

American Spanish Pronunciation

Theoretical and Applied Perspectives

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Editors



Georgetown University Press, Washington, D.C.

Chapter 11— The Influence of Spanish Phonology on the English Spoken by United States Hispanics

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1— Introduction

Pronunciation is a salient marker of differences between varieties of a language. This is particularly the case for an ethnic variety (EL), whether spoken natively or nonnatively. The EL reveals, primarily through the phonological system, an influence from the ancestral language (AL) spoken in the ethnic community.¹ That the phonological system is the principal marker of linguistic ethnicity is not surprising. Scovel (1969), Ervin-Tripp (1974), Schumann (1978), and Ellis (1985), among others, have claimed that pronunciation is the aspect of the target language most resistant to restructuring for postadolescent language learners.

During the acquisition of a second or foreign language, a system different from both the native and the target language emerges. Selinker (1972) pointed out that some forms in the 'interlanguage' system resist restructuring and become fossilized, remaining in an individual's variety of the second language as permanent characteristics. Presumably, these fossilized forms, which cause the greatest difficulty in acquisition of the target language, are passed on to the second and succeeding generations, becoming part of the EL even when it is acquired as a first language.

As long as the ethnic community maintains its own identity, set apart from other linguistic communities, the EL will continue to reflect the AL to some degree. Ma and Herasimchuk (1971) observed that in the ethnic community bilinguals interacted mainly with each other rather than with monolingual speakers of the educated norm. The result is that bilingual speakers generate their own norms. Richards (1972) likewise observed that the evolution of permanent ethnic varieties of a language is directly related to the degree of isolation from mainstream culture.

While there is general agreement that AL phonology influences the EL, the motivation for this variation is unclear. Not all aspects of AL phonology are found in the EL. In second language acquisition, it is difficult to anticipate which aspects of the native language will transfer, in some cases generalizing or applying only partially, and what form the resulting variety of the target language will take. It is also difficult to predict what features of the AL will

endure in the EL phonology of succeeding generations living in the ethnic community.

Although Hispanic varieties of English in the United States reflect influence from the Spanish phonological system, not all potential transfers actually occur in the EL of a speaker. To some degree, distinct varieties of Hispanic English exhibit different types of variation, as well as fluctuating percentages of the same variation. Yet there are similarities in the 'Englishes' of Hispanic communities. This chapter examines factors that contribute to the phonological identity of several Hispanic varieties of English. Specifically, it explores the role of Spanish phonology in this variation, establishing which aspects of the Spanish phonological system remain during the acquisition and maintenance of English in the Hispanic community and investigating the motivation for this fossilization.

2—

Potential Transfer of Spanish Phonology in Hispanic English

This section will treat the *potential* influence of the sound system of Spanish on Hispanic English. It should be stressed that these are *possible influences*; which elements of the Spanish sound system *actually occur* in Hispanic English will be discussed in subsequent sections of this chapter. While Spanish and English share certain phonemes, others do not coincide. Further, even when the phonemes are identical, phonetic realizations may differ. Likewise, the sequencing of segments is not identical in the two languages. Because of these disparities, the potential exists for Spanish interference in the phonological system of Hispanic English.

There are numerous descriptions of the Spanish sound system, the best known being Navarro Tomás 1967. Harris 1969 described Spanish phonology in a standard linear *SPE* generative framework, while Harris 1983 used a nonlinear metrical model. Stockwell and Bowen 1965 and Dalbor 1980 provided more traditional, pedagogical descriptions, which compare the Spanish phonological system to that of English. In addition, numerous works, including Canfield 1962, Resnick 1975, and del Rosario 1970, have examined phonological differences among dialects.

2.1—

Potential Transfer of Spanish Consonants

Although many of the same consonant phonemes occur in both Spanish and English, English has a larger inventory, primarily due to the greater number of fricatives, as Tables 1 and 2 illustrate.

2.1.1—

Spanish and English Obstruents

The phonemic inventories of both Spanish and English include six obstruent stops, contrasting in voicing and point of articulation. The two languages share bilabial and velar stops, while Spanish has dental stops parallel to the English alveolars. In Spanish, voiceless stops generally have only one phonetic manifestation, an unaspirated noncontinuant. While these stops can occur in syllable-final position within a word, they do not normally occur word-finally. Del Rosario (1970), Guitart (1976), and Bjarkman (1976) pointed out that, even within a word, syllable-final obstruents often neutralize in point of articulation. They may also neutralize in voicing and manner of articulation, or delete entirely.

In English, voiceless stops are aspirated in syllable-initial position preceding a stressed vowel. Intervocally, /t/ is flapped when it does not occur at the beginning of a stressed syllable. ² English voiceless stops can occur in either syllable onset or coda position, within a word or word-finally. Because of the difference in allophones and sequencing of segments, Hispanic English speakers may alter /p,t,k/. The voiceless stops may not be aspirated; in syllable-final position they may be neutralized or deleted based on a comparison of phonetic structure and/or distributional properties of the phonemes listed in Tables 1 and 2.

Table 1. Spanish consonant phonemes.

Manner of articulation:	Point of articulation:						
	Bilabial	Labiodental	Dental	Alveolar	Palatal	Velar	Glottal
Stops							
Voiceless	p			t			k
Voiced	b			d			g
Fricatives							
Voiceless		f		(s <u>gr</u>) s			x (gr h)
Affricate							
Voiceless					ç		
Nasals	m			n	ɲ		
Liquids							
Lateral				l	(ɮ)		
Tap				r			
Trill				r			
Glides					y	w	

Table 2. English consonant phonemes.

