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THE PHONOLOGICAL RULES OF ATAYAL DIALECTS*

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1. INTRODUCTION

The Atayalic group occupies the northern half of Taiwan, covering eight prefectures (Taipei, Taoyuan, Hsinchu, Miaoli, Taichung, Nantou, Hualien and Ilan), with a population of 54,777 (as based on Wei and Wang 1966:5). It comprises two main languages, Atayal and Sediq. Atayal, in turn, consists of two major dialect groups, Sqliq and C?uli?.¹ I have collected extensive lexical materials for two Sqliq dialects and eight C?uli? dialects for this report.² The term "Atayal" is reserved for Atayal proper, referring only to Atayal dialects,

* This research was supported by the National Science Council Grant NSC-68H-03-01(06), Republic of China. An earlier version of this paper was presented to the bi-weekly seminar at the Institute of History and Philology, Academia Sinica, Nov. 19, 1980. I have profited from discussion with Shigeru Tsuchida, who informed me of the existence of the important C?uli? dialects included in this study. Valuable suggestions for improvement by Fang Kuei Li, Shigeru Tsuchida, Pang-hsin Ting and Hwang-cherng Gong are gratefully acknowledged.

1. The following significant phonological differences are found between Atayal and Sediq: (1) While Atayal generally retains the labial stops and nasal /p, b, m/ at the same point of articulation in the word-final position, Sediq has all changed to the velars /k, ŋ/ word-finally. (2) While Sediq generally retains the voiced stops /b, d, g/, Atayal has the corresponding voiced fricatives and liquid /β, r, ɾ/. (3) Sediq /r/ corresponds to Atayal /y/ or /z/. However, Palnawan, a C?uli? dialect of Atayal in the area of Sediq dialects, shares the above phonological features with Sediq rather than Atayal. Since lexical differences between Atayal and Sediq are much more conspicuous than phonological, they are more useful than phonological as linguistic bases for subgrouping Atayal and Sediq.
2. The Atayal material was collected between December 1978 and March 1980. My main informant for Sqliq (represented by the Pyasan dialect), Ciru? (Tao-nan Yu in Chinese, male, aged

and "Atayalic" for the entire group in this study. Only the phonological features of Atayal dialects are treated in this paper.

Squliq dialects, the prestige dialect group, are all fairly uniform, whereas Culi? dialects can be quite divergent from each other and some preserve very interesting and archaic features. Unfortunately, most of the previous linguistic publications on Atayal, such as Ogawa (1931), Egerod (1965a, b, 1966), Yamada and Liao (1974), were based on Squliq, the most "corrupted" in the sense that it has lost a lot of information for historical reconstruction. Several dialects with interesting linguistic features as presented in this paper have never been reported before.

The Atayalic group of languages has the most complex phonology and uncommon morphology among all the Formosan languages and one of the most complex in the entire Austronesian family. One purpose of this study is to resolve some of the difficulties in interpreting Atayal phonology, based on internal reconstruction.

With a better understanding of the phonology, it will be easier to identify Austronesian cognates in Atayal. Atayal has hitherto been regarded as one of the most aberrant Austronesian languages mainly because of its low percentage of cognates with other Austronesian languages, the highest being only 11.8% as based on Dyen's (1965:29) lexicostatistical study. Obviously its poorly understood

36) comes from the village of Tsejen, Fuhsing county, T'aoyuan prefecture. I have also consulted speakers of various age groups from Ulai county, Taipei prefecture, in several informant sessions, and noted very minor dialectal differences. My informants for Culi? (represented by the Maspazi? dialect) come from the village of Taai, Wufung county, Hsinchu prefecture. My Skikun informants are all residents of the Sichi village, Tat'ung county, Ilan prefecture. The Mnawyan dialect, which is linguistically and geographically very close to Skikun, is spoken in several settlements in the same county. As for the dialects of Mayrinax, Mabatuan, Matabalay and Sakuxan, they are all spoken in Taian county, Miaoli prefecture. Palawan is spoken in the village of Ch'inai, Jenai county, Nant'ou prefecture. My field investigations were conducted mostly in the Atayal native villages. In addition to my own field notes, I have also consulted the written reports on Atayal (all squliq) by Ogawa, Egerod and Yamada, and found that Egerod's are the most valuable for my purpose.

phonology constitutes part of the difficulty in identifying a number of cognates. It is hoped that a detailed account of Atayal morphophonemics as given in this paper will help to determine more cognates on a more solid basis.

