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THE EFFECT OF ENGLISH LOANWORDS
ON THE
PRONUNCIATION OF THAI
presented by

Suriyan Panlay

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**THE EFFECT OF ENGLISH LOANWORDS ON
THE PRONUNCIATION OF THAI**

By

Suriyan Panlay

A THESIS

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ABSTRACT

THE EFFECT OF ENGLISH LOANWORDS ON THE PRONUNCIATION OF THAI

By

Suriyan Panlay

Thai speakers are experiencing increasing influence of English on their Thai. Numerous English words have been borrowed into Thai. When these English words are borrowed, their pronunciation is changed in order to conform to Thai phonology. Phonological changes can be observed when these loanwords are pronounced by Thai speakers. It is generally known that languages in contact undergo linguistic change. The present study, therefore, aims to describe some aspects of a language contact phenomenon, English loanwords in Thai. It proposes to determine what phonological changes in English loanwords may be observed when they are pronounced by Thais, and to seek understanding and explanation of the Thai pronunciation of English loanwords by comparing phonological systems and finding generalizations which can predict how Thai rules apply to English words.

**“The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.”
Robert Frost**

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Chapter 1

INTRODUCTION

1.1. Introduction

In a language contact situation, when two or more languages are used by the same individual, it is natural for one language to influence another. In many instances, the speakers may transfer elements from one language to use in the speech of the other, thus causing changes in either of the languages. The effect is in both directions, and therefore results in changes in both languages that are brought into contact.

When a word is imported into another language, certain changes often occur. The most obvious changes take place at the phonemic level, where phonemes of the borrowed word are replaced by native phonemes. Sometimes the nativized word may be completely unrecognizable to speakers of the donor language. This study therefore will try to determine what phonological changes may be observed when English loanwords are pronounced by Thais.

Loanwords may sometimes have unfamiliar phonemes or unfamiliar sequences of phonemes and therefore may undergo either modification or adaptation through an integrative process of speakers of the borrowing language. In reproducing loanwords from another language, the speakers are said to make an 'importation' if the words are partially adapted and recognizable by the native speakers of the borrowing language, and a 'substitution' if the words are completely adapted and thus are not recognizable by the native speakers of the borrowing language (Haugen, 1972: 82).

Language contact can affect the sub-systems of language, such as phonology, a large part of morphology and syntax, and some areas of vocabulary. This study, however, will investigate mainly the area of phonology, one of the areas in second language acquisition (SLA) which was largely neglected by second language acquisition research until very recently (Tarone, 1987: 70), by using loanwords as a source of investigation. Perhaps one reason for the relative neglect of phonology is the commonly held belief that the learner's pronunciation of the sounds of a second language reflects simply negative transfer from the first language rather than the learner's interlanguage grammar (Tarone, 1987: 70). What is obvious about phonology is that most people can readily detect the linguistic origin of speakers from their pronunciation but not from their syntax (Ioup, 1984: 8). Therefore, I find it extremely intriguing to find out what it is that makes the pronunciation of a second language learner from one country, Thai speakers in this case, uniquely different from that of others.

English words borrowed into Thai are a source of interest for linguists, consternation for learners, and bemusement for observers. Native speakers of English who study Thai soon realize that they must learn new pronunciations for words borrowed from their own native vocabulary or they will not be understood when they use those words in conversation with Thai speakers. When Thai speakers speak English, this difference can be easily detected. There are definite patterns to changes made in English words borrowed into Thai, which may have much to tell us about both donor and recipient.

Borrowing can occur at all levels of the structure of languages that are brought into contact, but the most common form of linguistic interference is represented by lexical borrowing or loanwords (Weinreich, 1964: 1). Weinreich, in his study of language contact between Schwyzertütsch and Romansh in Switzerland, dealt comprehensively with linguistic interference resulting from language contact, and defined interference as “those instances of deviations from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language” (Weinreich, 1964:1). He added that “the greater the difference between the system, the greater is the learning problem and the potential area of interference” (Weinreich, 1964: 1). He stated that the problem of phonic interference concerns the manner in which a speaker perceives and reproduces the sounds of one language, which might be designated secondary, in terms of another, to be called primary. He therefore proposed that “Interference arises when a bilingual identifies a phoneme of the secondary system with one in the primary system and, in reproducing it, subjects it to the phonetic rules of the primary language” (Weinreich, 1964: 1). This applies to the change in pronunciation of Thai English loanwords because speakers apply rules of their primary phonemic system to phonemes of the secondary system.

Silverman, in his study of Cantonese loanword phonology, proposes a theory of loanword phonology. He states that loanword phonology possesses two distinct levels: perceptual and operative (Silverman, 1992: 291). The first level is concerned with providing a preliminary, ‘raw’ linguistic representation to the perceived non-linguistic input. That is, the speakers will perceive the secondary

sounds by using their primary phonemic systems. I find this crucial in Thai English loanwords. I assume, for example, that it is this level that makes Thai speakers pronounce the word punch as pun, because there are no final clusters in Thai.

According to Eckman's (1977: 320) Markedness Differential Hypothesis (MDH), one way to think of markedness is that an unmarked form, whether phonological or syntactic, is one that is more common, whereas a marked form is one that is more unusual, less common. That is, "Those areas of the target language which differ from the native language and are more marked than the native language will be difficult" (321). In terms of loanword phonology, phonological difficulty occurs when the recipient language (Thai) does not have marked phones that exist in the donor language (English). Speakers make a substitution or adaptation of unmarked sounds that do exist in their language. According to the basic concepts of syllable structure and syllabification (Kenstowicz, 1994: 252) the unmarked syllable structure of any language is CV. A consonantal coda therefore is marked. Since final clusters or other single final phones such as /θ, ð, ʃ, z, ʒ/ are a marked feature absent in Thai, they cause some difficulties to Thai speakers.

There has been very little research done on the relationship of English loanwords in Thai and Thai pronunciation. Raksaphet (1992), in his study of English loanwords in Thai newspapers, has dealt only with semantic and morpho-syntactic changes of English loanwords. In her study of interference of English in the language of Thai bilinguals in the United States, Lerdtadsin (1981) has proposed that phonological

existent. Since her subjects were bilinguals who were born and raised in the United States, it is natural that there will be little or no phonological changes in English loanwords. But for native speakers of Thai, phonological changes of certainly exist in English loanwords. Hopefully, this study will contribute some ideas on phonological changes occurred in Thai English loanwords.

1.2. Scope and Method of Investigation

The present study aims to describe some aspects of a language contact phenomenon, English loanwords in Thai, and to determine what phonological changes in English loanwords may be observed when they are pronounced by Thais. Also, this study is designed primarily to seek understanding and explanation of the Thai pronunciation of English loanwords by comparing phonological systems and finding generalizations which can predict how Thai rules apply to English words. Specifically, this study will examine the following phenomena:

(1) Tone/Pitch: Thais have a tendency to put tone/pitch on the final syllable of English words, e.g., shopPING, cofFEE, technoloGY.

(2) Final clusters: Speakers of Thai are likely to omit and replace phones of final clusters that do not exist in the language, e.g., lift --> /lip/, list --> /lis~lit/.

(3) Final consonants: Thais tend to omit and replace final consonants that do not exist in the language, e.g., wig --> /wik/, freeze --> /fri:t/.

(4) Initial clusters: Thais insert a short vowel into some initial clusters including /tw, sl, sw, sp, st, sk, sm, sn, spr, str, skr, spl, skw/, e.g., script --> /sakrip/, brandy --> /barandi:/, spring --> /s'priN/.

(5) /l/ and /r/: Thais tend to replace /r/ with /l/ or omit it, e.g., freeze --> /fli:t~fi:t/, brake-->/ble:k~be:k/.

Subjects, three males and three females graduate students at Michigan State University and Central Michigan University, were asked to answer twenty questions in Thai. The questions contain English loanwords. The subjects were encouraged to repeat the questions when they answered, and to incorporate those words in their utterances. Their pronunciations were later transcribed into a phonetic form. Computer spectrograms were used to exemplify each point.

1.3. Outline of the Thesis

The following is a brief description of all chapters in this thesis:

Chapter 2 gives the background information of English loanwords in Thailand: when they are first introduced into Thailand, the role of English in Thailand at the early stage, the attitude of Thai people towards the English language.

Chapter 3 reviews the Thai phonology, since this is the main concern of this study. It includes a discussion of Thai consonants, vowels, and tones.

Chapter 4 reviews English phonology in terms of consonants, vowels, and stress.

Chapter 5 presents the contrastive analysis of Thai and English phonology in order roughly to predict and explain the areas of difficulty that might result from the differences between the two languages.

Chapter 6 describes the methods, subjects, and the procedure of data collection of this study, and how the data are analyzed.

Chapter 7 discusses the results with regard to each hypothesis proposed at the Scope and Method of Investigation section. The result also includes spectrograms of some of the English loanwords.

Chapter 8 summarizes the results discussed in Chapter 7 and provides possible explanations of the pronunciation of English loanwords by Thais.

Chapter 2

ENGLISH LOANWORDS IN THAI: A BRIEF HISTORICAL BACKGROUND

The importance of English as the language of world communication is apparent. There are millions of people who speak it as a second or foreign language. English is the language of modern technology, international trade, science, world diplomacy and a language used for cross-cultural communication. The English language is very important in Thailand. A good grasp of English can help facilitate an acquisition of a good and well-paid job as well as an acceptance in the academic domain. English is a language of upward mobility. It symbolizes an advanced and good education due to the fact that it is the language of higher education and advanced technology. It can be stated without any reservation that English is gaining importance and acceptance in Thailand.

2.1. English in Thailand

Introduced into Thailand along with modern technology, new terms and new concepts, English plays a vital role in Thailand's educational system today. It is widely used and taught in schools all over the country. English, as opposed to its forerunners, the long-used Indic languages, Pali and Sanskrit, has become the most favored source for new vocabulary. Nacaskul (1979) comments:

Though there is a traditional preference for Sanskrit coinage, the influx of modern technology from the western civilization is so strong that the English words which are the carriers of such influences have been

accepted with an increasing rate of current usage, colloquially as well as in writing. (161)

The borrowing from English into Thai is essential for the three reasons:

2.1.1. Need to fill gaps in vocabulary. When foreign ideas are brought into Thai through various channels of contact, Thai has no words of its own to denote these concepts. As a result, foreign words may be used. In the past, geographical, religious, legal, artistic and scientific terms as well as names for mythological and legendary figures were introduced from the Indic sources. These days the need to know and use technological terms is tremendous and the vocabulary gap is becoming wider as the world is in a time of rapidly growing technology. People are now brought together not only by classic factors like trade, commerce, and war, but also education, urbanization, and electronic media such as film and television, telephones and computers. Another reason why English plays an important role in Thai is that this modern technology is from western societies.

2.1.2. Need to convey a message in a more accurate way to his listener, which may not be possible with indigenous words. Take the English loanword *taxi*, for example. The Thai word for *taxi* is *rót rápcá:ŋ*, but the meaning of this Thai equivalent also covers any kind of vehicles (bus, truck, van, etc.) that is rented for a while. Although the listener may be a native Thai speaker, he might need more elucidation on what kind of *rót rápcá:ŋ* it is. When the word *taxi* is used, the listener understands accurately that it is a public passenger-car for hire.

2.1.3. Desire for symbols of modernization. Foreign words are regarded as symbols of modernization and worthy of imitation. Thai speakers who use these words accurately and appropriately are regarded as educated or knowledgeable people.

The need for a lexicon of technological innovations heightens the importance of English in Thailand nowadays. More and more English expressions have been incorporated into Thai. Journalists and educated people may be mainly responsible for these borrowings. Some English loanwords have gained popularity and have become nativized. Most Thais would be unaware of their foreign origins. These words are heard in everyday speech and are seen in all sorts of publications. Examples are *card*, *stamp*, *cheer*, *care*, *brake*, *fit*, *taxi*, and *free*.

Yet some English loanwords are used primarily among educated people and can be found only in certain types of publication, for example, *concept*, *attitude*, *optimistic* and *cocktail*. These loanwords are not yet nativized and are not understood by all Thai people.

When English was first introduced into Thailand, it was regarded as merely a foreign language, like Portuguese, French and Dutch. The Thais studied it as a bridge to the Western knowledge of the Western world. As a coincidence, during this early acquisition of English by Thai people, the imperial threat of England and France prevailed all over Asia. The rulers of all Asian countries shared the same burden, that is, to safeguard the independence of their nations. The Thai kings' policy to protect Siam was to open the country for Westerners, to negotiate different matters with compromises, and to educate their subjects by encouraging them to learn English.

Although their subjects might have been reluctant to study English at first, they were enthusiastic to take it in earnest later. Anything supported by their 'lord of life' would be eagerly accepted by the citizens (Wyatt, 1984: 39).

By speeding Westernization the monarchy undermined its privileged position. Thais who had learned about Western democracy became disillusioned with the absolute powers of a King. On June 24, 1932, a bloodless revolution was staged. The king was forced to accept a drastic curtailment of his authority. From then on Thailand changed from an absolute monarchy to a constitutional monarchy like Great Britain. However, the change of political system has not lessened the importance of English. On the contrary, it has even played a greater role in Thailand as the Thai constitution has been patterned after that of the British. Certainly more English loanwords have come into Thai.

In conclusion, the status of English in Thailand has been changed from merely another foreign language, when it was first introduced into Thailand, to a highly-valued and acceptable language that has been widely used among educated people until nowadays.

2.2. The Use of English in Thai

It was not until the reign of King Rama III (1825-1851) of the Chakkri Dynasty, when Thailand permitted the entry of American Protestant missionaries in 1828, that Thais began to show interest in English. During the subsequent reign of King Rama IV (1851-1868), the diplomatic relationship between Thailand and the United States was initiated, and wives of American missionaries were recruited to

teach English in the King's courts, while the King himself also studied English and became very knowledgeable in it. Although at the time English and Western technology affected only the ruling class, the King depended on his knowledge of English to reform the military system for the purposes of defense (Warie, 1977: 54).

During the next reign (1868-1910), King Rama V paved the way for modernization in all spheres of life in the direction of Western technology. Numerous promising state scholars and princes were sent to study abroad (Chu, 1968: 72), and most members of the ruling class were encouraged to learn English. Although the contact with English at that time were widespread, these were only among the ruling class, which is the minority of Thai people. These contacts did not cause great changes in the Thai language since English was not actively used in the speech or writing of the majority of people.

