

A Diachronic Look into Aberrant Synchronic Sound Patterns*

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ABSTRACT

This paper argues that the concept of 'pure synchronic phonology' which possibly emerges as a result of the over-application of the learnability viewpoint to the study of language can be a myth. Existent phonological patterns which plague a unified synchronic analysis may actually reflect remnants of an earlier phonology. A wide range of dialect materials from three Southern Min secret languages, Chaoyang onomatopoeia reduplication, to Datong *l*-separated words all reveal the feasibility of tackling aberrant synchronic sound patterns from a diachronic perspective.

Key Words: secret language, onomatopoeia reduplication, *l*-separated words

1. Introduction

Since Chomsky first proposed the theory of generative grammar in 1950s, it has been a highly influential theoretical framework which nurtures various subsequent linguistic theories. The area of phonology is no exception. *The Sound Pattern of English* (Chomsky and Halle 1968) hallmarked the inception of generative phonology which has incubated many phonological theories. As one of the foundations of generative grammar, the learnability viewpoint which requires that grammars be learnable helps to shape a perspective on the study of language and has made a profound influence on how generative linguists characterize linguistic knowledge.

* Heartfelt thanks to Professor Chin-fa Lien and two anonymous reviewers for insightful comments and criticisms on earlier drafts of this paper. It goes without saying that any errors or infelicities that remain are of my sole making.

Though “the mathematical theory of language learnability . . . deals with idealized ‘learning procedures’ for acquiring grammars on the basis of exposure to evidence about languages” (Pullum 2003), it never implies that language is a static and isolated system. In particular, certain oddities in synchronic sound patterns survive as remnants of an earlier phonology. No generative linguists would deny the fact that language has a life, and yet our daily practice which is really focused on the rule-governed nature of language may well lead one to oversimplify the reality as the child has no way of tracing back to the starting point of a diachronic development.

This paper does not hold that there is no synchronic phonology, but only diachronic explanation. Still, excessive theorizing as a result of simply taking learnability into account is believed to be a potential risk of doing synchronic phonology in and of itself. Combining two views, namely Kiparsky (2003) and Hale (2003), on diachrony vs. synchrony, this paper further stresses the importance of diachronic linguistics for understanding synchrony, and at the same time believe in a clear, though not necessary, relation between the grammar of an early stage S1 and that of a later stage S2 (cf. Oostendorp 2005). A diachronic approach is shown to successfully accommodate not only the peculiar behaviors of η in a type of Taiwanese secret language (as opposed to Zhangzhou secret language and Banana colloquial speech) and Chaoyang onomatopoeia reduplication, but also the $t\zeta \sim k$ and $t\zeta^h \sim k^h$ alternations in Datong l -separated words, all of which pose analytical problems¹ to previous synchronic endeavors (Li 1985, 1997, Lin 1989, Bao 1997, 2001).

Though with varying labels, the cross-linguistic phenomena to be intensively explored in this paper all center around partial reduplication. Bao’s (1990) analysis which nurtures a few important subsequent generative studies of partial reduplication in Chinese within the general framework of autosegmental phonology is adopted in this paper. A brief introduction of this approach to partial reduplication is now provided to familiarize the reader with later argumentation.

Following Steriade (1988), Bao assumes that “partial reduplication always involves total copying of the base as its first step. Excessive material is truncated and new material is inserted. Both operations [namely copy and substitution] are constrained so as to yield the correct result.” Substitution includes onset replacement and rime replacement specifically. The so-called *o* and *r* syllables are dubbed according to which part between the onset and the rime in the syllable is changed in the data under investigation. Take the derivation of *pay-key* (<

1. Specific details will be laid out in due course (see sections 3.1, 4, and 5).

pey ‘north’) in the *Fanqie* language² May-ka for illustration. As seen in (1) below, the first step is to make two copies of the base, and then replace the rime of the first syllable (i.e. *r* syllable) with *ay* and the onset initial³ of the second syllable (i.e. *o* syllable) with *k*. The autosegmental representation and tones which do not concern us are ignored here.

- (1) *p.ey*
 p.ey-p.ey Copy
 p.ay-k.ey Substitution

The rest of this paper is organized as follows: To pave the way for later discussion, section 2 introduces the process of nasal syllabicization in Chinese in general. Section 3 specifies that the concept of ‘pure synchronic phonology’ can hinder a satisfactory analysis by carefully re-examining Taiwanese secret language⁴ and comparing it with Zhangzhou secret language and Banana colloquial speech. Section 4 offers a diachronic explanation for recalcitrant onomatopoeia reduplication cases in Chaoyang. Section 5 deals with aberrant Datong *l*-separated words by the same token. The conclusion is given in section 6.

2. Nasal Syllabicization in Chinese

Based on a large-scale survey of Chinese dialects, Cheng (2001) lists an array of syllable patterns which lead to syllabic nasals.⁵

- (2) a. **ŋu* > *ŋ* b. **mu* > *ɱ*
 c. **ŋi* > *ŋ ~ hŋ* d. **ni* > *ɱ*

The relevant rule is now formulated in (3).