A detailed account of Squliq phonology based on the Pyasan dialect is given in Section 2. The phonemic and phonetic differences in the major Atayal dialects, including Cʔuliʔ (based on the Maspaziʔ dialect), Skikun (or Mnawyan), Mayrinax, Matabalay, Sakuxan and Palnawan, their morphophonemic rules and linguistic value for comparative study are all given in Section 3. As a matter of fact, all the Atayal dialects except Pyasan treated in this paper belong to the Cʔuliʔ group.⁸

The Atayalic group has the same tendency and direction of sound change. Each change in each dialect may be independent, but parallel. The following changes, either completed or in progress depending on the individual dialect, seem to be genetically shared by most, if not all, dialects in the entire group: (1) -l > -n, (2) -t, -d (only in Sediq) > -c, (3) -b > -p, (4) -p > -k, -m > -ŋ, (5) -g > -w, -y, (6) c > s, (7) vowel-deletion before stress. Some of these changes are manifested in the speech of younger speakers. These parallel but independent changes can be explained as the "drift" of the genetically-related languages or dialects, a concept suggested by Edward Sapir early in 1921. The historical problem of the Atayalic group will be dealt with in a separate paper. The synchronic phonological description given in this paper will serve as a basis for the envisaged historical study.

I have widened the scope of linguistic study by including some aspects of sociolinguistic study. These are: What roles do age and sex play in language structure and change? Different age groups certainly have different sound systems in virtually every Atayal dialect. One of the most interesting examples for sound

3. In a talk during an informal meeting at the Institute of History and Philology, Academia Sinica, March 14, 1980, Shigeru Tsuchida proposed three linguistic bases for subgrouping Squliq and Cʔuliʔ dialects in Atayal: (1) Squliq /r/ corresponds to Cʔuliʔ /s/, e.g., /piraʔ/ vs. /pisaʔ/ 'how many,' /kiraʔ/ vs. /kisaʔ/ 'a little later.' (2) Personal pronominal forms, i.e. Squliq /sakuʔ/ or /kuʔ/ vs. Cʔuliʔ /cu/, /ci/, /su/ or /si/ 'I.' (3) Lexical differences, e.g., Squliq /ŋtaʔ/ vs. Cʔuliʔ /wayluŋ/ 'chicken,' Squliq /sasaw/ vs. Cʔuliʔ /sasiʔ/ 'shade.'

changes in progress can be drawn from the variations of speech forms exhibited in the different age groups in Skikun; see § 3. 2. 1. 2. Of all Formosan languages and dialects, the Mayrinax dialect of Atayal is the only known dialect that shows certain well-defined differences between the male and female forms of speech. The female forms of speech retain the archaic features and are the basic, whereas the corresponding male forms are the innovated and derived; see § 3. 5. 2 or Li (1980). Such sociolinguistic studies certainly have a bearing for historical interpretation.

2. SQULIQ PHONOLOGY

The phonological structure of Atayal has been studied by Egerod (1966), Hirano (1972), Yamada and Liao (1974), all in the structural approach, with detailed phonetic descriptions and examples. The following is a brief summary of Atayal phonetics and phonology, together with some of my own observations. As for the extensive discussion of morphophonemic alternations in Atayal given in § 2. 4 below, it is mostly my own, but I owe much to Egerod's (1965a) earlier observations of verb inflexion and touched on them in an earlier paper of mine (Li 1977b).

The phonology of the Squliq dialect of Pyasan is discussed below. The dialectal differences in Atayal will be noted here and there and discussed in greater detail in § 3. Squliq is considered the prestige major dialect of Atayal. It is fairly uniform among all the sub-dialects of Squliq.