English enjoyed its status as the language learned only by the ruling class until late in the Second World War, when Thailand received military and personnel aid from the United States, and English became a subject of study in the school curriculum. Almost two decades later, during the Vietnam War, a great number of American troops arrived and were stationed throughout Thailand, particularly in provincial areas. As a result, English was not only studied in school but it was studied and used as a means of communication between native Thais and the American personnel with whom they came into contact. English has since become a subject studied by both the ruling class and the general public.

2.3. English Loanwords in Thai

Since its early introduction, English has been learned by Thais to fulfill a supplementary function, not as a complementary or replacement language, as classified by Haugen (1972: 334). The knowledge of English is primarily for reading, and secondarily, and rarely, for communication with English speakers. Its use in speech in its early days, as used in the royal courts among the ruling class, was in the form of lexical borrowings in the games of poetry and jocular stories. King Mongkut (Rama IV) himself only switched into English when in jest or when assuming a quizzical manner with his aides, thus showing the unserious, and lighthearted side of the user (Udomwong, 1981: 39).

During the reign of King Rama V, Thailand saw a great need to borrow words from English in all areas of science and technology, and, as a result, English has since been one of the most popular sources for word borrowing in Thai. The influx of English loanwords in Thai during the period following the reign of King Rama V, among other reasons, necessitated the establishment of the Royal Academy in 1934, whose responsibilities include translation of foreign words, prescribing their usage and their representation in the orthography, as well as other prescriptive functions (Udomwong, 1981).

Following the Second World War and later throughout the 60's and 70's, the presence of American military forces in Thailand accelerated the borrowing of a great number of English words for the description of modern technology which entered Thailand with these Americans. Realizing that more and more Thais have come to use

English borrowings in their Thai speech, Thai scholars organized campaigns to purify the Thai language, through lectures, publications, and radio programs to discourage the use of English words in Thai speech. One such program called “Our Thai Language” was organized as a series of lectures throughout 1973. Therefore, English has resumed its place in the classroom for use only passively by the students.

In general, English as used by most Thais in Thailand represents a passive knowledge utilized primarily for reading, but rarely in writing, speaking, or listening. Hardly any Thais speak English natively in Thailand. Many educated Thais do not have an opportunity to use English in communication until they arrive in an English-speaking country.

Thai English loanwords have been used widely in every newspaper and magazine in Thailand as a sample from three newspapers (*Thairaj*, *Daily News*, and *Khao Sot*) and three magazines (*Phraew*, *Image*, and *Phu Ying*) shows. All are general-circulation publications. In the headlines and the first 50-60 words of stories on the front page of the newspapers, 12% were Thai English loanwords in *Thairaj* (Jan. 15th, 1997), 9% in *Daily News* (Jan. 15th, 1997), and 10% in *Khao Sot* (Jan. 15th, 1997). Examples of English words used in these newspapers are trophy, promote, game, champ, sponsor, and show. Among these, only game has been nativized. For magazines, in a ‘Behind the Fashion Scene’ column in *Phraew* (December, 1996) of 700-750 words, 2.8% were Thai English loanwordsin, *Image* (October, 1996) 3.5%, and in *Phu Ying* (January, 1996) 3.2%. Examples of English words being used in these

magazines are fashion, bank, shirt, slacks, serious, internet, mail, computer, and tape.

Among these, shirt, slacks, computer, and tape have been nativized.

Following are examples of Thai English loanwords in passages taken from the magazine Phraew and the newspaper Thairaj.

slacks — วันนี้ออสมาในสภาพเรียบร้อยมาก (ทุกทีก็เรียบร้อยจะ) เสื้อเชิ้ต — shirt
 take — ก... สแน็ค — จนทุกคนเชื่อว่าเหมือนหนุ่มเบงก — ป้าเองก็ชักเห็นด้วย
 computer — เท้าที่ดูมอสนี้โตเป็นหนุ่มมาก ทำทางสุขุมเป็นผู้ใหญ่ขึ้น ที่สำคัญพูดจา — bank
 มีหลักมีเกณฑ์ขึ้นแะะ ปฏิภาณไม่ได้แปลว่าทะเล้นอย่างที่พูดไว้จริงๆ
 ด้วยจะรี — regrade
 “โครงการในอนาคคมอสคิดไว้หลายอย่าง ตอนนี้มอสรีเกรดอยู่
 “เพื่อจะเอาไปกว. (ใบประกอบวิชาชีพ) ถ้ามีใบนี้ก็สามารถเซ็นแบบได้
 (มอสจบครุศาสตร์อุตสาหกรรม สาขาวิศวกรรมตะ) และตอนนี้มอสพยายาม
 ศึกษาเกี่ยวกับคอมพิวเตอร์อยู่ โจมอสอยากจะศึกษาเรื่องอินเทอร์เน็ตด้วย internet
 เคยอยากมีคอมพิวเตอร์เอาไว้เล่น เอาไว้เมสซิงเพื่อนอะไรอย่างนี้ พอซื้อ
 มาก็ไม่ค่อยได้เล่น เพราะมันไม่มีเวลาเลยอะ” mai

Phraew: December, 1996

game — ‘ล่าฉวนเกมส์’ พร้อม
 sponsor — สปอนเซอร์มีเพียบ
 ใช้มืออาชีพพลญ
 “บุญขง” ไม่สเบ็กีฬาแห่งชาติ
 ครั้งที่ 30 “ล่าฉวนเกมส์” ต้องชนกับ game
 ขกน้ำหนักชิงแชมป์โลก ที่จะจัดใน champ
 เดือนธ.ค.เหมือนเก่า เพราะเตรียม sponsor
 ทุกอย่างไว้พร้อม สปอนเซอร์ก็เพียบ
 แคมคนละวัตถุประสงค์ ทั้งยังจะเริ่ม
 (โปรโมต) ★ มีต่อหน้า 26

Thairaj: 01-15-97

Words in circles are Thai English loanwords.

Chapter 3

THAI PHONOLOGY

The fundamental concept of Thai phonology will be presented in this chapter beginning with consonants, followed by vowels, and then tones. Three main sources are used as references: Khanitthananda's (1990) Language and Linguistics; Lerdtadsin's (1981) A Study of Interference of English in the Language of Thai Bilinguals in The United States; and Beebe's (1977) The Influence of the Listener on Code-Switching.

Here are the rudiments of Thai phonology. There are 21 consonant phonemes and 9 vowels plus length. Like Chinese, Thai is a tonal language, with the meaning and sound of each syllable being influenced by the pitch at which it is pronounced. There are five tones: low, mid, high, falling, and rising. For example, /pa:/ with mid, high, low, rising, and falling tones, respectively, means 'throw', 'daddy', 'forest', 'sugar daddy', and 'aunt'. Thai is a non-inflecting language and much of the lexicon is monosyllabic. Polysyllabic words do exist, although the majority of these are foreign borrowings, particularly from classical Indian languages Sanskrit and Pali (Smyth, 1987: 252).

3.1. Thai Consonants

There are significant differences between the segmental phonologies of Thai and English. The following chart describes the manner and place of articulation of Thai consonant phonemes.

Chart I: Consonant Inventory (Khanitthananda, 1990)

	bilabial	labiodental	alveolar	palatal	velar	glottal
vl. stop	p		t	c	k	ʔ
vl. asp. stop	p ^h		t ^h	c ^h	k ^h	
vd. stop	b		d			
vl. fricative		f	s			h
nasal	m		n		ŋ	
semi-vowel	w			y		
trill				r		
lateral				l		

In the Thai consonant system, aspiration and nonaspiration play a big role. The aspirated voiceless stops /p^h, t^h, k^h, c^h/ are distinct phonemes and aspiration is not allophonic as it is in English, as in /pay/ ‘go’ versus /p^hay/ ‘danger’, or /ti:/ ‘hit’ versus /t^hi:/ ‘time’, /ka:/ ‘crow’ versus /k^ha:/ ‘stuck’, /com/ ‘drown’ versus /c^hom/ ‘compliment’, etc.

3.1.1. Thai Stop Phonemes. There are nine voiceless stop phonemes in Thai, which include four aspirated phonemes /p^h, t^h, k^h, c^h/, four unaspirated phonemes /p, t, k, c/ and the glottal stop /ʔ/.

All of these phonemes occur in initial position, as in /p^hɔ:/ ‘father’, /t^ha:/ ‘to paint’, /k^hɔ:/ ‘neck’, /c^ha:/ ‘tea’, /pa:/ ‘to throw’, /ta:/ ‘eye’, /kɔ:/ ‘to build’, /cə:/ ‘to

meet', /ʔa:n/ 'to read'. In final position, only the phonemes /p, t, k/ are permitted, which are always unreleased, as in /kap/ 'with', /cet/ 'seven', /p^hak/ 'to rest'.

In addition to the above voiceless phonemes, Thai has two voiced stop phonemes, /b, d/. These phonemes occur only in initial position, as in /ba:p/ 'sinful', /dæ:ŋ/ 'red'.

3.1.2. Thai Fricative Phonemes. Thai has only three fricative phonemes /f, s, h/, all of which are voiceless. While all three phonemes can occur initially, as in /fa:/ 'sky', /si:/ 'color', /ha:/ 'five', they are not permitted in final position.

3.1.3. Thai Nasal Phonemes. There are also three nasal phonemes in Thai, /m, n, ŋ/, which occur in initial position, as in /mɪ:/ 'hand', /nap/ 'to count', /ŋən/ 'money'; and in final position, as in /li:m/ 'to forget', /pi:n/ 'gun', /dan/ 'loud'.

3.1.4. Thai Liquid Phonemes. There are two liquid phonemes in Thai, a trill /r/ and a lateral /l/. Both occur only in initial position, as in /ri:a/ 'boat', /lin/ 'monkey'; they never occur in final position.

3.1.5. Thai Semivowel Phonemes. The semivowel phonemes /w, y/ occur initially and finally, as in /wan/ 'day', /yon/ 'admire', /ya:w/ 'long', /kay/ 'chicken'.

3.2. Final Consonants

All twenty-one consonant phonemes in Thai can be initial in words. However, only nine of them can be final:

/p/ as in /kap/ 'with'

/t/	as in /wa:t/	‘draw’
/k/	as in /rak/	‘love’
/ʔ/	as in /caʔ/	‘will’
/m/	as in /ha:m/	‘carry’
/n/	as in /wan/	‘day’
/ɲ/	as in /daɲ/	‘loud’
/w/	as in /ya:w/	‘long’
/y/	as in /kʰa:y/	‘sell’

3.3. Consonant Clusters

3.3.1. Word-Initial Consonant Clusters. Consonant clusters in Thai are very few and only in word initial and medial positions. The first position is confined to the voiceless stops /p, t, k, p^h, t^h, k^h/; and the second position is limited to /r, l, w/. The possible clusters in Thai can be summarized as in the following chart:

Chart II: Thai Consonant Clusters

	p	p ^h	t	t ^h	k	k ^h
l	pl	p ^h l	--	--	kl	k ^h l
r	pr	p ^h r	tr	t ^h r	kr	k ^h r
w ^(ə)	--	--	--	--	kw	k ^h w
* y ^(ə)						

Notice that phonemes /p/ and /p^h/ cannot occur in combination with /w/, and /t/ and /t^h/ can occur only with the phoneme /r/. Therefore, clusters with the combinations /pw, p^hw, tl, t^hl, tw, t^hw/ are not allowed.

Following are the examples of the possible clusters:

/pl-/ = /pla:/ ‘fish’

/pr-/ = /pra:t/ ‘philosopher’

/p^hl-/ = /phle:ŋ/ ‘song’

/p^hr-/ = /phra:n/ ‘hunter’

/tr-/ = /tri:/ ‘three’

/t^hr-/ = /t^hra:/ ‘moon’

/kl-/ = /klu:a/ ‘afraid’

/kr-/ = /krɯŋ/ ‘city’

/kw-/ = /kwa:ŋ/ ‘deer’

/k^hl-/ = /k^hlo:ŋ/ ‘poem’

/k^hr-/ = /k^hruy/ ‘gown’

/k^hw-/ = /k^hway/ ‘buffalo’

3.3.2. Word-Final Consonant Clusters. Possible syllable structure in Thai is C(C)V(V)C, where (V) represents the possibility of long vowels. According to this syllable structure formula, the acceptable codas are single phonemes only, which, as mentioned above, are /p, t, k, ʔ, m, n, ŋ, w, y/. Thai does not permit consonant clusters of any type in final position. In Thai, as mentioned above, there are only nine single consonants occurring finally.

3.3.3. Word-Medial Consonant Clusters. Intervocalic clusters are the combination of syllable-final single consonants and syllable-initial consonants. In Thai,

only two- and three-consonant clusters occur in medial position. A two-consonant cluster consists of one of the permitted final consonants / p, t, k, m, n, ŋ, w, y / as its first member and any of the permitted initial consonants as its second member, as in /topta:/ ‘to cheat’, /catca:n/ ‘manage’, /pr^hksa:/ ‘to consult’, /samnaw/ ‘copy’, /kanya:/ ‘woman’, /ʔoNka:n/ ‘organization’, /fayfa:/ ‘electricity’, /ra:wra:n/ ‘anguish’.

An intervocalic three-consonant cluster in Thai consists of one of the permitted final consonants as its first member and any of the twelve permitted initial clusters as the second and third members.

This can be summarized in the following chart.