Manner of articulation:	Point of articulation:						
	Bilabial	Labiodental	Interdental	Alveolar	Palatal	Velar	Glottal
Stops							
Voiceless	p			t			k
Voiced	b			d			g
Fricatives							
Voiceless		f	θ	s	ç		h
Voiced		v	ð	z	ʒ		
Affricates							
Voiceless					ç		
Voiced					ʒ		
Nasals	m			n		ŋ	
Liquids							
Lateral				l			
Approximant				r			
Glides					y	w	

Spanish voiced stops have two principal surface realizations in most dialects. In addition to the stop, a fricative allophone occurs when /b,d,g/ follow continuant segments. Resnick 1975 reported that in parts of Mexico, Cuba, Puerto Rico, and the United States, /b/ may be realized as [v]. In

these same areas, one or more of the postcontinuant voiced stops may not spirantize.³ Intervocally, the voiced stops may reduce closure even further and, in some cases, be deleted. Resnick (1975) and del Rosario (1970) encountered intervocalic deletion in several areas, particularly in the Caribbean basin. Of the stops, only /d/ can regularly occur in word-final position, where it spirantizes, and is often devoiced, or deleted. Although the voiced segments are found in syllable-final, word-internal position, like the voiceless stops, they may neutralize in point of articulation, be spirantized, assimilate in voicing, or suffer deletion.

Ladefoged 1975 pointed out that English voiced consonants partially devoice in word-final position and before voiceless segments; however, the voiced stop /d/ also has an intervocalic variant. In many dialects of American English, /d/, like /t/, is flapped between vowels when the second vowel is unstressed. For both alveolar stops, speakers of Hispanic English may produce the Spanish variant appropriate to the intervocalic environment. While this is not problematic for /t/, /d/ may be spirantized or deleted intervocally. Following any continuant segment, a fricative may replace a syllable-initial voiced stop. In syllable-final position, voiced stops may neutralize in point of articulation, or undergo devoicing, spirantization, or deletion.

Unlike in the case of stops, Spanish and English have different phonemic inventories for fricative segments. American Spanish has only three fricative phonemes, all voiceless: the labiodental, the dental or alveolar, and the velar or glottal. Of these, only /s/ regularly occurs in syllable-final position. Depending on the dialect, Spanish /s/ is either dental or alveolar. Resnick 1975 noted that in some areas, including parts of Central America and occasionally South America and Puerto Rico, dental /s/ may be produced without a groove, so that it resembles the English /ʃ/. Allophones of /s/ may also vary according to dialect. In many varieties of Spanish, when /s/ precedes a voiced consonant it assimilates in voicing. In other varieties, syllable-final /s/ weakens to aspiration or deletes entirely. Such weakening or deletion of /s/, according to Canfield 1962, is found in the Caribbean basin and parts of South America.

Although /f/ is usually a voiceless labiodental spirant in Spanish, Resnick 1975 found that in several areas, including parts of Mexico, Puerto Rico, and the United States, it can also be realized as a voiceless bilabial, mixed bilabialdental, velar, or glottal fricative. In rare instances, /f/ is found in syllable-final, word-internal position where, like obstruent stops, it may be neutralized or deleted.

Either /x/ or /h/ occurs as a phoneme in American Spanish dialects. Canfield 1962 reported glottal /h/ for several locations, including the Caribbean basin. Resnick 1975 listed the use of /h/ in U.S. varieties of Spanish as well. Resnick also pointed to the existence of other variants, including a palatal fricative before front vowels, a velar fricative followed by a palatal glide, or an extremely weak velar glide. The latter occurs in Costa Rica and parts of Mexico. Like English /h/, the Spanish /x/ or /h/ normally does not occur in syllable-final position.

Spanish also has one affricate, the voiceless palatal /tʃ/. Resnick 1975 listed three variants found in various dialects: the apicoalveolar affricate, the

palatal affricate, and the palatoalveolar fricative. The fricative occurs as a possible variant in Caribbean Spanish.

With the exception of /h/, the English voiceless fricatives and affricate have voiced counterparts. In addition to fricative segments comparable to Spanish /f/ and /s/, there are /v/ and /z/. English also has interdental /θ/ and /ð/ and palatoalveolar /ʃ/ and /ʒ/. The voiced counterpart of the aspirated affricate /tʰ/ is /dʒ/. All English fricatives and affricates generally have only one surface realization.⁴ However, like the voiced stops, the voiced fricatives and affricate tend to partially devoice in word-final position and before voiceless segments. Except for /h/, the fricatives and affricates can occur in syllable coda, as well as onset.⁵

Because of differences between Spanish and English fricatives and affricates, Hispanic English speakers may neutralize two or more of these segments. Since the Spanish fricatives and affricate do not contrast in voicing, this distinction may be lost in Hispanic English, so that /z/ merges with /s/. By analogy to Spanish, /s/ and /z/ may weaken or delete in syllable-final position. Fricatives may also assimilate the voicing of a following consonant. Likewise, /v/ may pattern as a variant of /b/, with the allophonic distribution of /b/ in Spanish. Because American Spanish lacks the interdental voiceless fricative phoneme, this segment may merge with the nearest Spanish counterpart, /t/, /s/, or /f/. The voiced interdental fricative closely resembles the spirantized variant of /d/ in Spanish; just as /v/ may neutralize with /b/, so may /ð/ with /d/.

The palatoalveolar segments can present similar problems for speakers of Hispanic English. The voiceless affricate may neutralize with its fricative counterpart, /ʃ/. The voiced palatoalveolar segments may merge with English /y/. In several dialects of Spanish, syllable-initial /y/ becomes more constricted, resulting in an affricate.⁶ Resnick 1975 identified these variants in parts of almost every Spanish American country. Since the Spanish affricate allophone of /y/ resembles the English voiced affricate, the latter segment may merge with /y/ in Hispanic English, fluctuating in degree of closure. Hispanic speakers may likewise interpret /ʒ/ as an allophone of /y/. Similarly, Hispanic English /w/ may reflect interference from its Spanish counterpart. Like /y/, Spanish /w/ is sometimes produced with greater constriction; also, Spanish /w/ has less labialization than its English counterpart, which may result in a weakly labialized velar fricative or stop.

