

The Distribution of Consonants and Vowels in Hawaiian
Disyllabic Base Words Without an Initial Consonant

This small article continues the search for principles of organization of words and the distribution of consonants and vowels in 1595 disyllabic base words found in *Hawaiian Dictionary*, 1986. The Table 1 presents 9 nuclei patterns found in disyllabic base words. At the left edge of the Table 1 are written 8 initial consonants: C1 of disyllabic base words: four obstruents: /' ,h,k,p/, four sonorants: /l,m,n,w/, and O1, at the bottom, for words without a consonant in the initial position. This group, marked O1, consisting of only 147 words, is of interest in this article.

Table 1

This table presents the Nine Nuclei Patterns in Hawaiian:

	1	2	3	4	5	6	7	8	9	
	v-v	V-V	VV-VV	V-VV	v-VV	VV-v	VV-V	v-V	V-v	
C1										
'	100	24	7	17	29	12+1	8	24	---	
k	110	53	7	50	14	18+1	9	15	4	
h	108	20	6	26	17	14	6	12	1	
p	94	33	3	31	14	14+1	6	16	---	
l	101	18	1	11	2	7	3	---	---	
m	77	24	5	19	19	16	1	9	8	
n	98	11	1	6	9	10	2	6	1	
w	40	2	4	3	---	5	2	1	1	
O1	100	9	2	3	11	7	6	8	1	147

	828	194	36	166	115	106	43	91	16	

The Nine Nuclei Patterns are marked like this: the lower case v indicates a short vowel, upper case V indicates a long vowel, and VV indicates a diphthong. The dash divides the nuclei of both syllables. The Table 1 shows, that this small group of 147 words without C1, marked by O1, has words in all Nine Patterns but with a smaller number of words. The only exception is the Pattern N1 (v-v) with both vowels short. It has 100 words out of 147. Their first syllables contain only simple vowels: /a,e,i,o,u/. The other Patterns: 2-9, have only 47 words, but their first syllables may have short, long vowels and diphthongs.

Please note that the first syllable of all these 147 words has only vowels and no consonants. This makes this group of disyllabic base words very special, since it stresses the importance of vowels in the structure of these words, hence this group differs significantly from all other 8 groups of disyllabic base words of the Hawaiian language.

Of interest is, that the first syllable of all these 147 disyllabic words in Pattern N1 contains only simple vowels /a,e,i,o,u/ and no consonants in the Pattern N1 of 100 words, while Patterns 2-9 in their first syllables of 47 words contain: short, long vowels and diphthongs and also no consonants.

The presence of only vowels in the first syllable shows the significance and role of vowels in Hawaiian. The Pattern N1 (v-v), with both vowels short has 100 words out of 147. In all other groups of disyllabic words, the Pattern N1, with short vowels, also has the biggest number of words. Below are written Pattern N1 words in columns with initial short vowels: /a,e,i,o,u/.

1. Pattern N1 (v-v) of words without an initial consonant C1 = O1:

v(a)-v	v(e)-v	v(i)-v	v(o)-v	v(u)-v
<hr/>				
Words beginning with vowels and followed with obstruents: /',k,h,p/ as C2: 45				
a 'a	e 'e	i 'a	o'a	u ' i
a 'e	e hu	i 'e	o'o	u ha
a 'o	e ko	i 'i	o'u	u he
a 'u		i he	o ha	u hi
a he		i hi	o hi	u hu
a hi		i ho	o ho	u ka
aho		i hu	o ka	u ki
a hu		i ka	o ki	u ku
a ka		i ki	o ko	
a ke		i po		
a ka		i pu		
a ku				
a po				
a pu				

Words beginning with vowels and followed with sonorants: /l,m,n,w/ as C2: 48				
a la	e mi	i li	o la	u la
a le	e mu	i lo	o le	u le
a li	e ne	i mu	o li	u li
a lo	e wa	i na	o lo	u lu
a lu		i ne	o ma	u ma
a ma		i nu	o mo	u me
a mo		i wa	o na	u mo
a mu		i wi	o ne	u mu
a na			o ni	u na
a ne			o no	u ne
a ni				u nu
a no				
a nu				
a wa				
a we				

