科技部補助專題研究計畫成果報告
期末報告

五個漢語方言中音節連併之語音組合制約及普遍制約研究(II)

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報 告 附 件 ：出席國際會議研究心得報告及發表論文

處 理 方 式 ：
1.公開資訊：本計畫可公開查詢
2.「本研究」是否已有嚴重損及公共利益之發現：否
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中 文 摘 要 ： This paper establishes five corpora of syllable contraction, including a Taiwanese corpus, three Hakka corpora, and a Mandarin corpus (including a sub-corpus of X-not-X contraction). Several patterns are found based on these corpora. First, the high-ranked vocalic markedness constraints in Taiwanese and Hakka are often violated in syllable contraction； the vowels of the source syllables are retained and combined in the contracta to preserve the original meaning of the source syllables. Second, labial codas that are banned in Mandarin often occur from syllable contraction. Finally, in the Mandarin X-not-X contraction, the negator [pu] is often neutral-toned such that the [u] vowel is truncated but the faithfulness of [p] tends to dominate the markedness constraints.

中文關鍵詞： 音節連併, 語音組合限制, 優選理論

英 文 摘 要 ： 本文建立五個音節連併語料庫，包括一個台語語料庫，三個客語語料庫，以及一個華語語料庫(包含一個 X-not-X 連併之附屬語料庫)。從這幾個語料庫中觀察到幾個現象。一、在台語及客語中，最高層級排序的標記制約在音節連併中經常遭違反；來源音節的元音會被保留，在連併音節中合組。二、華語雖然不允許唇音韻尾，但在音節連併中唇音韻尾則經常出現。此外，在華語 X-not-X 連併中，否定詞?不?經常輕聲化，導致其[u]元音遭刪除，然而，[p]的信實制約則傾向壓制標記制約。

英文關鍵詞： syllable contraction, phonotactics, optimality theory

Phonotactic constraints and universal constraints in syllable contraction of five Chinese dialects II

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This paper establishes five corpora of syllable contraction, including a Taiwanese corpus, three Hakka corpora, and a Mandarin corpus (including a sub-corpus of X-not-X contraction). Several patterns are found based on these corpora. First, the high-ranked vocalic markedness constraints in Taiwanese and Hakka are often violated in syllable contraction; the vowels of the source syllables are retained and combined in the contracta to preserve the original meaning of the source syllables. Second, labial codas that are banned in Mandarin often occur from syllable contraction. Finally, in the Mandarin X-not-X contraction, the negator [pu] is often neutral-toned such that the [u] vowel is truncated but the faithfulness of [p] tends to dominate the markedness constraints.

0. Introduction

Syllable contraction has attracted much attention in the last three decades. Chung (1996, 1997) adopts Yip's (1988) edge-in association to account for the derivation of full contraction. In the Taiwanese form [kain], contracted from [ka in] 'with them', the edge-in association first links [k] and [n] to the onset and the coda respectively. The medial vocalic melodies are then linked from left to right such that [a] is linked to the nucleus before [i]. However, the derived output contains four slots, in violation of the Taiwanese phonotactics. The edge-in association then fails to predicts the form [bua kin], contracted from [bo iau kin] 'doesn't matter'; it would first link [b] and [u] as the onset and the coda, but would not allows the truncation of [u]. Hsu (2003) suggests that the vocalic melody association is subject to sonority. She modifies Kiparsky's (1979) sonority hierarchy "a > e > o > i > u" with the addition of [ɔ] between [a] and [e]. In this sense, [a] is the most sonorous and thus is linked to the nucleus first, and then [o] is raised as [u], whereby [bua] is derived. Li and Myers (2005) report that in addition to [bua], two other forms, [biau] and [buau], are possible variants. They demote the ranking of the phonotactic constraint, since forms like [buau] clearly violate the phonotactics of Taiwanese. Similar violations of Taiwanese phonotactics are found in several other works, such as C. Tseng (1999), Hsiao (2002), Hsu (2005), among others. This research project

thus investigates further the role of phonotactics in syllable contraction. I will address the following questions. What types of phonotactic constraints can be violated in syllable contraction? What phonotactic constraints are undominated? Are violations of certain types of phonotactic constraints common among these dialects? How do universal constraints interact with phonotactic constraints? In this paper, I focus on vocalic combinations and codas. I will offer an analysis under the framework of Optimality Theory (Prince and Smolensky 1993/2004), in particular the Stochastic OT. The rest of this paper is organized as follows. Section 1 introduces the corpora. Section 2 discusses illegal vocalic combinations in Taiwanese contraction. Section 3 addresses illegal vocalic combinations in Hakka contraction. Section 4 examines illegal codas in Mandarin contraction. Section 5 reinvestigates the X-not-X contraction in Mandarin, followed by a summary in section 6.

