Postvocalic (r) in urban Indian English[1]

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Abstract

Native varieties of World Englishes can shed light on competing local and international language ideologies and alignments with different standards, while quantitative variationist methods permit dialect internal analysis of structural variation without direct reference to external standards, by focusing on internal linguistic and social constraints. Contributing to these endeavors, this study examines variation in postvocalic (r) deletion in Indian English (IndE), uncovering rhotic patterns which are significantly influenced by, and illuminate, distinct urban Indian sociolinguistic alignments. The results also demonstrate that IndE is diverging from both its British colonially influenced past, and from modern internationally prestigious English varieties, through real and apparent time analysis. This analysis focuses on the larger sociolinguistic milieu of IndE emergence and evolution, offering a nuanced response to superficial and oftentimes categorical IndE grammars. Further, studying native speakers offers a counterpoint to L1 contact explanations for IndE stabilization and evolution in the postcolonial context.

Key terms: r-deletion, Indian English, real time, apparent time, language ideologies, postcolonial

1. Introduction

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Varieties of English are often termed rhotic or non-rhotic, where non-rhotic behavior is characterized as r-deletion in postvocalic coda position (*e.g.* [kɑ pɑk] for *car park*). Postvocalic r-deletion is varyingly related to both prestigious and stigmatized forms, in different contexts. While [r] deletion is stigmatized and fading from use in much of American English (AmE), it is a feature of the prestige form, RP[2], in the UK (Trudgill and Hannah, 2002). RP is hypothesized to have a much larger sphere of influence on World Englishes, given England's history of colonization, which included the introduction of English in multilingual Asian, African and Caribbean outposts, including India (Trudgill, Schreier, Long and Williams, 2004). Widely studied in numerous English dialects, postvocalic r-deletion "has been involved in a long term pattern of changes in many English accents" (Downes, 1998: 134) and the involvement of social factors in linguistic change has been brought to the forefront in such research. This paper seeks to explain how rhoticity and social identity interact in a dialect of Indian English (IndE) spoken in New Delhi, through apparent time examination of three generations of IndE speakers. This offers a lens from which to understand the present and future status of IndE rhoticity and its relationship to urban Delhi sociolinguistic identities. Three motivations are present for choosing to quantitatively model r-pronunciation in particular.

First, research on IndE contributes to the growing range of quantitative variationist methodology focused on incorporating emerging postcolonial dialects, as well as bilingual communities. It is considered problematic that "virtually all quantitative sociolinguistic investigations have been carried out in standard language cultures and, moreover, mainly in monolingual situations" (Milroy, 2001: 546). These monolingual, first world populations do not reflect the worldwide norms for multilingualism (though non-standard varieties are often examined in these contexts), and variationist methodology must attend to social and linguistic motivations in

[2] Received Pronunciation, or RP, is also known as Standard Southern British English, (*e.g.* Knight, Dalcher & Jones 2007).

multilingual situations in order to maintain relevancy in accounting for variation worldwide. India, by virtue of its multilingual background with English as a colonially introduced code, and its consistent label as an ESL context, regardless of the age and degree of English acquisition among some communities, clearly can be considered an alternative marketplace (Bourdieu, 1991). A nuanced model of structural variation in IndE, which this research offers, will expand and test the efficacy of variationist sociolinguistics in accounting for linguistic variation in alternative, bi-/multilingual marketplaces.

Second, quantitatively studying (r) deletion as mediated by both social and linguistic factors in the IndE context can help towards understanding local Delhi speakers' alignment with various competing internationally prestigious varieties, like General American English (AmE) and RP, or conversely, alignment with a localized dialect. Indeed, the two strongest outside social influences on India are the UK, which held much of the Indian subcontinent as a colony, and the US, which has held global preeminence in terms of social influence since World War II. Linguistically, these "prestige accents in Britain and North America—RP and General American respectively—provide 'polar norms' of non-rhotic and rhotic speech" (Downes, 1998: 136). Linking these sociolinguistic influences to postcolonial linguistic behavior thus offers a unique opportunity to examine how local and international influences may be visible in IndE language practices.

Meyerhoff presents rhotic behavior dichotomously across English dialects as interrelated with region and dialect history: "the *r*-fulness of North American and Bajan (Barbados) English compared to the relative *r*-lessness of postcolonial varieties in the southern hemisphere" (2006: 186). However, the situation is arguably much more complex. This representation ignores several English speaking regions. Meyerhoff also fails to account for potential diachronic changes and age-grading changes in linguistic behavior that may be linked to shifting ideologies. Language practices are not static, nor do they necessarily reflect outside norms and/or standards. Pertinent to this, in the

urban Delhi context, younger generations of IndE speakers appear resistant to notions of an external standard for their English, and instead, suggest that all Englishes come with an 'accent' (V. Chand, 2008). The views of these IndE youth represent an ideological change over time towards local and international English varieties. They are accompanied by internal valorizations of IndE, by Delhiites across ages, as a feature of modern Indian identity, and as a path towards economic success (ibid.). Lending further support that IE is changing diachronically, increasingly common in popular Indian literature are rejections of an outside standard, and support for IndE as locally relevant, as one Indian author and former UN diplomat writes:

> After our chhota-pegs we sign chit-books; the next day we don our dhotis and Ghandi-topis and do pranam when felicitating the PM at his daily darshan…As far as I'm concerned, Indianenglish Zindabad! (Tharoor, 2007: 368)

Zindabad is an Urdu term expressing accolade, enthusiasm and approval, in this case, for IndE as the most relevant variety of English in the local Indian context. Given the complexities of and rise in Indian globalization (Cowie, 2007; V. Chand, *to appear*), it is problematic to ignore processes of structural and ideological nativization. These are both conscious processes, wherein speakers begin to identify IndE as a commodity which serves to index their increasingly valuable local social identity, and unconscious processes of sound change where local structural features can emerge. I understand the structural emergence of IndE as interrelated with English ideological nativization and ownership.

This coupling of social, ideological and linguistic processes is challenged by Labov, who asserts that phonological sound changes arise from features below conscious awareness. However, Woolard (2008) challenges the complete independence of conscious indexical language practices from language change. Local identity and a rising consciousness of distinctive features can work to encourage diachronic structural change (Zhang, 2005). Given that changes in language ideology and language ownership are emerging in the urban IndE-speaking context, and given that AmE, as a

social commodity, has replaced RP on a global scale (important for the current study, the two are highly divergent with respect to r-pronunciation), it is worth exploring whether these changes in local sociolinguistic ideologies and the relative value of international prestige variants are accompanied by structural change in IndE. Further, while varieties of English are often statically labeled as rhotic or non-rhotic—or, as evolving towards a stable pronunciation—the rhoticity of IndE may be in a long term state of flux, given emerging national and (g)local—global yet local—identity in the Indian postcolonial setting.

The third reason for the selection of this variable is linked to the possibility of measuring linguistic change diachronically, rather than only predicting change through the synchronic analysis of the practices of several generations of speakers. While apparent time studies of variation may reflect diachronic changes, they may instead reflect variation related to age-grading, where successive generations of speakers modify their linguistic behavior at a particular stage in life (Boberg, 2004; Wagner, 2008). The choice of this structural variable and these informant population characteristics have both been influenced by the goal of examining potential diachronic changes in IndE, given past quantitative research on r-deletion in the target population (e.g., Agnihotri and Sahgal, 1985). Comparing past results with current findings will permit direct examination of whether current variation in r-deletion is better understood as a change-in-progress towards a more stable pronunciation, or as evidence of age-grading.

2. Past Research

Rhoticity has demonstrated strong links to both linguistic and social factors and processes of language change in several English dialects, next explored.

2.1. (r) in IndE

IndE r-pronunciation is analyzed in several contrasting ways. It is considered nonexistent, rendering IndE a non-rhotic dialect (Nihalani, Tongue and Hosali, 1979: 211), present and environmentally conditioned, rendering IndE as a variably rhotic dialect with linguistic constraints considered the primary motivation for alternation (Bansal, 1990; Gargesh, 2004), or socially variable and indexing young educated females with more years of English-only high school instruction (Agnihotri and Sahgal, 1985; Sahgal and Agnihotri, 1988; Agnihotri, 1994; Trudgill and Hannah, 2002: 130; Sharma, 2005: 208; Wiltshire, 2005: 282)[3]. This third scenario suggests that IndE rhotic patterns are most strongly correlated with social features. In Delhi IndE, rhotic behavior is a stronger socially diagnostic variable for age and gender than other traditionally proscribed pan-IndE features, *e.g.* alveolar stop retroflexion (Sahgal and Agnihotri, 1988). This analysis tests these claims by accounting for both linguistic and social mediators of rhoticity.

Some studies suggest that a finer distinction, between trill, approximant or flap, and null realization, is necessary in the Indian context (Sahgal and Agnihotri, 1988; Sharma, 2005). The IndE liquid /r/ is hypothesized to also manifest as trilled, both in word initial consonant clusters, *e.g. trap, drain*, and in postvocalic position, *e.g. car, cart* (Gargesh, 2004: 998). While it is not explicitly stated, /r/'s quality as trilled is not taken to be categorical, which suggests one area fruitful for examination in the current study.

Two quantitative analyses of (r) have been conducted on IndE. The earlier of these two studies includes the same population as the current study, Hindi/English bilinguals from south Delhi (Agnihotri and Sahgal, 1985)[4] and it also examines Bengali and Tamil/English bilinguals. The later study examines a continuum of second language learners to fluent English speakers from a variety of Indian regional and linguistic backgrounds living outside of India (Sharma, 2003; Sharma, 2005).