Chart III: Intervocalic Three Consonant Clusters

	pl	p ^h l	pr	p ^h r	tr	t ^h r	kl	kr	kw	k ^h l	k ^h r	k ^h w
p	ppl	pp ^h l	ppr	pp ^h r	ptr	--	pkl	pkr	pkw	pk ^h l	pk ^h r	pk ^h w
t	tpl	tp ^h l	tp ^h r	tp ^h r	ttr	--	tkl	tkr	tkw	tk ^h l	tk ^h r	tk ^h w
k	kpl	kp ^h l	kpr	kp ^h r	ktr	--	kk ^h l	kk ^h r	kkw	kk ^h l	kk ^h r	kk ^h w
m	mpl	--	mpr	mp ^h r	--	--	mkl	mkr	--	--	--	--
n	npl	np ^h l	--	np ^h r	ntr	nt ^h r	nkl	nkr	--	nk ^h l	nk ^h r	--
ŋ	ŋpl	ŋp ^h l	ŋpr	ŋp ^h r	--	--	ŋkl	ŋkr	ŋkw	--	ŋk ^h r	ŋk ^h w
y	--	--	ypr	--	--	--	--	ykr	--	--	--	--
w	wpl	--	--	wp ^h r	--	--	--	wkr	--	--	wk ^h r	--

Examples of these clusters are:

/ppl/ = /kappla:/ ‘foods’

/pp^hl/ = /p^hlap^hla:/ ‘pavillion’
 /ppr/ = /kra:ppra?/ ‘to pay obeisance to’
 /pp^hr/ = /phri:apphrɔ:m/ ‘fully prepared’
 /ptr/ = /bi:ptræ:/ ‘to sound the horn’
 /pkl/ = /ka:pklo:n/ ‘poems’
 /pkr/ = /krɔ:pkræ:p/ ‘crushed’
 /pkw/ = /kepkwat/ ‘to clean’
 /pk^hl/ = /k^hlapk^hlay/ ‘resemble’
 /pk^hr/ = /capk^hru:/ ‘arrest’
 /pk^hw/ = /capk^hwa:/ ‘to catch’
 /tpl/ = /p^hlatpli:an/ ‘to change’
 /tp^hl/ = /p^hlɔ:tp^hlɔ:n/ ‘to be entertained’
 /tpr/ = /natprɔ:ŋ/ ‘an appointment’
 /tp^hr/ = /p^hrɔ:tp^hræ:w/ ‘pretty’
 /ttr/ = /ma:ttra:/ ‘measurement’
 /tkl/ = /k^hatklaw/ ‘to polish’
 /tkr/ = /kramitkrami:an/ ‘secretive’
 /tkw/ = /kwatkwæŋ/ ‘to swing’
 /tk^hl/ = /khla:tk^hlæ:w/ ‘to miss something’
 /tk^hr/ = /k^hacatk^hra:p/ ‘cleaning’

/tk^hw/ = /kwatk^hway/ 'to swing'
 /kpl/ = /ya:kpli:an/ 'want to change'
 /kp^hl/ = /pa:kp^hlɔy/ 'big mouth'
 /kpr/ = /nakpra:t/ 'philosopher'
 /kp^hr/ = /lu:kphray/ 'children who were born slave'
 /ktr/ = /paktra:/ 'face'
 /kkl/ = /ca:kklay/ 'to be aparted'
 /kkr/ = /ca:kkruŋ/ 'to leave the city'
 /kkw/ = /la:kkwa:ŋ/ 'deerhunt'
 /kk^hl/ = /pokk^hlum/ 'to cover'
 /kk^hr/ = /kr^hkk^hro:m/ 'noisy'
 /kk^hw/ = /k^hwakk^hway/ 'to move busily'
 /mpl/ = /Nompla:/ 'fishing (by hand)'
 /mpr/ = /pɔmpra:p/ 'fortifications'
 /mp^hr/ = /ʔamphra:ŋ/ 'to hide'
 /mkl/ = /klɔmklɔm/ 'delicious'
 /mkr/ = /kri:amkrom/ 'to have a burning'
 /npl/ = /wanp^hli:an/ 'change of the day'
 /np^hl/ = /ʔɔnp^hli:a/ 'weak'
 /np^hr/ = /wanp^hraʔ/ 'the Buddhist holy day'

/ntr/ = /montri:/ ‘an advisor’

/nt^hr/ = /cant^hra:/ ‘the moon’

/nkl/ = /k^honkla:ŋ/ ‘a middleman’

/nk^hl/ = /sank^hlo:n/ ‘to quake’

/nkr/ = /kankray/ ‘scissors’

/nk^hr/ = /k^hruank^hra:ŋ/ ‘to moan’

/ŋpl/ = /loŋplæ:ŋ/ ‘to grow a crop’

/ŋp^hl/ = /p^hli:aŋp^hlum/ ‘to stumble’

/ŋpr/ = /pɪŋpra:t^hana:/ ‘desirable’

/ŋp^hr/ = /ʔoŋp^hraʔ/ ‘the image of Buddhist’

/ŋkl/ = /woŋklom/ ‘circle’

/ŋkr/ = /soŋk^hra:m/ ‘war’

/ŋkw/ = /koŋkwi:an/ ‘the wheels of a cart’

/ŋk^hw/ = /miŋk^hwan/ ‘cherished possession’

/ŋk^hl/ = /khla:ŋkhla:ŋ/ ‘to doubt’

/ŋk^hr/ = /noŋk^hra:m/ ‘women’

/ypr/ = /waypra:n/ ‘to die’

/ykr/ = /waykra:n/ ‘to die’

/wpl/ = /pli:awplæ:ŋ/ ‘to change’

/wkr/ = /kri:awkra:w/ ‘uproarious’

/wk^hr/ = /k^ha:wk^hra:w/ ‘news’

/wp^hr/ = /p^hræ:wp^hra:w/ ‘dazzling’

These words are taken mainly from the New Model Thai-English Dictionary (Sethaputra, 1991). The intervocalic three-consonant clusters in which the first segments are /p, t, k/ occur most frequently, followed by three-consonant clusters in which the first segments are nasals. The occurrence of intervocalic consonant clusters in which the first segments are semi-vowels is very rare. The gaps in the chart show that some intervocalic clusters do not occur in Thai. However, this does not mean that the combinations of those intervocalic clusters are impossible. They are phonetically possible but the words do not exist. For example, the word /caŋt^hra:/ sounds perfectly fine even this word does not exist in Thai.

In an informal setting, however, the use of consonant clusters with /l/ and /r/ might vary from person to person. The phoneme /r/ may be pronounced as /l/, or even be dropped sometimes. For example, the word /p^hra?/ ‘monk’ might be pronounced as either /p^hla?/ or /p^ha?/ in an informal setting. There is also the case of hypercorrection when some speakers pronounce /l/ as /r/, however, this is very rare (/r/ pronounced as /l/ seems to be more common).

3.4. Thai Vowels

Although Thai orthography has twenty-six vowel letters, they represent only eighteen vowel phonemes as follows:

Chart IV: Vowel Inventory (Beebe, 1977)

	front	central	back
high	i, i:	ɨ, ɨ:	u, u:
mid	e, e:	ə, ə:	o, o:
low	æ, æ:	a, a:	ɔ, ɔ:

There are six diphthongs: /ia, i:a, ia, i:a, ua, u:a/. Diphthongs in Thai are

considered as one syllable, e.g. /kri:am/ ‘burnt’, /c^hi:at/ ‘cut’, /p^hu:an/ ‘a bunch’, etc.

Examples of each vowel phoneme are shown in the following minimal/near minimal pairs of short and long vowels:

/i, i:/ = /ti/ ‘criticize’ vs. /ti:/ ‘punish’,

/ɨ, ɨ:/ = /mɨŋ/ ‘you’ vs. /mɨ:/ ‘hand’

/u, u:/ = /du/ ‘criticize’ vs. /du:/ ‘watch’

/e, e:/ = /kreŋ/ ‘contract’ vs. /kre: ŋ/ ‘to be afraid of’

/ə, ə:/ = /cəʔ/ ‘meet’ vs. /cə:/ ‘meet’

/o, o:/ = /tóʔ/ ‘table’ vs. /to:/ ‘grow’

/æ, æ:/ = /kæʔ/ ‘sheep’ vs. /kæ:/ ‘you’

/a, a:/ = /paʔ/ ‘paste’ vs. /pa:/ ‘throw’

/ɔ, ɔ:/ = /kɔ/ ‘island’ vs. /kɔ:/ ‘classification of trees’

/ia, i:a/ = /riak/ ‘call’ vs. /ri:anj/ ‘place in order’

/ia, i:a/ = /siak/ ‘interfere’ vs. /si:a/ ‘tiger’

/ua, u:a/ = /tua/ ‘ticket’ vs. /tu:a/ ‘body’

3.5. Tones

As I mentioned earlier, tones are an important factor in words in Thai.

There are five tones in Thai as indicated below.

Mid(-)	Low(`)	Falling(^)	High(´)	Rising(ˇ)
/pa:/	/pà:/	/pâ:/	/pá:/	/pǎ :/
‘throw’	‘forest’	‘aunt’	‘dad’	‘sugar daddy’

Assigning Thai tone to a syllable or word depends primarily on the vowel and final consonant contained in such words or syllables (Lerdtadsin, 1981: 87). Occurrence of the five tones is partly dependent on rhymes of syllables. Words ending in vowels, nasals or glides can contain any of the five tones: (1) mid tone /k^ha:/ ‘to be stuck’; (2) low tone /k^ha:/ ‘a kind of root used in cooking’; (3) falling tone /k^ha:/ ‘to kill’; (4) high tone /k^ha:/ ‘to engage in trade’; (5) rising tone /k^ha:/ ‘leg’. The number of possible tonal contrasts in closed syllables ending in stops /p, t, k, ʔ/ is only three (Gedney, 1989: 192). In these syllables tones (1) and (5) never occur. Furthermore, if the vowel is short the possibilities are: (2) low tone /p^hit/ ‘to be wrong’, (3) (rare) falling tone /k^hlaflk/ ‘crowded’, and (4) high tone /p^hit/ ‘poison’. If a syllable closed by

/p, t, k, ʔ/ has a long vowel or diphthong, the possibilities are: (2) low tone /mà:k/ ‘areca nut’, (3) falling tone /mafi:k/ ‘many’, and (4) (rare) high tone /ká:t/ ‘card’.

This is summarized as:

a. V(V)(m, n, ŋ, y, w) ---> M, L, F, H, R

b. V (p, t, k, ʔ) ---> L, H, (F)

c. VV (p, t, k, ʔ) ---> L, F, (H)

Chapter 4

ENGLISH PHONOLOGY

This chapter provides the fundamental features of standard American English in three main areas: consonants, vowels, and stress. The data are taken mainly from Giegerich's (1992) English Phonology.

4.1. English Consonants

English has twenty four consonant phonemes. The consonants of English can be classified according to the accompanying chart on the basis of the types of phones and the points of articulations:

Chart I: Consonant Inventory (Giegerich, 1992)

	bilabial	labiodental	interdental	alveolar	alveo-palatal	velar	glottal
vl. stop	p			t		k	
vd. stop	b			d		g	
vl. fricative		f	θ	s	ʃ		h
vd. fricative		v	ð	z	ʒ		
vl. affricate						č	
vd. affricate						ǰ	
nasal		m		n		ŋ	
lateral				l			
retroflex				r			
semi-vowel		w				y	

4.1.1. English Stop Phonemes. English has three pairs of voiceless-voiced stop phonemes /p, b/, /t, d/, /k, g/. The voiceless stops /p, t, k/ are aspirated in

initial or medial position preceding stressed vowels, as in *pack, toy, king, apart, atone, bikini*, except after syllable-initial /s/, as in *spy, steep, ski*. In final position these voiceless stops can be either released or unreleased, as in *tip, but, kick*; if released, they may be slightly aspirated.

In short, each of the English voiceless stops /p, t, k/ has three allophones, i.e., aspirated released [p^h, t^h, k^h], unaspirated released [p, t, k], and unaspirated unreleased [p, t, k], which are in complementary distribution.

The three voiced stops /b, d, g/ in English are fully voiced, and occur in initial and final positions, as in *bet, do, go, rub, kid, nag*.

The glottal stop is rare, but occurs in *uh-oh*, and as an allophone of /t/ in words like *hatrack, Batman*.

4.1.2. English Fricative Phonemes. The English fricatives are four voiceless phonemes /f, θ, s, ʃ/ with voiced counterparts /v, ð, z, ʒ/, and one voiceless fricative /h/ which has no voiced counterpart. The phonemes /f, v, θ, ð, s, z, ʃ/ occur in initial position, as in *fan, van, thin, thee, sue, zoo, shoe*; and in final position, as in *off, cave, bath, with, kiss, fuzz, hush*. The phoneme /h/ occurs only in initial position, as in *hill*; and never in final position. On the other hand, /ʒ/ does not occur initially, although it occurs frequently in medial position, as in *measure, pleasure*; and occurs in a few words in final position, as in *garage, mirage*, which alternatively have final /j/.

4.1.3. English Affricate Phonemes. The English affricates are voiceless /tʃ/ and voiced /dʒ/. Both phonemes occur in initial and final positions in English, as in *church, judge*.

4.1.4. English Nasal Phonemes. English has three nasal phonemes, /m, n, ŋ/. While the phonemes /m, n/ occur in initial and final positions, the phoneme /N/ never occurs in initial position but does occur in medial and final positions. The phoneme /ŋ/ also occurs before final /k/ as in *link, sink, thank*. In medial position /ŋ/ occurs between vowels, as in *singing, singer*; and before the voiceless and voiced velar stops /k, g/ as in *linkage, anchor, linger, anger*.

4.1.5. English Liquid Phonemes. The two English liquids are a retroflex /ɹ/ and a lateral /l/. These phonemes occur in both initial position as in *rug, lot*; and final position as in *car, ball*.

4.1.6. English Semivowel Phonemes. English has two semivowel phonemes /w, y/. These occur in initial position, as in *will, yet*; and also as parts of diphthongs--phones consist of two articulations and the two corresponding sounds--as in /ay/ 'bite', /oy/ 'boy', /aw/ 'now'.

4.2. Consonant Clusters in English

With the canonical form of its syllable structures CCCV(V)CCCC, English is a language that is prosperous with consonant clusters initially, medially, and finally, as in *spray, square, stray, bursts, tempts, texts* (Fries, 1946: 19).

4.2.1. English Prevocalic Consonant Clusters. There are two types of prevocalic consonant clusters in English: two-consonant clusters and three-consonant clusters. A typical two-consonant cluster in English has the liquids /r, l/ or the semivowels /w, y/ as its second members, and obstruents (stops and fricatives) as its first members. Other two-consonant clusters in English that occur prevocalically have the phoneme /s/ as their first member and the phonemes /p, t, k, f, l, m, n, w/ as their second members. In a few names of German origin there are prevocalic two-consonant clusters which have the phoneme /s&/ in the first position and the phonemes /p, t, k, m, n, r, l/ in the second position, including *Spiegel, Schmitt, Schneider, Schlitz*. The following list represents the possible two-consonant clusters in English:

/l/ after /p, k, g, f, s, b/, as in *play, claw, glow, flow, slow, blow*.

/r/ after /p, t, k, f, θ, b, d, g, ʃ/, as in *pray, tray, crew, free,*

through, broad, dry, gray, shrink.

/w/ after /d, t, k, s, h, θ/, as in *dwelt, twig, quick, swear, which, thwart*.

/y/ after /f, k, m, b, p, v, h/, as in *few, cute, mute, beauty, pure, view, huge*. (In some dialects of English /y/ can also follow the following phones: /ty/ 'tube', /dy/ 'due', /ny/ 'new', /ly/ 'lute', /sy/ 'sue', /čy/ 'chew', /jy/ 'juice' (Fries, 1946: 18)).