 Words of Pattern N1 without C2 in the second syllable: 7

-	e a	i o	o e	u a	
-	e o			u e	7
				u i	

 29 9 20 20 22 100

The 100 words with simple initial vowels within the first syllable were put separately from words of Patterns 2-9 (below) with the first syllable having: short, long vowels and diphthongs. These 100 words have 45 words with obstruents: /' ,h,k,p/ as C2, an initial consonant of the second syllable, and 48 words with sonorants: /l,m,n,w/ as C2. They all have only 7 words without C2, an initial consonant of the second syllable. It means, that they have no consonants at all. Within these 7 words there is not one word with the [low] vowel /a/ in the first syllable.

Out of 100 words of Pattern N1(v-v), only 9 words begin with the [mid] vowel /e/. There are 3 words with initial obstruents /' ,h,k,p/ as C2, 4 words with initial sonorants /l,m,n,w/ as C2, and 2 words without C2: *e a*. n. 'Sovereignty, rule, independence' and *e o*. v. 'To lose, be defeated.' The other 5 words out of 7 without the C2, an initial consonant of the second syllable are: *i o*. n. 'Short rib,' *o e*. nv. 'Prolonged sound or thing,' *u a*. nvi. 'Rain, to rain', *u e*. vt. 'To jerk, pull,' *u i*. nv. 'To ask, question, appeal.' These last 5 words contain only short vowels.

Of interest is, that the group of 29 words with an initial [low] vowel /a/ has all 29 words with C2. The group of words with the initial [low] /a/ is the biggest, while the group with initial [mid] /e/ is the smallest. The group of words with the initial /i/ has 20 words, the group with initial /o/ has 20 words, and the group of words with the initial vowel /u/ has 22 words.

2. Patterns N2-9 of 147 words without an initial consonant: 47

2	3	4	5	6	7	8	9
V-V	VV-VV	V-VV	v-VV	VV-v	VV-V	v-V	V-v
a: he:	au lau	a:lai	a lau	ai na	au ha:	a ka:	e: we
a:mu:		a:nai.	o loi	au ka	au ku:	i ko:	
a:wa:		a:pau	o'ou	ei na	au la:	i ku:	
e:ha:			u hae	ou wa	oi ku:	u na:	
i:ka:							
o:pu:			u hai				
o:wi:			u hao				
u:pe:			u hau				
u:ko:			ulei=hulei				
			u pai				

Words of the Patterns N2-9 without C2 in the second syllable:

-	ae ae	-	u ai	ai a	au e:	e o:	-	
-		-	u oi	au a	au i:	o i:	-	12
				ei a		u e:		
						u o:		
9	2	3	11	7	6	8	1	47

In the Patterns N2-9 there are 47 disyllabic base words without C1. Out of these 47 words 12 words are also without C2, the initial consonant of the second syllable. Within their first syllable this group of 47 words was found having short, long vowels, and diphthongs.

Short vowels were found in 11 words in Pattern N5, of which 9 words have initial vowels: /a,o,u/ and 2 words: *u ai*, and *u oi* without C2; they all have diphthongs in the second syllable. 8 words were found in Pattern N8, with short initial vowels, where 4 words: *a ka:*, *i ko:*, *i ku:*, *u na:* have C2, while the other 4: *e o:*, *o i:*, *u e:*, *u o:* do not have C2. Hence, after short initial vowels in the first syllable we found diphthongs in the second syllable in one group: PN5, while in the other group PN8 we see long vowels.

