

This is the accepted version of the article, before final edits have been made. The complete and final version can be found using the details below.

Journal of English Linguistics 2013 41: 65 originally published online 13 September 2012. DOI: 10.1177/0075424212449172. The online version of this article can be found at: <http://eng.sagepub.com/content/41/1/65>

The Manchester Polish STRUT: Dialect Acquisition in a Second Language.

Rob Drummond

Manchester Metropolitan University

Abstract

This study investigates the acquisition of a local variant of the STRUT vowel in the speech of Polish migrants living in Manchester, United Kingdom. Whilst the local accent has no distinction between STRUT and FOOT, the incoming Polish speakers arrive using something close to the standard pedagogical model of British English pronunciation, which clearly separates the two. Measuring the change in production towards the local variant along with corresponding social factors suggests that, in addition to the experiential factors of length of residence and having a native-speaker partner, attitude towards Manchester also affects the degree of vowel change, with a more positive attitude encouraging a greater degree of acquisition. The results are discussed in the context of individuals' attitudes and use of the STRUT vowel as part of the process by which they position themselves in relation to the target community.

Keywords

British dialects, identity, sociolinguistics, phonetics, phonology, attitude, dialect contact, acquisition

Introduction

The majority of research into the acquisition of a second dialect is concerned with investigating people who move from one region (with dialect A) to another region (with dialect B) within the same language, and determining the effect of this new linguistic context on the speech of individuals. However, it is also interesting to investigate what happens when migrant populations are confronted with a variety of the target language (L2) which differs from the standard in terms of accent or dialect. Common sense and general experience would suggest that individuals do indeed acquire certain phonological features of a non-standard target variety, although it is equally apparent that the degree of acquisition varies.

This article investigates the acquisition of a local vowel variant in the speech of adult Polish migrants living in Manchester, United Kingdom.¹ The vowel in question is the STRUT vowel found in words such as 'bus, 'luck,' and 'Monday.' The reason for choosing this particular vowel is that the local variant is different from the pedagogical standard variant to which the participants have been exposed while in Poland. The study aims to explore the factors behind the change from one realization of the vowel towards another, locally influenced realization.

In the course of the study, the following research questions are addressed:

1. To what extent do non-native speakers (NNSs) acquire the local vowel variant?
2. What social factors influence the degree of acquisition?

In answering these questions, it is hoped that some light will be shed on why it is that some people acquire local speech features more readily than others. The fact that the study is being carried out in a second language context adds a particular level of interest and relevance to the multicultural nature of 21st century UK cities. If the results of this study

can in any way be seen to be applicable to the question of migrant integration, then further work in this area becomes all the more useful.

The article begins with a brief description of the Polish community in Manchester. Next, it looks at previous research in dialect acquisition, both in a first and second language. Then follow details on data collection and analysis, before the final results and discussion sections.

The Polish Community in Manchester²

Manchester is a traditionally industrial city in the northwest of England with a population of 483,800 (Office for National Statistics 2010). Amongst its numerous migrant populations, there exists a significant Polish contingent within the city and its surrounding areas, with many residents being part of an established community that began after the Second World War. The focus of this study, however, is on the large numbers of Polish migrants who came to Manchester and other UK cities after the expansion of the European Union in 2004.

Within this newer group--and indeed within the group of participants for this particular study--there exists a range of reasons for being in the United Kingdom, along with very different desires for the future and various degrees of integration within the local community. Certainly, on speaking to the participants, it soon became clear that while some were consciously making an effort to embed themselves within the community, others had managed to maintain an apparently isolated Polish existence to a large degree. Interestingly, despite the occasional sensational story in the UK media to the contrary, very few participants spoke of any significantly negative experiences of living in the United Kingdom.

Dialect Acquisition

Existing research quite clearly shows that when put in a second dialect (D2) setting, both adults and children will tend to acquire at least some linguistic features of that dialect.

Although most individual studies have concentrated on children (Chambers 1992; Payne 1980; Tagliamonte & Molfenter 2007), some have concentrated on adults (Munro, Derwing & Flege 1999; Shockey 1984; Straw & Patrick 2007). Indeed, there is plenty of evidence to show that adults do acquire features of a D2, though this acquisition will not be complete. Siegel (2010) reviews a number of dialect acquisition studies (well-known ones such as Chambers 1992 and Payne 1980, as well as more recent ones looking at languages other than English, such as Stanford 2007) and finds that 13 of the 17 studies reviewed demonstrated some kind of acquisition taking place. However, the degree of acquisition varied widely, and the number of participants overall who acquired native-like production of even some of the D2 variants under investigation was very low--only 63 of a possible 486 across the 17 studies--again showing the incomplete nature of the acquisition.

Interestingly, in light of the findings presented later in this paper, there is considerable evidence of speakers acquiring variants that are partway between those of the D1 and the D2. Siegel (2010) describes these intermediate forms using Trudgill's (1986) term "interdialect" and includes instances of "overgeneralization" ('hypercorrection') and "simplification" ('reduction of grammatical distinctions') within this description. The use of these terms is apposite here given the additional factor of the Polish speakers using an L2, as they are all familiar (or adaptations of familiar) terms from L2 acquisition studies.

Until recently, the prevailing description of the cognitive processes involved in the acquisition of a D2 came from Trudgill's (1986) and Chambers's (1992) discussions around accommodation, which themselves were based originally on the ideas developed by Giles (1973) and Giles and Smith (1979). The underlying belief was that speakers would accommodate their speech to become more like that of the local community, and that

repeated accommodation of this sort would lead to some kind of more permanent acquisition, “particularly if attitudinal factors are favorable” (Trudgill 1986:39). However, several studies have since challenged this belief on the basis that dialect acquisition appears to take place even without face-to-face interaction between D1 and D2 speakers (Siegel 2010:72). Moreover, there is also debate around the extent to which accommodation actually takes place even when there is face-to-face interaction. Auer and Hinskens (2005) argue that it is the “abstract image” of a social group towards which a person’s language is likely to converge and that this can occur without any direct contact. The desire to identify with a particular social group is enough for a person’s speech to adopt or suppress relevant language features, regardless of who the interlocutor might be. Auer and Hinskens (2005:338) call this the “identity projection model,” and support the idea by claiming that despite the contentions of some sociolinguists, most social-psychological studies argue that “speakers converge to a stereotype of the ‘model’ receiver, not the actual partner in direct communication” (341).

This is not to say that accommodation theory does not have a role to play in sociolinguistic analysis. Meyerhoff (1998) concludes that it can offer insights in certain contexts as long as it is used in a principled way, and not as “a last ditch save of messy data” (223). Indeed, Auer and Hinskens (2005) acknowledge that interpersonal accommodation might well lead to a networked group of people adopting a particular feature, but they argue that there is no evidence for this type of accommodation leading to community-level language change.