2.1.2—

Spanish and English Sonorant Consonants

The difference between Spanish and English sonorant consonants is also a potential source of interference for Hispanic English speakers. There are three nasal phonemes in Spanish: bilabial, alveolar, and palatal. These segments tend to neutralize in syllable-final position. In most dialects, syllable-final nasals assimilate to the point of articulation of the following consonant, so that there are numerous allophones. In phrase-final position or preceding a vowel, the alveolar allophone normally occurs. However, del Rosario 1970 and others noted that in the Caribbean region, final nasals can be realized as velars. Another possible variant in the Caribbean area is deletion of the nasal with nasalization remaining on the preceding vowel (Bjarkman 1976; 1986).

English likewise has three nasal phonemes: bilabial, alveolar, and velar. Only the first two occur in syllable-initial position. Hispanic-English speakers may neutralize syllable-final nasals as is done in Spanish, which could cause interference problems for English if applied across word-boundaries (i.e., saying *some day* with a dental nasal before the /d/). They may also have difficulty producing the velar nasal in other than prevelar environments, as in the English expression *sing-song* which may come out *sin-song*.

Spanish liquids also represent a potential source of interference. There are three liquid phonemes in most American dialects of Spanish, an alveolar lateral, a tap, and a trill. While /l/ and /r/ can occur in syllable-final, including word-final, position, /ʎ/ occurs only syllable-initially. The trill may be realized in several ways. Among these, Resnick 1975 described an alveolar or prepalatal assibilated fricative, either voiced or voiceless, and a velar or uvular fricative or trill. The alveolar or prepalatal segment is found in several locations, including parts of Mexico. The velar or uvular variant is most common in Puerto Rico. Like the Spanish nasals, /l/ assimilates to the place of articulation of certain following consonants, in this case from the dental to the palatal region. Canfield 1962 showed neutralization of syllable-final /l/ and /r/ in the Caribbean and along the northern coast of South America.

English has two liquids, an alveolar lateral and an alveolar approximant. The lateral segment is frequently velarized, particularly in coda position. For the English lateral, the Hispanic English speaker may substitute the Spanish /l/, which is produced with the tongue raised higher toward the palate. Likewise, the Spanish tap or trill may replace the English approximant /ɹ/. Some speakers of Hispanic English may also neutralize liquids in syllable-final position.

2.1.3—

Clusters in Spanish and English

In addition to segment modification, the other major influence from Spanish phonology on the consonants of English is syllable structure. In syllable-initial position, the Spanish obstruent stops and /f/ can precede a liquid, as in English. However, /s/ cannot occur in syllable-initial consonant clusters. Any cluster beginning with /s/ must be preceded by a vowel, thus producing a syllable boundary between the /s/ and the following consonant. Speakers of Hispanic English may alter English clusters to conform to Spanish syllable structure by inserting an epenthetic vowel before word-initial /s/ (*estrike for strike*).

Unlike English, Spanish does not tolerate many consonants in syllable-final position, particularly before a word-boundary, as has been noted in the previous sections. In syllable-final, word-internal position, the clusters /ks/, /ns/, /rs/, and /bs/ are possible in Spanish, but del Rosario (1970) reported that these may simplify or delete, especially in dialects that reduce or delete implosive obstruents. Since English has many syllable-final clusters, Hispanic English speakers may simplify or delete these clusters. Because Spanish resyllabifies across word-boundaries, word-final single consonants and clusters are better tolerated in prevocalic position.

2.2—

Potential Transfer of Spanish Vowels

Like the English consonant inventory, the English vowel system is more complex than the Spanish. Tables 3 and 4 compare the two systems.

Spanish has a five-vowel system representing high and mid front unrounded, low central unrounded, and mid and high back rounded positions. Navarro Tomás 1967 listed several allophones for each vowel phoneme. He described a lower variant for the nonlow vowels in closed syllables, while noting that /a/ is backed or fronted depending on environment. The Spanish high vowels are realized as relatively high tense glides when unstressed and contiguous to another vowel. As noted previously, glides in syllable-initial position can become even more constricted.

Table 3. Spanish vowel phonemes.

	Front	Central	Back
High	/i/		/u/
Mid	/e/		/o/
Low		/a/	

Table 4. English vowel phonemes.

	Front	Central	Back
High	/iː/	{/ɪ/}	/uː/
	/ɪ/		/ʊ/
Mid	/eɪ/	/ə/	/oʊ/
	/ɛ/	{^}	/ɔ/
Low	/æ/	/ə/	{(a)}

For each of the nonlow front and back vowels of Spanish there are two vowels in English: /iː/-/ɪ/, /eɪ/-/e/, /uː/-/ʊ/, /oʊ/-/ɔ/. In each pair, the higher vowel is long, tense, short, and diphthongized. ⁷ The corresponding Spanish vowel is tense, short, and monophthongal. Speakers of Hispanic English may replace the English pairs with the Spanish equivalent, the lower Spanish variant occurring in closed syllables. Hispanic English speakers may also employ Spanish diphthongs in lieu of their English counterparts, producing the higher, tenser Spanish glides.

Unlike Spanish, English has two low vowels, as well as a lower-mid central vowel. Hispanic English speakers may replace the low vowels of English with the low Spanish vowel. English /æ/ also very closely resembles /e/, so that in Hispanic English /æ/ may neutralize with /e/ and its diphthongized counterpart /eɪ/. The English /ʌ/ may lower and neutralize with /a~ə/, or be confused with /ɔ/ or /o/.

There is some allophonic variation in English vowels. In word-final position and before voiced segments, an English vowel or diphthong lengthens. Since this does not occur in Spanish, Hispanic English speakers may omit this vowel lengthening rule. Unstressed English vowels frequently reduce to a short mid central lax vowel, [ə], or its higher central counterpart, [ɪ]. Because

such reduction is untypical of Spanish, Hispanic English vowels may retain their full value in unstressed syllables.