1. The Corpora

This research establishes five contraction corpora. First, the corpus of Taiwanese contraction is based on 20 hour's conversation by 2 males and 2 females. They are native speakers of Taiwanese, aged from 66-72. This corpus collects 1680 contracta. Second, the corpus of Sixian Hakka contraction is based on 20 hour's conversation by 2 males and 2 females. They are native speakers of Sixian Hakka, aged from 58-63. This corpus collects 1197 contracta. Third, the corpus of Hailu Hakka contraction is based on 20 hour's conversation by 2 males and 2 females. They are native speakers of Hailu Hakka, aged from 59-67. This corpus collects 1070 contracta. Fourth, the corpus of Dongshi Hakka contraction is based on 20 hour's conversation by 2 males and 2 females. They are native speakers of Dongshi Hakka, aged from 51-60. This corpus collects 1005 contracta. Fifth, the corpus of Mandarin contraction is based on 20 hour's conversation by 2 males and 2 females. They are native speakers of Mandarin, aged from 20-22. This corpus collects 2176 contracta. In addition, I construct a sub-corpus of Mandarin X-not-X contraction, which is based on 4 hour's citation of a phrase list by 4 males and 4 females. They are native speakers of Mandarin, aged from 20-24. This corpus collects 160 contracta. In these four corpura, segments, tones, and syllable structures are coded.

2. Illegal vocalic combinations in Taiwanese contraction

In Taiwanese, non-low vowels that have the same [back] feature may not be adjacent, such as *ei, *ie, *ou and *uo, where the asterisks indicate the four constraints. Table (1) shows the relevant statistics of the Taiwanese corpus.

(1) Vocalic combinations in Taiwanese contraction

S	C	T	%	E	G
a. e + i	ei	99	98.1%	se53 zi33 ⟶ sei53	'to be careful'
	e	2	1.9%	kue53 k^{h}i53 hia55 ⟶ kue53 hia55	'to go there'
	Total	101	100.0%		
b. i + e	ie	87	91.6%	si53 ke53 tsau53 ⟶ sie53 tsau53	'to go everywhere'

	e	8	8.4%	tsit5 e55 ⟶ tse55	‘this’
	Total	95	100.0%		
c. o + u	ou	112	100.0%	to21 kun53 ⟶ toun35	‘earthworm’
	o	0	0.0%		
	Total	112	100.0%		
d. u + o	uo	102	100.0%	tu55 ho53 ⟶ tuo53	‘exactly’
	o	0	0.0%		
	Total	102	100.0%		

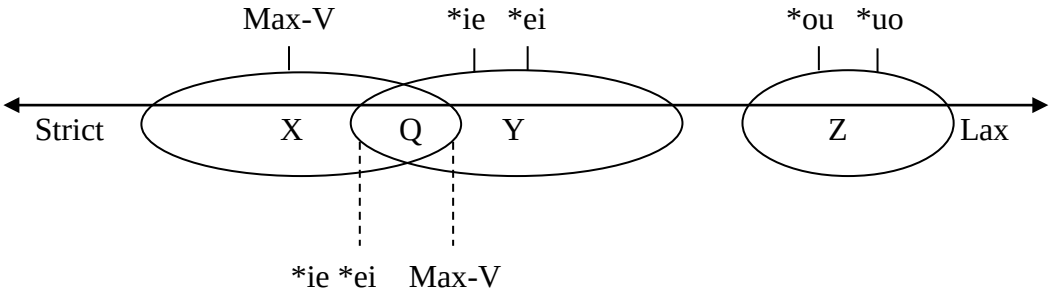
S stands for sources, C for contracta, T for tokens, E for examples, and G for glosses. As in (1a), there are 101 contracta that are combined from [e] and [i]; 99 of them form the [ei] dipthong, found in 98.1%, while only 2 of them are truncated as the [e] vowel, found in 1.9%. In (1b), there are 95 contracta that are combined from [i] and [e]; 87 of them form the [ie] sequence, found in 91.6%, while only 8 of them are truncated as the [e] vowel, found in 8.4%. In (1c), there are 112 contracta that are combined from [o] and [u]; all of them form the [ou] diphthong, found in 100%. In (1d), there are 102 contracta that are combined from [u] and [o]; again, all of them form the [uo] sequence, found in 100%.

A constraint ranking can be observed in (2), where Max-V dominates *ei and *ie, while *ou and *uo are ranked at the bottom.

(2) Constraint ranking: Max-V >> *ei, *ie >> *ou, *uo

In terms of Stochastic OT (Boersma 2000, Hayes 2000, and Boersma & Hayes 2001), each constraint is assigned a selected point on the ranking scale, as in (3).