Although the role of accommodation has been questioned, Chambers (1992) was and still is one of the most influential studies into dialect acquisition, describing his study of six Canadian children who moved to southeast England. The findings support his eight proposed principles of dialect acquisition, two of which are particularly relevant here.

Principle five suggests that “in the earliest stages of acquisition, both categorical rules and variable rules of the new dialect result in variability in the acquirers” (691), thus acknowledging that a change does not simply occur fully at a single point in time; and principle six suggests that “phonological innovations are actuated as pronunciation variants” (693), meaning that the variability of the phonological acquisition is consistent with the idea of lexical diffusion, whereby “a linguistic change spreads gradually across the lexicon, from word to word” (Chambers & Trudgill 1998:160). Studies into lexical diffusion have repeatedly shown that this diffusion does not occur at a uniform rate. Instead, there appears to be a rate of change which is much more rapid in the middle than it is at the beginning or the end of the time span, resulting in an “S-curve model of diffusion” (163). Whether such a rule-based interpretation of dialect acquisition fully explains the observable patterns remains to be seen.

Of course there are several other factors which might or might not play a part in the acquisition of a D2, perhaps the most obvious being age of arrival (AoA), length of residence (LoR), social identity, and exposure. Although studies which look at the influence of AoA tend to be concerned with children and adolescents, there have been a few studies which examine an age factor in adults. Wells (1973) looked at 36 adults who moved from Jamaica to London and found no AoA pattern, and neither did Shockey (1984) in her study of four adults moving from the United States to the United Kingdom. Foreman (2003) and Kerswill (1994) both reported AoA effects in their respective studies in Australia and Norway, but as their groups included children as well as adults, it is not certain that the effect was not simply a result of the children showing high rates of acquisition (Siegel 2010).

Although one might assume LoR would be an important factor in D2 acquisition, existing research provides a mixed picture as to its importance. The 17 studies described in

Siegel (2010) offer little in the way of any pattern, and he makes the point that it is possible to have speakers with long LoRs yet with little or no evidence of D2 variant use. Even those studies which do show a positive relationship between LoR and D2 acquisition are not able to confidently separate LoR from possible confounding factors such as AoA.

The issue of individuals identifying with the D2 culture was mentioned briefly above in relation to a possible dialect convergence towards the stereotypical image of that culture. Along similar lines, there have been several studies which have specifically shown the important role played by social identity in D2 acquisition. However, the influence can work both ways; while some studies focus on the correlation between D2 acquisition and D2 area identity (e.g. Foreman 2003), others illustrate the notion of maintaining D1 area identity through continued use of D1 features (e.g. Ivars 1994; Stanford 2007).

The final area of interest is the amount of exposure to and contact with the second dialect. This is a very difficult factor to measure, and must always at some point involve an element of self-assessment on the part of the individual, thus inviting a degree of inconsistency between speakers. The preferred strategy for recent second dialect acquisition (SDA) studies has been to adopt a social network approach (see Siegel 2010 for an overview), but this approach is potentially problematic when the second dialect occurs in an L2 situation. The issue is that, while same-language networks will contain both D1 and D2 patterns of interaction, (i.e. D1 speaker to D1 speaker, and D1 speaker to D2 speaker), the same is not generally true for different-language networks. In the present context, if three Polish speakers are talking, they are likely to use Polish (unless, perhaps, an English speaker was there--but even then they might speak Polish). In some ways this makes the situation simpler--the only influential contact is that with local English (L2 D2) speakers, as contact with potential D1 speakers (Polish speakers speaking in English) is likely to be minimal. However, this uncertainty once again underlines the difficulty in measuring this factor.

Dialect Acquisition in a Second Language

In attempting to investigate dialect acquisition in an L2, there is the additional complication of L2 proficiency. This added layer of complexity can have the result of blurring the distinction between SDA on the one hand, and second language acquisition (SLA) on the other. The participants involved in the present study all had some level of spoken English (learned in Poland) before coming to Manchester, meaning that in many ways the change being investigated is indeed dialectal, within the same language. That is to say, individuals with one English vowel variant, as determined by the standard pedagogical model, find themselves in a region where there is a different local variant for the same vowel. On this level, the fact that the individuals come from a different L1 background is largely irrelevant, they are simply moving from one English dialect model to another. However, the level of an individual's L2 speech proficiency is likely to affect the degree to which this interpretation of the change being purely dialectal can be seen to be the case. At lower levels, the acquisition of the local variant could be viewed as a process of SLA rather than SDA. Also tied into the issue of L2 proficiency is the question of perception ability. It would be surprising if those speakers with a low level of English were able to perceive (at least consciously) dialectal differences in the local speech to the same extent that higher level speakers would. With this in mind, it is difficult to predict the direction in which L2 proficiency might influence acquisition, if at all.

Although Siegel (2010) notes the similarities between SDA on the one hand and SLA on the other, providing a useful comparison between the two processes, the two are usually kept separate. The vast majority of studies into SLA have concentrated on the acquisition of a standard variety of the L2, which, in terms of English, has been the standard pedagogical models of Received Pronunciation (RP) or General American (GA).³ Similarly,

the vast majority of studies into the SDA have concentrated on mutually intelligible dialects within the same language. However, there are a handful of significant studies which have addressed the issue of dialect acquisition within a second language: Wolfram, Carter, and Moriello (2004), Sharma (2005), and Rindal (2010), come from a sociolinguistic background in terms of methodology; Fox and McGory (2007), and Baker (2008), come from an SLA background. Drummond (2010) provides a more detailed overview of these studies, but a brief description is presented here.

Wolfram, Carter, and Moriello (2004) investigated (amongst other things) the /ai/ diphthong in the speech of adolescents in two emerging Hispanic communities in North Carolina. The degree of acquisition was very small, something they attributed to the lack of exposure to the local variety. They did, however, note the role of individual identity, suggesting that “some variation appears to be a matter of individual choice” (354). Sharma (2005) found that phonetic variation in the speech of her US-based Indian immigrants was used in the construction of identity, and that those speakers who showed the most use of local phonological features also expressed positive attitudes to the Americanization of their speech. Baker (2008) found that those adolescent Spanish speakers in Utah who had a more negative attitude towards Utah were actually more likely to show signs of acquisition of local speech features. She explained this by suggesting that it was the contact with native speakers that was driving the acquisition, but that this increased contact was heightening negative attitudes towards the target community. However, this initial conclusion that experiential, rather than social, factors were driving the acquisition did not tie in with some of the individual results. Baker then went on to suggest that more work was needed to tease apart these factors. Fox and McGory (2007) studied the production and perception of native Japanese speakers living in Ohio (Standard American English) and Alabama (Southern American English) but found no evidence of differences in acquisition. They suggested this

might be a result of “sociolinguistic factors” not included in their study such as attitude towards, and contact with, the local community.