/ð, č, ʝ, ž, ŋ/ do not participate as member of prevocalic consonant clusters.

English prevocalic three-consonant clusters have /s/ in the first position, voiceless stops /p, t, k/ in the second position, and /r, l, w/ in the third position. These

possible clusters are: /spl, spr, str, skl, skr, skw/, occurring in words like *split, spray, strong, sclerosis, scream, square*.

4.2.2. English Postvocalic Consonant Clusters. Within a syllable English has clusters of as many as four consonants in postvocalic position.

There are "altogether 151 postvocalic consonant clusters which occur in present-day English. Of these, 65 occur at the end of single morpheme words, and 86 are formed by the adding of /z/ or /s/ or /d/ or /t/ as inflections" (Fries 1945:18; the full list can be seen on pp. 18-20).

4.2.3. English Intervocalic Consonant Clusters. Intervocalic clusters in English are combinations of final and initial clusters. A two-consonant cluster consists of a final consonant of a preceding syllable and an initial consonant of a following syllable. A three-consonant cluster is either one final consonant and two initial consonants, (C-CC) as in *gangster*; or two final consonants and one initial consonant, (CC-C) as in *trustworthy*. In a four-consonant cluster, there can be one final consonant and three initial consonants, (C-CCC) as in *pipsqueak*; or two final consonants and two initial consonants, (CC-CC) as in *grandstand*; or three final consonants and one initial consonant, (CCC-C) as in *firsthand*. Most of these combinations are not found in initial or final position.

4.3. English Vowels

The chart below shows the vowel system of American English.

Chart II: Vowel Inventory (Giegerich, 1992: 75)

	Front	Central	Back
High	i		u
	I		U
Mid	e	ə	o
	ɛ		ɔ
Low	æ		a

Plus three diphthongs: /ay, aw, ɔy/

4.3.1. English Vowel Phonemes. The English vowels /i, e, u, o/ are up-gliding vowels when stressed. Some examples of words in which these vowels occur are: *beat*, *bait*, *boot*, *boat*. The mid vowels /e, o/ glide to the higher position, thus becoming diphthongized to [e^ɪ] and [o^ʊ] in their pronunciation, as in *bait* and *boat*.

The lower and more central counterparts of these vowels are non-gliding vowels /ɪ, ɛ, U, ɔ/, occurring in words such as *bit*, *bet*, *put*, *bought*. The low front vowel /æ/ and the low back vowel /a/ are also simple and non-gliding vowels, as in *bat* and *pot*. In general, front, central, and low back vowels in English are unrounded and non-low back vowels are rounded.

The central vowel /ʌ/ in English has the allophones [ʌ] and [ʌ̃], the former occurs in unstressed syllables while the latter occurs in stressed syllables, as in *sofa* [sofə] and *cup* [kʌp].

A sequence of two syllabic vowels can occur in English, as in 'poem' /póem/, 'radio' /rédiò/, 'chaos' /kéas/. There are three diphthongs in English, i.e., /ay, aw, oy/, as in *bite*, *round*, *choice* and *buy*, *cow*, *boy*, in which the second vowel is not syllabic.

4.4. Stress in English

Stress in English is the relative degree of loudness. Its occurrence is prominent with vowels. Stress is a property of syllables, not individual segments. A stressed syllable is more prominent than an unstressed one. This prominence is due to a number of factors, including the fact that stressed syllables usually contain tense vowels, which are produced with more extreme positions of the tongue (Jannedy, Poletto, Weldon 1994: 58). English contains primary /'/, secondary /^/, and tertiary /\`/ stress levels. All monosyllabic words in English when pronounced in isolation have stress: *óne nów sée*. Polysyllabic words and phrases can have more than one stress, but only one primary stress. For example, the word *photo□graphyfl* contains primary, secondary, and tertiary stress levels: in this word, the second syllable is most prominent (primary stress), the final syllable is next most prominent (secondary stress), and the other syllables are unstressed (Webster's Collegiate Dictionary 1994).

Chapter 5

CONTRASTIVE ANALYSIS BETWEEN THAI AND ENGLISH PHONOLOGY

This chapter presents a contrastive analysis of Thai and English at the phonological level in order to predict and explain the pronunciation of English words in Thai. Chapters Three and Four have separately presented linguistic analyses of the two languages. The two languages now will be compared and contrasted to explain the errors that might arise from the differences.

Even the Contrastive Analysis Hypothesis has been criticized for not being able to predict the occurrence of errors (Dulay and Burt, 1975; Richards, 1975). However, as mentioned by Broselow (1987), Contrastive Analysis may be used not to predict but to explain the nature of some subset of actually occurring errors (Broselow, 1987: 262). Indeed, I believe that the contrastive analysis of Thai and English that will be presented momentarily will be helpful for this study.

Taking Thai as a primary system and English as secondary, this chapter follows the procedures for comparing language structures described by Lado (1957). That is, on the basis of linguistic analyses of Thai and English presented in Chapter 3 and 4, it contrasts the two languages.

5.1. Comparison of Thai and English Consonant Phonemes

The table below presents side by side the consonant phonemes of standard Thai and American English.

TABLE I: CONSONANT PHONEMES OF THAI AND ENGLISH

		THAI	ENGLISH
Stops Voiceless	bilabial	p ^h , p	p
	alveolar	t ^h , t	t
	alveopalatal	c ^h , c	
	velar	k ^h , k	k
	glottal	ʔ	
Voiced	bilabial	b	b
	alveolar	d	d
	velar	g	g
Fricatives Voiceless	labiodental	f	f
	dental		θ
	alveolar	s	s
	alveopalatal		ʃ
	glottal	h	h
Voiced	labiodental		v
	dental		ð
	alveolar		z
	palatal		ʒ
	alveopalatal		ʧ
Affricates Voiceless			
Voiced	alveopalatal		ʤ
Nasals	bilabial	m	m
	alveolar	n	n
	velar	ŋ	ŋ
Liquids	trill	r	
	retroflex		r
	lateral	l	l
Semivowels	bilabial	w	w
	palatal	y	y

Based on the information from Table I the contrasts of the consonant systems of English and Thai are discussed.

5.1.1. Comparison of English and Thai Stop Phonemes

Since Thai makes a phonemic distinction between aspirated and unaspirated stops, the phones in the three pairs [p^h, p], [t^h, t], [k^h, k] are members of separate

phonemes. English, on the other hand, treats aspirated-unaspirated pairs as allophones of the phonemes /p, t, k/. In initial position, Thai aspirated stops /p^h, t^h, k^h/ are, however, similar to the English stops /p, t, k/ in the same position because English voiceless stops are usually aspirated initially, e.g. [p^hɛn] ‘pen’, [t^hɛn] ‘ten’, [k^hɪt] ‘kit’. The Thai unaspirated stops /p, t, k/ also occur initially, that is, Thai unaspirated voiceless stops are phonemes while English voiceless stops are allophones.

The two Thai stops /c, ʔ/ have no equivalents in English.

Initially, English voiced stops phonemes /b, d/ have Thai voiced stops phonemes /b, d/ as their equivalents. Finally, however, there is no equivalent in Thai, since Thai does not allow voiced stops to occur finally.

And the English phoneme /g/ does not have a Thai equivalent.

5.1.2. Comparison of English and Thai Fricative Phonemes

The English voiceless fricative phonemes /f, s, h/ are on a one-to-one relationship with those of Thai /f, s, h/ initially. In both languages /h/ is allowed only in initial position. However, while English allows /f, s/ to occur both initially and finally, Thai /f, s/ are allowed only in initial position.

The English phonemes /θ, ð, v, ʃ, z, ʒ/ have no Thai equivalents.

5.1.3. Comparison of English and Thai Affricate Phonemes

Since Thai has no affricate phonemes, English /tʃ, ʃ/ have no Thai equivalents.

5.1.4. Comparison of English and Thai Nasal Phonemes

The English phonemes /m, n/ have a one-to-one relationship with the Thai phonemes /m, n/. Both phonemes can occur initially, medially, and finally. The English phoneme /ŋ/ , however, is different from the Thai phoneme /ŋ/. While English /ŋ/ occurs only in medial and final positions, its Thai counterpart occurs in all position, as in /ŋən/ ‘money’, /ka:ŋ/ ‘spread’, /ŋɔŋka:n/ ‘organization’.

5.1.5. Comparison of English and Thai Liquid Phonemes

While English /r/ and Thai /r/ are both liquids, they are different in their articulation and distribution. The English phoneme is a retroflex whose articulation is stable, whereas the Thai phoneme /r/ fluctuates between a trill and a flap in the speech of some speakers and is replaced by the lateral /l/ in the speech of most Thai speakers (Lerdtadsin, 1981:72). In their distribution, the liquids in both languages occur initially, but they occur finally only in English.

5.1.6. Comparison of English and Thai Semivowels

The semivowels /w, y/ in English have the Thai semivowels /w, y/ as their equivalents. In both languages, these two sounds have similar distribution; that is, they occur initially and finally.

5.2. Comparison of English and Thai Consonant Clusters

5.2.1. Prevocalic Consonant Clusters: Of all the English prevocalic two consonant clusters, the clusters /pl, pr, tr, kl, kr, kw/ have Thai equivalents / p^hl, p^hr, t^hr, k^hl, k^hr, k^hw/. The remaining English two-consonant clusters do not have Thai

equivalents. Moreover, since Thai does not have three-consonant clusters in initial position, it lacks equivalents for the English three-consonant clusters in that position.

5.2.2. Postvocalic Consonant Clusters: Since Thai does not allow a consonant cluster in final position, it has no equivalents for English consonant clusters in that position.

5.2.3. Intervocalic Consonant Clusters: Thai has a limited number of two-consonant clusters occurring in medial position, the combination of its final and initial consonants. While English allows the three-consonant clusters of either the C-CC, or CC-C type to occur in medial position, Thai has only the C-CC type in this position. The Thai combination represents the permitted final consonants and the permitted initial consonant clusters.

5.3. Comparison of English and Thai Vowels

The table below contrasts the vowel systems of Thai and English.

TABLE II: VOWEL PHONEMES OF THAI AND ENGLISH

	THAI	ENGLISH
Simple Vowels:		
High Front	i, i:	i, I
Mid Front	e, e:	e, ɛ
Low Front	æ, æ:	æ
High Mid	ɨ, ɨ:	
Mid Mid	ə, ə:	ə
Low Mid	a, a:	
High Back	u, u:	u, U

Mid Back	o, o:	o, ɔ
Low Back	ɔ, ɔ:	a

There are six diphthongs in Thai: /ia, i:a, ia, i:a, ua, u:a/; and three in English: /ay, aw, ɔy/. The table above is listed according to the place of articulation of the vowels, not the equivalence of the phones.

The English vowel phonemes /ɪ, ɛ, ʊ, ɔ/ are one-to-one correspondences with the Thai short vowels /i, e, u, ɔ/ when they occur in the syllables ending in voiceless consonants. In other cases they are not equivalent.

The central vowel /ə/ in English, although phonetically similar to the Thai vowels /ə, ə/ is not equivalent to these vowels in all its occurrences. However, when it occurs in a stressed syllable, such as hurry, dirt, hurt, it is equivalent to the Thai vowel /ə/ or /ə:/.

The English vowel /æ/ is sometimes equivalent to the Thai short vowel /æ/ and sometimes with the long vowel /æ:/. Generally, English words ending with voiceless stops have an equivalent of the Thai short vowel /æ/, such as ‘bat’ /bæt/, ‘back’ /bæk/, ‘gap’ /kæp/; words ending with voiced stops have an equivalent of the Thai long vowel /æ:/, such as ‘bag’ /bæ:k/, ‘mad’ /mæ:t/. However, this rule is not definite because the words like ‘tab’ and ‘cab’, which end with voiced stop, receive a short /æ/ in Thai.

5.4. Comparison of Thai and English Suprasegmental Features

Tone and stress are two very different systems whose distributional patterns are unparallel, although they have similar functions. English lacks the system of tones and Thai lacks the system of stress.

In Thai the last syllable of a dissyllabic word always receives a higher pitch level and is thus louder than the preceding syllable.

5.5. Theories of Contrastive Analysis

Contrastive analysis has pointed out the similarities and differences of the two languages at the phonological level. Theoretically, the differences between the two languages represent sources of difficulty for learners of the second language. When faced with such difficulty, the learners will either adopt elements from the foreign language into the native language, thus, making an innovation, or transfer his native elements to replace the foreign ones, therefore making an integration of the foreign word (Kreidler, 1957).

By making an innovation the speaker is accepting a foreign element into his/her native language. As such, an innovated element at any level of language structure is an instance of interference from the foreign language. In the case of Thai, however, there is no instance of innovation alone; each loanword undergoes some integration. The integrative processes involved are phonological and morphological. This study, however, deals with phonological integration only.

This study employs the theory of loanword phonology proposed by Silverman (1992) to explain the phonological changes of Thai English loanwords. He

proposes that there are two levels which loanwords have to undergo during the course of derivation: perceptual and operative. In the perceptual level, the speakers of the host language perceive only the segments that contain in their phonemic inventory of the aspects that conform with their phonological constraints. His Perceptual Uniformity Hypothesis is used to explain loanword phonology at the perceptual level:

Perceptual Uniformity Hypothesis:

At the Perceptual Level, the native segment inventory constrains segmental representation in a uniform fashion, regardless of string position (Silverman, 1992: 297).

Since this study does not design to test the perception of Thai speakers toward English loanwords, the word ‘perceptual’ here means phonological process that occurs before the operation of the native syllable structure constraints. The idea of perception is not definite or clear-cut. Speakers might or might not perceive the segments as I expected. However, at the Operative Level all segments should be in conformity with native syllable structure constraints (SSCs). Silverman hypothesized that at the Perceptual Level of loanword phonology, the speakers are constrained in their analysis of incoming forms by their native segment inventory. When confronted with a segment that does not exist, the speakers will represent and produce the native segment which most closely approximates the input

An example concerning the Perceptual Level is voicing, which is never contrastive in stops in final position in Thai; stops are usually realized voiceless. Thus, as English forms enter Thai, both voiced and voiceless stops are represented

identically, as the native Thai phonological system does not possess the proper feature matrices to accommodate this contrast. Thais do not perceive this distinction. Some examples are:

<i>Input</i>		<i>Perceptual Level</i>
cab	-->	[kæp]
wig	-->	[wik]

In the Operative Level, he mentioned that SSCs will trigger phonological operations. The perceived input is operated or conditioned by phonological processes to yield the output that properly fits in the phonological systems of the host language. He further explained that it is at this point that the Perceptual Uniformity Hypothesis ceases to exert a force on the derivation. In other words, the foreign forms must be realized in accordance with the native constraints.

