PHONOLOGY OF TAIWANESE AS SPOKEN IN THE KAOHSIUNG AREA

(a Sketch)

高雄地區臺語語音系統綱要

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Introduction

The name *Taiwanese*, as used in this paper, refers to the *Minnan* dialect as it is spoken by some 80 per cent of the 10 million people living on the island of Taiwan. The Minnan dialect, in turn, is usually classed under the more general category of *Min* (Fukienese), which is said to be one of the six major varieties of the Chinese language, the othe five being *Mandarin* (Peiping), *Wu* (Shanghai), *Yueh* (Cantonese), *Hsiang* (Hunanese) and *Hakka*.

There are said to be two major subdialects within Taiwanese itself: *Changchou* and *Chuanchou*, the names being taken from the two regions in southern Fukien where most of the early Chinese settlers on the island came from. Each is completely intelligible to speakers of the other, but there are unmistakable phonological differences between them. Needless to say, there are divergencies even within each.

This explains why the qualification "as spoken in the Kaohsiung area" is added to the title of this paper, which is based on the idiolect of the writer himself, a native of Kaohsiung City in southern Taiwan, as well as the assumption that this idiolect is fairly representative of the native speech habits in the area.* It is not certain exactly how the phonology presented here will figure in the over-all system of Taiwanese if such an over-all pattern is ever worked out for the dialect. Yet, since the differences among various subdialects do not make them mutually unintelligible, it is probably safe to assume that the description has a wide, though obviously incomplete, applicability to the rest of the Taiwanese dialect, particularly to the Changchou variety, to which the present writer's idiolect clearly belongs.

1. Phonological Units

The maximum phonological unit in my idiolect, which I shall call *phonological*

* For convenience and as a reminder that only one idiolect has been examined, the shorter phrase "my idiolect" will be used throughout the following description instead of the more cumbersome "Taiwanese as spoken in the Kaohsiung area."

phrase (PP), consists of one *main component* (MC) plus the *terminal juncture* (/#/) with or without one *tag component* (TC) in between. The structure may be represented by the formula:

$$PP = MC\ (TC)\ /\#/$$

The units making up both MC and TC are *syllables*.

The syllable, equivalent to the morph in grammar and represented by a single Chinese character in writing, consists of one *vowel* plus one or more adjoining *consonants* in the segmental stratum and of one *stress* phoneme plus one *tone* composed of either one or two *pitch* phonemes in the suprasegmental stratum.

More details of the structure of the syllable will be given in the description of phonotactics in Section 3.

MC may consist of one or more syllables while the maximum number of syllables for TC is two. But the real difference between the two lies in stress patterns: MC is predominantly composed of heavily stressed syllables, allowing weakly stressed syllables to occur only separately and between heavily stressed syllables, while TC is always made up of weakly stressed syllables alone. The final syllable of MC, moreover, has an extra-strong nonphonemic* stress, which clearly indicates where MC ends and TC begins.

2. Phonemics

By the method of analysis followed in this paper, the total number of phonemes in my idiolect is 35, which may be broken down as follows:

Segmentals	23	consonants
	6	vowels
Suprasegmentals	2	stresses
	1	juncture
	3	pitches
Total	35	

2.1 *Consonants*

The 23 consonants are arranged in three structural sets:

Set 1	p	t	k
	p	*t*	*k*
	b	d	g
	m	n	ŋ
Set 2	c	j	
	s	z	
Set 3	*w*	*h*	*y*
	w	h	y
		q	

* Why it is nonphonemic is made clear in Section 2.3.

Set 1 contains both stops and nasals which, nevertheless, share one characteristic: closure of the oral cavity of various duration during articulation. They are differentiated from one another by the three-way distinction from left to right in points of articulation (bilabial, dental, velar) and by the four-way distinction from top to bottom in degrees of aspiration and resonance (from full aspiration plus complete lack of resonance in the top row down to full resonance plus complete lack of aspiration in the lowermost row).

