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## Quantitative evidence for contact-induced accommodation

### Shifts in /s/ reduction patterns in Salvadoran Spanish in Houston

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Studies on dialect accommodation, focusing on the acquisition of new features, have found age of arrival to be a significant factor in acquisition patterns (e.g. Chambers 1992). Regarding /s/ reduction among Salvadorans in Houston, quantitative analysis shows that accommodation may also involve the redistribution of already present features. Sociolinguistic data show that this contact situation has led many Salvadorans to accommodate their speech to Mexican patterns, particularly for socially salient features, like /s/ reduction. Various factors are tested for statistical significance in /s/ reduction: the social factor of age of arrival is found to have the strongest effect; surrounding phonological segments also show significance. Intensity of contact, however, does not, pointing to accommodation as a general social – rather than simply individual – phenomenon.

#### 1. Introduction

An abundant literature on dialect contact suggests that acquisition patterns are often affected in contact situations. One of the recurrent questions in this literature has been that of a possible cut-off age at which individuals may no longer integrate new dialect features into their linguistic repertoires. In addressing this issue, some studies have focused on the way in which the age of arrival of an individual to an area where two dialects of the same language meet shape acquisition patterns (Chambers 1992; Payne 1980; Williams & Kerswill 1997). Chambers (1992:689), for example, shows that age of arrival is the only differentiating factor in the variable acquisition of dialect features. He proposes that individuals who arrive to a new dialect area at the age of 7 or under will be able to acquire those dialect features that characterize the new dialect, while individuals that are 14 years or older will not have this capability. Those between these ages will vary in their ability to acquire the new dialect's features.

Other studies have shown that from very early on children partake in the variation patterns of their speech community (Roberts & Labov 1995; Kerswill 1995, 1996). However, situations of dialect contact bring in an additional component. While children's first exposure to language is in their home variety, children who enter into dialect contact situations at young ages are also faced with patterns of variation during acquisition unlike those of the home environment, as soon they are introduced to outside contexts, such as daycares, schools, or through familial socialization with speakers of the mainstream variety. In this way, then, young children arriving to a region where a dialect other than their own is spoken acquire the distribution patterns of the dialect spoken at home first, and at a later point start acquiring the patterns present in the dialect of the community at large.

In dialect contact, the modification of the speech patterns of the groups or individuals involved may differ considerably from one situation to another. In many cases, the outcome of dialect contact depends heavily on the distribution of features in the contact dialects. Speakers may, for instance, acquire a feature not previously present in their own dialect, as described by Chambers 1992. Alternatively, speakers may come into contact with a dialect that has a feature already present in their home dialect, but with different patterns of distribution. In this case, speakers may alter the frequency or distributional patterns of this feature to more closely mirror patterns present in the larger community. This type of dialect accommodation is the kind we find in the Salvadoran Spanish of Houston, Texas.

The present study focuses on the contact situation between Salvadoran and Mexican Spanish in Houston. We offer an empirical account of the way in which the contact with Mexican Spanish is affecting the patterns of /s/ reduction in the speech of Salvadorans, and examine how the linguistic attitudes that Salvadorans have towards their own dialect may influence the extent or distribution of dialect accommodation in /s/ reduction patterns. First, in a qualitative analysis of Salvadorans residing in Houston, we find that Spanish speakers in Houston are aware of the distinction between the full realizations of /s/ and its reduced variants, suggesting that the competing realizations in Salvadoran Spanish may be attributed in part to the general social pressures prevalent in this contact situation.

Second, we provide a statistical analysis of the linguistic and social factors affecting /s/ realization in the Salvadoran Spanish of Houston. This analysis is carried out through the multiple regression analysis program GoldVarb (Rand & Sankoff 1990). This program, particularly suited for the quantitative evaluation of patterns of variation in natural data, allows for the simultaneous consideration of all factors believed to have a possible effect on the phenomenon in question, and provides information on the statistical significance of each factor when all factors are considered simultaneously. In this case, both linguistic and social factors hypothesized to have a possible effect on the variation between the two possible realizations of /s/ – full ([s]) or reduced ([h] or [Ø]) – are considered in the analysis.