[3] Two dates (1988 and 1987) are regularly cited for Sahgal and Agnihotri's paper in English World-Wide, however, the publication date was 1988.

[4] Agnihotri and Sahgal published very similar reports on rhotic behavior within two papers (1985 and 1988), with the authors reversed in the latter publication: I refer to both; however the methods and findings are the same across both papers.

The later study draws on Indians residing in the Bay Area, in northern California. They also differ in their explanation for rhotic behavior. Agnihotri and Sahgal do not attribute r-deletion to Indian L1s. They argue that an IndE norm is emerging across speakers from multiple L1 backgrounds, and which is predictable based on social factors (*ibid.*). Sharma's research, meanwhile, explores whether her participants' r-pronunciation is either merging towards IndE as a "stable non-native variety," or towards American English pronunciation norms, given that they are living in the US (2005). Neither study, thus, approaches the question of IndE r-pronunciation as direct L1 influence. This study similarly is not seeking to explain r-pronunciation as caused by L1 influence, and intentionally focuses on **early IndE/Hindi bilinguals**—that is, speakers who acquired Hindi and English simultaneously, and are fluent in both before reaching school age. It is very possible that IndE speakers who learn English after acquiring a L1 will have different patterns of pronunciation than those uncovered here, patterns which may validly be attributed to L1 influence.

Agnihotri and Sahgal examine word final and postvocalic coda (r), making a binary distinction between /r/ presence and absence (1985). They detail no further coding for internal environmental constraints, however several social factors, including age, language background, and high school prestige are included. They find that the older generation has a more r-full pronunciation, while younger women with more prestigious schooling are leading a hypothesized change: IndE is becoming "less r-full," moving in the direction of becoming a stable non-rhotic dialect (1985: 103-4).

Meanwhile, Sharma's analysis is intended to supplement a qualitative analysis of speaker alignment with India vs. America. It codes coda position /r/ tokens through a tripartite division between approximant /r/, trilled and partially devoiced /r/, and /r/ absence (null /r/) (Sharma, 2003: 136-7). However, after creating this distinction, Sharma conflates the null and trilled /r/ as both being indicators of an 'Indian' dialect in her results, which she then contrasts with the approximant

/r/, characteristic of AmE (2003: 136). Given that the current study is interested in how IndE speakers may align themselves with RP's null /r/, AmE's variable approximant /r/, or demonstrate a localized form, *e.g.* the trilled /r/, and given that Sharma finds that several of her speakers alternate between the null and trilled realization (2003: 139), I retain this tripartite distinction within my coding.

In Sharma's study, no additional internal linguistic constraints are tabulated, while externally, speaker age, time of arrival in the US, and duration of English-medium education are included. However, incorporating these social constraints, while important for linking rhoticity to particular demographics, may not be enough—linguistic constraints have played a more powerful role in mediating variation in past research. "We would expect social constraints to be weaker than linguistic ones, but this is true for virtually all variables that have been studied in any depth (*e.g.* Eckert, 2000; Preston, 1991) and hardly a peculiarity of new-dialect formation" (Meyerhoff, 2006: 187). Contrasting with this and focused on black and white Bostonians, Nagy and Irwin found that while "[a]ll the linguistic factors except word class proved significant… [t]he strongest predictor of postvocalic (r) in all communities, however, was the combined variable of age/sex, with young women leading the change in the white community, and young men leading the change in the AA community" (2007: 1).

Thus, by expanding the current coding to include linguistic factors, something not done in past IndE focused quantitative studies of rhoticity, the current study seeks to understand how social and linguistic constraints rank and are interrelated within a hypothesized process of new-dialect formation, which, in turn, will offer support for either social or linguistic variables as the strongest predictors of IndE (r) behavior. As well, incorporating linguistic factors may permit this study to unravel the mystery surrounding the trill and null realizations suggested by Sharma (2003), by uncovering social or linguistic motivations for the alternation. While past quantitative and

descriptive IndE literature guides the coding of /r/ realization, we must explore research on other dialects to form hypotheses regarding other internal environmental factors which may correlate with (r).

2.2. Linguistic Constraints on (r)

Examining AmE analyses of (r), Labov's Department Store study—a pilot for his larger dissertation research on multiple variables in New York City (Labov, 1966)—introduces the systematic analysis of variable r-pronunciation (Labov, 1972). This pilot study focuses on word final and pre-consonantal coda /r/, and finds that variable r-pronunciation divides the population into remarkably fine-grained strata (Labov, 1966). This analysis excludes pre-vocalic /r/, and /r/ following mid-central schwa vowel nuclei, *e.g. her*, *bird*, while the latter are separately analyzed (Labov, 1966: 50). /r/ classification is binary, separating definite constriction from unconstricted glides or no glide, while intermediate cases are not used in the final analysis. No additional environmental features related to preceding or following environment, morphological status, consonant cluster size, word frequency or stress are coded, given the narrow analysis of rhoticity in the phrase 'fourth floor,' although formality is binarily coded (casual/formal).

Several linguistic factors demonstrate a relationship to /r/ deletion in more recent studies. The presence of another vocalic [r] in the same word (*e.g. quarter* can manifest as [kwɔt̪r]); syllable boundary (which interacts with vowel quality) or pause; /r/'s status as syllable final or in a consonant cluster—also termed morphological position, following Nagy and Irwin (2007)—; syllable stress (which interacts with vowel type) wherein /r/ weakens before an unstressed vowel (Harris, 2006: 2); following word-boundary-plus-vowel—termed 'linking r'—which provokes r-maintenance (Downes, 1998: 146); preceding vowel quality (Harris, 2006); and /r/'s status as a rhotacized schwa nucleus (*e.g.* in *bird*) (Myhill, 1988; Feagin, 1990) have each been investigated.

Harris (2006)'s highlighting of /r/ weakening as motivated by both stress and vowel quality suggests that syllable stress and vowel quality should be coded separately, and their combined effect considered. While not quantitatively studied thusfar, RP surveys have suggested that the morphological status of a syllable that is potentially rhotic as also marking a morpheme boundary motivates r-retention in words with a /ɜː/ nucleus. The morphological independence of a potentially rhotic syllable as a separate syllabic morpheme, *e.g.* bak.**er**, may also motivate /r/ retention, similar to how studies of consonant cluster reduction have uncovered that morphological quality motivates (t,d) retention (e.g. Labov, 1989). Meanwhile, the target word's lexical class has not demonstrated any relationship to /r/ deletion (Nagy and Irwin, 2007).

2.3. Social Constraints on (r)

English rhoticity is a strong variable to examine in large part because of its consistent links to social features and its involvement in larger processes of sound change distilled from studies of numerous communities on both sides of the Atlantic. Past studies have found the following external social factors to have significant ties to the rate of /r/ deletion: age, sex, ethnicity, degree of formality, integration into standard AmE speaking communities, regional background, socio-economic status and occupation (Labov, 1972; Myhill, 1988; Feagin, 1990). These are discussed in Section 4, below.

3. Sample Population

Sociolinguistic interviews were conducted with 29 upper middle class Hindi English early bilinguals in Delhi, India from 2007-2008: this study thus targets a sample of linguistically, educationally, socio-economically and regionally homogeneous informants. Data was collected from women and men from 18-87 years of age, in order to examine apparent time variation (Bailey,

2002), to restrict for potential confounding from an overly heterogeneous population, and to permit a real time study of variation as potentially a change-in-progress vs. age-grading, through comparison with past quantitative work of this population (Agnihotri and Sahgal, 1985). The sample is chronologically continuous. I did not seek to create age 'gaps,' because such gaps might limit the ability to interpret findings as processes of age-grading or apparent change-in-progress. Participants were recruited by exploiting already existing social networks, using the 'friend of a friend' method to make initial contact within the community, and outside of my existing Delhi social network (Milroy, 2002). In addition to the informal interviews, two other types of oral data were targeted for collection immediately after the informal interview. These include a formal reading passage (the Grandfather Passage) and a structured retelling of the short film *The Pear Story* (Chafe, 1975; Chafe, 1980). Collectively, these participants may be regarded as representative of modern, urban middle and upper class Indians in several ways[5]. The results of this project, while clearly not representative of the potentiality of IndE dialectal variation more broadly as including rural, lower class speakers from different language backgrounds, regions, and varying degrees of English fluency, will provide a framework for further study of urban, globally linked IndE speakers.

4. Current Coding Practices

Each token realization was coded as null, trilled, or approximant based on both aural and acoustic analysis. Seven social factor groups and four linguistic factor groups were also coded for, to explore both internal and external motivations for rhoticity. All codes are detailed below. To ensure reliability across coders, a factor group was created to designate coder identity, while another factor

[5] Though, of course they do not fully represent modern, elite, upper middle class Indians, given the range of cultures, ethno-linguistic backgrounds, ideologies, religions and linguistic competencies found across the Indian sub-continent.

group was created to individualize each speaker's results. This final factor group allowed me to examine whether any individuals' behavior was highly divergent from their peers[6].