To be more specific, /p, t, k/ are aspirated stops and /*p*, *t*, *k*/ nonaspirated stops. /b, d, g/ are voiced stops but extremely lenis. Thus /d/, for example, is usually heard as a flap. /m, n, ŋ/ may be safely taken as equivalent to their English counterparts.

All may occur syllable-initially, but only /b, d, g, m, n, ŋ/ may occur syllable-finally.

Set 2 is characterized by apico-dental friction, /c, j/ being affricates and /s, z/ being sibilants. The two columns are differentiated by voiced-voiceless distinction. Each has a palatalized allophone occurring only before a front vowel (i.e. /i/ or /e/—see below). Elsewhere the point of articulation is always dental. All four occur only syllable-initially.

Set 3 comprises seven phonemes which are arranged less neatly but which nevertheless have one thing in common: the fact that all occur in the syllable-final position, where each modifies the preceding vowel quantitatively, qualitatively, or both. They are arranged on three horizontal lines and three vertical lines.

Each horizontal line represents two of four characteristics with each pair of adjoining lines sharing one: nasalization, non-nasalization, lengthening, and non-lengthening. Thus /*w*, *h*, *y*/ both lengthen and nasalize the vowel, /w, h, y/ lengthen but do not nasalize it, and /q/, which is phonetically a glottal stop, neither lengthens nor nasalizes it.

The vertical lines are distinguished by the absence and presence of a glide toward high-front or high-back position, with /*w*, w/ characterized by a glide to high-back position, /*y*, y/ by a glide to high-front position, and /*h*, h, *q*/ by the absence of any glide. In phonotactic behavior, moreover, the central vertical line is quite versatile, capable of following any vowel, while /*w*, w/ and /*y*, y/ occur only after /a/.

In addition to their capability of occurring after a vowel, the three phonemes on the central horizontal line, /w, h, y/, may also occur before a vowel, with /h/, which occupies the intersection of the central horizontal and the central vertical

lines, occurring in the first and /w, y/ in the second consonant positions (see Section 3). When pre-vocalic, all three are like the English phonemes represented by the same symbols.

2.2 *Vowels*

The six vowels show a neat pattern of two rows and three columns:

	front	central	back
high	i	ɨ	u
low	e	a	o

Each vowel seems to have at least two allophones, one relatively high, the other relatively low. When under stress, the high vowels seem to become higher while the low vowels seem to become lower.

The two front vowels are unrounded under all circumstances. The back vowels are rounded when not followed by a nasalizing consonant (see Section 2.1); when nasalized, /o/ remains rounded but /u/ loses labial action.

2.3 *Stress and Juncture Phonemes*

As is commonly the case with Chinese dialects, stress of the syllable in my idiolect usually manifests itself in more elaborate articulation of the syllable's tone rather than in loudness alone. Because of differences in the degree of elaboration, a syllable may exhibit different tones under different stresses. Put the other way round, it is largely through the tone alternation (see Section 4) shown by the syllable that different stresses are recognized.

Although there are three phonetically different degrees of stress, only two are set up as phonemes: /"/ (stong and /'/ (weak). The third and heaviest stress, always falling on the MC-final syllable, with the result that the syllable shows its most elaborately pronounced tone, is interpreted as a feature of /#/ (i. e. a variant of /"/ conditioned by /#/) and consequently not set up as an independent phoneme.

As a matter of fact, the two phonemic stresses are both associated with /#/. Suppose, in the following sequence of syllables, S^2 occurs with the most elaborately pronounced tone:

$$S^1\ S^2\ S^3\ S^4\ S^5$$

This tells the hearer that /#/ is to follow. But, with the possibility of an intervening TC, he cannot be sure as to its exact location unless aided by some other device. This device is the distinctive stress patterns characterizing MC and TC. Thus, if S^3 receives /"/, it must belong to another MC and therefore /#/

must fall immediately after S^2. If S^3 receives /'/ but S^4 receives /"/, then S^3 is a TC belonging to the same PP as does S^2 and therefore /#/ must occur immediately after S^3. If both S^3 and S^4 receive /'/, then /#/ obviously follows S^4.