## 2. /s/ reduction

The major phonological difference between Salvadoran Spanish and the predominant northeastern Mexican varieties in Houston is that several consonants in the former undergo a process of reduction unparalleled in the Mexican contact variety. Of these, the reduction of /s/ has received by far the most attention in the literature (Canfield 1960, 1981; Lipski 1988, 1989, 1994, 2000). This attention is particularly noteworthy when we consider the sporadic attention that Salvadoran Spanish as a whole has received. The academic discussion is perhaps a reflection of the amount of attention that Mexicans in Houston seem to pay to this same feature, which usually accompanies any stereotyped attempt to imitate Salvadoran speech (Lipski 1989: 105).

Reduction of /s/ has also been noted in several regions of Mexico. Moreno de Alba (1994:94), for example, finds widespread reduction of /s/ mostly in coastal areas, such as Campeche, Tabasco, Chiapas, Guerrero, Nayarit, Sinaloa, and Sonora, though he also observes isolated inland pockets of reduction in the rural areas of Nuevo León, southern Tamaulipas, and Chihuahua. Lipski (1994) finds a similar geographical distribution of /s/ reduction, and interestingly notes that in rural areas of northwestern Mexico, /s/ is reduced even word initially. He remarks, however, that this tendency "carries a heavy negative stigma, and is avoided by educated urban residents, whose pronunciation scarcely differs from that of central Mexico (1994:280)." Without doubt, the coast of Veracruz is the region that Mexicans most closely associate with /s/ reduction, a tendency that is evident in televised performances in which actors attempt to imitate the region's dialect by exaggerating their /s/ reduction. However, Lipski (1994:282) argues that:

While this was true in earlier times, the sociolinguistic impact of central Mexican Spanish, particularly the prestige dialect of Mexico City, has had strong impact on the speech of Veracruz, and educated *veracruzanos* frequently maintain sibilant [s], particularly phrase-finally. Among the lower socioeconomic strata of Veracruz, reduction of /s/ is much more common, but is combined with some unstressed vowel reduction and devoicing which creates a configuration different from typical Caribbean patterns. Even a short distance inland in Veracruz, weakening of /s/ drops off rapidly.

Thus, while /s/ reduction is found in some varieties of Mexican Spanish, it is not widespread in the Mexican American dialect or in the urban dialects of the northeastern Mexican states of Nuevo León, Coahuila, and Tamaulipas, which prevail in the Houston area. In fact, reduced /s/, as Lipski (1988: 115) notes, often conjures up images of Salvadoran, not Mexican, speakers: "one characteristic of the Salvadoran dialect, as compared with the relatively conservative northern and central Mexican dialects, is the weakening of several consonantal articulations, and the consonant most readily associated with these processes is /s/."

### 3. Data and methodology

The data for this study were taken from twelve sociolinguistic interviews conducted with speakers born in El Salvador who have lived in Houston for at least 5 years. The speakers included eight men and four women, ranging in age from 19 to 63. The same interviewer, a speaker of Mexican Spanish who has lived in the community for 4 years, recorded all speech samples. In order to account for the frequencies of /s/ reduction and realization, the first 100 instances of syllable final [s], [h], and [Ø] were extracted from each speaker in five-minute speech samples, transcribed after fast-forwarding the first five minutes of each interview. This resulted in a total of 1200 tokens. From this total, we excluded apparently lexicalized forms of the verb *estar*, such as *-ta* and *-taba*, or *-sta* and *-staba*. Furthermore, we excluded any occurrence whose following phonetic segment was either a lexicalized reduced form of *estar* 'to be', an /s/, or unintelligible. These exclusions amounted to a total of 54 tokens, or around 4% of the data.

The data were later subjected to multiple regression variable rule analysis using GoldVarb (Rand & Sankoff 1990). GoldVarb is a computerized statistical program that allows for the comparison of the influence of numerous noninteracting factors on a particular variable. Within each factor group, for example, word class, each factor must present variation, that is, it must occur with both fully realized and reduced /s/. If a factor does not present variation in the dependent variable, then it must be excluded from analysis. Once this is done, GoldVarb determines the factor groups that have a statistically significant effect on the dependent variable. Each factor is given a *probability weight* between 0 and 1, such that any weight above 0.5 favors the use of the application value, while any weight below 0.5 disfavors it. The further the weight is from 0.5, the stronger the favoring or disfavoring effect of this element. These weights determine the hierarchy of constraints, the 'grammar,' so to speak (Poplack & Tagliamonte 2001:92–93), underlying /s/ reduction. Each factor group, in turn, has a *range* of probability weights, determined by subtracting the weight of the most disfavoring (lowest) factor in the group from that of the most favoring (highest). These ranges show the *magnitude of effect* of a factor group on the dependent variable: the higher the range, the stronger the effect of that factor group.