Here is an example of an Operative Level. While both English and Thai possess fricatives in their phoneme inventories, only in English do these surface in both onset and coda position. In Thai they may only serve as onsets. For example:

<i>input</i>		<i>Operative Level</i>
farm	-->	[fa:m]
lift	-->	[lip]

In coda position native syllable structure constraints will trigger a phonological operation. Thai has a rule [-son]--> [-cont, -vcd] / ____ (C) #. This rule will generate [p] from /f/ at the operative level. /t/ is deleted because final consonant clusters are not allowed in Thai.

Another theoretical foundation that will be used to explain Thai English loanwords is the Markedness Differential Hypothesis (MDH) proposed by Eckman (1977). Following is his MDH proposition.

Markedness Differential Hypothesis (MDH):

The areas of difficulty that a language learner will have can be predicted on the basis of a systematic comparison of the grammars of the native language, the target language and the markedness relations stated in universal grammar, such that,

- a. Those areas of the target language which differ from the native language and are more marked than the native language will be difficult.
- b. The relative degree of difficulty of the areas of the target language which are more marked than the native language will correspond to the relative degree of markedness.
- c. Those areas of the target language which are different from the native language, but are not more marked than the native language will not be difficult (Eckman 1977: 321).

According to Fellbaum (1983), the MDH appeals to two basic notions from universal grammar: typological markedness and implicational relationships. Eckman proposed that the notion of typological markedness corresponded to “relative degree of difficulty” in learning a second language. Eckman’s use of typological markedness follows the commonly accepted definition presented below:

Typological Markedness:

A phenomenon A in some language is more marked than B if the presence of A in a language implies the presence of B; but the presence of B does not imply the presence of A (Eckman, 1977: 320).

To establish the difference in difficulty between two features of a particular area of grammar, implicational universals are needed. Examples of various types of implicational universals are given below, taken from Fellbaum (1983: 294):

Implicational Universals

- a. The presence of voiced stops implies the presence of voiceless stops but not vice versa (Jakobson, 1968: 70).
- b. The presence of voiced fricatives implies the presence of voiceless fricatives, but not vice versa (Jakobson, 1968: 70).
- c. The presence of fricatives imply the presence of stops, but not vice versa (Jakobson, 1968: 51).
- d. The presence of aspirated stops implies the presence of unaspirated stops, but not vice versa (Jakobson, 1968: 51).
- e. The maintenance of a voice contrast word-finally implies the maintenance of voice contrast word-medially, and the maintenance of a voice contrast word-medially implies the maintenance of a voice contrast word-initially, but not vice versa (Dinnsen & Eckman, 1975; in Eckman: 322).

- f. Aspiration rules that apply under certain conditions syllable-initially in word-medial syllables also apply under at least all the same conditions syllable-initially in word-initial syllables, but not necessarily vice versa (Houlihan, 1977).
- g. The presence of a voiced stop word-finally implies the presence of a voiceless stop word-finally, but not vice versa (based on Dinnsen & Eckman, 1975).

These are implications for Thai English contrastive analysis which can be used to explain Thai English loanwords.

Given these implicational relationship, Fellbaum (1983: 294) proposed that the relative markedness of specific elements can be established as follows:

Markedness Relations

- a. Voiced stops are marked with respect to voiceless stops.
- b. Voiced fricatives are marked with respect to voiceless fricatives.
- c. Fricatives are marked with respect to stops
- d. Aspirated stops are marked with respect to unaspirated stops
- e. Palatalized consonants are marked with respect to non-palatalized consonants
- f. A word-final voice contrast is marked with respect to word-medial contrast, and a word-medial voice contrast is marked with respect to word-initial voice contrast.

- g. Aspirated stops syllable-initially in word-medial position (under certain conditions) are marked with respect to aspirated stops that appear syllable-initially in word-initial positions (under at least all the same conditions).

This thesis takes into account two levels of loanword phonology proposed by Silverman (1992) and this Markedness Differential Hypothesis (Eckman, 1977; Fellbaum, 1983). Also, the spectrograms are included in the result section to clarify the second and fourth hypotheses, simplification of final clusters and insertion of vowel in initial clusters. The acoustic energy in the spectrogram can make a clear distinction between the pronunciation of native speakers of English and native speakers of Thai concerning these two hypotheses.

5.6. Hypotheses

Five hypotheses concerning the adaptation of English loanwords in Thai that will be investigated in this thesis are:

(1) Tone/Pitch: Thais have a tendency to put tone/pitch on the final syllable of English words, e.g., shopPING, cofFEE, technoloGY.

(2) Final clusters: Speakers of Thai are likely to omit and replace phones of final clusters that do not exist in the language, e.g., lift --> /lip/, list --> /lis~lit/.

(3) Final consonants: Thais tend to omit and replace final consonants that do not exist in the language, e.g., wig --> /wik/, freeze --> /fri:t/.

(4) Initial clusters: Thais insert a short vowel into some initial clusters including /tw, sl, sw, sp, st, sk, sm, sn, spr, str, skr, spl, skw/, e.g., script --> /sakrip/, brandy --> /barandi:/, spring --> /s'priN/.

(5) /l/ and /r/: Thais tend to replace /r/ with /l/ or omit it, e.g., freeze --> /fli:t~fi:t/, brake-->/ble:k~be:k/.

Chapter 6

METHOD

It is the purpose of this study to account for and describe instances of English interference at the phonological level by using loanwords as a source of investigation and based upon phonological analyses of Thai and English in the previous chapters, which can be used to illustrate the areas of difficulty that Thai speakers encounter.

6.1. Method

Subjects are asked to answer questions in Thai (the list of questions is in the Appendix I). Some questions contain English loanwords, some do not. The subjects are encouraged to repeat the questions when they answer. The pronunciation of the loanwords will be investigated. Five features that will be investigated, as described in the hypotheses, are (i) tone/pitch placement, (ii) simplification of final clusters, (iii) articulation of single final consonants, (iv) insertion of vowel in initial clusters, and (v) articulation of /l/ and /r/.

6.2. Subjects

Six subjects have been carefully chosen for this study, three female and three male. The length of their stay in the United States range from one year to one year and a half. They range in age from 24-36. They are not majoring in English or linguistics since this might affect the results of the study. The six are:

1. Age 36, female, a graduate student in food science has been in America for one year and a half.

2. Age 27, female, a graduate student in packaging has been in America for one year and a half.

3. Age 24, male, a graduate student in international administration has been in America of one year.

4. Age 25, female, a graduate student in packaging has been in America for one year and four months.

5. Age 24, male, a graduate student in public administration has been in America for one year and a half.

6. Age 29, male, a graduate student in packaging has been in America for one year.

6.3. Procedures

Data are collected from each subject at one session. Each subject answers 20 questions in Thai. Some questions contain English loanwords and some do not. The subjects are encouraged to repeat the question when answering. They are told that repeating the question will enable them to organize their ideas better.

The conversation is conducted in Thai. Data is taken solely from these occasions. A tape recorder records all sentences pronounced by the six subjects. Loanwords are transcribed into a phonetic form. Spectrograms from computer analysis are also employed to see the pronunciation of some words.

Chapter 7

RESULTS AND DISCUSSION

Following are the results and discussion of this study. It is provided in accordance with the hypotheses set forth at the outset.

7.1. Tone/Pitch Placement

Stress languages tend to possess a loose correlation between the degree of stress and pitch. In English unmarked intonation, for example, syllables receiving primary stress tend to be higher in pitch than other syllables (Silverman, 1992: 302). Silverman adds that the phonetic phenomenon of pitch contrast is lexical in tonal languages. Since speakers of tonal languages do not have access to English phonological representation, they will learn English phonetic pitch patterns at the Perceptual Level as phonological tonal patterns (Silverman, 1992: 302).

The English stress system is usually completely disregarded when a borrowing enters the Thai language. Thai tones, five in all, replace English stresses in English borrowed words. This section will try to describe the general and most obvious patterns of how English stresses in polysyllabic words are replaced by Thai tones, by using Perceptual and Operative operations proposed by Silverman (1992). Polysyllabic words in Thai are more problematic than monosyllabic words in terms of tone assignment according to the relationship between stress and tone proposed by Silverman.

Thai English loanwords usually undergo the process of tone/pitch placement, which replaces the English stress completely. The last syllable of

polysyllabic Thai English loanwords usually has high pitch. It can be observed from the pronunciation of the six subjects that the last syllable of the polysyllabic English words always receives high pitch. The following words pronounced by six subjects are examples of this phenomenon:

<u>English</u>	<u>Thai</u>	<u>Gloss</u>
techNOlogy	/tekno:lo:yí:/	‘technology’
sTRAwberry	/satɔ:bəlí:~satɔ:bəlí:~ satɔ:bəlí:/	‘strawberry’
uRAnium	/yu:le:ní:am~yu:re:ní:am/	‘uranium’
comPUter	/kɔmpyutá:/	‘computer’

The results above seem to run counter Silverman’s idea. He suggested that there is a correlation between stress and tone at the Perceptual Level. Thus English stressed syllables and Thai tone/pitch placement should be correlated. However, this is not the case in Thai English loanwords, as the results (the Operative Level) above show. At the Operative Level all English stressed syllables above receive mid tone in Thai. The last non-stressed syllables, on the other hand, are the ones that receive the highest tone/pitch (falling or high tone) in Thai. Diphthongs in Thai, as discussed in the Thai vowel section, are considered as one syllable. Therefore, I consider /ní:am/ as the last syllable of the word ‘uranium’.

Even though tonal assignment is not correlated with English stress according to Silverman, it conforms to Thai native tonal constraints. Rules of Thai tones are repeated here:

- a. V(V) (m, n, n, y, w) ---> M, L, F, H, R
- b. V (p, t, k) ---> L, H, (F)
- c. VV (p, t, k) ---> L, F, (H)

Four polysyllabic words above are listed here again with tonal assignment in each syllable.

/tékno:lo:yífl:/	‘technology’
/sàtrɔ:b’:lífl:/	‘strawberry’
/yu:re:nî:am/	‘uranium’
/kɔmpyutâ:/	‘computer’

Monosyllabic words, on the other hand, are in conformity with both Silverman’s idea and Thai tonal constraint, as illustrated by the following words:

<u>Thai</u>	<u>Gloss</u>
/líp/	‘lift’
/lít/	‘list’
/wík/	‘wig’

However, there is an exception for the word ‘code’. With respect to the Thai rule, words ending in stops can have low or falling tones when preceded by a long vowel. The word ‘code’, which is pronounced with a long /o/ in Thai, should be

assigned either a low or a falling tone. It is, however, pronounced with the high tone by all subjects.

7.2. Final Cluster Reduction

As mentioned in Chapter 3, English has as many as four consonants occurring in the final position, whereas Thai allows only one of these consonant phonemes /p, t, k, m, n, ŋ, y, w, ʔ/ to occur in that position. As a result, the integrative process utilized by Thai speakers to adapt English postvocalic consonant clusters is to reduce two-, three-, and four-consonant clusters to one consonant. The reasonable way to deal with this is segment deletion or coda simplification.

According to Eckman's MDH, the areas of the target language which differ from the native language and are more marked than the native language will be difficult. Since Thai does not allow any final clusters, it is predicted that the subjects will find them difficult to pronounce.

The pronunciation of the six subjects implies that final cluster simplification in Thai involves the following phonological rules:

1. Stopping: $[-\text{son}] \rightarrow [-\text{cont}, -\text{vcd}] / __ (\text{C}) \#$
2. T-Deletion: $/t/ \rightarrow \emptyset / [-\text{vcd}, -\text{son}] / __ \#$
3. Liquid deletion: $/l, r/ \rightarrow \emptyset / __ \text{C} \#$
4. C-Deletion after glides: $\text{C} \rightarrow \emptyset / /y, w/ __ \#$

These rules are operated according to the native syllable structure constraints (SSCs). Therefore, they are operated at the Operative Level, for it is at this level that SSCs trigger phonological operations (Silverman: 291).

The first and second rules, Stopping and T-Deletion, can apply to the words like *script*, *list*, and *lift*. The Stopping rule can apply to both voiced and voiceless fricatives and voiced stops. They will be replaced by voiced stops when they occur finally or before another consonant. For T-Deletion, /t/ will be deleted when it occurs finally after voiceless obstruent consonants.

<u>Thai</u>	<u>Gloss</u>
/skrip/	‘script’
/lit~lis/	‘list’
/lip~lif/	‘lift’

There is a variation in the case of final clusters that have voiceless fricatives /s/ and /f/ as their first members. Sometimes they are preserved, but others are replaced by Thai voiceless stops /t/ and /p/, which are preferable, since they share the same place of articulation. It is the latter that conforms to the Thai phonological system and is unmarked, according to Implicational Universal (c) and the Markedness Relation (c) (listed on pages 47 and 48) proposed by Fellbaum (1983: 294). The word *list* is pronounced as /lit/ by four subjects and as /lis/ by two subjects. The word *lift* is pronounced as /lip/ by four subjects and as /lif/ by two subjects. The reason that these violations -- /lis/ and /lif/ -- are acceptable in Thai is that (i) there exists the phonemes

/s/ and /f/ in Thai, even though not in the final position, and (ii) these two phonemes are very frequent (Udomwong, 1981: 90).

