VOWEL NASALIZATION IN THE NORTHEASTERN DIALECT

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ลักษณะเด่นของเสียงของผู้พูดที่มาจากภาคตะวันออกเฉียงเหนือหรือภาคอีสานของไทยคือเสียงสระนาสิก (Vowel Nasalization) เสียงสระนาสิกเหล่านี้เกิดขึ้นเองโดยปราศจากอิทธิพลของพยัญชนะนาสิก (Nasal Consonants) บทความชิ้นนี้ชี้ให้เห็นว่าระดับของลิ้น (Vowel Height) และความสั้นยาวของสระ (Vowel Length) นับเป็นตัวแปรสำคัญที่ทำให้เกิดเสียงสระนาสิกในภาษาอีสาน เช่นเดียวกันกับพยัญชนะในกลุ่มเสียงกัก และ เสียงเสียดแทรก (Stops, Fricatives & Affricates)

Abstract

Vowel nasalization, without being influenced by nasal consonants (VN), is distinctively perceptible in a pronunciation of speakers originally from northeastern Thailand. The present study shows that Vowel Height Parameter (VHP) and Vowel Length

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Parameter (VLP) are two driving factors contributing to the speakers' nasalized vowels. Tongue height and tongue advancement are very crucial for vowels to be nasalized. The study also suggests that obstruent consonants partake in vowel nasalization more than sonorant consonants.

1. Introduction

Thai regional dialects have always been sources of interest for linguists, language learners, as well as observers. Different dialects from different parts of Thailand possess their own distinctive features and characteristics. Each carries its own set of words, phrases and—most importantly—uniquely original pronunciation utterly different from those of others. As a native speaker of Thai, it is linguistically identifiable whether your interlocutor is from the South or the North or the Northeast of Thailand, simply by attending to his/her pronunciation.

Like other regional dialects of Thailand, Northeastern dialect or so-called 'Esaan' dialect also carries its own uniqueness. One striking feature of Esaan dialect lies in its vowel nasalization. Different vowel sounds spoken by speakers from this region, though not influenced by nasal consonants ($CV(C)$) ($ is a syllable boundary), are nasalized. For example:

Northeastern Dialect	Central Thai	Gloss
/hũːa/	/huːa/	Head
/pæ̃ːt/	/pæːt/	Eight

Since there is very little research done on vowel nasalization in Esaan, the researcher hopes that the results gained from this study would help us understand this very language-specific phenomenon more.

2. Vowel Nasalization

Ordinarily, all of the vowels are pronounced with the velum in the raised position, blocking off the nasal cavities. However, if the velum is lowered during vowel production, then vocal resonance can occur in the nasal cavity as well as in the oral and pharyngeal cavities. This gives a particular timbre to the vowel, which is identified as a nasal quality or nasalization (MacKay 1987).

As with consonants, it is possible to keep the nasal passage open in the production of vowels. Many languages, including French, Portuguese, Polish, and Gujarati, have distinctive nasalized vowel phonemes, indicated by /˜/ above the vowel. Generally, a phonetically nasalized vowel is the result of being adjacent to nasal consonants /m, n, ŋ/ or VN. It is the following consonant that causes the vowel to become nasalized. In all varieties of English, vowel preceding nasal consonants tend to be nasalized and therefore entirely predictable (e.g. /grĩn/ 'green,' /tæ̃n/ 'tan') (Wolfram and Johnson 1982).

There are quite a few claims regarding the universal tendencies of VN sequences, including (1) nasalization affects low vowels first, before spreading to mid and high vowels, (2) front vowels are nasalized before back vowels of similar height, (3) stressed vowels are nasalized before unstressed vowels (Connell and Hajek 1991). Universalists like Schourup (1973), Lightner (1973), Chen (1974),

Foley (1977) are in general agreement that Vowel Height Parameter (VHP) has the same ordered effect on the phonologization of vowel nasalization.

- *Vowel Height Parameter* (VHP)

  Low Mid High →

Also, as suggested by Hajek and Watson (1998), cross-linguistic studies of the development of distinctive nasalization show evidence of significant suprasegmental conditioning. Amongst conditioning factors uncovered are vowel length and stress. Across languages, it is reported that in the related contexts /V:N/ and /VN/, identical except for the vowel length, phonologization of nasalization and N-deletion always occur preferentially in the context of long vowels (Hajek and Watson 1998). The so-called Vowel Length Parameter (VLP) is therefore a very essential factor contributing to vowel nasalization.