Here, six independent variables were considered in the variable rule analysis. Most obvious to any study of phonological variation are linguistic factors, which may affect pronunciation due to phonotactics, possibility of ambiguity or meaning loss, or word frequency (Bybee 2001). To address such concerns empirically, we included the following factors in the statistical analysis: word class, word stress, previous and following phonetic segment, and morphemic status. Word position (i.e. word-medial or word-final), a final factor that was examined in initial analyses, was eventually discarded, due to its statistical interactions with morphemic status and following phonological segment. Two social factors were also hypothesized to play a role in /s/ reduction in this contact situation: first, the age of the speaker upon arrival to the area of contact, as proposed by Chambers (1992); and second, intensity of contact, measured by a three-factor, six-point scale, measuring (a) friends, (b) family, and (c) co-workers of

the participants who spoke Mexican Spanish. Intensity of contact, however, was later excluded from the statistical analysis when preliminary analyses showed it had no significant effect on /s/ reduction; instead, this factor will be discussed separately. A third social factor, time in the United States, was not considered in this analysis due to its strong correlation with the age of arrival of the participants.

#### 4. Demographics

Figures from the 1990 census show that at least 40,475 Salvadorans live in the Houston area, compared to 625,929 individuals who claim Mexican origin and who constitute the major Spanish-speaking group in the area (U.S. Bureau of the Census 1993). The growth in the Salvadoran community, however, is a phenomenon that has materialized mainly over the past 20 years. Today, Salvadorans in the area can be estimated to surpass one hundred thousand (Lipski 1988). The numbers proposed by Lipski seem reasonable, considering that attempts to estimate the total number of Salvadorans in the area are clouded by the dynamics of Salvadoran immigration. First, many undocumented immigrants tend to go unreported in census figures. Second, a continuous movement of Salvadorans to the area means that the face of immigration changed significantly within the ten-year period in which the census was undertaken.

At any rate, the official census figures alone make Salvadorans the second-largest Spanish-speaking group in the area. These numbers suggest that Salvadorans have the potential to create strong community ties, which could help in preserving cultural and linguistic identity, and in many ways they have. Yet Salvadorans in the area have experienced a strong integration with the Mexican community as well. Evidence for cultural integration is manifest in the fact that Salvadorans and Mexicans tend to share work and housing patterns (Lipski 1988, 1989; Rodriguez 1987), which has been accompanied by an increase in bicultural marriage and friendships. In our sample of twelve speakers, this pattern is patent: five have Mexican spouses; one of the speakers who is single has a Mexican brother-in-law; one has a Mexican son-in-law; two of the speakers who are single claim to have a Mexican best friend; and eight claim to work primarily alongside Mexican coworkers.

Table 1 shows the intensity of contact the speakers in our sample had with Mexicans in family, work, and friendship. In terms of family, contact was considered high if the speaker lived with one or more Mexicans, medium if there was a Mexican in the family who did not live with them, and low if there were no Mexicans in the family. For work, high means that most co-workers are Mexican, medium that some are Mexican and some Salvadoran, and low that the speaker works only with Salvadorans, does not work outside the home, or does not use Spanish at work. For friendship, contact was considered high intensity if a speaker reported having mostly Mexican friends or having a Mexican best friend, medium if a speaker reported having some Salvadoran friends as well as Mexican, and low if a speaker reported having no Mexican friends.

**Table 1.** Intensity of contact with Mexicans among speakers, percentages

	Low	Medium	High
Family	33	8	58
Work	25	17	58
Friendship	8	33	58
General	25	17	58

As we can see in Table 1, over half of all participants have a high level of contact with Mexicans in their daily lives, while only a quarter have low levels of contact.

### 5. Language attitudes

Before moving on to the statistical analysis, it is imperative that we explore the central reason for our interest in /s/ reduction in this particular contact community. Reduction of /s/ is just one of many features of Salvadoran Spanish that differ from Mexican Spanish. Why, then, might it offer any more evidence for dialect accommodation than any other feature? It appears that all features, at least in the minds of speakers, were not, in fact, created equal. Trudgill (1986:12) argues that dialect features seem to have different degrees of “saliency,” making some features “more prominent in the consciousness” of speakers than others. This underlying principle suggests that in a dialect contact situation, the distribution of a feature present in the original dialect of the speaker, but not in the new dialect, could be more affected if speakers regard it as salient. In Houston, where /s/ reduction is not associated with the speech of Mexicans, lower frequencies of /s/ reduction among Salvadorans would suggest that they are somewhat conscious of the notoriety of /s/ reduction in their own speech.

