SOME CHANGES IN THE FINAL COMPONENT OF THE TAI SYLLABLE

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In the past few years the author has had an opportunity to study the Puyi dialects data while studying Comparative Tai under Dr. Gedney.[1] The amount of data collected on the Puyi dialects and their diversity in initial consonants and vowels from the rest of the Tai dialects make the Puyi data most valuable for comparative and historical reconstruction of the Tai family.

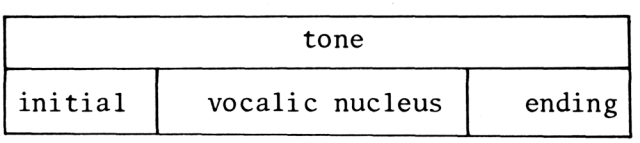
For the purposes of this paper we have used the Puyi data to (1), reconstruct some changes that have taken place in the final component of the Tai syllable and (2), examine cases in which rule ordering is necessary with regard to these changes in the final component.

The Puyi data was collected and published by the Chinese Academy of Sciences in 1959. These dialects form a part of the Northern Tai branch following Li's (Li 1960) classification of Tai into the Southwestern, Central, and Northern branches. That is, the Puyi dialects agree with the vocabulary and phonological features Li notes for the Northern group. For example, the Puyi dialects use * mum B4 'beard', the word for 'to be' Siamese pen[1] has a tone reflecting a voiced initial, and the reflex of Proto-Tai *ɽ has a reflex of Puyi *r.

The data consist of a study of 40 dialect localities in the southern part of Kweichow province in China.[2] The area is reported to be very mountainous and the 40 locality points are often quite isolated from one another.

In discussing some of the changes that have taken place in the final component of the Tai syllable we analyze the Proto-Tai syllable in terms of an initial consonant or consonant cluster, a vocalic nucleus, an optional final consonant or glide, and a tone.

Tai Syllable



In citing vocabulary items Proto-Tai forms will be indicated by (*). The Gedney system (Gedney 1973) will be used in marking Proto-Tai tones as follows:

Proto-Tai Tones

	Initial Category	Tones A	B	C	DS	DL
1	voiceless friction sounds (*s, *m̥, *ph, *w̥ etc.)					
2	voiceless unaspirated stops (*p etc.)					
3	preglottalized sounds (*?b etc. and ?)					
4	voiced sounds (*b, *z, *m etc.)					
			smooth		checked	

The Puyi tones are indicated by a number. The historical tonal patterns and the range and contours of the tones can be found in the appendix.

We will only look at some of the changes in the final consonant that have taken place since the time of the Proto-Tai syllable. Changes in the Proto-Tai diphthong and glide combinations which have resulted in vowel and glide correspondences in some dialects and a vowel with no final component in other dialects will not be considered.

Not all the Puyi dialects have made changes in the final consonant; for example, the correspondences at dialect point 1: are as follows:

Proto-Tai			Puyi Point 1	
*ke:m	C2	'cheek'	čem	2
*?ba:n	C3	'village'	?ba:n	4
*mɨŋ	A4	'you'	mɨŋ	2
*thra:p	DL1	'carry on two ends of a bamboo pole'	ɗa:p	5
*?ba:t	DL3	'scar'	?ba:t	5
*tak	DS2	'dip up liquid'	tak	3
*?bay	A3	'leaf'	?bay	1
*m̥a:y	C1 SW, C B1 N	'widow'	ma:y	5
*?ba:w	B3	'young man'	?ba:w	5

The Puyi final correspondences are as follows: Final Proto-Tai *-n and *-ŋ remain unchanged in all 40 Puyi dialects; final *-m goes to the velar -ŋ for dialect points 13, 14, 31 and 36: Proto-Tai *sa:m A1 'three', point 13 θa:ŋ 1. In addition points 13, 14 and 31 have the labial stop changed to a velar stop: *-p > -k, Proto-Tai *thra:p DL1 'carry on two ends of a bamboo pole', point 14 ɗa:k 3. At point 36 the labial stop along with the dental and velar stop have been lost: *-p, *-t, *-k > ∅ : Proto-Tai *pa:k DL2 'mouth', point 36 pa:5, Prôto-Tai *thra:p DL1 'carry on two ends of a bamboo pole', point 36 θɨ:5, Proto-Tai *ʔba:t DL3 'wound', point 36 ʔba:6. At point 8 the labial stop goes to the dental stop: *-p > -t, Proto-Tai *thra:p 'carry on two ends of a bamboo pole', point 8 ɗa:t 1.