In transcribing, /"/ and /'/ will be written on top of a vowel, while /#/ will be wirtten between segmentals.

2.4 *Pitch Phonemes*

The three pitch phonemes are /3/ (high), /2/ (mid) and /1/ (low). These are the phonemes that form the tone of each syllable. A tone formed by a single pitch phoneme is an ***even tone*** while one formed by two pitch phonemes is a ***gliding tone***. There are three even tones and two gliding tones (/31/ and /12/).

In transcribing, the tone symbol will be placed over the stress symbol, with the first pitch phoneme alligning with the vowel and the second (in the case of a gliding tone) alligning with the following consonant.

3. Phonotactics

3.1 *Of Segmental Phonemes*

Every segmental phoneme in my idiolect is assigned to one or two of the following four classes according to the position it occupies in the syllable:

C^1 (/p, t, k, *p*, *t*, *k*, b, d, g, m, n, ŋ, c, j, s, z, h/)
C^2 (/w, y/)
V (/i, e, ɨ, a, ɯ, o/)
C^3 (/m, n, ŋ, *w*, *y*, *h*, w, y, h, q, b, d, g/)

The composition of the segmental portion of the syllable may then be represented by the formula:

$$(C^1)\ (C^2)\ VC^3$$

Thus V and C^3 must always be present while C^1 and C^2 may or may not be present. C^1 corresponds to what in descriptions of Chinese dialects is conventionally called the ***initial*** while the remainder corresponds to what is called the ***final***. These convenient terms are used in this paper, too. Moreover, because it is always present. C^3 also serves as an unmistakable syllable boundary marker.

Needless to say, there are further restrictions, ruling out nearly three quarters of the 4,215 mathematically possible combinations. In analyzing these restrictions, it is convenient to examine first the final and then to see which of initials can and which cannot combine with a possible final.

First of all, out of the 12 Methematically possible C^2 V combinations, only

the following seven are felt as pronounceable: /yɨ/, /yu/, /ya/, /yo/, /wi/, /we/, and /wa/. These, added to the six vowels, bring the total of acceptable (C^2) V sequences to 13. The possibility and impossibility of each of these sequences to combine with each of the consonants belonging to C^3 are shown in the following chart. In the chart the first row, for example, is to be read: /i/ may combine with /m, n, *h*, h, q, b, d/ but not with /j, *w*, *y*, w, y, g/.

(C^2) V	C^3												
	m	n	ŋ	*w*	*y*	*h*	w	y	h	q	b	d	g
i	—	—				—			—	—	—	—	
e			—			—			—	—			—
ɨ									—	—			
a	—	—	—	—	—	—	—	—	—	—	—	—	—
u		—				—			—	—		—	
o	—		—			—			—	—	—		—
yɨ									—	—			
ya	—	—	—	—		—	—		—	—	—	—	—
yu						—			—	—			
yo			—										—
wɨ									—	—			
we									—	—			
wa		—			—	—		—	—	—		—	

A number of general facts emerge from the chart, among them the parallelism between /h/ and /q/, /d/ and /n/, /m/ and /b/, /g/ and /ŋ/, /w/ and /*w*/, /y/ and /*y*/; incompatibility of /ɨ/ with nasalizing consonants; the inability of /a/ preceded either by /w/ or by /y/ to glide back to its starting position, etc.

Each of these 78 possible finals may form a syllable by itself (because C^1 is optional) or by combining with any of the initials with the following restrictions:

1) A final ending in /m/ or /b/ cannot combine with /p, *p*, b, m/. That is, a syllable cannot both start and end with a labial.