Also important are those studies which are not specifically concerned with the acquisition of a particular local dialect in a second language but address the broader issue of the acquisition of sociolinguistic competence in L2 speech (as opposed to the more obvious linguistic competence). These kinds of studies emphasize the importance of not seeing SLA as a process of acquiring fixed target norms. Admittedly, the linguistic feature under consideration here is relatively stable in the local dialect, but when looked at in the wider context of a second language, the fact that the local variant differs from the pedagogical target renders work in the area of L2 sociolinguistic context somewhat enlightening. Amongst the notable of these studies are Adamson and Regan’s (1991) study into variation in (ing) by Cambodian and Vietnamese immigrants; Bayley’s (1996) study into patterns of consonant cluster reduction by Chinese speakers of English; Major’s (2004) study into native and non-native (Japanese and Spanish) production of four stylistically conditioned phonological processes; Mougeon, Rehner, and Nadasdi’s (2004) study into the acquisition of 13 sociolinguistic variables by French immersion students in Toronto; Uriteschu et al.’s (2004) study into schwa deletion, again by French immersion students in Canada; and more recently, Schleef, Meyerhoff, and Clark’s (2011) and Drummond’s (2012) studies into (ing) variation by Polish migrants in the United Kingdom (for a detailed review see Drummond 2010).

STRUT

The STRUT vowel is described by Wells (1982:131) as “a relatively short, half-open or slightly opener, centralized-back or central, unrounded vocoid.” While usually phonemically represented by /ʌ/, a back vowel, a more accurate phonetic representation is the central [ɐ].

This latter symbol will be used in the present study to represent the Standard Southern British English (SSBrEng) realization of the vowel.

The reason this particular vowel is the focus of the present study is that in Manchester--and indeed in the north of England in general--there is no phonemic opposition between the STRUT vowel and the FOOT vowel. This lack of a so-called FOOT/STRUT split (Wells 1982:351-353) is in marked contrast to the pedagogical model of English the Polish speakers have been exposed to, a model which is based on the SSBrEng vowel system.⁴ The result of this lack of split in the north of England is that words such as *put* and *putt* are homophonous for many local NSs (native speakers). This difference marks a salient distinction between northern and southern varieties of English. There is, however, a degree of variation amongst speakers in the realization of STRUT, even within the north. This is particularly true in the speech of those higher up the socioeconomic scale, where the STRUT vowel is often found to be intermediate between the two extremes, and to varying degrees. Wells (1982) discusses a few possible realizations for an intermediate sound, including a mid, central, unrounded [ə]. From personal experience, I believe this is the most common outcome of any STRUT variation in the speech of people in the Manchester area: a sound somewhere between (and including) [ʊ] and [ə] but almost never any more open than that.

Of course, in addition to the pedagogical vowel system and the local vowel system, the L1 vowel system is also relevant, particularly when we bear in mind the types of influence predicted by Flege's (1995) Speech Learning Model (SLM). The closest vowel to SSBrEng STRUT is Polish /a/, which is somewhat more open than the pedagogical target [ɐ]. According to the SLM, the proximity of these two vowels has the potential to cause difficulties, as the perception of the two would be very similar. Ideally, baseline data as to

the precise position of each speaker's STRUT vowel on arrival would have been gathered, but this was impossible in the present study due to the importance of LoR factors.

Whether or not this is the case amongst the speakers involved in the present study is of interest, but does not interfere with the focus in terms of movement towards the local STRUT variant. This is because even if the original STRUT vowel in the speech of the Polish participants is slightly more open than [ɐ] due to influence from Polish /a/, movement towards [ə] and [ʊ] would still be as a result of local influence. That is to say, because the Polish influence is working in the opposite direction to the local influence, the two processes are very much separate and cannot be confused.

Methodology

Participants

The participants for the study consisted of Polish adults who had grown up in Poland but were now living in Manchester. They each fulfilled the following criteria:

1. they grew up in Poland and came to England as adults;
2. they were aged between 18 and 40;
3. they had at least a basic proficiency in English before coming to England;⁵

Additionally, ideal participants had lived nowhere else in the UK apart from the Manchester area. This was true for all but 3 participants. The final sample consisted of 40 individuals (see Table 1).

[TABLE 1 HERE]

Gathering Data

Meetings were arranged with individuals throughout 2009.⁶ Although there were other elements to the meetings (a picture description task and a word list), all speech data presented here come from an informal conversation with each participant, with the addition of some FOOT vowel tokens from the word-list data for comparison purposes. The term “conversation” is used intentionally here, as the idea was to replicate an informal chat. Every effort was made to elicit as much speech as possible from the participant, resulting in the conversations being desirably one-sided, but they remained conversations rather than interviews. The reason for this approach was an awareness that the participants were not using their first language, which for many would be a challenging task. It was therefore important to ensure that the meeting in no way resembled any kind of language test, where an interlocutor would ask a series of questions and offer little in return. It should be noted that the interviewer did not have the local STRUT variant in his own speech.

The purpose of the conversation was to elicit speech that was as natural as possible by accessing information, explanations, and most importantly stories, that might usually be shared between friends. Certain core topics such as the participant’s life in Poland, life in Manchester, problems faced when living in a different country, and future plans were covered with each participant through leading questions. Other topics developed naturally depending on the individual. The length of the conversations varied with each speaker, with the shortest being 18 minutes and the longest lasting one hour and ten minutes (average 34 minutes). The most important factor determining length was level of English proficiency, with some speakers finding it understandably challenging to maintain a conversation in a second language for an extended period.

Each conversation was recorded using a Zoom H2 Handy Recorder placed unobtrusively on a surface near the participant. Recordings were made as .wav files using a

44.1 kHz sampling rate with 16-bit precision, saved onto an SD memory card then transferred onto a PC.

The recorded conversation was also used to assess each participant's level of English (LoE). This was an impressionistic score made by the researcher and a colleague (both experienced English teachers) on overall fluency, accuracy, and use of vocabulary. A numerical scale from one to ten was used.

Coding STRUT

Every instance of a word which might potentially include the STRUT vowel (in an accent where STRUT exists separately from FOOT) was identified as a token, and the vowel was coded into one of eleven categories. Vowels which were perceived to be within the target NS range were coded in the first five categories 0-5 ([ɐ], [ɛ̃], [ə], [ʊ̃], [ʊ]), vowels which were perceived to be outside the NS target range were coded in categories 5-9 ([ɔ], [ɒ], [u], [a], [ɑ]), and weak forms were coded separately. Weak forms were identified on a word-by-word basis on the actual absence of stress rather than by what might be predicted by standard patterns of native-speaker stress placement. This is because words which would usually be weak in native-speaker speech (high-frequency monosyllabic function words such as *but*, *just*, auxiliary *does*) were often given their full form in the speech of the participants. When this occurred, tokens were deemed to be full and were coded accordingly. True weak forms were coded separately due to the fact that the vowel is likely to be something close to schwa whatever the underlying accent, so therefore they reveal nothing about the acquisition or otherwise of a Northern British English (NBrEng) variant for STRUT.