The changes in the final glides are as follows:

*-w	*a:w > o:	points 29-31, 35 Proto-Tai *sa:w A1 'young woman' point 35 θo:1
	*aw > ɨ:	point 36 Proto-Tai *l̥aw C1 'liquor' point 36 lɨ: 3
*-y	*a:y > e:	points 29-31, 35 Proto-Tai *m̥a:y SW C C1, N B1 'widow' point 31 me: 5
	*ay > e:	point 36 Proto-Tai *ʔday C3 'to get' point 36 ʔde: 3
*-ɣ	*aɣ > ay	points 3, 5, 10, 13-15, 21, 23 Proto-Tai *ʔbaɣ A3 'leaf' point 3 ʔbay 1
	*aɣ > ɨ:	point 36, Proto-Tai *ʔbaɣ A3 'leaf' point 36 ʔbɨ: 1
	*aɣ > a:	points 29-35 Proto-Tai *baɣ A3 'leaf' point 31 ʔba: 1

The most unstable final in the Tai language has been the final velar stop. In the Puyi dialects the most drastic changes are at point 36 with complete loss of all final stops. Other changes in the velar stop final are as follows:

Puyi locality points	Changes
7-9, 36	*-k > ∅ Proto-Tai *pa:k DL2 'mouth' point 7 pa: 5
10, 22-24, 30, 40	*-k > ? Proto-Tai *pa:k DL2 'mouth' point 10 pa:? 5
30, 31, 19	*-k > ?/ short vowel _____ Proto-Tai *n̥ak DS1 'heavy' point 19 na? 1
3-9, 13-17, 29-35, 19	*-k > ∅/ long vowel _____ Proto-Tai *pa:k DL2 'mouth' point 3 pa: 5

At points 13 and 14 this change is not fed by the change already noted of the labial to velar: *-p > -k
*-m > -ŋ

Proto-Tai *pra:k	DL2	'expose to the sun'	point 13 ta: 5
Proto-Tai *tak	DS2	'dip up liquid'	point 13 tak 3
Proto-Tai *tap	DS2	'liver'	point 13 tak 3
Proto-Tai *thra:p	DL1	'carry on two ends of a shoulder pole'	point 13 ɗa:k 3

Puyi points Changes

19 *-k > ʔ/a:_____ Proto-Tai *pra:k DL2 'expose to the sun' point 19 ta:ʔ 5
*-k > ʔ/short vowel_____ Proto-Tai *nrok DS4 'bird' point 19 ɗɔʔ 2
*-k > ∅/elsewhere Proto-Tai *nro:k DL4 'outside' point 19 ɗu: 6

20 *-k > ∅ / C[-voiced] a:_____

Proto-Tai	*pra:k DL2 'expose to the sun'	ta:	5
Proto-Tai	*tak DS2 'to dip up liquid'	tak	5
Proto-Tai	*vak DS4 'to incubate'	vak	2
Proto-Tai	*m or *va:k 'classifier for tools'	va:k	6

Apparently the velar stop final was lost after the long low central vowel only if the initial was of the voiceless class. This would indicate that loss of the final was at least as early as when initials were distinguished as to a voiced or voiceless category.

37 *-k > ∅ / non-high long or short vowel _____

That is, the final velar was lost in all cases except after the high vowels.

Proto-Tai	*klik	DL1	'lazy'	čik	6
Proto-Tai	*ʔbɨk	DS3	'girl'	ʔbɨk	6
Proto-Tai	*ruk	DS4	'room'	ruk	2
Proto-Tai	*rwɨa:k	DL4	'vomit'	ru:k	6
Proto-Tai	*ŋɨak	DL4	'dragon'	ŋɨ:k	6
Proto-Tai	*zak	DS4	'wash'	ray	2
Proto-Tai	*pa:k	DL2	'mouth'	pa:	5
Proto-Tai	*m̥ok	DS1	'to bury'	mo:	5
Proto-Tai	*m̥o:k	DL1	'fog'	mo:	5

We would like to see more data in the form of congnate forms to confirm this conditioning for the loss of the velar final stop.

The Tai syllable is a closely knit unit, changes in the initial caused changes in tones. Now the writer would like to examine the interaction of changes in the finals in the Puyi dialects with some changes that have taken place in the vocalic nucleus.