- *Vowel Length Parameter* (VLP)

  V:N VN →

In some languages, like French, vowel nasalization occurs without being adjacent to nasal consonants. These nasalized vowels may contrast with the oral vowels to distinguish the meaning of words, as in the following examples (taken from Jannedy, Poletto & Weldon, 1994):

Beau	/bo/	'beautiful'	vs.	bon	/bõ/	'good'
Laid	/lɛ/	'ugly'	vs.	lin	/lɛ̃/	'flax'
là	/la/	'there'	vs.	lent	/lã/	'slow'

Esaan dialect also falls into this category. Several vowels in Esaan are nasalized without being adjacent to the nasal consonants.

In this study, Vowel Height Parameter (VHP) and Vowel Length Parameter (VLP) are two main theoretical frameworks employed to see what lies beneath vowel nasalization in Esaan dialect, without being influenced by nasal consonants (VN), and whether or not it agrees with these two parameters and the universal hypothesis.

3. Northeastern Thai Phonology

This section provides the fundamental features of Esaan Dialect in three main areas: consonants, vowels and tones. The data are taken mainly from Hoshino's and Marcus's (1997) *Lao for Beginners: An Introduction to the Spoken and Written Language of Laos*; and Kingkum's (2001) *Thai Dialects*.

3.1 Esaan Consonants

Esaan has altogether twenty consonant phonemes. The following chart describes the manner and place of articulation of Esaan consonant phonemes.

Chart I: Esaan Consonant Inventory (Kingkum 2001; Hoshino and Marcus 1997)

	Bilabial	Labidental	Alveolar	Palatal	Velar	Glottal
Vl. Stop	p		t	c	k	?
Vl. asp. stop	ph		th		kh	
Vd. Stop	b		d			
Vl. Fricative		f	s			h
Nasal	m		n	ñ	ŋ	
Semi-vowel	w			y		
Lateral			l			

There is a slight difference between Central Thai and Esaan concerning consonant phonemes. /ch/ and /r/ which are present in Central Thai are absent in Esaan. In Esaan, the former is usually replaced with /s/ and the latter /l/. Esaan also has /nò/, a locally distinctive sound, which is absent in Central Thai.

3.2 Esaan Consonant Clusters

Unlike Central Thai, Esaan does not allow any consonant clusters. All clusters present in Central Thai are reduced to single consonants in Esaan. The canonical form of its syllable structure, therefore, is CV(V)C, where (V) represents vowel length.

3.3 Esaan Vowels

Esaan has twenty-one vowel phonemes, consisting of nine short vowel phonemes, nine long vowel phonemes and three

diphthongs, as presented in the following chart.

Chart II: Esaan Vowel Inventory (Kingkum 2001; Hoshino and Marcus 1977)

	Front	**Central**	**Back**
High	ɪ ɪː	ɨ ɨː	u uː
Mid	e eː	ə əː	o oː
Low	æ æː	a aː	ɔ ɔː

There are three diphthongs: /ɪːa, ɨːa, uːa/. The short counterparts of these diphthongs present in Central Thai are also absent in Esaan.

3.4 Esaan Tones

Another unique aspect of Esaan dialect lies in its tones. Esaan, unlike Central Thai, features six tones: mid (-) as in /dɪn/ 'ground', mid-high ( ) as in /muan/ 'fun', low (ˋ) as in /khàw/ 'knees', falling (ˆ) as in /ʔâːy/ 'elder brother', high (ˊ) as in /hák/ 'love' and rising (ˇ) as in /khǎːi/ 'legs'. Mid-high is the one absent in Central Thai.

4. Methodology

The subjects in this study were twenty third- and fourth-year English major students, both male and female, from the Faculty of Liberal Arts, Ubon Ratchathani University. They were all native speakers of Esaan, mainly from the southern part of Northeastern Thailand, i.e., Ubon Ratchathani, Sisaket, Surin, Burirum, Amnaatcharoen, Yasothon, etc. They were asked to pronounce words

containing targeted sounds from the list (See Appendix) in order to investigate phonological distinctions concerning vowel nasalization. The target syllable structures investigated here are CV(V), CV(V)C, where the second (V) represents the length of the vowel. Though some words were made up, they were phonologically possible in the language. The subjects' pronunciation was tape-recorded for subsequent transcription.