2) A final ending in /*w*/, /*y*/, or /*h*/ cannot combine with /m, n, ŋ, b, d, g, j, z/. That is, syllables beginning with a voiced consonant are never nasalized.

3) A final beginning with a vowel other than /i, u/ cannot combine with /z/.

3.2 *Of Suprasegmental Phonemes*

There are two restrictions concerning suprasegmentals.*

The first restriction can be stated rather simply if we distinguish between two types of syllables: long and short. A ***short syllable*** is one where C^3 is /q/, /b/, /d/, or /g/. In other words, a syllable is short if the final consonant is phonetically a stop. All others are to be considered ***long syllables.*** This distinction is useful, not only here, but in the description of tone alternation (Section 4) as well.

The restriction is: a gliding tone is incompatible with a short syllable.

The other restriction is on the relation between tone and stress and again involves gliding tones. That is: a gliding tone is incompatible with /'/.

4. Morphophonemics

In Section 2.3 it has been said that the tone of the syllable alternates according to stresses and its position in relation to /#/. Since the syllable is equivalent to the morph, this is tantamount to saying that a morpheme usually has a number of allomorphs differing in tone as well as stress. Such alternation of tone and stress, indeed, is the most outstanding feature of morphophonemics in my idiolect, and presumably in Taiwanenese as a whole.

For purposes of description, it is convenient to divide morphemes into three classes: Class 1, Class 2 and Class 3.

Class 1 morphemes occur only under /"/; Class 2 morphemes may occur both under /"/ and under /'/; Class 3 morphemes occur only under /'/. Class 2 morphemes are thus the only type of morphemes which have allomorphs differing in stress.

A Class 1 morpheme has two allomorphs differing only in tone. one occurring when MC-final, the other elsewhere. A Class 2 morpeme has five allomorphs differing in tone and/or stress. Two of them occur in MC as heavily stressed syllables and behave exactly as do allomorphs of Class 1 morphemes. The remain-

* Of course there are first of all the restrictions that limit the number of possible tones to just five.

ing three, all weakly stressed, occur in TC and bear tones conditioned by the tone and length (see Section 3.2) of the MC-final syllable in the same PP. Class 3 morphemes are unique in that they never undergo tone change. The sole allomorph each has always bears /'/ and the tone /1/ regardless of eovironment. They usually occur in TC. But at least one, /tyi̊h/ (a particle often following morphemes that may be called transitive verbs), occurs in MC quite frequently.

The overwhelming majority of morphemes are of Class 1. Class 2 morphemes, probably not exceeding a dozen in number, are mostly what may be called pronouns. Class 3, also very small, comprises morphemes most of which are analogous to what are commonly called function words in English.

While tone alternation within TC is conditioned by the tone and length of the MC-final syllable, that between the allomorphs occurring in MC is governed by a set of rules unconditioned by the tones of surrounding syllables. The following diagrams summarize the rules for both types of alternation.

Diagram 1 covers rules of alternation in TC; Diagram 2 rules in MC when the syllable is long; Diagram 3 also rules in MC but only rules which apply to short syllables. In Diagram 1 the length of the conditioning syllable, when necessary, is indicated between parentheses. Only three even tones are included in Diagram 1 because other tones are excluded by phonotactic restrictions. In Diagrams 2 and 3, ***basic tone*** refers to the tone of the allomorph occurring as the MC-final syllable, which is considered as the basic allomorph.