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2. Reflecting the method *fanqie* (literally, reverse cut) used in the traditional Chinese philological literature to specify the pronunciation of a novel character/syllable through two known ones, the terminology Chao (1931) creates is adopted in Bao (1990) to name some Chinese secret languages.
 3. Bao (1990) posits the syllable structure of *cg.vs*, with the dot denoting the onset-rime division, for the three Mandarin-based *Fanqie* languages he analyzes. Note that the belonging of the medial glide to the onset or the rime can differ from dialect to dialect. The reader is referred to Bao (1996) for more details.
 4. Li (1985) describes three varieties of Taiwanese secret languages in terms of the onset and the rime. This paper discusses type 1 alone.
 5. A closer inspection of the patterns reveals that *mi* and *nu* are missing here, and the asymmetry is attributed to the demand of the two adjacent [*αgrave*] segments (Xiuhong Yang pers. comm.). Still, the co-occurrence restriction awaits further empirical verification.

$$(3) N + V \rightarrow \underset{.}{N}^6 \\ [+high]$$

In actuality, a mirror-image combination, namely a high vowel followed by a nasal coda, also generates syllabic nasals.

$$(4) V + N \rightarrow \underset{.}{N} \\ [+high]$$

With the focus on Min dialects,⁷ the alternation between *uŋ* and *ŋ* is attested by the comparisons (i) between two subdialects in Datian, namely Guangping (Huang et al. 1998:170) and Qianlu (Zhou and Ouyang 1998:212) and (ii) between Putian and Xianyou (Huang et al. 1998:192). Specific data are respectively given in (5) and (6).

(5)		<u>Guangping</u>	<u>Qianlu</u>	
	<i>Dang</i> K-I: ⁸	k ^h uŋ	k ^h ŋ	'rice husk'
		k ^h uŋ	k ^h ŋ	'to store'
	<i>Dang</i> H-I:	kuŋ	kŋ	'light'
(6)		<u>Putian</u>	<u>Xianyou</u>	
	<i>Dang</i> K-I:	puŋ	pŋ	'roll of successful examinees'
		tuŋ	tŋ	'pawn'
		suŋ	sŋ	'lose'
		t ^h uŋ	t ^h ŋ	'soup'
		kuŋ	kŋ	'cistern'
		k ^h uŋ	k ^h ŋ	'rice husk'
		luŋ	lŋ	'husband'
		ts ^h uŋ	ts ^h ŋ	'barn'
	<i>Dang</i> K-III:	tsuŋ	tsŋ	'village'
	<i>Dang</i> H-III:	huŋ	hŋ	'direction'

The following literary cognates in Xiamen, Zhangzhou (Ma 1994:107), and Quan-

6. This rule shall be extended to all syllabic consonants, including fricatives, affricates, nasals, and liquids. Stops are not found syllabic due to least sonority (Kuang-yu Chang pers. comm.).

7. The reader is referred to Taining (Li 2001:372, 374), Anyi / Yugan / Nancheng (Li and Chang 1992:150-159), and Lichuan / Nanfeng (Liu 1999:219) for additional support for the *u ŋ* ~ *ŋ* correspondence.

8. The relevant Middle-Chinese rime group is in italics, K/H stands for the spread/round distinction in the final, and the capital Roman numerals designate the four divisions in a rime group.

zhou (Lin 1993:91) manifest the $i\eta \sim \eta$ alternation.

(7)	<u>Xiamen</u>	<u>Zhangzhou</u>	<u>Quanzhou</u>	
<i>Geng</i> K-II:	tsiŋ	tsiŋ	tsŋ	‘contend’
	siŋ	siŋ	sŋ	‘student’
	kiŋ	kiŋ	kŋ	‘age’
	k ^h iŋ	—	k ^h ŋ	‘pit’
	hiŋ	—	hŋ	‘moan’

Though not of central interest to sections 3 and 4, Yongan and Sanming (Zhou and Lin 1992:207–217), two Central Min dialects, witness the conversion of *um* into η (or *m* sporadically),⁹ and three Yanzhou dialects, inclusive of Chunan, Suian, and Jiande (Cao 1996:31, 54, 74), attest the systematic $in \sim \eta$ change. For sake of presentational brevity, supportive data are not provided here.

3. η in Three Southern Min Secret Languages

This section closely re-examines the behavior of the putative η in Taiwanese secret language¹⁰ through a horizontal comparison with Zhangzhou secret language and Banana colloquial speech. Based on a diachronic development of $u\eta \rightarrow \eta\eta \rightarrow \eta$ deduced from the various relevant changes in these secret languages, it is pointed out that this language game occurs language-specifically either before or after η appears and Taiwanese secret language leads off.

3.1 Taiwanese Secret Language

As is well-known, [b, l, g] and [m, n, ŋ] in Taiwanese are allophonic variants in complementary distribution (Lin 1989). The former occurs exclusively before oral vowels, and the latter occurs before either nasalized vowels or syllabic nasals, or after oral vowels, seen in (8). The literary/colloquial distinction in example (9)¹¹ clearly shows the phonemicity of η , otherwise its preceding

9. Syllabic nasals possess vague timber, and hence the respective places of articulation are not easy to perceive (Chang 1989).

10. This secret language is actually named *un⁵⁵-ts^hiu³³ peŋ⁷⁵ a⁵³* meaning ‘un⁵⁵-ts^hiu³³ colloquial speech’ (Li 1985). This paper follows the convention. Though respectively used in the north and south of Taiwan, this secret language and Banana colloquial speech have nearly identical formation rules.

11. Examples are taken from the Ilan dialect on which Taiwanese secret language is based. Note that η in Xiamen (nearly same as the mainstream Taiwanese) originating from the *Shan* or *Zhen* rime groups corresponds to *uŋ* in Ilan, and that descending from the *Dang*

onset will not carry [+nasal] at the phonetic level.