2.1 Consonants⁴

Alv.-						
Lao.	Alv.	pal.	Vel.	Uvu.	Pha.	Glo.
p	t	c	k	q		ʔ
b [β]	r	z	g [ɣ]			
		s	x		h	
	l					
m	n		ŋ			
w		y				

4. The inventory of consonants is exactly the same as the one given by Yamada and Liao (1974), and nearly the same as Egerod (1966) except for the two semivowels.

The stops /p, t, k, q, ʔ/ are voiceless unaspirated prevocally, but aspirated postvocally, and so is the alveo-palatal affricate /c/ [tʃ]. The word-final /-t/ tends to be replaced by /-c/ in the speech of younger speakers. /b/ and /g/ are more commonly voiced fricatives [β] and [ɣ] respectively. Of the three voiceless fricatives /s, x, h/, /s/ [ʃ] is the voiceless counterpart of the voiced alveo-palatal fricative /z/ [ž], /x/ is velar, and /h/ [ħ] is pharyngeal.

Of the two liquids, /r/ has the free variants between a flap [ɾ] and a trill [r̄]. The lateral fricative /l/ [ɬ] is produced with a nasal release [ɬⁿ] postvocally, i.e. only in the word-final position. In fact, it is pronounced as a plain nasal [n] in the word-final position in the speech of the younger speakers in all Atayal dialects.⁵

The nasals /m, n, ŋ/ are voiced bilabial, dental and velar respectively.

The glottal stop /ʔ/ is omitted initially before vowels, but written in consonant clusters in Egerod's transcription, e.g., /ariŋ/ 'begin,' /ʔriŋan/ 'beginning,' whereas in my transcription it is written in both types of phonetic environment not only for the sake of convenience, but also for consistency. For instance, Egerod (1965a:263) had to "purposely marked the initial glottal stop (though in our general transcription it has been left out)" when he discussed the loss of the initial consonant, e.g., /ʔagal/, /magal/ 'take' < *ʔmagal. This problem of his can be avoided if the glottal stop is marked consistently. Moreover, the glottal stop is phonetically always present in the initial position before vowel even though there is no phonemic contrast between the glottal stop and zero consonant. As a matter of fact, there is no contrast between zero and any other consonant initially also. Why should the glottal stop be the only consonant to be omitted? In the word-medial and final position, the glottal stop is also phonemic, e.g.,

5. Shigeru Tsuchida (private conversation) has made the same observation, but wonders why such a change should take place in all these dialects. One possibility is that the phonetically nasal-released lateral as pronounced by older speakers is interpreted and heard as a nasal by all younger speakers. The change which affects /l/ only in the word-final position has brought about the alternation l~n in Atayal as reported by Yamada and Liao (1974: 4), in Sediq as described by Yang (1976: 650-51), and in Kahabu (a Pazeh dialect) as described by me (Li 1977b: 380).

/qmlu?, qlʔan, qlʔi/ 'close;' cf. the forms with the zero ending, e. g., /ʔuci, mucu/ 'do thus,' /sami/ 'we (exc.)' /simu/ 'you (plural).'

Egerod does not have the semivowels /y, w/ in his phonemic transcription, whereas I recognize their phonemic status, e. g., /rayan/ 'green beans,' /wagiʔ/ 'sun,' /kaway/ 'plum.' Motivation for the present analysis is the following: First, most Squliq forms contain no more than two main vowels. It will show this type of canonical form more clearly to include the semivowels in the phonemic transcription, e. g., the dissyllabic form /wayay/ 'thread' in my transcription seems better than /uaiai/ in Egerod's (1965b:218). Second, all forms begin with a consonant and most end with a consonant if the semivowels are included and treated as consonants. Or else, we would have to state that some forms end with a glide phonetically /i/ [y] or /u/ [w]. Third, we can dispense with the phonemic long vowels /ii, uu/ which occur only word-finally. This will be discussed when we come to the problem of long vowels in the following section.

As stated in Egerod (1966:122), "All consonants, except /b/ /r/ /z/ and /g/, which are only prevocalic, can occur in prevocalic (single or in clusters) and postvocalic (only single) position." We shall have an explanation for the non-occurrence of these four consonants in the word-final position when we discuss the morphophonemic alternations in Atayal; see § 2.4.1-2.4.4.

The voiceless velar fricative /x/ does not occur word-initially.

