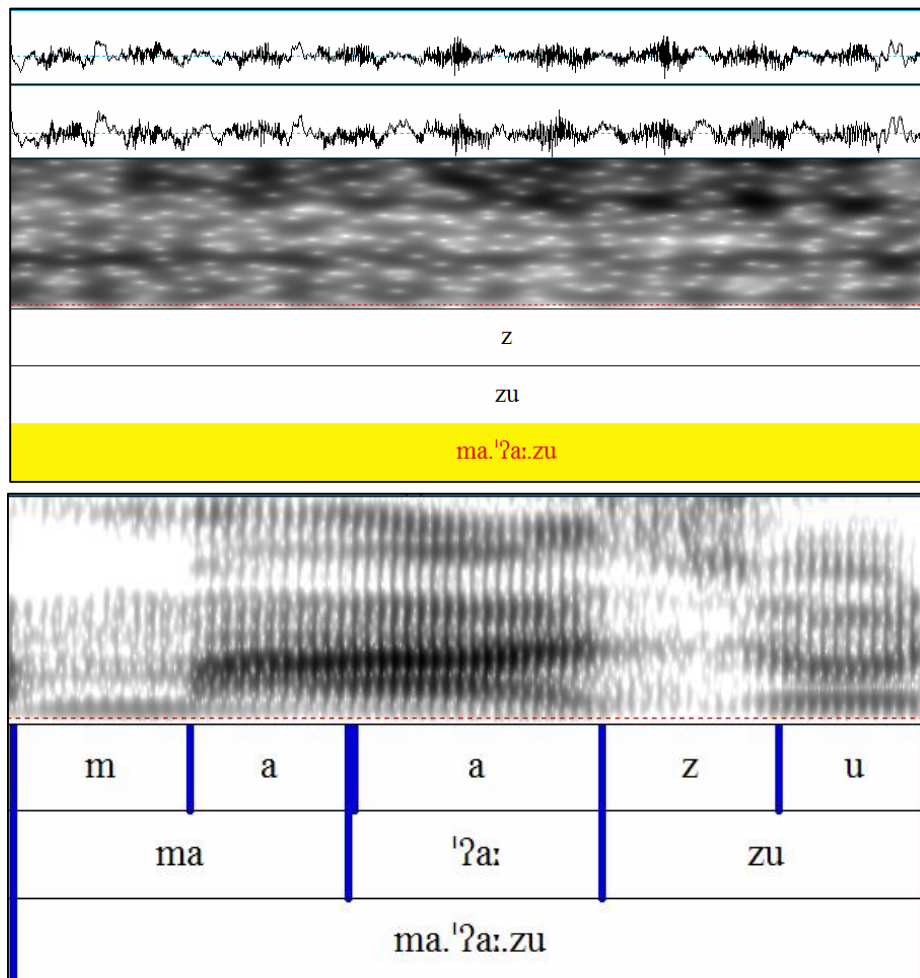


Figure 3. Waveform and Spectrogram of [ma. 'ʔa:.zu] 'good'

Wolff (1967) analyzed /z/ as coming from “an earlier prevocalic \*/y/” (p. 78) and that it has become contrastive with the present-day glide /j/ due to the influx of copied forms (presumably, from Cebuano-Bisayan) still reflecting prevocalic /j/. Figure 4 lists a number of Porohanon forms with prevocalic /z/ corresponding with Cebuano-Bisayan prevocalic /j/:

Porohanon	Cebuano-Bisayan
[ 'ha:.zup] 'animal'	[ 'ha:.jup] 'animal'
[ti. 'zan] 'belly'	[ti. 'jan] 'belly'
[hu. 'zup] 'blow'	[hu. 'jup] 'blow, send forth a strong current of air'
[pu. 'za] 'child'	[pu. 'ja] 'baby (infant)'
[la. 'zuʔ] 'far'	[la. 'juʔ] 'far'
[ 'ka:.zu] 'fire'	[ka. 'la:.ju] 'fire'
[si. 'za] 3SG.ABS.PERS	[si. 'ja] 3SG.ABS.PERS
[ 'ba:.zi] 'woman'	[ba. 'ba:.ji] 'woman'
[ 'za:.waʔ] 'devil/demon'	[ 'ja:.waʔ] 'demon, devil, evil spirit'