3—

Motivation for Phonological Transfer

Not all potential AL phonological transfer does, in fact, appear in the EL to the same degree. Several hypotheses have been offered to account for this fact. However, in early studies of interlanguage phonology, all variation was attributed to interference from the native language.

3.1—

The Contrastive Analysis Hypothesis

To predict interference from the native language a contrastive analysis is performed, as in section 2 of this chapter. Negative transfer interferes with acquisition of the target language form, positive transfer promotes acquisition of the target language form, while there is zero transfer if the native language has no effect on the acquisition of the target language form. Using this concept of transfer, a contrastive analysis makes predictions as to the relative difficulty of acquiring each structure.

Stockwell and Bowen 1965 proposed a hierarchy of difficulty for the acquisition of Spanish sounds by English speakers, based on a series of relationships between the two languages. They categorized phonemic segments as optional, while considering allophonic segments or required sequences of segments obligatory. If the segment or sequence is found neither phonemically nor allophonically in the language, it is placed in a null category. These three possibilities in each language produce a total of nine combinations. Since a null category for both languages is not relevant to a contrastive analysis, that possibility is omitted.

Stockwell and Bowen 1965 ordered the eight relationships in a hierarchy of difficulty, establishing the three magnitudes shown in Table 5.

Table 5. Stockwell and Bowen (1965) hierarchy of difficulty.

Magnitude	Order	Native	Target
	I 1	f	ob
	I 2	f	op
	I 3	op	ob
	II 4	ob	op
	II 5	ob	f
	II 6	op	f
	III 7	op	op
	III 8	ob	ob

3.2—

Limitations of the Stockwell and Bowen (1965) Hierarchy

While acknowledging that their hierarchy is not final, Stockwell and Bowen 1965 deemed the overall principle valid. Yet there are several problems with the hierarchy in Table 5. There is no justification beyond the concept of negative, positive, and zero transfer to explain the order in the hierarchy. While

positive transfer accounts for the order of items 7 and 8 and zero transfer for item 6, the first five items all potentially result in negative transfer.

Presumably, Stockwell and Bowen 1965 felt the absence of a segment in the native language to be the source of most difficulty in acquiring this segment in the target language. However, the relationships in order 1 and 2 are not independent. If a phoneme exists in the target but not the native language, allophones of that phoneme may also be nonexistent in the native language. The English voiceless interdental fricative is alien to the phonemic inventories of Spanish America, nor does phonetic [Q] exist in most Spanish American dialects. On the other hand, orders 1 and 2 can be contradictory. Spanish does not have the phonemic voiced affricate of English, though in some dialects [tʃ] does exist as an allophone of /tʃ/, an order 4 level of difficulty.

Orders 7 and 8 are similarly either interdependent or contradictory. Unless the phonemic correspondence is also shared at the phonetic level, the existence of the same phonemes in both languages will not guarantee ease of acquisition. Both Spanish and English have the phoneme /p/ before a vowel, an order 7 level of difficulty. Yet this relationship is meaningless in some environments. If /p/ occurs in syllable-initial position preceding a stressed vowel, it is aspirated, an order 1 level of difficulty for Spanish speakers learning English.

Other aspects of the ordering are also problematic. There appears to be no obvious reason for placement of the order 3 relationship in the first magnitude of difficulty nor of the order 4 relationship in the second magnitude. Stockwell and Bowen (1965) failed to explain why acquiring an allophonic distribution in place of two separate phonemes is more difficult than recognizing two separate phonemes in place of an allophonic distribution. They likewise did not justify the placement of the order 5 relationship. Why is it necessarily of only moderate difficulty to suppress an allophone from the native language when it does not exist in the target language?

The assumption that existence of a segment in the native language will make acquisition of that segment easier in the target language is likewise not supported. Oller and Ziahosseiny (1970:186) stated that 'the learning of sounds, sequences, and meanings will be the most difficult where the most subtle distinctions are required either between the target and native language, or within the target language.' These subtle distinctions are the very differences that occur when two segments are phonetic in the native system but phonemic in the target language. In fact, both Prator (in Brown 1987) and Tarone 1987 considered this divergent negative transfer to cause the greatest interference. There is likewise no evidence to suggest that the absence of a sound or sequence in the native language necessarily makes it more difficult to learn in the target language. Eckman 1977 pointed out that in some environments new segments can be acquired quite easily.

Stockwell and Bowen 1965 also declined to address the problem of how to categorize two segments that are considered phonemically equivalent in the native and target languages but that have different phonetic representations. Spanish and English /t/ are articulated very differently, whereas the off-glides in the two languages differ only slightly. If target-language phonetic realization is the focus, then an order 1 relationship is established. However,

if the native language allophone is considered, then an order 5 relationship exists. If the two phonemes are compared, there is an order 7 relationship.

Another problem with the system used by Stockwell and Bowen 1965 is its inconsistency. In some instances similar segments are considered equal in the two languages, while for other segments similar correspondences are not established. Stockwell and Bowen 1965 considered the Spanish phonetic voiced dental fricative equivalent to the English voiced interdental fricative when they labeled the former obligatory and the latter optional. Yet the flap and tap are not equated. The flap is considered obligatory in English but absent in Spanish.

The hierarchy also fails to generalize. Stockwell and Bowen 1965 would presumably place /^ɰ/ and /z/ in an order 4 level of difficulty for Spanish speakers learning English because these are allophones in Spanish but phonemes in English. Yet variation for English /d/ and /s/ may share the same motivation as /^ɰ/ and /z/. Since /d/ and /s/ are also phonemes in Spanish, an order 4 relationship does not apply.

Finally, the hierarchy fails to incorporate other factors that contribute to native language interference in phonology. For example, the native spelling system may influence pronunciation of items in the target language. Thus, although the Caribbean speaker of Spanish shares the [h] sound of English, an order 8 level of difficulty, he or she may not pronounce this sound when it is spelled *h*, particularly in cognates such as *hotel*. Yet the same speaker may produce the [h] sound when the spelling of the item contains a *j* or a *g* before *i* or *e*, as in the cognate *general*.

