THE SYSTEMATIC REDUCTION OF ENGLISH SYLLABLE FINAL CONSONANTS IN VIETNAMESE-ENGLISH INTERLANGUAGE

Anthony Nguyen

INTRODUCTION

An interlanguage (IL) is generally viewed as a dynamic and complex linguistic system created by an adult learner in acquiring a second language (L2). Being dynamic, it changes constantly as the learner progresses through a theoretically infinite number of states of grammatical development along a continuum (O'Grady 1991). Being complex, it contains many elements, which may come from either the native language (NL) or the target language (TL), or from neither (Altenberg & Vago 1987, Beebe 1987, Gass & Selinker 1994). In spite of a lack of agreement among second language acquisition (SLA) researchers on what exactly those complex components might be, there is a general assumption that the learner creates the IL by constructing and modifying a simplified version of the second language in question, based upon his/her current and cumulative linguistic knowledge (Major 1987a, Klein 1991). In a class experiment, 22 students in the SLA Course at George Mason University (LING582) were asked, after listening to a short taped English speech by several speakers, to judge whether or not the speaker is a native speaker of English, and if not, to identify the possible linguistic background of the speaker. All the students were able to not only ascertain that one speaker is a non-native, but also pinpoint her first language (L1) as Vietnamese (VN), with unanimous agreement. The short speech produced by this speaker must have revealed some interesting cues peculiar to the productions of English words that surfaced from her internalized linguistic system. One of the most telling cues, among many others, was the reduction/deletion of syllable final consonant clusters in English words, as attested by Osburne (1996) in her investigation on the subject:

> "Vietnamese has been chosen as the L1 because cluster reduction and related processes among Vietnamese L1 learners of English are so well attested that they have become a staple of interlanguage phonological theory."

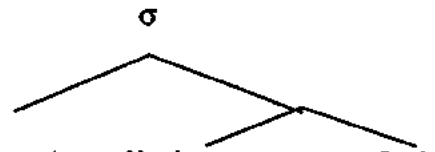
As researchers in SLA strive to account for both the systematicity and the variability in the development of an interlanguage, most studies have focused on syllable final consonant clusters (SF CCs) rather than syllable initial consonant clusters (SI CCs) because the former are more troublesome to L2 learners, i.e., are more "marked" than the latter (Eckman & Iverson 1994, Carlisle 1994). Specifically for the Vietnamese-English IL, several studies had focused on the investigation of the SF CC reduction as evidence of a universal preference for an open syllable structure as proposed by Tarone (1980). Among those, the studies conducted on L1 VN learners by Sato (1984), Benson (1988), Osburne (1996), and Nguyen & Brouha (1998) provided interesting results. In this paper, I will investigate the systematicity in the reduction of English final consonant clusters, as constructed by the L1 Vietnamese Subjects (Ss) from these four studies. Instead of providing a general analysis of all aspects relevant to SLA offered by the data from these studies - those aspects are so many to be accounted for in this short paper - I will rather attempt to identify the common thread that underlies the Ss' performances by focussing on the strategies they used. The purpose of this investigation is an attempt to answer the very basic question: "Can one systematically predict the mechanism underlying the final consonant cluster reduction in L1 VN learners?" It is my hope that, armed with a mechanism that can predict the strategies utilized by L1 VN learners, L2 teachers will be able to devise effective ways to help these learners reduce the foreign accent in their English speech.

VIETNAMESE

Vietnamese is a monosyllabic language in which each syllable is equivalent to a word, and, as such "there are no phonemic words containing more than one phonemic syllable" (Nguyen 1967). A syllable has at least a vowel and a tone, accompanied by a relative stress and an intonation. In spoken language, syllables vary in length with the degree of relative stress assigned to them: the heavier the stress the longer the syllable. Syllables with the same relative stress are approximately equal in length, that is, those containing a vowel cluster - either diphthong or triphthong - would take approximately the same time as those containing a single vowel (Thompson 1965). Phonologically, the language allows no consonant clusters, either initially or finally. Thus, the general template for a syllable (or a word) is:

(C) $V_{1/2/3}$ (C)
where
(C) = optional single consonant
V_1 = single vowel
V_2 = diphthong
V_3 = triphthong

A first major difference between English and VN morphologies resides in the internal structure of the VN syllable. Specifically, a coda in VN can be either a vowel or a consonant as opposed to a coda in English, that can only be a consonant. The following diagram illustrates the difference.



