

TONAL RULES FOR ENGLISH LOANWORDS IN THAI

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1. Introduction

In cases of contact between two languages, we often find that one language will borrow words from the other. The borrowing language normally adapts the loanwords, to a greater or lesser degree, to fit into its phonological system. Depending on the extent to which the modifications the loanwords undergo are phonologically (or phonetically) motivated, we have external evidence in support of the psychological reality of the sound patterns of the borrowing language, as well as evidence that bears on models of speech production and perception. Much of the linguistics research to date on loanword phonology has focused exclusively on the borrowing of segmental features, and the particular modifications they undergo in the mapping process from the donor language to the borrowing language.

There has been comparatively little research done on the borrowing of suprasegmental features and, in particular, on the borrowing of pitch contours. Egerod (1959) provided tonal correspondences from the Chaochow and Chaozhou dialects of Chinese to Thai. And more recently, Maddieson (1977) discussed Hausa loanwords in Gwari, Nupe and Kpan. In both the Egerod and Maddieson studies, the donor language was a tone language and the borrowing language was a tone language.

Since it is commonly known that pitch is the principal feature underlying the perception of tone as well as one of the most important dimensions (others include length, loudness, vowel quality) underlying the perception of stress, it is of much theoretical interest to investigate cases of language contact in which the donor language is a stress language and the borrowing language is a tone language, or vice versa. One interesting case in Southeast Asia involves contact between the parent language of the Tai language family and Indic, Khmer and Indonesian languages sometime during the 14th century. In this borrowing situation, Proto-Tai was the borrowing language; Indic, Khmer and Indonesian were donor languages. Among Tai historical-comparativists, Proto-Tai is generally considered to be a tone language, having three tonal categories. A, B and C associated with those syllables not ending in a stop segment; Indic, Khmer and Indonesian languages at this stage of historical development are all considered to be nontonal. The manner in which Indic, Khmer and Indonesian loanwords were adapted into Proto-Tai suggest underlying phonological factors determined the tonal representation of syllables in loanwords borrowed from nontonal languages. Benedict (1942:598),

in his investigation of the possible genetic affiliation between Tai and Indonesian languages, commented that it is probably significant that almost all Thai roots that have correspondences in Indonesian languages are classified under the Proto-Tai tonal category A. In his historical-comparative survey of the Tai language family, Gedney (1967) too noted that syllables ending in a sonorant segment in Indic and Khmer loanwords were all assigned Proto-Tai tone A when adapted to the Tai parent language. He goes on to suggest that "tone A was the normal level tone, with tones B and C so markedly different from it as never to be used in pronouncing the syllables of words borrowed from a toneless language."

More recently, Court (1975), in his study of the language contact situation between the Satun dialect of Thai, the tonal borrowing language, and Malay, the nontonal donor language, also found evidence of phonological factors mediating between the stress and intonational patterns of a nontonal language, and the tonal representation of these suprasegmental dimensions in a tonal language. In particular, he reported that the high rising-falling tone is assigned to syllables ending in a sonorant segment that occur in phrase-final positions, and that the high level tone is assigned elsewhere. Court suggests that the high rising-falling tone of the Satun Thai dialect is the most suitable tone for representing the falling intonation nucleus of Malay loanwords because of its high starting point, as compared to the two other falling tones in the Satun Thai tonal inventory, both of which have lower starting points.

One other study (Kiu 1977) of a borrowing situation between a tonal language and a nontonal language involves Cantonese and English. Again, the tonal language, Cantonese, is the borrowing language; the stress language, English, is the donor language. In bisyllabic English loanwords, Kiu reported two different tonal patterns that correlate with two different stress patterns. Bisyllabic loans with stress on the first syllable ($\acute{S}S$) are represented tonally in Cantonese with the high falling tone, or the high level tone, a common sandhi variant in nonphrase final position, on the first syllable, and the high rising tone on the second syllable ($S^{53}S^{35}$ or $S^{55}S^{35}$); bisyllabic loans with stress on the second syllable are represented tonally in Cantonese with the mid level tone on the first syllable, and the high level tone on the second syllable ($S^{33}S^{55}$). While the second bisyllabic tonal pattern ($S^{33}S^{55}$) correlates nicely with the bisyllabic English stress pattern ($S\acute{S}$), it is hard to account for the first tonal pattern ($S^{53}S^{35}$ or $S^{55}S^{35}$) in terms of the pitch contours associated with the bisyllabic stressed-unstressed pattern ($\acute{S}S$). The fact that the high rising tone occurs on the second syllable in these loanwords suggests that nonphonetic factors are also at work in converting stress patterns into tonal patterns. Perhaps, the high rising tone serves to indicate that the word is clearly a foreign item in the Cantonese lexicon.