4.1. Coding Rhoticity

Rhoticity was determined through a combination of aural and visual acoustic analysis, in Praat (Boersma and Weenick, 2006). While several articulations are used to pronounce approximant /r/, acoustic quality is relatively stable across these articulations, and manifests as a decrease in distance between F2 and F3: the simultaneous raising of F2 and lowering of F3 (Knight, Dalcher and Jones, 2007). Tokens were examined for this convergence formant frequency, and were also analyzed aurally. Tokens coded as non-rhotic evidenced neither a perceptible rhotic sound nor a F2/F3 convergence. Rhotacized schwas, which are often a source of contention for analyzing rhoticity (e.g. Yaeger-Dror, Kendall, Foulkes, Watt, Oddie, Harrison and Kavenagh, 2008), were coded as a rhotic if there was a perceptible change in formant quality towards a F2/F3 convergence across the vowel duration, and coded as non-rhotic if the formants remained stable and did not converge.

Aural rhotic categorization has recently been raised as highly problematic when used as the sole means of analysis. First, research has shown little consistency in categorization across groups of trained listeners from disparate regions. Second, rhoticity categorization is influenced by surrounding dialectal features (*e.g.* a Brooklyn pronunciation of 'coffee' as [kɔwfi] motivates the following word 'bar' to be heard as non-rhotic [ba]) (Yaeger-Dror, *et al.*, 2008). Third, /r/ acquisition research suggests that absolute formant frequencies should be examined in conjunction

[6] These individual codes proved important in separating out six speakers from the original sample of 35 speakers. These six were removed from the sample because they did not match the target demographics (*e.g.* they had different linguistic background, were recent immigrants to Delhi, or were from a different socio-economic class), and also evidenced very different patterns of rhotiticy. The analysis presented here is based on the remainder of the sample, a total of 29 speakers.

with other acoustic data, as "F3 lowering on its own is only one ingredient of 'correct' /r/" (Knight, *et al.*, 2007: 1584). I suggest that the current coding process both took into account such issues, and was relatively immune to them for three reasons. First, the data is highly variable in terms of rhoticity—there is no readily apparent default form to assume as underlying, and hence act as a default. Second, this combination of acoustic and aural methods can counterbalance reliance on either absolute formant values or surrounding dialectal features, and has been suggested as a fruitful means to standardize rhoticity coding[7]. Third, all questionable tokens have been verified by a second coder, and this second round of analysis was made based on the same structured reasoning as the original coding. Tokens which could not be reconciled through these means were excluded from analysis.

4.2. Social Constraints

Several overlapping and potentially interacting social factors were initially coded, given that locally relevant social factors mediating rhoticity have not been uncovered for this population. Underlying this is the assumption that these overlapping groups would be tested in various combinations, to understand which means of categorizing social factors offers the best 'fit' with the data. Social factors were developed from both traditional social factor groups, *e.g.* age and gender, and from emergent social groupings evoked by participants during the interviews. This approach was necessary, for three reasons: 1) the lack of earlier nuanced explorations of urban Indian social groupings, 2) this group was by design fairly homogeneous in terms of socio-economic class, location and language background, and 3) recent compelling arguments related to participant-defined identity which motivate a social-constructionist approach to social factor formation. These

[7] This combination of aural and acoustic analyses is surprisingly rare in past analyses of postvocalic r-deletion

predetermined and emergent social factor groups are next discussed (and are displayed, in Table 1, along with the number of speakers in each category).

Table 1. Social Factor Coding Groups

Factor Group	Conditioning Factors	Example	Number of Speakers (*N*=29)
Gender			
	Female		16
	Male		13
Age, by decade			
	18-20		5
	21-30		5
	31-40		2
	41-50		1
	51-60		4
	61-70		5
	71-80		4
	81-90		4
Age, by Historical Era			
	18-24		5
	25-38		8
	39-59		4
	60+		13
Occupation			
	Student		5
	Working		11
	Modern Housewife	Worked until marriage/children	1
	Traditional Housewife	Never worked	1
	Retired from Military	Semi-retired, continued in second profession after Military	4
	Retired from Other Profession	Fully Retired, not currently working	5
	Volunteer	Never worked, only volunteer humanitarian (education/health) work part time	2
Ethno-linguistic Background			
	Bengali	Originally from West Bengal or Bengali regions of Bangladesh	1
	UP/Haryana	Originally from northern states of UP and Haryana	2
	Delhi		2
	Punjabi	Including areas now in Pakistani Punjab	20
	Mixed	*e.g.*, 1 parent from north India, 1 from south India	4
Age & Occupation			
	Student	Under 20, in school	5
	Working	Any work experience, even if stopped working to have children. Age is 25-52	10

		(both men & women)	
	Retired	Men either retired, or semi-retired (not working full time). Women either fully retired, or never worked. Age: >52 (both men and women)	14
Delhi Stay			
	Punctuated		16
	Continuous		13

Given the relative homogeneity of the target population, in comparison to past IndE studies, fewer demographic-based distinctions are possible (Paolillo, 2002). For example, high school prestige, while significant in Agnihotri and Sahgal (1985)'s research, is not coded here because of overall similarities across the target population demographics. Coding high school prestige was also problematic given the age range explored here. Most of the oldest generation (65+) was schooled outside of Delhi, oftentimes in schools which no longer exist, post-Partition. India and Pakistan were created as separate nation-states in 1947—termed Partition—a period which was the largest migration of people in history. Gender, a mainstay in variationist work, is coded for. However, the lack of previous research on how some oft-used social factors can influence structural variation in IndE means that this coding is experimental. I coded several potential factors in multiple ways. For example, age was coded both by decade, making eight factors, and by socio-historical era, within which there were four hypothesized groups who have lived through four chronological eras with distinct educational and social-political periods (discussed below). Each social factor group was independently examined with the rest of the factors through cross-tabulation, to determine which factors provide the best explanation.

Informants' occupation was also coded. This was done to capture any variation that may exist between working women and housewives, and between military and private sector professional men, who may easily have different or competing IndE models based on their daily interactions. This public/private sector occupational difference has proved significant in Beijing Mandarin, with divergent practices of using local vs. cosmopolitan-linked phonological features

(Zhang, 2005). However, coding for occupation in a gender and age delineated fashion proved problematic, in that it created structural zeros (Paolillo, 2002)—some cells cannot be filled because of preconditions on the code categories. Some structural zeros are motivated by impossible combinations, *e.g.*, it would be impossible for an informant to both be in their 20's and retired. Other combinations are conceptually possible, but were not found in the more rigidly defined Indian context, *e.g.* a male housewife or volunteer. Given this, an additional factor group was created which was gender-neutral and linked age with work status. This factor group separated younger students, middle aged members (or former members, for women who worked until having children) of the workforce, and retired (or, wives of retired men, who had never worked outside the house), elderly informants. This was possible because, in my informant pool, all women 25-52 had worked for a significant length of time. Above 52 years old, women were either housewives, or had worked as long as their husbands, and were now retired. Admittedly this factor group fails to capture differences between, for example, women in their 70s who had worked vs. their peers who were housewives. However, the other codes mentioned above do permit this, and this particular factor group permits an examination of occupational links to age without structural zeros.

4.2.1. Emergent Social Factor Groups

In the social-constructionist perspective, social factors are understood as "ideologically driven processes," and not "a priori social categories" (Woolard, 2008: 439). Social groupings thus arise and must be developed from ethnographic participant interaction, wherein participant ideologies and local categories are fore-fronted to capture social phenomena as experienced by the participants. This approach, advocated by numerous sociolinguistics (see examples within Woolard, 2008; Levon, 2009), is driven home by Eckert (2004)'s reflections on her Jocks and Burnouts research: she suggests that her sustained focus on social class as an independent variable nearly

occluded her from seeing and understanding the local social life as presented by her participants, which proved critical to understanding both the social groupings, and the sociolinguistic variation.

However, this phenomenological and nuanced social-constructionist approach to developing and understanding social groupings and their potential links to language practices does not always result in clean groupings or independent social factors. Real life is far more complicated, with different identities overlapping and overlain upon each other. In a more rigid social hierarchy, there is also less likelihood of truly divorcing social factors, erstwhile considered independent in first world, western contexts. Confirming this, several overlapping factors emerged in this data. For example, age was coded independently by two means: by decade, and by socio-historical era. Occupation was coded separately, however, as discussed above, this factor interacted with both age and gender, and an additional factor group, combining age and occupation, but gender neutral, was created, distinguishing students, workers, and retirees.

The emergent social categories allowed for two additional factor groups: ethno-linguistic history and continued vs. punctuated stay in Delhi. My participants dominantly identified both as Delhiites, and as from a particular ethno-linguistic background, *e.g.* Bengali, Punjabi, as an explanation for their social links, cultural practices, and world-view. While Agnihotri and Sahgal (1985) mention these alignments in their population, they do not report on any relationship between ethno-linguistic identity and r-pronunciation.

Regional ethno-linguistic identity does have potential links to other phonological features across varieties of IndE. For example, it is hypothesized to regionally segment alveolar stop retroflexion behavior (Nihalani, *et al.*, 1979), /v,w/ merger behavior (Trudgill and Hannah, 2002), vowel space (Maxwell and Fletcher, 2009), and consonant cluster simplification patterns (Bansal, 1990). IndE rhotic behavior has been established as socially variable, in that it distinguishes age and gender, but past studies have not undertaken a multivariate analysis of how regional and ethnic

background, also termed ‘ethnocentrism’ (Agnihotri and Sahgal, 1985), may correlate in a nuanced fashion with rhotic behavior. Given that social stratification and locally significant identity are understudied in this context, they were included here through two additional factor groups.