In general, when a new change takes place and a new rule is added to the grammar the rule need not be ordered in relation to other rules but would have a feeding relation. However, we find that the interaction of the rules for changes in the final component often do not have a feeding relation with other rules and must be ordered.

We will discuss 7 such cases where extrinsic ordering is necessary.

I

As was noted earlier for dialect points 13, 14, 31 and 36 *-m>-ŋ. These dialects also have made the following change in the vocalic nucleus:

$$*ɔ > a / \underline{\quad}\ C\ [-\text{velar}]$$

The vowel change must be ordered prior to the final consonant change since forms where the -ŋ is derived from *-m undergo this change, but forms from *-ŋ do not. The ordering constraint is thus:

1 *ɔ > a/ C [-velar]

2 *-m > -ŋ/V ____

Examples:

Proto-Tai			Puyi Points 13, 14, 36
*l̥om	B1	'sink in the mud'	laŋ 5
*l̥oŋ	A1	'wrong'	loŋ 1, point 36 luaŋ 1

II

At Puyi dialect point 8 there is a change of *-p > -t. Point 8 also has a change in the vocalic nucleus whereby

$$*u > ɨ / \underline{\quad}\ \begin{matrix}\text{labial}\\ \text{nasal}\end{matrix}$$

Noting that for points 9-12 the vocalic change is more general in that it occurs in the environment of the labial stop as well, we have reconstructed the change of the labial to a dental final stop as prior to the vowel change. The ordering constraint is thus:

1 *-p > -t

2 *u > ɨ/ C [+labial]

Change 1 removed forms which would otherwise have fulfilled the environment conditions for change 2.

Examples:

Proto-Tai			Puyi Points 8 - 12
*mum	B4	'whiskers'	mɨm
*dup	DS4	'to pound'	point 8 tut 3, point 9 tɨp 3, points 10, 11 tɨp 2 point 12 tɨp 4

III

Puyi dialect points 30, 31 and 35 have a change whereby the vowel *a: with final glides *-w and *-y reduces to a vowel with the vowel taking on the labial or palatal glide feature:

$$\begin{matrix} *\ a{:}w \\ *\ a{:}y \end{matrix} > \begin{matrix} o \\ e \end{matrix}$$

These three dialects also have a rule of final diphthong formation:

$$\begin{matrix} *\ e{:} \\ *\ o{:} \end{matrix} > \begin{matrix} ie \\ u\text{ə} \end{matrix} / \_\_\_\_\_ \#^3$$

It is necessary to note an ordering constraint since the output of the glide reduction rule does not feed the final diphthong formation rule. The ordering constraint is thus:

1 $\begin{matrix} *e{:} \\ *o{:} \end{matrix} > \begin{matrix} ie \\ u\text{ə} \end{matrix} / \_\_\_\_\_ \#$

2 $\begin{matrix} *a{:}y \\ *a{:}w \end{matrix} > \begin{matrix} e{:} \\ o{:} \end{matrix}$

Examples:

Proto-Tai			Puyi Points 30, 31, 35
*m̥a:y	SW C C1, N B1	'widow'	me: 5
*ʔba:w	B3	'young man'	ʔbo:5
*bo:	B4	'father'	puə 6
*me:	B4	'mother'	mie 6

IV

Puyi dialect point 19 has lost the final velar stop. After a short vowel or *a: it becomes a glottal stop, elsewhere the ending is lost:

$$*\text{-k} > \emptyset \; / \; V \underline{\quad\quad} \begin{matrix} [+\text{long}] \\ \neq a \end{matrix}$$

This dialect also has a diphthong simplification rule of *ɨa > ɨ: before a final consonant. However, forms which have a final *-k do not undergo diphthong simplification. We, therefore, must constrain the interaction of the two rules as follows:

1 $*\text{-k} > \emptyset \; / \; V \underline{\quad\quad} \begin{matrix} [+\text{long}] \\ \neq a \end{matrix}$

2 $*ɨa > ɨ{:} / \underline{\quad\quad} C$

Change 1 removed forms which would otherwise have fulfilled the environment conditions for change 2.