	Onset	Nucleus	Coda		Gloss	Template
(a)	l	a			scream	C V_1
(b)	l	a	n		orchid	C V_1C
(c)	l	á	t		slice	C V_1C
(d)	l	a	i		hybrid	C V_2
(e)	l	a	u		wash	C V_2
(f)	l	u'	o'	i	net	C V_3

Note that the codas in (d), (e), and (f) are vowels. This is a preferable way to look at these vowels as codas, based on the fact that VN does not allow derivation or inflection as English does. However, in speech, these vocalic codas will combine with their corresponding nuclei to be realized as dighthongs or triphthongs. Thus, diphthongs or triphthongs formed in this way will not allow any consonant (C) to follow. This characteristic will have an important effect on the Ss' English productions as will be shown later. A second major difference between the two languages is that VN morphology is primarily tonal, as opposed to the derivational morphology in English. This means that the high productivity of VN words is achieved by adding one of the five tones to a "root" word to generate new ones. As an example, the addition of the high rising

tone / ′ / to "la" (scream) will give "lá" (leaf); similarly, the addition of the broken tone / ˜ / to it will produce "lã" (pure water). Once again, after a word receives a tone, it becomes fixed, i.e., invariable, and does not accept either derivational or inflectional forms. Table 1, reproduced from Nguyen & Brouha, lists the Vietnamese consonants that are allowed both word-initially and word-finally.

Table 1. Vietnamese Consonantal System (as compared to English Consonantal System)

EXISTING CONSONANTAL SOUNDS IN VIETNAMESE		
WORD-INITIALLY		**WORD-FINALLY**
t k		p t k
b d g		
f s		
v z		
m n ŋ		m n ŋ
l		
ɹ		

Notes:
(1) Only the consonants that are comparable to the English system are given here. There exist other consonants in Vietnamese, such as: c, x, ɣ, ɲ, ... but they are irrelevant to the discussion in this paper. For a complete inventory of the VN sounds, see Nguyen (1967) or Thompson (1965).
(2) The glides /w/ and /j/, considered semivowels, are not included in the table.
(3) The English obstruents that do not exist in VN are: θ, ʃ, tʃ, ð, ʒ, and dʒ.

SUBJECTS

SLA researchers seem to agree that interlanguages exhibit more variability than do natural languages (Gass & Selinker 1994). In fact, in addition to the internal linguistic context that causes variations in the second language learner's system (Tarone 1983), external social and contextual factors affect the learner's performance and productions as well. For example, it has been widely observed that L2 speech performance covaries with the type of discourse activity, and that a discoursal fluency seems to be linked to a phonological proficiency in L2 speech (Leather & James 1996). Tarone (1983), for instance, advocates for the necessity of collecting data from as many styles as possible in order to obtain accurate IL data, since the second language learner's system is a changing one. It is precisely this complex variability of an IL that motivates the selection of these four studies: to obtain an agglomerated corpus of data that can cover as wide a spectrum of variants as possible. See Table 2 below for a profile summary of all Ss.

Table 2. Summary of Subjects profiles

Author	Age	Sex	NL Dialect	Age starting ENGL	Years in USA	ENGLISH level
SATO (1984)	11	M	?	10	1	4th grade
	13	M	?	12	1	6th grade
BENSON (1988)	26	M	C (note 1)	?	5	College graduate
	16	M	S	?	4	11th grade
NGUYEN&BROUHA	29	F	S	25	2	Intermediate
(1998)	27	F	S	12	1	Intermediate
	29	F	S	12	1	Intermediate
	29	F	S	12	2	Intermediate
	28	M	S	22	6	Intermediate
	24	F	S	22	2	Intermediate
	26	M	C	12	5	Intermediate
	45	M	N	12	8	Intermediate
OSBURNE (1996) (note 2)	@ 33 @ 39	M	N	14	13 19	Extremely advanced

Notes:

(1) C= Central (e.g., Hue); N= Northern (e.g., Hanoi); and S= Southern (e.g., Saigon). There is a notable difference in the final realization of some consonants between the Central and Southern dialects on the one hand, and the Northern dialect on the other hand. For example, the final /-t/ is realized as /-k/ by Centrals and Southerners (e.g., "mát" (cool) => /mak/) as opposed to the normal /-t/ by Northerners.

(2) Data from Osburne's only subject were taken at two different times, 6 years apart in a longitudinal study.

Therefore, the entire corpus of data obtained in these studies can indeed be considered a sample representation of many key variability factors that could play important roles in the L2 data: age (from 10 to 45), sex (both male and female), years of English acquisition (from 1 to 19), L2 proficiency level (from low beginning to very advanced), discourse type (from most formal to most casual), task type (from simple repetition, to reading, to free speech), and study type (both longitudinal and cross-sectional).

