Urbanization, social class, and the spread of linguistic variation: (str) in Columbus, OH[1]

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Introduction

During the second half of the 20th century, the percentage of the population of the United States living in urban areas (those with 2,500 or more residents) saw massive increases, as the number of individuals living in urban centers rose from around 60% in 1950 to 80.3% by the year 2000 (Tillery, et al., 2004). Even more significantly, this shift has seen the relocation of Americans primarily from rural areas to cities with populations between 250,000 and 1,000,000 (Perry & Mackun, 2001). Compared with population estimates from 1860, which showed 80% of the population living in rural areas with populations less than 2,500, this shift is dramatic, as essentially the same percentage of the population is concentrated in only 280 metropolitan areas throughout the United States today (Tillery, et al., 2004). During the same time period, urbanization has also increased dramatically, often at an unbelievably rapid pace, as these population centers have become transformed not only by the influx of new in-migrants, but also the relocation of significant portions of the existing population from the urban core within these centers to newly created surrounding suburban areas. One consequence of this increase has been a pronounced effect on leveling and innovation within the major dialect areas of American English, the extent of which is only now beginning to be understood.

The study of urbanization in dialect geography is a relatively new area of investigation, having been examined previously in only handful of studies published within the last decade. The bulk have concentrated on linguistic variation in the South (*e.g.*, Bailey, et al, 1996; Thomas, 1997; Tillery & Bailey, 2003; Tillery, et al., 2004) and have revealed that urbanization has been a significant force in this region. Thomas (1997) has shown that the massive in-migration of new

residents (mostly) from the North, coupled with extensive urbanization, has lead to a new dialect split among Caucasians living in metropolitan areas throughout the state of Texas into two dialects—rural and metropolitan. Bailey, et al (1996) and Tillery & Bailey (2003) have demonstrated that innovative features of Southern American English which have spread throughout the South, such as the [e]~[ʔ] (*pin/pen*) merger, the loss of /h/ in /hw/ clusters (making *which* sound like *witch*), and constricted /r/ (in words such as *fur*, *four*, and *first*) have increased rather than decreased over the past 125 years as a result of two waves of urbanization across the region, a trend which was previously unreported in earlier studies. As the results of these studies illustrate, as urbanization increases throughout large population centers in the Southern United States, dialect divisions are being spatially reorganized within the local context of the suburbs surrounding core urban areas, in essence, leveling previous divisions and promoting the use of innovative features in its wake.

Within other dialect areas, similar trends have been noted by Tillery, et al. (2004) and Labov, et al. (to appear), although the extent to which urbanization has lead to leveling and/or innovation is presently less well documented. Labov, et al. (to appear) reports this trend across the dialect areas of North America by noting that they are showing stronger divergence across major boundaries in present day *Atlas of North American English* data than in previous dialect atlas studies, although differences *within* each region are diminishing. Tillery, et al. (2004) argue that this trend is a result of the impact of increasing urbanization across the United States, presenting evidence to support their claims based on national population migration figures drawn from U.S. Census 2000 data.

This study attempts to increase our knowledge base on the impact of urbanization in the Midlands region, via the use of a focused, localized dialect geography study of the spread of

linguistic change in Columbus, OH, a metropolis located at the cusp of the North and South Midlands (as defined by Carver, 1987 and Labov, et al., to appear). Columbus provides a context for studying this impact because its outcomes are so clear in how they have affected the present day make up of the community. As a result of this process, which has been exacerbated and highlighted by Columbus's policy of annexing surrounding rural and suburban space, the community has been transformed, from one which was once a small but thriving capital, to one which is now a large and complex metropolis.

Specifically, this study presents a quantitative investigation of the distribution of the variable (str) (the consonant cluster occurring word initially in *street* or word medially in *construction*) in neighborhoods across Columbus, as well as nearby sounding suburbs located just on the outskirts of the city, which have been impacted by urbanization and annexation throughout the second half of the 20th century. Following previous studies of (str) in English (*e.g.*, Labov, 1984; Shapiro, 1995; Lawrence, 2000; Labov, 2001; Janda & Joseph, 2003), the alveopalatal [ʃtr] is treated as the vernacular variant and alveolar [str] as the standard. The data are drawn from a rapid anonymous survey of 120 White store clerks modeled after Labov (1972) and interview data elicited from 32 White native English speaking metropolitan and suburban middle class residents via my own Central Ohio Dialect Survey in 2004-2005.

The results demonstrate that the non-standard variant is more strongly associated with urban speakers, although its use appears to be increasing in all areas studied. The strongest social factors conditioning its variance are class, age, and the location in which the speaker was born and raised. The strongest linguistic factor is the word environment in which it occurs. Furthermore, the results suggest (str) may be used throughout this community as a marker of "urban affiliation."

2. Urbanization within the context of Columbus

Since the initial founding of the city in the early 1800s, urbanization and growth have been a continuous process within Columbus, with increases in population occurring almost every decade throughout the city's history. During the first 50 years, the population showed a slow, but steady growth pattern, as the area evolved from one of first settlement to the state capital of Ohio (Cole, 2000). Following the Civil War period and continuing through the mid-1900s, the present-day "urban core" was formed, and the city found itself transformed from being a fairly small town to a true urban entity (Speer, 1972). Yet, even with this first period of expansive growth, Columbus in the early 20th century never became industrialized like other large cities in Ohio, such as Cleveland and Cincinnati. This explains why it never suffered from the same issues accompanying rapid industrialization that affected these other cities during this time period, such as labor union strikes, civil unrest due to racial tensions, or pollution caused by heavy industry. Instead, it continued to be a haven of light industry and a growing goods and services based-industry, focused heavily on regional and intraregional production demands rather than national markets (Hunker, 1956).

However, during the second half of the 20th century, several powerful changes occurred in the community that lead to a second period of expansive growth and a dramatic transformation of the Columbus landscape. The first was a change in the local economy from one focused on goods and services to one focused on technology and the communications industry, particularly during the 1980s and 1990s (Hunker, 2001). The second was geographic reconstitution, which resulted from Columbus's adoption of a policy of annexation of surrounding areas—a concerted effort to expand the interests of business and residential development, as well as political influence, within the area—beginning in the early 1950s (Hunker, 2001). And the third was the

extensive migration of whites from the urban core to the suburbs—so called "White Flight"—a larger societal trend that affected metropolitan communities during the 1950s and 1960s.

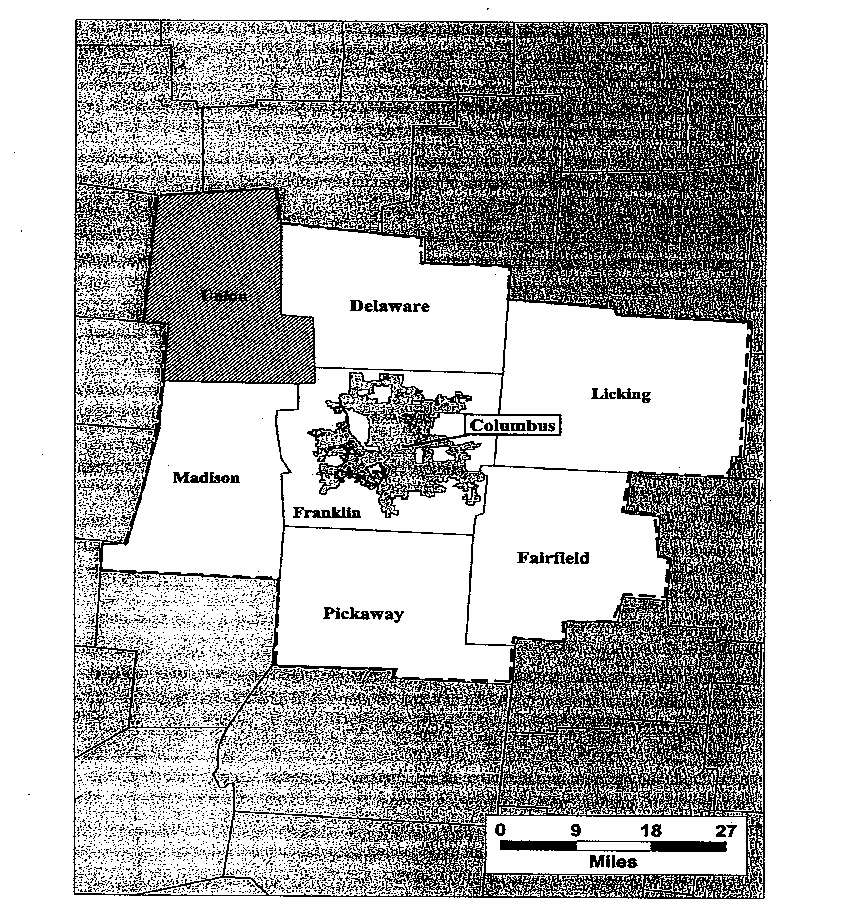
In Columbus, White Flight actually occurred in two waves over the course of a 40 year period, so that it was prolonged there versus other areas. The earlier wave occurred when a significant portion of Blacks migrated to Columbus from the South and the nearby Eastern cities Philadelphia and Pittsburg (Foster, 1997; King, 1969), during the Great Migration, a period of massive Black resettlement immediately following World War II and lasting into the late 1960s. The latter was associated with court ordered desegregation (and resulting busing) of the Columbus Public Schools, which began in 1973 and continued until the early 1990s (Foster, 1997).