The third rule, Liquid deletion, can apply to the words like *film*, *farm*, and *golf*. One explanation for this deletion involves the salience of sound. Yip (1993: 278) suggested that the deleted segment is usually perceptually non-salient, e.g. the phonemes /l/ and /r/. She stated that phonemes /l/ and /r/ in initial *Cl-Cr* clusters are more salient than in final *lC-rC* clusters. Non-salient segments are faintly audible, and thus may be overlooked or deleted. Phonemes /m/ and /f/ (the latter is being used interchangeably with the phoneme /p/) are more salient than the preceding ones. The lack of salience of the phonemes /l/ and /r/, therefore, causes them to be deleted. Perceptually, this can be summarized as follows:

<i>input</i>		<i>Perceptual Level</i>
film	-->	/fi:m/
farm	-->	/fa:m/
golf	-->	/kɔ:f/

The last rule, C-Deletion after glides, can apply to the word like *strike*. It is pronounced as /satray/ by all six subjects. Glides, which are /y/ and /w/, are considered as consonants in Thai. Therefore, the phoneme /k/ is deleted because /y/ is considered a consonant. If /k/ has been preserved after /y/, it will result in a final cluster, which violates Thai phonological constraints. Other words not included in the list that can be used to illustrate this point are:

<u>Thai</u>	<u>Gloss</u>
/may/	‘mile’
/ke:thaw/	‘guesthouse’

The word *punch* is problematic to the analysis. It is pronounced as /pʌnč/ instead of /pʌn/, as I first hypothesized, by all subjects. A native structure constraint cannot account for this. There are two possible explanations for this phenomenon. First, perhaps Thai borrows this word as a chunk without applying Thai phonology in it -- that is, one has to pronounce it as it is in English in order to get the meaning across. There are other Thai words that might confuse the listener if the word ‘punch’ is pronounced as /pʌn/. The native word /pʌn/ with the mid and high tones means ‘thousand’ and ‘to alter’, respectively. Since the word ‘punch’ is pronounced with high tone in Thai, it interferes with the native Thai word. Second, perhaps there is extraphonological influence. Silverman (1992) suggested that speakers’ explicit knowledge of the various grammatical levels of the lending language (e.g. syntax, morphology, phonology) can and do exert an influence on their phonological instantiations. Since all the subjects of this study have been studying English for many years and also have been staying in America for almost two years, their explicit knowledge of English grammar will presumably exert an influence on their phonological representations of loanwords. These might be the reasons this word is pronounced as /pʌnč/.

By utilizing two levels of loanword phonology proposed by Silverman, it is not definite whether the subjects perceive English final clusters as single phones or as clusters at the Perceptual Level. Both are possible. At the Operative Level, however, it is reasonable to state that native syllable structure constraints (SSCs) trigger insertions and changes.

<i>input</i>		<i>Operative Level</i>
script	-->	/sakrip~səkrip~səklip/
lift	-->	/lip~lif/
list	-->	/lit~lis/
punch	-->	/pʌnč/*
strike	-->	/satray~satay~sətay/*

The words with an asterisk are explained above.

Following are the spectrograms of the pronunciation of English 'list' and 'lift'. Two spectrograms are shown for each word -- one pronounced by a native speaker of English and one pronounced by a native speaker of Thai.

In order to read the spectrograms, the basic concept of spectrograms and acoustic correlates of consonantal features needs to be explained. Spectrograms are graphs that encode three acoustic dimensions. The vertical axis represents frequency. The horizontal axis represents time. A third dimension is represented degree of darkness that indicates the amount of acoustic energy present at a certain time and at a certain frequency (Jannedy, Poletto, Weldon, 1994: 70).

Acoustic correlates of consonantal features:

Note: These descriptions should be regarded only as rough guides. The actual acoustic correlates depend to a great extent on the particular combination of articulatory features in a sound.

- Voiced:** Vertical striations corresponding to the vibrations of the vocal cords.
- Bilabial:** Locus of both second and third formants comparatively low.
- Alveolar:** Locus of second formant about 1700-1800 Hz.
- Velar:** Usually high locus of the second formant. Common origin of second and third formant transitions.
- Retroflex:** General lowering of the third and fourth formants.
- Stop:** Gap in pattern, followed by burst of noise for voiceless stops or sharp beginning of formant structure for voiced stops.
- Fricative:** Random noise pattern, especially in higher-frequency regions, but dependent on the place of articulation.
- Nasal:** Formant structure similar to that of vowels but with nasal formants at about 250, 2500, and 3250 Hz.
- Lateral:** Formant structure similar to that of vowels but with formants in the neighborhood of 250, 1200, and 2400 Hz.
- Approximant:** Formant structure similar to that in vowels, usually changing.

(Kenstowicz, 1994: 182)

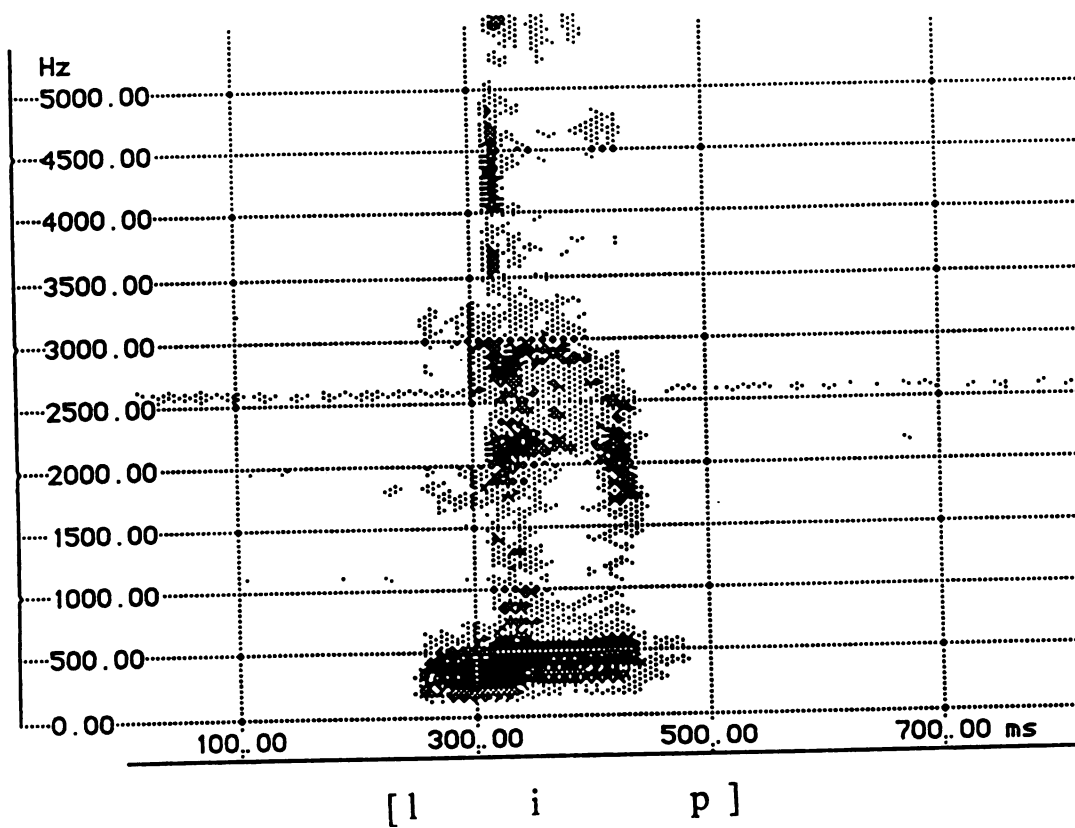


Figure 1: 'lift' by a native speaker of Thai.

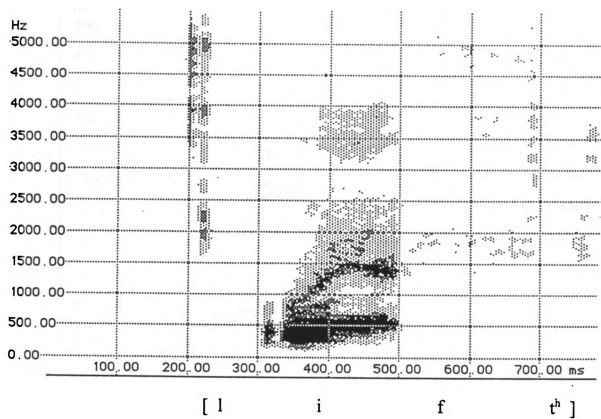


Figure 2: 'lift' by a native speaker of English.

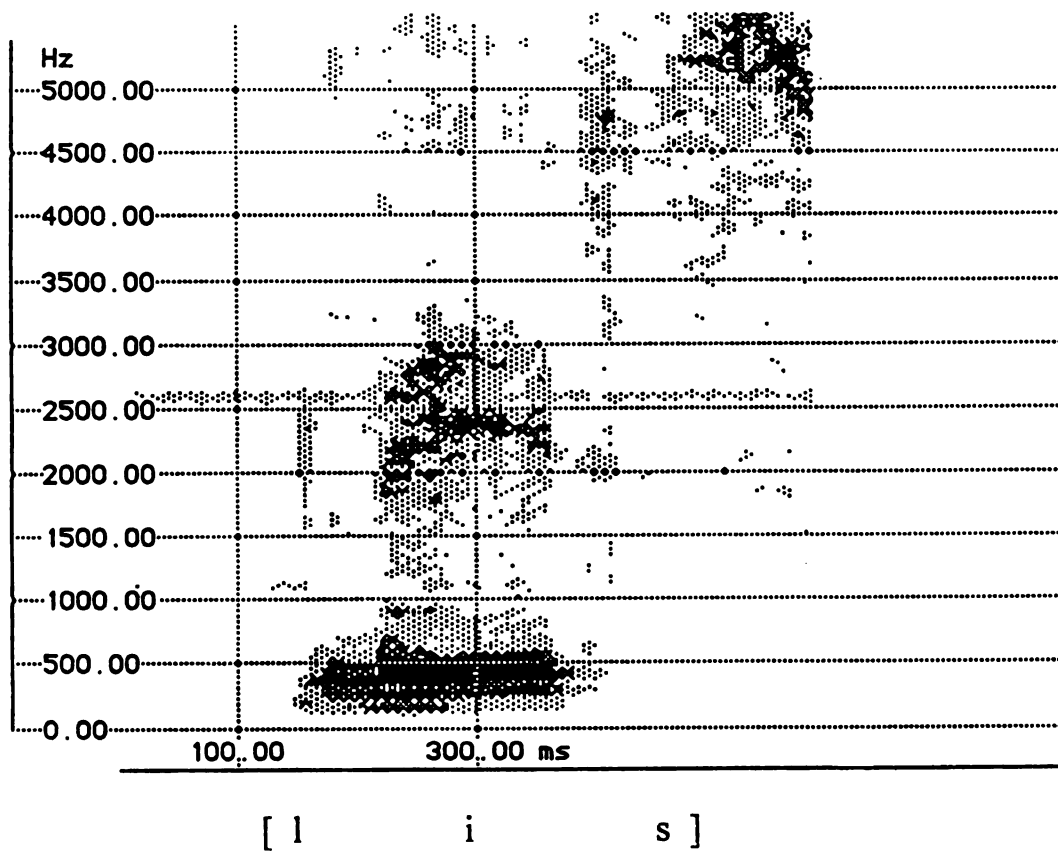


Figure 3: 'list' by a native speaker of Thai.

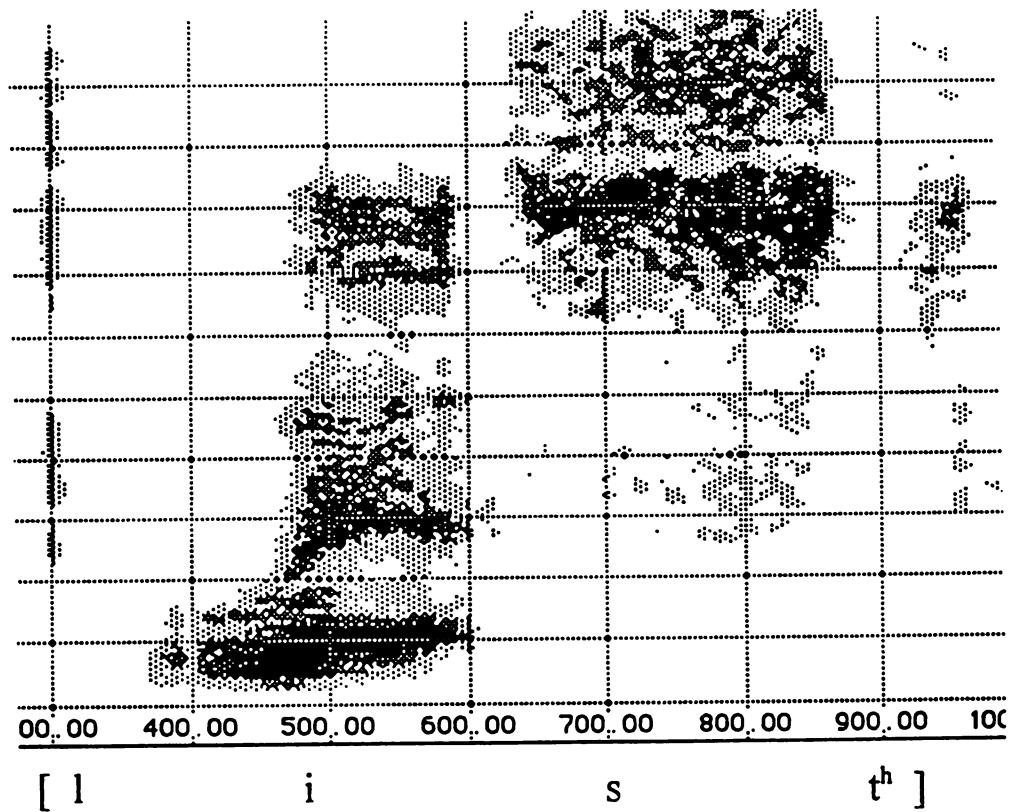


Figure 4: 'list' by a native speaker of English.

Two spectrograms of the word 'list' and 'lift' show the differences between the pronunciations of the two speakers. The last two phonemes /st/ and /ft/ pronounced by the native speaker show clearly the following: voiceless fricative /s/ and /f/; notice from random noise pattern especially in higher frequency regions and aspirated /t/. It is easy to detect /t/ and other stop consonants in wave forms because they are characterized by a lack of sound, or a gap in a spectrographic display. Even though /t/ is characterized by the lack of sound, or a gap in a spectrographic display, this sound exists acoustically as to the aspiration, which is shown by acoustic energy or the degree of darkness at the end of each spectrogram. The ones pronounced by the Thai speaker, however, do not show the /t/ sound. These words are simply pronounced as /lis/, and /lip/. /f/ has changed into /p/ in the word 'lift' in the pronunciation of the Thai speaker, as denoted by a gap in spectrographic display following the vowel /i/.

In summary, since English permits more numerous types of consonant clusters to occur in initial, medial, and final positions than Thai, it is natural for the subjects to simplify these unfamiliar consonant phonemes by way of phonemic substitution, or by reducing the many consonants in sequence to correspond with the permitted sequential consonants in Thai.

7.3. Articulation of Single Final Consonants

Some illicit codas are replaced by phonologically approximating phonemes of the Thai inventory. Thai, as mentioned before, allows only nine final consonants.

Thus English segments which do not exist in Thai or occur in an unacceptable positions are replaced by Thai segments most closely approximating them.