Examples:

Proto-Tai			Puyi point 19
*l̥ɨat	DL4	'blood'	l̥ɨ:t 6
*ŋɨak	DL4	'dragon'	ŋɨə 6
*l̥ɨa	A1	'left over'	l̥ɨə 1

V

Puyi dialect points 29 and 36 have lost the final velar stop. These two points also undergo some vocalic changes which constrain the loss of the final to be ordered prior to the vowel change. The ordering constraint is as follows:

1 *-k > ∅ /V_____ (only after a long vowel for point 29)

*o: > ua/_____C
*o

*o: > u:/_____#

Change 1 removes forms that could have fed 2, the output of 1 then feeds vowel raising, *o: > u:/_____

Example:

Proto-Tai *m̥o:k DL1 'fog' point 29 mu: 1, point 36 mu: 5

In contrast to this we find that at point 36 *ɔk > o: and does not feed the vowel vowel raising rule.

Example:

Proto-Tai *m̥ok DS1 'to bury' point 36 mo: 5

At point 29 where the velar is not lost after a short vowel we have muak 5.

VI

Often we find forms that undergo a rule and forms that fulfill the rule conditions but fail to undergo the rule. Such examples are not surprising in a language lacking morphophonemic alternations. Rather it is expected that the opaqueness of the rule where the rule can no longer be deduced from the surface forms would lead to such forms. Puyi dialect points 30, 31 and 35 are a good example of this phenomena. There points have a change of *-k > ∅ /V_____ . They
[+long]
also have a final diphthong formation rule of *o: > uə/_____#.
The unmarked order for these 2 rules would be (1) *-k > ∅/V [+long]
_____ with forms with *o: then feeding the change of *o: > uə/_____#.
We have an example of his in the derivation of the form *m̥o:k DL1 'fog'

point 30, 31 muə 5 and point 35 muə 3. However, we also have the form *ŋo:k DL1 for 'ox hump' points 30, 31 and 35 no: 5. Here, after the loss of the *-k the vowel does not undergo diphthong formation. This is not surprising, however, if we note that once the change *o: > uə/ ____# has taken place there are no surface alternating forms to make the rule transperant. That is, there is nothing (but history and other dialects) to point to the *-k or *o: in the form which is pronounced muə 3.

VII

At point 36 which has made a great many changes in the final component, there is a vowel lowering rule *ɨ > ə. This rule is in a non-feeding relation and must be ordered prior to the following rules:

1 *ɨ > ə
2 *ak > ɨ
2 *a:p > ɨ
2 *ay > ɨ
2 *aw > ɨ

Examples:

Proto-Tai			Puyi point 36
*?bay	A3	'leaf'	?bɨ: 1
*?dap	DS3	'to extinguish'	?dɨ: 5
*tak	DS2	'to dip up liquid'	tɨ: 5
*raw	A4	'we'	ɖɨ: 2
*thɨ:	C, SW A1 and *dɨ: N A4	'to carry'	tə: 2

One final point which should be examined is the development of a new vocalic distinction in many Puyi dialects as the result of the loss of Proto-Tai finals. Some of the Puyi dialects have made special changes involving the low central vowel *a, which is in general, the most stable vowel throughout the Tai languages. At point 36 the quality features of the low central vowel have replaced the quantity feature as a distinctive feature. There is no long-short distinction before a consonant. Instead we have as the reflex of *a: [a] and *a [ɐ] with [a:] in the absence of a final where length is always redundant. At point 8 we have a vowel [ɐ] distinct from the short a occurring only before a zero final as the reflex of *ak and *a:k where the velar final has been lost. For points 29, 30, 32, and 33 we find the quality of the short vowel now the main distinction, in that it now occurs finally before a zero final in contrast to a: . This new distinction has developed from Proto-Tai *ay, where the reflex at these points is a simple vowel with the loss of the glide. The reflex for these points is [ɐ]. We see the same development with different phonetic consequences at points 31, 34 and 35. Here, the short vowel is phonetically [a] and the long vowel [æ:]. Thus, as a result of the change of *ay>*a, we have a contrast in final position of [a:] from *a and [æ:] from *a: . To illustrate

these developments in the low central vowel, we can examine the following forms:[4]

Proto-Tai	Point 1	Point 8	Point 36	Point 29	Point 31
*pra:k DL2 'expose to the sun'	ta:k 5	tɐ: 5	ta: 5	ta: 5	tæ: 5
*tak DS2 'dip up liquid'	tak 3	tɐ: 5	tɨ: 5	tɐk 5	ta?
*?bay A3 'leaf'	?bay 1	?bay 1	?bɨ: 1	?bɐ: 1	?ba: 1
*?ba: B3 'shoulder'	?ba: 5	?ba: 6	?ba: 5	?ba: 5	?bæ: 5
*san B1 'shake'	θan 5	θan 5	θɐn 5	θɐn 5	ɻan 5
*sa:n A1 'weave'	θa:n 1	θa:n 1	θa:n 1	θa:n 1	ɻæ:n 1

The examples of changes in the Proto-Tai finals given in this paper are but a small sampling. The Puyi dialects offer much rich data for Tai linguists.