Census data from 1950 to 2000 show pronounced and continuous population increases throughout the greater metropolitan area. During this period, the White population located in the surrounding suburbs and areas of annexation shows robust gains, while the racial mix of the population living in the urban core shows a pronounced shift from a high percentage of Whites to a high percentage of Blacks, due to the outmigration of Whites to the suburbs and other areas of Ohio, as well as other parts of the country (Foster, 1997). As reported in table 1, below, Census data from 1950-1990 show extensive patterns of outmigration from the urban core by Whites, indicated by % change figures under 20% throughout the period, with a corresponding increase in the Black population, with figures over 20%, particularly during the period 1950-1980.

Year	Total	White	Change[a]	Black	Change[a]	% White	% Black
1950	375,901	328,770		46,692		87.5%	12.4%
1960	471,316	393,011	+ 19.5%	77,140	+ 65.2%	83.4%	16.4%
1970	539,677	437,255	+ 11.3%	99,627	+ 29.2%	81.0%	18.5%
1980	564,871	430,678	- 1.5 %	124,880	+ 20.0%	76.2%	22.1%
1990	632,910	471,025	+9.4%	142,748	+ 14.3%	74.4%	22.6%

Table 1: *Population and population change, by percent White vs. percent Black, for Columbus, in the urban core (MSA), 1950-1990* (Source: U.S. Census Bureau, 1990, as reported in Foster, 1997 p. 9)
[a] This is the percentage change in population from the previous decennial census.

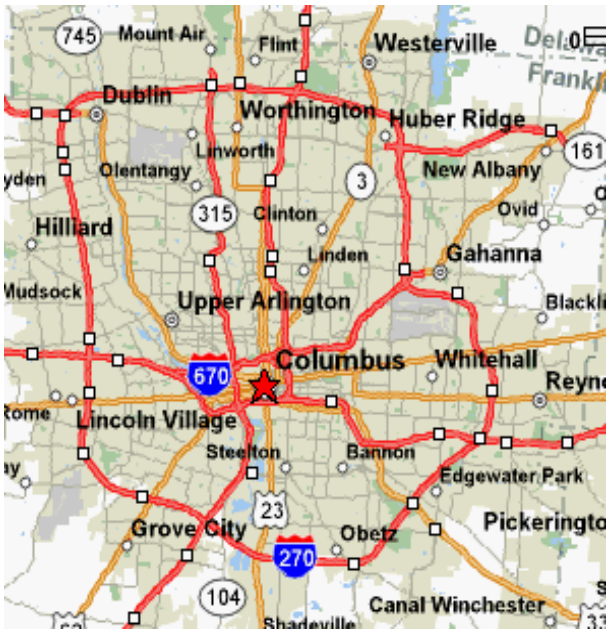
As a result of annexation, by 2000, the greater Columbus Metropolitan area had expanded from roughly 50 square miles in 1950 to 200 (Hunker, 2001), and the population had expanded to nearly 1.6 million within the Columbus Consolidated Metropolitan Statistical Area (CMSA) (U.S. Census, 2000). This figure includes residents living within the urban core, as well as in annexed areas within Franklin County, in which all of Columbus proper is located, and 5 additional counties: Delaware, Licking, Madison, Pickaway, and Fairfield (Hunker, 2001:29). The CMSA is included in map 1, below:



Map 1: *The Columbus Consolidated Metropolitan Statistical Area (CSMA) (Taken from p. 30 of Hunker, 2001)*

Within the CSMA, the core and its closest surrounding suburbs (areas bordering Columbus within 5-10 miles of I-270) have been the most strongly affected both by annexation and urbanization. This area, which is highlighted in grey in Map 1 and shown in specific detail in

Map 2, below, has a population of roughly 711,500 within the core (U.S. Census, 2000), contains I-270 as an important geographic boundary for demarcating the core from the suburbs, and correlates closely with the non-consolidated Metropolitan Statistical Area (MSA) for Columbus. This is also the area most residents and non-residents think of when they refer to Columbus, and for this reason, it is the one that I have chosen to focus on for the purposes of this study.



Map 2: *The Columbus Metropolitan Statistical Area (MSA)*

Throughout the area, annexation and outmigration from the core were accompanied by extensive and pronounced urbanization. The net impact of urbanization during this period on the MSA is most clearly seen in the expansion of roadways, the building of shopping malls, and the growth of business in the (sub-)urban periphery. As a result of the building of the I-270 and 670 expressways, residents moving within the region were given more choices as to where they could settle and raise their families. As well, due to the expansion of business along I-270, communication networks, and the interactions within these networks among speakers residing in areas that were once considered "more remote," has increased, and areas which were once sparsely populated have been extensively built up. The social and cultural impact of this

expansion has been the leveling of rural and urban lifestyle distinctions that once more strongly separated the areas, and the general transformation of the area into an "urban continuum:" a region in which the lines demarcating urban and suburban space are significantly blurred.

The social impact of 20th century urbanization in Columbus has previously been discussed in some detail in Hunker (2001), a combination ethnography and geography conducted by Ohio State University Professor Henry Hunker, an urban geographer who has lived within the community from roughly 1955 to the present. In this study, Hunker notes how the cultural and economic infrastructure of Columbus has changed since 1950, from one in which the urban core was the dominant center for both, to one in which the core, for the most part, remains the cultural center, but the economic center has shifted to an areal distribution across the area (34). In this way, Columbus has become like a wheel, with the core serving as the hub, and the surrounding suburbs functioning much like spokes (35). Perhaps not surprising, this has also led to a change in the mindset of residents, from viewing Columbus as a small "big city," to a big "small town," which Hunker discusses via the use of anecdotal reports of conversations with locals.

As my studies of several linguistic variables in Columbus (Durian, 2004c; Durian & Smith, 2005) has begun to reveal (among them (str) variance, the vocalization of /l/, and the fronting of /ow/), the linguistic consequence of urbanization has been the leveling of dialect differences within the greater metropolitan area. This becomes apparent when my data, which were collected in 2004 and 2005, are compared with studies of Columbus speech conducted by Thomas in the mid-1980s (1989/1993; 2001) and dialect atlas data collected in the region during the mid-20th century (McDavid & Payne, 1977; Frazier, 1978; Cassidy, 1985). For example, Durian (2004c) finds /l/-vocalization to be fairly uniform throughout the area based on apparent time data (with the notable exception of the suburb Worthington, which shows a sharp decrease

in vocalized /l/ use among speakers living in the city's core area, as documented by Dodsworth (2005a; 2005b)), while Durian & Smith (2005) find the same movement toward more uniform use of (ow) and (aw) throughout urban and surrounding suburban Columbus when this data is compared with older, real-time atlas data.

Among all these variables, however, (str) is the one that most saliently showcases the apparent linguistic outcomes of urbanization within the community. Not only does it show the impact of urbanization on apparent dialect leveling throughout the community, its distribution shows a statistically significant pattern of age-grading that other variables studied so far, particularly /l/-vocalization, do not. As my discussion of the distribution of (str) within the community will now reveal, the combination of these factors (geographic and age-graded differentiation) is potent in quantifying the linguistic and sociolinguistic impact of urbanization on the community.

3. The known and unknown: (str) as a North American linguistic variable

Seven publications have previously discussed the variable (str) in North American English (Labov, 1984; Janda, et al., 1994; Shapiro, 1995; Lawrence, 2000; Labov, 2001; and Janda & Joseph, 2003; and Joseph, to appear), and yet, surprisingly, very little information concerning its variable distribution in American English is known. Based on this series, we have been able to determine that (str) variance in North American English occurs in White speech in 3 of the 4 major dialect areas (South, Midlands, and West), but it has yet to be observed in the Northern Cities. This evidence has been provided mostly via the analysis of television broadcasts, in which (str) variance was noted to occur in the speech of a variety of public speakers (Shapiro, 1995), and local studies of the distribution of (str) in Philadelphia (Labov, 2001; 1984) and Columbus (Durian, 2004a; Armstrong, 2003)[2]. In addition, evidence provided by Labov (2001),

as well as my own preliminary analysis of rural data collected by Erik Thomas from working class whites living in the Columbus ex-burb of Johnstown (Thomas, personal data)[3], suggests that (str) variance is more strongly associated with urban rather than rural speech (at least in the Midlands).[4]

(str) variance is typified by a cluster initial sibilant /s/ that can show varying degrees of palatalization, often perceived by listeners as an [s]-like sound with an added hushing quality. This quality is produced most strongly at around 2500Hz in the most prototypically palatal realizations. It has been argued previously in the literature that the palatal [s] in these clusters is triggered via either a process of long distance assimilation to the cluster final /r/, making [s] become more retroflex and rounded (Shapiro, 1995), or adjacent assimilation of /s/ to /t/, such that [s] becomes affricated via assimilation with the following alveopalatal [t] (Lawrence, 2000). This is a matter of considerable debate at the moment, as no strong evidence that robustly supports either of these hypotheses has been presented.