3.3—

Alternate Hypotheses for Variation in the Interlanguage

Criticism of traditional contrastive analysis began soon after contrastive studies appeared. Factors other than those discussed in Stockwell and Bowen 1965 have been examined in relation to a hierarchy of difficulty. As noted earlier, Oller and Ziahosseiny 1970 claimed that forms causing the most difficulty are those minimally distinct from corresponding forms in the native language. In support of this, Flege 1980 found that native language segments most closely resembling similar sounds in the target language tend to remain longer in the interlanguage of the nonnative speaker. Wardhaugh 1970 proposed substituting a weak version of the contrastive analysis hypothesis, which instead of predicting a hierarchy would explain only the variation that does occur in the acquisition of the target language. Even this approach, however, does not account for all variation.

Some forms in the interlanguage will not completely resemble either the native or the target language. Nemser 1971 and Flege 1980 showed that, in attempting to produce the sounds of the target language, the nonnative speaker produces sounds not found in either language. Corder 1967 suggested that while a large number of errors in second language acquisition are due to interference from the native tongue, some result from strategies similar to those used in first-language acquisition. Richards 1971 claimed that these intralingual errors are caused by faulty generalization, incomplete application of rules, and failure to learn conditions under which rules apply. Selinker 1972 identified the following intralingual sources of difficulty: transfer-of-training, strategies of second-language learning, strategies of second-language

promoted by only one force' (Andersen 1983:182).

In addition to actual differences in linguistic variation, perceived differences may exist in varieties of the EL owing to limitations of the studies

of variation. The variety of the AL may differ from one community to another, so that the transfer source will not be identical in all ethnic communities that share a common AL. Likewise, the variety of the EL to which the ethnic community is exposed will differ from one community to the next.

Speech style is also a factor in variation. Labov 1966 and Ma and Herasimchuk 1971 reported different types and degrees of variation depending on the style employed. Informal speech contains variation not found in formal styles. Reading, in addition to differing in speed and intonation, carries with it the potential of spelling pronunciations, which in natural speech might not occur. Beebe 1987 pointed out that style also affects interlanguage variation.

Another source of variation is the linguistic environment. Ma and Herasimchuk 1971 and Wolfram 1973 found that variation differed significantly according to grammatical function and phonological environment of segments.

Tarone (1987:79) provided a summary of the possible sources that shape the interlanguage phonology:

Processes:

- (1) negative transfer from the native language
- (2) first-language acquisition processes
- (3) overgeneralization
- (4) approximation
- (5) avoidance

Constraints:

- (1) the inherent difficulty of certain target-language sounds and phonological contexts
- (2) the tendency of the articulators to occupy rest position
- (3) the tendency of the articulators to a CV pattern
- (4) the tendency to avoid extremes of pitch variation ⁸
- (5) emotional and social constraints

These different factors that may contribute to variation in the target-language phonology do not necessarily work independently. Certainly, as Jakobson (1968) claimed, universals, markedness, and first-language acquisition are interrelated. Zobl (1980) proposed that variation produced by intralingual factors will activate corresponding forms from the native language. He claimed that use of a rule resulting from both the interlanguage system and the first-language system results in a tendency toward fossilization. Andersen (1983) likewise maintained that forms from the native language will occur consistently and to a significant extent only if supported by natural acquisition principles or the potential of misgeneralization from the target-language system. He contended further that 'when any two or more forces promote a given interlanguage form, that form is more likely to emerge and will resist restructuring longer than a form

themselves. The choice of subjects, and the method of gathering, analyzing, and reporting data can have a profound effect on the results of a linguistic study. The number of subjects is one such factor. When there are few subjects, the data are less representative than when there is a large sample. A second factor is the amount of data gathered. If there are a limited number of occurrences of a particular form for each subject, there is less reliability than if there are multiple occurrences of each linguistic item. The method of obtaining data is a third factor. If the data are elicited through repetition of items, there is the possibility of mistakes made from misunderstanding these items. This is especially prevalent in minimal pair contrasts, in which the desired item may be more obscure than the contrasted item. Similarly, sounds produced in single-word responses may differ from those in sentence contexts, due both to style and linguistic environment. The method of reporting the data is a fourth factor affecting a description of variation in the EL. More precise information can be obtained from studies that supply percentages of variation than from those that merely identify the forms that vary.

4—

Transfer of Spanish Phonology in Hispanic English

Most of the possible types of transfer mentioned in section 2 have been cited in the literature on Hispanic English phonology. However, as section 3 predicts, some variation is more prevalent. Metcalf (1979:16) observed in his discussion of Mexican-American English that:

Even the pronunciation of Spanish-dominant Chicano speakers of English is never reported as entirely Spanish, except in intonation. There is no report, for example, of a Chicano English dialect with only five distinct vowels, as in Spanish, although there are sometimes not the full ten or eleven distinct vowels of Anglo dialects.

Metcalf 1979 implied that there were different types and degrees of variation from one Hispanic community to the next. Yet, in spite of the real and perceived differences that can occur in studies of the Hispanic English of different communities, some degree of uniformity is to be expected. Hispanic English is easily identified through the influence of Spanish phonology and this influence is perceived to be similar in all Hispanic communities. In order to identify the most prevalent variation in Hispanic English, the present chapter will examine varieties spoken by relatively fluent subjects who began the acquisition of English as preadolescents in the ethnic community.

4.1—

Studies on Mexican-American English Phonology

There are several studies on Hispanic English in the United States, most often focusing on the speech of Mexican-American children. Jameson 1967 is one of the earlier studies on Mexican-American English phonology. This work investigated the speech of 157 preliterate Texan children, including Mexican-Americans in several types of curriculum and an Anglo control group. Since the children repeated the minimal pair sentences they heard, they were evaluated on perception as well as production of sounds. Natalacio and Williams (1971) likewise used a repetition test to study the English of Mexican-American children. This study discussed the English of ten Mexican-American children from Texas in grades K-2, as well as ten black children in the same grades. Another study, Gingràs 1972, reported on sixty first through third-grade

Mexican-American children in California, who read passages and participated in interviews. This study categorized subjects in four groups according to their divergence from the surrounding Anglo dialect. Lastra de Suárez (1975) included forty-two subjects from East Los Angeles in her study. Ranging from grades one to four, these subjects were interviewed alone and collectively.

