

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. Table 1 presents 9 nuclei patterns found during research into disyllabic base words. At the left edge of Table 1 are written 8 initial consonants: C1 of Hawaiian 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 for this article.

Table 1
This table presents the Nine Nuclei Patterns in Hawaiian:

C1	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	
'	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. Table 1 shows that this small group of 147 words without C1, marked by O1, has words in all 9 Patterns, but with a smaller number of words. The only exception is Pattern N1 (v-v) with both vowels short. It has 100 words out of 147. Both syllables in this pattern, see below, 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, or long vowels, or diphthongs. Within the 100 words of Pattern N1 there are 7 words without C2, the consonant of the second syllable. Please note that the first syllables of all these 147 words have only vowels and no consonants. This makes this group of disyllabic base words very special, since it exposes the importance of vowels in the structure of these words of the Hawaiian language. Hence this group of 147 words without

an initial consonant differs significantly from all other 8 groups of disyllabic base words of the Hawaiian language, which have as initial either one of 4 obstruents: /' ,h,k,p/ or one of 4 sonorants: /l,m,n,w/.

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

The presence of only vowels in the first syllable of the 147 words reveals the significance and the 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 1595 disyllabic words, the Pattern N1, with short vowels, also has the biggest number of words. (See the Table 1). Below are written Pattern N1 words in columns, with both syllables having only short vowels: /a,e,i,o,u/.

1. Words of Pattern N1 (v-v) without an initial consonant: C1 = O1 100 words

v(a)-v	v(e)-v	v(i)-v	v(o)-v	v(u)-v	
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Words beginning with initial vowels, followed by obstruents /' ,k,h,p/, as C2:					45 words
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					
<hr/>					
Words beginning with initial vowels, and followed by sonorants: /l,m,n,w/, as C2:					48 words
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, an initial consonant of the second syllable:

-	e a	i o,	o e	u a	
-	e o			u e	7 words
				u i	

29	9	20	20	22	100 words

These 100 words with only simple initial vowels within the first syllable were examined separately from words of Patterns 2-9 (below) with the first syllable having: either short, or long vowels, or a diphthong, but all also without an initial consonant. 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. 100 words also have 7 words without C2, an initial consonant of the second syllable. It means, that these 7 words have no consonants at all. Of interest is, that within these 7 words there is not one word with the [low] vowel /a/ in the first, initial, syllable. Out of 100 words of Pattern N1(v-v), only 9 words begin with the [mid] vowel /e/, which have: 3 words with obstruents /' ,h,k/ as C2, 4 words with sonorants /m,n,w/ as C2. And 2 words without C2: *e a*. n. 'Sovereignty, rule, independence', and *e o*. v. 'To lose, be defeated'. These two are of 7 words without the C2: *i o*. n. 'Short rib'; *o e*. nv. 'Prolonged sound or thing'; *u a*. nv. 'Rain, to rain!'; *u e*. v. 'To jerk, pull'; *u i*. nv. 'To ask, question, appeal'. Of significance is that only these 7 words, containing each only 2 short vowels, only these 7 words out of all 1595 disyllabic base words. This group of 7 words without both C1 and C2 stresses the importance of vowels in Hawaiian. (n. means: 'noun' , 'nv.!: 'noun or verb', etc.).

Of interest also is that the group of 29 words above 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. Words of Patterns N2-9 without an initial consonant: 47 words

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				35 words
o:wi:			u hao				
u:pe:			u hau				
u:ko:			ulei=hulei				
			u pai				

Words of Patterns N2-9 without C2 of the second syllable:						u o:		
-	ae ae	-	u ai	ai a	au e:	e o:	-	
-		-	u oi	au a	au i:	o i:	-	12 words
				ei a		u e:		

9	2	3	11	7	6	8	1	47 words

Patterns N2-9 contain 47 disyllabic base words. Out of these 47 words 12 are without C2, the initial consonant of the second syllable. Within the first syllable of these 47 words were found: short, long vowels (marked by a colon), or diphthongs. Within these 12 words without C2 there are no words of Patterns: N2, N4, and N9, which have a long initial vowel. (See above 12 words, which, as in the case of 7 words without C2, do not have the [low] vowel /a/ within the first syllable). The second syllable of these 12 words has: diphthongs in Patterns N3 and N5, short vowels in Pattern N6, and long vowels in Patterns N7 and N8.

