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On the Distribution of Consonants and Vowels in Patterns N6 and N7 of Disyllabic Base Words of Contemporary Hawaiian

This article continues the work undertaken during the analysis of the distribution of consonants and vowels in words without an initial consonant: C1= O1, and in the words of so called Nine Hawaiian Patterns of nuclei of 1595 disyllabic base words of Hawaiian, presented in Table 1 below. These Nine Hawaiian patterns are: Pattern N1: v-v; Pattern N2: V-V; Pattern N3: VV-VV; Pattern N4: V-VV; Pattern N5: v-VV; Pattern N6: VV-v; Pattern N7: VV-V; Pattern N8: v-V; Pattern N9: V-v. These nine Patterns are marked like this: the lover case v stands for a short vowel, the upper case V stands for a long vowel, and VV stands for a diphthong. The dash divides nucleus of the first syllable from the nucleus of the second syllable of these 1595 disyllabic base words. These nine nuclei contain each their own combination of vowels and diphthongs. The '+' sign marks a presence of a long diphthong in some of these words.

Table 1
The Nine Nuclei Patterns in Hawaiian:

	1	2	3	4	5	6	7	9	9	
C1	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	
						99	37			
O1	100	9	2	3	11	7	6	8	1	147
	828	194	36	166	115	106	43	91	16	

Table 1 was first done for the article on Disyllabic Base Words in Hawaiian. Below each pattern is written the number of words found with this particular nucleus. The words initial consonant is written at the left edge of the table: C1. The '+' sign marks only 3 words found with a long diphthong. The long vowels of the second syllable in words of Pattern N7 are marked by the colon.

The words of Pattern N6 and Pattern N7 have diphthongs in the first syllable and differ by the vowel's length of its second syllable: it is a short last vowel in words of Pattern N6: VV-v, and a long vowel in words of Pattern N7: VV-V. The Pattern N6 contains 99 words (106 minus 7), and there are 37 (43 minus 6) words in Pattern N7. Words of both patterns are divided into words with the initial obstruents /',h,k,p/, and words with the initial sonorants /l,n,m,w/.

Words with initial obstruents /',h,k,p/: 90

Pattern N6 words: VV-v

'ae'a	hae le	kar la	pai hi
'ae 'o	hai li	kae na	pai ho
'ai ka	hai ka	kai ko	pai ka
'ai na	hai na	kai la	pai ki
'ai na+	hao 'a	kai na	pai la
'au'a	hao'e	kao lo	pai na
ou pe	hao le	kao mi	pao 'o+
	hao ma	kao na	piu la
	hao na	kau hi	poi na
	hau li	kau la	pou li
	hau na	kau lu	
	hau pa	kau na	
	hau po	kau nu	
		kei ki	
		koi 'i	
		koi li	

Pattern N7 words: VV-V

'ai 'e:	hai na:	kai ka:	pai 'a:
'ai he:	hai wa:	kae ki:	pao ho:
'ai na:	hau ki:	kau li:	pau hu:
'au ka:	hau ko:	kai ku:	pau ku:
'au ku:		kau po:	pau ki:
'au 'i :		kau pe:	pau pu:
		kau ko:	

Words without (C2), a consonant in the second syllable:

'ae a	hei a	kae a	pai a
'au a		kai a+	pai o
'iu i		kau a	pao a
'oi a			pau a
'oi o			peu e
'ou a			

'ai a:	hai a:	kau a:	----
'ai o:	hei e:	kau o:	----

The comparison of words of Patterns N6 and N7 show significant prevalence of words with the initial obstruents /',h,k,p/. In both patterns N 6 and N 7 with initial obstruentsit is 90 words, as compared with the 46 words with initial sonorants /l,m,n,w/ (see above words with initial obstruents and words with initial sonorants.) Of special interest is that there are less words in Pattern N7 below, compared to words of Pattern N6. These differences are especially visible in words with initial sonorants of Pattern N7 compared with words of the Pattern N6, where only two words are without the initial C2 in Pattern N7 words: *mau a:* and *nau a:*. There are 11 words without C2 in Pattern N6.