(8) bi	[bi]	'taste'	bi	[m̃i]	'noodle'
li	[li]	'depart'	li	[ñi]	'mud'
gi	[gi]	'justice'	gi	[ŋi]	'hard'
baŋ	[baŋ]	'dream'		*[maŋ]	
laŋ	[laŋ]	'coax'		*[naŋ]	
gaŋ	[gaŋ]	'horror-stricken'		*[ŋaŋ]	

(9) Literary	Colloquial	
loŋ	lŋ [nŋ]	'husband'
loŋ	lŋ [nŋ]	'wave'
loŋ	lŋ [nŋ]	'melon seeds'
lioŋ	liŋ [nŋ]	'two'

With the background knowledge, let us now proceed to discuss Taiwanese secret language (Li 1985, 1997). Like other Chinese secret languages, Taiwanese secret language employs the method *fangqie* expanding a base syllable in two. Operative processes for this particular secret language include total copying, onset substitution, nucleus substitution,¹² and coda consonant coronalization. For open syllables without vowel nasality, total copying applies first as usual, and then the onset of the first syllable (i.e. *o* syllable) is replaced by *l* and the nucleus¹³ of the second syllables (i.e. *r* syllable)¹⁴ is replaced by *i*, demonstrated as follows:

(10) t ^h au	'head'
t ^h au t ^h au	Total copying
lau t ^h au	Onset substitution
lau t ^h i	Nucleus substitution

When the base syllable ends with a nasalized vowel, the rime of the *r* syllable gets nasalized as well. Pursuant to Bao (1990), the nasality comes from spreading

rime group has dual correspondences in Ilan. Specifically, open-mouth rimes carry *ŋ*, and closed-mouth rimes *uĩ*.

12. Onset substitution and nucleus substitution both subsumed under the operation substitution (cf. Bao 1990) are separated here simply for presentational clarity. Rule ordering is unnecessary.

13. From co-occurrence restriction, nasalization, and secret language formation, GV, VG, and GVG (as opposed to VC) are in the domain of the nucleus (Chung 1996:100–104).

14. Though it is the nucleus instead of the rime that gets replaced in the case of Taiwanese secret language, the name of *r* syllable is still used here.

of a nasal glide which lacks place of articulation.

(11) sũã→lũã sĩ→[nũã] sĩ ‘mountain’

(12) pẽ→lẽ pĩ→[nẽ] pĩ ‘illness’

When the base syllable bears a nasal coda, the nasal coda is retained in the *o* syllable, but occurs unanimously as the unmarked *n* in the *r* syllable.

(13) tsin t^hiam→lin tsin liam t^hin (*t^him) ‘very tired’

(14) p^hɔŋ hɔŋ→lɔŋ p^hin (*p^hiŋ) lɔŋ hin (*hiŋ) ‘flatulence’

Li (1985, 1997) observes that *m* and *ŋ* in ordinary speech shall be analyzed as [əm] and [əŋ] in Taiwanese secret language. A comparison between examples (15–17) and examples (11–14) reveals that *m* and *ŋ* pattern with VN rather than nasalized vowels. If *m* and *ŋ* indeed occupy the nucleus position, the *r* syllable shall begin with the onset [n] due to leftward nasalization (cf. example (9)), as shown in the parenthesized asterisked forms below:

(15) hue m ‘bud’¹⁵
lue hi ləm in/*lue hi lɪm ɪ (*lue hi [nɪm] ɪ)

(16) ŋ a ‘rice seedlings’¹⁶
ləŋ in a/*lŋ ɪ a (*[nŋ] ɪ a)

(17) t^hŋ ‘sugar’
ləŋ t^hin/*lŋ t^hɪ (*[nŋ] t^hɪ)

Note that the underlined syllables in (15–17) above do not occur in the base phonology. Though a secret language may not abide by the base phonology (Chao 1931, Bao 2000), an immediate question never raised before lies in why the three asterisked forms above are eliminated? Previous studies (Li 1985, 1997, Lin 1989) simply claim ə insertion to achieve the putative result, exemplified in (18).

(18) t^hŋ→lŋ t^hiŋ→ləŋ t^hin ‘sugar’

15. From the following literary/colloquial distinction (Beijing University 2003:159), if vowel fusion (Schane 1984) changes [muɪ] into [mũ], syllabic nasal *m* ensues.

(i)	<u>Literary</u>	<u>Colloquial</u>	
	muɪ	m	‘plum’
	muɪ	hm	‘matchmaking’

16. Suffixes do not undergo secret language formation.

Still, some points need to be clarified here. First, /lɲ/ or /lŋ/ are well-formed syllables in the Ilan dialect (on which Taiwanese secret language is based),¹⁷ a question arises as to why vowel insertion is required. Even if vowel insertion is obligatory, why is the epenthetic vowel not chosen from the current vowel inventory, which contains six oral vowels (a, i, u, e, o, ɔ) and four nasalized vowels (ã, ĩ, ĕ, ɔ̃)? Rather, the non-native ə is picked instead.¹⁸

If ə insertion is not involved in Taiwanese secret language, an ensuing question concerns what the base syllable is like. As mentioned above, syllabic nasals pattern with VN instead of nasalized vowels in secret language formation. It is possible that Taiwanese secret language is not exclusively used in modern Ilan,¹⁹ but occurs before syllabic nasals emerge in the base phonology. The point is: what forms do the respective predecessors of ɲ and ŋ take? For the interest of this paper, let us focus on the development of ŋ.

