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NATIVE LANGUAGE INTERFERENCE AND THE SYLLABLE STRUCTURE IN ENGLISH: FORTITION AND LENITION PROCESSES

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The data presented in this paper on the pronunciation of the syllable structure in English by Spanish speakers corroborate one of the main issues raised against the original formulation of the Contrastive Analysis Hypothesis: consonant sounds which seem to be similar in two phonetic systems can in fact be more difficult to acquire than sounds and sequences of sounds which are different. In other words, interference from NL to TL can actually be greater when items to be learned are more similar to existing items. In light of this deficiency, a revised version of the original CAH has been suggested that defines the subset of errors which are caused by transfer and which would predict just what sorts of native language-target language differences will cause language learners to make errors.
A possible step towards a revision of the CAH requires an investigation of the sorts of errors which can be shown to result from native language interference. Such an investigation should include a systematic exploration of the error in question, that is, not only detecting the errors caused by native language transfer but also understanding the fundamental principles of the phonological processes involved both in the NL and TL.

Transfer of native language rules and patterns to the pronunciation patterns of the speech of second language learners has been an issue of concern in second language acquisition. Although native language influence is quite evident by the distinct recognizable foreign accents of the speakers, the role and extent played by interference in accounting for learner's errors has caused a great deal of controversy.

Learner's pronunciation errors are frequently accounted for within the framework of the Contrastive Analysis Hypothesis (CAH). As originally formulated (Lado 1957), this hypothesis predicts all errors that will occur in the pronunciation of the target language (TL). These errors originate from negative transfer, that is, the learner's attempt to use inappropriate sound patterns of the

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native language (NL) in place of the TL. Positive transfer occurs when both the NL and TL have the same or almost the same phonological features; in this case, the learner would have no difficulty with the feature in question. This original formulation of the CAH seemed to make sense intuitively, so it was not rigorously tested experimentally at first (Tarone 1987).

After reviewing research studies carried out to validate the CAH original formulation, Tarone (1987) concludes that "in some cases NL and TL sounds which seemed to be very similar were very hard to learn and in others, NL and TL sounds which seemed to be very different presented no learning problem" (p. 75). In other words, the CAH provides no way of determining where differences between languages will not lead to difficulty or where seemingly similar differences lead to various degrees of difficulty. Furthermore, it can tell you what is different but not what is more difficult within the different factors.

The fact that interference is more likely not when NL and TL sounds are different but rather when they are similar seems to follow from general learning principles (Brown 1980:159): "interference can actually be greater when items to be learned are more similar to existing items". In his model for second language phonological acquisition, Major (1987) explains that L2 phenomena which have similar counterparts in the learner's NL will be hard to learn because the learner will unconsciously analyze them as identical. On the other hand, the learner will tend to be conscious of L2 phenomena that are very different from the learner's NL.

An examination of some aspects of English and Spanish syllabification, based on data from the speech of learners at different levels of proficiency, corroborates the above assertions. Some consonants that seem at first glance to have similar occurrences in the syllable structure of both phonological systems, such as /j/ and /w/ in initial position and various single consonants which occur in final syllable and word position, have been found to be some of the most difficult English sounds to be acquired by Spanish speakers.

It has been shown, however, that the failure to predict L2 pronunciation errors from an examination of the linguistic systems of the NL and TL may not necessarily stem from a weakness in the CAH, but rather from "inadequacies in our understanding of native speaker competence" (Broselow 1987:292). A revision of the CAH is therefore suggested to include a more sophisticated linguistic theory. In this article I examine some fundamental principles in Spanish syllabification which trace some of the errors from our data to Spanish, showing a clear case of language interference.

The errors discussed in this paper were made by native speakers of Spanish from various regions of Venezuela. The errors were collected by asking speakers to read a 500-word passage and to speak for about ten minutes on a topic of their choice. Other errors have been obtained from recordings of students in various L2 situations and from the treatments of borrowed words which are treated in Spanish in the same way as new vocabulary in English.

The errors from our data have been collected at various levels of language proficiency in order to account for the degree of difficulty that some phonological phenomena may have over others. The levels of proficiency of the speakers

range from learners at an intermediate level (420 hours of instruction in a communicative course in English) to non-native teachers of English who still have an accented speech. Errors from beginning learners have not been considered since they tend to transfer NL patterns to the TL because they have mastered very little of the TL and our interest is mainly in the difficulties encountered in the acquisition of the syllable structure of English once the learner is familiar with it.