5. Results

In all varieties of English, vowel preceding nasal consonants tend to be nasalized and therefore entirely predictable (e.g. /grĩn/ 'green,' /tæ̃n/ 'tan') (Wolfram and Johnson 1982). The speakers usually nasalize without being aware of doing so. The syllable structure of nasalized vowels in English is therefore CVN. This however is not applicable to Esaan dialect. In Esaan dialect, several vowel sounds are simply nasalized without being influenced by any nasal consonants:

Esaan	**Gloss**
/pĩk/	'wings'
/pæ̃t/	'eight'
/t^{h}æ̃w/	'row'
/sĩːa/	'unusable'
/hɔ̃y/	'shell'

The above examples show that nasal consonants do not play a vital role in Esaan dialect. Several vowel sounds are nasalized by other influences, not nasal consonants—(CVC).

What are those 'other influences'? The following Tables are

used here to illustrate cases where each vowel sound is nasalized in Esaan dialect. The target syllable structures for each Table are CV(V), CV(V)C, where the second (V) represents the length of the vowel. All consonants are used both as consonant onsets and codas, in combination with all the vowel sounds (See section 3 for possible onsets and codas in Esaan dialect). Words featuring /m, n, ŋ/, be they in initial or final positions, are not investigated here, for their nasal qualities are clearly evident. The list of words investigated can be found in the Appendix.

Table I: Stop Onsets + Stop & Other Codas Onsets

	p	t	c	k	p^h	t^h	k^h	b	d	ʔ
+ɪ ɪː(+C)	~~	~~	~	~~	~~	~	~~	~~	~~	x
+e eː(+C)	~~~	~~	~	~~	~~	~~	~~	~~	~~	x
+æ æː(+C)	~~~	~~~	~~	~~~	~~~	~~~	~~~	~~~	~~~	x
+i̇ i̇ː(+C)	x	x	x	x	x	x	x	x	x	x
+ə əː(+C)	x	x	x	x	x	x	x	x	x	x
+a aː(+C)	x	x	x	x	x	x	x	x	x	x
+u uː(+C)	x	~	~~	x	x	x	x	x	x	x
+o oː(+C)	x	x	x	~	~~	~	~	~~	~~	x
+ɔ ɔː(+C)	~	x	~	x	~	~	x	x	x	x
+ɪːa(+C)	~~~	~~	~	~~~	~~~	~~	~~~	~	x	x
+i̇ːa(+C)	x	x	x	x	x	x	x	x	x	x
+uːa(+C)	x	x	x	x	x	x	x	x	x	x

*Frequency of vowel nasalization
~~~ = Most frequent, more than 70%
~ = Least frequent, less than 30 %
x = None
**The top row of each Table is consonant onsets
~~~

It can be observed that when stop consonants behave as consonant onsets, followed by other stops or other consonants as consonant codas, vowel nasalization will be apparent only with front vowels /i, iː, e, eː, æ, æː/, plus one diphthong /iːa/, which in part also features a front vowel /iː/. In this Table vowel nasalization never occurs with this group of vowels /ɨ, ɨː, ə, əː, a, aː, ɨːa, uːa/, occurs in moderation with /o, oː/, and rarely with /u, uː, ɔ, ɔː/. /æ/ and /æː/ are the two most nasalized vowels in this group, whether they are with or without the codas; and if with codas, no matter what they are. /ʔ/ is the only consonant in this group that is not affected by vowel nasalization.

Table II: Fricative Onsets + Other Codas Onsets

	f	s	h
+i iː(+C)	~	~	~
+e eː(+C)	~~	~	~
+æ æː(+C)	~~~	~~~	~~~
+ɨ ɨː(+C)	x	x	~
+ə əː(+C)	x	x	~
+a aː(+C)	x	x	x
+u uː(+C)	~	~	~~
+o oː(+C)	~	~	~~
+ɔ ɔː(+C)	~~	~~	~~
+iːa(+C)	~~	~~	~~
+ɨːa(+C)	x	x	~

Like Table I, this Table yields a similar result. Front vowels / i, iː, e, eː, æ, æː/—/æ/ and /æː/ in particular—and diphthong /iːa/ are still the ones most affected by vowel nasalization. Back vowels /u, uː, o, oː, ɔ, ɔː/ are also affected in this group, though not as strongly as the front ones. Diphthongs /ɨːa/ and /uːa/ are not nasalized, except in words featuring /h/. The most interesting sound in this group is probably /h/. All the vowel sounds, except /a/ and /aː/, in words starting with /h/, no matter what the codas are, are nasalized. A basic assumption that can be made at this point is that /h/ is one influential consonantal phoneme causing vowel nasalization in Esaan dialect, as shown in the above Table.