2.2 Vowels and Stress

i	u
e	o
a	

The three primary vowels /i, u, a/ are very common in both frequency of occurrence and distribution. The high vowels /i, u/ have the phonetic variants [e] and [o] respectively immediately adjacent to the consonants /h, q/, e. g., /buquh/ [bo:qóh] 'banana,' /hiluq/ [he:lóq] 'smoke,' /huzil/ [ho:žil] 'dog.' The low vowel /a/ has the variant [æ] next to /h/, e. g., /mtalah/ [meta:læh] 'red.'

The mid vowels /e/ [ɛ] and /o/ [ɔ] are much less common. They are derived

from the diphthongs /ay/ and /aw/ (or /wa/) respectively, as based on comparative evidence. There may be minor dialectal differences, e. g., the items /tawciŋ/ 'cheek,' /qwayux/ 'rattan,' and /tnailuq/ 'arrow' in the pronunciation of speakers from Ulai county, but /tociŋ/, /qoyux/ and /tneluq/ in the pronunciation of speakers from Fuhshing county; both counties belong to the major dialect of Squliq.

A phonetic vowel [ə] occurs between consonants, e. g., /hpah/ [həpə́h] 'flower,' /bbuʔ/ [βəβúʔ] 'jungle, bush,' /qhniq/ [qəhəníq] 'bird.' Since it is always predictable and never appears in the stressed syllable, it is treated as non-phonemic and hence not written in my transcription; here I follow Egerod. Hence we may get long consonant clusters in Squliq, e. g., /mspiʔ/ 'dream,' /mqzinah/ 'run,' /mspliŋ/ 'diarrhea.'

The vowel [ə] or [e] also appears as a phonetic transition between /i/ and /q/, e. g., /puniq/ [pu:níq] or [pu:níeq] 'fire,' /qiraŋ/ [qə́iraŋ] or [qéiraŋ] 'green beans.' The transitional vowel is actually somewhere between [ə] and [e] phonetically.

The phonetically long vowels [i:], [u:] that occur only in the word-final position are interpreted as geminate vowels /ii, uu/ respectively in Egerod's system. However, there are several justifications to treat them as diphthongs /iy, uw/ respectively.⁶ First, there are various diphthongs /ay, aw, uy, iw/ as in /pagay/ 'rice plant,' /ʔabaw/ 'leaf,' /sehuy/ 'taro,' /lliwi/ 'tip,' but no such diphthongs as /iy, uw/ other than these two long vowels. Second, nearly all Atayal words end with a consonant, except for a few function words, e. g., /qa/, /la/, pronouns /sami/ 'we (exc.),' /simu/ 'you (pl.),' demonstratives /qani/ 'this,' /qasa/ 'that.' If these phonetically long vowels are interpreted as geminate vowels as Egerod has done, then words containing these vowels will be the major exceptions that end with a vowel. Third, since these phonetically long vowels are synchronically as well as diachronically derived from a vowel plus a consonant, [i:] < [ir] or [ig] and [u:] < [ug] (see § 2.4.2, 2.4.3), it is much more natural and economical for a consonant (/g/ or /r/) to derive as a semi-consonant (/y/ or /w/) rather

6. Shigeru Tsuchida (private conversation) first suggested the idea. I looked into the possibility and found these justifications for the neat treatment of the problem.

than as a vowel (/i/ or /u/). In other words, the rules given in § 2.4.2 and 2.4.3 would be much more complex if the phonetically long vowels were treated as geminate vowels. Fourth, since the geminate vowels are distributionally very defective (only in the word-final position), it is certainly an advantage to eliminate them from the vowel inventory. Thus Squliq has five vowels /i, u, e, o, a/ rather than seven /i, u, ii, uu, e, o, a/. Fifth, there is no phonemic long vowel in Squliq other than [i:] and [u:]. From comparative evidence, all long vowels have become shortened in the dialect under discussion, e. g., Proto-Atayal *hii? > hi? ‘flesh, body.’ Also it is strange to have length contrast only in the two high vowels.

The penultimate vowel is phonetically long, e. g., /bukil/ [βu:kil^h] ‘peach,’ /pima?/ [pi:má?] ‘towel.’