The syllable structure of English and Spanish

The syllable structure of Spanish is not as complex as that of English. The English syllable may take up to three consonants before the vowel (e.g., *street*) and up to four after it (e.g., *wrinkled*). Spanish, on the other hand, can only take two consonants in syllable-initial position, the second of which has to be /l/ or /r/, i.e., /p, t, k, b, d, g/ + /l, r/ (e.g., *pla-to*); one in word-final position where only /s, r, l, n, d/ are allowed in native words (e.g., *a-zul*); and one or two in syllable-final position. In this position, the sounds /p, b, t, d, s, f, r, l, n/ are allowed (e.g., *cap-turar*) and in the case of two final consonants, one of the two has to be an /s/ (e.g., *trans-porte*).

The following figures have been given for the most frequent syllable types in English and Spanish (Delattre 1965), showing that Spanish clearly favours the CV type:

	CVC	*VC*	*CV*	*CCV*
English	31,8%	11,9%	27,6%	4,0%
Spanish	19,8%	3,1%	55,6%	10,2%

Canellada and Madsen (1987) have calculated 69,88% of open syllables in Spanish, i.e., those ending in V; whereas for English there is a predominance of closed syllables -60%, i.e., those ending in C (Finch and Ortiz 1982).

Most of the pronunciation errors predicted for learners of English with a Spanish background in EFL/ESL texbooks (e.g., Avery and Ehrlich 1992, Dauer 1993) reflect the most obvious *differences* between the NL and TL phonological systems; for example, the insertion of a sound before the consonant cluster /s/ + consonant (e.g., *[e]speak* for *speak*); deletion of consonants in consonant clusters (e.g., *tired* as *tire; hold* as *hole*, etc.). However, there are various types of errors which occur in initial and final position within the syllable that involve consonants with apparent *similar* occurrences in the native language and the target language, such as the semivowels /j/ and /w/in initial word or syllable position and the consonants that occur at the end of the syllable or word. These consonants are affected in Spanish by syllable restrictions in the language, in response to universal tendencies that strengthen the prenuclear sounds in the syllable and weaken postnuclear ones (Chela-Flores 1983, 1987). The resulting sounds are significantly different from those found in English, and

our data have shown that learners transfer these sounds to the pronunciation patterns of English. It has also been observed that the learner is not conscious of the errors made in English when pronouncing these sounds as he is when handling other types of phonological errors that deal with syllabification, and that the errors persist even at a high level of proficiency. Transfer from Spanish to English has also been found in errors which involve processes of fortition and lenition when dealing with the syllable structure of English. Again in these cases the subjects from our data did not seem to be as aware of the errors as in other situations.

NON-OBVIOUS TRANSFER

The strengthening of semivowels in initial position

The semivowels /j/ and /w/ are generally presented in textbooks that deal with the sound systems of English and Spanish as occurring before all vowels in Spanish except /i/ and /u/, respectively, whereas in English the semivowels are found before all vowels including /i, ɪ, u, ʊ/ (Finch and Ortiz 1982). Such a description suggests that the problem areas for Spanish speakers when dealing with these sounds should be the sequences /j+i/ and /w+u/ in words such as *year, woman*, but not in words such as *young, yet, way, what*, etc. Our data from the speech of intermediate and advanced learners, however, indicate substitutions of /dʒ/ for /j/ and /gw/ for /w/ in all sequences of semivowel + vowel in initial position:

walk	as	[gw]alk	*yellow*	as	[dʒ]ellow
always	as	al[gw]ays	*young*	as	[dʒ]oung
week	as	[gw]eek	*your*	as	[dʒ]our
weather	as	[gw]eather	*you*	as	[dʒ]ou
word	as	[gw]ord	*yard*	as	[dʒ]ard
wide	as	[gw]ide	*yawn*	as	[dʒ]awn
once	as	[gw]once	*playing*	as	pla[dʒ]ing

Our data also presented cases of a complete omission of the semivowel /w/ when this was followed by the vowel sounds /u/ and /ʊ/ as in *woman, wood*, etc.:

woman	as	[g]oman
wood	as	[g]ood
wolf	as	[g]olf

Analyses of syllable restrictions in Spanish (Canellada and Madsen 1987, D'Introno, del Teso and Weston 1995) have indicated that the spellings *'hie-', 'hia-'*, etc., and *'hue-', 'hui-'*, etc., are found in Spanish in words such as *hielo, hiato, huevo, huilón*, etc., and that some speakers, under the influence of the orthography, might try to pronounce these sequences with a semivowel + vowel, i.e., [jélo], [játo], [wéβo], [wilón], etc. However, it has also been stated

that, in normal speech, it seems to be more common to pronounce these sequences with a consonant + a vowel in the case of *'hie-', 'hia-'*, etc., and to insert a consonant to the left of the semivowel in the case of *'hue-', hui-'*, etc. (Canellada and Madsen 1987):

a.	i) *hielo*	ii)	[y]elo	iii) [dʒ]elo
b.	i) *huevo*	ii)	[^{g}w]uevo	iii) [gw]uevo

which can be accounted for with the following rules:

a. $$/j/ \longrightarrow \begin{matrix} /y/ \\ /dʒ/ \end{matrix} \quad /\longrightarrow V$$

b. $$/w/ \longrightarrow \begin{matrix} /\,^{g}w/ \\ /gw/ \end{matrix} \quad /\longrightarrow V$$