Kim (2001) mentions that Standard Korean possesses two central vowels *i* and ə, and the former contains two allophonic variants, namely [i̟] and [u̟]. Korean native speakers perceive the ŋ after *p*, *t* and *k* in Xiamen as *iŋ* rather than *əŋ*. Kim thus advocates that it is not a syllabic nasal which follows *p*, *t* and *k*, but rather a segment sequence of a vowel higher than ə followed by the velar nasal. As a matter of fact, Luo and Zhou (1975:12) clearly point out

“when ŋ is preceded by the [p], [t], and [ts] onset sets,²⁰ the tongue moves harder. Often a transitional sound, the tongue position of which is higher and more backward than [ə], is heard...” [translation by the present author]

If syllabic nasals are excluded from the rime inventory of modern Ilan for the same reason, we will have difficulty explaining the co-occurrence restriction presented in examples (8-9).²¹ One way of accommodating both modern Ilan and

17. /lɲ/ is a non-occurring but well-formed syllable in Ilan. It is often reported that secret language formation produces new but grammatical syllables (cf. Chao 1931, Bao 1990).

18. One may claim that secret language is exclusively used by children, and hence ə insertion should arouse no doubt. As will be indicated later, adults are also secret language users. The issue of ə insertion cannot be easily ignored.

19. It is worth mentioning that *r* affixation is first found in literary works in the late Ming or early Qing dynasties (Li 1994:40), and this morphophonemic process still applies in modern Standard Mandarin.

20. The so-called [p], [t], and [ts] onset sets are cover terms used in traditional Chinese phonology specifying consonants respectively featuring the bilabial, apical, and dental places of articulation.

21. Syllable contraction cases below further corroborate the co-occurrence requirement that a syllable-initial plosive shares the same value of [nasal] with its following nucleus vowel.

Taiwanese secret language is to take a diachronic approach. Specifically, this paper holds that modern Ilan does contain syllabic nasals at the phonological level. The aforementioned vowel which is higher and more backward than [ə] is but a phonetic transition. On the other hand, η in modern Xiamen mostly corresponds to $u\eta$ in Chaozhou (Beijing University 2003:307–329). Historically, Chaozhou is split from Zhangzhou (Chiang 2002). In view of geographical adjacency with Chaozhou and plausibility of sound change to be elucidated shortly, Zhangzhou is believed to have contained the rime $u\eta$ before η emerges. Perceptually, $u\eta$ which meets the structural description of the nasal syllabicization rule in (4) is very close to η . Note that Ilan (the base of Taiwanese secret language) is an immigrant language from Zhangzhou, and has been using for more than 200 years. As will be demonstrated soon, the intriguing phenomenon invoked by η in Taiwanese secret language poses no problem from a diachronic perspective.

If Taiwanese secret language is created when the base syllable possesses the rime $u\eta$ (which is approximate to the above-mentioned auditory impressions of Korean native speakers and the two phonologists Luo and Zhou), all the problems can be resolved, shown in the following derivational paths for the syllable meaning ‘sugar’.

(19) $t^h u\eta$	Base
$t^h u\eta t^h u\eta$	Total Copying
$l u\eta t^h u\eta$	Onset Substitution
$l u\eta t^h i\eta$	Nucleus Substitution
$l u\eta t^h i n$	Coda Coronalization

People may still insist that Taiwanese secret language be the product of ‘pure synchronic phonology’. If secret language users take the phonetic form of η in modern Ilan, i.e. $[u\eta]$, as the base rime, the above-mentioned problems also disappear. Unfortunately, such an attempt cannot be sustained because the base of secret language formation is not the phonetic representation of modern Ilan, but the phonological representation of an earlier phonology.

Due to the concealment function (Li 1985, Lin 1999), the o syllable and the r syllable in Taiwanese secret language are prohibited from both starting with l .

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- | | | | | | | |
|------|--------|---|-------------|---------------|------------------|-------------|
| (i) | η | + | $t^h a\eta$ | \rightarrow | $ba\eta/*ma\eta$ | ‘cannot’ |
| | Neg. | | can | | | |
| (ii) | η | + | $k^h i\eta$ | \rightarrow | $bi\eta/*mi\eta$ | ‘unwilling’ |
| | Neg. | | willing | | | |

The onset of the *r* syllable becomes *g* to avoid any possible violation, seen below:

- (20) lau→lau li→lau gi ‘a building of two or more stories’
 (21) le→le li→le gi ‘spiral shell’
 (22) laŋ→laŋ liŋ→laŋ gin ‘person’

Recall that the *r* syllable in Taiwanese secret language retains the onset of the base. In examples (23a) and (24a) below,²² /g/ serving as the second onset to achieve the concealment function discloses that the base of Taiwanese secret language is the phonological representation of an earlier phonology (also compare (24a) and (18)).²³ If the base is the phonetic representation of modern Ilan instead, incorrect outputs emerge, shown in (23b) and (24b).

- (23) a. luĩ→luĩ lĩ→luĩ gĩ→[nuĩ ŋĩ] ‘egg’
 b. [nuĩ]→luĩ nĩ→*[nuĩ nĩ]
 (24) a. luŋ→luŋ liŋ→luŋ gin ‘betel nut’
 b. [nuŋ]²⁴→luŋ niŋ→*luŋ nin²⁵

To sum up, the diachronic approach better explains both modern Ilan phonology and Taiwanese secret language with respect to the syllabic velar nasal.