Words of Patterns N6 and N7 with initial sonorants /l,m,n,w/: 48

Pattern N6 words VV-v				Pattern N7 words VV-V			
lai ki	mai 'a	nai 'a	wae le	lau ko:	mau a:	noi ku:	wai ki:
lai na	mau 'u	nai ka	wae na	lau la:		nau a:	wai pa:
		nau ki	weu ho	leu wi:			
lau na.	mai ka	noi 'i	wai ke				
lau lu	mai ko	noi 'o					
loi na	mai le	nou lu					
	mao ha						
	mao ki						
	mao li						
	mau						
	mau li						
	mau na						
	mau nu						

and words, Pattrens N6 and N7, without a consonant of the second syllable:

lau a	mao a	nai a	----	----	mau a:	nau a:	----
loi o	mau a	nai o	----	----	----	----	----
----	mae a	nau e	----	----	----	----	----
----	Mau i	nei a	wai a	----	----	----	----
7	16	10	5	3	1	2	2
	38				10		

Quite interesting is the difference in the usage of the initial sonorant /m/ and also /n/ in Pattern N7. There is only one word with the initial /m/: *mau a:* without C2, a consonant of the second syllable.The sonorant /n/ also does not have C2

in one of two words: *noi ku:* and *nau a:* of all 8 words in Pattern N7. It is easy to see the prevalence of words with the initial sonorant /m/ over words with other initial sonorants. All these words have diphhongs within the first syllable with initial sonorants, there are 38 words in Pattern N6 with the short final vowel: VV-v, while only eight words in Pattern N7 with the long final vowel: VV-V. So without C2 of the second syllable, there are less words in Pattern N7, as compared to Pattern N 6. So for the disyllabic words the quality of the second syllable is also of importance.

Especially interesting case for the analysis present 3 words found only in Pattern N6, words marked by + in table 1. These are the only words with long diphthongs in their structure.These words are: 'a:i na, n. "Land, earth".; ka:i a ., vi.1. "Fast asleep,2. to swing , as arms" ; pa:o 'o n. "Name of several varieties of 'o'opu". They all begin with an obstruents: glottal stop /'/, k and p. The sign /+/ indicates their presence. They were found only in Pattern N6. They all have a long diphthong wihin the first syllable. However, the second syllable is different by the srtructure: in '*ai na*, C2 is the sonorant /n/, in *kai a*, C2 is absent, while in *pao'o* C2 is a glottal stop. Hence we see here all possible combinations. But ,to repeat, the first syllable as initial have obstruents /',k,p,/., that is voiceless consonants. In this it resembles the findings in the analysis of the diphthong /iu/ in Hawaiian. This diphthong Is chracterized by that it can be used in the first syllable of disyllabic base words only after obstruents / , h,k,p/: hiu a,. n. " A game like checkers" ; 'iu i, n. " Ceremonial feeding by high chief ... "; piula, n."Mule, donkey". Within the second syllable they could be used after any consonant, but only when the first syllable begins with an obnstruent. These two cases: the long diphthongs marked by a /+ / and the diphthong /iu/ reveal how important for analysis of sound system of this language was the division of Hawaiian consonants into voiced sonorants /l,m,n,w/ and voiseless obstruents / ' ,h , k , p / for the understanding of these two different cases. * So it all shows how complicated , complex and sophisticated is the Hawaiian sound system, which has ony eight consonants, but quite rich and big volume of vowels.**

All this shows how enriching are the analyses of Nine Hawaiian Patterns.

* This division of Hawaiian consonants was done by me and Professor Albert J. Schutz in 2012 during the analysi of 108 monosyllabic base words ioof Hawaiian in comparison with four other Polynesian langtuages : Maori. Tahitian, Tongan and Samoan. It was the basic division of Hawaiian consonants into

voiced sonorants: l, m, n, w and voiceless : glottal stop, h, k p, which were colled obstruents. It was one of the most important findings of this research and was used in later research of (1595) disyllabic base words in Hawaiian.

** As for richness and big volume of vowels we find in 'A reanalysis of the Hawaiian vowel system' by Alfred J . Schutz, 1981, Oceanic Linguistics. 20cc (1). (pdf)