This paper investigates yet another case of language contact between a tone language and a stress language--this time between (Standard)

Thai, the national language of Thailand, and English. In this contact situation, Thai is the borrowing language, English the donor language. The aim of the paper is to formulate the rules for converting the stress and intonational patterns of English into Thai tonal categories, and to determine the extent to which the resultant tonal patterns can be accounted for in terms of the pitch contours associated with the English stress patterns. The manner in which the segmental properties of English loanwords are modified will be mentioned only where it is relevant to our discussion of tone and syllable structure. For a more detailed discussion of segmental modifications of English loanwords in Thai, see Henderson (1951).

2. Thai tones/syllable structure

Thai has five contrastive lexical tones: mid (), low (ˊ), falling (ˋ), high (ˊ) and rising (ˊ). These tones are illustrated below in the familiar Chao (1930) tone letters.

(1)	naa	↘	32	<u>mid</u> falling	'field'
	naa	↘	21	<u>low</u> falling	(a nickname)
	naa	↘	51	<u>high</u> falling	'face'
	naa	↗	45	<u>high</u> rising	'aunt'
	naa	↗	24	<u>low</u> rising	'thick'

Constraints on the distribution of these lexical tones depend on syllable structure. All five tones may occur on syllables ending in a long vowel or sonorant segment (CV:C_f, CVC_f where C_f = m n ŋ w j, hereafter, 'smooth' syllables). On syllables that consist of a long vowel followed by a nonsonorant segment (CV:C_f where C_f = p t k, hereafter, 'long checked' syllables), only the low and falling tones are permitted. On syllables that consist of a short vowel followed by a nonsonorant segment (CVC_f where C_f = p t k ?, hereafter, 'short checked' syllables), only 'short' variants of the low and high tones are allowed. Of particular relevance for the assignment of tones to English loanwords is that the high tone may not occur on long checked syllables in the native Thai vocabulary.

The constraints on the distribution of tones in English loanwords, while not identical to those that apply to native Thai lexical items, also depend on syllable structure. Each syllable of an English loanword is assigned a tone. On smooth syllables, only the mid and falling tones are permitted; the low, high and rising tones do not occur on smooth syllables in English loanwords. On long checked syllables, the low and high tones occur, but not the falling tone. The occurrence of the high tone on long checked syllables in English loanwords is at variance with native Thai syllable structure constraints on the distribution of tones. As mentioned above, the high tone is prohibited on long checked syllables in native Thai vocabulary (cf. Henderson 1949). On short checked syllables, both the short low and high tones may occur. In addition to

these syllable structure constraints, we will see that tonal distribution in English loanwords further depends on the position of the syllable within a word.

3. English loanwords

3.1 Monosyllables

The assignment of tones to monosyllabic English loanwords depends on syllable structure alone; syllables interpreted as smooth are assigned mid tone, syllables interpreted as checked, short or long, are assigned high tone.

(2)	cream	khri:m	soup	súp
	queue	khiw	golf	kóp
	term	thə:m	Fab	fé:p
	farm	fa:m	chalk	chók
	Jew	jiw	wig	wík
	share	che:	fluke	flúk
	bar	ba:	Lux	lák
	beer	bia	set (tennis)	sét
	fair	fe:	shirt	ché:t
	film	fi:m	cake	khé:k
	free	fri:	oats	?ó:t
	ream	ri:m	oak	?ó:k
	cheer	chia	card	ká:t
	mile	maj	yeast	jí:t
	fan (admirer)	fe:n	Jeep	cí:p
	view	wiw	wheat	wít

Other monosyllabic English loanwords clearly show that tonal assignment is made according to what is perceived as the English syllable structure, and not according to the eventual phonetic realization of the corresponding Thai syllable.