Ethno-linguistic history was separated into five dominant regional groups based on this sample. Traveling northwest across India, these are: Bengali, UP/Haryanite (people from the states of Uttar Pradesh and Haryana), Delhiite, Punjabi, and Mixed (with parents from different regions). Defining ethno-linguistic background is admittedly problematic. Participants will variably define their own heritage in terms of where they themselves grew up, where their parents and grandparents grew up, or, where their family is ancestrally from. In some cases, these three locations coincide, but in other situations, these can evoke three different locales. Complicating this, mixed marriages are now more common (though, not common overall), with parents from different regions. Mixed parentage can then evoke, potentially, five different locales. This research thus relied on the groupings informants provided, and reflects their ethno-linguistic **alignment**, while their histories may be much more complicated. In this sense, ethno-linguistic identity is understood as an ideologically driven process. These do not cover the range of regions in India, but instead, cover the range of regions evoked by these speakers. There is one additional caveat to this factor group: because each speaker’s ethno-linguistic alignment emerged within the interviews, it was not possible to pre-select participants in a balanced fashion. As a result, there is a very uneven distribution, as Table 1 demonstrates. Results pertinent to ethno-linguistic identity should be interpreted with caution.

The second emergent social factor group tests whether time in Delhi, as continuous, or punctuated by departures, can be linked to rhoticity behavior. Several participants went to pains to assure me that they identify as Delhiites, despite having lived outside of Delhi. There were two dominant reasons for this: 3 year military postings and pre-Partition lives outside Delhi. Military

postings, located in insulated, upper echelon English dominant military communities, are common to this community. Excluding military families would overly narrow the population and disregard locally defined groupings, a problematic practice I chose to avoid. Equally common and also problematic to exclude were participants born pre-Partition, whose childhood experiences were not in Delhi[8]. I thus distinguished participants who have lived continuously in Delhi from those whose lives in Delhi have been punctuated with departures of either sort. Subselecting only for Delhiites who have continuously lived in Delhi would produce a population so narrow as to not be meaningful, given the intertwined social connections that were demonstrated between permanent Delhiites and those with departures.

4.3. Linguistic Constraints in the Current Study

Several decisions on linguistic factors to incorporate are guided by Agnihotri and Sahgal's (1985) constraints and token exclusion choices, which allowed a real-time data comparison with their results. For example, while Labov (1966) does not code /r/ realizations following schwa nuclei (*e.g. bird*), several studies, including IndE studies of postvocalic (r) (e.g Agnihotri and Sahgal, 1985; Sharma, 2003) do include them, and this environment has been targeted as a locus of r-weakening cross linguistically (Harris, 2006). I thus follow these studies in including such tokens within this study. /r/ quality, the dependent variable, separated trilled, approximant and null realizations, while four independent variables were also coded. These include phonetic environment, syllable stress, morphemic independence and speech formality. In total, including the dependent variable, five linguistic factors were coded for. Details and examples of each factor group are presented in Table 2.

Table 2. Internal Factor Coding Groups

[8] All but one of the retired speakers were born outside of Delhi. Of these, all were affected by the upheaval and mass migration which accompanied Partition, experiences which motivated individual and familial relocation to Delhi.

Factor Group	Conditioning Factors	Example
Variable Quality		
	Non-Rhotic Null Realization	[ka] for *car*
	Rhotic Approximant	[kar]
	Rhotic Trill	[kaʁ]
Surrounding Phonetic Environment & Syllable Location		
	Full-vowel nucleus, pre-consonantal coda position, in a CC	fou**r**th
	Full-vowel nucleus, word final, coda position	bee**r**
	Full-vowel nucleus, syllable final (word internal), coda position	s**ur**.pris.ing
	Schwa nucleus, with following coda	b**ir**d
	Schwa nucleus, word final position	h**er**, butt.**er**
	Schwa nucleus, syllable final, word internal	m**ur**.d**er**.er
Syllable Stress		
	Monosyllabic word (stress not evaluated)	bird, beer
	Primary stress in bi-/multisyllabic word (stressed syllable in italics)	*m**ur***.der.er
	Non-primary stress in bi-/multisyllabic word (anything less than primary stress is weak)	*ans*.w**er**, *mod*.**er**n
Morphological Independence		
	/r/ comprises an independent (bound) syllable and morpheme	murder.**er**, runn.**er**, batt.**er** (one who bats)
	/r/ is either part of a larger syllable or morpheme	batt.**er** (flour mixture, /r/ is not an independent morpheme), runn.**ers** (/r/ is not an independent syllable)
Formality Level		
	Informal Speech	Majority of Interview
	Medium Formality Speech	Pear Story Retelling
	High Formality Speech	Grandfather Passage

In addition to having distinct divergences from the vowel systems of UK and American dialects, it is argued that no pan-IndE vowel system exists (Maxwell and Fletcher, 2009): "vowel systems vary considerably more across Indian English speakers and a basic set of contrasts cannot be assumed" (Sharma, 2003: 136). Thus, preceding vowel quality, while significant in Myhill's study of (r) in Black English Vernacular (BEV) in southern states of the US (1988), is problematic to code for in this corpus, and was not fully distinguished within this coding. The only vowel distinction made is between schwa nuclei and full-vowel nuclei contexts. Additionally, functional/lexical word type distinctions have thus far demonstrated no significant correlation with postvocalic (r) (Nagy and Irwin, 2007) and are not examined in this study.

Word-final /r/ tokens before a vowel-initial word—that is, prevocalic (r) tokens—are excluded in Labov (1966), but included in several other studies (Agnihotri and Sahgal, 1985; Myhill, 1988; Sharma, 2003) because "[i]n many languages, final consonants which are otherwise deleted are sometimes preserved when the following word beings with a vowel" (Myhill, 1988:208). However, the same study finds no significant differences in (r) deletion rates across following word-boundary-plus-vowel, consonants and glides. Preconsonantal and prevocalic tokens—both syllable and word final—are included in this analysis, but not coded separately, while syllable internal coda environments are coded separately.

Syllable stress tends to demonstrate high cross-linguistic and cross-dialectal variability (Berg, 1999). Within this study, the examination of lexical stress is restricted to a tripartite distinction between monosyllabic words, bi/multisyllabic words with primary stress on the target rhotic syllable, and bi/multisyllabic words with primary stress not located on the target rhotic syllable. This third category includes unstressed syllables as well as syllables with secondary stress, while the first category, monosyllabic words, includes both stressed and unstressed words. These are the only distinctions currently possible, given the lack of comprehensive research on stress in IndE, and this community in particular.

Formality has a demonstrated impact on /r/-realization in other English dialects (e.g. Labov, 1966). Here formality is coded through a tripartite distinction between informal speech, medium formality speech (retelling the plot of a short film, The Pear Story) and high formality speech (a reading passage, the Grandfather Passage). These contexts which encourage more attention to speech were collected at the end of each interview.

4.4. Token Selection and Analysis Methods

Token selection was systematic: in each interview, tokens were taken starting a quarter of the way through the interview, to uniformly handle interviews of different lengths. At this point, the first 100 tokens were extracted for coding, with no more than three instances of each lexical item to avoid type/token issues (Wolfram, 1993). Very common individual lexical items can have different phonological behavior (Bybee, 2002; Clark and Trousdale, 2009) and restricting token selection to three of any type can limit any bias their inclusion might have on capturing overall distributions of a variable. From the Pear Story retelling, a maximum of three /r/ tokens per lexical item were used, and all 18 /r/ tokens from the formal reading passage were used (within which, there also was not three instances of any single lexical item).

GoldvarbX (Sankoff, Tagliamonte and Smith, 2005)—generically referred to as Varbrul, short for variable rule analysis—is a multivariate analysis technique and software application designed to model unbalanced data, *i.e.* naturally occurring speech. It has been successful in determining the significance of external social and internal linguistic factors as mediators of variation across a number of contexts, and for understanding the relationship between and relative influence of different factor groups on realization quality (Paolillo, 2002; Tagliamonte, 2002). There is not room here to fully explain the process of multivariate analysis, however Bayley (2002) provides a very useful introduction to the quantitative paradigm.

5. Results

The data set totaled 3813 tokens which were analyzed in Goldvarb X, and Table 3 shows the overall distribution by realization as zero, an approximant or a trill. Considered categorical in RP, postvocalic r-deletion is clearly variable in this IndE population, with less than half of the tokens realized as null (37.6%). Trill realizations do make up a substantial minority of the tokens, at 7.8%, and approximant realizations comprise a majority of the tokens (54.6%).

Table 3. Overall distribution of (r)

Null Realization (Ø)		Approximant Realization (r)		Trill Realization (ʀ)	
%	*N*	%	*N*	%	*N*
37.6	1435	54.6	2082	7.8	296
Total *N*		**3813**			

While it would be ideal to compare overall deletion rates with those found in earlier studies, this is not fully possible. For example, within rhoticity studies of IndE samples, there are differences in informant population. Sharma (2003) studies English learners living in the US, while Agnihotri and Sahgal (1985) study Delhiites from three social classes and multiple linguistic backgrounds. There are also differences in presentation of data. Sharma (2003) conflates null and trilled realizations, comparing them with the 'American' variant for most of her analysis and discussion, while Agnihotri and Sahgal (1985) do not specifically mention how trilled realizations are coded and do not present overall rhoticity distribution separate from their interaction with social variables. Collectively, these limit the possibility of making a direct overall comparison with earlier studies of IndE rhoticity. Further, it is impossible to derive overall deletion rates for comparative purposes from research contrasting multiple speech communities, *e.g.* Feagin (1990), with a range of 0-100% deletion across socioeconomic groups and ages, Agnihotri & Sharma (1985) with a range of 22-80% across High School prestige level, and Piercy (2007) with a range of 66-99% across ages, *etc*. Nonetheless, the overall frequencies found here are very different than Sharma's, where the null realization comprises 60% of the tokens, approximants 9%, and trills 30% (2003: distilled from Table B.8, Appendix B). Deletion rates are considerably lower in the current study.