Figure 4. Porohanon forms with prevocalic /z/ (elicited using Comrie and Smith's 1977 wordlist supplied by Bowern 2014) and their Cebuano-Bisayan equivalents (glosses from Cabonce 1983)

Nevertheless, Porohanon retains /j/ elsewhere, i.e. preconsonantal and word-final position. The following forms exemplify this: ['tu:.tuj] 'breast', ['dʒu:.taj] 'few', [da. 'gaj.daj] 'flow', and [ga. 'maj] 'small'.

### 3.2. The vowel space of Porohanon

30 tokens of each of the three purported vowels of Porohanon were segmented from the audio data. Formants (F1 and F2) were drawn from the middle, most stable portion of each vowel token. Environments with glides ([w,j]\_ ; \_[w,j]) were purposefully excluded in the sampling to avoid assimilation.

Figure 5 below shows the vowel space generated for Porohanon:

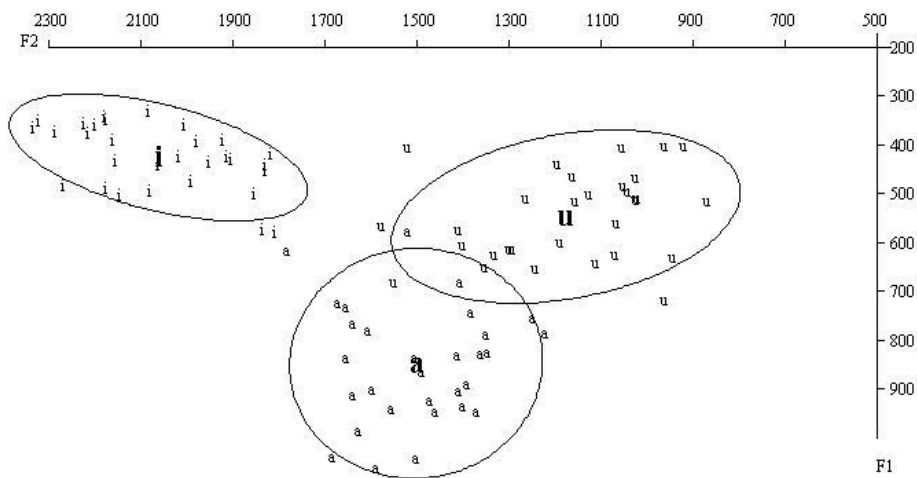


Figure 5. Vowel Space for Porohanon

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The plotted vowels shown in Figure 5 exhibit considerable variation in articulation (and overlap) between /a/ and /u/. Meanwhile, the high front /i/ occupies a smaller articulatory region separate from the other two vowels.

The following table lists the mean formant values in Hertz (Hz) for each of the three vowels.

Vowel	F1(Hz)	F2 (Hz)
/i/	450	2060
/a/	850	1500
/u/	550	1200

For reference, see the following table and plot (Figure 6) comparing the mean formant values of the Porohanon and Cebuano Bisayan (delos Reyes, et al. 2009) vowels:

Vowel	F1(Hz)		F2 (Hz)	
	Porohanon	Cebuano Bisayan	Porohanon	Cebuano Bisayan
/i/	450	421	2060	1935
/a/	850	817	1500	1636
/u/	550	588	1200	1099