Table III: Glide Onsets + Glide & Other Codas Onsets

	w	y
+i iː(+C)	~	x
+e eː(+C)	x	~~~
+æ æː(+C)	~~	~~~
+ɨ ɨː(+C)	x	x
+ə əː(+C)	x	x
+a aː(+C)	x	x
+u uː(+C)	x	~
+o oː(+C)	~	~
+ɔ ɔː(+C)	~	~
+iːa(+C)	~~	~
+ɨːa(+C)	x	x
+uːa(+C)	x	x

This Table renders a similar result as the previous ones, especially in Table II. Front vowels /i, iː, e, eː, æ, æː/, diphthong /iːa/, and two back vowels /ɔ/ and /ɔː/ are chiefly affected by vowel nasalization. Diphthongs /ɨːa/ and /uːa/ are not affected by vowel nasalization. Notice that /y/ influences vowel nasalization more than /w/. What is obvious about this Table is that central vowels, as in other Tables, do not participate in this phenomenon. None of them are nasalized when preceded by /w/ and /y/.

Table IV: Lateral Onsets + Other Codas Onset

	l
+i iː(+C)	x
+e eː(+C)	x
+æ æː(+C)	x
+ɨ ɨː(+C)	x
+ə əː(+C)	x
+a aː(+C)	x
+u uː(+C)	x
+o oː(+C)	x
+ɔ ɔː(+C)	x
+iːa(+C)	x
+ɨːa(+C)	x
+uːa(+C)	x

The only liquid present in Esaan dialect is lateral liquid /l/. The trill /r/ present in Central Thai is absent here. Surprisingly, no nasalized vowels can be observed in words featuring this sound.

6. Discussion

From all the Tables above, what are some of the assumptions that can be made concerning vowel nasalization in Esaan dialect, as provided by all the subjects' pronunciation?

6.1 Front vowels /i, iː, e, eː, æ, æː/ and the diphthong /iːa/ are the ones most affected by vowel nasalization, no matter what the consonant onsets and codas are. It is noticeable that, for Esaan speakers, tongue advancement plays such a vital role concerning vowel nasalization. When the tongue is advanced or pushed forward, as in the case of all front vowels, the velum somehow is lowered, allowing the air to escape through the nasal passage, causing the vowels to be nasalized. This also happens to diphthongs featuring front vowels.

Another possible explanation for this is that all vowels, like nasals, liquids and glides, are sonorants, which are produced with a relatively open passage for the airflow. That basically means when vowels are produced, the air could escape through the nasal cavity, similar to the production of nasal consonants, making nasalized vowels highly possible.

6.2 /æ/ and /æː/ are the two most nasalized front vowels, principally with obstruent consonants, either as consonant onsets or codas. And when /p, t, k/, or voiceless stops, are used as consonant codas, as in words like /pæ̃k/ 'strange,' /dæ̃t/ 'sunshine,' /sæ̃p/ 'to feel pain,' the intensity of vowel nasalization is even more distinct.

The result suggests that, other than tongue advancement, tongue height is also a critical factor contributing to vowel nasalization. When the tongue is lowered, which means more room for air to escape through the nasal cavity, the vowel, /æ/ in particular, is nasalized

more. As suggested by the universalist hypothesis, though not empirically supported, low vowels are inherently more nasal than mid and high vowels—(low >> mid >> high)—because of a purportedly universal inverse correlation between the degree of velic opening and vowel height (Hajek, 1997).

/p, t, k/ are the three major nasalized obstruent codas. The reason codas are paid more special attention to is because they, unlike consonant onsets, cause vowel nasalization.

6.3 Although the Tables above do not include the distinction between short and long vowels, the difference is clearly evident. Long vowels /V:C/ tend to be nasalized more than short vowels /VC/. This confirms the role of the vowel length parameter (VLP) in the perception and the prominence of vowel nasalization.