We would also expect that if a feature regarded as salient by Spanish speakers in Houston shows major modifications in its variation, the modifications may be because Salvadorans want to model their own speech as much as possible after that of Mexicans. This raises an important question: why would Salvadorans want to imitate the linguistic patterns in the Mexican dialect? In many studies, changes in the frequency of a particular feature are often considered to be an effect of accommodation. Trudgill (1983:143), for example, suggests that accommodation entails phonetic or other linguistic adjustments made in order to “approximate one’s language to that of one’s interlocutor, if they are regarded as socially desirable and/or if the speaker wishes to identify with them and/or demonstrate good will towards them.”

In the case of Houston, we can assume that the numerical importance of Mexicans in the area is a major reason for dominance of the Mexican dialect. Beyond demographic factors, it is also significant that the Mexican dialect is considered relatively conservative in its retention of consonants in comparison with the Salvadoran dialect; to some extent, due to the preponderance of prescriptivist ideals, Salvadorans may find this conservatism worthy of emulation (see Milroy and Milroy 1999:77–98). Finally,



the Mexican community in Houston represents the oldest and most well established Spanish-speaking group in the area, offering Salvadorans the possibility of blending in to a strong community if they so desire.

For the most part, the awareness of distinct phonological and morphosyntactic features in Houston seems to translate into negative attitudes towards Salvadorans and, more particularly, towards Salvadoran speech. Strong negative attitudes towards this dialect in Houston are clearly reflected in many of the interviews. A recurrent preoccupation with language issues is especially seen in speakers who arrived in Houston at the age of 18 or younger. In (1), for example, the speaker refers to the way that Salvadorans and Mexicans in her husband's soccer team relate to each other. Her perception that Mexicans and Salvadorans do not get along is clearly linked to linguistic prejudices among the two groups, and not necessarily to physical confrontation.

- (1) *...No rozan, no se llevan [mexicanos y salvadoreños]. Siempre viven criticándose. Que si hablaste así, que si hablaste allá [risas] ... (HouSal 98 #9-A CP)*  
 '...They don't get along [Mexicans and Salvadorans]. They're always criticizing each other. If you spoke like this, if you spoke like that [laughter]...'

Despite negative attitudes, the contact and interaction between Salvadorans and Mexicans in Houston is intense. However, while both groups are in contact with speakers of a dialect other than their own, any pressure provoked by an awareness of linguistic differences seems to be one-sided, putting pressure on the speech of Salvadorans, but not Mexicans. In (2), the speaker, now a bilingual schoolteacher, talks about his linguistic choices when he was in high school, claiming that, even back in high school, the features in his speech could not be considered Salvadoran, perhaps due to a conscious effort on his part to avoid ridicule.

- (2) *y no sé nomás no quería [hablar] porque tal vez me iba- se iban a burlar de mí so entonces, este, aunque- yo no hablaba ¿verdá? como de El Salvador porque pues cuando viene aquí uno aprende lo de la demás gente. (HouSal 98 #3-A CD)*  
 'and I do not know I just did not want [to talk] because maybe I would- they would make fun of me so then, ugh, even though- I did not talk, right?, like from El Salvador because well when you come here you learn the ways of the rest of the people'.

In (3), the speaker, now a university student, is able to point out some of the particular lexical and morphosyntactic features that were the source of derision from his high school classmates.

- (3) *Antes [los mexicanos] me hacían chistes, y quizá por eso no decía mucho también. Me hacían chistes por ser salvadoreño, por decir 'cipote' o 'vos' o ... Es diferente porque los mexicanos a veces dicen 'tú', se tratan de tú, y no es porque lo queramos decir porque sale naturalmente, hay muchas palabras que son distintas y todavía stereotypes, lo estereotipan a uno. (HouSal 98 #1 MP)*  
 'Before, [Mexicans] used to joke about me, and maybe that's why I didn't say much, too. They would joke about me because I was Salvadoran, for saying *cipote* 'boy' or *vos* 'you' or ... It's different because Mexicans sometimes say *tú* 'you', they address each

other by tú 'you', it's not because we want to say it because it comes out naturally, there are many words that are different and still stereotypes, they stereotype you'.