From my own experience, it is unclear what individual influence /t/ or /r/ might have on conditioning palatal /s/ in the /_tr/ environment. If anything, my data suggest either (or a combination of both) may influence palatal /s/ in Columbus speech, as the (str) tokens I have personally observed in my own data show several gradient realizations reflecting each process. There is the standard variant [str]; an intermediate variant that is typified by an [s] that shows retroflexion without pronounced rounding; and the rounded variant, which is the more prototypical vernacular realization [ʃtr].

This is demonstrated by my formalization of the range of variation for Columbus (str), provided in figure 1, below.

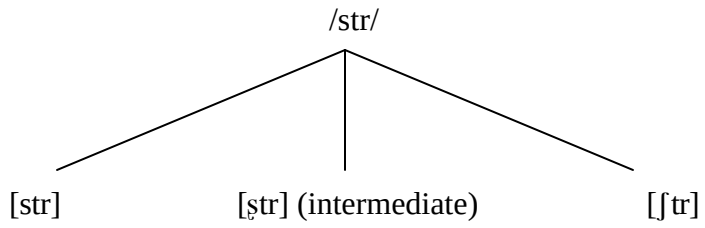


Figure1

Janda & Joseph (2003) and Labov (1984) have argued on phonetic grounds that it is a sound change, based on utterances they have observed in which /s/ (as [ʃ]) also occurs in other innovative English clusters beyond the environment /_tr/. These include [ʃ]: before [t], as in *stone* and *sk*-initial words like *skill*; before a stop, with no [r], as in *school* or *still*; before a stop other than [t], as in *sprinkler* or *screen*; and with [r] preceding, as in *understand* or *thunderstorm* (Janda & Joseph, 2003:212). Based on this evidence, Janda & Joseph argue that cluster-initial /s/ is the innovative segment in /str/ clusters, and the /str/ environment is likely just the context that "represents the point of orientation for the innovation" (213). On this view, the debate about whether assimilation to /t/ or /r/ is responsible for /s/-retraction in /str/ clusters is more or less irrelevant, as neither one is plausibly responsible for the phenomenon, since it can occur in other contexts divorced from the /_tr/ environment (212-213). However, as my informants show little or no use of innovative [ʃ] for /s/ in the other environments discussed by Janda & Joseph (2003), I am unable to present data allowing me to comment specifically on their conclusions regarding these environments at the present time.

Turning to the social distribution of (str), Labov (1984) and (2001) has briefly commented on its occurrence in the Philadelphia speech community, via data he obtained during the mid-1970s. Through these results, we learn that [ʃtr] is more commonly associated with working class rather than middle class speech by Philadelphians when rated during subjective evaluation tests (2001:206-222), and that it is fairly pervasive in Philadelphia speech (1984:50).

However, even though these facts about [ʃtr] were noted, explicit data documenting its distribution by factors such as age, sex, or social class was not provided in these publications.

As we can see, these discussions have allowed us to obtain an initial glimpse of (str) in North American English dialects, but at present, they have left us with several important unanswered questions. First, beyond the possible cluster-internal conditioning of /s/ contributed by /t/ and /r/, what influence do other surrounding environments in which (str) occurs have on triggering palatal realizations of this cluster? Second, what does the actual social distribution of (str) look like in a large urban or metropolitan city? And third, what are some of the possible mechanisms through which the transmission of (str) occurs? [5] In the following sections, I will attempt to answer each of these questions, as well as document urbanization as a possible mechanism for the transmission of (str).

4. The social, geographic, and linguistic distribution of (str) in Columbus

To obtain detailed information on the social, geographic, and linguistic distribution of (str) in Columbus, I choose to use 2 data collection methods: a rapid anonymous survey of Columbus store clerks, and tape recorded sociolinguistic interviews. The rapid anonymous survey (RAS) was used because they allowed me to collect a large body of information concerning the distribution of a variable by attributes such as age, gender, and social class in a short time period with the use of a minimum amount of recording equipment (all I needed to use was a pencil and a sheet of paper) and minimal research costs, both in terms of data recording and analysis time. In regards to class, especially, this method was useful, because it allowed me to elicit data from a variety of informants that I might not have been able to contact without difficulty otherwise.

However, they also have some serious downsides—among them are sacrifices in the level of accuracy made by the analysis (since they involve the research making estimates of age and

social class background), and fairly constrained limits on the depth of the information obtained, as only small numbers of tokens can typically be elicited from any one informant (Milroy & Gordon, 2003; Feagin, 2002). Thus, while they are extremely useful for obtaining *breadth* of scope concerning the variable, they have serious limitations regarding the *depth* of that scope. The interview data was thus collected so that the limitations of the RAS could be overcome. Specifically, the constraints on accuracy and depth were overcome by obtaining a larger number of tokens per informant, while having recorded data allowed me to listen to the data on several occasions to ensure that it was categorized correctly.

An important note is that sociolinguistic interviews conducted with only members of the middle class appear in this version of the study. At the time of writing, interviews with the working class have begun, but too little data has been collected to warrant analysis. Thus, my comments throughout will be primarily centered on middle class usage patterns. A more complete analysis will occur at a later date, once working class data collection is complete.

As the RAS and interview data sets were collected in distinct phases, I report the results of each technique separately in the section below. Following this discussion, I move to an interpretation of the social implications of these results in section 5.

4.1. The Rapid anonymous survey of Columbus store clerks[6]

The rapid anonymous survey (RAS) was modeled after Labov's use of the technique to study the social distribution of (r) in New York Department Stores in 1962 (Labov, 1972). Via the RAS, I was able to interview 120 White informants working in 29 stores at 3 of the shopping mall locations located throughout the Columbus area (City Center, Easton, and Polaris) over the course of 4 weekends in May, 2004. In sum, I spent roughly 3 hours a day, 3 days a week, over the 4 weeks collecting my data, for a total data collection time of roughly 36 hours. From each of

the malls surveyed, I elicited data from 40 informants (20 male/20 female), using a cell selection method to ensure that a roughly equal number of informants were selected from across the mall areas based on the class status (based on an initial 3 level class scale described below) of the stores in which they worked, their sex, and their perceived age. To quantify age (which was estimated), I used a five-year time window in an attempt to obtain a reliable estimate. This method yielded a total of 240 (str) tokens (120 less emphatic, 120 more emphatic) collected from informants divided into three age groups: 15-30, 35-50, and 55-70.

For the RAS, only word-initial /str/ tokens were elicited from informants in two speech environments: the first pronunciation of /str/, which occurred in a less emphatic speech environment, and the second pronunciation of /str/, which occurred in a more emphatic speech environment. The second pronunciation always occurred following the first, when the participant was asked to repeat what he or she had said. Data were rated using only a two point scale based on my impressionistic analysis of the realizations of the speakers I surveyed. Those tokens I perceived as having a more [ʃ]-like quality were coded as [ʃtr], while those tokens I perceived having a more [s]-like quality were coded as the standard realization [str].

To elicit data, I used one of two phrases so that comparable data would be obtained from all participants, depending on the elicitation scenario in which the store in question was located. The scenarios involved were the following:

Scenario I: Store/Mall Location Near a Major Road Actually Called a Street (for example, Gramercy Street)

In this scenario, the phrase, "Can you give me directions to ___ avenue?" was used, where the avenue named is actually a "street". When asked for the directions, speakers corrected me by saying "do you mean ___ **street?**" I would then respond "excuse me?," and they would clarify the name of the street by repeating it. Then, respondents would give me directions to the street involved, sometimes providing additional tokens in the process. This method always provided me with at least two (str) tokens—one less emphatic (first interaction), and one more emphatic (second interaction).

Scenario II: Store/Mall Location Not Near a Major Road Actually Called a Street

Because Polaris Mall was not located within an area containing a major road that is actually called a street, my scenario I question did not work there. To obtain tokens, I therefore had to use the following phrase instead: "Can you tell me where X is?" In this case, X indicates an item in the store or a section of the store (such as the electronics department, the men's shoes section, etc.) that was located directly behind, or across from, the location of the informant in question. When successful, this question elicited the response "Go **straight** across/back . . ." from informants. I would then ask him or her to repeat what he or she said and obtain a second (str) token.[7]

Data were coded for store class, speaker age, speaker sex, (str) variant used in both speech environments, and occupation of the informant. As in Labov's (1972) department store study, data were written down immediately after the interaction was completed, once I was out of the informant's line of view. The data were later tabulated electronically, so that quantitative analysis of the coded data could be performed.

4.1.1. The assignment of social class

To quantify social class, I made use of an interactional class model that was constructed using 2 sets of criteria applied to the data during the data collection and analysis period. The first set was a analyst-assigned ranking criteria modeled after that used by Labov (1972) in the New York City study, which allowed the stores to be stratified using a 3-level system (Working Class, Lower Middle Class, Upper Middle Class) via objective measures of socio-economic differentiation. The second was the external evaluative ranking of the perceived class of the "average shopper" who shops at each store, obtained through a survey distributed to 34 undergraduate students at the Ohio State University, which allowed stores to be classified using a 5-level schema (Lower Working Class/Middle Working Class; Middle Working Class/Upper Working Class; Upper Working Class/Lower Middle Class; Lower Middle Class/Middle Middle Class; and Upper Class).