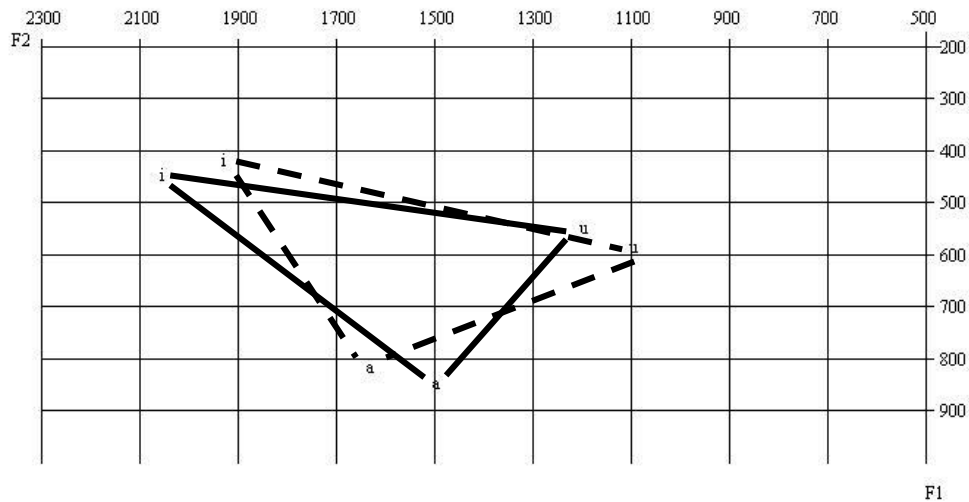


Figure 6. Mean Vowel Articulations of Porohanon (Solid Line) and Cebuano Bisayan (Broken Line)

#### 4. Porohanon syllable structure

The canonical syllable shape for Porohanon is (C)CV(C)(C). Complex onsets of up to two (2) consonants are observed mainly in copied forms, e.g. ['tris] 'three', ['dɾaj.bir] 'driver'. Although, syncope in indigenous forms may also result in such onsets, e.g. [di.'ri] > ['dri] DEI.PROX.

A special kind of complex coda consistently involving the bilabial approximant /w/ results from certain reduced forms also observed by Tanangkingsing (2011) in Cebuano Bisayan. Comparative evidence from more conservative Binisaya varieties such as those spoken in Mindanao suggests that these forms all exhibited an intervocalic /l/; the deletion of which results in either (1) the merging of the two consecutive /u/'s or /a/'s and subsequent lengthening of the single vowel nucleus (formalized by Tanangkingsing in the rule /l/ → ∅ / [+back vowel]\_[+back vowel]) or (2) in cases where you have two different vowels left, there is an epenthetic /w/ (/l/ → [w] / [+back vowel]\_[+back vowel]) (Tanangkingsing 2011, p. 22).

A Porohanon example of the phenomenon in (1) is shown in Figure 7 featuring the word [pa.'ɲa:n] 'name' ([pa.'ɲa:.lan] in other varieties).

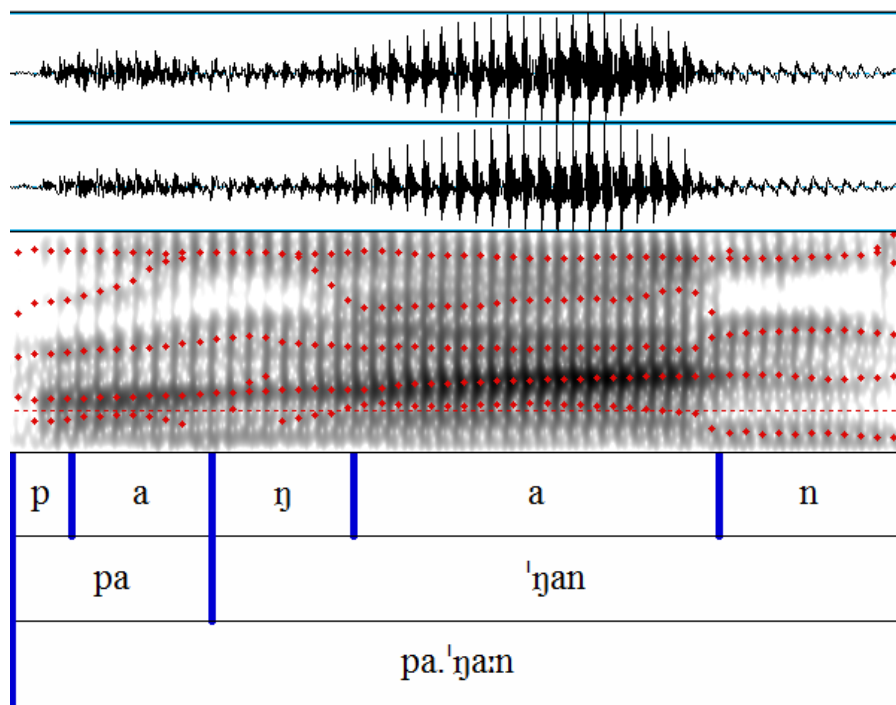


Figure 7. Reduction and Compensatory Lengthening in Porohanon [pa.'ɲa:n] 'name'