A clear pattern seems to emerge among these speakers, in which school turns out to be a major place of contact for some of these early-age-of-arrival speakers, but of contact that is often associated with negative pressure directed at the differences in their speech by their Mexican peers. A similar view is shared by the speaker in (4), whose Salvadoran 'accent' is the source of ridicule from his high school classmates. In both examples (3) and (4), the speakers recognize that the Salvadoran and the Mexican dialects differ, and they also stress that linguistic output is not always a conscious process. In general terms, the younger speakers showed a greater preoccupation with ethnic relations, which in their contact with Mexicans usually involved clashing over language issues. This may also be symptomatic of a more prolonged and perhaps intimate contact between younger Salvadorans and Mexicans, due to the close environment that schools provide and at an age of strong peer pressure.

- (4) *-casi eran puros chicanos, se, se me hizo difícil pero pos se burlan de uno como- que viene con un acento también diferente de hablar... (...)*  
*-háblame un poco sobre lo que dijiste ahorita que por el acento te veían como diferente ¿no?*  
*-oh pues eh- pues uno tiene uh- bueno los salvadoreños tenemos un acento diferente ¿no? se nota y yo no lo he perdido todavía, es algo que uno se creció, yo me crecí hablando de esa manera y hasta cuando hablo inglés yo puedo tener el acento salvadoreño, a veces, a veces que yo me doy cuenta lo trato de, de eliminar ¿no? de sacarlo pero y si se me olvida lo, vuelvo lo, lo sigo haciendo porque pues a veces ... es difícil este ... (HouSal 98 #4-A EO, emphasis added)*  
 'they were almost all Chicanos, it was difficult for me but well they make fun of you how- that you come with an accent also different way of speaking ...(...)  
 -talk to me a little about what you said now of how because of the accent they saw you as different, right?  
 -oh well um- well you have uh- well the Salvadorans we have a different accent, right? you notice and I haven't lost it yet, it's something that you grow with, I grew up talking like that and even when I speak English I can have the Salvadoran accent, sometimes, sometimes I realize that I try to, to eliminate it, to eliminate, right? to get it out but if I forget again I keep doing it because well sometimes ... it's difficult um ...'

School is usually the place in which speakers who arrived at an earlier age tell of their harshest experiences. In their accounts, some of the Salvadoran speakers shunned a Salvadoran identity. The speaker in (5), for instance, consistently avoided identifying himself with either group, while, in turn, the speaker in (6) clearly puts emphasis on his efforts to identify himself with Chicanos, which also implies a probable change in his speech. Speakers' previous descriptions of Salvadoran-Mexican interactions in Houston mentioned that some Salvadorans attempt to blend into the Mexican community, which necessarily involves an effort to do away with those dialect features that most glaringly distinguish Salvadoran from Mexican Spanish, e.g. *voseo* (Lipski 1989, 2000; Schreffler 1994). This explanation usually suggests a utilitarian motiva-

tion, i.e. to blend in with the community or, in some cases, to avoid direct deportation to Central America.

- (5) *Se insultaban entre ellos, entre ellos mismos, um, entre mexicanos y salvadoreños, conflicto... no, tú sos de El Salvador o tú sos mexicano o tú sos guatemalteco y yo no decía nada, ¿para qué? Siempre había esa confrontación y yo no quería esa confrontación...* (HouSal 98 #1-A MP)  
 ‘They would insult each other, among themselves, um, among Mexicans and Salvadoreños, conflict... no, you’re from El Salvador or you’re Mexican or you’re Guatemalan and I wouldn’t say anything, what for? There was always that confrontation and I didn’t want that confrontation...’
- (6) – ... *porque según yo... que era de aquí, que había nacido aquí, que era americano y todo.*  
 – *¿Podrías pasar como americano?*  
 – *No tanto así, pero nacido aquí.*  
 – *¿Como chicano?*  
 – *Como chicano, en esa, en esa categoría. Como un chicano y ya que... Sí, pues así me sentía yo porque todos mis amigos eran así [chicanos]...* (HouSal 98 #3-A CD)  
 ‘... because according to me... that I was from here, that I had been born here, that I was American and all.  
 – Could you pass as an American?  
 – Not to that extent [not that much], but born here.  
 – As a Chicano?  
 – As a Chicano, in that, in that category. As a Chicano and since... Yeah, well, that’s how I felt, because all my friends were like that [Chicanos]...’