However, this is not enough evidence to suggest any larger processes of change, given the following three factors. First, Sharma's participant sample is much smaller (12 speakers). Second, her sample represents different demographics in several ways, as a continuum of non-native English speakers residing in the US for varying lengths of time. Third, internal factors conditioning rhoticity

in her sample are not explored. These may have an important role in predicting (r)-realization for her sample, and, importantly, they may not coincide with internal factors significant to this sample. Unfortunately, without such data, it is not possible to use Sharma's results to conduct a real-time analysis of IndE (r).

Comparing the current overall rhotic deletion rates to other contexts of variable rhotic deletion in the US, the current overall frequency is considerably higher than the 13% deletion rate for white speakers from New Hampshire (Nagy and Irwin, 2007), similar to the 51% deletion rate for Southern speakers—via the LAGS database, collected in the 1960's and 70's (Schonweitz, 2001)—, yet much lower than both the 62% deletion rate for black and white Bostonians (Nagy and Irwin, 2007) and the 60% deletion rate for Black English Vernacular speakers in Philadelphia (Myhill, 1988). In New Zealand, a region considered typically non-rhotic, a pan-New Zealand study of rural speakers demonstrates a 91% deletion rate (E. Gordon, Campbell, Hay, Maclagan, Sudbury and Trudgill, 2004). Given that areas considered 'non-rhotic' have much higher deletion rates than found in the current data, this IndE sample demonstrates what we can term variable rhotic behavior.

Overall deletion rates do not, however, necessarily signify underlying grammatical differences or similarities—it is important to also examine whether IndE variable rhotic quality is conditioned by similarly ranked linguistic and social constraints as the rankings uncovered in earlier IndE, NZE and AmE studies. Linguistic and social factors—also analyzed within GoldvarbX—correlating with realization quality are next examined.

5.1. Overall Constraint Ranking

Given the low number of trilled tokens, trills were conflated with approximants for the majority of the analysis (they are, however, explored independently in Section 7, below). This conflation allows a comparison of rhotic and non-rhotic realizations. Multivariate analysis uncovered eight factor

groups as significant in modeling IndE rhotic behavior—these are displayed according to their rank in Table 4.

Table 4. Significant Factors Influencing Rhotic Behavior

Rank	Factor	Type
1	Gender	Social
2	Phonetic Environment	Linguistic
3	Ethno-linguistic Identity	Social
4	Age/Occupation	Social
5	Delhi Stay	Social
6	Morphemic Independence	Linguistic
7	Formality	Linguistic
8	Syllable Stress	Linguistic

IndE rhotic behavior is clearly a complex phenomenon, given the number of significant factors, and the primacy of social factors, as four of the top five influences. These factor groups are next discussed in detail.

5.2. Linguistic Constraints on IndE Rhoticity

All of the linguistic factors coded for contribute statistically significant effects for (r) deletion in IndE. Phonetic context proved to be the most significant linguistic factor. Overall, schwa nuclei contexts favored deletion over full-vowel nuclei contexts. There were also significant differences related to the following sound: coda cluster pre-consonantal position (with either a schwa nucleus or a full-vowel nucleus) most strongly favors deletion (.59, *e.g. bird*, *fourth*), while deletion rates decreased from word and syllable final position with schwa nucleus (.52, *e.g. her*, ***murd.er****.er*), to word final position with full-vowel nucleus (.45, *e.g. beer*), to syllable final position with full-vowel nucleus (.36, *e.g.* ***sur****.pri.sing*).

Table 5. Linguistic factors influencing r-deletion (all factor groups significant, p = .012; Input value = 0.367, Log likelihood = -2380.476); * Two factors are conflated)

Factors Considered	Factor Weight	N
Phonetic Environment		
Pre-consonantal, schwa or full-vowel nucleus*	.59	985

Word or syllable final, schwa nucleus *	.52	1418
Word final, full-vowel nucleus	.45	897
Syllable final, full-vowel nucleus	.36	513
Morphemic Independence		
Independent Morpheme & Syllable	.61	270
Non-Independent	.49	3543
Formality		
High and Medium*	.55	898
Low	.49	2915
Syllable Stress		
Primary stress in bi-/multisyllabic word or monosyllabic word*	.52	2291
Non-primary stress in bi-/multisyllabic words	.47	1522
	Total N	**3813**

Further, while less powerful than the social factors discussed below, morphological independence, formality and syllable stress were also significant (Table 5). Morphologically independent tokens (.61), formal contexts (.55) and tokens with primary stress on the syllable containing (r) (.52) favor deletion over their counterparts. In the latter two groups, factors are conflated based on similarities in factor weight and linguistically sound motivations—it is not appropriate to conflate factors which are linguistically dissimilar or which behave differently. Bi-/multisyllabic words with primary stress on the syllable containing (r) have been conflated with monosyllabic words containing (r) because both factors behave identically (they had similar factor weights), and because these two factors have a common bond. Both have primary stress on the syllable with (r), regardless of the total number of syllables in the word, and they stand in contrast to syllables without primary stress. High and medium formality contexts are also conflated given similar behavior, and because they are both situations which involve attention to speech.

However, formality, morpheme independence, and syllable stress, while each a significant factor, were not as powerful as in other studies. Instead, in IndE, social factors rank higher, and phonetic environment stands out as the primary linguistic influence on rhotic behavior. The latter three linguistic factors are significant, but rank below every significant social factor in predicting rhotic behavior. The order of factor importance suggests that r-pronunciation is largely a phonological process in IndE, as opposed to a morphological process. Further, the high ranking of

social factors may be indicative of the more rigid and complicated Indian social structure, explored in the next section.

5.3. Social Constraints on IndE Rhoticity

After the overlapping social constraints were tested in various combinations, four social factors proved consistently significant, and are next discussed.

5.3.1. The Role of Gender

Disconfirming Meyerhoff (2006)'s expectation, and Preston (1991)'s review of monolingual variationist research, which finds that except for certain stereotypes, social factors are always secondary to linguistic factors, social constraints demonstrated the most powerful relationship to r-deletion in this study. Gender is the most significant predictor of r-deletion, with women (.58) far less rhotic than men (.40). This coincides with formality here—formal contexts motivate less rhotic realizations. Variants more commonly found in both women's speech and formal speech have been interpreted as the prestige form across several variables and many contexts. Labov, for example, most clearly demonstrates a change-in-progress towards the prestige form in New York City rhoticity behavior with the markedly different behavior by middle class women in formal and informal contexts (Labov, 1972). In the Indian context, Sahgal and Agnihotri (1988: 56) demonstrate that postvocalic (r) is more likely to be unrealized by women, in more formal reading style, and by speakers from more prestigious academic backgrounds. The current markedly different cross-gender behavior, in conjunction with significantly less rhoticity in more formal contexts can be understood as socially indicative—the non-rhotic realization is the more formal or prestigious form. Diachronically, based on linguistic behavior, an r-full pronunciation was stigmatized by Delhi IndE speakers 20 years ago and this continues today.

While phonetic environment, a linguistic factor, is the second strongest factor group, each of the other social factors discussed here (Table 6) prove more powerful than the remainder of the linguistic factors in terms of overall significant factor group ranking (see Table 4)

Table 6. Social Factors favoring r-deletion (p=.012; Input value = 0.367, Log likelihood = -2380.476); *Two factors are conflated.

Social Factors	Factor Weight	N
Gender		
Female	.58	2151
Male	.40	1662
Ethno-Linguistic Identity		
Delhiite	.69	252
Mixed Background	.59	528
Bengali	.57	138
Hindi Belt (Punjabi, UP/Haryanite)*	.46	2895
Age/Occupation		
Working	.63	1320
Student	.55	683
Retired	.39	1810
Delhi Stay		
Punctuated	.62	2050
Continuous	.37	1763
	Total N	**3813**

5.3.2. Ethno-linguistic Identity

Rhoticity behavior distinguishes four ethno-linguistic backgrounds to make up the third strongest factor group: Delhiites are the least rhotic (.69), followed by mixed backgrounds (.59), then Bengalis (.57), finishing with the Hindi Belt as the most rhotic (.46). Hindi speakers from Punjab and UP/Haryana are collectively considered members of the "Hindi Belt," which is a meaningful social group with specific ideological characteristics for my participants. Interestingly, while speakers did not identify ethno-linguistically specifically as from the Hindi Belt, and instead identified as Hindi speaking Punjabis, UP-ites, and Haryanites, there was no disagreement from participants as to what demographics are clear members of the Hindi Belt. However, because no earlier research has suggested that speakers from the Hindi Belt are linguistically distinct from surrounding regions, and because no speaker self identified as a member of the Hindi Belt, a

conservative approach to coding was taken, and tokens by Hindi Belt speakers were originally coded as from Punjab and UP. When quantitative analysis revealed that these two groups' have very similar rhotic behavior, statistical motivation, in conjunction with the above social motivations, permitted the conflation of UP/Haryanites and Punjabis into the Hindi Belt grouping. Contrastively, while the single Bengali speaker's overall rhoticity patterns very closely with the Hindi Belt speakers' rhotic behavior, there is no justification for collapsing these two factors: Bengalis are culturally and linguistically dissimilar from the Hindi Belt[9], both with respect to their Bengali-speaking background (a non-mutually intelligible cousin of Hindi), and with respect to their English behavior, which numerous participants highlighted as different in, for example, phonology, and intonation. Returning to the caveat offered in the initial discussion of this factor group, the results for ethno-linguistic identity should be read with caution, given uneven distribution and low N for some groups, in particular the Bengali and Delhiite groupings. More data would likely flesh out this picture and provide more robust results. As well, it is interesting to note that within these interviews, using Delhiite as an ethno-linguistic identity was limited to two men from the youngest generation. This may be an emerging trend, wherein one's familial and/or ancestral background are abandoned or downplayed, and a new Delhiite identity is adopted. This would be worth re-approaching to explore how and whether this sociolinguistic alignment develops.