This was done so that a more "three dimensional" model of class could be constructed,

since, as critics have pointed out (*e.g.*, Woodard, 1985; Rickford, 1986; Cameron, 1997), Labov's operationalization of class within the New York City-era framework is highly problematic, as it provides only a flat, unidimensional representation of the social reality in which the participants actually live their daily lives, in which class ranking scales represent an abstract classificatory system which is not salient for the informants studied. Furthermore, as Bell (1984; 2001) points out, Labov's (1972) model suffers from a different problem, which is also exhibited by the model of class he used, which is that it essentially misses the interactional nature of the daily lives of the sales clerks, who co-construct their identity with the customers they serve through these sales transactions. In terms of the department store study, although Labov does note that sales clerks are "image conscious" in these transactions in his original work (1972: 46-49), his focus on the role of class as it is manifested only in the one-sided context of the speech behavior of the store clerks, and not the two-sided context of the impact of the customers on their speech behavior, means that his study failed to take into account this added measure of identity which ultimately affects these clerks' class membership assignments.

As the store clerks I interviewed indicated to me themselves via informal interviews, they felt that their language use in sales transactions and relations with customers is actually influenced by a prestige-focused model of interaction, which reflected both their feelings (evaluation) about the image of the stores they work for and their evaluation of the customers they serve as store clerks. These interviews, which were conducted with clerks working at 5 stores located throughout the three malls surveyed (Lazarus/Macy's, Kauffmann's, JC Penny's, Wal-Mart, and Nordstrom's) indicated that it is true that the employees of these stores feel that the speech they use in transactions with customers reflects their own feelings on who they feel that the customers who shop in their stores typically are, and they mentioned that they talked

differently to customers in the context of sales transactions that might otherwise (say, in the home lives) due to the prestige-centered climate in which they work on a daily basis.

This resonates with and expands Labov's discussion of the sales clerks he observed (Labov, 1972: 46-49). During several of the interviews, the sales clerks specifically indicated that they felt the prestige of the store in which they worked factored into this speech behavior during sales transactions, with the store clerks mentioning that they felt that they were the agents who sold the "image of the store" for which they worked to the customers via the transactions. Thus, they acknowledged that they consciously co-construct their identity with customers via their transactions, as they perform the role of "image representative" via these transactions.

Taking this information into account, the ultimate class ranking scale I have utilized for this study drew of these two ranking systems so that the "prestige aspect" of the store clerks speech could be accounted for, while the identity-based performance strategies they use in daily interactions with customers was also taken into account via the perceived class survey. Drawing on this approach, I ultimately used the 3-level structure during the data collection phase and the 5-level structure to actually stratify the data for analysis. Note that the 5-level structure attempts to provide a continuous view of social class, hence the overlap in categories displayed in GoldVarb table and figure 4. This system was used to classify the stores in which the store clerks worked and ultimately assign class to the store clerks themselves.[8]

4.1.2. RAS data analysis

Once data were coded and tabulated, I performed multivariate analysis of the data using GoldVarb. For this analysis, [ʃtr] was used as the application value, and all runs made use of the entire 240 token corpus. The final results are contained in table 2. As they reveal, the most significant factors conditioning (str) variance in the RAS data were sex, age, social class, and

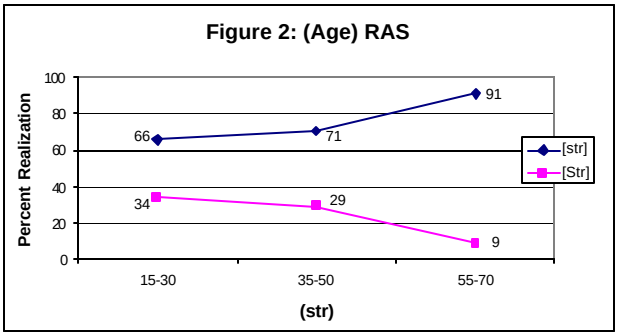
speech environment. The covariance of these factors was significant at p <.001.

Factor Type	Group	Factor	Weight
Social	**Sex**	**Male**	**0.334**
		Female	**0.666**
	Age	**15-55**	**0.663**
		55-70	**0.206**
	Social Class	**MWC-UWC**	**0.863**
		UWC-LMC	**0.740**
		LWC-MWC	**0.711**
		LMC-MMC	**0.584**
		UMC-UC	**0.061**
Linguistic	**Environment**	**Less Emphatic**	**0.731**
		More Emphatic	**0.269**

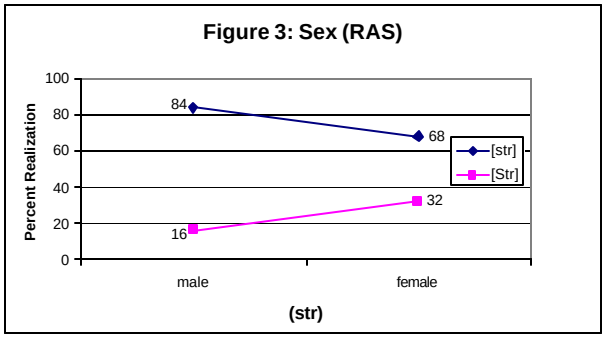
input=.102, chi-square/cell= .7579, significance= p<.001; **total tokens = 240**

Table 2

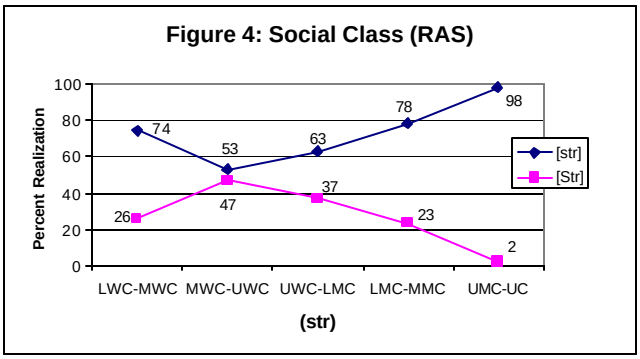
The distribution of (str) by age, sex, and social class revealed by this analysis are provided in figures 2, 3, and 4. These figures highlight interesting and robust patterns of variation differentiating the various groups, and so it is perhaps not surprising that each turned out to be significant.



Token Subtotals: 15-30 (80); 35-50 (80); 55-70 (80)



Token Subtotals: male (120); female (120)



Token Subtotals: LWC-MWC (34); MWC-UMC (38); UWC-LMC (30); LMC-MMC (80); UMC-UC (58)

In figure 2, which contains a three-level age distinction to provide a more detailed picture of the increased use of [ʃtr] across age groups, we see that younger speakers, particularly those under the age of 50, show a strong lead over speakers in the 55 and older age group. This lead decreases significantly when the youngest group (15-30) is compared with the next oldest group (35-50), although the youngest speakers still show the strongest use of (str) overall, regardless of speech environment (more emphatic vs. less emphatic). Figure 3 reveals that women show a pronounced lead in the use of [ʃtr], using palatal realizations twice as frequently as men, again regardless of environment.

Finally, in figure 4, we see that the strongest producers of [ʃtr] are speakers located within the Middle and Upper Working class, followed closely by speakers from the Upper Working and Lower Middle classes. As this figure also indicates, the overall cline of variation by class shows a curvilinear distribution—a robust pattern, that, when considered within the context of the others just discussed, appears to confirm the hypothesis offered by Janda and Joseph (2003) and Labov (1984) that (str) is a sound change. Unfortunately, since we are dealing with only apparent time data here, it is hard to say conclusively that this is the case.

4.2. Middle class interviews

Data for this portion of the study were collected via interviews recorded for my own Central Ohio Dialect Survey pilot study. Speakers were selected via two judgment samples: older speakers were obtained using a friend of a friend network analysis technique, while younger speakers were obtained via the Ohio State University Department of Linguistics's Talks and Experiments undergraduate subject pool. Using these sampling techniques, I conducted interviews with 32 Caucasian middle class informants[9], who were equally stratified by age and sex and distributed roughly evenly among speakers born and raised in both the urban and

suburban sections of the Columbus MSA. The distribution of my speaker sample is provided in table 3:

Born/Raised	**Columbus**		**Suburbs**		**Currently**	**Columbus**		**Suburbs**	
	19-32 Females	2	19-32 Females	6		19-32 Females	2	19-32 Females	6
	38-67 Females	7	38-67 Females	1		38-67 Females	3	38-67 Females	5
	19-32 Males	4	19-32 Males	4		19-32 Males	1	19-32 Males	7
	38-67 Males	4	38-67 Males	4		38-67 Males	3	38-67 Males	4
Total		**17**		**15**			**9**		**22**

Table 3: *Location of Informants*

The clustering of speakers into two age group cohorts reflects two social facts about them. First, they reflect a division among speakers based on those who grew up as Columbus's annexation policy was beginning to be implemented versus those who grew up as it was well underway. Second, in terms of the patterns of migration shown by these speakers, they reflect the outcomes of outmigration from the urban core to the suburbs I discussed in section 2.