The pronunciation of the subjects implies that articulation of single consonants involves the following phonological rules:

1. Stopping: $[-\text{son}] \rightarrow [-\text{cont}, -\text{vcd}] / __ (\text{C}) \#$
2. L turns to n or Ø: $[+\text{lat}] \rightarrow [+nas] / \text{V} __ \#$
 $[+\text{lat}] \rightarrow \emptyset / \text{V}: __ \#$

The first rule, Stopping, can apply to the words like *wig* and *code*. In Thai phonology only voiceless stops can occur in the final position. It should be noted here that where English has a voicing contrast at the end of the word --which is the most marked feature, according to Eckman's (1977) Markedness Differential Hypothesis and Fellbaum's (1983) Implicational Universal (a) and Markedness Relation (a) listed on pages 47-48 -- it is not allowed in Thai phonologically. Therefore, /g/ and /d/ are devoiced. Taking into account the two levels of loanword phonology proposed by Silverman, it is not definite whether or not the subjects perceive differences such as voicing contrast at the final position at the Perceptual Level. If they do perceive voiced stops as voiced at the Perceptual Level, then the first rule can apply at the Operative Level. That is, there is an operative devoicing rule. But if they perceive voiced stops as voiceless at the Perceptual Level, then devoicing will not happen at the Operative Level.

The first rule can also apply to fricative phonemes, such as /θ, ð, ʃ, z, ʒ/. These phonemes have no Thai equivalents; therefore, they must be replaced by phonologically approximating phonemes of the Thai inventory, which are usually voiceless stops. This is because they all share the place of articulation and also fricatives are more marked with respect to stops, according to Implicational Universal (c) and Markedness Relation (c) listed on pages 47-48 (Fellbaum, 1983: 294). Since there is no voicing contrast at the end of the word in Thai, both voiced and voiceless fricatives are replaced by voiceless stop phonemes.

<u>Thai</u>	<u>Gloss</u>
/futba:t/	‘footpath’
/ri:t/	‘wreath’
/fri:t~fri:s/	‘freeze’

/θ/ is pronounced as /t/ by all six subjects: the word ‘footpath’ is pronounced as /futba:t/ instead of /futbaθ/ as in English. /ð/ as in the word ‘wreath’ is also pronounced as /t/ by all six subjects (see also Section 6.5). The phoneme /z/, which is a voiced counterpart of the phoneme /s/ in English and is more marked with respect to Implicational Universal (b) and Markedness Relation (b) listed on pages 47-48, does not exist in Thai. Thai has no voiced counterpart for its fricative /s/. There is no voiced-voiceless distinction between the phonemes /s, z/ in Thai. The phoneme /z/ is usually replaced with either /s/ or /t/. Thus, the word ‘freeze’ is pronounced as /fri:s~fri:t~fli:s~fli:t~fi:t/ (see also Section 7.5) by the six subjects. The reason for the

phoneme /s/, which is not allowed finally, being used in this case is explained in section 7.2.

The next rule involves final /l/. English /l/ must be replaced by a Thai phoneme in order to conform to Thai phonology. After a short vowel the phoneme /l/ will be replaced by /n/, as in the word ‘ball’, pronounced /bɔ̌n/ by all subjects. However, /l/ will be deleted if it follows a long vowel or a diphthong as in the word ‘alcohol’ -->/ʔænko:hɔ:/, ‘mail’-->/me:/ (Lerdtsidin, 1981: 172). The word ‘alcohol’ is pronounced with a long /ɔ:/ in Thai.

7.4. Short Vowel Insertion

Chart number 3 in Chapter 3 suggests the possible combinations of initial consonant clusters in Thai. English clusters containing these combinations will not create a problem in articulation for the subjects. However, English clusters that have no Thai equivalents; /tw, sl, sw, st, sk, sm, sn, spr, str, skr, spl/, etc., will be rearranged to conform with fewer possibilities of Thai consonant clusters. Thai employs short vowel insertion to deal with this phenomenon; that is, short vowel /a/ or /ə/ will be inserted in the unacceptable clusters. This phonological change can simply be stated in the following rule:

$$\emptyset \rightarrow a, \text{ə} / \# C _ C (C)$$

Therefore, clusters like /br/ and /sl/ as in the English words ‘brandy’ and ‘sling’ are epenthesized by /a/ or /ə/ to become /barandi:/ and /salin/, respectively; for they are unacceptable consonant clusters in Thai. In the case of clusters of three, /a/ or /ə/ will

be epenthesized between any two consonants of the three that are an unacceptable cluster in Thai. For example:

<u>Thai</u>	<u>Gloss</u>
/sakrip~səkrip~səklip/	‘script’
/satray~satay~sətay/	‘strike’

/a/ or /ə/ is epenthesized within /st/ and /sk/ instead of /tr/ and /kr/ because the last two are possible clusters in Thai.

Examples above show that stop+sonorant and fricative+stop onset clusters trigger epenthesis.

Taking into account the two levels of loanword phonology, the cases above can be described as following:

<i>input</i>		<i>Perceptual Level</i>		<i>Operative Level</i>
brandy	-->	/brandi:/	-->	/barandi:/
script	-->	/skrip/	-->	/sakrip/
strike	-->	/stray/	-->	/satray~satay~sətay/

I assume that these clusters are perceived by the subjects at the Perceptual Level, but they are epenthesized at the Operative Level because they are not allowed in Thai.

Following are the spectrograms of the words ‘brandy’, ‘script’, and ‘strike’, pronounced by a native speaker of English and a native speaker of Thai, to show this phenomenon.

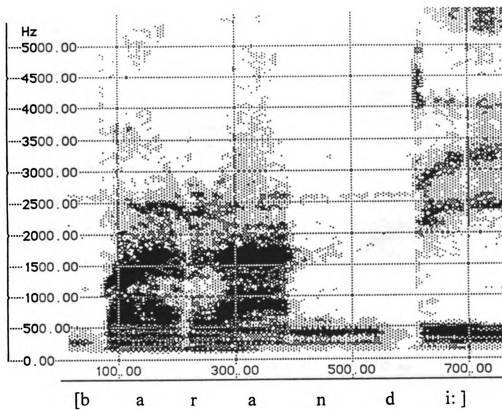


Figure 5: 'brandy' by a native speaker of Thai.

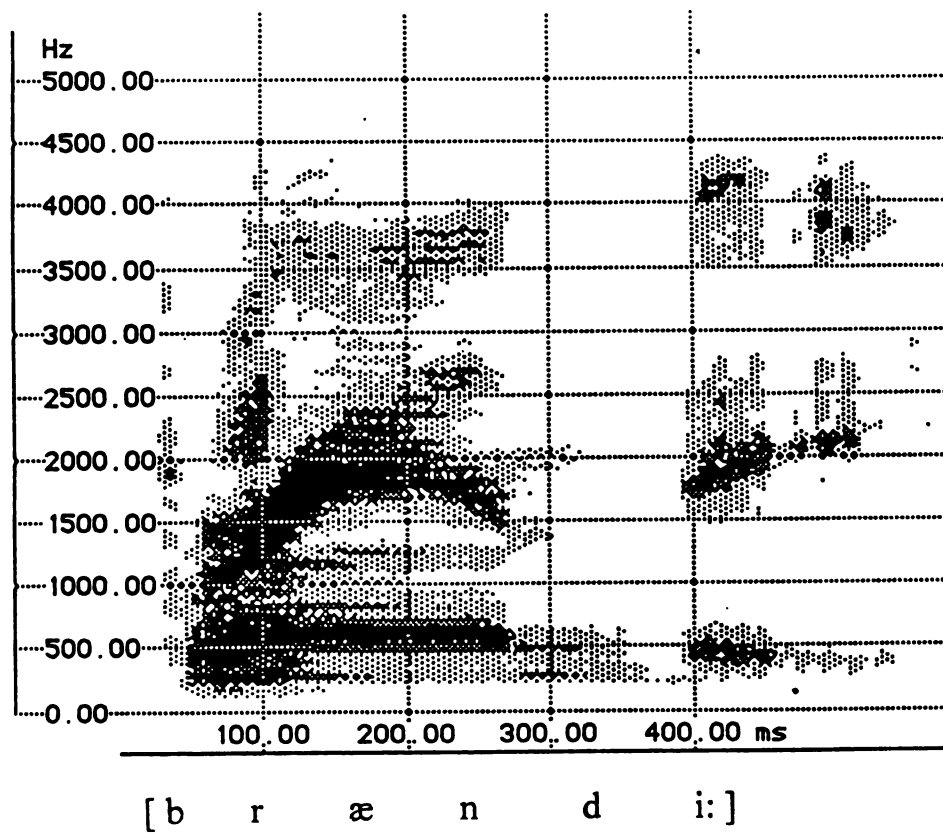


Figure 6: 'brandy' by a native speaker of English.

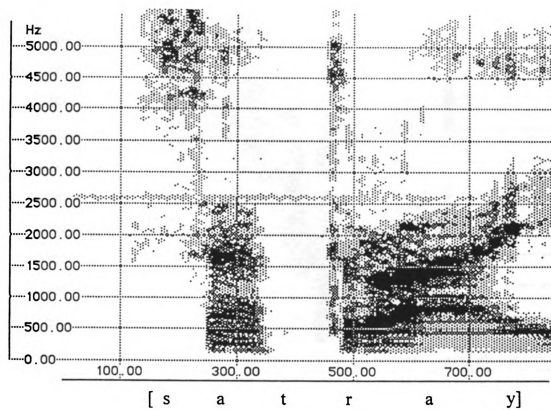


Figure 7: 'strike' by a native speaker of Thai.

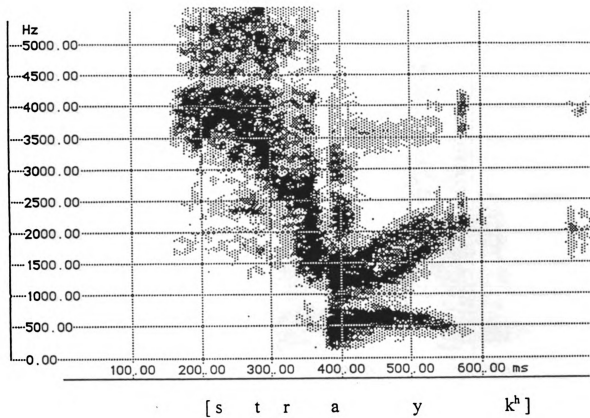


Figure 8: 'strike' by a native speaker of English.

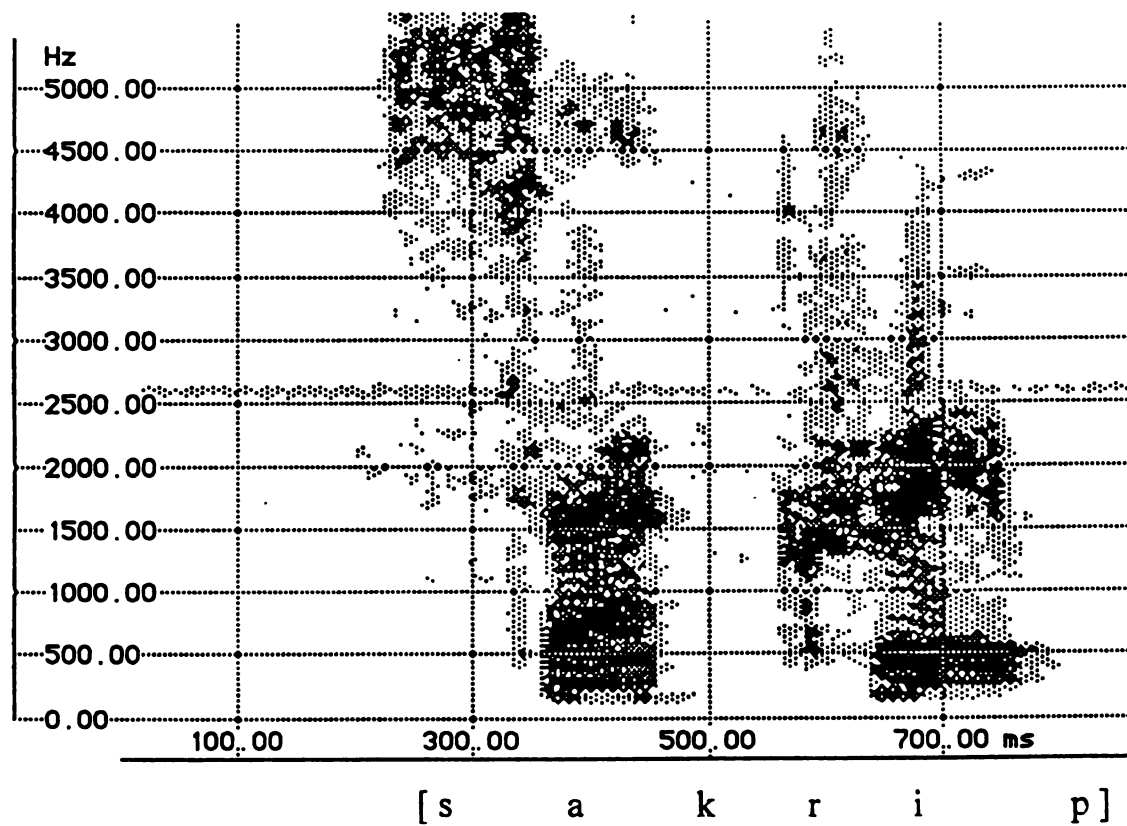


Figure 9: 'script' by a native speaker of Thai.