Fewer studies exist on the English of teenage and adult Mexican-Americans. Benítez 1970 examined fourteen phonological segments produced by nineteen Mexican-American seventh-grade students in Texas who read a series of sentences. Sawyer 1975 described the English of adult subjects. This work reported on an earlier study done in the 1950s in which Sawyer conducted oral interviews with seven Anglos and seven Mexican-Americans, four of whom were classified as bilingual, the other three speaking primarily Spanish. Hartford 1975 also examined more mature Mexican-American English, that of thirty students in grades nine through eleven. However, unlike in previous studies on Mexican-American English, Hartford's subjects did not reside in the Southwest, but rather in Gary, Indiana. Some of the variation in Hartford's (1975) study reflected Black English, as well as Spanish influence.

4.2—

Studies on Puerto Rican English Phonology

In contrast to the studies on Mexican-American English, those investigating Puerto Rican English have dealt primarily with teenage and adult language. One of the best known works on Puerto Ricans in the continental United States is by Fishman, Cooper, and Ma (1971). This study presented a detailed investigation of the sociological characteristics of a neighborhood in Jersey City, New Jersey, including a study by Ma and Herasimchuk on the English and Spanish of forty-five subjects over age thirteen. Ma and Herasimchuk (1971) analyzed eight English segments or clusters in five styles: list reading, text reading, list recitation, careful speech, and casual speech. Wolfram 1973 also investigated the English of Puerto Ricans. Using informal interviews, the study analyzed several phenomena in the speech of twenty-nine Puerto Rican teenage males living in East Harlem, New York. Like Hartford 1975, Wolfram 1973 was concerned with the influence of Black English, as well as Spanish, on the English of the Hispanic subjects.

4.3—

Studies on Cuban-American English Phonology

Few studies exist on Cuban-American English. However, two works do include descriptions of phonological variation. MacDonald 1985 analyzed data obtained through informal interviews with 33 high school seniors living in the Little Havana neighborhood of Miami. Duncan 1983 examined the English phonology of first-, third-, and fifth-grade subjects from eight ethnic groups. In addition to 80 Cuban-Americans, the study included 117 rural Mexican-Americans, 63 urban Mexican-Americans, and 80 Puerto Ricans. The four Hispanic communities involved were located in California, Texas, Florida, and New York. Presumably, the Mexican-Americans were from California and Texas, the Puerto Ricans from New York, and the Cuban-Americans from Florida. All the subjects came from lower to lower-middle-class neighborhoods. Duncan 1983 used the *Phoneme Production* subscale of the *Language Assessment Scales*, which requires the subjects to repeat words and phrases.

For /j̣/, a less constricted segment is found in some instances in the studies of Sawyer (1975), Benítez (1970), and MacDonald (1985). Jameson 1967 noted some closure for /y/. Duncan 1983 listed variation for /y/ but did

Of the above studies, Jameson 1967, Benítez 1970, Wolfram 1973, Hartford 1975, and MacDonald 1985 used percentages of variation or equivalent frequencies. Ma and Herasimchuk 1971 and Natalacio and Williams 1971 included graphs with approximate percentages. Gingràs 1972 described variation in relation to the four groups in the study, using general frequency terms like *consistently*, *occasionally*, and so forth. Sawyer 1975 mentioned which subjects displayed variation in their speech and occasionally used frequency terms, while Duncan 1983 marked variation present or absent for each grade level. Finally, Lastra de Suárez 1975 limited the discussion of phonological variation to several examples.

4.4—

Frequent Variation in Hispanic English Phonology

In spite of differences in the Hispanic English studies, in part due to the variables mentioned for individuals and communities, as well as to techniques of data gathering and analysis, there are general trends in the data. Many of the studies described the same phonological variation. Two segments, /*ɟ*/ and /Q/, were frequently cited. Among those studies that potentially described all phonological variation, only Lastra de Suárez 1975 failed to mention /*ɟ*/ and /Q/ variation. Hartford 1975 classified this variation as ambiguous in origin, since the influence could be from either Spanish or Black English. Wolfram 1973 likewise analyzed /Q/ as reflecting Spanish and Black English influence.

The frequency of variation fluctuated from study to study. In addition to overall percentage, there were some differences in relative frequency. Natalacio and Williams 1971 reported a frequency for /*ɟ*/ variation that approached 90%, while /Q/ varied at a rate slightly over 60%. In contrast, Benítez 1970 found /Q/ to vary almost five times as frequently as /*ɟ*/.

The most common nonstandard variant for /*ɟ*/ is the noncontinuant counterpart. However, /Q/ has several variants, including [t], [ʔ], [s], and [f]. Wolfram 1973 observed the first two variants most frequently in word-initial position but the continuant variants in word-final position, where Spanish does not allow phonetic noncontinuant obstruents.

Another Spanish influence frequently discussed is the neutralization of /*ʎ*/ and /*ɣ*/. Of those studies that examined this neutralization, only Hartford 1975 found this variation to be almost totally absent. Not all studies reported the same direction of change. Lastra de Suárez 1975 cited only /*ɣ*/ realized as [ʎ]. However, both Benítez 1970 and MacDonald 1985 discovered a greater occurrence of /*ʎ*/ realized as [ɣ] than the reverse.

Another variation is the realization of /v/ as a bilabial fricative or stop. Rarely, however, does /b/ vary in this manner. Of the studies that considered /v/ variation, only Hartford 1975 did not include [b] as a possible variant, although the frequency of variation differed from study to study.