Fortition and lenition processes

Other errors detected in our data dealing with the syllable structure of English, which did not seem to respond to obvious differences between Spanish and English, seemed rather to respond to universal stylistic considerations involving processes of fortition and lenition. Major points out the following differences between the two processes. "Fortition or strengthening processes reinforce segments or sequences, e.g., insertions and lengthenings. Lenition or weakening processes weaken segments and sequences and typically include ease of articulation processes, such as assimilations, reductions, and deletions. Fortition processes are much more common in formal styles than are lenition processes, which are common in more casual speech" (1987:107). Major provides as an example of the two processes, the treatment Portuguese speakers give to consonant clusters in English in word final position. The schwa insertion after the cluster (e.g., [rostəs] *roasts*] is taken as a fortition process that insures that the final consonants are perceived, whereas the simplification of the consonant cluster is taken as a lenition process. Our data from Spanish speakers indicate fortition processes through the insertion of another consonant.

Fortition processes

The treatment Spanish speakers from our data give to final consonants or consonant clusters in word final position as a fortition process is not through the insertion of a schwa but rather through the insertion of a consonant, as illustrated below:

How is it going?	as	How is it going[s]?
A long time ago	as	A long [tains] ago.
I've enjoyed talking to you	as	I've enjoyed[s] talking to you.
As a matter of fact	as	As a matter of fact[s]
Is that your boyfriend?	as	Is that your boyfriend[s]?
They are both fine	as	They are both fine[s]
You're reading	as	You're reading[s]

The strengthening process by means of an insertion of /s/ in the samples above could be considered a case of interference since, as indicated before, in Spanish /s/ must be included in the few occurrences of consonant clusters in syllable final position (e.g., *cons-pirar, abs-traer, ex-plicar*). Reinforcement with /s/ in the pronunciation patterns of the learners examined was found mainly in the samples from learners at an intermediate level.

Reinforcement of consonants or consonant clusters with other consonants (/t/ and /d/ in our data) was also found in advanced learners and in the accented speech of the non-native teachers of English, as illustrated in the examples below:

she's foreign	as	she's foreign[t]
fees	as	fees[t]
protesting	as	protesting[t]
purple	as	purple[d]

In our data, these intrusive consonants have also been found closing a syllable:

you may want	as	you may[t] want
to play	as	to play[t]
he'll enjoy	as	he'll enjoy[t]

In these cases, however, the intrusion of the consonant does not seem to respond to a strengthening process, but rather to processes of hypercorrection.

Quite commonly, L2 phonological studies identify the sources of errors, but they do not suggest reasons for the successive stages in acquisition. Major (1987) has noted that in L2 phonology, learner's substitutions typically take the form of phoneme substitutions (e.g., /s/ for /θ/), phonological processes (e.g., devoicing), phonotactic modifications (e.g., consonant cluster simplification or epenthesis), and prosodic alterations (e.g., using syllable-timing for a stress-timed language). Major specifies that it is usually easier to overcome phoneme substitution than, for example, substitution of phonological processes because these are largely unconscious. Our data have also shown that both the strengthening of the semivowels in syllable or word initial position and the fortition process referred to above are more difficult to overcome than phonemic substitutions or even deletion of consonants in consonant clusters. The subjects in our data knew that their pronunciation was one of the areas evaluated; they were conscious and corrected omissions of final consonants in consonant

clusters but were not aware of the intrusive consonants in word-final position nor of the strengthening of the semivowels /j/ and /w/ in syllable and word initial position.

Lenition processes

Syllable structure errors in English in the pronunciation patterns of Spanish speakers which involve lenition or weakening processes typically include ease of articulation processes such as deletion in syllable or word final position (e.g., *wor* for *word* or *world, fac* for *fact, sin* for *since*, etc.). These are clearly strategies used by the learner to conform with the Spanish syllable structure. There are, however, errors in the pronunciation of final consonants and consonant clusters which involve processes of lenition which are not so obvious, since the consonant is not delected, as is frequently the case. In one of these weakening processes found in our data, the voiced and voiceless plosives /d/ and /t/ were substituted by a voiceless alveolar fricative /s/, as in the following cases:

they've dropped	as	they've drop[s]
my grandparents	as	my gran[s]parents
on the other hand	as	on the other han[s]
at the end	as	at the en[s]
with Mark	as	with Mar[s]

As stated above, the insertion of /s/ as part of a consonant cluster could be considered a case of interference since in Spanish /s/ must be included in the few occurrences of consonant clusters in syllable-final position (e.g., *trans-porte*). This substitution of the final consonant cluster by /s/ was found mainly in the errors from learners at an intermediate level.