The non-target vowels could be viewed as pronunciation errors, as they are not in line with either the pedagogical model or the local variety. This does not render them

irrelevant by any means, and it would undoubtedly be of great interest to study these tokens in more depth in relation to Flege's (1995) SLM. However, for the purposes of this study these categories were conflated and viewed simply as non-target realizations of STRUT. Due to the fact that these tokens do not play a central part in the study, the categorizations are not necessarily intended to be phonetically precise. Instead, the symbols used represent the nearest cardinal vowel to what was heard, without the use of diacritics.

What remained for each participant was a numerical value showing the total for each of the five variants of the STRUT vowel under investigation (coded as 0, 1, 2, 3 and 4), the total number of weak forms (w), and the total number of non-target forms. The five standard variants actually lie on a continuum between the two extremes, so the categories are in some ways arbitrary, but categorizing them in this way helps to make sense of a continuous variable of this kind (Milroy & Gordon 2003). The decision to use five auditory categories was based on a process of trial and error during which it was found that the researcher could reliably distinguish more than three variants, yet not as many as six or seven. The accuracy of the auditory analysis was checked during the acoustic analysis (see below).

In the first instance, 50 full STRUT tokens were identified for each individual speaker, with all weak forms being identified when they occurred within this time. If those 50 tokens were all auditorily categorized as 0 or 1, then no further tokens were sought, as these two variants could be seen as being within the pedagogical target. However, if two or more tokens were auditorily categorized as 2, 3, or 4, indicating a possible move towards the local variant, then a further 20 full tokens were sought, bringing the total to 70. If those 70 tokens included five or more tokens auditorily categorized as 2, 3 or 4, indicating a possible substantial move towards the local variant, then a further 30 full tokens were sought, bringing the total to 100.⁷

In the case of four particular speakers 100 full tokens were analyzed when, according to the process described above, only 70 were necessary. This was due to the fact that these four were involved in testing the effectiveness of this process, and it was felt that the additional tokens should be retained rather than discarded. In the case of one speaker, the number of stressed tokens available in total fell below 50 (44). In all, 4158 STRUT tokens were analyzed (3146 full tokens, of which 2829 were target tokens), an average of just over 103 tokens per participant. In addition to the 40 Polish speakers, four local NSs were also recorded in order to illustrate their lack of variation beyond [ʊ] to [ə].

Acoustic analysis was used to complement the findings of the auditory analysis. While it must be borne in mind that there is no direct one-to-one relationship between the auditory and acoustic analyses of vowels, particularly when restricting analysis to the first and second formants (Foulkes, Scobbie & Watt 2010),⁸ it can be beneficial to use both techniques in tandem (Labov 1994). Indeed, Milroy and Gordon (2003), in a useful discussion of the merits of each technique, point to various studies which have used acoustic analysis on data which has already been coded auditorily (e.g. Gordon 2001; Watt & Milroy 1999). It is often the case that the acoustic analysis helps clarify auditory analysis and vice versa. At the very least, using the two techniques together helps to guard against the incorrect analysis of individual tokens.

On completion of the auditory analysis for an individual speaker, a selection of the tokens were subjected to acoustic analysis using Praat (Boersma & Weenink 2010). Tokens where the vowel sound was followed by either a nasal consonant or a lateral approximant were excluded, due to possible coarticulation effects; all other tokens were measured. However, as the purpose of the acoustic analysis was to test the accuracy of the results of the auditory analysis, it was important that only clear examples were used. For this reason, those tokens whose F1 and F2 frequencies were ambiguous in any way were also

disregarded. For the remainder of the tokens, F1 and F2 readings were taken from a visible steady state in the middle of the vowel. The results were plotted onto a scatter diagram using Microsoft Excel. By labeling the points in the scatter diagram with the numbers 0 to 4 from the auditory analysis it was possible to visually check the consistency between the two techniques, as instances of each number would ideally be grouped together in the diagram. Similarly, plotting the mean F1/F2 readings for all members of each auditory category would ideally show five points covering the target area from SSBrEng [ɐ] to NBrEng [ʊ]. However, this should not be taken to mean that an entirely neat patterning was either expected or desired, it was simply a way of highlighting tokens that might need to be re-visited. Those tokens that did show a discrepancy between auditory category and acoustic F1/F2 reading were re-checked. The number of discrepancies varied from speaker to speaker. In some cases there were none, and in others up to approximately 10% needed to be revisited. If the two results remained inconsistent after re-checking, the auditory categorization was deemed to be the final decision due to the centrality of the idea of perception in this part of the study.

Coding Social Factors

In addition to the speech data, social and attitudinal data were gathered by means of a questionnaire which was completed after the conversation but within the meeting. It was decided to have the entire questionnaire translated into Polish so as to avoid both possible misunderstanding and fatigue on the part of the speakers. The first section of the questionnaire targeted information such as self-assessed English proficiency, amount of English instruction, amount of use of L1/L2 in different contexts (work, home, social), and future plans. The second section focussed on attitudinal factors and used multi-item seven-point Likert scales to investigate various aspects of individuals' attitudes towards living in

Manchester and their spoken English. Each aspect was covered by at least four positively and negatively phrased items, with participants asked to express the extent to which they agree with the statement. For example, ATT (attitude towards Manchester, its people, and living there) was assessed using the following items:

1. Manchester is a good place to live.
2. English people in Manchester are not trustworthy and honest.
3. English people in Manchester are friendly and kind.
4. It is not important for me to be a part of the local community in Manchester.
5. I do not enjoy living in Manchester.
6. The more I get to know English people in Manchester, the more I like them.

The items for each aspect were, of course, mixed together with items from all the other aspects in the questionnaire. After checking the internal consistency of the questions, some aspects were discarded⁹, leaving the following:

- attitude towards Manchester, its people, and living there (ATT);
- awareness of a Manchester accent (AW);
- desire to lose one's Polish accent and sound like NS (not specifically Manchester English) (CHA);
- motivation (both instrumental and integrative) to improve pronunciation. (MOT).

The complete set of influencing factors under consideration can be seen in Table 2.