(3) Stochastic Model = (2)



The selected point is not a single point, but is associated with a range of values, as shown by the ovals. The center of the range is called the ranking value. If the ranges of the selected points do not overlap, the ranking is categorical. In this case, Max-V is always ranked higher than *ou and *uo; as in (1c) and (1d), no [u] truncation is found. On the other hand, if the ranges overlap, the ranking is variable. In (3), Q indicates the overlapped area, where Max-V may choose a part that is lower than *ie and *ei, as shown

by the dashed lines. Accordingly, the vocalic markedness constraints outrank Max-V; as in (1a) and (1b), there are a few cases of [i] truncation, where Max-V is violated.

The four vocalic markedness constraints are not usually violated. In regular Taiwanese syllables, diphthongs like [ie], [ei], [uo] and [ou] are completely absent. Hsiao (2011) also observes that when a Taiwanese speaker pronounces Mandarin words with those diphthongs, monophthongization occurs in his accent, as shown in (4).

(4) Monophthongization in Taiwanese-Mandarin (Hsiao 2011)

Taiwanese-Mandarin	Mandarin	Taiwanese	Gloss
p^he	p^hei	pue	'to accompany'
tse	tɕie	tɕioʔ	'to borrow'
ko	kuo	kok	'nation'
t^ho	t^hou	t^hau	'to steal'

The four vocalic markedness constraints usually outrank faithfulness constraints such as Max-V, a constraint ranking that forces the truncation of the high vowel. However, Max-V dominates the vocalic markedness constraints in syllable contraction, as shown in (2). A possible reason for the high ranking of Max-V can be to retain the meaning. Precisely, vowel is the most sonorant or prominent element in a syllable, and the survival of the source vowels preserves the semantic content of the source syllables in the contraction.

3. Illegal vocalic combinations in Hakka contraction

Sixian, Hailu and Dongshi Hakka also have the four vocalic markedness constraints: *ei, *ou, *uo and *ie. Examples of Sixian are given in table (5).

(5) Vocalic combinations in Sixian Hakka contraction

S	C	T	%	E	G
a. e + i	ei	58	100%	ke ki (sɔŋ pai) ⟶ kei (sɔŋ pai)	'that he/she (last time)'
	e	0	0%		
	Total	58	100%		
b. i + e	ie	167	74.9%	ki11 teu24 ⟶ kie11	'they'
	e	0	0%		
	ia	56	25.1%	ki11 ke55 ⟶ kia24	'his'
	Total	223	100%		
c. u + oi	uoi	9	41%	tu55 oi55 ⟶ tuoi55	'to want all'
	oi	3	13.6%	tu55 oi55 ⟶ toi55	
	ui	2	9%	tu55 oi55 ⟶ tui55	
	ua	8	36.4%	iu55 oi55 ⟶ iua55	'to also want'
	Total	22	100%		

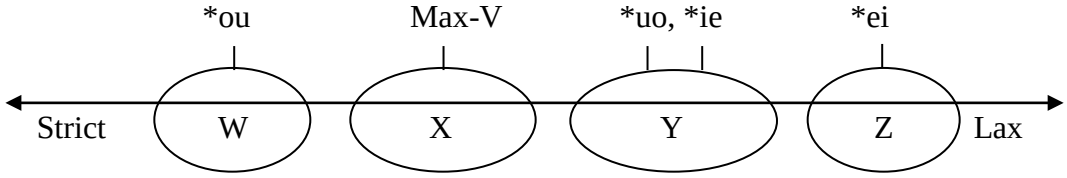
In (5a), there are 58 contracta that are combined from [e] and [i]; all of them form the [ei] dipthong, found in 100%. In (5b), there are 223 contracta that are combined from [i] and [e]; 167 of them form the [ie] sequence, found in 74.9%, while 56 of them are lowered as the [ia] sequence, found in 25.1%. In (5c), there are 22 contracta that are combined from [u] and [oi]; 9 of them form the [uoi] sequence, found in 41%, 3 are truncated as [oi], found in 13.6%, 2 are truncated as [ui], found in 9%, and 9 are lowered as [ua], found in 36.4%. In this corpus, I find no contracted [ou] that is combined from [o] and [u].

Hailu and Dongshi exhibit similar patterns. A constraint ranking can thus be observed in (6), where *ou dominates Max-V, which in turns dominates *uo and *ie, while *ei is ranked at the bottom.

(6) Constraint ranking: *ou >> Max-V >> *uo, *ie >> *ei

The scale in (7) shows that the constraint ranking is categorical, since no ranges of the selected points overlap.