The social reality and impact of these events is attested to in the stories these speakers told via the course of our interview sessions. Several informants explicitly discussed their families' choices to move to the suburbs because they did not want their children to be bused to a non-neighborhood school during the school desegregation period. Others remarked that their family was uncomfortable with the racial shift that occurred in some areas on the South and East side(s) during the 1950s and 1960s, and moved as a result. And the majority of the speakers, especially those in the older age cohort, discussed at length the strong impact they have felt that annexation, urbanization, and the rapid geographic and sociocultural restructuring accompanying both, has had on the "urban core" and the surrounding suburbs over the course of their lifetimes, as they compared the "small town" Columbus of their childhoods with the present-day metropolis.

To study their use of (str), I extracted tokens from digital tape recordings made using a Sony PCM-M1 DAT recorder with an Audio-Technica ECM 35 lavaliere microphone. Tokens were transferred to .WAV format using Cubase LE, and reference spectra, when used, were generated in PRAAT. All tokens were extracted from two conversational contexts (casual and quasi-conversational) and two word environments (initial and medial). Although the speech elicited during the quasi-conversational section was somewhat more formal than the purely conversational speech[10], using it allowed me to observe a more balanced number of tokens across all speakers than if only casual conversational speech was used. The first 10 tokens produced by each speaker throughout the course of an interview were extracted so that each contributed an equal number of tokens. [11] As (str) occurs infrequently in speech and the interviews tended to vary in length, the range of conversational speech analyzed spanned roughly 20 to 50 minutes, depending on how talkative a speaker was.

To ensure tokens were accurately categorized, particularly in the case of intermediate realizations, I listened to the majority of them on several occasions spaced out over a period of several months, so that potential "rater basis" could be better minimized. As well, in the case of "border line" tokens, where a determination was difficult to make, I relied on spectrograms to categorize the data. Over the course of the analysis period, I came to realize that both these strategies were a necessity, as I found I had a tendency to rate tokens more liberally as intermediate or palatal during the first pass than in the successive passes.

In contrast to the RAS, where I only used two categories to mark (str) variance, here, I categorized tokens using a three point continuous scale based on my impression of the cluster initial [s]. Palatal tokens were coded as [ʃtr], intermediate tokens were coded as *intermediate*, and non-palatal tokens were coded [str]. For decisions in which I used reference spectra, cluster

initial [s] realizations showing a high concentration of spectral energy at or below 2500Hz were coded [ʃtr]; those having a concentration of energy between 3000 and 3500 HZ were coded *intermediate*; and those with energy at or above 4000Hz were coded [str]. Example spectrograms of realizations for each of the prototypical productions that I used to confirm my ratings are included in figures 5 and 6 below.

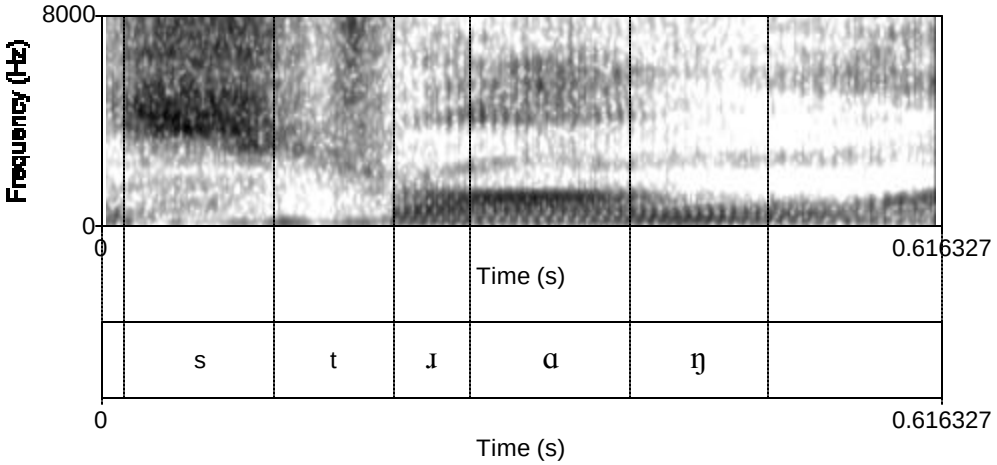


Figure 5: *Spectrogram of the word "strong," as produced by a 50 year-old man born on Columbus's North Side. Note that this production is realized with a standard [str] pronunciation.*

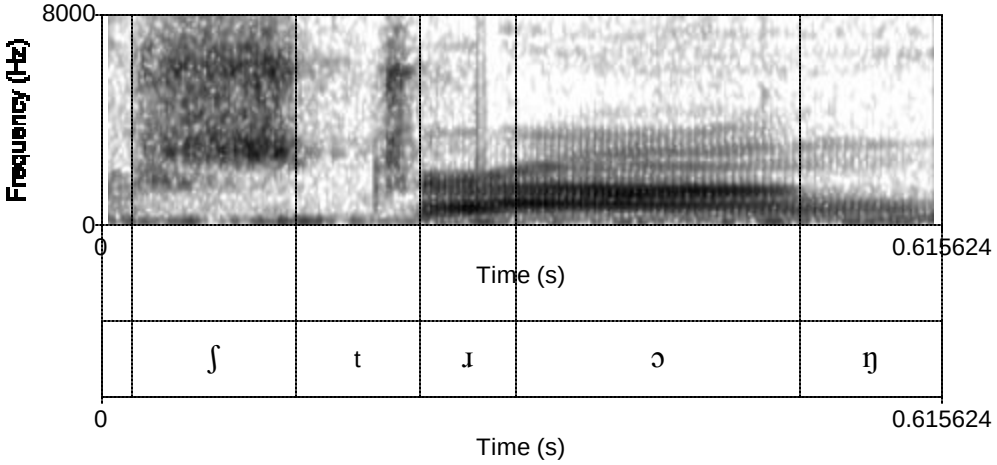


Figure 6: *Spectrogram of the word "strong," as produced by a 26 year-old woman born on Columbus's West Side. Note that this production is realized with an innovative [ʃtr] pronunciation.*

4.2.2. Interview data results

Once data were coded, the results were stored electronically for multivariate analysis in GoldVarb. For all GoldVarb analyses in this section, palatal and intermediate tokens were combined into one category and compared with standard realizations, since GoldVarb only allows for binomial comparisons of variance to be made. The combined category intermediate/palatal [ʃtr] was used as the application value for the analysis, and all runs made use of the entire 317 token corpus. The social factor groups considered were sex; age; the location in which speakers were born and raised; and the location in which speakers currently live. The linguistic factor groups considered were preceding environment (the segment immediately preceding the /str/ cluster); following environment (the segment immediately following the /str/ cluster); and word environment. The following environment was defined as such, because I hoped to determine if the following vowel might have any influence of the rounding of /s/ in palatal realizations, as there has been debate in the literature as to whether it might be influenced by /r/ or another possible segment (see Janda & Joseph (2003) and Labov (2001)). Note that in this initial run, the various vowel groupings indicated for previous and following environments were grouped as such to avoid "knockouts" in this analysis, which resulted before they were made.

As the results contained in table 4, below, reveal, no significant factors emerged from the initial raw coding for these factor groups. Based on the factor weights provided by the analysis, it is fairly clear that sex, the location in which the speaker current lives, preceding environment, and following environment are not significant, a fact that was born out in the results of successive GoldVarb runs. However, as these weights also reveal, three factor groups—age, the location in which speakers were born and raised, and word environment—show a robust spread

across the weights, indicating that these are strong candidates as significant groups if the data were to be recoded and the non-significant groups cut.

Factor Type	Group	Factors	Weight
Social	Sex	Female	0.542
		Male	0.459
	Age	**Teens**	**0.578**
		20s	**0.620**
		30s	**0.611**
		40s	**0.446**
		50s	**0.340**
		60s	**0.187**
	Location Born and Raised	**Columbus**	**0.390**
		Suburbs	**0.587**
	Location Now Living	Columbus	0.532
		Suburbs	0.487
Linguistic	**Word Environment**	**Word Initial**	**0.454**
		Word Medial	**0.558**
	Preceding Environment	High (Front) Vowels	0.601
		Mid/Low Vowels	0.513
		Pause	0.511
		Consonants	0.502
		Schwa	0.439
	Following Segment	Schwa	0.717
		High Front Vowels	0.504
		Mid Vowels	0.470
		Low Vowels	0.384

input= 0.233; Chi-square/cell = 1.0314; significance= n.s.; **total tokens=317**

Table 4

Data were recoded based on these results in successive runs, and the final GoldVarb analysis, contained in table 5, revealed that the covariance of these groups were indeed significant ($p < .01$). In this model, age is divided into two categories: 18-32 and 38-69.