6.4 Central vowels and the diphthongs /ɨ:a/ and /u:a/ usually do not take part in vowel nasalization, no matter what the consonant onsets or codas are. The universalist hypothesis of a low >> mid >> high vowel height parameter (VHP) should be an explanation justifying the lack of vowel nasalization in central vowels and diphthongs.

6.5 When words feature the /h/ sound, all the vowels—except low central vowels /a/ and /a:/—will be nasalized. One therefore can certainly state that /h/ causes vowel nasalization in Esaan dialect. The /h/ sound is quite distinctive in Esaan dialect. Although its place of articulation is at the glottis, its pronunciation by Esaan speakers is very close to velar sounds. It sounds as if it were made with the tongue near the velum, like /k/, /g/, and, in particular, /ŋ/, which perhaps explains an obvious nasalized quality.

7. Conclusion, Limitations and Suggestions for Future Research

From the results provided above, it is evident that vowel nasalization in Esaan dialect, as seen from the subjects' pronunciation, supports the universalist hypothesis of a low >> mid >> high vowel-height parameter (VHP), that is, the development of some or all parts of the distinctive nasalization process occurs preferentially in the context of low vowels before spreading gradually to mid and then finally to high vowels (Hajek 1997), and the so-called vowel length parameter (VLP), which states that over time distinctive nasalization will occur preferentially in the context of long vowels before spreading to short vowels (Hajek and Watson 1998). Tongue advancement, as suggested by the results, is another factor contributing to vowel nasalization in Esaan dialect. It can be observed that front vowels are more nasalized than central or back ones.

However, there are some other areas of vowel nasalization in Esaan dialect not investigated—or less thoroughly investigated—in this study that might be of use for future research. They are:

1. Suprasegmental features: Tones and vowel length are two pivotal factors in Thai language. And since very little attention has been paid to these suprasegmental phenomena, a thorough study of them therefore merits full research if it is to be worked out systematically.

2. Syllable structures: This study investigates only simple syllable structures—CV, CVC. A study of polysyllabic words or words of various syllable structures might provide more evidence for distinctive vowel nasalization.

3. CVC vs. CVN: This study does not explore words featuring nasal consonants. A comparison between the two might shed new light on the intensity of distinctive vowel nasalization.

The lack of spectrograph or computer program(s) that can be used to analyzed the data, unfortunate, results in a more difficulty of the study. Many a time, sounds produced by the subjects are very hard to judge by human perception. And at times unintentional biases are inevitable. Had the computer analysis been made available, the result might have been more accurate.

APPENDIX: ESAAN WORDS*

/p/	/t/	/c/	/k/
ปด/ปก/ปบ	ตก/ตบ/ตด	จบ/จด/จก	กบ/กด
ปิ/ปี/ปิด/ปีก/ปีก	ติ/ตี/ตีบ/ติบ/ติ๊ก/ติ๊ด	จิ/จี/จิบ/จิด/จีบ/จีด/จิกจิ๊ก/จิ๊ด/จี๊บ	กิ/กี/กิจ/กิ๊บ/กิ๊ด/กีด
เป็ด/เป๊ะ/เปด/เปก/เป	เตะ/เต๊ก/เต	เจ/เจ๊ะ/เจด/เจก/เจ๊ก	เก/เก๊ะ/เกด/ เกก/เก๊ก
แป/แปก/แปด/แปะ/แป๊ะ/แป๊ก	แต/แตก/แตะ/แต๊ก	แจ/แจก/แจส	แก/แก๊ก/แกส/แก๊บ/แกบ
ปีก/ปี๊ก/ปือ/ปีด	ตึก/ตือ	จี๊ก/จือ/จีด	กือ/กึก
เปิด/เปิก/เปอะ/เปอ/เปอย	เตอ/เตอะ	เจอะ/เจอ/เจิด	เกอ/เกิด/เกย/เกอว
ปา/ปาก/ปาด/ปาย/ปาว/ปะ/ปั๊ก/ปั๊ด/ไป	ตา/ตาก/ตาด/ตะ/ตั๊ก/ตั๊ด/ไต	จา/จาก/จาด/จะ/จั๊กจั๊ด/ใจ	กา/กาก/กาด/กะ/กั๊ก/กั๊ด
ปุ/ปุ๊/ปุก/ปุด/ปู/ปูก/ปูด/ปูย	ตุ/ตุ๊ก/ตุ๊ด/ตู/ตูด	จุ/จุก/จุด/จู/จูก/จูด	กุ/กุด/กุก/กู/กูด
โปะ/โป/โปก/โปด/โปย	โต๊ะ/โต/โตก/โตด	โจ/โจก/โจทย์	โก/โกก/โกด
ปอ/ปอย/ปอก/ปอด/เป๋าะ	ตอ/ต่อย/ตอก/ตอด/เต๊าะ	จอ/จอก/จอด/เจาะ/จ่อย	กอ/กอย/กอก/กอด/เกาะ/เกีย/เกี่ยว/เกียด/เกียก
เปีย/เปียก/เปียด	เตี่ย/เตียก/เตียด	เจีย/เจียก/เจียด/เจียว	เกือ/เกือก/เกือบ
เปือ/เปือก/เปือด	เตือ/เตือก/เตือด	เจือ/เจือก/เจือด	กัว/กวก/กวด
ปัว/ปวด/ปวก/ปวย	ตัว/ตวก	จัว/จวก	