NOTES

1 The material in this paper has been adapted from my dissertation: *The Proto-Tai Vowel System*, University of Michigan, 1973.

2 The location and name of the Puyi points can be found in the Appendix.

3 For all 40 dialects *ia, ɨa, ua > i:, ɨ:, u: with the exception that some points still retain the diphthong in final position. There is a phonetic rule whereby *ia, ɨa, ua is realized as ie, ɨə, uə in final position. This is true as well for points 30, 31 and 35 where *e: and *o: > ia, ua respectively, with ia and ua before a consonant and ie and uə in final position. For example:

Point 35	*ŋo:ŋ	A1	'pus'	>	nuaŋ
	*bo:	B4	'father'	>	puə
	*ke:n	A2	'arm'	>	čian
	*me:	B4	'mother'	>	mie

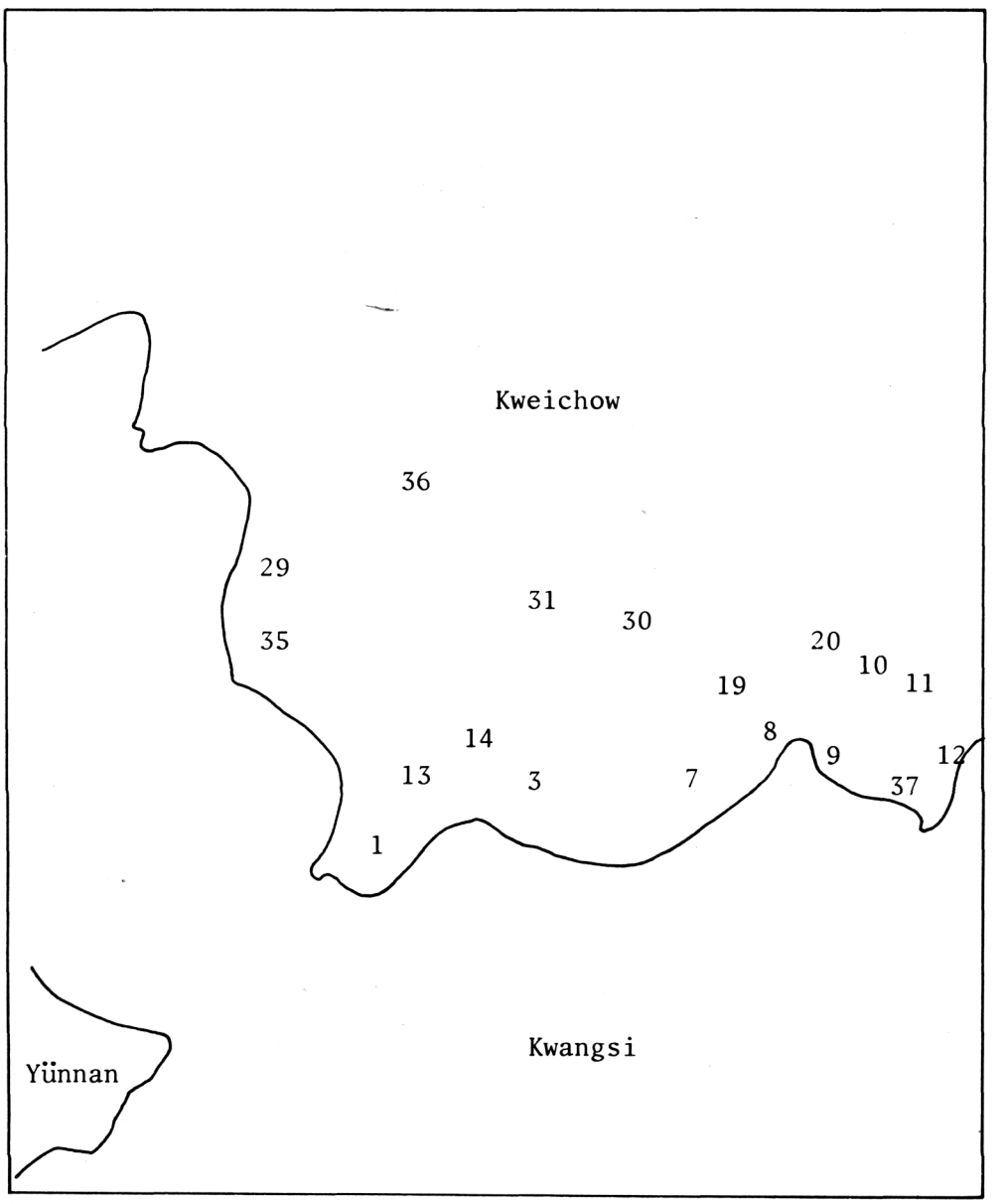
The Puyi dialects no longer have the diphthong *ɨa medially.