[TABLE 2 HERE]

Statistical Analysis

Where appropriate, multiple logistic regression analysis was carried out using Rbrul (Johnson 2008). Rbrul is a variable rule program in the mold of Goldvarb (Sankoff, Tagliamonte & Smith 2005), yet which incorporates mixed-effects modeling, therefore distinguishing between (replicable) fixed effects such as male/female, linguistic context,

etc., and (non-replicable) random effects such as individual speaker variation. By including individual speaker as a random effect, the model is able to account for the fact that some speakers may favor a particular variant to a greater or lesser degree than their relevant fixed factors would predict. The result is a model which “can still capture external effects, but only when they are strong enough to rise above the inter-speaker variation” (Johnson 2009:365). Rbrul expresses coefficients in log-odds rather than factor weights, although both are given in the analysis presented here to enable ease of understanding for those who are more familiar with Goldvarb output.

Results

Of the 40 speakers, eight showed no target tokens in anything other than the first two categories (0 and 1), suggesting no significant change from their original variant of something close to the pedagogical target [ɐ]. Of course, without the baseline data mentioned earlier concerning the precise nature of the speakers’ vowels on arrival, it is possible that even in these eight speakers some movement has already taken place from Polish influenced /a/ towards [ɐ]. Indeed, it might be the case that different speakers are moving towards different NS targets. Unfortunately, given the circumstances, this remains outside the scope of the present study and can only be speculation at this point. Figure 1 shows the distribution of target tokens following auditory analysis for all speakers ordered by the mean value across all five categories. The four bars on the right represent the four native speakers.

[FIGURE 1 HERE]

What is immediately clear is that none of the Polish speakers displays consistent local NS-like pronunciation of STRUT. As expected, all 200 tokens from the four NSs fall within categories 2, 3, and 4, with the means ranging from 3.32 to 3.44. Compare this to the

four most extreme NNSs (Speakers 27, 26, 29, and 18), who have means ranging from 1.76 to 2.68 and, with one exception, all show the full range of categories. However, what is also clear is the fact that there is indeed some evidence of a change in pronunciation amongst the speakers, with 31 individuals showing at least one example of a variant that could be viewed as having been influenced by the local accent. The results also provide evidence for the idea that the acquisition is phonetically gradual, with several speakers exhibiting a range of variants, and some exhibiting all five.

As noted above, acoustic analysis was carried out on a subset of the speakers for the primary purpose of providing a check on the auditory analysis. It was decided that the subset of speakers to undergo acoustic analysis should include a selection of those who showed no movement towards the local variant, as well as those who showed the greatest degree of movement towards the local variant. The aim was to analyze the tokens of 20 speakers (half the total), which resulted in five speakers with a mean auditory value of 0 and 15 speakers with mean auditory values between 0.52 and 2.68 being analyzed. Although the stated aim of the acoustic analysis was to confirm the auditory findings, the acoustic results themselves provide a useful illustration of the status of STRUT for each speaker. The charts in Figure 2 show the plotted STRUT tokens for a selection of the 20 speakers. In addition to this, FOOT tokens have also been plotted for each speaker in order to show the degree of separation between the two.¹⁰ Recall that speakers whose pronunciation has not been influenced by the local accent are expected to demonstrate a FOOT/STRUT split, whereas speakers whose pronunciation has been influenced are likely to show signs of a reduction in that split. Local NSs show no split at all (see Figure 3). In each of the charts, the x-axis represents F2 in Hz, the y-axis represents F1 in Hz, the dark circles represent target STRUT tokens, and the white circles represent FOOT tokens. It should be borne in mind that only clear tokens not followed by a nasal or lateral approximant were analyzed, so the charts might not give the

full picture for an individual speaker. For example, a speaker might have produced tokens that were auditorily judged to be 3 ([ʊ]) or 4 ([ʊ]), but if they happened to be in words such as ‘money’ or ‘dull’, they were not included in the acoustic analysis.

[FIGURE 2 HERE]

[FIGURE 3 HERE]

What is immediately clear is the expected evidence of a clear FOOT/STRUT split in the chart for Speaker 23. This speaker has a mean auditory value of 0, signifying that none of his target tokens was judged to be anything other than close to RP [ʊ]. The remaining charts show how the STRUT tokens, to varying degrees, encroach on the vowel space for the FOOT tokens, resulting in a varying amount of overlap between the two vowels. The most extreme example is perhaps Speaker 29, as his STRUT tokens are neatly grouped up towards the FOOT area, with no tokens as far down as would be expected for RP [ʊ]. In fact, Speaker 29 is the one person whose auditory analysis contained no tokens categorized as 0. However, despite this neat grouping and degree of overlap, the distribution of tokens does not match that of either local NS, who both demonstrate the completely predictable patterning of a speaker with no FOOT/STRUT split at all.

It is also worth noting that all FOOT tokens remain approximately in the area of the vowel space where we would expect them to be, although perhaps slightly higher than the NS examples. This observation is important because the argument could be made that two types of accent change occur: 1) the disappearance of a FOOT/STRUT split and 2) local realization of the resulting vowel. In theory, the first type of change could occur without the resulting single vowel being the same as the local variant. For this to be the case, the FOOT vowel would need to move. Although there are no baseline data for FOOT values on arrival, there is nothing to suggest that movement has taken place in any of the speakers.

However, the fact that the FOOT tokens appear to be rather high brings two further questions. First, there is the issue of their contrast with GOOSE. In actual fact, of those speakers whose GOOSE tokens were also measured (a sample of 10) there was generally a clear split between the two vowels. Interestingly, while they did appear to be similar in terms of height, GOOSE tended to be fronter than FOOT. Clearly this is an area for further investigation given the evidence of GOOSE fronting in various varieties of English (see for example the measurements and following discussion in Ferragne & Pellegrino 2010). The second issue is the possibility that a high FOOT realization illustrates the difference between a possible phonetic assimilation and a possible phonological assimilation of FOOT and STRUT. It could be argued that although some of the speakers exhibit STRUT tokens which are phonetically similar to the local variant, phonologically they still maintain the split, as their FOOT vowel is relatively high.

However, the purpose of this paper is to show that a change does indeed take place in the STRUT vowel, and that the change indicates movement towards the local variant. In that sense, the focus is on the process of change/acquisition rather than the eventual destination of the vowel. Given the limited LoR of the participants, it is difficult to predict what might happen to the vowels as the acquisition becomes more complete. It might be the case that other changes do occur in order to accommodate the local STRUT variant, but these will have to be explored at a later date.

Regression Analysis

Multiple regression analysis was carried out using Rbrul (Johnson 2008). Because Rbrul can handle continuous dependent variables (unlike Goldvarb), STRUT variation was initially inputted as a continuous scale from 0–5. However, a comparison of the deviance (how well the model fits the data) between the model using a continuous variable and a model using a

binary variable suggested that the latter would be more effective.¹¹ The five auditory categories were therefore conflated into two: [e] (0) and [ɐ] (1) became SSBEng and [ə] (2), [ʊ] (3), [ʊ] (4) became NBrEng.