Several studies also reported the devoicing of /z/. When this occurs in word-final position it is often part of a larger process, the devoicing of word-final obstruents. Hartford 1975, Jameson 1967, Gingràs 1972, Natalacio and Williams 1971, and Sawyer 1975 all mentioned instances of word-final devoicing. However, this did not occur in MacDonald's (1985) data.

not describe this variation. In contrast, Gingràs 1972, Hartford 1975, and Lastra de Suárez 1975 failed to observe neutralization of /j/, /ç/ and /y/, while the remaining studies omitted these segments.

In addition to substitution of segments, deletion of word-final obstruents, particularly clusters, is also prevalent. Natalacio and Williams 1971, Lastra de Suárez 1975, Ma and Herasimchuk 1971, Gingràs 1972, Jameson 1967, Hartford 1975, and MacDonald 1985 all observed simplification of clusters; the remaining studies did not consider this variation in their data.

Vowels also exhibit variation in Hispanic English. One of the more problematic vowels is /ʌ/, which merges with /ɔ/ or /a/ ~ /a/. All studies investigating this vowel reported some degree of neutralization. Similarly, /æ/ merged with /a/ or /e/ while /iy/ and /I/ neutralized. Variation of vowels other than /ʌ/ did not, however, occur in the English of the older fluent bilinguals, including the subjects in Sawyer 1975, Hartford 1975, and MacDonald 1985. Hartford 1975 mentioned tenser, higher offglides, as did Ma and Herasimchuk 1971, Natalacio and Williams 1971, and Gingràs 1972. Natalacio and Williams 1971 and Gingràs 1972 also encountered shorter vowels.

In the English of young children and less fluent adults additional variation occurred, differing to some degree from study to study. However, points of variation that appear to have the greatest potential for fossilization in Hispanic English are those shown in Table 6.

Table 6. Dominant variation in Hispanic English phonology.

Segment(s)	Variation
/ð/	[d]
/θ/	[t]-[tʰ]-[ts]-[tʃ]
/s/-/ç/	varying degrees of closure
/v/	[b]-[β]
/j/-/y/	varying degrees of closure
/ʌ/	[a-ɑ-ɔ]
/æ/	[a-ɛ]
/iy/ - /I/	[i]
offglides	tenser, higher, shorter
word-final consonants	deletion
word-final clusters	simplification
word-final voiced obstruents	devoicing

4.5—

Motivation for Spanish Phonological Transfer

All points of variation in Table 6 result from negative transfer. However, this variation does not confirm the hierarchy of difficulty proposed by Stockwell and Bowen 1965. It is true that as predicted /Q/, /ʌ/, /æ/, /iy/, and word-final clusters, which are not usually found phonemically or phonetically in Spanish, exhibit considerable variation in Hispanic English, as do voiced obstruents, which normally do not occupy word-final position phonetically in Spanish. These are all order 1 or 2 level of difficulties in the Stockwell and Bowen 1965 hierarchy. On the other hand, /ç/ and /y/ occur phonemically in both English and

Spanish, an order 7 level of difficulty. Segments similar to English / δ / and / ξ / occur phonetically in Spanish, an order 4 level of difficulty.

Some of the most frequent variation in Table 6 supports Oller and Ziahosseiny's (1970) claim that minimally different segments are the most difficult to master. For Spanish speakers, the differences between / ξ / and / ξ /, / $\overset{1}{j}$ / and /y/, and /d/ and / δ / are redundant. Likewise, Spanish does not differentiate between degrees of vowel height within the high and mid quadrants, nor between front and back low vowels, so that the neutralization of English vowels can also be explained by Oller and Ziahosseiny 1970. Similarly, the lack of differentiation between apical fricatives, between voiced labial obstruents, or between word-final voiced and voiceless obstruents may result in the differentiation in English being perceived as sufficiently minimal to account for the problems with /Q/, /v/, and voiced final obstruents. The same hypothesis explains why Spanish offglides are substituted, but not the Spanish /r/. The difference between the Spanish and English offglides is minimal, whereas Spanish and English /r/ are very different in their articulation. The Oller and Ziahosseiny 1970 hypothesis also accounts for the nonoccurrence of Spanish spirantized /g/; it is not confused with a similar segment in English. It is also possible that there is less confusion between /uw/ and / $\overset{v}{u}$ / than between /iy/ and /I/ because of the greater frequency of the latter segments over the high back vowel pair.

However, the Oller and Ziahosseiny 1970 hypothesis needs one modification. Except for predominantly Spanish-speaking subjects, there is almost no problem with allophonic distribution in Hispanic English. Only in speakers with limited English ability is there a failure to reduce vowels, to aspirate stops, to flap /t/ and /d/ or to velarize /l/.⁹ Perhaps because of the use of the velarized /l/, there are few occurrences of the raised Spanish /l/.¹⁰ The one exception to ease in allophonic distribution is the occasional lack of vowel lengthening. This is undoubtedly related to the devoicing of final vowels and the tensing of offglides. If the voiced obstruent is devoiced before the vowel is lengthened, the environment for lengthening is no longer present. Likewise, if the offglides are shorter and tenser, the result is perceived as a shorter vowel nucleus.

Other possible sources of reinforcement for Spanish-influenced variation in Hispanic English are markedness, universals, and first-language acquisition. Word-final voiced obstruents, /Q/, / δ /, and /v/ are all problematic in first language acquisition and/or highly marked, as noted by Menyuk 1971, Jakobson 1968, Chomsky and Halle 1968, Eckman 1970, Crothers 1978, and Gamkrelidze 1978. Likewise / δ / exhibits greater variation than /v/, the former segment being less universal. Universality and markedness also are factors in the greater neutralization of the high vowels than the mid vowels. Crothers 1978 showed two levels of mid quadrant vowels to be more universal than two levels of high quadrant vowels.