3.2 Zhangzhou Secret Language

This section demonstrates that Zhangzhou secret language (Ma 1994:316–344) differs from Taiwanese secret language in that it is created when *ŋ* has occurred in the base phonology.²⁶ First of all, total copying, onset substitution,

22. Professor Paul Jen-Kuei Li is greatly acknowledged for providing the invaluable data though əŋ rather than wŋ is given in the email he sent to the present author.

23. In contrast, the synchronic phonological form constitutes the base of Banana colloquial speech, demonstrated as follows:

- (i) lŋŋ→lŋŋ liŋ→lŋŋ in→[nŋ] in/*[nŋ] nin ‘egg’
 (ii) bŋŋ→lŋŋ biŋ→lŋŋ bin→[nŋ] bin/*[nŋ] min ‘door’

More details are referred to section 3.3.

24. Note that [nuŋ] which violates the restriction on the occurrence of the nasal onset reflects nothing but the phonetic transition observed in modern Ilan.

25. The syllable *nin* is actually ill-formed in modern Ilan according to the constraint that a syllable should allow a maximum of one nasal autosegment (Chung 1996:208).

26. Judged from the formation rules and the presence or absence of *ŋ* in the base phonology, Taiwanese secret language and Zhangzhou secret language are of distinct types. As a

and rime substitution are three working principles in Zhangzhou secret language formation. To focus on the base which carries nasality somewhere in the rime, total copying expands the base in two, *l* substitutes for the onset of the *o* syllable, and *ĩ* or *i* replaces the rime of the *r* syllable, keeping the value of [nasal] in the nucleus position. From examples (25–33), *ŋ* behaves the same as nasalized vowels rather than VN. It is obvious that *ŋ* occupies the nucleus position, as further evidenced by the onset [n] in the *o* syllables in (31–33).

- | | |
|--|-----------------|
| (25) im→lim i | ‘drink’ |
| (26) t ^h ian→lian t ^h i | ‘sky’ |
| (27) siaŋ→liaŋ si | ‘often’ |
| (28) t ^h ĩ→lĩ t ^h ĩ→[nĩ] t ^h ĩ | ‘add’ |
| (29) ts ^h ẽ→lẽ ts ^h ĩ→[nẽ] ts ^h ĩ | ‘give birth to’ |
| (30) piã→liã pĩ→[niã] pĩ | ‘cookie’ |
| (31) t ^h ŋ→lŋ t ^h ĩ→[nŋ] t ^h ĩ | ‘soup’ |
| (32) tŋ→lŋ tĩ→[nŋ] tĩ | ‘bump into’ |
| (33) lŋ→lŋ lĩ→[nŋ nĩ] | ‘husband’ |

3.3 Banana Colloquial Speech

Banana colloquial speech was once misrecognized as the native language of Siraya, one of the Plain Tribes in Taiwan. Pursuant to Yang’s (1996) field work, Banana colloquial speech has nothing to do with Siraya. As a secret language stemming from Taiwan Southern Min, it was used by the Han and the Plain Tribe people in Tainan and Kaohsiung counties in the early 20th century to facilitate anti-Japan activities. There existed few speakers when the field work was conducted.

A finer-grained reanalysis indicates that Banana colloquial speech and Taiwanese secret language have nearly the same formation rules:²⁷ the base syllable is duplicated in two, the onset of the *o* syllable is replaced by *l*, the nucleus of the *r* syllable is replaced by *ĩ* or *i* agreeing with the value of [nasal] the base nucleus bears, and the coda consonant of the *r* syllable is neutralized into the

matter of fact, the immigrant language Ilan is found more conservative than its homeland counterpart Zhangzhou in view of this language game.

27. For simplicity of exposition, specific examples of Taiwanese secret language are not given here. The reader is referred to Li (1985, 1997).

unmarked *n* or *t*.²⁸ One crucial point is that the *r* syllable reflects the rime type of the base, as manifested in the following data grouping.

- | | |
|---|-----------------------------|
| (34) gu→lu gi | ‘cattle’ |
| (35) hai→lai hi | ‘sea’ |
| (36) pio→lio pi | ‘harpoon’ |
| (37) hiã→liã hĩ→[niã] hĩ | ‘old brother’ ²⁹ |
| (38) t ^h ĩ→lĩ t ^h ĩ→[nĩ] t ^h ĩ | ‘sky’ |
| (39) buã→luã bĩ→[nuã mĩ] | ‘eel’ |
| (40) him→lim him→lim hin | ‘bear’ |
| (41) hun→lun hin | ‘cloud’ |
| (42) aŋ→laŋ iŋ→laŋ in | ‘red’ ³⁰ |
| (43) tsap→lap tsip→lap tsit | ‘ten’ |
| (44) ts ^h it→lit ts ^h it | ‘seven’ |
| (45) tik→lik tik→lik tit | ‘bamboo’ |

Another point to note is: Banana colloquial speech prohibits that the two syllables in secret language both carry the onset *l*, and onset deletion or *g* substitution (cf. Li 1985, 1997) operates in the *r* syllable to avoid any possible violation.