(7) Stochastic Model = (6)



In (5b), there is a relatively larger amount of [ie] contracta. The reason is as follows. In spite of the fact that the [ie] diphthong is usually avoided in Sixian Hakka, this language allows the surface sequences, [ien] and [iet], which are respectively derived from [ian] and [iat] (Chung 2004). The [i] and [e] vowels of the source syllables are either combined as [ie] or lowered as [ia] in the contracta. Again, the high percentage of vowel preservation serves to preserve the meaning of the source syllables.

4. Illegal codas in Mandarin contraction

Mandarin allows no stop coda, nor a bilabial nasal coda. Five markedness constraints are active in conditioning the coda: namely, *-m, *-p, *-t, *-k and *-ʔ. In syllable contraction, *-m and *-p can be violated, while the other three constraints are strictly observed. Table (8) shows the relevant statistics in the Mandarin corpus.

(8) Codas in Mandarin contraction

	S	C	T	%	E	G
a.	V + k	Vk	0	0%		
		V	355	100%	tʂɤ53 kə22 ⟶ tʂɤ52	‘this’

	Total	355	100%		
b. V + t	Vt	0	0%		
	V	208	100%	tʂʰi55 toŋ55 ɕi55 ⟶ tʂʰoŋ55 ɕi55	‘eat (sth)’
	Total	208	100%		
c. V + ʔ	Vʔ	0	0%		
	V	134	100%	uo21 ʔa55 ⟶ ua25	‘It’s me.’
	Total	134	100%		
d. V + m	Vm	126	100%	uo21 mən35 ⟶ uom25	‘we’
	V	0	0%		
	Total	126	100%		
e. V + p	Vp	63	31%	iau53 pu53 ʐan35 ⟶ iaup53 ʐan35	‘otherwise’
	V	140	69%	lio53 pau55 ⟶ 1iau55	‘six packs’
	Total	203	100%		

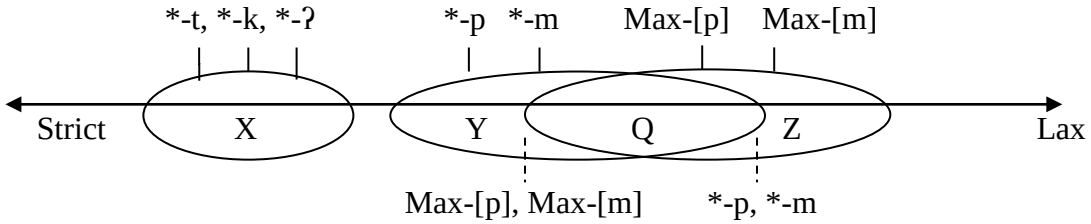
V stands for vowel. (8a) shows that there are 355 contracta that are combined from an open syllable and a following syllable that has a [k]-onset; none of them derives a [k]-coda, found in 0%, but all the [k]s are deleted, found in 100%. In (8b), there are 208 contracta that are combined from an open syllable and a following syllable that has a [t]-onset; none of them derives a [t]-coda, found in 0%, but all the [t]s are deleted, found in 100%. In (8c), there are 208 contracta that are combined from an open syllable and a following syllable that has a glottal stop onset; none of them derives a glottal stop coda, found in 0%, but all the glottal stops are deleted, found in 100%. On the other hand, (8d) shows that there are 126 contracta that are combined from an open syllable and a following syllable that has an [m]-onset; all of them derive an [m]-coda, found in 100%. As to (8e), there are 203 contracta that are combined from an open syllable and a following syllable that has a [p]-onset; 63 of them derive a [p]-coda, found in 31%, while 140 drop the [p], found in 69%.

A constraint ranking can be observed in (9), where *-t, *-k, *-ʔ and *-p dominate Max-Onset, which then dominates *-m.

(9) Constraint ranking: *-t, *-k, *-ʔ, *-p >> Max-[p], Max-[m] >>*-m

The constraint *-p dominates Max-Onset at most times, as 69% of the contractions in (7e) drop the [p] to avoid a [p]-coda. However, there are times when *-p is outranked by Max-Onset, as 31% of the contractions in (8e) derive a [p]-coda. The scale in (10) shows that the constraint ranking in (9) is not totally categorical, as the ranges Max-Onset and *-p may overlap.

(10) Stochastic model = (9)



Q indicates the overlapped area of Max constraints and coda conditions, where the ranking of these two types of constraints may be reversed; in that event, [p] and [m] may surface as codas. The question is why only [m] and [p] may be contracted as codas. In fact, Mandarin allows nasal codas such as [n] and [ŋ]. It is understandable that syllable contraction tolerates the [m]-coda more than the obstruent codas. As the [p]-coda, it is essentially contracted from the negator [pu], as will be discussed next.