In relation to markedness and universals, some of the same variation that occurs in Hispanic English occurs in varieties of English spoken by monolinguals who may have contact with the Hispanic community. Variation for /Q/ and / δ / is found both in the Black English spoken in the New York neighborhood of Wolfram's 1973 subjects and in the Indiana community of Hartford's 1975 subjects. The New York English of the lower socioeconomic

Anglo population has influenced the large Cuban population in the East, many of whom later moved to Miami. Miami English itself has historically been influenced by east-coast English.

The neutralization of /t̥/ and /s/, as well as that of /y/ and /j̃/, is undoubtedly related to the variety of the AL spoken in the Hispanic community. For MacDonald's (1985) subjects, the /t̥/ and /s/ variation and the /y/ and /j̃/ variation reflect this alternation in Miami-Cuban Spanish, as described by Hammond 1976 and Saciuk 1980. The lack of replacement of /h/ by /x/ is also in part due to dialectal variation. Many of the U.S. varieties of Spanish contain /h/ rather than /x/. Spanish variation that occurs rarely, such as the bilabial variant of /f/, does not occur in Hispanic English.

The lack of /f/ variation also reflects universality and markedness, the labiodental fricatives being less marked than bilabial fricatives. Likewise, voiced stops are more apt to delete in word-final position to promote a desired CV syllable than intervocalically, where deletion may destroy a CV syllable. Because of the universal tendency toward homorganic nasals, as established by Ferguson 1975, it seems at first glance surprising that this is rarely noted in Hispanic English. However, testing methods employed by earlier researchers may be responsible to some extent here. Words pronounced in isolation or in slow speech will not exhibit assimilation, even in Spanish. On the other hand, in rapid speech, assimilation may occur in English as well.

The variation that predominates in Hispanic English supports not only the individual source hypotheses discussed in section 3.3, but also those multiple sources proposed by Zobl 1980 and Andersen 1983. This reinforcement by multiple sources of motivation is illustrated in Wolfram's (1973) data. Those Puerto Rican subjects with Black English contacts showed an overall higher level of word-final /d/ deletion in their English than did either Black English monolinguals or the Puerto Ricans without Black English contacts, both of whom had high levels of /d/ deletion. The variation in Hispanic English evidences several of Tarone's (1987) sources listed in section 3.3. Native language transfer is generally prevalent when minimal distinctions exist; likewise, there is evidence of first-language acquisition and approximation processes. A preference for the CV syllable occurs as predicted by Tarone. Difficulty of target language sounds and phonological environments in relation to markedness and universality contributes to variation, and social factors are also equally relevant. However, except in the early stages of acquisition, there is little evidence of overgeneralization, such as the aspiration of /p,t,k/ in all environments. This appears to be a process which is limited to early acquisition and which does not interact with native language transfer. The rest position for articulators is not preferred and is likewise quite possibly an early acquisition process not reinforced by the native language. Finally, avoidance is not discussed in the studies of Hispanic English, doubtless because of the difficulty inherent in identifying this process.

5—

Conclusion

Hispanic English derives much of its phonological identity from Spanish, in particular when minimal distinctions are involved. However, this Spanish transfer must be supported by independent motivation. It is the reinforcement of the ancestral language phonology by multiple sources,

including markedness, universality, first-language acquisition processes, and co-occurrence in the host-language varieties, which prolongs restructuring in the interlanguage so that fossilization results. This variation creates the phonological identity of the ethnic variety of a language.

Notes

1. This chapter will use the term ethnic language (EL) to refer to the ethnic variety of the host language, whether spoken as a first or second language in the ethnic community. In this case, it is the English dialect spoken by Hispanic residents of the United States. The term ancestral language (AL) will be used to refer to the variety of the language brought from the homeland and maintained in the ethnic community. Here, this is the native Spanish of U.S. immigrant Hispanics.
2. The circumstances for flapping alveolar stops are somewhat more complex. The flap may occur following /j/, as in *barter* or *larder*. A flapped nasal also occurs in the same environments as flapped /t/ and /d/. Ladefoged 1975 considers the intervocalic /t/ and /d/ to be taps, while describing the flap as a retroflex sound following /j/, as in *dirty*.
3. In most if not all varieties of Spanish, /d/ fails to spirantize after /l/ due to the existing dental contact from /l/ when /d/ is produced.
4. Stockwell and Bowen 1965 pointed out that, like /p,t,k/, /t̟/ is aspirated when syllable-initial preceding a stressed vowel.
5. Whether /t̟/ can regularly occur in syllable-initial position depends on the syllabification of words like *vision* and *measure*.
6. The vocoids [y] and [w] have been described either as phonemes or allophones in various well-known descriptions of Spanish phonology. The different status of these two segments results from the theoretical framework espoused by authors of these studies. Harris 1969, 1983 derived these segments from their high vowel counterparts. Stockwell and Bowen 1965 classified [y] and [w] phonemically as glides, while Dalbor 1980 listed them as fricatives. The [y] segment is further complicated by the fact that in most of Spanish America it represents a historical merger with the palatal lateral /t̟/. Resnick 1975 listed areas in several countries, particularly of South America, which continue to contrast the palatal glide or fricative, spelled *y*, with a palatal lateral or a more constricted, strident fricative segment, spelled *ll*.
7. In reality, the parallel for the pairs of segments in English may be somewhat less symmetrical than Table 4 implies. Ladefoged 1975 did not consider the high tense vowels to be diphthongized. Further, unlike /l/, /t̟/, and /e/, /ɹ/ can occur in word-final position, as in *law*.
8. The discussion of suprasegmentals, such as pitch, is beyond the scope of this study.
9. Hammond (1986), in his study of less fluent Hispanic-English speakers who were postadolescent learners of English, found lack of vowel reduction to be by far the most prevalent variation in both reading and spontaneous speech styles.

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10. Hartford 1975 noted that her subjects produced a higher syllable-initial /l/ approximately 25% of the time. However, in word-final position /l/ is realized as the velarized segment or as the Black English vocalized /l/.

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