The mid vowels /e, o/ occur more frequently in non-final syllables, e. g., /meliq/ ‘hold up,’ /hoŋu?/ ‘bridge,’ only rarely in the final syllable, e. g., /qes/ ‘boundary,’ /smom/ ‘wipe.’

All the diphthongs appear only in the final syllable in the dialect of Squliq as based on the speakers from Fuhsing county, but they may also appear in the penultimate syllable as pronounced by speakers from Ulai county. As for the dialects of C?uli? and Mayrinax, they may appear virtually in any syllable. See examples in § 3.1.

In summary, there are five vowels /i, u, e, o, a/ plus six diphthongs /ay, aw, uy, iw, iy, uw/ in the Squliq dialect under examination.

Stress normally falls on the final syllable.

2.3 Canonical Form

CV	qa ‘particle’ la ‘particle’
CVC	kun ‘self’ mu? ‘shoot’ gis ‘guts’ ŋos ‘edge’ bih beside’ hi? ‘body’
CCVC	hpah ‘flower’ qzi? ‘thorn’ bhut ‘squirrel’ szik ‘liver’
CCCVC	thbu? ‘gourd’ qsyak ‘oil’ squw ‘bait’ qrgus ‘cricket’ tktuk ‘golden bug’
CCCCVC	mspliq ‘diarrhea’ stnxan ‘privy’

CVCV	simu 'you (pl)' sami 'we (exc.)'
CVCVC	tunux 'head' sumiq 'body louse' lukus 'clothes'
CCVCVC	tlahi? 'lemon' mqahal 'twin' hginuk 'waist'
CCCVCVC	mslawi? 'lightning' kblayul 'ritual' mqzinah 'run'
CVCCVC	kimkis 'ancestor' qamsya? 'sugar' sinrxan 'whole'
C(C)VCVCVC	?inungan 'mind' miyugi? 'dance'
CVCCVCVC	pinqziwan 'former' kintari? 'kneel'

The most common types of canonical form are CCVC, CVCVC and CCVCVC.

The less common types are CVC and CCCVC.

The rarest types are CV, CVCV, CVCC(C)VC, CVCVCVC and CVCCCVCVC.

All Atayal dialects permit only one final consonant. A dissyllabic form ordinarily permits a combination of two consonants before the last vowel only if the first member is a nasal, or the second member is a semiconsonant, but such combinations are extremely rare.

There is little limitation on the number or order in the combination of consonants before the penultimate vowel. However, the initial consonant tends to get lost in Squaliq; see § 2.4.6.1.

A free form usually contains only one or two vowel nuclei in Squaliq. A form with three vowel nuclei is rare.

2.4 Morphophonemic Alternations⁷

2.4.1 The Alternation $b \sim p$

The alternation of $b \sim p$ is rare; less than ten verbs exhibit such an alternation in the data available, including some 270 verbs; see Appendix.

7. Some of the morphophonemic alternations were discussed in an earlier paper of mine (Li 1977b), based on the data reported in Egerod (1965a). These are: the alternations $b \sim p$, $g \sim u$, $r \sim i$, $t \sim c$, $l \sim n$ (the last one based on Yamada). In this paper, I shall give a more detailed discussion and fuller treatment for these alternations with more adequate data collected by myself and with revised orthography. Moreover, some alternations not touched on earlier will be discussed in this paper, including the alternations $i \sim z$, $C \sim \emptyset$, etc.

Hereafter hyphen indicates morpheme boundary, and slashes indicate infix.

All the verb stems, which are active imperatives, are free forms. The passive forms with -an and/or -un are cited in the following examples.

	<u>Stem</u>	<u>Passive</u>	
(1)	qatap	qtab-an	'cut with scissors'
	shop	shob-an	'suck'
	suyap	syab-an	'yawn'
	hop	hab-an	'stab, sting'
	gop	gob-an	'share one cup'
	hgup	hbg-an	'do magic' (Note the metathesis of <u>b</u> and <u>g</u>)

Cf. the non-alternating forms:

(2)	zup	zup-an	'blow with breath'
	kiyap	kyap-an	'catch'
	quyup	qyup-an	'roll up, fold'
	hap	hp-an	'sow'

It is obvious that b can be treated as the base and p as derived in the alternating forms:

(3) $b \rightarrow p / ___\#$

The solution also accounts for the fact that b does not occur word-finally in most Atayal dialects.