5. Reinvestigation of Mandarin X-not-X contraction

An earlier investigation of X-not-X is in Cheng (2011). He discovers that in syllable contraction, the [p]-onset in the negator [pu] may surface as part of the following onset or the preceding coda. In my research, I reinvestigate the X-not-X contraction on a corpus basis. The present corpus includes syllable contractions from Adj-not-Adj and Verb-not-Verb. First of all, table (11) shows the relevant statistics of the [-V pu V-] contraction. (V stands for vowel)

(11) -V + pu + V-

	S	C	T	%	G
a.	ɤ53 pu35 ɤ53	ɤ53 pɤ53	1	12.5%	‘hungry or not’
		ɤ53 puɤ353	4	50.0%	
		ɤp53 ɤ353	3	37.5%	
		Total	8	100.0%	
b.	ai53 pu35 ai53	ai53 pai53	1	12.5%	‘love (it) or not’
		ai53 puai353	5	62.5%	
		aip53 ai53	2	25.0%	
		Total	8	100.0%	
c.	ua55 pu53 ua55	ua55 pua55	7	87.5%	‘dig (it) or not’
		uap55 ua55	1	12.5%	
		Total	8	100.0%	
d.	iau53 pu35 iau53	iau53 piau353	7	87.5%	‘want (it) or not’
		iaup53 iau53	1	12.5%	
		Total	8	100.0%	

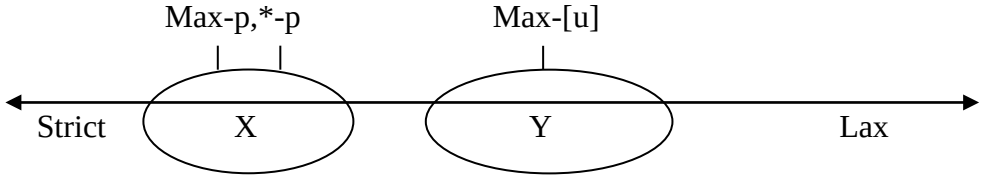
As shown in (11a), when the preceding syllable ends in a single vowel, 1 out of the 8 speakers preserves [p] in the following onset, found in 12.5%; 4 preserve [pu] in the following syllable, found in 50%; while 3 of them derive a [p]-coda, found in 37.5%. In (11b), the preceding syllable ends in a falling diphthong, and also only 1 out of the 8 speakers preserves [p] in the following onset, found in 12.5%; 5 preserve [pu] in the following syllable, found in 50%, while 2 of them derive a [p]-coda, found in 37.5%. (11c) shows that the preceding syllable ends in a rising diphthong, and 7 out of the 8 speakers preserve [pu] in the following syllable, found in 87.5%; only 1 of them derives a [p]-coda, found in 12.5%. In (11d), the preceding syllable ends in a triphthong, and 7 out of the 8 speakers preserve [p] in the following onset, found in 87.5%; while only 1 of them derives a [p]-coda, found in 12.5%.

A constraint ranking can be observed in (12), where Max-[p] and *-p dominate Max-u.

(12) Constraint ranking: Max-[p],*-p >> Max-[u]

The scale in (13) shows that the constraint ranking is categorical, since no ranges of the points overlap.

(13) Stochastic model = (12)



An interesting pattern observed in Table (11) is that the [u] vowel of the negator [pu] is sometimes truncated, while the [p] consonant is always preserved in syllable contraction. The question is why the major semantic content of the source syllables is retained not by way of keeping the vowel, the most sonorant element of [pu], but by way of keeping the less sonorant obstruent. The reason lies in the application of neutral tone: the negator [pu] is often neutral-toned, in which case, [u] is unstressed and less sonorant, and thus is easier to be truncated.

Table (14) shows the statistics of the [-V pu CV-] contraction.

(14) -V + pu + CV-

	S	C	T	%	G
a.	ʂɨ55 pu53 ʂɨ55	ʂɨ55 puɨ55	2	25%	‘wet or not’
		ʂɨ55 pʂɨ55	0	0%	
		ʂɨp55 ʂɨ55	6	75%	
		Total	8	100%	

b. ta21 pu53 ta21	ta21 pua51	0	0%	‘hit (it) or not’
	tap21 pta51	0	0%	
	tap25 ta21	8	100%	
	Total	8	100%	
c. tɕʰi53 pu35 tɕʰi53	tɕʰi53 ptɕʰi53	0	0%	‘angry or not’
	tɕʰip53 tɕʰi53	8	100%	
	Total	8	100%	
d. mai53 pu35 mai53	mai53 pmai53	0	0%	‘sell (it) or not’
	maip53 mai53	8	100%	
	Total	8	100%	