Before this change was finalized, the relationship between the two methods (five categories and two categories) was tested to ensure that subsequent analyses would be measuring the same effect. This was done by calculating a Pearson correlation coefficient for the mean auditory value (calculated from the five categories) on the one hand, and the proportion of NBrEng tokens on the other. The result showed that there is a very strong correlation between the two ($r=0.991$ $p<0.01$) suggesting that either approach is valid.

One additional adjustment was made to the data with regard to LoR. In the data collected from the five speakers who had LoRs of six months or less (Speakers 5, 11, 40, 8, 9), only one individual target token was categorized as anything other than 0 [e]. This was in the speech of Speaker 11, and it took the form of a correction. When saying *study* he initially pronounced it as /'stædi/ before self-correcting to /'stʌdi/. Clearly an isolated incident in addition to being a “mistake” in the mind of the speaker, it was decided that this token should not be considered as an example of NBrEng STRUT. The result of excluding this token from consideration was that there were no examples of NBrEng STRUT in the speech of anyone with an LoR of six months or less. It was fully expected that there would be an LoR below which there was no acquisition of the local variant, as there must be some degree of contact with the local speech community for any acquisition to be possible. Indeed the $\text{LoR} \leq 6$ months speakers themselves confirmed what was found in a pilot study, that people who have only recently arrived in Manchester simply do not have anything close to a NBrEng STRUT. Instead, their STRUT vowel is either pedagogical target [e] or else

influenced by Polish vowels, resulting in something close to [ɐ], [a] or [ɑ]. What was not known before analyzing the data was precisely where this LoR watershed would be.

As a result, LoR can be seen as the most important explanatory factor in the whole analysis, as, without it, there is simply no acquisition (and therefore no variation). This is not to say that a long LoR automatically leads to a degree of acquisition, simply that a short LoR of six months or less precludes any chance of acquisition. It is therefore of no value to look for other explanatory factors in the speech of anyone who does not have the prerequisite LoR of more than six months; they might score highly on every other factor that makes acquisition likely, but without the prerequisite LoR, these factors mean very little. It is for this reason that the regression analysis that follows was carried out having excluded the tokens gathered from the five speakers with an LoR of six months or less.

The remaining data were explored thoroughly, checked for coding errors, and a stepwise multiple regression analysis was carried out with STRUT as the dependent variable (NBrEng as the application value) and individual speaker as a random effect. Rbrul allows for the testing of interactions between the factors, so this was also done. The results can be seen in Table 3. At this stage a note is required on the way in which Rbrul deals with continuous independent variables. Because it makes no sense to report factor weights for continuous variables (as they are not factors), Rbrul reports the effect of continuous variables in log-odds only. Log-odds can be added together along with the intercept, which itself is a log-odds value for the overall proportion of the application value of the dependent variable. In Table 3 for example, the results of the LoR variable indicates that for every +1 increase in LoR (in this case, one month), 0.058 can be added to the overall log-odds coefficient. So a LoR of two years would create a log-odds value of 1.296. Categorical independent variables (such as NS partner) are displayed as log-odds and factor weights. The log-odds value works in the same way as described above, and the factor weight is

simply a log-odds value converted to a value between 0 and 1; a value over 0.5 favors the application value. To ascertain the model's prediction for a certain type of speaker we can simply take the sum of the different log-odds coefficients for each relevant category (when the variable is a factor) or score (when the variable is continuous), plus the value for the intercept. (See Johnson 2009 for further details.)

[TABLE 3 HERE]

The fact that LoR is statistically significant is to be expected--the longer a speaker has been in Manchester, the more likely they are to use the local variant of STRUT. The increased likelihood of the local STRUT variant in those speakers who have an English partner is also expected to an extent; however, in the coding used for the analysis above, there was no indication of where the partner is from. This is likely to be important for this particular variable, as a non-local NS partner would not necessarily use the local variant themselves. Indeed, on revisiting the conversation data it was found that of the six speakers who had English partners, three could be identified as having partners from the local area, and three could be identified as having partners who come from areas in which a FOOT/STRUT split would be the norm. Clearly nothing specific is known about the speech of the partners, but a comparison of the two possible influences provides an interesting picture. The three speakers with local NS partners have a mean NBrEng STRUT proportion of 0.49, whereas the three speakers with non-local NS partners have a mean NBrEng STRUT proportion of 0.09. However, when the regression analysis is re-run with only those speakers with a local NS partner being separated, NS partner no longer emerges as statistically significant. If we accept this as a real result (and not simply a statistical artifact of the very low speakers fitting this category, something which is certainly possible) it would

suggest that despite the evidence of individuals, when other factors (including individual variation) are considered, it is the existence of a NS partner that affects STRUT variation rather than specifically whether the partner is from the local area. This may simply be due to the fact that the local partners in question, for whatever reason, may or may not exhibit the local STRUT variant, something that cannot in this instance be explored. Alternatively, it may be due to the fact that people with NS partners are probably more likely to spend time with other NSs, some of whom will be local to the area. Implications of the significance of NS partner will be explored in more detail in the discussion section.

In addition, one of the four attitudinal variables reaches statistical significance. Recall that ATT (Attitude) measures attitudes towards Manchester, its people, and living there. The log-odds show that the more positive a speaker's attitude towards Manchester is, the more likely they are to use the local STRUT variant. Indeed, this certainly appears to be the case when certain individuals are observed. Figure 4 shows the proportion of NBrEng STRUT variants for each speaker, ordered by LoR. The four speakers who show relatively low levels of STRUT variation in relation to their LoRs (Speakers 32, 22, 25, 33 in black) actually have some of the lowest attitude scores of all the speakers, with one speaker (22) having the lowest attitude score of all, and all four falling below the mean (one each in the 5th, 10th, 25th and 50th percentiles). Compare this to Speakers 27, 26, 29 and 18 (mid-gray) who all show a high degree of STRUT variation and who all have high attitude scores (two in the 75th percentile, and one each in the 90th and 95th percentiles). This will be explored in more detail in the discussion section.

The relationship between LoR and ATT is illustrated by the fact that there is a statistically significant interaction between the two. Its inclusion in the model is not problematic given that both factors are individually significant and that the interaction is working in the same direction as the individual components. Instead it can be interpreted as

each factor exerting stronger influence when combined with the other. In other words, the effect of LoR is greater if ATT is higher, and vice versa.

[FIGURE 4 HERE]

It is important to note the factors that did not reach statistical significance, perhaps most interestingly, Level of English (LoE). The point was made earlier that L2 proficiency is likely to play a role when looking at dialect acquisition in a second language due to the fact that the distinction between dialect acquisition and SLA becomes blurred. Whether or not we expect that lower-level speakers will show a greater degree of acquisition of the local vowel on account of their being more likely to be experiencing the local vowel sound in “new” (to them) words, in this group of speakers, there was no discernible pattern.