Alternatively, if p were treated as the base and b as derived, then it would be difficult to predict when to derive it as b in (1) and when to derive it as p in (2) above.

2.4.2 The Alternation $g \sim w$

Let us examine the alternation $g \sim w$ in the examples below:

	<u>Stem</u>	<u>Passive</u>	
(1)	luhuw	lhug-an	'thread a needle'
	qebuw	qbug-an	'plough'
	lpuw	lpug-an	'count'
	htuw	htg-an	'come out'
	ruruw	rg-an	'push'

	ksyuw	ksyug-an	'borrow'
	gluw	(g)lg-an	'follow'
	gluw	glg-an	'ride'
	psyuw	p/in/syug-an	'compensate'
(2)	goyaw	gog-an	'choose'
	sosaw	s/n/wag-an	'chase away'
	karaw	k/in/rag-an	'climb'
	tlamaw	tlmag-an	'cut (grass)'
	haw	hag-an	'scoop'
	hotaw	h/in/tag-an	'drop, fall'
	samaw	smag-an	'spread a mat'

Cf. the forms that do not manifest the alternation $g \sim w$ in the same position:

(3)	nbuw	nbw-an	'drink'
	?uluw	?lw-an	'discover'

These two examples may be exceptions to the rule of the $g \sim w$ alternation. Or the stem-final /w/ may have been original, but there is no comparative evidence for such a hypothesis.

For those forms with the alternation $g \sim w$, \underline{g} can be treated as the base and \underline{w} as derived:⁸

(4) $g \rightarrow w / \text{---} \#$

There is no example manifesting $g \sim w$ after /i/ in the data available to me, but I shall assume that is the case for the rule stated above.

As in the case of the $b \sim p$ alternation discussed in the previous section, this solution also accounts for the non-occurrence of \underline{g} word-finally in most Atayal dialects. It is a very productive rule.

8. Note that the phonetic realizations of /g/ are conditioned by the preceding vowel: as [u] if the preceding vowel is [u], and as [w] if the preceding vowel is /a/. In other words, if the phonetically long vowel [u:] were interpreted as geminate vowels /uu/, then the rule stated in (4) would be:

(4') (a) $g \rightarrow u / u \text{---} \#$

(b) $g \rightarrow w / a \text{---} \#$

The alternation $g \sim ?$ in the example below presents a problem:

- (5) gno? g/in/nog-an 'joke'

Perhaps the stem-final -? is not phonemic, and /w/ derived from /g/ (based on Rule (4) above) after /o/ is lost. This is another exception to Rule (4), but of a different kind from those listed in (3). Incidentally, the stem vowel /o/ may have been derived from *aw historically.

2.4.3 The Alternation $r \sim y$

This alternation occurs only in the Squliq dialects.

Let us examine the following examples with the alternation $r \sim y$:

	<u>Stem</u>	<u>Active</u>	<u>Passive</u>	
(1)	baziy	maziy	b/n/ir-an	'buy'
			bzir-an	'store'
	bahiy	mahiy	h/n/ir-an	'dry in the air'
	kgiy	mkgiy	k/in/gir-an	'prepare hemp'
(2)	pgyay	mgyay	pgyar-an	'run away'
(3)	bhiy	mihiy	bhy-an	'beat, fight'
(4)	huluy	h/m/uluy	hluy-an	'drag'
	?ubuy	mubuy	?/in/buy-an	'continue'
		mhuiai	hiai-an	'able to' (Egerod 1965a:261)
	sgagai	smgagai	sgai-un	'take leave' (Egerod 1965a:261, 265)

Cf. the following forms that do not contain the same alternation as above:

The stem-final \underline{r} in the passive forms in (1) and (2) above can be treated as the base and the word-final y as derived:

- (5) $r \rightarrow y / ___\#$

Alternatively, if y should be treated as the base, it would be difficult to predict when to derive it as \underline{r} as in (1) and (2), and when to derive it as y as in (3) and (4). Another advantage for solution (5) is that it also accounts for the fact that \underline{r} does not occur word-finally in Squliq, where this alternation is found.