(3)	bank	bén	*bən
	pump	pám	*pam
	tent	tén	*ten
	belt	bén	*ben
	tank	thén	*then

These English monosyllables end in a nonsonorant segment and, according to rule, are assigned high tone. But phonetically, these English loanwords end in a sonorant segment, which might lead us to expect these loanwords to conform to the rules for smooth syllables. If we assume that tonal assignment occurs 'prior to' the simplification of syllable-final consonant clusters, then the English loanwords in (3) are in agreement with the general pattern of tonal distribution in monosyllables. Without this assumption, we are left no alternative but to treat them as exceptions!

Besides this interaction between syllable-final cluster simplification and tonal assignment, we also find an interaction between the distributional constraints on Thai diphthongs and the rules for assigning tones to English monosyllables.

(4)	pipe	páj	*paj
	(Mickey) mouse	máw	*maw
	night (club)	náj	*naj

Thai prohibits the diphthongs aj and aw on checked syllables. Again, we see that tones are assigned on the basis of the English syllable structure. Although the English loanwords in (4) exhibit smooth syllable structures, they carry the high tone because the corresponding English syllables end in a nonsonorant segment.

There are also English monosyllables that are restructured in Thai as bisyllabic loanwords, due to restrictions on syllable-initial consonant clusters.

(5)	steak	saték
	skirt	saké:t
	Scotch (tape)	sakót
	smart (fashionable)	samǎ:t
	switch	sawit
	spring (season)	sapriŋ
	swing	sawiŋ

In particular, Thai does not permit syllable-initial consonant clusters beginning with an alveolar fricative. Thus, the English loanwords in (5) are modified to meet this restriction on syllable onsets. The second syllable of these bisyllabic loanwords follows the rules already established for English monosyllables--mid tone on smooth syllables, high tone on checked syllables. The first syllable in these loanwords carries a mid tone, that results from the application of a tone sandhi rule that neutralizes the distinction between high and low tones on CV syllables at regular speech tempo (for detailed formulation of this tone reduction rule, see Gandour 1976).

Finally, there are a few exceptions to the rules for assigning tones to English monosyllabic loanwords.

(6)	sport	sapò:t	*sapó:t
	Ford	fò:t	*fó:t
	suit	sù:t	*sú:t
	serve (wait on)	sə:p	*sé:p
	stamp	satəm	*sətém
	fuse	fiw	*fiw

3.2 Polysyllables

Let us next consider bisyllabic English loanwords. Those listed in (7) provide a representative sample (primary stress on English words is marked with an acute accent).

(7)	vísa	wi:sâ:	álbum	ʔa:labâm
	fáshion	fɛ:chân	doctor (Dr.)	dóktô:
	dóllar	dɔ:lâ:	Parker (pen)	pákkê:
	párty (affair)	pa:tí:	Pepsi	pépsî:
	cócoa	ko:kô:	rugby	rákbî:
	bówling	bo:lîŋ	taxi	théksi:
	rífle	rajfêŋ	Néstle's	néslê:
	(Coca) Cólá	kho:lâ:	pízza	phítsâ:
	ráyon	re:jô:n	tráctor	thréktô:
	(President)		ápple	ʔéppên
	Cárter	kha:tê:	lêcture	lêkchê:
	rádar	re:dâ:	níckel	níkkên
	Ú.S.O.M.	ju:sô:m	swéater	sawéttô:
	(eye)		whiskey	wítsakî:
	sháadow	chɛ:dô:		

Except for the second syllable, these bisyllabic loanwords can be accounted for with the rules already established for monosyllables. Instead of a mid tone, as we might expect, based on the evidence from those monosyllables ending in a sonorant segment, the second syllable in these loanwords is assigned a falling tone. The fact that we find a falling tone, as opposed to a rising tone, on the final syllable of these loanwords suggests a natural phonetically-motivated explanation in terms of English and Thai stress patterns. The stressed-unstressed English pattern in (7) correlates with a falling pitch contour. Since Thai rhythm requires that the last syllable in a phrase be stressed, it would appear that the falling pitch contour has been preserved in the Thai pronunciation, but that the point of the fall has been shifted to the final syllable in accordance with Thai rhythmic constraints.