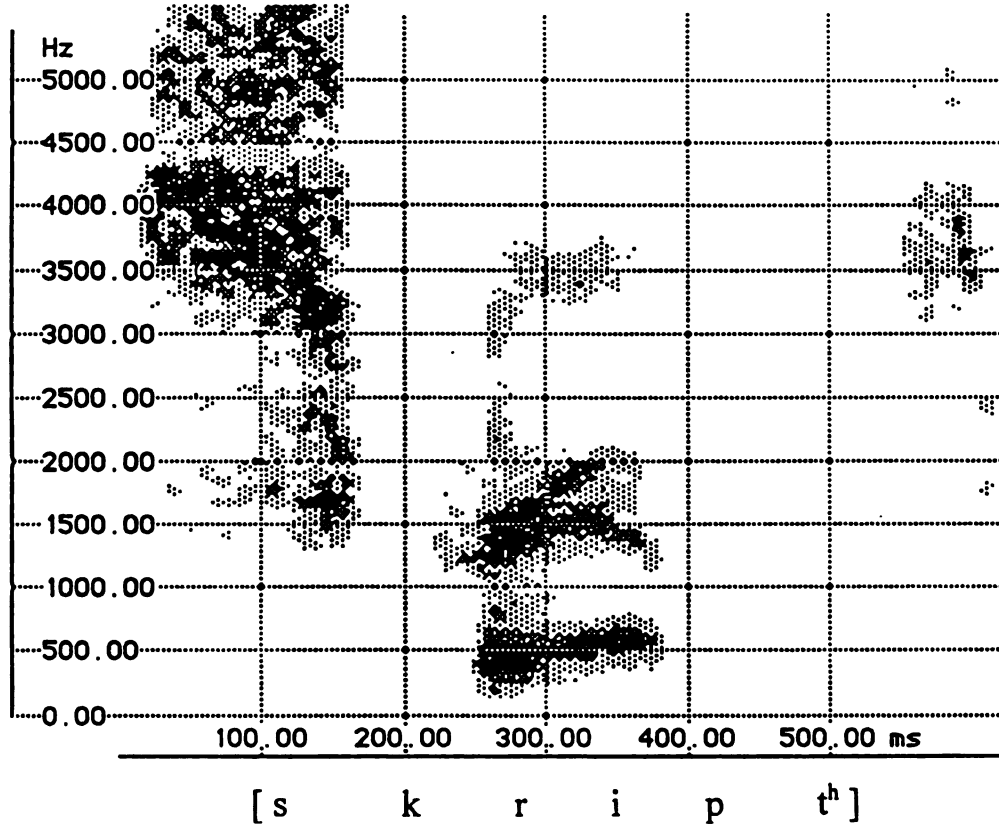


Figure 10: 'script' by a native speaker of English.

Two spectrograms of the words *brandy*, *strike*, and *script* show the differences between the pronunciations of the two speakers. Initial clusters /br/, /skr/, and /str/ are pronounced as clusters by the native speaker of English. The spectrographic displays of Figures 6, 8, and 10 show no insertion of the vowel /a/. These clusters, however, are broken up by the vowel /a/ in the pronunciation of the Thai speaker, as denoted by the degree of darkness or acoustic energy of the vowel /a/ after /b/ and /s/ in the spectrograms. Generally, vowels can be plotted by the frequencies of the first two formants. Vowel /a/ has the the following formant frequencies: F1 = 710, F2 = 1100, F3 = 2540. The acoustic energy displayed after the first segments of /br/, /skr/, and /str/ clusters in the pronunciations of a native speaker of Thai (Figures 5, 7, and 9), matches these formant frequencies. These formant frequencies, however, are missing after the first segments of the initial clusters in the speech of a native speaker of English. That means the words are pronounced as clusters.

However, there is an exception regarding this insertion. Words like ‘brake’ and ‘free’ are not epenthesized, even though these two clusters are not allowed in Thai. They are pronounced as /bre:k~ble:k~be:k/ and /fri:~fli:~fi:/, respectively. This issue is also related to the articulation of /l/ and /r/, which will be explained in the next section 7.5.

7.5. Articulation of /l/ AND /r/

There is no substantial phonological rule that can account for the articulation of /l/ and /r/. They are used interchangeably by the subjects. /r/ turned into /l/ seems

more common than /l/ turned into /r/. The latter occurs just once in the word *blonde* by one subject.

Apart from the non-saliency of the sounds /l/ and /r/ as explained by Yip, another explanation for the articulation of /l/ and /r/ is sociolinguistic (Beebe 1977, 1980). In her study of the influence of the listener on code-switching, Beebe has suggested that /l/ and /r/ are used interchangeably in the speech of Thais. Both phonemes will be used correctly only in a formal setting, such as in the classroom between teachers and students (Beebe, 1977: 332). In her 1980 study, sociolinguistic variation and style shifting in second language acquisition, she showed that the social values of sounds in the native language affect transfer. In Thai, the phoneme /r/ is pronounced in different ways, depending on the linguistic and social contexts. In her English data from Thai native speakers, she found that the formal variety of Thai /r/, a trill /r/, is used in formal English contexts but not in informal ones. In an informal setting, it is always replaced with either /l/ or /Ø/. I set up my study as an informal one, the conversation was conducted casually. Therefore, I believe this is the reason that the subjects tended to omit this sound or replace it with /l/, as in:

<u>English</u>	<u>Thai</u>
radar	/le:da/
wreath	/li:t/
brake	/bre:k~ble:k~be:k/
free	/fri:~fli:~fi:/

blonde /blɒn~bɒn/

freeze /fri:s~fri:t~fli:s~fli:t~fi:t/

The Perceptual and Operative Hypotheses proposed by Silverman and the Markedness Differential Hypothesis are not helpful here. According to the former, the speakers should perceive /l/ and /r/ distinctions, and these should be pronounced in accordance with native constraints, since Thai has both /l/ and /r/. Also, the Markedness Differential Hypothesis does not suggest that /r/ is more or less marked than /l/. Even if it does, it still fails to explain this change. A possible reason seems to relate to the formality and informality, as suggested by Beebe (1980).

Chapter 8

SUMMARY

From the data provided in Chapter 7, it is evident that Silverman's (1992) hypothesis about two stages in loanword adaptation, together with Eckman's (1977) Markedness Differential Hypothesis, is partly confirmed by Thai English loanword phonology. The study shows that for English words to be adopted into Thai, they go through several phonological changes in order to conform with Thai phonology. The study shows that native phonological constraints are not the only factor that can be used to explain phonological changes of Thai English loanwords. Other factors such as sociolinguistics, formality and informality of the situation, and extra phonological influence contributes to the change as well. And these changes can be observed from the pronunciation of Thai people in general. However, there are some other areas of Thai English loanwords which are not investigated -- or less thoroughly investigated -- by this study and might be useful for future research. More research on Thai English loanwords can be done on:

1. Vowel changes: This study deals primarily with consonants. Vowel changes are left unsolved. The study of vowel change of Thai English loanwords merits full research if it is to be worked out systematically.

2. Tones: This study investigates only tone/pitch placement in polysyllabic words. The relationship of Thai tones and English stresses needs more careful attention in order to find out a systematic relationship.

The research can also be conducted in English using the same loanwords as this study to see whether there is a phonological interference in the speech of Thai speakers. At present, English vocabulary has been used widely in the speech of Thai speakers, especially those who are educated, as suggested by Udomwong (1981). A lot of English words have been nativized and are used by speakers of all levels. Language contact provides interesting evidence of change. Raksaphet (1992: 258) suggests, 'The use of English loanwords in Thai presently has contributed to a change of the language from a heavily Indic-mixed type to the present day English mixed register.'

APPENDIX I: QUESTIONS

1. *shopping*--What do you like to do in your spare time?
2. *computer*--How often do you use on-campus computer during the weekdays?
3. *technology*--What do you think of the new technology in our country nowadays?
4. *strawberry*--What is the name of the fruit that can grow only in the north of Thailand?
5. *uranium*--Please list three fundamental elements for nuclear weapon.
6. *brandy*-- 'Regency' is the name of Thai.....
7. *strike*--What happened on October 14th, 1973?
8. *whiskey*-- 'Black Cat' is the name of Thai.....
9. *plastic*--What do you think about the plastic crisis in Thailand at the present?
10. *script*--What does the actor have to do before shooting the scene?
11. *lift*--The word that we use for 'elevator'?
12. *punch*--A hot or cold drink that is usually a combination of hard liquor, wine and nonalcoholic beverages.
13. *valve*--Parts of the car that use to regulate the flow of air or fuel.....
14. *list*--What do you usually do before going to the supermarket?
15. *farm*--What kind of farm do people do in the north of Thailand?
16. *film*--The word that we use for 'movie'?
17. *ball*--What kind of sports do Thai men love to play?
18. *freeze*--Where do you usually keep your meat?
19. *code*--Should every small supermarkets in Thailand use barcode?
20. *wig*--Suppose you were bald, do you prefer to wear a wig or just let it shine?
21. *footpath*--The place where the vendors occupy?
22. *radar*--The device that you use in the car to detect the police?
23. *wreath*--What would you bring to the funeral?
24. *brake*--What do you usually check before driving?
25. *blonde*--Women with blonde hair are usually perceived as.....

APPENDIX II: A LIST OF WORDS

1. shopping
2. computer
3. technology
4. strawberry
5. uranium
6. brandy
7. strike
8. whiskey
9. plastic
10. script
11. lift
12. punch
13. valve
14. list
15. farm
16. film
17. ball
18. freeze
19. code
20. wig
21. footpath
22. radar
23. wreath
24. brake
25. blonde

APPENDIX III: PRONUNCIATIONS OF THE SUBJECTS

SUBJECT 1:

1. shopping	/c ^h əppɪŋ/
2. computer	/kəmpyutə:/
3. technology	/t ^h ekno:lo:yî:/
4. strawberry	/satɔ:bəɪ:/
5. uranium	/yu:le:nî:am/
6. brandy	/bəlandi:/
7. strike	/satray~satay/
8. whiskey	/wiski:/
9. plastic	/pa:tsətik/
10. script	/sakrip/
11. lift	/lif/
12. punch	/pʌŋč/
13. valve	/wa:w/
14. list	/lit/
15. farm	/fa:m/
16. film	/fi:m/
17. ball	/bɔn/
18. freeze	/fi:t~fri:t/
19. code	/ko:t/
20. wig	/wik/
21. footpath	/futba:t/
22. radar	/le:da:/
23. wreath	/li:t/
24. brake	/be:k/
25. blonde	/bɔn/

Additional Thai English loanwords produced by the first subject:

1. cornflake	/kəufe:k/
2. free	/fi:/
3. barcode	/ba:ko:t/

SUBJECT 2:

1. shopping	/c ^h ɔppɪŋ/
2. computer	/kɔmpyutâ:/
3. technology	/t ^h ekno:lo:yî:/
4. strawberry	/satɔ:bəfi:/
5. uranium	/yu:le:nî:am/
6. brandy	/bəlandi:/
7. strike	/sətay/
8. whiskey	/wiski:/
9. plastic	/plasətik/
10. script	/səklip/
11. lift	/lip/
12. punch	/pʌnč/
13. valve	/wa:w/
14. list	/lit/
15. farm	/fa:m/
16. film	/fi:m/
17. ball	/bɔn/
18. freeze	/fli:s~fli:t/
19. code	/ko:t/
20. wig	/wik/
21. footpath	/futba:t/
22. radar	/le:da:/
23. wreath	/li:t/
24. brake	/ble:k/
25. blonde	/blɔn/

Additional Thai English loanwords produced by the second subject:

1. plutonium	/plu:to:nî:am/
2. free	/fli:/
3. air	/ʔæ:/
4. heater	/hi:ttə:/
5. flash	/fæt/

SUBJECT 3:

1. shopping	/cʰəppɪŋ/
2. computer	/kəmpyut̪ə:/
3. technology	/tekno:lo:yɪ:/
4. strawberry	/satrə:bʰ:li:/
5. uranium	/yu:re:ni:am
6. brandy	/barandi:/
7. strike	/satray/
8. whiskey	/wiski:/
9. plastic	/pasətik/
10. script	/səkrɪp/
11. lift	/lɪp/
12. punch	/pʌnč/
13. valve	/wa:w/
14. list	/lis/
15. farm	/fa:m/
16. film	/fi:m/
17. ball	/bɔn/
18. freeze	/fli:t~fi:t/
19. code	/ko:t/
20. wig	/wik/
21. footpath	/futba:t/
22. radar	/le:da:/
23. wreath	/li:t/
24. brake	/bre:k/
25. blonde	/bɔn~blɔn~brɔn/

Additional Thai English loanwords produced by the third subject:

1. focus	/fo:kat/
2. package	/pække:t/
3. speed	/sapit/
4. free	/fri:/

SUBJECT 4:

1. shopping	/c ^h ɔppɪŋ/
2. computer	/kɕmpyutâ:/
3. technology	/tekno:lo:yî:/
4. strawberry	/satɕ:bə:fi:/
5. uranium	/yu:re:ni:am/
6. brandy	/barandi:/
7. strike	/satray/
8. whiskey	/wiski:/
9. plastic	/plasətik/
10. script	/sakrip/
11. lift	/lip/
12. punch	/pʌnč/
13. valve	/wa:w/
14. list	/lit/
15. farm	/fa:m/
16. film	/fi:m/
17. ball	/bɔn/
18. freeze	/fli:s/
19. code	/ko:t/
20. wig	/wik/
21. footpath	/futba:t/
22. radar	/le:da:/
23. wreath	/li:t/
24. brake	/bre:k~ble:k/
25. blonde	/bɔn~blɔn/

Additional Thai English loanwords produced by the third subject:

1. foam	/fo:m/
---------	--------

SUBJECT 5:

1. shopping	/c ^h ɔppɪŋ/
2. computer	/kɔmpyutâ:/
3. technology	/tekno:lo:yî:/
4. strawberry	/satç:bə:ŋi:/
5. uranium	/yu:re:nî:am/
6. brandy	/barandi:/
7. strike	/satray/
8. whiskey	/wiski:/
9. plastic	/plasətik/
10. script	/sakrip/
11. lift	/lif/
12. punch	/pʌnč/
13. valve	/wa:w/
14. list	/lis/
15. farm	/fa:m/
16. film	/fli:m/
17. ball	/bɔn/
18. freeze	/fri:s~fri:t/
19. code	/ko:t/
20. wig	/wik/
21. footpath	/futba:t/
22. radar	/le:da:/
23. wreath	/li:t/
24. brake	/be:k~ble:k/
25. blonde	/bɔn~brɔns/

Additional Thai English loanwords produced by the fifth subject:

1. monomer	/mo:no:mâ:/
2. mart	/ma:t/
3. fashion	/fæ:šân/
4. free	/fli:/
5. coffee	/kɔpfi:/

SUBJECT 6:

1. shopping	/c ^h ɔppɪŋ/
2. computer	/kɔmpyutâ:/
3. technology	/tekno:lo:yî:/
4. strawberry	/satɔ:bə:fi:/
5. uranium	/yu:lre:ri:am/
6. brandy	/balandi:/
7. strike	/satay/
8. whiskey	/wiski:/
9. plastic	/plasətɪk/
10. script	/sakup/
11. lift	/lɪp/
12. punch	/pʌnč/
13. valve	/wa:w/
14. list	/lɪt/
15. farm	/fa:m/
16. film	/fi:m/
17. ball	/bɔn/
18. freeze	/fli:t~fi:t/
19. code	/ko:t/
20. wig	/wik/
21. footpath	/futba:t/
22. radar	/le:da:/
23. wreath	/li:t/
24. brake	/be:k~ble:k/
25. blonde	/bɔn~blɔn/

Additional Thai English loanwords produced by the sixth subject:

1. free	/fli:~fi:/
2. stereo	/satə:liɔ:/

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