Diagram 1

Tone & Length of Conditioning MC-Final Syllable	Conditioned Tone
/ 3 / (long)	/3/
/ 2 / (long) /12/	/2/
/ 3 / (short) / 2 / (short) / 1 / /31/	/1/

Diagram 2

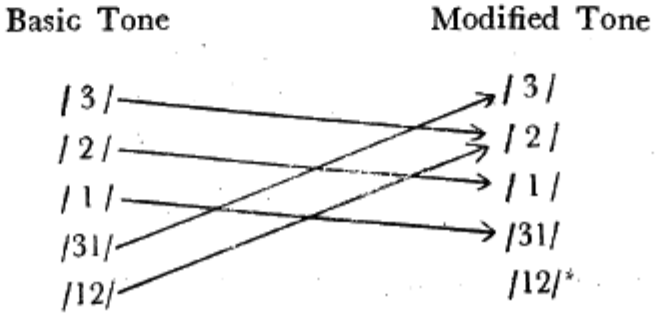
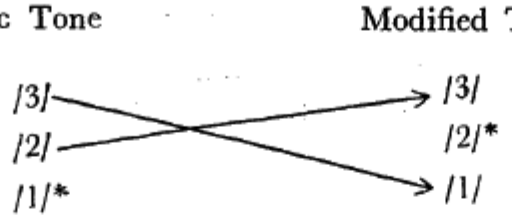


Diagram 3



The starred tones are tones that never occur in the situations specified. Thus /12/ is heard only in MC-final position; /1/ never occurs with a short syllable in MC-final position; and /2/ occurs with a short syllable only in MC-final position.

The change of both /3/ and /12/ to /2/ in Diagram 2 inevitably causes occasional ambiguity, as in the phrase /$t\ddot{u}^{2}h j\ddot{i}^{12}h\#$/, which could be the combination of either /$t\ddot{u}^{12}h$/ and /$j\ddot{i}^{12}h$/, meaning "cost of sugar," or /$t\ddot{u}^{3}h$/ and /$j\ddot{i}^{12}h$/, meaning "cost of soup."

The general pattern in each diagram may be stated as follows:

Diagram 1: The conditioned tone has a single pitch phoneme identical with the last pitch phoneme of the conditioning tone if the conditioning syllable is long; otherwise it has /1/.

Diagram 2: Even tones drop to the next lower pitch while gliding tones preserve only the peak of the pitch contour.

Diagram 3: Each tone departs as far as possible from the basic tone while also remaining separate from the other tone.

The Change of /1/ to /31/ in Diagram 2 would seem irregular, but it becomes understandable when one remembers that there is no pitch lower than /1/ and consequently there is no choice except going to a gliding tone which comes closest to preserving the general pattern.

To illustrate these rules, the most convenient examples are obviously utterances containing morphemes of Class 2 which, with five allomorphs, exhibit both types of tone alternation. Some examples containing one such morpheme, the morpheme {我} 'I, my, me,' will therefore be given to conclude this section as well as the paper.

The five allomorphs of the morpheme are: /$gw\ddot{a}^{31}h$/ (basic), /$gw\ddot{a}^{3}h$/, /$gw\acute{a}^{3}h$/, /$gw\acute{a}^{2}h$/, and /$gw\acute{a}^{1}h$/. Each occurs in one or more of the following environments:

In MC

Final position:

/ïhmëhgwäh#/ *'He (she) scolds me'* (not somebody else)

Elsewhere:

/gwähmëhïh#/ *'I scold him (her)'* (colorless utterance)

In TC

Conditioneed by /3/ (long):

/ïhpëhgwáh#/ *'He (she) takes advantage of me'* (colorless utterance)

Conditioned by /2/ (long):

/ïhmëhgwáh#/ *'He (she) scolds me'* (colorless utterance)

Conditioned by /12/:

/ïhsyähgwáh#/ *'He (she) lures me'* (colorless utterance)

Conditioned by /3/ (short):

/ïhpäggwáh#/ *'He (she) binds me'* (colorless utterance)

Conditioned by /2/ (short):

/ïhpäqgwáh#/ *'He (she) hits me with the hand'* (colorless utterance)

Conditioned by /1/:

/ïhkŏŋgwáh#/ *'He (she) hits me with o stick'* (colorless utterance)

Conditioned by /31/:

/ïhkŏngwáh#/ *'He (she) talks about me'* (colorless utterance)

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