5.3.3. Age/Occupation

The factor group combining age and occupation demonstrates interesting links to rhoticity. Middle aged workers are the least rhotic (.63), while their children are more rhotic (.55) and the oldest generation—the retired parents of these workers—are the most rhotic (.39). There are important

[9] For example, spoken English by Bengali L1 speakers has been argued to be structurally distinct from Tamil and Hindi L1 behavior in terms of pitch accent (Pickering and Wiltshire, 2000) As well, my informants almost categorically described Bengali IndE speakers as having different linguistic behavior, in particular citing that /v/ and /w/ are pronounced as [b^h], the IndE schwa is pronounced as [ɔ], and /s/ as [ʃ].

socio-historical correlates motivating this sociolinguistic pattern. India has undergone drastic socio-political changes across the lifespan of these three generations and has had multiple formal and informal language policies, given that both indigenous and externally introduced languages have been prominent on the sub-continent for over 100 years.

Exploring Indian socioeconomic and linguistic history, Indian economic self-reliance first gained national momentum with Mahatma Gandhi and was enacted within government policies in 1947, after India gained its independence from Great Britain. Until then, English was the language of the government, and was spoken by a powerful, but small, minority of the population. While it would have been convenient, in some sense, for the newly-formed government to carry on in the same language as the colonizers, this was not without a myriad of accompanying problems, most of which surrounded the identity of India as a collective whole and as a newly formed nation state (T. Chand, 1944). Starting with India's 1950 constitution, English was established as an official language, while corpus based planning was enacted for Hindi, with the goal that Hindi would become India's official language by 1965, displacing English (Vaish, 2008). However, during this period, the Indian government recognized that issues of national identity, linguistic and ethnic diversity would not be solved with Hindi evolving into the sole national language. In 1963, English was permanently established as a co-official language, and fifteen indigenous languages were chosen as official, 'scheduled' languages, which have now expanded to twenty-two constitutionally recognized Dravidian and Indo-European languages.

During the period when my workers (the least rhotic group) were growing up and entering the workforce, India was thus grappling with how language could or should be tied to national identity, and focused on creating nationalist links with internal languages (Vaish, 2008), while relegating English to a functional role. Educational policy was also affected during this period. RP norms were valorized and encouraged in Indian schools over other styles of English pronunciation

(Sailaja, 2009), and students' pronunciation was often corrected during class towards RP norms for English pronunciation (V. Chand, 2008), while RP norms for English were encouraged through Indian media. Locally produced English radio and TV programs followed national ideologies and India's informal language policy, by using a RP accent over other English varieties (Vaish, 2008). These workers thus grew up during in an internally focused socialist government period, where non-rhotic RP was found in media, and promoted in school.

Starting in the mid 1980's and continuing today, there has been a gradual loosening of India's economic borders. Major economic overhauls created during Rajiv Gandhi's reign as India's prime minister (1984-1989) specifically targeted the Indian tax code, trade restrictions, and currency exchange, while a growing demand for skilled labor service export and policy reforms have also been influential on Indian economics (J. Gordon and Gupta, 2004). These policy changes have been motivated in large part through the late 1990's increased wage-remittance by Indians working in the Gulf (Migration Dialogue, 2005) and the early 2000's increased outsourcing and IT industries in India (J. Gordon and Gupta, 2004). Further evidence of the opening of India's economic borders is found in the soda market: the locally produced Campa-Cola had supplanted international brands like Coca-Cola and Pepsi from the 1970's until 1991, when international varieties were again allowed access to the Indian market. India is now a free-market system, and these economic changes clearly separate these workers from students. The worker category captures an age group which was educated within an inward looking country which projected RP norms.

Students have lived through a very different Indian setting. Cable TV is now a staple, with shows from across the globe, demonstrating various accents and world-views. In conjunction with the recent economic growth in and awareness of outsourcing, these shows are encouraging an awareness of English dialects (Cowie, 2007; V. Chand, 2008). Cable TV channels based in India, *e.g.* NDTV, have been influential in de-stigmatizing various non-RP Indian accents through talk

shows and other programs in IndE (Sailaja, 2009). There is also evidence from qualitative reflections by these participants that modern schooling places significantly less emphasis on pronunciation, and on as RP as the target (V. Chand, 2008). Meanwhile, modern media displays several varieties along the rhotic continuum, including local media usage which ranges from dominantly non-rhotic to variably rhotic. These differences in social, government and media based influences from one generation to another are a possible motivations for the significant difference in rhoticity across the generations: students are significantly more rhotic (.50) than their parents (.63). The correlation between socio-historical context and rhoticity is clearly relevant, and we will return to it after exploring how other social factors mediate rhotic pronunciation.

5.3.4. Delhi Residence Length

Looking at punctuated vs. continuous stay in Delhi, permanent Delhiites are significantly more rhotic (.39) than those with punctuated stays (.62). This suggests that past interactions with non-Delhi IndE speaking communities have influenced the transient population towards a less rhotic pronunciation. While no quantitative studies of rhoticity exist for IndE populations outside of Delhi—yet inside India—this would be a fruitful area for further examination.

Another possible explanation for this division is that the non-rhotic pronunciation is identified as a Delhi feature by the transient population, even though it is not a categorical feature of Delhi IndE. These transient speakers may strive towards this hypothesized goal within their continual identity formation to establish themselves as Delhiites. I have uncovered no direct proof of this possibility; however, I have found two tantalizing indirect leads in this direction. First, transient Delhiites are much more vehement about their Delhiite status when asked about their travel background. Second, a majority of the informants describe Delhi culture as more focused on

appearances, judgmental and class conscious, and have even linked such ideologies to language practices:

> ..more stuck up, more rude… (f18ND 17:11)
>
> Delhi would be a lot of *punju* [HINDI cheap, stupid] culture and a lot of showoff and a lot of, you know, a just one-upmanship, that's peculiar to Delhi, so Delhi is also becoming very glamorous, but glamorous more in a negative sense where you more, where you more just outdo the other. (f30PG 17: 26-29)
>
> …very class-conscious city, very class-conscious. **And that reflects in the, our language**.. (f27RG 11:13-14)

These quotes suggest that Delhi IndE behavior may be at odds with respect to other large cities, especially with respect to linguistic practices, like the non-rhotic pronunciation, that are linked to prestige. As well, some speakers champion a single "correct" English—which would likely be non-rhotic, given that they highlight the worker age group as examples of "good" English. These speakers also suggest that Delhiites are not taught this "correct" version in school, nor do they speak this "correct" version. Collectively, these quotes suggest that Delhi may be unconsciously identified as a non-rhotic dialect by IndE prescriptivists, but may also be a context where people are judged more harshly for deviations from the prestige variant. This could account for the more rhotic permanent Delhiite practice and the less rhotic transient Delhiite trend, in conjunction with the less rhotic prestige form. However, while these links are suggestive, they are nothing more at this point, and deserve further exploration in later research.

5.3.5. Interactions among Factor Groups

A problematic interaction has arisen between two of the social factor groups, namely the occupation/age factor group, and the ethno-linguistic factor group. A cross-tabulation of rhotic results comparing these two factor groups reflects stratified qualitative responses from participants: students and a portion of the workers are more likely to identify dominantly as Delhiites, while no

retired speakers identify only as Delhiites, instead always offering a regional ethnic identity. Collectively, this means that there are empty cells and an irregular distribution. While this is problematic, statistically, it is not without precedent (*e.g.,* Tagliamonte, Poplack and Eze, 1997; Tagliamonte, 2006: 233). As well, while oft-considered "basic" social factors are often idealized as independent in the variationist model, they have been challenged in other multilingual alternative marketplace contexts (*e.g.,* Rickford, 1987). Given that both factor groups are significant in their influence on rhotic behavior, neither of these factor groups can simply be excluded from analysis. Clearly, more research is needed to determine if this coupling is inherent to these social factors or this social context, or could be eliminated with a larger sample.

5.4. The Delhi Prestige Form

Female, working age, transient, self-identified Delhiites are the least rhotic, overall, while the most rhotic group is male, retired, Hindi Belt permanent Delhiites. Cross-tabulations of each social group with formality reveals that all groups are acting as members of the same speech community: they are all moving in the direction that they perceive as more formal (non-rhotic) in tasks that require greater attention to speech.