Long vowels (marked by a colon) were found in 9 words in Patterns N2 with initial vowels /a,e,i,o,u:/ and all words having C2; and 3 words in Pattern N4, all words with initial long /a:/ and also having C2. Hence, long vowels have the presence of C2, an initial consonant of the second syllable. C2 was also not lost in words with initial long vowels, see above the 9 words of Pattern N2 with both vowels long, and words of Patterns N4 and N9, which have long vowels within the first syllable. Hence, in these words, the length of the first vowel looks to be decisive for the presence of C2, an initial consonant of the second syllable.

Diphthongs in the first syllable were found in 16 words. They were found in 2 words of Pattern N3: *au lau* and *ae ae*, the second word without C2, but both words have diphthongs. And 7 words were found in Pattern N6: *ai na*, *au ka*, *ei na*, *ou wa*, but *ai a*, *au a*, *ei a*, the last 3 words are without C2, but all second syllables of 7 words having the final short /a/. And words with initial diphthongs were found also in 6 words of Pattern N7: *au ha:*, *au ku:*, *au la:*, *oi ku:*, *au e:*, *au i:*. The last two words are without C2, but all 6 words have a long final vowel, while diphthong au prevails in the initial syllable: 5 out of 6 words, with C2 and without C2.

Short, long vowels and diphthongs in Patterns 2-9 words could also be shown like this:

Short initial vowels were found in 11 words of Pattern N5 (v-VV) with initial vowels: /a,o,u/ in 9 words: *a lau*, *o loi*, *o 'ou*, *u hae*, *u hai*, *u hao*, *u hau*, *u lei*, *u pai*, with C2, and 2 words: *u ai*, *u oi*, with final diphthongs, but without C2. Short initial vowels were found also in 8 words of Pattern N8 (v-V), which has four words with C2: *a ka:*, *i ko:*, *i ku:*, *u na:*, and four words without C2: *e o:*, *o i:*, *u e:*, *u o:*, but all these 8 words have a long final vowel.

Long initial vowels were found in 9 words of Pattern N2 (V-V) with initial long vowels: /a,e,i,o,u/: *a: he:*, *a: mu:*, *a: wa:*, *e: ha:*, *i: ka:*, *o: pu:*, *o: wi:*, *u: pe:*, *u: ko:*, all these words having C2; and in 3 words of Pattern N4 (V-VV) with initial /a/: *a: lai*, *a: nai*, *a: pau*, all having C2 in words after initial long vowels. Also, in one word of Pattern N9 (V-v) which also has C2: *e: we*. nvi. 'Sprout, rootlet; to sprout,' C2 follows the long initial /e/: *e: we*.

Hence, in all these 13 words of Patterns N2, N4 and N9 the initial long vowels preserve C2, the consonant of the second syllable. Diphthongs as initial vowels were found in Pattern N3 (VV-VV) in only 2 words: *au lau* and *ae ae*, but with the second word without C2, the consonant of the second syllable. In the Pattern N6 (VV-v) out of 7 words 4 words: *ai na*, *au ka*, *ei na*, *ou wa*, have C2, while 3 words were found without C2: *ai a*, *au a*, *ei a*, but all 7 words have a final short /a/. In the Pattern N7 (VV-V) of 6 words, 4 words: *au ha:*, *au ku:*, *au la:*, *oi ku:* are with C2, while 2 words: *au e:* and *au i:* were found without C2, but all 6 words, with and without C2, have a long final vowel.

Above shown distribution of vowels and consonants within disyllabic base words without C1, an initial consonant, reveal how complex and intricate this distribution of consonants and vowels is in Hawaiian. The importance of vowels in this language is on display here.

We see how complex and intricate is the distribution of consonants and vowels in this open-syllable Hawaiian language, which has only 8 consonants: 4 voiced sonorants and 4 voiceless obstruents. It also has 25 vowels: short, long and diphthongs, out of which some words are constructed without visible presence of consonants. Together, consonants and vowels present a complex, quite sophisticated and intriguing system of sound organization of the base words in the Hawaiian language, which is and should be of great interest to researchers.

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