- | | |
|-----------------------------------|-----------|
| (46) li→li li→li i | ‘you’ |
| (47) lui→lui li→lui i | ‘thunder’ |
| (48) lio→lio li→lio gi | ‘urine’ |
| (49) liũ→liũ lĩ→liũ ĩ→[niũ] ĩ | ‘girl’ |
| (50) lɔk→lɔk lik→lɔk it / lɔk git | ‘deer’ |

28. The *r* syllable in Taiwanese secret language keeps the coda *-ʔ*. In contrast, Banana colloquial speech presents dual pronunciations in this respect. The glottal stop is either retained or replaced by *t* probably due to memory decay.

- | | |
|----------------------------|---------|
| (i) peʔ→leʔ piʔ (→leʔ pit) | ‘eight’ |
| (ii) peʔ→leʔ piʔ→leʔ pit | ‘white’ |

29. Yang (1996) reported some cases where nasality of the nucleus vowel does not retain in the rime of the *r* syllable, shown below:

- | | |
|------------------------|---------|
| (i) sã→lã si→na si | ‘three’ |
| (ii) tsĩ→lĩ tsi→ni tsi | ‘arrow’ |

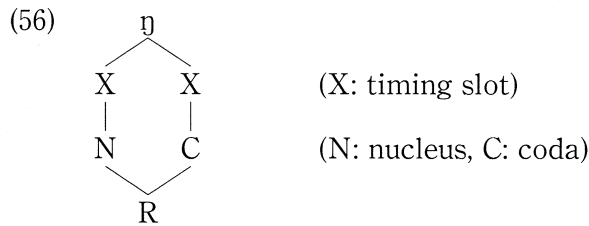
Banana colloquial speech emerged approximately around 1910. Oral spread from speaker to speaker may lead to misuse.

30. The transcription of *lan in* in Yang’s paper can be an error. That *-m* and *-n* are kept in the *o* syllable, while *-ŋ* is missing arouses suspicion.

Same as the case in Taiwanese secret language, η patterns with VN in Banana colloquial speech, seen in the comparison between examples (40–42) and examples (51–55).

- (51) $l\eta \rightarrow l\eta$ $li\eta \rightarrow l\eta$ $in \rightarrow [n\eta]$ in ‘egg’
 (52) $\eta \rightarrow l\eta$ $i\eta \rightarrow l\eta$ $in \rightarrow [n\eta]$ in ‘yellow’
 (53) $h\eta \rightarrow l\eta$ $hi\eta \rightarrow l\eta$ $hin \rightarrow [n\eta]$ hin ‘dusk’
 (54) $b\eta \rightarrow l\eta$ $bi\eta \rightarrow l\eta$ $bin \rightarrow [n\eta]$ bin ‘door’
 (55) $ts^h\eta \rightarrow l\eta$ $ts^hi\eta \rightarrow l\eta$ $ts^hin \rightarrow [n\eta]$ ts^hin ‘barn’

Yet, Banana colloquial speech differs from Taiwanese secret language in that besides the coda position, η also occupies the nucleus position,³¹ otherwise we cannot explain onset nasalization in the o syllable. Below is the rime representation of η in Banana colloquial speech.



An interesting observation is: η patterns with VN in both Taiwanese secret language and Banana colloquial speech, while it behaves the same as a V^n (nasalized vowel) in Zhangzhou secret language. A closer look at the phonetic form of the o syllable reveals the partial identity between Banana colloquial speech and Zhangzhou secret language instead. As displayed below, various phonological representations of η in these secret languages indicate that Banana colloquial speech is amid the course of a diachronic development, namely $u\eta \rightarrow \eta\eta \rightarrow \eta$.³²

(57) Taiwanese SL	Banana CS	Zhangzhou SL	
VN	VN	V^n	(Rime type perceived)
$lu\eta$	$n\eta$	$n\eta$	(The o syllable)
$u\eta$	$\eta\eta$	η	(Phonological representation of η)

31. Lin (1989, 1992) claims that syllabic nasals in Taiwanese secret language occupy both the nucleus and the coda positions, except that her analysis proposes ∂ insertion. On the other hand, Yip (1982) and Bao (1990) advocate that syllabic nasals in Mo-pa and Məŋ-la are associated with both the onset and the nucleus positions.

32. The reader is reminded of the discussion on nasal syllabicization in Chinese in section 2.

In view of the cross-secret language comparison on the one hand and modern Ilan phonology on the other, it is believed that Taiwanese secret language occurs when the base phonology does not contain η yet. Though a language game may not conform to the base phonology, and is thus situated in the periphery of the system, another viewpoint worthy of attention is that ‘pure synchronic phonology’ can be a myth. Rather, describing synchronic phonology as an accumulation of phonological layers of different time periods clears up difficulties posed by aberrant sound patterns.

Since secret language is a game, can it change over and over again and pass down from generation to generation? According to Li (1985, 1997), he himself spoke Taiwanese secret language which he learned in the childhood from his brothers, and his brothers learned this secret language from their colleagues. The two informants in Yang (1996) also claimed that they acquired Banana colloquial speech from their seniors and other tribe people, and often used it in the youth. Furthermore, despite some variations, the three secret languages discussed above exhibit highly similar formation rules in that the *o* syllable is always initiated by *l*, and the nucleus vowel of the *r* syllable is either \tilde{i} or *i* in agreement with the base nucleus on the value of [nasal].³³ If it were not due to dialect contact and/or linguistic inheritance, how could the common properties be explained? As long as secret languages can be past down from generation to generation, a diachronic investigation is certainly feasible. Our way of interpreting Taiwanese secret language by means of internal analysis coupling with cross-linguistic comparison is thus justified.