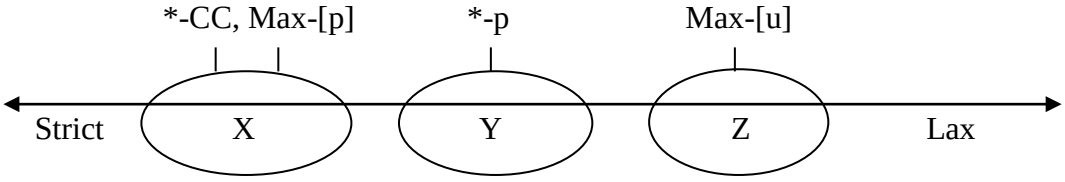
(14a) shows that the negator [pu] is followed by a fricative, 2 out of the 8 speakers preserves [pu] in the following syllable, found in 12.5%; none of the them derives a consonant onset cluster, found in 0%, while 6 of them derive a [p]-coda, found in 75%. In (14b), [pu] is followed by a stop, and all of the 8 speakers derive a [p]-coda, found in 100%. In (14c), [pu] is followed by an affricate, and all of the 8 speakers derive a [p]-coda, found in 100%. In (14d), [pu] is followed by a nasal, and all of the 8 speakers derive a [p]-coda as well, found in 100%.

The contractions in (14) show that [p] is more likely to occur as a coda than to join the following onset to form a cluster. A constraint ranking can be observed in (15), where *-CC and Max-p dominate *-p, while Max-[u] is ranked at the bottom.

(15) Constraint ranking: *-CC, Max-[p] >> *-p >> Max-[u]

The scale in (16) shows that the constraint ranking is categorical, since no ranges of the points overlap.

(16) Stochastic model = (15)



Mandarin disallows consonant clusters. The constraint *CC is top-ranked in this language, even in syllable contraction. When the negator [pu] is followed by a CV syllable, the high-ranking of *CC prevents [p] from forming a consonant cluster with the following onset. Consequently, [p] always emerges as the coda of the preceding syllable, and the constraint *-p is suppressed.

Table (18) shows the tendency of the [-VN pu CV-] contraction.

(17) -VN + pu + CV-

	S	C	T	%	G
a.	sin55 pu53 sin55	sin55 psin55	0	0%	‘new or not’
		sip55 sin55	0	0.0%	
		sim55 sin55	8	100.0%	
		Total	8	100.0%	
b.	toŋ21 pu53 toŋ21	toŋ21 ptoŋ51	0	0.0%	‘get (it) or not’
		toŋ21 puoŋ51	3	37.5%	
		tom25 toŋ21	5	62.5%	
		top25 toŋ21	0	0.0%	
		Total	8	100.0%	

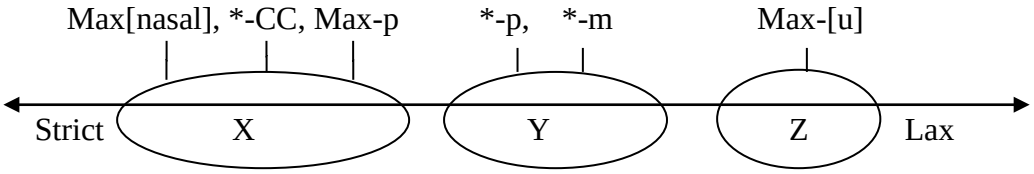
(17a) shows that when [pu] is preceded by an alveolar nasal coda, all of the 8 speakers derive a [m]-coda, where [n] and [p] merge into [m], found in 100%. In (17b), [pu] is preceded by a velar nasal coda, and 3 of the 8 speakers replace [t] with [p] as the onset and preserve the [ŋ]-coda, found in 37.5%; 5 of them derive a [m]-coda, where [ŋ] and [p] merge into m, found in 62.5%.

The contractions in (17) show that the [nasal] feature of the coda is always retained, whereby a [m]-coda may be derived. The constraint ranking can be enriched as (18), where Max[nasal], *-CC and Max-p dominate *-p and *-m, while Max-[u] is ranked at the bottom.

(18) Constraint ranking: Max[nasal], *-CC, Max-p >> *-p, *-m >> Max-[u]

The scale in (19) shows that the constraint ranking is categorical, since no ranges of the selected points overlap.

(19) Stochastic model = (18)



The top-ranking of *CC bans consonant clusters not only in onset position but also in coda position; coda clusters like [np] or [ŋp] are disallowed. This fact makes possible the merger of the nasal and [p] in coda position, where the illegitimate [m]-coda emerges and the constraint *-m is suppressed.

Finally, consider table (20), which shows the statistics of the [-VN pu V-] contraction.