In addition to the social factors, the possibility of a lexical frequency effect was explored at this stage. This was done by using data from the British National Corpus frequency lists supplied in Leech, Rayson, and Wilson (2001) and calculating the frequency of the words in the Polish data set. In addition to frequency values for each word, the mean auditory STRUT value was also calculated, as well as each word’s proportion of NBrEng variants (when measured as a binary variable). Pearson correlation coefficients calculated for frequency values and both STRUT variation measures showed no correlation between lexical frequency and the acquisition of the NBrEng variant, suggesting no linear relationship between the two (BNC freq and mean auditory STRUT: $r=0.190$ $p=0.110$; BNC freq and proportion of NBrEng STRUT: $r=-0.160$ $p=0.179$). The frequency data were then added to the regression analysis as an independent variable, but again, no meaningful results emerged connecting the two factors (for full details, see Drummond 2010). It should be pointed out, however, that some kind of frequency effect did eventually become apparent,

but this was at the level of phonetic context. A usage-based explanation of this finding is discussed in detail in Drummond (2011) and Drummond (In preparation).

Discussion

The regression analyses suggest that three factors (LoR, NS partner, Attitude towards Manchester) have a significant role to play in the variation of STRUT. While the first two of these are clearly factors to do with exposure, and therefore less agentive, the third could be seen in relation to social identity, and therefore as more agentive. These three factors will be discussed in turn below. Superficially, it is surprising that use of L1/L2 (and its implied measure of exposure to the D2) is not statistically significant. However, this could well be explained by inadequate methodology. The decision to rely on self-reported L1/L2 use was perhaps an overly simplistic approach to what is potentially a fruitful area to explore. Future research in the area would benefit from a more detailed and involved analysis of the social networks of the speakers.

Length of Residence

While the fact that LoR is statistically significant is not surprising, it is nonetheless interesting, particularly when the degree of acquisition of the local variant over time is explored in more detail. Figure 5 shows LoR broken down into years, with the mean proportion of NBrEng STRUT from all speakers for each year of residence. This is striking not only for its orderliness, but also for the extremely neat fit of the exponential trendline ($R^2 = 0.99$). This might suggest the beginning of an S-curve model of acquisition, whereby the rate is slow at the beginning, before a period of rapid change, and then tails off. This is just speculation at this stage--clearly there are other factors at work which will influence the acquisition of the local variant in individuals--but it might be the case that in time, the S-

curve model prevails overall. The only way for this to be tested is to increase the sample size to include speakers who have been in Manchester longer than six years. However, this brings an additional issue: when the LoR starts getting higher, so too does the potential range of influences on a speaker's English, making it very difficult to attach any sort of explanatory power to any particular variables. In addition, the participants in the present study are representative of the wave of immigration to the United Kingdom after Poland's entry to the European Union in 2004. It is therefore necessary to wait a few more years to find people with longer LoRs. Whatever the eventual outcome, it is clear that any change occurs very gradually at first, with no sign of any acquisition in the first six months, and very little in the first two years of residence.

[FIGURE 5 HERE]

NS Partner

The results of the regression analysis suggested that simply having a NS partner was enough to increase the likelihood of exhibiting NBrEng STRUT, regardless of whether that partner was from the local area. This would render the fact that the three speakers with local partners displayed greater use of the local variant largely coincidental. While this seems unlikely, it is difficult to make a definitive assessment, as very little is known about the speech of the partners. While they may have been described as "from the local area" by the participants, nothing is known of their linguistic background. Their accent might reflect an upbringing in a different area of the United Kingdom, yet they see themselves as being local. Similarly, those NS partners who are not from the local area might just as easily come from an area of the United Kingdom which shares the lack of FOOT/STRUT split. This lack of a split is, after all, a general feature of NBrEng. There is also the possibility that a non-

local partner from an area which has a FOOT/STRUT split has actually acquired the local vowel themselves. Furthermore, as mentioned previously, the very fact of having a NS partner makes social contact with other NSs more likely, and the chances of some of these having local speech features is surely quite high.

Attitude

The regression analysis showed that of the four attitudinal factors, only ATT (attitude towards Manchester, its people, and living there) reached statistical significance. The observation was made earlier that some of the participants with the longest LoRs but with low levels of STRUT variation actually had some of the lowest (most negative) attitude scores. One of these is Speaker 22 (female, age 26, student), who had the lowest attitude score of all. She has an LoR of 59 months, yet shows almost no acquisition of NBrEng STRUT (mean auditory value 0.13, proportion of NBrEng STRUT 0.02). During the conversation part of the interview, Speaker 22 said:

I had a lot of bad experience in Manchester. Starting from rape attempts, and stuff like that, so, anything you can, you can only think of. Yeah the crime rate in Manchester is terrible ... it's the ... I think it's the worst in Europe. [...] So basically everybody has experienced something like that. It's not only me. [...] I was beaten up on a bus, by some girls, yeah, you basically, you cannot walk alone.

Her negative attitude towards Manchester and its people is, certainly in her mind, completely justified. She sees Manchester as a dangerous place, and has the personal experience to support this view. Her situation is especially interesting due to the fact that before starting at university in Manchester she spent some time working in a factory

alongside people with very strong local accents. She explains how she did not get on well with her co-workers and experienced a lot of discrimination, including “verbal and physical aggressiveness.” Recall that Baker (2008), on finding a correlation between negative attitude towards the target culture and increased use of the local variety suggested that this might be because the subjects in question had spent an increased amount of time within the target culture, thus increasing the likelihood of change due to contact, while at the same time developing a negative attitude. The results from this particular speaker at least do not support this, as despite the increased contact with the local variety, her (very) negative attitude towards the target culture seems to have inhibited any form of acquisition. It is, of course, impossible to say for certain what has led to Speaker 22 not acquiring the local STRUT variant despite aspects of her situation making it likely. However, it is not hard to imagine that her understandably negative attitude towards the people whom she described in another part of the same conversation as “vulgar” has influenced the maintenance of her RP-based pronunciation to some extent.

What is not clear in the data from Speaker 22 is the extent to which this lack of acquisition was conscious. The same is not true for Speaker 38 (male, age 24, student and cafe worker), who very clearly describes how he acquired a “Mancunian” accent due to his work in a cafe at a busy Manchester railway station, before consciously losing it again:

After two years of working there I’ve picked up the [local] accent, and other people couldn’t understand me at all ... the only way I could speak English was Mancunian way. So I’ve just tried to listen to my wife, how she pronounce things, [rather] than my colleagues at work, and slowly I’ve killed it. [...] My wife just hated the accent, she couldn’t stand it. It’s like a bad habit, it’s just not controlling yourself. It’s just, if

you don't know how to pronounce things, you listen how other people are trying to pronounce them, and in the end you are sounding the same as they are.