4. Chaoyang Onomatopoeia Reduplication

Following the line of research in section 3, this section demonstrates that

33. La-mi (Chao 1931), Huidong disyllabic speech (Chen 2000), and Jianghu speech (Zhang 2002) in the Yue or Hakka areas all have mostly the same formation rules as the case in Taiwanese secret language and Banana colloquial speech. Generally speaking, the *o* syllable begins with *l*, and the rime of the *r* syllable is *-i*, *-in*, or *-it* depending on original tripartite (i.e., open, nasal, and checked) rime distinctions. The fact that the secret languages across the Min, Yue, and Hakka areas share close resemblance is never coincidental; it can result from dialect contact instead. Note that all the secret languages mentioned so far are claimed to be used in the first half of the 20th century, if secret languages are simply products of pure synchronic phonology, the possibilities of intensive language contact are low due to geographical separation, at least between the two sides of the Taiwan Strait. On the contrary, given the latitude of diachronic spread, secret languages with simple formation rules are easy to retain.

irregular onomatopoeia reduplication cases in Chaoyang (Bao 2001:104–105) fall out naturally in a diachronic treatment (though an alternative synchronic analysis is possible). Before we get to the core of the problem, empirical data are given below:

- (58) ki li ku lu ‘sound of speaking’
 (59) tsi li tsiau liau ‘sound of bird chirping’
 (60) p^hi li p^hiak liak ‘sound of breaking’

Again, the three phonological processes, namely total copying, onset substitution, and rime substitution, suffice to complete the derivation (Bao 2001). Take the derivation of example (60) for illustration. The third syllable in this onomatopoeic expression is posited as the base. The first step is to make four copies of the base, followed by converting the onset of the even-numbered syllables into *l* and the rime of the first two syllables into *i*.

- (61) p^hiak Base
 p^hiak p^hiak p^hiak p^hiak Copy
 p^hiak liak p^hiak liak Replace (C_l)
 p^hi li p^hiak liak Replace (R)

Bao (2001) points out that the working principles, however, cannot apply to syllables containing the syllabic nasal. For examples (62) and (63), the expected outcomes shall be the asterisked forms according to the rime substitution rule.

- (62) k^hin lin k^hŋ lŋ / *k^hi li k^hŋ lŋ ‘sound of moving’³⁴
 (63) p^hin lin p^hŋ lŋ / *p^hi li p^hŋ lŋ ‘sound of shooting’

Though supportive base syllables with a nasal-ending are not provided in Bao (2001), it is very much likely that ŋ patterns with VN in Chaoyang onomatopoeia reduplication exactly as the case in Taiwanese secret language and Banana colloquial speech. If my guessing is correct, the operative Replace (R) needs to be modified as follows: the affected rime in onomatopoeia reduplication develops into *in* when the base rime is (G)VN, and it becomes *i* elsewhere. The above thorny problem which troubles Bao (2001) can be resolved (i) if onomatopoeia reduplication takes place in an earlier phonology and the rime in question

34. Though b/l/g- contrast with m/n/ŋ- in Chaoyang, -ŋ follows the onset *n* but not *l* (see Zhang 1992:17–23) due to onset nasalization. The transcription of *lŋ* in examples (62–63) based on Zhang (1982) is perhaps made to clearly show the regularities of onomatopoeia reduplication. Note that the *n*~*l* distinction does no harm to the analysis in (64b) below.

is /uŋ/, that is, yet to be nasal syllabicized, or (ii) if this morphophonemia change occurs in modern Chaoyang and the rime under discussion is ɿ ɿ at the underlying level (same as Banana colloquial speech). As the following separate derivational paths for example (62) indicate, after the three working principles apply, either nasal syllabicization by rule (4) or phonetic implementation produces the correct output.

(64) a. k ^h uŋ	b. k ^h ɿɿ	Base
k ^h uŋ k ^h uŋ k ^h uŋ k ^h uŋ	k ^h ɿɿ k ^h ɿɿ k ^h ɿɿ k ^h ɿɿ	Copy
k ^h uŋ luŋ k ^h uŋ luŋ	k ^h ɿɿ lɿɿ k ^h ɿɿ lɿɿ	Replace (C _i)
k ^h in lin k ^h uŋ luŋ	k ^h in lin k ^h ɿɿ lɿɿ	Replace (R)
k ^h in lin k ^h ɿ lɿ	k ^h in lin k ^h ɿ lɿ	
(Nasal Syllabicization)	(Phonetic Implementation)	

One wonders why nasal syllabicization is ever a possibility for Chaoyang onomatopoeia reduplication when the case in Taiwanese secret language is taken into comparison (see (57) above).³⁵ More precisely, given that both linguistic changes occur when the base rime involved is uŋ, one question that springs to mind concerns why the surface representation varies, i.e. luŋ vs. lɿ. The answer is this: Taiwanese secret language takes place in a single linguistic period, but Chaoyang onomatopoeia reduplication presents a hybrid of different linguistic periods. In (64a) above, k^hin lin k^huŋ luŋ is created in an earlier phonology, and nasal syllabicization applies afterwards to generate the desired form. This theoretical interpretation for Chaoyang onomatopoeia reduplication does not undermine the above analysis about Taiwanese secret language. Though ɿ does occur in modern Ilan, it is its predecessor uŋ that is affected in Taiwanese secret language by inference from a comparison with Zhangzhou secret language and Banana colloquial speech (see section 3), and the result of secret language formation remains in use nowadays (cf. Luo and Zhou (1975), Li (1985, 1997), and Kim (2001) for auditory perception of the putative ɿ).