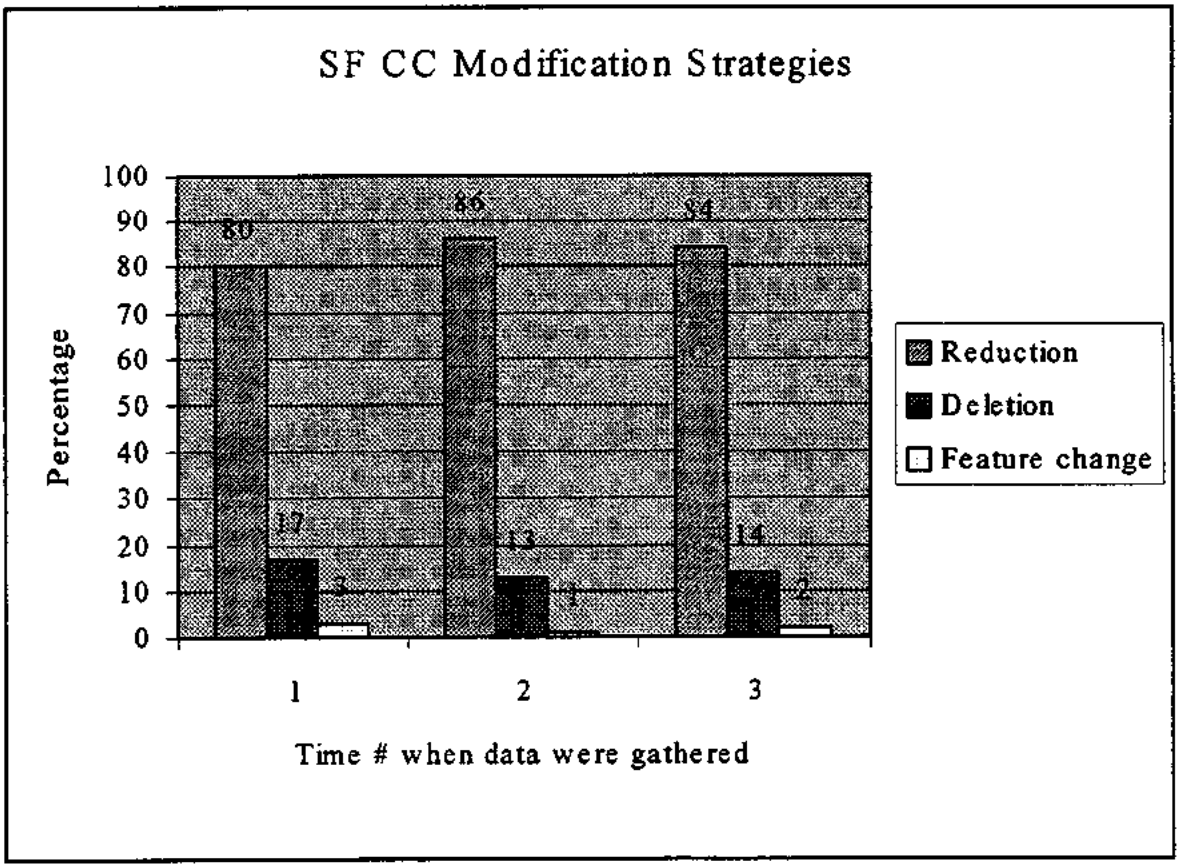
ANALYSIS

I. Sato (1984). The primary purpose of Sato's paper was to find out whether there is enough evidence to support Tarone's (1980) claim of a universal preference for the CV syllable in the IL. Her data were elicited from a longitudinal study of two young VN brothers who started learning English at ages 10 and 12, respectively, in the informal settings of spontaneous conversational speech. Sato classified three types of errors in their SF CC modification strategies in Table 3 where the averages for both Ss' performances are given. The accompanying bar charts show a consistency in the types of errors for all the 3 times the data were gathered: cluster reduction was the highest, next came cluster deletion, and feature change was the lowest. Her conclusions included the following:

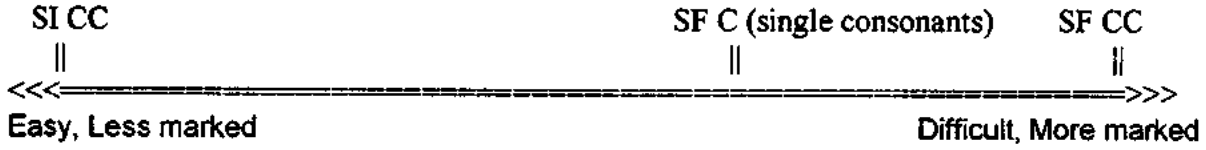
a. There was very little evidence to support a CV structure, thus disconfirmed Tarone's hypothesis on a universal preference for it.
b. More importantly, Sato's data confirmed Eckman's (1977) typological markedness by showing that SF CCs are more difficult for L2 learners than SI CCs, because they are more marked. As for a preference among various strategies used by the Ss, Sato observed that "cluster reduction by one segment was favored over other processes: cluster deletion, vowel epenthesis, and feature change."