The duration of the segment /a/ in the ultimate syllable (**0.138 sec**) is *more than double* the duration of the segment /a/ in the penultimate syllable (**0.053 sec**).

Meanwhile, the phenomenon mentioned in (2) earlier can be observed in the word [ʔi. 'lawm] 'under' ([ʔi. 'la:.lum] in other varieties), shown in Figure 8 below:

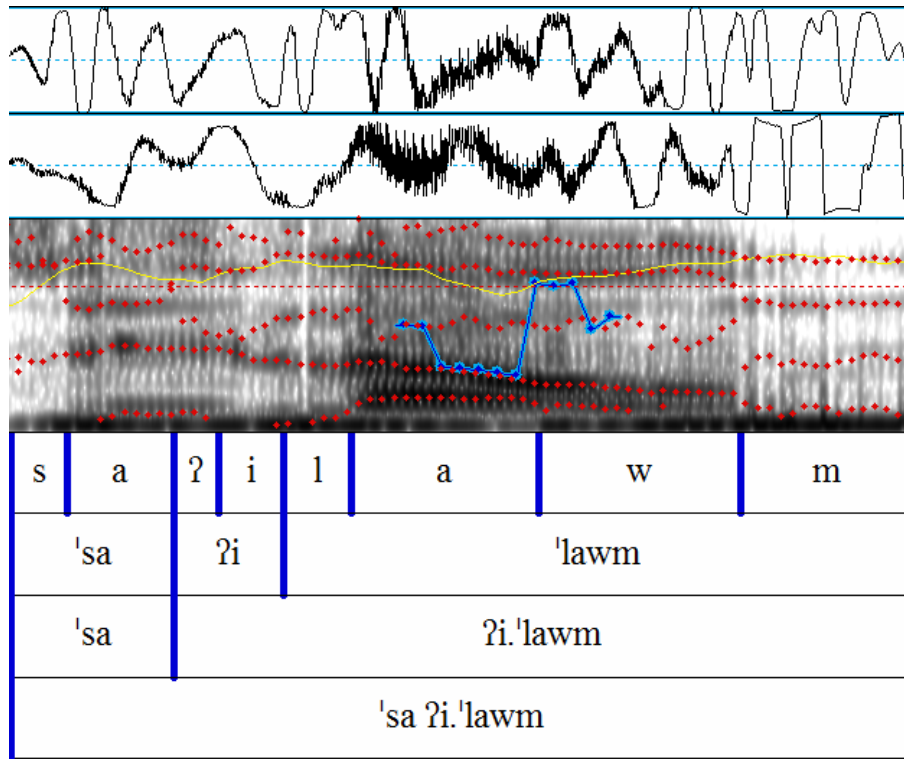


Figure 8. Reduction and Epenthetic /w/ in [ʔi. 'lawm] 'under'

The final two spectral segments corresponding to the glide /w/ and the nasal coda /m/, besides the single, continuous, steadily-rising intensity contour (fine light line on spectrogram), suggest that the glide-nasal series [wm] can be analyzed as constituting the coda of the word's ultimate syllable.

## 5. Conclusion

The study reviewed some earlier accounts of Porohanon's consonantal and vowel inventory and syllable structure. With the aid of acoustic phonetic software, the Praat Speech Analyzer Program and JPlot Formants, some fundamental properties of Porohanon's phonological system were given a firmer grounding to facilitate further and more comprehensive descriptions of the variety's phonological and morphosyntactic structures.



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