The prestige form can be understood as non-rhotic. It is more likely in formal context, the speech of women, and speakers who ethno-linguistically define themselves as Delhiites, as opposed to, *e.g.* Punjabi or Bengali. However, it is problematic to assert the non-rhotic pronunciation as the unequivocal Delhi prestige form within this population, when two additional factor groups are accounted for: Age/Occupation and length of stay in Delhi.

Examining a cross-tabulation of Delhi Residence Length with Age/Occupation, demonstrates that age and residence length are linked to rhoticity in a nuanced fashion. There are no significant differences found by distinguishing residence patterns in the oldest cohort, and, as

already discussed, there are no students with punctuated Delhi stays. Turning to the worker generation, the strongest factor which distinguishes rhotic behavior is their length of stay in Delhi. Illustrated in Table 7, stable, working Delhiites are far *more* rhotic than those whose life in Delhi has been punctuated with departures.

Table 7. A comparison of non-rhotic realizations for workers with continuous and punctuated Delhi stays.

Workers	**%**	***N***
Continuous Stay	35%	955
Punctuated Stay	68%	365
	Total *N*	**1320**

An analysis of factors motivating rhoticity in just the worker population is telling: Table 8 demonstrates that Delhi stay is the most significant factor: a punctuated stay motivates an r-less pronunciation (.80) far more than continuous stay (.37).

Table 8. Non-rhotic realization for workers (27-52 years old), (p= .04; Input 0.438; Log likelihood = -807.724). *Gender and Morphemic Independence were not significant in predicting non-rhotic patterns in this population, and their factor weights are not displayed.

Factor Group	**Factor Weight**	**N**
Delhi Stay		
Punctuated	.80	365
Continuous	.37	955
Phonetic Environment		
Pre-consonantal (nucleus and non-nucleus vowel)	.62	353
Word and Syllable final (nucleus vowel)	.52	491
Word final (non-nucleus vowel)	.44	294
Syllable final (non-nucleus vowel)	.32	182
Ethno-Linguistic Background		
Delhiite	.73	124
Hindi Belt	.49	1064
Mixed	.34	132
Syllable Stress		
Primary Stress	.53	806
Secondary Stress	.45	514
Formality		
High formality	.56	316
Low Formality	.48	1004
Gender*	[ ]	
Morphemic Independence*	[ ]	
	Total *N*	**1320**

Phonetic environment, ethno-linguistic background, syllable stress and formality also significantly influence rhotic patterns in the worker sample. Focusing on social factors, transient Delhiites and self-identified Delhiites are the least rhotic, while self-identified ethno-linguistically mixed, permanent Delhiites are the most rhotic.

How can we explain this? There are two possible ways of interpreting this data. First, it may be capturing a supra-local non-rhotic prestige form, with which speakers with outside-of-Delhi experience are more familiar. Second, it may be that Delhi is more rhotic than other regions of India—Delhi may not attend as closely to the nationally prestigious non-rhotic variant. Indeed, as we saw, Delhiites are not considered "classy" or prestigious. Instead, even though national capitals are contexts typically associated with prestige, Delhi is characterized as very unsafe city of crooks and con-men.

6. Diachronic Analysis of IndE (r)

Given these apparent-time results, do the differences visible across age groups reflect diachronic sound change, or are they more appropriately understood as age-grading? Sahgal and Agnihotri (1988)—S&A, hereafter—compare two age groups: younger speakers under 18, in class X and XII, and speakers over 40, both in South Delhi. Given the 22 year gap[10] between that study and the current one—their younger speakers would now be in the 36-40 range, and their older speakers would now be 62+ —these groups are thus directly comparable with the current workers (27-52) and retirees (59+).

We find that yesterday's youth—today's workers—still lead in non-rhotic pronunciations, though they are much more rhotic today (Table 9). The oldest generation do not diverge greatly from their behavior 20 years ago—they are still far more rhotic than the next generation. It appears

[10] Here I discuss the results as presented in S&A (1988); however, their data was collected pre-1985, before the first publication of their results with these participants. Given that this data was collected in 2007-8, there is thus an ~22 year gap between studies.

that there is, across ages, currently less of a move towards non-rhotic pronunciations in formal contexts than evidenced 20 years ago. Unfortunately, it is impossible to determine whether these patterns are statistically significant or not, given that S&A do not provide an overall token count.

Table 9. Overall percentage of non-rhotic tokens by age, comparing current results with S&A.

	Current Students (17-19)	S&A Youth (currently 34-38)	Current Workers (27-52)	S&A Elder (currently 60+)	Current Retired (59+)
Informal	**34%**	**76%**	**44%**	**34%**	**32%**
Formal	**47%**	**89%**	**47%**	**47%**	**37%**

Taking into consideration today's students, we can look at three generations in real time. It appears there was a peak in non-rhotic behavior, which has since subsided into a typically heterogeneous pronunciation. South Delhi IndE is variably rhotic, based on both social and linguistic factors. This peak is interesting in two ways. First, it may demonstrate age-grading: current workers were more r-less while in high school than they are currently. Second, it may also demonstrate diachronic change: the oldest generation has maintained their dominantly rhotic behavior, the next generation has continued to be far less rhotic (though more rhotic as they age), and the youngest generation is most similar to the oldest generation, and is dominantly rhotic. Possible evidence for both of these competing hypotheses is next explored.

6.1. Evidence of Age-Grading?

Addressing the first point, the overall rhotic behavior of the worker generation has changed drastically over a 20 year time span. They were—and are—the peak in cross-generation r-less behavior in both this sample and S&A's samples. However, the worker generation has increased in rhoticity over time. Relevant to understanding this potential age-grading change in rhotic pronunciations, S&A have interesting divergences from the current methodologies. They target a region—south Delhi—as their focus. From this starting point, they "selected students at random

from the class registers… of some schools in South Delhi" and for their elder population, they "selected informants at random from the master-lists of some areas of South Delhi…from the local welfare organisations" (1988: 53). Nowhere do they inquire as to each participants' length of time in Delhi—however, houses do not exchange hands nearly as frequently in India. People are much less mobile, there are often restrictions on who can purchase lots in particular societies and, within the joint family system, families maintain holdings across generations. Thus, while their sample is presented as capturing the linguistic practices of the "educated Delhi elite," it may better reflect my subpopulation of permanent Delhiites—that is, those who have not been posted outside of Delhi.

As well, the current worker population may diverge from S&A's student population. S&A select participants based on where they attend school, while I select participants based on where they live, and these may not coincide. When the worker generation was in high school, there were far fewer prestigious English medium public high schools in Delhi (public schools, as in the UK, are the equivalent of US private institutions, which charge fees), *e.g.*, Modern, St. Columbus and DPS, each with only one location[11]. Students thus often traveled quite far across town to attend prestigious English medium schools. We thus cannot be sure that the randomly selected student population analyzed in S&A actually reflects students who were domiciled in south Delhi. The south Delhi public schools were, at that time, likely to reflect a student population which encompassed a much larger region than south Delhi. They thus are potentially different from the current worker population, who, when in Delhi, all grew up and continue to live specifically in south Delhi. Comparing rhoticity across these two populations to determine real-time diachronic changes may be counterproductive, given the potential population differences. It is thus unclear if any significant age-grading has occurred for the worker age group, and in the interests of space, detangling these possibilities will be left to another paper.

[11] Today there are many more prestigious public schools, and many schools have more than one location (e.g. DPS RK Puram, DPS Mathura Road, DPS Vasant Vihar, and DPS East of Kailash). However, students today continue to travel long distances between home and school.

6.2. Rhoticity across Time

Diachronic change is the second topic brought to light through the overall comparison with S&A's results. While their study shows a rise in r-less pronunciation over two generations, this study demonstrates a peak in r-less pronunciation in the 27-52 age group, followed by a decrease in r-less behavior in the youngest generation. I suggest that this behavior can be linked to India's colonial and postcolonial history as they relate to media, education and ideology.

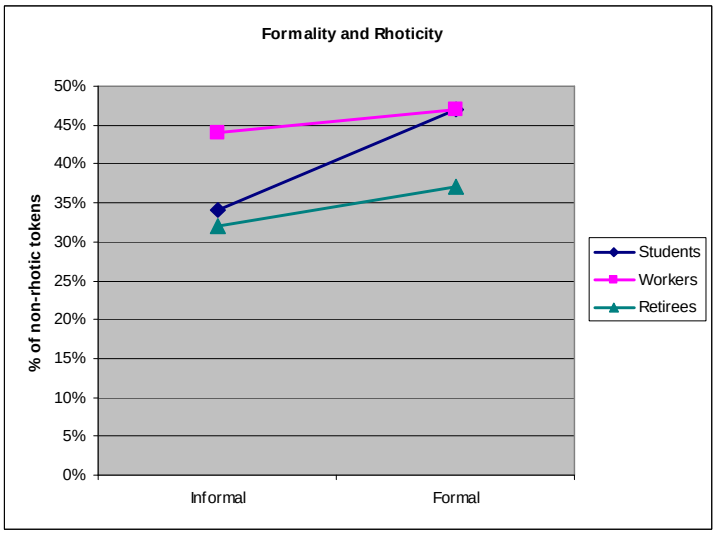
Pre-Partition India was run by Britishers from across the UK—as such there was a range of accents, some non-rhotic, and some rhotic. All of these pronunciations were prestigious, given their role as the colonizer's code. As such, Indian speakers of English had multiple prestige targets, in terms of rhoticity. However, after Partition, the target pronunciation in India was narrowed, and reflected non-rhotic RP through three mediums: 1) the colonial British population was gone, and in their absence, the constant multiple targets were also gone, 2) radio, and eventually TV media post-Partition was dominantly BBC style (non-rhotic RP), either directly from the UK, or mimicking it locally, and 3) the Indian school system, more structured to RP pronunciations, again non-rhotic (Vaish, 2008). Indeed, many of this worker population remember an explicit emphasis on pronunciation during their schooling.