Table 3. Syllable-Final Cluster Modification: Average for both Ss
(Data obtained from Sato's Tables 14.5 and 14.10)

Process	Time 1 Error Percentage	Time 2 Error Percentage	Time 3 Error Percentage
Feature change	3	1	2
Cluster reduction	80	86	84
Cluster deletion	17	13	14
Total	100	100	100



Thus, based upon Eckman's Markedness Differential Hypothesis to interpret the findings in Sato (1984) (together with findings from Eckman & Iverson (1994), and Carlisle (1994)), a scale for consonant cluster difficulties can be established as follows:



Sato's findings, therefore, provide evidence for Strategy # 1 in the VN final cluster reduction process, to be formulated as:

Strategy # 1: For SF CCs, prefer reduction over deletion.

II. Benson (1988). Similar to Sato, Benson focused her study on the informal speech of two VN learners to find out whether there is evidence to support a universal preference for the CV syllable structure in IL phonology. Her test words, restricted to both monosyllabic English words and final Cs that also exist in the NL, contained both structure types: CV and CVC. Her findings provided only limited support for the CV (12% of the errors was considered evidence in favor of CV, whereas 87% was considered due to NL transfer). Most important, however, was her investigation on the reason why the Ss deleted the final Cs based on the NL facts. She discovered a consistency in the quality of the "vowels" that triggered the deletion of the Cs that follow them. These are all the diphthongs that, in the NL, do not allow a C to follow: /aɪ/, /oɪ/, and /aʊ/. Predictably then, the Ss would most likely delete the Cs that come after the sounds / aɪ/, /oɪ/, and /aʊ/ in English words. And that was exactly what they did. She thus concluded that the NL influence was obvious in her Ss' strategies. Table 4, reproduced from her Tables 3a and 3b, provides a summary on the Ss' errors.

Table 4. Summary of Errors in Benson's Subjects
(Data obtained from Benson's Tables 3a & 3b.
The symbol /ɪ/ used in Benson's tables is equivalent to the symbol / ɪ / in the text)

SUBJECT 1: PH		SUBJECT 2: TS	
English gloss	IL sequence	English gloss	IL sequence
time	t^haɪ, taɪ	M	
down	daʊ	time	t^haɪ
mine	maɪ	join	dʒoi
late	le(ɪ)	mean	mi
night	naɪ	down	daʊ
not	na	eight	eɪ
that	ðæ	not	na
eight	e(ɪ)	that	ðæ
hate	he(ɪ)	what	wʌ
gate	ge(ɪ)	yet	jɛ
out	aʊ	right	raɪ
right	raɪ	write	
like	laɪ	like	laɪ
		talk	t^hɔ

It is also worth noting that, in a previous study, Benson (1986) provided evidence to support the Markedness Differential Hypothesis proposed by Eckman (1977), in which she established that since VN does not allow CCs at all, all types of English clusters, either word-initially or word-finally, are to be considered marked with respect to the NL, and thus become difficult for VN learners and are susceptible to deletion/reduction. She claimed, as a result, that the patterns of deletion/reduction can be predicted from the NL fact as described above. This leads us to:

Strategy # 2: Delete any C after the diphthongs that end with the sounds / -ɪ/ or / -ʊ/.

III. Nguyen & Brouha (1998). In a study of word-final consonant production in English by L1 VN speakers, Nguyen & Brouha tested 8 Ss on 2 groups of sounds. Sounds in group I (θ, ð, ʃ, tʃ, ʒ, dʒ) do not exist in the NL, whereas sounds in group II (b, d, g, f, v, s, z, l, ɹ) do exist in the NL, but only word-initially. All English words tested were CVC and given in three different tasks (repetition, reading, and carrier phrase). Since this was a study specifically designed to investigate the IL realizations of single final consonants in English, no strategy could be directly inferred with respect to final consonant cluster reduction; however, interesting results can be drawn from single consonant deletion or substitution strategies, as a subset of cluster reduction strategies. Patterns of deletions and substitutions of single consonants are given in Table 5. Results from the data are summarized below:

Table 5. Final Consonant Deletions/Substitutions in Nguyen & Brouha's Subjects

Consonant deleted	# of times	%		Consonant substituted	Consonant substituting	# of times
l	24	28		ʃ	s	22
z	11	12		ʒ	s	18
s	10	11		ð	s	6
r,g, ʒ	7	8		θ	s	6
v, ð, dʒ	4	5		tʃ	s	4
θ	3	4		dʒ	s	2
b, tʃ	2	3				
ʃ	0	0				
Total	90	100				

Of a total of 1074 tokens, there were 500 targets and 791 errors. Among the errors, 6% was due to epenthesis, and 11% to deletion, i.e., a total of 17% in favor of the CV syllable structure. From Table 5 above, two obvious questions to be asked are:

1. Why /l/ /z/ /s/ are the most frequently deleted?
2. Why /s/ has become the "substituting agent" for all the sounds that do not exist in the NL?

First, a close examination of the consonants being deleted shows a considerable impact of the NL influence on these Ss' productions, because on the one hand, none of the final Cs that are allowed in the NL (p, t, k, m, n, ŋ) was deleted, and on the other hand, all of the final Cs that were deleted are either permitted only initially, or not permitted at all, as described in Table 2.

For question #1, it seems there is a NL mechanism that triggers the deletion of the final /l/. An analysis of several VN borrowings (see Nguyen, 1986, and Le & Le, 1980), both from

English and French words that end with /l/, gathered in Table 6 below shows the borrowed words had been restructured according to these two nativization rules:

Rule (1): ___l ==> ___n (variant ñ)
Rule (2): ___l ==> ∅

Table 6. Some Vietnamese Loan Words

English		IPA	Vietnamese	IPA	Rule
ball		[bɔ:l]	ban/banh	[ban/bañ]	(1)
film		[film]	phim	[fim]	(2)
valve		[vælv]	van	[van]	(1)
French	**Gloss**	**IPA**	**Vietnamese**	**IPA**	**Rule**
napalm	*napalm*	[næpalm]	na-pan	[napan]	(1)
filtre	*filter*	[filtr]	phin	[fin]	(1)
pile	*battery*	[pil]	pin	[pin]	(1)

According to Major (1987b), "loan words have been changed so that they fit native patterns," these examples indicate that there must be an underlying mechanism in the NL that triggers the restructuring of these loan words, and that these restructuring rules have transpired from the NL into the IL. This discovery seems interesting, but further investigation is beyond the scope of this study. For an overall picture of the final /l/ production in Nguyen & Brouha, out of 72 tokens, there were 32 targets (= 44.5%), 24 deletions (= 33.4% for Rule (2)), 14 substitutions by /n/ (= 19.5% for Rule (1)), and 2 others (= 2.6%).

As for the deletions of /r/, /z/, /s/, etc.., the answer may also lie in the NL facts. Since there seemed to be no considerable ambiguity involved (Weinberger 1987), the Ss just simply dropped these "difficult" sounds due to NL fossilization, as pointed out by Edwards (1997) who, for example, describes /r/ as posing "genuine difficulties for the non-native speaker, almost without exception." Therefore, these sounds, in addition to their position in the codas (which is not allowed in the NL) must be considered the last to be mastered developmentally and traditionally present L2 pronunciation difficulties.

For question #2, a transfer hypothesis would predict that the Ss would delete all these consonants in the TL words, because they do not exist in the NL. It was not so. The Ss used another strategy. They showed constraints against ambiguity by preserving structure (Weinberger 1987) in their productions by substituting these "unfamiliar sounds" with the /s/ sound, which, interestingly, is not permitted word-finally in the NL either. NL transfer was not operative at all in these instances. Instead, I conjecture that this must be a developmental process in the Ss, as suggested by Altenberg & Vago (1987) as a process in which the learners substituted a more marked sound by a less marked sound, i.e., in this case, replacing these unfamiliar sounds by the /s/ being unspecified for place of articulation (Clements 1985), and closest to the sounds being substituted, for manner of articulation.

Also in Nguyen & Brouha, there is evidence to support the deletion of the Cs that follow the diphthongs ending with the sound / ɪ/ or /ʊ/ as discussed earlier in Benson's subjects. Some of the examples are:

Gloss		IL realizations
prize /pɹajz /	===>>	/ pɹaj/ / pɹejzə/ / pɹizə/ (see note * below)
case /kejs/	===>>	/ke:/ /kæ:/
house /haʊs/	===>>	/haʊ/

This leads to Strategy # 3 in the reduction process:

Strategy # 3: a. Delete a C in codas if this C is not permitted in NL codas.
b. To preserve structure, substitute a marked C by the closest unmarked one.