The interviews showed clear differences between younger and older-age-of-arrival speakers. Younger-age-of-arrival speakers discussed mainly their life in the United States, while older-age-of-arrival speakers discussed their life in El Salvador, the civil war, and their journey to the United States. The contrasting discourses reflected the differences in the lifestyles of the two groups, one that grew up in El Salvador, and another that grew up in Houston. Growing up in Houston for many of the younger-age-of-arrival speakers meant dealing with interethnic issues more closely and at an earlier age, when identity formation was at its height. For some of the older-age-of-arrival speakers, heightened dialect awareness occurred when they first crossed into Mexico on their way to the United States, as illustrated in (7).

- (7) *bueno, en Chiapas fue cuando... uno coge el miedo tú coges el miedo ya de, pues ya estás en territorio mexicano ya, ya vas a empezar a, a hacer lo que te dijeron, ¿vedá? tener cuidado y mira pa’ todos los lados y fíjate a quién le preguntas, no hables [risas] con acento y, y para adelante...* (HouSal 98 #6-A JG, emphasis added)  
 ‘well, in Chiapas was when... you get scared you get scared from, well, you’re in Mexican territory already, you’re going to start to, to do what they told you, right? to be careful and look everywhere and watch who you ask, don’t talk [laughter] with an accent and, and move ahead...’

The speaker in (8) avoids direct deportation to El Salvador by convincing American immigration officers at the border that he and a friend are Mexican.

- (8) *y en Camargo nos dijeron [los agentes de la migración] que, qué andábamos haciendo, no nosotros somos mexicanos que venimos a tomarnos unas birongas de este lado y que aquí y que allá...* (HouSal 98 #13-A RH, emphasis added)  
 ‘and in Camargo [the INS agents] asked us what we were doing, no we’re Mexicans who came to drink some beers on this side and this and that ... [in his best rendition of ‘Mexican’ Spanish]’

In (9), one of the speakers claims that his speech patterns seem to have changed so much that Mexicans sometimes do not recognize him as Salvadoran. He seems to be aware that Salvadorans and Mexicans in the community now seem to have similar speech patterns.

- (9) *muchos amigos ahora que tengo... mexicanos no saben que yo soy de El Salvador ni cuenta se dan, hasta a veces que yo, yo les digo que yo soy salvadoreño y... y no me creen, piensan que estoy jugando con ellos... (...) pos sí pos ahora ya, ya los mexicanos y los salvadoreños hablan iguales ya no es como antes...* (HouSal 98 #4-A EO)  
 ‘many friends now that I have... Mexicans don’t know that I’m from El Salvador they don’t even realize, even sometimes when I, I tell them that I’m Salvadoran and... and they don’t believe me, they think that I’m playing with them... (...) well yeah, well now Mexicans and Salvadorans talk the same it’s not like before...’

Even though we have claimed that under some circumstances Salvadorans see the benefit of integrating into the Mexican community, we also believe that changes in frequencies of a particular dialect feature could respond to other external pressures, such as negative attitudes from other Spanish speakers.

An interesting study done by Hart-González (1985) in the Washington, D.C., area, where Salvadorans constitute a significant sector of the Hispanic community, sheds some light on the reasons underlying dialect accommodation in the contact situation in Houston. Hart-González (1985:79) asks South American and Central American participants to “rate eighteen national varieties of Spanish on a scale from 1 to 5, where 1 was the best.” We should note that speakers of Mexican Spanish did not participate in the rating. Once dialects were rated, they were separated into three categories: high prestige (1.0–2.0); middle prestige (2.1–4.4); and low prestige (4.5–5.0). Her findings show that Mexican and Salvadoran Spanish are placed in parallel ranges by the two groups of participants. South Americans rank Mexican Spanish as an upper middle prestige variety (3.3) and Salvadoran as a low prestige variety (4.8), occupying the end of the scale. Salvadorans also rank Mexican Spanish as an upper-middle prestige variety (2.4) and Salvadoran as a low prestige variety (4.7), again occupying the end of the scale. It is interesting to note that Central Americans rated Mexican Spanish higher than South Americans (0.9 difference) and Salvadoran Spanish lower than South Americans (0.1 difference).

One of the most frequently mentioned characteristics of Salvadoran Spanish that differs from the variety of Mexican Spanish spoken in Houston is that of /s/ reduction. We believe that /s/ reduction is a particularly salient feature of Salvadoran Spanish, and as such, it offers quantitative evidence for the linguistic impact of the social pressures discussed above. In the next section, we will examine how the distribution of this

salient feature illuminates these pressures while simultaneously demonstrating their limitations in the face of competing linguistic and cognitive factors.