* Some words here are made up, yet phonologically plausible in the language.

/ph/	/th/	/kh/
พก/พจ/ผด	ถก/ถด/ทด/ทบ	ขบ/ขด/คบ/คด/คก
พี/ผี/ผิด/พิษ/พิก/ผิว	ทิฐิ/ที/ถี/ทิศ	คี/ขี/คิด/ขิด/ขิก
เพ/เผ/เพก/เพด/เผก	เท/เถ/เถก/เทศ/เทพ	เค/เข/เขก/เขต/เค้ก/ข็บ
แผ/แพ/แพะ/แผะ/แผก/แผดแพก/แพทย์/แผ่ว	แถ/แท/แทก/แถก/แถวแทบ/แถบ	แค/แข/แขก/แคท/แคว/แคบ
ผึก/พือ/พืช	ถึก/ทือ/ทึด/ทึบ	คือ/ขือ/คืด
เพิก/เพอด	เธอ/เถิด/เถิก	เคอย/เขย/
พา/ผา/ผาก/ผาด/พาก/พาด	ทา/ถา/ทาย/ถาก/ถาด/ถ่าย/พาย/ผาย/ภาพ	คา/ขา/คาย/คาว/คาก/คาด/ขาก/ขาด/
ผุ/พุ/ผูก/พูด/พู	ทุ/ทู/ถูก/ถู/ธูป	ขาว/ขาย/คาบ/ขาบ
โผ/โพ/โพก/โพด/โผด/โพย/โผย	โท/โถ/โทย/	คู/ขุด/ขูด/คูก/คูด/คุก/คุด
พอ/ผอ/เพาะ/เผาะ/พอก/พอด	ทอ/ถอก/ถอด/ทอด/ทอย/ถอย	โค/โข/โคก/โคด/โขก
เพีย/เพียบ/เพียก/เผียด	เทีย/เถียก	คอ/ขอ/ขอย/ขอบ
ผัว/พัว/พวก	ถั่ว/ทั่ว	เคียด/เขียด
		คั่ว/ขวด

/b/	/d/
บด/บก/	ดก/ดม
บี/บี/บิด/บีม	ดี/ดีด/ดิด/ดิก/ดิม
เบะ/เบ/เบส	เด/เดก/เดซ/เดพ/เด๊ะ
แบะ/แบ/แมก/แบบ/แมด	แดก/แดด
บึก/บือ/บีม	ดึก/ดือ/ดี๊ม
เบอร์/เบ๊อะ/เบ็ก/เบ็ด	เด๊อ/เด๋อ
บาร์/บาก/บาด/บาป/บาย/บ่าว	ดะ/ดา/ดาก/ดาษ/ดาบ/ดาย/ดาว
บุ/บุบ/บุก/บุตร/บุย/บู/บูด	ดุ/ดู/ดุก/ดูด/ดุจ/ดุม
โบ/โบก/โบสถ์/บก/บด/บม	โด/โดก/โดด/ดก/ดม
บ่อ/เบาะ/บอด/บอก/บอม/บ่อย/บ่อย	ดอก/ดอด/เดาะ/ดอย
เบียร์/เบียก/เบียด/เบียม	เดีย/เดียก/เดียด/เดี๊ยะ
เบื่อ/เบือก/เบือด	เดือ/เดือด/เดือก
บ้ว/บวช/บวย/บวม/บวก	ดวด/ดวก/ดวม