Factor Type	Group	Factors	Weight
Social	**Age**	**19-32**	**0.615**
		38-67	**0.383**
	Location Born & Raised	**Columbus**	**0.580**
		Suburbs	**0.398**
Linguistic	**Word Environment**	**Word Initial**	**0.422**
		Word Medial	**0.600**

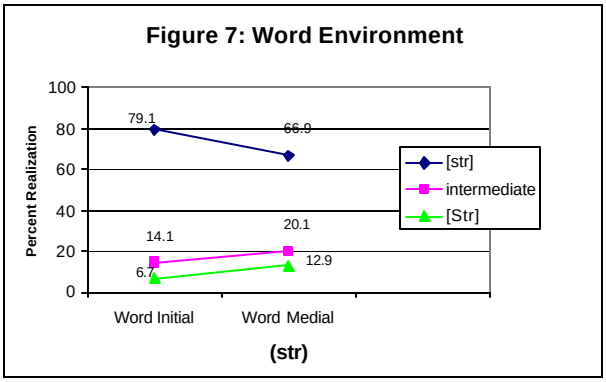
input= 0.246; Chi-square/cell = 0.6291; significance= 0.01.; **total tokens=317**

Table 5

4.2.2.1 Linguistic Factors

Turning first to the significance of word environment, the strong impact of this linguistic

factor can be seen in figure 7. This impact can be most clearly be seen if we consider the trinomial distribution of (str) rather than the binomial distribution considered in the GoldVarb. analysis, as this figure also reveals.



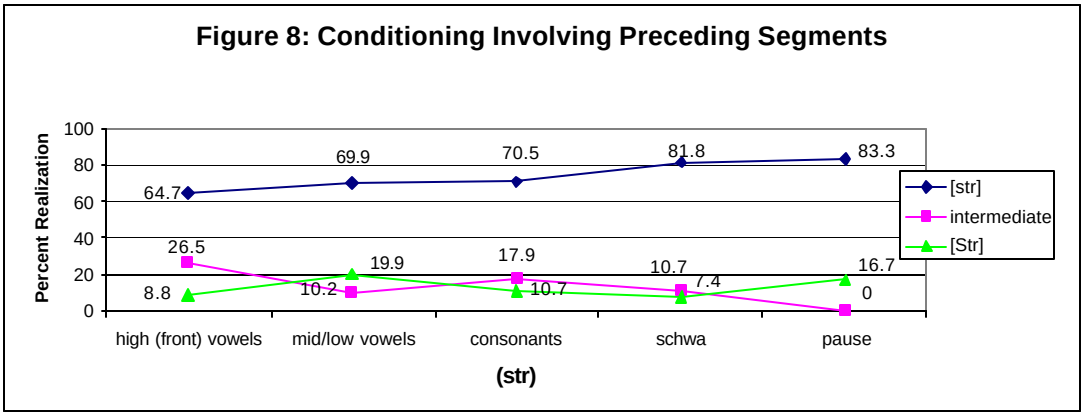
Token Subtotals: Word Initial (178); Word Medial (139)

$?^2$ (word environment)*(str)= 6.516 (d.f.=2); sig= p <.05; n=317

Here, we see that word medial shows a clear lead over the word initial environment, with intermediate realizations occurring 6% more frequently, and palatal realizations nearly twice as frequently (6.7% vs. 12.9%). Considering the overall difference shown between these environments in conditioning intermediate and palatal [ʃtr] use (33% for medial vs. roughly 20.5% for initial), it is not surprising that it was significant in the GoldVarb analysis.

As was pointed out above, the phonetic environments preceding and following the /str/ clusters analyzed in this study were not significant. And yet, when we take a closer look at interaction of preceding environment with word environment, an interesting finding emerges. Earlier, it was pointed out that Janda & Joseph (2003) disagrees with the explanations put forth by Lawrence (2000) and Shapiro (1995) that palatal /s/ in /str/ clusters occurs through one of two possible processes of assimilation to following /t/ or /r/. Their contention is based on evidence they have observed that palatal /s/ is now beginning to occur in other environments removed from the /_tr/ cluster, and that this cluster simply represents the point of origination for this innovation.

The evidence presented in figure 7 appears to support their view, as it suggests that palatal /s/ initially results due to either feature spreading of the [+high] feature from a preceding segment (as in the case of a high front vowel) or a triggering of this feature due to its occurrence at a morpheme boundary (via a kind of weakening process), when /str/ occurs in word medial position. This is an interesting idea, as /s/ in this position always occurs at a morpheme boundary, and as the distribution in figure 8 below, demonstrates, frequently co-occurs with a preceding high front vowel (as in *restrict* or *district*). Of these possibilities—weakening at a syllable boundary vs. assimilation with high front vowels—assimilation is the stronger candidate, as vowels in this group are the ones that most often precede intermediate and palatal [ʃtr] realizations throughout the study.



Token Subtotals: High (Front) Vwls (68); Mid/Low Vwls (10); Consonants (112); Schwa (121); Pause (6)
$?^2$ (preceding environment)*(str)= 12.080 (d.f. 8) ; p = n.s.; n =317

The possible influence of high front vowels on palatalization has been previously attested in the literature in historical linguistics. In early Romance, Vegliote, and Gallo-Romance, velar and dental segments preceding high and mid front vowels undergo palatalization that is a result of feature spreading of the [+high] feature of those vowels (Hock, 1991:75). This evidence is one of the key sets that have been used to argue for a hierarchy of palatality in these and other languages. What is different about the process here is that it occurs when /s/ follows high front

vowels instead of preceding them.

On this analysis, it would appear that the point of origination for palatal /s/ in these clusters is /s/ > /ʃ// V ____ [tr]. If this is true, then other occurrences of palatal /s/ in the /_tr/ environment represent an extension of this point of origination to other contexts. Taking this idea a step further, it suggests a possible historical trajectory for (str) in English, in which the word-initial environment began to show palatal /s/ variance at a later point in time than the medial environment. This might explain why word initial tokens show less palatal and intermediate realizations than word medial ones in my data. It should be noted that this analysis further supports Joseph & Janda's (2003) hypothesis that /str/ is the point of origination for palatal /s/ in English, while also refining it by providing more specific phonetic detail as to how the process may have first began.

4.2.2.2. Social Factors

Moving to the social factors, we see that a GoldVarb run incorporating only the two significant factor groups from the combined linguistic and social analysis, shown in table 6, reveals that the covariance of these groups is significant at the $p < .01$ level. As was mentioned earlier, in this model, age is divided into two categories: 18-32 and 38-69, a division that corresponds exactly with the two generation cohorts from which speakers were initially sampled.

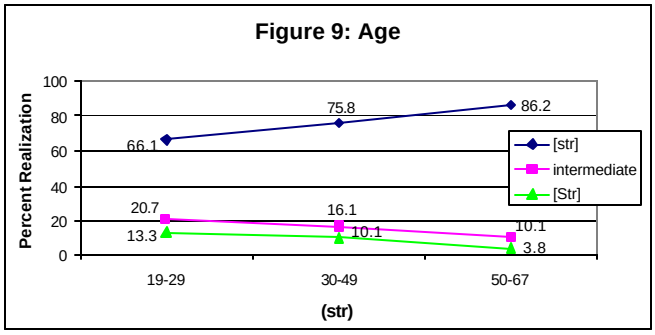
Group	Factor	Weight
Age	**19-32**	**0.617**
	38-67	**0.348**
Location Raised	**Columbus**	**0.579**
	Suburbs	**0.400**

input= 0.247; Chi-square/cell = 0.0428; significance= p<0.01.; **total tokens=317**

Table 6

A less significant, but perhaps more illuminating, co-variant pattern of variation is revealed when age is viewed using a three-category distinction to divide the speakers and the three-level category distinction for (str). The distribution of speakers by this age grouping (18-29

year olds; 30-49 year olds; 50-67 year olds), as illustrated in figure 9, reveals that (str) variance among the middle class in Columbus shows a strongly linear distribution. The covariance of this distribution with the location in which speakers were raised is significant at the p<.03 level.



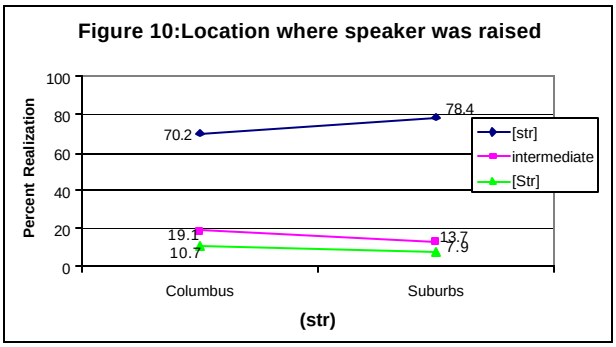
Token Subtotals: 19-29 (150); 30-49 (87); 50-67 (80)

Here, we see that younger speakers show more pronounced realizations of vernacular variants of (str), particularly the palatal variant, when compared with older speakers. At the same time, the strongest increase in intermediate (str) use is shown between the middle and oldest group. These patterns suggest (str) is increasing gradiently by generation among the middle class population overall, with more pronounced changes between intermediate and fully palatal realizations occurring as age decreases.