## 6. Quantitative analysis

Table 2 provides the results of our multivariate analysis. Of the three factors that were found to have a statistically significant effect on /s/ reduction, two were phonological: following phonological segment and, with a lesser magnitude of effect, preceding phonological segment. In the case of following phonological segment, reduction was favored by a vowel following the /s/, with a weight of .70, slightly disfavored by consonants and pauses, and highly disfavored by glides, at .20. This finding parallels the results found by Brown and Torres Cacoullós 2001 for Mexican Spanish in Chihuahua, where “the crucial phonetic condition [for /s/ reduction] is the presence of a following vowel” (Brown & Torres Cacoullós 2001). In the case of the preceding phonological segment, we see that speakers are most likely to reduce when the /s/ is preceded by a diphthong or [a]/[o] (with probability weights of .58 and .57, respectively), are less likely to reduce when it is preceded by [e] (.40), and least likely to reduce when /s/ comes after a high vowel (.26). Word class, morphemic status, and stress showed no significant effect on /s/ reduction patterns.

As we can see, by far the most influential factor in distributional patterns of /s/ pronunciation in this community is, indeed, age of arrival. Shown in Table 2, this factor group has the highest range, at 78, indicating that when it is considered along with all other included factor groups, age of arrival has the highest magnitude of effect on /s/ realization. Here, full /s/ realization tends to increase as the age of arrival in each group decreases, showing that age of arrival is an inverse correlate of /s/ realization, with those who arrived as children reducing less than adolescents, who, in turn, reduce less than those who arrived as adults over the age of 25. We do not, however, see this pattern in the speakers who arrived at the youngest ages; in fact, there are no major differences in /s/ reduction frequencies between those speakers that make up the 8 to 14 group and the 7 and younger group. Instead, all Salvadorans who arrived at the age of 14 or younger used a fully realized /s/ almost exclusively. Looking at the probability weights, the variable rule analysis in Table 2 reveals very similar weights for the youngest (0–7) and second-youngest (8–14) groups, at .22 and .14, respectively. Furthermore, in this hierarchy, we see that those who arrived as young adults (15–25) slightly favor reduction at .69, while the oldest group (26+) highly favors reduction at .92. Given this evidence, we see no empirical reason to distinguish between the 0–7 group and the 8–14 group for this community.

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1. This Chi-square/cell value of 0.9574 indicates a good level of reliability. As Young and Bayley (1996:272) note, ‘error values below 2.0 (conservatively 1.5) are good; they indicate that the statistical model produced by VARBRUL fits the raw data.’

Table 2. Results of Variable Rule Analysis: Factors affecting reduction, i.e. [h] or [Ø]

Factor group	%	Probability weight	% of data
<i>Age of Arrival</i>			
26+	43	.92	25
15-25	13	.69	24
0-7	2	.22	16
8-14	1	.14	33
Range		78	
<i>Following Phonological Segment</i>			
Vowel	26	.70	27
Consonant/Pause	11	.43	70
Glide	8	.20	2
Range		50	
<i>Preceding Phonological Segment</i>			
Diphthong	22	.58	6
[a]/[o]	18	.57	57
[e]	10	.40	31
[i]/[u]	4	.26	4
Range		32	

$p < .01$ ; Log likelihood = -332.552; Chi-square/cell = 0.9574<sup>1</sup>

\* Factor groups not selected as significant: word class, morphemic status, stress.

As mentioned in Section 3, a second social factor, intensity of contact, was excluded from the variable rule analysis due to the statistical interactions created by the extremely low reduction rate of 2% among speakers with a medium level of intensity of contact (note in Table 3 that only 4 of 189 tokens are reduced in this group). Furthermore, preliminary analyses showed that intensity of contact, taken into account alongside other factors, had no statistically significant effect on /s/ reduction. Nevertheless, it would seem initially plausible that it would not be, in fact, age of arrival, but contact intensity, that shapes /s/ reduction patterns. Quantitative evidence, however, suggests otherwise. Table 3 shows /s/ reduction rates among speakers according to low, medium, and high levels of contact (see Section 4 for an explanation of these categories).

As we can see, while there are great differences between intensity groups, the results suggest no systematic pattern. Low-level and high-level contact intensity groups have similar /s/-reduction rates (21% and 17%, respectively), while those with a medium level have a much lower rate (2%). These percentages suggest that dialect accommodation in Houston is not dependant upon individual contact patterns, but rather propelled by social pressures found within the society in general, regardless of personal interaction.