4 For points 31, 34 and 35 where *a is [a] and *a: is [æ]. Proto-Tai *e: which is Proto-Puyi e: > ia as at Point 35 *ke:n a1 'arm'

> čian and Proto-Tai *e which is Proto-Puyi *ɛ > a/_____ dental as at Point 35 *ɲen A1 'wild cat' > ñan. I only have examples of Proto-Puyi *ɛ before dentals with no examples for labial and velar finals.

Appendix I

Map of the Puyi dialects as indicated by number followed by the town name.



Appendix I

Puyi Point	District, Town or Village
1	Hsing-I, Pa-chieh
3	Anlung, Lo-chü
7	Lo-tien, P'o-chü
8	Pingtang, Hsi-liang
9	Tushan, Nan-chai
10	Tushan, Shui-yan
11	San-tu, Pan-k'ao
12	Li Po, Yao-so
13	Anlung, T'ien-chio
14	Hsing-jen, Yün-p'an
19	Huishui, Chiang-an
20	Ping-tang, K'ai-yu
29	Shuicheng, Faerh
30	Chenning, Mo-i
31	Chenning, Hsia-tung
35	Panhsien, Kan-ch'ang
36	Shuicheng, T'ien-pa
37	Lipo, Weng-ang

Appendix II

Tonal Patterns for the Puyi Dialects Used in this Paper -

Puyi Points 11, 12 37

A	B	C		DS		DL	
			voiceless	initial	voiced	voiceless	voiced
1	5	3	point 11	5	2	6	3
1	5	3	point 12	5	4	5	4
1	5	3	point 37	6	2	5	6
2	6	4					

Puyi points 7-9

A	B	C		DS		DL	
				voiceless	voiced	voiceless	voiced
1	5	3	point 7	5	2	5	6
1	5	3	point 8	5	3	1	6
1	6	4	point 9	7	3	7	6
2	6	4					

Puyi point 31

A	B	C	DS	DL
1	5	3	5	5
1	5	3	5	5
1	5	3	5	5
2	6	3	6	6

Puyi point 36

A	B	C	DS	DL
1	5	3	—	—
1	5	3	—	—
1	5	3	—	—
2	6	3	—	—

Puyi points 1, 3, 10, 13, 14, 19, 20, 29, 35

A	B	C		DS		DL	
				voiceless	voiced	voiceless	voiced
1	5	3	point 1	3	1	5	2
1	5	3	3, 13	3	6	3	6
1	5	4	10, 20	5	2	5	6
2	6	4	19	1	2	5	6
			14	3	2	3	2
			29, 30	5	6	5	6
			35	1	6	1	6

Appendix III

Tones of the Puyi Dialects Used in This Study Represented by Numbers

Tone	1	2	3	4	5	6	7
1	33	31	35	53	13	11	
3	33	31	35	53	24	11	
7	13	11	33	31	35	53	
8	13	11	33	42	35	54	
9	11	31	33	53	35	55	13
10	13	31	33	53	35	55	
11	13	31	33	53	42	55	
12	51	42	53	21	33	24	
13	33	31	35	53	24	11	
14	33	11	35	53	13	31	
19	24	11	33	31	55	53	
20	13	31	33	53	24	55	
29	44	11	33	22	55	13	
30	33	11	53	31	55	13	
31	33	11	42		55	13	
35	33	11	53	31	24	13	
36	44	11	42		55	24	
37	33	31	55	53	24	35	

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