IV. Osburne (1996). Osburne's only subject was the most advanced L1 VN learner among all the Ss in these four studies, with a relatively large corpus of data from two informal and spontaneous speeches taped at two different times, in 1985 and 1991, respectively. As stated by Osburne, this speaker must be considered "an extremely advanced user of this L2", i.e., his command of English was to be looked at as the culmination of the VN-English IL sample. Table 7 is a list of the subject's speech samples selected from her Appendix B. Osburne's conclusions included the following:

(*) There is also evidence of epenthesis, which may support the recoverability principle proposed by Kaye (1981) and Weinberger (1987). But this is beyond the scope of this paper.

a. Rare deletions of single Cs. This can be considered as evidence that this subject had mastered the preliminary steps that consist of deleting singletons, i.e., he had overcome a beginner's errors in final cluster reduction/deletion. Most of this subject's productions were closed syllable words resulting from TL words that contain final consonant clusters, i.e., he also adopted Strategy # 1, namely, prefer reduction over deletion.
b. Deletions of the Cs that are not permitted in NL, e. g., /l/ /z/ /r/. This subject was using Strategy # as still being influenced by the NL transfer. Specifically regarding his deletion of /r/, I believe Osburne's assumption is correct in so far it is not an existing final sound in the NL. I would like, however, to offer another explanation for his non-rhotic accent: being a Hanoi dialect speaker, he would not have the /r/ sound in his NL phonological inventory, even word-initially, as the /r/ being realized as /z/ in the Hanoi dialect (see Thompson 1965).
c. Deletions of the Cs involving /w/ and /j/. As an alternative to Osburne's analysis regarding the reduction of consonant cluster triggered by these sounds, regarded as glides, I would like to offer an analysis based upon the NL facts discussed earlier concerning the formation of diphthongs/triphthongs in Vietnamese. Since a vowel can take on either another vowel to create a new word (=diphthong or VV word), e.g., /a/ + /ɪ/ => /aɪ/ or another consonant to create a new word (=VC word), e.g., /a/ + /n/ => /an/. Thus, once a VV word is formed by this morphological process, it will not allow any C to follow. This NL fact can explain and predict the reason for the consonant (s) to be deleted after the sounds /ɪ/ or /ʊ/ in the TL words.

Table 7. Sample Errors in Osburne's Subject
(Data from Osburne's Appendix B)

English words	IL realizations	English words	IL realizations
that's	dæt˺/ðæt˺/ræt˺	evidence	ɛvidɛn
units	ju:nɪt˺/ junɪt˺	variance	væriæn
thoughts	t^{h}ɑt˺	contentions	k^{h}ənt^{h}ɛnʃən
estimates	ɛstɪmət˺	concerns	k^{h}ənsɜn
talked	t^{h}ɔk˺	questions	k^{h}wɛstʃən
suspect	səspɛk˺	comments	k^{h}ɑmɛn
inconsistent	iŋk^{h}ənsistən	funds	fʌn
equivalent	ik^{h}wɪvəlɛn	think	t^{h}ŋk/ t^{h}ŋ
significant	sɪgnɪfik^{h}n? sɪgnɪfik^{h}ən	drawings	drɔŋ
front	frʌn	best	bɛs
jump	dʒʌm	investments	ɪnvɛsmɛn
named		exist	ɛgzɪs
spend	spɛn	finished	fɪnɪʃ
fund	fʌn	help	hɛlf / hɛl
change	tʃ^{h}ejndʒ/ tʃ^{h}ejn	built	bɪl
ask	æs	detailed	dit^{h}ejl
risk	rɪs	called	k^{h}ɔl
month	mʌn	else	ɛl
down	dawn/daw/raw	light	laj
sound	saw	like	laj
avoid	əvɔj	guys	gaj
quantified	k^{h} wantufaj	point	p^{h}ɔj
groups	gruwps	adjustments	ædʒʌsmɛn
terms	t^{h}ɜm	amount	əmaw

Osburne concluded that there was a regularity in the cluster reduction in this L1 VN learner, i.e., the reductions were not random at all. She observed that the subject almost always kept the first C and optionally dropped all the others in a cluster. This is to be expected, since it is almost always the case that the C closest to the nucleus is the most sonorous, except when [s] follows, according to the Sonority Principle (Clements 1992) and that the recoverability principle (Weinberger 1987) must be observed at the same time. This last strategy thus becomes:

Strategy # 4: Optionally dropping all the Cs in a final cluster except the first.