In contrast, the current youth do not feel like pronunciation was emphasized in their schooling. Instead, they go so far as to suggest that their parents' speech is "better," and "more educated." These youth have been educated after the opening of India's economic borders, within which rhotic and non-rhotic media input (through TV, movies, radio, and the internet) is abundant, unlike the situation for their parents' generation. Modern media, offering multiple realizations of rhoticity, demonstrates that there is no longer a single international media standard in terms of rhoticity. The adoption of outside norms is also increasingly problematic for youth. They

universally shun what they term “fake accents”—which always manifest as mimicking RP or AmE—used by schoolmates (V. Chand, *to appear*). I suggest that the variable rhotic behavior in the youngest generation can be linked to these changes in education (and especially attention to pronunciation), media, and ideologies, as reflected in discourse about “fake accents.”

Related to their qualitative reflections on the speech of their parents’ generation, today’s students speak like their grandparents in casual contexts. However, they speak like their parents in formal contexts (Fig. 1). Their positive evaluations of and ideologies about their parents’ speech are directly reflected in their own formal speech. Meanwhile, in casual situations, their behavior patterns very similar to their grandparents, who can be understood as bearers of a local or Indian culture, of which linguistic practices are just one aspect.

Figure 1. Young people’s alternation between the casual forms of the oldest generation and the formal forms of their parents, the middle generation



The student population’s marked alignment with their parents’ speech in formal contexts, and with their grandparents speech in informal contexts, may also be a result of the joint family system. In India, it is common for multiple generations to live under the same roof. Most often this is paternally based, that is, the younger generation tends to live with the husband’s parents. Families

which live independent of other generations are a new and marked situation. These categories—joint vs. nuclear family—are salient to this population, and a majority of my participants have grown up in joint family systems. In the joint family system, while parents are at work, children spend much more time with their grandparents. The student population may thus be more influenced by their grandparents rhoticity patterns, which they were surrounded by at home, while their parents' speech, markedly less rhotic, may symbolize a more formal register. This may also be linked to the fact that the workers—their parents—are away, in more formal, working situations on a daily basis. More research is required to tease out the influence of the joint family system on patterns of rhoticity in the youngest generation.

7. Trills

The trill realization has never been quantitatively studied in IndE. Past research (e.g., Sahgal and Agnihotri, 1988; Sharma, 2003) has, due to low trill frequency, conflated trills with approximant and flap realizations. However, the number of trill tokens in this data permits analysis in conjunction with social and linguistic factors, and is next explored.

7.1. Results of Trill Analysis

Five factors have a significant influence on conditioning trill realizations. The highest ranked factor is phonetic environment (Table 9, *N* = 296, p = .002), within which syllable final (word internal) position with a full-vowel nucleus motivates trills (.76), followed by word final position (with any type of nucleus) (.61), syllable final position with a schwa nucleus (.50), with preconsonantal position (with any type of nucleus) least favoring the trill realization (.18).

Table 10. Factors which favor trill realization (*N*= 296; p = .002; Input = 0.041 Log likelihood = -884.966). * Three linguistic factor groups were not significant in predicting trill realizations. †Factors are conflated.

	Factor Weight	N
Phonetic Environment		
Syllable final, full-vowel nucleus	.76	86
Word final, schwa nucleus and full-vowel nucleus †	.61	176
Syllable final, schwa nucleus	.50	21
Preconsonantal, schwa nucleus and full-vowel nucleus †	.18	13
Age/Occupation		
Student	.64	50
Retired	.53	205
Worker	.34	41
Ethno-Linguistic Identity		
Delhiite	.82	36
Hindi Belt/Mixed †	.50	258
Bengali	.07	2
Delhi Stay		
Punctuated	.65	222
Continuous	.32	74
Gender		
Male	.56	175
Female	.45	121
Syllable Stress*	[ ]	
Morphological Independence*	[ ]	
Formality*	[ ]	
		296

Beyond phonetic environment, no other linguistic factors proved significant, and the results for syllable stress, morphological independence, and formality are thus not discussed here.

Among the significant social factor groups, Age/Occupation was the most important, wherein students (.64) and retirees (.53) are more likely to produce trills, and workers are far less likely to trill (.34). Retirees and students were not conflated because their behavior is significantly different. The third strongest determining factor is ethno-linguistic identity, which is conflated into three groups: Delhiite status strongly influences trill production, (.82) the Hindi Belt (Punjabis, UP/Haryanites and Mixed) variably trills (.50), and the lone Bengali speaker does not trill (.07). Again, these ethno-linguistic results should be taken with a grain of salt, given the distribution. Length of stay again proved significant, this time in locating those with punctuated stays as more likely to trill (.65) than those with continuous stays (.32). The final significant factor group is gender: men are more likely to trill (.56) than women (.45).

This patterning is interesting for several reasons. First, trill realization is conditioned primarily by phonetic environment, and is most likely in syllable and word final position, regardless

of nucleus quality. This confirms the overall finding which suggests that variable rhoticity behavior is a phonological, not morphological process. Indeed, Harris, with cross-linguistic support, suggests that "some conditions previously attributed to syllabic structure are better defined more locally in terms of neighboring segments or boundaries, while others are better viewed as having a wider, suprasyllabic scope"—within this, postvocalic (r) is "amenable to the more local treatment" (Harris, 2006: 20). In conjunction with the results found here, this suggests that studies of rhoticity should focus on immediate phonetic environment, and not on the morphemic quality of words, which is arguably not capturing the underlying motivation for r-deletion[12].

The second interesting fact which arises from analyzing trill behavior is that workers are again separated in linguistic behavior from students and retirees, who pattern more similarly. Clearly, the youngest generation is not behaving in alignment with either RP or AmE, with their variably rhotic and occasionally trilled patterning. The joint family system, which encourages far more interactions between the student and retirees, may again play a factor in the similar patterns between the two populations.

The third point of discussion focuses on ethno-linguistic background: the two Delhiites lead this trilling train pattern (.82), while the majority of the speakers (27) are conflated into the Hindi Belt in this analysis, and pattern together, as significantly different (.50) from Delhiites, and second in the trilling train. These behaviors, both together and separately, support Woolard's (2008) (among others) proposal that locally significant alignments can demonstrate strong links to language practices, and they also provide support for not conflating these two speakers with the Hindi Belt in the larger analysis.

[12] For example, it has been suggested that English bimorphemic words do retain a rhotic pronunciation, e.g. *furry* /fɜːɾɪ/, while monomorphemic words do not. (Gramley and Patzold, 2003) Alternatively, this rhotic realization may not have anything to do with morpheme structure, and instead, may have more to do with /r/'s intervocalic position in *furry*.

Fourth, we return to Delhi residency, which again has interesting links to rhoticity. Speakers with time spent outside of Delhi are more likely to trill, which suggests that this feature may be more common in other areas of India, or in the Indian Military culture in particular, given that a majority of the transient Delhiites' outside-of-Delhi experiences are through military postings.

Fifth, where do trills stand on the continuum of prestige variants? Men lead in trills, formality is not significant in predicting trills, and Delhi transients are far more likely to trill than permanent Delhi residents. As well, trills are almost as common in the oldest generation as they are in the youngest generation, but less common in the middle generation. These facts collectively suggest that the trill realization is not a prestige variant, but neither is it entirely shunned. Instead, these suggest that while it is conditioned primarily by phonetic environment, it may also hold covert prestige within Delhi IndE. Further, this may be a feature more common in other areas of India, and not a particularly or uniquely Delhi IndE feature—both possibilities would benefit from further research.

8. Conclusion

These rhotic results tell us much about the Delhi dialect of IndE: it demonstrates orderly heterogeneity (Weinreich, Labov and Herzog, 1968) in terms of rhoticity, directly challenging blanket academic statements which frame IndE as "wrong" or "needing fixing" (e.g., Krishnaswamy and Burde, 1998). Clearly, more structural research is needed on this and other regional IndE dialects, to understand areas of convergence and divergence, and to counter sweeping pejorative generalizations of IndE. Earlier generalizations, which devalue IndE and reflect larger societal ideologies, may motivate the marked shift found between formal and informal situations in the youngest generations' speech.

This data also demonstrates that the Delhi IndE dialect is evolving, and is distinct from international norms, manifesting as a variably rhotic (or semi-rhotic) dialect. Importantly, social factors prove dominant in predicting rhoticity, which can be linked to the narrowly circumscribed sample and the more rigid Indian social structure. Interactions amongst these social factor groups were impossible to avoid in this study. Further analysis will reveal if this is inherent to the more rigid Indian social hierarchy, or can be overcome with a sufficiently large sample. This analysis demonstrates that variationist methodologies can be successfully applied to alternative, multilingual contexts, but clearly, more research is required to tease out locally significant social groupings, to develop social factor groups which are relatively independent, and to determine what entails a uniform *vs*. heterogeneous population in this context—in this study emergent social categories, drawn from ethnographic data and qualitative reflections by participants, were pivotal for understanding the local situation.

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