Another factor initially hypothesized to have an effect on /s/ reduction, but ultimately excluded from variable rule analysis, was that of the word position of the /s/, i.e. word-medial or word-final. This factor group was excluded because it was not an

Table 3. Reduction percentage rates according to intensity of contact

	Reduced N	%
Low	59/283	21
Medium	4/189	2
High	112/647	17

Table 4. /s/ reduction according to word position

	Reduced N	%
Word-medial	15	7
Word-final	160	16

$P < .000$

independent variable when examined along with other factor groups, a requirement for accurate variable rule analysis results. The statistical interaction among word position and other factors is especially patent with the morphemic status factor group: morphemic /s/ in Spanish is always word-final.

Despite these statistical interactions, word position did hold the possibility of further insight into /s/ reduction patterns, and so it was examined independently. Some might argue that word-final /s/, due to its common morphemic status, would be less likely to reduce, since reduction (especially deletion) of a morpheme could lead to possible ambiguity. However, as we already saw in Table 2, morphemic status is not a significant factor in /s/ reduction in these data. Furthermore, repeated studies have found that morphological ambiguity does not significantly affect rates of /s/ reduction, most likely because in discourse true contextual ambiguity is quite rare (Poplack 1980). Our results for word position further support this finding; in fact, as shown in Table 4, /s/ reduction is actually more prevalent word-finally, that is, when it is possibly morphemic, at 16%, while word-medial /s/ reduction occurs at a rate of only 7%.

## 7. Conclusion

The contact situation between Salvadoran and Mexican Spanish speakers in Houston sheds some light on the process that occurs when two varieties that have differing frequencies of a shared feature come together. Here, we have focused on the way in which language contact has affected /s/ reduction distribution among Salvadorans. First, the analysis of the interviews showed that general attitudes toward the Salvadoran variety of Spanish, and indirectly toward Salvadoran identity, tend to be somewhat negative. It was proposed that speakers who arrived in Houston at younger ages seem to have been more affected by these attitudes because they obviously came in contact with the Mexican variety at an earlier age, and at a critical time for their linguistic and

social formation. At the same time, it seems that older-age-of-arrival speakers have more utilitarian reasons for adjusting their variation patterns. Some of them talked about adjusting variation patterns early on in their journey through Mexico, and some later on, in trying to blend into the Mexican-dominant Spanish-speaking community in Houston.

A quantitative analysis of /s/ distribution among Salvadorans showed that the decrease in /s/ reduction frequencies is tied directly to the speakers' age at the time of arrival to the contact area. It was proposed that the nearly categorical use of a fully realized /s/ by speakers who arrived at a younger age points to the saliency of /s/ in the community. The fact that this salient feature of Salvadoran Spanish has been nearly lost in speakers who arrived before the age of 14, and lost somewhat by speakers who arrived between 15 and 25, is not surprising, given the numerical and social importance of Mexicans in Houston.

It is interesting that the results do not completely support Chambers' claim that individuals under the age of 7 seem to acquire dialect features at a higher rate than those between the ages of 7 and 14. This difference in results may be due to the fact that different situations give rise to different outcomes. Many dialect accommodation situations do not involve a radical change, such as the acquisition of a brand new feature of the new dialect or the complete loss of a particular feature in the home dialect. Instead, in many contact situations, we are actually dealing with instances of accommodation in the distributional patterns of features that are overtly or unconsciously associated with the original dialect in favor of those associated with the new dialect. For instance, in Houston, the process involved the *adjustment in the frequency* of a feature rather than the *acquisition* of a particular feature. This type of situation, in which a feature is already present in the home dialect, may allow older speakers to accommodate their speech in ways that would not be possible if they were dealing with a totally new feature. Furthermore, our analysis clearly shows that accommodation does occur, though to a lesser extent, after the age of 14, suggesting perhaps that the modification of distributional patterns affects most speakers (albeit not equally) and not only those in younger age groups. Such a subtle pattern of accommodation may pass unperceived in casual observation, and may only be brought to light through quantitative analysis of language in use.

Finally, the present work has important repercussions for studies dealing with dialect leveling in situations in which Spanish varieties come in contact in the United States, showing how attitudes behind salient linguistic features, and the overlapping of a feature with social meaning in contact varieties, can help explain both why certain features may be targeted as sites of accommodation, and why certain features may be more easily acquired by accommodating speakers.



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