(20) -VN + pu + V-

	S	C	T	%	G
a.	un55 pu35 un53	un53 pun35	5	62.5%	‘ask or not’
		um53 un53	1	12.5%	
		um53 pun35	2	25.0%	
		Total	8	100.0%	
b.	uaŋ53 pu35 uaŋ53	uaŋ53 puaŋ35	7	87.5%	‘vigorous or not’
		uam53 uaŋ35	0	0.0%	
		uam53 puaŋ35	1	12.5%	
		Total	8	100.0%	

(20a) shows that when [pu] is preceded by an alveolar nasal coda and followed by an onsetless syllable, 5 of the 8 speakers derive a [p]-onset and preserve the [n]-coda, found in 62.5%; 1 of them derives a [m]-coda, where [n] and [p] merge into [m], found in 12.5%; 2 of them derive a [p]-onset and a [m]-coda, where [n] assimilates to p, found in 25%. (20b) shows that preceded by a velar nasal coda and followed by an onsetless syllable, 7 of the 8 speakers derive a p-onset and preserve the ŋ-coda, found in 62.5%; 1 of them derives a p-onset and a m-coda, where ŋ assimilates to p, found in 25%.

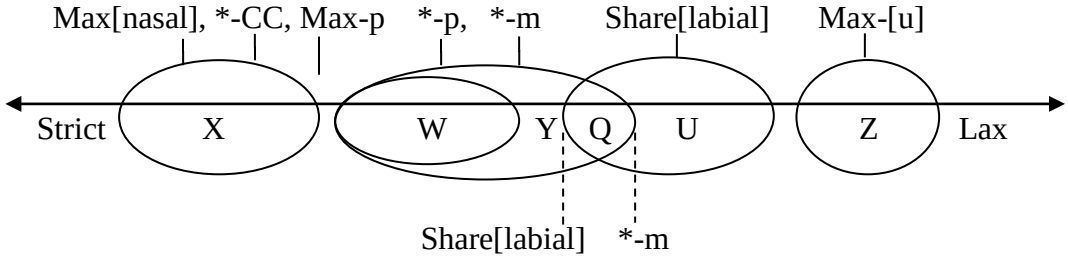
The contractions in (20) show that the preceding nasal coda may assimilates to the place of [p], whereby a [m]-coda may be derived. The constraint ranking can be enriched as (21), where Max[nasal], *-CC and Max-p dominate *-p and *-m, which then dominates Share[labial], and Max-[u] is ranked at the bottom.

(21) Constraint ranking:

Max[nasal], *-CC, Max-p >> *-p, *-m >> Share[labial] >> Max-[u]

The scale in (22) shows that the ranges of *-m and Share[labial] overlap, as indicated by Q. In the Q area, Share[labial] may outranks *-m, whereby assimilation occurs, as in (19) above.

(22) Stochastic model = (21)



In Mandarin, a nasal coda sometimes assimilates to the place of a following onset; /taŋ ʐan/ ‘of course’ often surfaces as [tan ʐan], and /nan kau/ ‘hard to handdle’

sometimes surfaces as [naŋ kau]. However, /kan ku/ ‘dry out’ can not surface as [kaŋ ku]. The constraint *-m usually dominates Share[labial] in this language, but this constraint ranking may often be reversed in syllable contraction. When the negator [pu] follows a nasal coda, [n] or [ŋ], and precedes an onsetless syllable, the nasal coda, in most cases, is not affected by the following [p]-onset, where *-m dominates Share[labial], but in some of cases, the nasal coda may be labialized as [m], where Share[labial] dominates *-m.

6. Summary

In summary, I have shown that phonotactic constraints on diphthongs, such as *ei, *ie, *ou and *uo, are violable in Taiwanese, Sixian, Hailu and Dongshi. In Mandarin, phonotactic constraints on codas, such as *-m and *-p, are violable in Mandarin, but *-t, *-k and *-ʔ are inviolable. In X-not-X contraction, [p] may join the following onset or the preceding coda, or merge with the preceding nasal coda, observing constraints such as Max[nasal], *-CC and Max-[p]. The constraint *-m usually dominates Share[labial] in Mandarin, but this constraint ranking may often be reversed in syllable contraction. Generally speaking, violations of the phonotactic constraints in syllable contraction arise from the purpose of preserving the semantic content of the source syllables. Further research may explore the syllable contraction in terms of onsets, onset-nucleus sequences, nucleus-coda sequences, tone combinations, in addition to more types of vocalic combinations and codas.