SYSTEMATICITY OF SYLLABLE CODA REDUCTION BY VN LEARNERS

Final consonant cluster reduction is a process used not solely by L2 learners trying to acquire a TL. It is also a process widely used by native English speakers in casual speech (Osburne 1996).

However, there is a difference in the reduction by native speakers (NS) as compared to the reduction by non-native speakers (NNS). It is precisely this difference that, at least partially, makes the NNS speech sounds "foreign". Osburne cited the following example from Temperley (1983):

Table 8. Final Consonant Cluster Reduction: NS vs. NNS

Speaker	Phrase	Production	Reduction Process
Native	facts are	/fæksaɹ/	preserving inflectional endings
Non-Native	facts are	/fæktaɹ/	not preserving inflectional endings

In a study of word-final consonant clusters in the English productions of native Cantonese, Japanese, and Korean speakers, Eckman (1987) proposed this "cluster reduction" rule (CR):

C C (C) # ===> C (C) #.

(Optionally delete one member of a final tri-literal consonant cluster; optionally delete one member of a final bi-literal consonant cluster)

Eckman's rule was intentionally stated in a most general way, because without considering the typological markedness between English and these NLs, there is no way to predict what C would be deleted, solely based upon the consonant quality or its position in the cluster, i.e., there is no patterns in these reductions at all. I believe Eckman is correct in pointing out that the CR as stated above can be considered "universal", i.e., applicable to any "generic" L2 learner without considering a specific native language. In this paper, however, I have reviewed different strategies used by the Ss by considering various areas of impact caused by the influence of Vietnamese on the productions of the TL. These four strategies can now be collapsed into a unified driving mechanism that guides the reduction of SF CCs in VN learners according to this algorithm: Start at the syllable nucleus. If the nucleus is a diphthong, delete the cluster; if it is a single vowel, delete or substitute non-native codas; otherwise, try to preserve it. Based on Eckman's general rule for cluster reduction (CR) above, and in accounting for the NL constraints/influences I have reviewed in Sato, Benson, Nguyen & Brouha, and Osburne, I propose the following rule for the reduction of English syllable final consonant clusters in the VN-English Interlanguage:

$\_\_V_{1/2}\ C_1\ C_2\ C_3\ \#$ =➔ (a) $\_\_V_2\ \#$ i.e. if nucleus is a diphthong, delete all subsequent Cs.

=➔ (b) $\_\_V_1\ C_1\ \#$ i.e. if nucleus is a single vowel, delete/substitute non-native codas; otherwise keep the first C in the cluster.

This VN-English IL rule does take into account the NL influence (which seems to be considerable for these Ss), the quality of the syllable nucleus, and the developmental factors as the Ss progress in their L2 acquisition process.

CONCLUSION

I have reviewed the strategies that the Ss in the four studies had utilized, at various stages of L2 learning, in their process of reconstructing syllable final consonant clusters in their ILs. Both NL influence (quality of the syllable nucleus, fossilization, interference) and developmental factors (markedness, structure preservation) seemed to be operative in these strategies, the degree of impact of each factor depends on the stage the learner was at the time. I would conjecture that, in general, the order these strategies were examined here roughly reflects the order of progress that would take place in a learner's internal system, i.e., going from the very beginning stage to a very advanced stage in the L2 acquisition journey, although an advanced learner may not necessarily have completely eliminated an elementary error. The IL rule I propose in this paper still needs further study to be either validified or falsified. However, it seems that some degree of systematicity has been established for all the Ss involved in these studies concerning the final consonant cluster reduction in their English productions. I believe it was this systematicity that had surfaced in the speaker's taped speech that provided the students of the SLA Course (LING582) important cues in helping them identify the linguistic background of the speaker in their class experiment, with reliable clues.

REFERENCES

Altenberg, E. & Vago, R. 1987. Theoretical implications of an error analysis of second language phonology production. *Language Learning* 33: 427-447.

Beebe, L. 1987. Myths about interlanguage phonology. In Ioup, G. and Weinberger, S. (eds.) *Interlanguage Phonology*. Cambridge, MA: Newbury House, pp. 165-175.

Benson, B. 1986. The markedness differential hypothesis: Implications for Vietnamese Speakers of English. In Eckman, F., Moravcsik, E., and Wirth, J. (eds.) 1986: *Markedness*. New York: Plenum Press.