/f/	/s/	/h/
ฟก/ฟด/ฟม	สด/สก/สม	หก/หด/อม/อก/อด
ฟิด/ฝี	ลิก/ลิด/ลิม/ลิว/ลี่/ลีด	หึม/อึก/อิด
เฟะ	เส/เสม/เสก/เศษ	เห/เอก/เอด/เห็ม/เห็ด
แฟร์/แฝด/แฟม	แซะ/แส/แสก/แสด/แสม/แซม/แซว	แอะ/แห/แหก/แหด/แหม/แอม/แอด
ฝึก/ฝึด	ลึก/ลึม/ลือ	อือ/อึก/อึด/อึม/หือ
เฟอะ/เฝอ	เซอะ/เซอ	เออก/เอิด
ฝา/ฝาก/ฝาด/ฝ่า	ซา/ซะ/สระ/สาป/สาก/สาด	อา/หา/หาม/หาก/หาด/อาม/อาด
ฟูก/ฟู	สู่/สู/สูบ/สูด/ซูบ	อู่/อู/อุธ/หุบ/หูด/หูก
โฟ/โฝ/ฟก	โส/โศก/โสด/สก/สด/ศพ	อบ/อก/อด/โอ/โห/โหด/หก/หด
ฝอย/ฟอร์ด	เสาะ/สอย/สอบ/สอก/สอด/เซาะ	เอาะ/เหาะ/หอ/หอย/หอบ/หอก/ออก/ออด/
ฟ้อ/เฟือย	เสีย/เสียบ/เสียด	เอียด/เหียด
	เสือ/เสือก/เสื่อ	เสือ/เหือด/
	สวย/ซวย/สวด	อ้ว/อวบ/อวด/หวด

/w/	/y/	/l, r/
วก/วด/วบ	ยก/ยศ/ยพ	ลบ/ลด/รบ/รถ/รก
วิ/วี/วิด/วิก/วื๊ด/วิว	ยี/หยี/ยิว/หยิว	ลี/ลีบ/รีด/รีบ/ริว
เวก/เวช	เย/เยก/เย็บ	เล/เลข/เล็ด/เล็ก/เล็บ/เร็ด/เร็ว/เร
แวะ/แว/แวก/แวด/แว็บ	แยะ/แย/แยบ/แยก/แยด	และ/แล/แลก/แลบ/แร็บ/แรด
วืด/หวือ/หวืด	ยืด/ยื็ด/ยึก	ลึก/ลือ/รือ
เหวอ/เหวอะ	เยอะ	เลอะ/เลอ/เรอ
วา/วะ/วาก/วาด/วาบ/วาย/วาว	ยา/ยะ/ยาว/ยาก/ยาด/ยาย/ยับ/ยัก/ยัก/หยัก/หยัด	ละ/ลา/ลาบ/ลาก/ลาว/ลาด/ลัก/ลัด/ลับ/
หวูด/หวุด	ยุ/ยูก/ยูบ/หยูก	รัด/ราบ/ราว/รา
โวย	โย/โยก/โยด	ลุ/ลูก/ลูบ/ลุย/รูป/รูด
วอ/หวอ/วอก/วอด	ยอ/ยอด/หยอก/หยอก	โล/โลก/โลด/โรย/โรจน์
วั้ว	เยียด/เยียก/เหยียบ/เหยียด	เลาะ/ลอก/ลอด/หฺลอด/หลอก/รอด/รอก/
	เหยือก/เยือก	รอย/รอ
	หยวก	เลีย/เลียด/เลียบ/เรียบ/เรียด/เรียว/รี
		เลือก/เลือด/เรื่อย
		ลวก/ลวด/รวด/รวบ/รวย

BIBLIOGRAPHY

Abramson, A.S., ed. 1997. *Southeast Asian linguistic studies in honor of Vichin Panupong*. Bangkok: Chulalongkorn University Press.

Beebe, L. 1977. The influence of the listener on code-switching. *Language Learning* 27: 331-339.

Celce-Murcia, M, D.M. Brinton, and J.M. Goodwin. 1996. *Teaching pronunciation: A reference for teachers of English to speakers of other languages*. New York: Cambridge University Press.

Chen, M. 1974. Metarules and universal constraints in phonological theory. In *Proceedings of the eleventh international congress of linguistics*, L. Heilmann, ed. Pp.909-924. Bologna: Il Mulino.