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附件五

國科會補助專題研究計畫出席國際學術會議心得報告

日期：2014 年 12 月 1 日

計畫編號	NSC 102-2410-H-004-080		
計畫名稱	五個漢語方言中音節連併之語音組合制約及普遍制約研究 II		
出國人員 姓名	蕭宇超	服務機構 及職稱	國立政治大學語言學研究所 教授
會議時間	2014 年 8 月 6 日至 2014 年 8 月 9 日	會議地點	University of British Columbia, Vancouver, Canada
會議名稱	(英文) The 41th Forum of Linguistic Association of Canada and the United States		
發表題目	(英文) The battle for glide in syllable contraction: a corpus analysis of Taiwan Mandarin		

2014 年 8 月 6~9 日赴加拿大溫哥華參加「The 41th Forum of Linguistic Association of Canada and the United States」，發表論文題目為：The battle for glide in syllable contraction: a corpus analysis of Taiwan Mandarin。承蒙國科會研究計畫補助旅費，特此感謝。此外，也要特別感謝密西根大學端木三教授，他特地租了 wheelchair accessible 的旅行車，親自接、送機，並且載我赴會、赴宴等等，全程照料了我的交通問題。此次會議出席者踴躍，約有二百餘人，其中不乏知名學者，也有不少年輕學者及研究生與會，值得高興的是，我看到台灣得研究生出席會議，並宣讀論文。此次會議安排發表的論文總共有 50 篇，不過在音韻學方面的論文則只有 4 篇，這是美中不足的地方。會議音韻論文詳列如下：

Svetlana KAMINSKAIA (University of Waterloo). Enumerations in Spontaneous French.

Kellen PARKER VANDAM (National Tsinghua University). An Answer to YR Chao's Problem of Affricate Distributions in Wu.

Luke VAN BUUREN (University of Amsterdam — retired / Linguavox.nl). Rhythm is Syntax.

Yuchau HSIAO (National Chengchi University). The Battle for Glide in Syllable Contraction: A corpus analysis of Taiwan Mandarin.

我的論文口頭報告安排於 8 月 8 日(週五)下午場，13:30~14:30 之間，主要討論華語音節連併中，元音介音化的現象，以本計畫所建立的語料庫數據來分析。會中有不少學者參與討論，著實獲益良多。

科技部補助計畫衍生研發成果推廣資料表

日期:2015/01/21

科技部補助計畫	計畫名稱: 五個漢語方言中音節連併之語音組合制約及普遍制約研究（II）
	計畫主持人: 蕭宇超
	計畫編號: 102-2410-H-004-080- 學門領域: 音韻學

無研發成果推廣資料

102 年度專題研究計畫研究成果彙整表

計畫主持人：蕭宇超	計畫編號：102-2410-H-004-080-
計畫名稱：五個漢語方言中音節連併之語音組合制約及普遍制約研究（II）	

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	1	100%	篇	無
		研究報告/技術報告	1	0	100%		無
		研討會論文	2	0	100%		無
		專書	1	0	100%		無
	專利	申請中件數	0	0	100%	件	無
		已獲得件數	0	0	100%		無
	技術移轉	件數	0	0	100%	件	無
		權利金	0	0	100%	千元	無
	參與計畫人力（本國籍）	碩士生	3	0	100%	人次	無
		博士生	2	0	100%		無
		博士後研究員	0	0	100%		無
		專任助理	0	0	100%		無
國外	論文著作	期刊論文	0	0	100%	篇	無
		研究報告/技術報告	0	0	100%		無
		研討會論文	0	0	100%		無
		專書	0	0	100%	章/本	無
	專利	申請中件數	0	0	100%	件	無
		已獲得件數	0	0	100%		無
	技術移轉	件數	0	0	100%	件	無
		權利金	0	0	100%	千元	無
	參與計畫人力（外國籍）	碩士生	0	0	100%	人次	無
		博士生	0	0	100%		無
		博士後研究員	0	0	100%		無
		專任助理	0	0	100%		無

其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)	無

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

科技部補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

■達成目標

□未達成目標（請說明，以 100 字為限）

□實驗失敗

□因故實驗中斷

□其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文：■已發表 □未發表之文稿 □撰寫中 □無

專利：□已獲得 □申請中 ■無

技轉：□已技轉 □洽談中 ■無

其他：（以 100 字為限）

Hsiao, Yuchau E. 2015, to appear [accepted, 2013.08.28]. Violable phonotactics in syllable contraction: A corpus-based study. Proceedings of NACCL-25. University of Michigan, USA.

另有一篇期刊論文撰寫中.

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限）

首度建立五個大型的音節連併語料庫，包括閩南語、華語、四縣客語、海陸客語及東勢客語，合計有 7128 個連併詞。並就所建立的連併語料庫提出優選理論(OT)分析，並以 Stochastic OT 方式預測連併變體。