2.4.4 The Alternation $z \sim y$

Let us examine the alternation $z \sim y$ in the following examples:

	<u>Stem</u>	<u>Passive</u>		<u>Imperative</u>	
(1)	hkuy	h/in/iy-an	tkiy-un	hkz-i	'bend'
	p-hapuy	puz-an	puz-un	puz-i	'cook'
	kehuy	k/in/hoy-an	kihoy-un	khoz-i	'dig'
	tsehuy	c/in/hoy-an		tshoz-i	'dig taro'
	takuy	tkuy-an	tkuy-un	tkuz-i	'fall'
	holuy	h/in/luy-an	hluz-un	hluz-i	'drag'
	piray	p/in/ray-an	pray-un	praz-i	'turn'
	silay	s/in/lay-an	slay-un	slaz-i	'thresh'
	htuy	htiy-an	htz-un	htz-i	'obstruct'
	?ubuy	buz-an	buz-un	buz-i	'continue, connect'
	kalay	k/in/lay-an	klay-un	klaz-i	'make'
	slubay	slbay-an	sbay-un	sbaz-i	'swing'

In the imperative forms that consistently show $z \sim y$, \underline{z} can be treated as the base and \underline{y} as derived:

(2) $z \rightarrow y / \underline{\quad} \#$

Cf. the imperative forms which do not show \underline{z} : /bhiy-i/ 'beat,' /ps?asiy-i/ 'cough,' /nbu-y/ 'drink,' /?lu-y/ 'find.'

One problem to account for the above data is that the stems followed by the suffixes /-an/ and /-un/ do not consistently end with /z/. All the above forms are based on the relatively young informant, Tao-nan Yu (aged 37). Whether /z/ turns up in a certain form often has to do with age or dialect difference. For instance, /mqzinah/ 'run' is in the speech of older speakers and /mqinah/ in the speech of younger speakers; also cf. /kmizap/ 'catch' in the speech of Hung-lung Lin (aged 43, from Ulai county), while /kmiyap/ in the speech of Tao-nan Yu (from Fuh-sing county). The appearance of /z/ also seems to depend on the form in which a lexical item takes. In other words, different forms of

the same verb may or may not take /z/, e. g., /m-zup, zup-an, yup-un, zup-i/ 'blow.' Actually even the same speaker has the free variant forms. For example, I have recorded /buz-un/ ~ /buy-un/, /buz-an/ ~ /buy-an/ 'continue' from Tao-nan Yu. These examples indicate that the /z/ is in the state of change to /y/, at least in the Pyasan dialect of Squiliq.

Alternatively, if y should be treated as the base and z as derived, then the rule might be:

$$(3) y \rightarrow z / ___ i$$

There are a few exceptions to Rule (3). If the phonetic environment is revised to:

$$(4) y \rightarrow z / ___ V$$

there will be more exceptions, as based on the speech of Tao-nan Yu.

This alternative solution seems to contradict the fact that older speakers preserve /z/, and that seems to indicate that /z/ is the base form preserved by the more conservative older generation, whereas the younger speakers tend to be more innovative and change /z/ to /y/.

2.4.5 The Alternation $t \sim c$

The consonant /c/ occurs only before vowel /i/ and before other consonants.

The alternation $t \sim c$ is observed in the following examples:

	<u>Stem</u>	<u>Passive</u>		<u>Imperative</u>	
(1)	paqut	pqut-an	pqut-un	pquc-i	'ask'
	kat	k/n/at-an	kat-un	kac-i	'bite'
	kut	k/n/ut-an	kut-un	kuc-i	'cut'
	siqut	sbiqut-an	sbiq-un	sbiqic-i	'sneeze'
(2)	cinun	c/in/un-an	tn-un	t/m/inun (AF)	'weave'

It is clear from the above data that t can be treated as the base and c as derived:

$$(3) t \rightarrow c / ___ i$$

With regards to the distribution of /t/ and /c/, Egerod (1966:123) stated, "/t-/ and /c-/ are in complementary distribution before vowels (only /c/ before