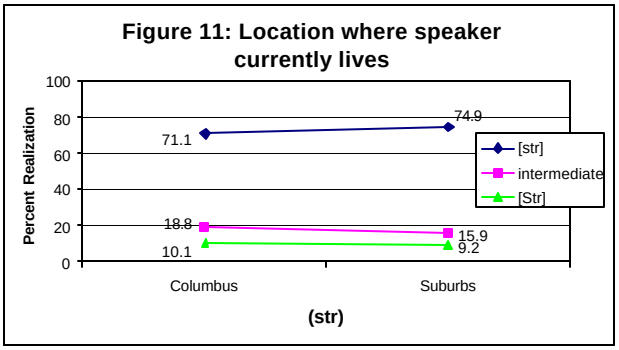
Turning to the significance of the location in which speakers were born and raised, another interesting trend is revealed when this pattern of variation is compared with that of the location in which speakers currently live. As with age, this pattern is more robustly demonstrated when we look at the trinomial categorization of (str) rather than the binomial categorization used in the GoldVarb runs.

As figures 10 and 11, below, reveal, the variation based on location raised was significant in the GoldVarb analysis, while present location is not, because it shows a stronger pattern of differentiation among speakers. There is an 8% overall difference among speakers raised in Columbus versus the suburbs, with Columbus speakers showing a 3% lead for [ʃtr] and a 5%

lead for intermediate. On the other hand, there is a pronounced leveling of these differences among the groups based on their present location. [ʃtr] decreases by nearly 2%, while intermediate realizations decrease by 3%.



Token Subtotals: Columbus (178); Suburbs (139)



Tokens Subtotals: Columbus (90); Suburbs (227)

Coupled with the age data considered above, these figures reveal that (str) has increased in the suburbs over the sampled time frame. Furthermore, the combined consideration of the patterns revealed in figures 9, 10, and 11, along with the GoldVarb analysis contained in table 5, indicates that the increased use of intermediate and palatal variants of (str) are spreading outward from the urban core into the suburban periphery. Thus, as urbanization has increased throughout the area, so has the spread of vernacular variants of (str). Based on this trend, (str) variance demonstrates a dispersion pattern that is hierarchical, making it like other variables that have shown a similar spread from urban areas to surrounding space, such as (ae)-raising in Northern Illinois (Callary, 1975), the / /~/a/ merger in Oklahoma (Bailey, et al, 1993), and (℘)- and (e)-backing in Detroit, Michigan (Eckert, 2000).

5. Discussion: Urbanization and the spread of (str) in Columbus

Combing the results of the analyses presented in section 4, we see that the most significant social factors conditioning (str) variance are age, class, and the location in which speakers were born and raised. Age appears to be the most significant factor overall, having been confirmed by the speech patterns observed in both the RAS and the sociolinguistic interviews.

As the overall usage patterns for the middle class in both studies correlate to a high degree (they realized vernacular variants of (str) roughly 23% of the time in the RAS and roughly 26% of the time in the interview data), we can feel fairly confident that this result is accurate. Turning to linguistic factors, the most significant conditioning environments were word environment in the Middle class interviews and pronunciation type in the RAS. As the significance of the linguistic factors has already been discussed in section 4, I will now move to a deeper interpretation of the significant social factors.

As was eluded to earlier, migration, urbanization, and annexation are an intricately mixed combination in the Columbus area. Urbanization appears to be a primary force in leveling differences among the neighborhoods and local communities in Columbus, with migration and Columbus's ongoing policy of annexation and development serving as the conduits through which this force operates. Just as the leveling effects of urbanization have affected the Columbus landscape, so that now formerly more rural areas are becoming more (sub-)urban, so too does it appear to have affected speakers mindsets about culture and community in the larger area.

This fact is revealed through comments made by the speakers concerning the larger community in the interviews. Almost all speakers in the study discussed the positive impact that they feel the urbanization of Columbus has had on providing access to larger areas of the community. Although some complained about the corresponding increases in road construction, traffic congestion, and population increases, most felt that these changes have provided them with better access to sports, cultural events, and work opportunities located in the urban core. Interestingly, these events were the ones speakers had the most pride in discussing, and during these responses, informants spoke of the Columbus community as a unified whole—in other words, speakers did not say "Dublin has a great outdoor music theatre, while Columbus has great

football team." Instead, theatres located in the Suburbs were described in the same groups as theaters located in the core, and all referred to simply as "Columbus theatres." The same holds true for other elements of the local arts, restaurant, and cultural activities scene in the larger community. In addition, the majority expressed pride about what they perceived to be the "general progress" Columbus has made over the last 20-25 years in becoming more like other urban cities (such as Chicago, New York, and Philadelphia) and were vocally dismissive of the popular stereotype of Columbus as a "cow town."

This mindset was also expressed in terms of the general safety and comfort that informants expressed about living in the community. Older speakers raised in the suburbs and in the core typically made multiple references to Columbus as "a great and safe place to raise a family." The reasons why this is the case differed for most speakers, but when they made these comments, they specifically referred to a generic Columbus rather than a local neighborhood or suburb. This is an interesting point to note, because most speakers had lived in the same location throughout the time they were raising their children (typically the suburbs), and so we would expect that they would be more likely to say "Upper Arlington is a great place . . .," as their children were actually raised and attend schools in periphery locations such as this.

Of course, this mindset was not pervasive on all issues we discussed. There were several topics that differentiated speakers, on which speakers born and raised in the suburbs were either more critical, or at least quantitatively less positive, than those born and raised in Columbus proper. One topic was pride about the more "urban" aspects of Columbus, such as a downtown area with a "checkered" history, a racially diverse population, and periodic efforts (whether they failed or not) made by the Columbus Public Schools to improve school quality over the last 25 years. Interestingly, these speakers were also more optimistic about the recent expansion of

Columbus into surrounding areas, and seemed more comfortable with the sprawl brought on by urbanization than their suburban-raised counterparts.

In many ways, this differentiation in types of mindset is akin to the patterns of linguistic differentiation for (str) variance discussed in section 4. All speakers were, to a certain degree, undifferentiated in their general view of Columbus, and this lack of differentiation is much like the leveling of (str) variance when we consider its distribution based on the present location of the speakers. At the same time, there were differences in mindset between those born in the urban core and those in the suburbs—with urban born speakers showing a higher degree of a kind of "urban affiliation" with the core than the suburban born speakers.

As the linguistic behavior of these speakers demonstrates, this appears to make them more naturally receptive to using vernacular variants of (str) than their suburban-raised counterparts. Generally, speakers showing a higher level of "urban affiliation" showed a higher use of the vernacular variants of (str) than their counterparts, who show lower levels of affiliation in the interviews, regardless of the location in which they presently live. More of these speakers were raised in Columbus proper than the suburbs, and so they showed this tendency more robustly, but suburban-raised speakers who used the vernacular variants of (str) more frequently also tended to show more affiliation with the urban core than others in their cohort.

At present, I am unable to construct an index that would allow me to quantify degree of affiliation and show it is statistically correlated with degree of intermediate and palatal /str/ use that would prove this hypothesis, as I do not have sufficient data from every informant to do so. But the general trend among my speakers does demonstrate a qualitative connection along these lines. Thus, generally speaking, it would appear as though urbanization may be leveling overall differences in perception of place and differences in linguistic behavior throughout the

community, just as it has blurred the geographic boundaries between the urban core and the suburban periphery.

Turning to the speakers' patterns of migration, it would appear that they may provide us with the key to explaining the actual transmission process of (str) from Columbus to the suburbs within the context of urbanization, as well. The distribution of the informants based on geography in my sample provides a fairly accurate representation of patterns of migration for the general population of residents who were born in the area and have stayed in the area throughout their lives across the greater Columbus community. Older speakers show a stronger tendency toward core-to-suburban movement, as a result of the migration trends discussed in section 2, while younger speakers show more suburban-to-core movement, partly as a result of work opportunities being available to them in the core. I believe this reserve pattern among younger speakers may also be partly motivated by changes in perception concerning areas within the core, which have resulted from revitalization efforts in neighborhoods such as the Short North, the Arena District, and portions of the North Campus area bordering the Clintonville neighborhood, over the last 10 to 15 years (see Hunker, 2001:Ch. 9 for more on this issue).

Across the speaker sample, it is interesting to note how these patterns have played out sociogeographically. Among the speakers who were raised and continue to live with the urban core, all reside either in Northern or Northeastern Columbus. Three of 6 of the non-migrating speakers were raised, and continue to live, in Clintonville. The other 3 were raised, and continue to live, on either the North or Northeast side, but have moved around within these areas.

Among these areas, Clintonville, an upscale neighborhood located on the Northern boundary of Columbus proper, is perhaps the one that most clearly showcases why this is the case. Clintonville has a long history of being strongly middle class, and SES has always

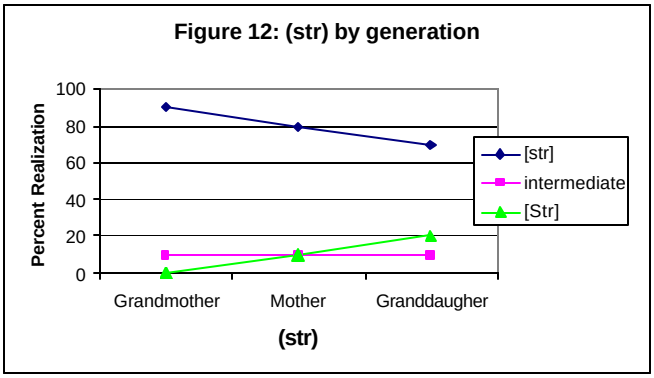
remained fairly high there. As well, Clintonville residents have placed a high priority on maintaining community cohesion and stability throughout the annexation and migration periods emphasized in this study. During the 1970s and 1980s, when a number of other areas within the core experienced periods of pronounced outward migration of whites due to desegregation of the public schools, Clintonville residents adopted an active strategy of community investment in neighborhood schools, so that school quality remained high, which helped to negate fear among residents that it would become compromised when the Clintonville schools became desegregated (Foster, 1997). This emphasis on community cohesion has apparently had a strong impact on keeping residents in the neighborhood, and so it is not surprising that this area has the highest concentration of non-migrating speakers in the study.