Though this phonetically-motivated account has a lot of appeal, it cannot be the whole story, as evidenced in bisyllabic loanwords whose second syllable ends in a nonsonorant segment.

(8)	bónus	bo:nát
	sándwich	sɛnwít
	dónut	do:nát
	ténnis	thennít
	fóremost	fɔ:mó:t
	jácket	cékkét

Assuming that the Thai tonal patterns reflect the English stress patterns, we would surely expect the low tone on the final syllable of this set of loanwords. But instead what we find is the high tone. Since the English stress pattern in (8) displays an overall falling pitch contour, we cannot explain, from a strictly phonetic point of view, the overall rising pitch contour on the borrowed forms in Thai. There are, however, other bisyllabic loanwords which do seem to support a phonetic interpretation.

(9)	Égypt	ʔi:jíp
	Cólgate	khǝnké:t
	cóncrete	khǝnkrǐ:t
	lipstick	lǐpsatík
	hótdog	hótđò:k
	Kléenex	khi:nék
	crédit	khre:dít
	téchnique	thékník
	(air) hóstess	hóssatè:t
	plástic	phléssatík
	(Robert)	
	Rédford	rétfò:t
	pássport	phéssapò:t
	cóntact (lens)	khǝnthèk
	Eúrope	júʔrò:p
	Pittsburgh	phíssabè:k
	(Pa.)	

The English words in (9) all display a falling pitch pattern with the primary stress falling on the first syllable. The Thai adaptation of this set of words reveals that the tonal pattern more closely approximates the English stress pattern. In particular, we observe that the checked syllables at the end of these loanwords are all assigned the low tone. This tonal pattern corresponds to the lowered pitch on the second syllable of these bisyllabic English words. When checked syllables occur in positions other than at the end of polysyllabic words, they are always assigned the high tone. Given the English loanwords in (8) and (9), it would appear then that we have competing strategies for the adaptation of English stress patterns into the Thai language. Those loanwords in (9) suggest that the process of adaptation is phonetically motivated, while those in (8) indicate perhaps a conventionalized reading pronunciation of English orthography.

The bisyllabic English loanwords in (10), however, clearly suggest some phonetically-based adaptation strategy.

(10)	shǎmpúo	chemphu:	*chemphû:
	TV	thi:wi	*thi:wî:
	hifí	hajfaj	*hajfâj
	hotél	ho:ten	*ho:tên
	revúe	ri:wiw	*ri:wîw
	psychó(logy)	sajkho:(vb.)	*sajkhô:

We might expect these bisyllabic loanwords to conform to the tonal pattern established for the English loanwords listed in the left column of (7). But instead of the falling tone being assigned to the second syllable of the loanwords in (10), we observe that the second syllable is pronounced with the mid tone. Unlike the English words in (7), which display primary stress on the first syllable, the words listed in (10) all display primary stress on the second syllable. These English source words have an overall rising stress pattern, the second syllables being comparatively higher in pitch than the first, and longer. If these English words were to be adapted with the falling tone on the second syllable, the resultant tonal pattern would be considerably different from the perceived stress pattern. Thus, the final syllables of these bisyllabic words are assigned a mid tone which results in a closer approximation to the English stress pattern. It is surely significant that English syllables ending in a sonorant segment, at the end of polysyllabic words, are normally assigned the falling tone, except for such bisyllabic words in (10), and trisyllabic words and phrases such as violin wajʔo:lin, *wajʔo:lin; Oil of Oláy ʔɔ: ʔéf ʔu:la:n, *ʔɔ: ʔéf ʔu:lân, which all carry primary stress on the final syllable.

Other bisyllabic English loanwords, however, show exceptional behavior.

(11)	sóda	so da:	*so:dâ:
	Níxon	níksân	*níksân
	billiards	binliát	*binliát, *binliát
	nécktie	nékthâj	*nékthâj
	Christmas	khritsamâ:t	*khritsamâ:t, *khritsamâ:t

Let us next turn our attention to English source words consisting of more than two syllables.