Within these 47 words short initial vowels were found: 1) in 11 words of Pattern N5, out of which 2 words: *u ai*, and *u oi* are without C2. They all have diphthongs in the second syllable. 2) Short initial vowels were found also in 8 words of Pattern N8, with four words: *a ka:*, *i ko:*, *i ku:*, *u na:* have C2, while other 4 words: *e o:*, *o i:*, *u e:*, *u o:* do not have C2, but all 8 words have a long final vowel.

Long initial vowels were found: 9 words in Patterns N2 with long initial vowels /a:,e:,i:,o:,u:/. All these words have C2, and 3 words in Pattern N4, with initial long /a:/, are also having C2. Hence, long vowels seem to insure in these words the presence of C2, an initial consonant of the second syllable. C2 was also not lost in words after 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 determining 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. And 7 words were found in Pattern N6: *ai na*, *au ka*, *ei na*, *ou wa*, and *ai a*, *au a*, *ei a*, but the last 3 words are without C2, all with 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:*, and *au e:*, *au i:*, the last two words are without C2, but all 6 words have a long final vowel, and five words out of 6 have the diphthong /au/ in an initial syllable.

Hence, the analysis of 147 words without an initial consonant reveals in Patterns N1 and N2-9 not only the presence, but first of all, the importance of short and long vowels and diphthongs in the sound system of the Hawaiian language. In 100 words of Pattern N1, short vowels were found in the first syllable of 83 words, followed by obstruents of the second syllable in 45 and by sonorants in 48 words. The 7 words of Pattern N1 were found having only short vowels in both syllables. Of interest is: that in those 7 words there is no [low]vowel /a/ in the first syllable, and the [low]vowel /a/ is also absent in the first syllable of 12 words containing only vowels in words of Patterns N2-9.

In 47 words of Patterns N2-9 without an initial consonant were found in the initial syllable: short vowels in 13 words, long vowels in 13 words, and diphthongs in 9 words. It is 35 words whose second syllables have C2, which is either a voiceless obstruent (except glottal stop: '), or

one of the voiced sonorants. 47 it is together: 35 words with C2, and 12 words without C2, which do not have words in Patterns N2, N4, and N9. All this presents extremely interesting material.

To conclude: above presented analysis of distribution of vowels and consonants within the disyllabic base words without an initial consonant, reveals how complex and intricate this distribution is in the Hawaiian language. First of all, it stresses the importance of vowels in this language, which has only eight consonants, the smallest number out of all Polynesian languages. As for vowels of this group of 147 words without an initial consonant, it makes obvious the importance of these vowels and the length of the vowels, which in some cases looks as securing the presence of an initial consonant in the second syllable.

Although the Hawaiian Language has only 8 consonants: 4 voiceless obstruents and 4 voiced sonorants, it also has 25 vowels (see an article by Albert J Schutz 1981 'A Reanalysis of the Hawaiian Vowel System', *Oceanic Linguistics*, 20.), and diphthongs, short and long, out of which some words are constructed without visible presence of consonants (see groups of 7 and of 12 words). Together, consonants and vowels show how complex and intricate is the distribution of consonants and vowels in this language. We could assume, that Hawaiians deep inside feel it and accept. 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.

P S Comments are welcome. The article on monosyllabics was written with help from Professor Albert J. Schutz. When he read the article on disyllabics, he wrote on the first page: "You have found some interesting patterns". He was the first to recognize the importance of 9 Nuclei Patterns (Table 1), which were found in the article on disyllabic base words in Hawaiian. A.J. Schutz died just a year ago in Honolulu.

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