Connell, B., and J. Hajek. 1991. Universals of nasal attrition. Proceedings of the XIIth international congress of phonetic sciences, August 19-24. Aix-en-Provence, 5. Pp.106-109.

Foley, J. 1977. *Foundation of theoretical phonology*. Cambridge: Cambridge University Press.

Hajek, J. 1997. *Universal of sound change in nasalization*. Oxford: Blackwell Publishers.

Hajek, J, and I. Watson. 1998. More evidence for the perceptual basis of sound change? Suprasegmental effects in the development of distinctive nasalization. *Proceedings of the 1998 international conference on speech and language processing*. Sydney: Causa.

Jannedy, S, R. Poletto, and T.L. Weldon, eds. 1994. *Language files*. 6th ed. Columbus: Ohio State University Press.

Khanitthananda, W. 1990. *Language and linguistics*. Bangkok: Thammasart University Press.

Kingkum, W. 2001. *Thai dialects*. Bangkok: Kasatesart University Press.

Lightner, T.M. 1973. Remarks on universals in phonology. In *The formal analysis of natural languages*, M. Gross, M. Halle, and M. Schutzenberger, eds. Pp,13-50. The Hague: Mouton.

MacKay, I. 1987. *Phonetics: The science of speech production.* Boston: A College-Hill Publication.

Ohala, J. 1993. The phonetics of sound change. In *Historical linguistics, problems and perspectives*, Charles Jones, ed. Pp.237-278 London: Longman.

Pankuenkat, R. 1999. *Basic Laos*. Bangkok: Chulalongkorn Ratchawitayalai Press.

Panlay, S. 1997. The effect of English loanwords on the pronunciation of Thai. Unpublished MA Thesis, Michigan State University.

Parker, F., and K. Riley. 2000. *Linguistics for non-linguists*. Boston: Allyn and Bacon.

Rinprom, C. 1977. Sound system in Korat dialect. Unpublished MA Thesis, Chulalongkorn University.

Roach, P. 2000. *English phonetics and phonology*. Cambridge: Cambridge University Press.

Schourup, L.C. 1973. A cross-language study of vowel nasalization. *Ohio State University Working Papers in Linguistics,*

15: 190-221.

Watson, I., and J. Hajek. 1999. A perceptual basis for the foot parameter in the development of distinctive nasalization. Proceedings of the XIVth international congress of phonetic sciences. San Francisco. Pp.1857-1860.

Wolfram, W., and J. Robert. 1982. *Phonological analysis: Focus on American English.* Englewood Cliffs, N.Y.: Prentice Hall.

ใบสมัคร

วารสารอักษรศาสตร์
มหาวิทยาลัยศิลปากร

เฉพาะเจ้าหน้าที่
เลขที่ใบสมัคร.....
เลขที่ใบเสร็จ.....
วันที่รับเป็นสมาชิก.....
สมาชิกหมายเลข.....
วันที่หมดสมาชิกภาพ.....

ข้าพเจ้า นาย/นาง/นางสาว..... นามสกุล.....

ที่อยู่ที่ต้องการให้จัดส่ง

เลขที่..... ตรอก/ซอย..... ถนน.....

ตำบล/แขวง..... อำเภอ/เขต..... จังหวัด.....

รหัสไปรษณีย์..... โทรศัพท์..... โทรสาร.....

สถานที่ทำงาน หรือหน่วยงานที่สังกัด.....

ที่อยู่.....

โทรศัพท์..... โทรสาร.....

ขอสมัครเป็นสมาชิกวารสารอักษรศาสตร์ มหาวิทยาลัยศิลปากร (2 ฉบับ/ปี)

ตั้งแต่ปีที่..... ฉบับที่..... ถึงปีที่..... ฉบับที่..... รวม..... ฉบับ

ฉบับละ 60 บาท รวมเป็นเงิน..... บาท

พร้อมกันนี้ได้ชำระค่าสมัครเป็นสมาชิกเป็นเงิน..... บาท

(ตัวอักษร.....)

โดยแนบเป็น

☐ เงินสด ให้แก่.....

☐ เช็คธนาคาร (เลขที่.....)

☐ ตั๋วแลกเงินทางไปรษณีย์

ลงชื่อ.....

วันที่..... เดือน..... พ.ศ.....