(12)	Alsácian	ʔanse:chiân
	pollútion	pho:lu:chân
	corrúption	kho:rápchân
	compúter	khómphiwtê:
	Miámi	majʔe:mî:
	Chicágo	chíʔka:kô:
	(North)	
	Carolína	kha:ro:lajnâ:
	(North)	
	Dakóta	da:ko:tâ:
	Nebráska	ne:bréssakâ:
	Aláska	ʔaléssakâ:
	Oklahóma	ʔo:kla:ho:mâ:
	Alabáma	ʔe:la:ba:mâ:
	Montána	móntha:nâ:
	hámburger	hembə:kê:
	bádminton	bétmintân

Ró'tary (Club)	ro:tarî:
lóttery	lót'tarî:
báttery	bét'tarî:
Kén'nedý	khennadí:
hý'drogen	hajdro:cên
Hú'ngary	han'ka:rî:
Wá'shington	wá?chĩntân
fúrniture	fə:nicê:
technólogy	thékno:locî:
Impé'rial	?imphĩ:rĩan
alúminum	?alu:mi:nĩam
urá'nium	jure:nĩam
biólogy	baj?o:lo:cî:
Niá'gara	naj?enkarâ:
(Falls)	
Démocrat	demmo:krèt
Chévrolet	chépro:lèt
Massachúsetts	mét'sa:chu:sè:t
chócolate	chókko:lèt
Cádillac	kha:di:làk

The polysyllabic English loanwords in (12) point to a conventionalized reading pronunciation of English orthography. The rules for tonal assignment are based strictly on the interpretation of English syllable structure. Those syllables interpreted as smooth receive the mid tone in non-final position, the falling tone in final position; those syllables interpreted as checked receive the high tone in non-final position, the low tone in final position. Short open syllables in English source words that occur between a primary stressed syllable and a following syllable are assigned a mid tone in accordance with the tone reduction rule in Thai. Since the tonal patterns remain fixed in the adaptation of variable stress patterns found in polysyllabic English words, we cannot attribute the resultant tonal patterns to perceptual interpretation of the variable pitch contours associated with the English stress patterns.

English loanwords for the names of certain countries also point to a conventionalized reading pronunciation.

(13)	Índia	?india	*?indĩa
	Nórway	no:rawe:	*no:rawê:
	Gérman(y)	jə:raman	*jə:ramân
	Finland	finle:n	*finlê:n
	África	?éffri:ka:	*?éffri:kâ:
	Arábia	?a:ra:bia	*?a:ra:bĩa
	Indonésia	?indo:ni:sia	*?indo:ni:sĩa
	América	?ame:rika:	*?ame:rikâ
	Switzerland	sawítsale:n	*sawítsalê:n
	The Nétherlands	ne:thale:n	*ne:thalê:n
	Túrkey	tə:raki:	*tə:rakĩ:

The smooth syllables in the loanwords of (13) are assigned the mid tones, instead of the expected falling tone. The fact that the names of cities and countries in the English loanwords of (12) do follow the more general tonal pattern, while those in (13) do not, again suggests competing strategies in the adaptation of English stress patterns.

Some other English loanwords which display exceptional behavior in terms of the general tonal patterns found in adaptation of English stress patterns are listed in (14).

(14)	óxygen	ʔǫksice:n
	vítamin	wittamin
	Óvaltime	ʔo:wantin
	vanílla	wáʔni:la:
	macaróni	mákkaro:ni:
	básketball	béssakétbɔ:n
	mágazine	mékkasi:n
	Hóllýwood	hɔ:liwú:t
	(Calif.)	

4. Summary

While both phonetic and nonphonetic factors appear to interact in determining the eventual tonal representation of English stress patterns, the rules for assigning tones, as summarized in (15), do apply to the overwhelming majority of English loanwords in Thai.

(15)

	MONOSYLLABIC WORDS	POLYSYLLABIC WORDS	
		NON-FINAL POSITION	FINAL POSITION
SMOOTH SYLLABLE	mid	mid	fall
CHECKED SYLLABLE	high	high	low

Some of the exceptions to these rules can be accounted for with phonetic, morphological, and/or semantic information, as shown by the loanwords in (10) and (13), yet other exceptions cannot, as shown by the loanwords in (14). With the increasing influence of English as a second language in Thailand, we will have further opportunity to observe how these tone rules are extended or restricted in application in the process of borrowing words from a stress language.

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