Two other processes of lenition found in our data in which the consonant is not deleted were the glottalization of the /s/ in final syllable and word position, as in the following samples:

serious	as	seriou[h]
in spite	as	in [eh]pite
last year	as	la[h]t year
password	as	pa[h]word

and the velarization of nasals and plosives without the presence of a velar:

I am not sure	as	I a[ŋ] not sure yet
some of us	as	so[ŋ] of us
doesn't it?	as	does[ŋ] it?
last summer	as	las[k] summer
what's your name?	as	wha[k]s your name?
United States	as	United Sta[k]s
sadness	as	sa[g] ness

These processes of glottalization and velarization in the pronunciation patterns of learners are transferred from a weakening process which occurs in Venezuelan Spanish, as illustrated in the following examples:

escala	as	e[h]cala	'scale'
casas	as	casa[h]	'houses'
función	as	fu[ŋ]ción[ŋ]	'function'
dentista	as	de[ŋ]ti[h]ta	'dentist'
absoluto	as	a[g]soluto	'absolute'
aptitud	as	a[g]titud	'aptitude'

These lenition processes respond to a transitional step towards deletion of final consonants. Chela-Flores (1983), referring to data from Caribbean/Venezuelan Spanish, explains these processes as a *postnuclear backing event* which responds to a universal tendency towards maximum differentiation within the syllable, where the maximally efficient realization of the marginal systems is brought about by their having opposite articulatory states:

> 1) The postnuclear events are determined by three general principles: backing, articulatory descent (including reduction of articulatory gestures) and gliding, all of which tend to move this consonantal margin towards the vowel.
> 2) Events associated with the prenuclear system are determined by the general principles of anteriorization or fronting and articulatory ascent (including increment in the number of articulatory gestures) (p. 492).

The intensity of the velarizing process in Venezuelan Spanish is reflected by an unnatural closing of open syllables with intrusive velar obstruents [K] (Chela-Flores 1983):

piscina 'swimming pool'	[pisína] ⟶ [piKsína]
oscilar 'range'	[osilár] ⟶ [oKsilár]
autobús 'bus'	[autoβúh] ⟶ [a(u)Ktoβúh]
cláusula 'clause'	[kláusula] ⟶ [klá(u)Ksula]

This tendency would also explain the errors found in our data in which the speaker inserts a velar obstruent in English:

he passed his exam	as	he pa[K]st his exam
I like jazz	as	I like ja[K]z

The universal tendency towards maximum differentiation suggested by Chela-Flores (1983) would also explain the strengthening process explained above for the semivowels /j/ and /w/ in Spanish in initial syllable and word position. This strengthening process is possible in a system in which the segment in question does not have a high functional load in the language. In English, for example, the strengthening of the semivowel /j/ could not be possible in the same way as it is in Spanish, because of its high functional load, i.e., the number of minimal

pairs that the contrasting segments /j-dʒ/ serve to distinguish (e.g., *yet/jet; you/Jew*, etc.).

This tendency toward maximum differentiation within the syllable is reflected in the orthography in Spanish both in words borrowed from English and in the deletion of consonants in syllable and word-final position. The strengthening process is reflected in words borrowed from English such as *guachimán* for *watchman, guinche* for *winch*, etc.; *whisky* has been entered as *güisqui* in *Diccionario de Uso del Español* (Moliner 1970, s.v.). The lenition process is reflected in the orthography in Spanish by the deletion of consonants in syllable and word-final position, e.g., *setiembre* instead of *septiembre, suscribir* instead of *subscribir;* some deletions heard in speech are not yet accepted in the orthography, e.g., *usté* for *usted.* It is interesting to note that velar consonants or the consonants that are velarized in syllable-final position are not deleted in the orthography in Spanish, nor the nasals or final -s, which are usually velarized or glottalized, respectively, in that final position (e.g., o[k]tubre, a[ŋ]sia, e[h]tado, etc.).

Although the above discussion refers only to fortition and lenition processes from the pronunciation patterns of English in the speech of native speakers of Venezuelan Spanish, this represents a step in the direction of a revised Contrastive Analysis Hypothesis. It became clear from the analysis of our data that native language transfer by itself was insufficient to explain the patterns of errors that occurred. These errors were better understood in light of the first language phonological processes. However, in order to strengthen these findings, data from the speech of native speakers from other varieties of Spanish should also be analysed.

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