5. Datong *l*-Separated Words

Just like the three Southern Min secret languages and Chaoyang onomatopoeia reduplication, Datong *l*-separated words (Bao 1997) are created by the

35. The present author is greatly indebted to one of the anonymous referees for raising the important point to my attention.

application of total copying, onset substitution,³⁶ and rime substitution. To achieve the crucial *l*-separated words in (65), the first step is to make two copies of the base, followed by changing the first rime into ə? and the initial consonant of the second syllable into *l*,³⁷ shown in (66). Note that a dot demarcates the onset and the rime, and *ü* is underlyingly treated as a fixed vowel sequence of *ui* (Bao 1997).

- (65) a. tɕ^hiɐo > k^hə? liɐo ‘project upward’
 b. tɕüɛ > kuə? lüɛ ‘roll’
 c. tɕ^hüɛ > k^huə? lüɛ ‘circle’
- (66) a. tɕ^h.iɐo b. tɕu.iɛ Base
 tɕ^h.iɐo tɕ^h.iɐo tɕu.iɛ tɕu.iɛ Copy
 tɕ^h.ə? tɕ^h.iɐo tɕu.ə? tɕu.iɛ Replace (R)
 tɕ^h.ə? l.iɐo tɕu.ə? lu.iɛ Replace (C₁)
 (k^hə? liɐo) (kuə? lüɛ)

Bao attributes the progression of *tɕ* and *tɕ^h* into the attested *k* and *k^h* to the co-occurrence restriction that the palatals only precede front vowels. A big problem is: *ts* and *ts^h* are also in complementary distribution with *tɕ* and *tɕ^h*, and why are they not attested instead? The palatals historically come from either the dentals or the velars (see Chao 1934).³⁸ The onsets of the bases in (65) descend from Middle-Chinese **k* or **k^h*, with the presence or absence of aspiration being intact. From (67), the expected outcomes generate if *l*-separated words are first created when the affected syllables carry the velar onsets.

- (67) a. k^h.iɐo b. ku.iɛ Base
 k^h.iɐo k^h.iɐo ku.iɛ ku.iɛ Copy
 k^h.ə? k^h.iɐo ku.ə? ku.iɛ Replace (R)
 k^h.ə? l.iɐo ku.ə? lu.iɛ Replace (C₁)
 (kuə? lüɛ)

36. Specifically, the onset domain in Datong can contain as many as two segments, including the syllable-initial consonant and the prevocalic glide *u* (Bao 1996, 1997). In the formation of *l*-separated words, onset substitution affects the syllable-initial consonant alone.

37. For presentational brevity, the reader is referred to Bao (1997) for more examples in Datong and other Jin dialects. Notice that the same analysis accommodates a great majority of the data therein.

38. For example, with different Middle-Chinese onsets, the two syllables respectively meaning ‘hope’ and ‘west’ are both pronounced as ɕi in modern Beijing dialect. Many thanks go to one of the reviewers for the reference on the source of palatals.

Later on, the second palatalization in Chinese gives rise to the synchronic base forms (Wang 1997:189, Wen 2003:173).³⁹

- (68) a. $k^hi\epsilon o \rightarrow t\epsilon^hi\epsilon o$ b. $k\ddot{u}\epsilon \rightarrow t\epsilon\ddot{u}\epsilon$

6. Conclusion

This paper never intended to deny the feasibility of doing synchronic phonology from the learnability viewpoint. Still, the importance of diachronic linguistics for understanding synchrony cannot be overlooked. By viewing synchronic phonology as an accumulation of phonological layers of different time periods, not only do the peculiar behaviors of η in Taiwanese secret language and Chaoyang onomatopoeia reduplication fall out naturally, but also the $t\epsilon \sim k$ and $t\epsilon^h \sim k^h$ alternations in Datong l -separated words present no challenge either. It is concluded that other than the pursuit of more advanced theorizing to achieve analytical elegance, demonstrating aberrant synchronic sound patterns as live specimen of an earlier phonology represents an equally fruitful line of linguistic research.

39. The process of palatalization is further evidenced by the fact that the following two l -separated words in the Zhongyuan Mandarin spoken in Northern Anhui province (Meng 1997:70) both carry the onset k^h in the first syllable, and yet their putative base onsets differ.

- (i) a. $t\epsilon^hi \tilde{a} > k^h\tilde{a} l\tilde{a}$ 'accent'
 b. $k^h\text{ㄣ} > k^h\tilde{a} t^h\text{ㄣ}$ 'pit'

In modern Xiamen, the syllable meaning 'accent' is $k^hi\text{ㄣ}$ (literal) / $k^h\tilde{u}$ (colloquial), which reveals the earlier occurrence of the velars than the palatals through dialectal comparison and rule naturalness as well.

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脫軌的共時音韻現象：歷時觀

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摘 要

本文主張純粹的共時音韻可能是個迷思。脫軌的現行音韻現象或許保留了早期音韻的遺跡。三個閩南秘密語、潮陽方言擬聲字重疊和大同方言嵌1詞都見證了從歷時的角度解釋脫軌的共時音韻現象的可行性。

關鍵詞：秘密語，擬聲字重疊，嵌1詞

(收稿日期：2005.8.8；通過刊登日期：2005.11.22)