Benson, B. 1988. Universal preference for the open syllable as an independent process in interlanguage phonology. *Language Learning* 38: 221-242.

Carlisle, R. 1994. Markedness and environment as internal constraints on the variability of interlanguage phonology. In Yavas, M. (ed.): *First and Second Language Phonology*. San Diego: Singular Publishing.

Clements, N. 1985. The Geometry of phonological features. Phonology 2, pp. 225-252 in Paradis C. and Prunet, J-F. 1991. Introduction: Asymmetry and visibility. In C. Paradis and J-F. Prunet (eds.) *Phonetics and Phonology 2: The Special Status of Coronals*. San Diego: Academic Press. p.2.

Clements, G. 1992. The sonority cycle and syllable organization. In W. Dressler, H. Lusch Vtzky, O. Pfaiffer, and J. Rennison (eds.), *Phonologica 1998*. Cambridge: Cambridge University Press. p. 68.

Eckman, F. 1977. Markedness and the contrastive analysis hypothesis. *Language Learning*, 27: 315-330.

Eckman, F. 1987. The reduction of word-final consonant clusters in interlanguage. In James, A. and Leather, J. (eds.) *Sound Patterns in Second Language Acquisition*. Dordrecht: Foris.

Eckman, F. and Iverson, G. 1994. Pronunciation difficulties in ESL: Coda consonants in English interlanguage. In Yavas, M. (ed.) : *First and Second Language Phonology*. San Diego: Singular Publishing.

Edwards, H.T. 1997. *Applied Phonetics: The Sounds of American English*. San Diego, CA: Singular Publishing Group. p. xxx198.

Gass, S. and Selinker, L. 1994. *Second Language Acquisition: An Introductory Course*. Hillsdale, NJ: Lawrence Erlbaum.

Kaye, J. 1981. Opacity and recoverability in phonology. *Canadian Journal of Linguistics* 19: 134-149.

Klein, W. 1991. Seven trivia of language acquisition. In Eubank, L. (ed) *Points Counterpoints, Universal Grammar in the Second Language*. Amsterdam: John Benjamins.

Le, Ba Khanh and Le, Ba Kong. 1975. *Standard Pronouncing Vietnamese-English Dictionary*. Houston: Zieleks.

Leather, J. and James, A. 1996. Second language speech. In Ritchie, W. and Bhatia, T.(eds.): *Handbook of Second Language Acquisition* p. 269-315. San Diego: Academic Press.

Major, R. 1987a. A model of interlanguage phonology. In G. Ioup and S. Weinberger (eds.) *Interlanguage Phonology*. Cambridge, MA: Newbury House, pp. 101-124.

Major, R. 1987b. The natural phonology of second language acquisition. In James, A. and Leather, J. (eds.) *Sound Patterns in Second Language Acquisition*. Dordrecht: Foris.

Nguyen, A and Brouha, C. 1998. The production of word-final consonants in English by L1 speakers of Vietnamese. *Working Papers in Linguistics*, Summer 1998, vol 5: 73-94. George Mason University, Fairfax, Virginia.

Nguyen, Dang Liem. 1967. Phonemic sequences in Vietnamese. *Zeitschrift fur Phonetik, Sprchwissenschaft, und Kommunikationsforschung* 20 no. 4 pp. 325-34.

Nguyen, Van Khon. 1986. *New English-Vietnamese Dictionary*. California: Dainam Publishing.

O'Grady, W. et al. 1991. *Contemporary Linguistics, an introduction*. New York: St Martin's Press.

Osburne, A. G. 1996. Final cluster reduction in English of L2 speech: A case study of a Vietnamese speaker. *Applied Linguistics* 17: 154-181.

Sato, C. 1984. Phonological processes in second language acquisition: Another look at interlanguage syllable structure. *Language Learning 4*: 43-57.

Tarone, E. 1980. Some influences on the syllable structure of interlanguage phonology. In Ioup, G. and Weinberger, S. (eds.) *Interlanguage Phonology*. Cambridge, MA: Newbury House, pp. 232-247.

Tarone, E. 1983. On the variability of interlanguage systems. *Applied Linguistics* 4: 142-163.

Temperley, M. 1983. The articulatory target for final –s clusters. *TESOL Quarterly* 17: 421-436.

Thompson, L. 1965. *A Vietnamese Grammar*. Seattle: University of Washington Press.

Weinberger, S. 1987. The influence of linguistic context on syllable simplification. In G. Ioup and S. Weinberger (eds.) *Interlanguage Phonology*. Cambridge, MA: Newbury House, pp. 401-417.