Among the speakers who have since migrated from the core to the suburbs, all were born and raised, or spent a significant portion of their lives, in East, West, and South Columbus. In comparison to North and Northeast Columbus, these areas have traditionally been among the most economically blighted, particularly the East and South sides (Hunker, 2001; Foster, 1997). During the period of the Great Migration, the East side underwent a period of marked resettlement, such that the area changed from one that was racially mixed to one that is now nearly entirely African American; the same is also true for pockets throughout the South side. Within these areas today, White residents that do remain tend to be of markedly lower SES (U.S. Census, 2000) than their counterparts in other portions of the MSA, and they appear to have not migrated out of the area due the lack of economic opportunity to do so (Foster, 1997).

Interestingly, these speakers show some of the strongest patterns of both intermediate and palatal [ʃ] realization among their cohorts, and they appear likely to do so as a result of being raised in more working class areas. Having resettled later in their lives to the suburbs, they

appear to be at the forefront in advancing the spread of the vernacular variants of (str) within the larger community. Of these speakers, the largest cluster is older women who moved to the suburbs after they completed college and have since raised families there.

Evidence for the linguistic influence of these women can be show on a small scale in the lives of three of my informants. The three are a grandmother, mother, and granddaughter cohort, the grandmother and mother having been raised on the West side, and the granddaughter having been raised in Grove City, a suburb located on the cusp of Columbus proper to the Southwest. The linguistic behavior of these women is shown in figure 12 below.



Token subtotals: Grandmother (10); Mother (7); Granddaughter (10)

As these data illustrate, (str) usage increases in robustness from grandmother to mother to granddaughter. The grandmother was 67 at the time of recording, the mother 48, and the granddaughter 24. Although a minuet example when considered within the context of the larger study, perhaps, this example demonstrates the reality of older women who grew up in the urban core and later moved the suburbs as transmission agents for (str).

Comparing these older female speakers with others who have been found to be at the forefront of innovation, such those studied by Labov in Philadelphia (2001), it is perhaps not surprising that they may be the linguistic influentials at the core of the spread of linguistic innovation in Columbus, as they similar backgrounds and social histories to these speakers. In

Labov's study, he found that these informants tended to be what he refers to as "linguistic leaders of change" (*cf*, 323-411; see also Eckert, 2000:213-228). As was the case with Labov's "leaders," the background of these women places them in a strong position to be linguistically influential. As children, they grew up in areas in which working class speech would have been far more pervasive. If the patterns revealed by the RAS survey are accurate, it is indeed possible that older speakers living in these areas were using more innovative realizations of (str) when these women were growing up. Thus, during the language learning process, these women would likely have been exposed to these innovative speakers, who served as their speech models.

As they became adults, they went to college and realized their goal of upward mobility. Following college, the women moved geographically to more upwardly mobile areas in the suburbs, while at the same time, they moved upwards on the ladder of social mobility and/or social visibility (two of the women are managers of University personnel departments and one is an elementary special education teacher). As adults, they are now securely situated in the middle class, placing them in an ideal position within the social hierarchy to be the transmitters of innovative linguistic variables such as (str). As well-situated transmitters, they are in position not only to influence other older speakers with whom they come into contact on a daily basis, but also younger speakers with whom they interact in their professional lives.

Furthermore, as mothers, they have become models of linguistic behavior for their children, along the lines of the example family cohort I discussed above. Thus, it is perhaps not surprising that younger, suburban-born speakers show usage patterns for [ʃtr] that are more pronounced—both in terms of the frequency of production of the variants as well as their robustness—than other speakers in the study. Because it is very likely they may well have been influenced by similar linguistic role models in their own language learning process: urban born

parents (or other caretakers) who later moved to the suburbs to raise their children there. If this transmission scenario is in fact true, this would explain why age shows such a robust effect on (str), as the results in section 4 revealed.

6. Conclusions and directions for future work

Ultimately, it difficult to determine if the explanations I have provided above adequately explain the spread of (str) from Columbus into the suburbs and the impact of urbanization on Columbus speakers' lives. They rely heavily on my own subjective interpretation of my informants' thoughts and feelings about the larger community. As well, they rely just as heavily on constructed back stories for the speakers that may miss aspects of their life histories that would reveal further details necessary to explain the facts at hand. Furthermore, they are based on data obtained from only 32 speakers living in a large metropolitan community. Even if my interpretation of their feelings and life stories is correct, the experiences of these speakers may not necessarily reflect those of the larger population.

However, they do provide us with a starting point. In order to obtain data that might more conclusively address these issues, extensive research that is more sensitive to issues of speaker identity would have to be conducted with larger numbers of speakers located in a variety of both urban and suburban areas throughout the MSA. Only then can a more thorough understanding begin to be gained.

Beyond this issue, there are two others which potentially affect the generalizability of the findings. First, it is based on a fairly small number of tokens per speaker. As the fluxuation of the results pertaining to social and linguistic factors between the presentation and paper versions of this study reveal, using such a small amount can make the results sensitive to strong sample-internal deviations. In order to obtain a more reliable gage of these factors then, it would appear

that a larger token base is required. At a future date, I hope to confront this problem by conducting a more extensive study, in which 25-30 tokens per speaker is obtained. Although this proved difficult to accomplish during the initial interviews I conducted, this is an issue that could be solved fairly easily through elicitation methods that more directly target this variable.

Second, there is the issue of my use of impressionistic analysis as the primary means to categorize and rate (str) realizations. As sociophonetic critiques of sociolinguistic studies have often pointed out (e.g., Labov, 1994; Thomas, 2002; Milroy and Gordon, 2003), impressionistic analysis has a number of issues—among them inter and intra-rater reliability; a lack of definite "cut points" for deciding on the phonetic status of gradient realizations; and the natural tendency of listeners to sometimes be led by their ears in the case of rating borderline examples. Although the present version of this study attempted to deal with each of these issues by my reliance on spectra to categorize unclear cases, it still relied far more heavily on my own impressions rather than instrumental analysis. In a more idealized version, one in which time to conduct the analysis were less of an issue, I would rely solely on spectra to rate the tokens. This would provide the most reliable results, considering that palatal and intermediate [s] are fairly easy to analyze reliably using spectra when compared to other gradient phenomena to which impressionistic analysis has often been applied, such as the vocalization of /l/.

These issues not withstanding, the results provided by this study reveal that urbanization appears to have had a powerful impact on the spread of (str) throughout the Columbus community. Age and social class—the significant social factors revealed by the combined analysis of the RAS and middle class interviews—serve as powerful conduits for this spread, while the significant changes in the distribution of (str) based on the location in which speakers were raised versus where they live now, quantitatively demonstrates the robustness of this force

in leveling local dialect differences and promoting the spread of innovation in this community. Furthermore, the linguistic patterns revealed by this analysis have led us to a deeper understanding of the potential point of origination for this sound change in American English.

Endnotes

[1] I would like to thank Don Winford and Beth Hume for guidance in the planning and conduct of this study. I would also like to thank Brian Joseph, Mary Beckman, Rich Janda, Grant McGuire, Georgios Tserdanelis, Robin Dodsworth, Angelo Costanzo, and Changelings for comments and suggestions that guided the direction of this paper.
[2] Evidence presented in Durian (2004b) for Columbus, and Labov (1984) for Philadelphia, as well as on my own impressionistic analysis of television personalities, reveals that vernacular variables of (str) are pervasive in Black speech throughout the entire United States, and its use more robust among blacks within in any given region than among whites.
[3] These speakers show only slight use of intermediate and palatal (str) when compared with the urban speakers I surveyed my rapid anonymous survey of Columbus store clerks.
[4] Note that this conclusion is based on an impressionistic analysis of only a small sample of recorded speech.
[5] There is also the issue of further clarifying what impact, if any, /t/ and /r/ may have on /s/.
[6] A more detailed discussion and analysis of these results in presented in Durian (2004a).
[7] It should be noted that this method was not as successful as that used in Scenario I, because many participants would either point to the area in question, and say something to the effect "go over there," or they would say something like "it's next to the gardening section."
[8] For a more detailed discussion of this approach to class, the reader is again directed to Durian (2004a).
[9] On several occasions, interviews were conducted with the assistance of either Robin Dodsworth or Andrew Smith.
[10] The two youngest groups were each roughly 4% more conservative in their use of (str) overall during this section.
[11] 1 speaker, a middle age female raised in Columbus and now living in the Grove City, contributed only 7 tokens, hence the total number being 317 and not 320, as would be expected.

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