Speaker 38's attitude score is fairly low (just within the 25th percentile), but his LoR is not high enough at 42 months to necessitate looking towards attitude as an explanatory factor in his lack of local acquisition. Nevertheless, it is interesting that he feels he did go through a stage of acquiring local features, despite the fact that he clearly has a negative attitude towards the local accent. It is hard to say for sure that one of these features would have been the STRUT vowel, although it is highly likely, given its salience. Speaker 38's comments are illuminating by virtue of his own explanation for his acquisition of local features: "if you don't know how to pronounce things, you listen how other people are trying to pronounce them, and in the end you are sounding the same as they are." This brings us back to the question of which process is at work here--straightforward SLA or SDA within a second language? If the "Mancunian" accent described by Speaker 38 and his wife was actually confined to new vocabulary that Speaker 38 had acquired at work, this might simply be a case of learning a new word based on the pronunciation model that is available. However, if the accent was noticeable in other existing words, then it is a candidate for dialect acquisition. Unfortunately, in this particular case, it is impossible to know for sure.

One possible interpretation of why attitude towards Manchester is relevant in this context might be that the attitude an individual has towards the target culture helps in the construction of identity in relation to that culture. A positive attitude suggests a willingness to be part of the target culture, whereas a negative attitude suggests a desire to remain separate. The importance of accent in the construction of identity is clear, and the salience of the STRUT vowel has already been noted. Admittedly, the link between positive attitude and vowel acquisition is perhaps a little neat, and of course the construction of identity is by no

means a straightforward process. More plausible is the idea that the combination of positive attitude, desire to belong, and vowel acquisition all influence one another, pushing each other forward. The end result is a measurable change in vowel quality. It is important to remember that the interviewer collecting the data did not have the local STRUT variant in his own speech, so if accommodation were taking place it would be towards the standard pedagogical variant, thus possibly inhibiting the use of the local variant. This fact actually makes any change towards the local vowel more noteworthy, as the process is working in opposition to that of interlocutor accommodation. It would be interesting, however, to repeat the experiment with a local interviewer.

It should also be borne in mind that the lack of a FOOT/STRUT split, and therefore the local vowel variant, is not an accent feature specific to Manchester. It could be argued that the combination of the attitudinal data measuring attitude towards Manchester specifically, and the phonetic data measuring a feature that is not Manchester-specific is problematic. However, the feature in question is still a feature of Manchester English. It would indeed be very problematic if we were trying to measure attitudes and dialect acquisition in relation to various UK cities, but in this case, the link is still valid.

Conclusion

This article began by asking two questions:

1. To what extent do NNSs acquire the local vowel variant?
2. What social factors influence the degree of acquisition?

In answer to question one, the data presented here clearly show that there is a change in vowel quality in the speech of several of the participants. None of them produces the local variant consistently enough to match the speech of local NSs, but the pattern of LoR suggests that this is perhaps only a matter of time. There is no doubt that some speakers are

producing individual realizations which are identical to the local vowel, but at the moment this is accompanied by other realizations that are closer to the pedagogical standard the speakers began with.

In answer to question two, three factors emerged as having a statistically significant influence on degree of acquisition. While the first, length of residence, was not surprising, it was interesting to note the rapidity with which the local variant is acquired over time after the first two years. The influence of a NS partner was also found to be important, and this was explained by way of the increased contact with local NSs that a NS partner was likely to encourage. Finally, attitude towards Manchester was found to affect the realization of the vowel, and this was interpreted as being involved in the construction of an identity in relation to the target culture. However, the lack of detailed social network data and the complexity of identity construction mean that this can only be a tentative interpretation for now.

All this suggests that by studying the process of dialect acquisition in a second language--particularly in the context of a migrant population--we can begin to see how particular aspects of people's experiences in and relationships with the target culture can be signaled in the details of the acquisition. This is not to say that evidence of dialect acquisition equals happy, integrated migrants--rather that evidence of dialect acquisition might, along with other, non-linguistic factors, be an indicator that an individual is consciously or unconsciously positioning themselves within the target culture.

Acknowledgments

I would like to thank Maciej Baranowski for his input and advice on this research in its earlier stages. I would also like to thank the anonymous reviewers and editors from the *Journal of English Linguistics* for their very clear and helpful comments. Finally, I would

like to thank Daniel Ezra Johnson for his help and clarification regarding some of the statistical analysis.

Notes

1. The term “local variant” will be used throughout the article, despite the fact that the variant in question is not restricted to Manchester. The point is, despite its wider existence, it is still the variant used in the local accent.
2. This is a very brief overview. For more details, see Drummond (2010, 2011).
3. These are the terms generally used in ELT pronunciation materials. I acknowledge that in a linguistic setting they are inaccurate, vague, or both.
4. Polish students might also have an American English model, but this does not affect the issue of this particular vowel since that pronunciation model too features a FOOT/STRUT split.
5. By its very nature this had to be self-assessed proficiency.
6. This paper represents part of a larger project detailed in Drummond (2010).
7. It was felt that analysing further tokens from those speakers who exhibited little or no variation would be unlikely to reveal anything that wasn’t apparent in the first 50, whereas analysing further tokens from those speakers who did show variation enabled better representation of the nature of this variation,.
8. Foulkes, Scobbie, and Watt (2010) provide a useful critique of the reliance on formant frequencies (especially F1/F2) in the analysis of vowel systems, providing numerous examples of research in which the explanatory power of these two formants is questioned.
9. Although all questions showed internal consistency between their items, there was evidence of correlation between some factors. As a result, the two motivation factors which aimed to distinguish instrumental and integrative motivation were conflated, and the factors of anxiety about pronunciation and attitude towards a Manchester accent were discarded.
10. The FOOT tokens are taken from the word-list data.

11. In Rbrul the deviance measure corresponds to -2 times the log-likelihood as reported in GoldVarb. The closer this value is to zero, the better the model fit.

References

- Adamson, H. D. & Vera M. Regan. 1991. The acquisition of community speech norms by Asian immigrants learning English as a second language: A preliminary study. *Studies in Second Language Acquisition* 13(1). 1-22.
- Auer, Peter & Frans Hinskens. 2005. The role of interpersonal accommodation in a theory of language change. In Peter Auer, Frans Hinskens & Paul Kerswill (eds.), *Dialect change: The convergence and divergence of dialects in European languages*, 335-357. Cambridge: Cambridge University Press.
- Baker, Wendy. 2008. Social, experiential and psychological factors affecting L2 dialect acquisition. In Melissa Bowles, Rebecca Foote, Silvia Perpiñán & Rakesh Bhatt, *Selected Proceedings of the 2007 Second Language Forum*, 187-198. Somerville, MA: Cascadilla Proceedings Project.
- Bayley, Robert. 1996. Competing constraints on variation in the speech of adult Chinese learners of English. In Robert Bayley & Dennis R. Preston (eds.), *Second language acquisition and linguistic variation*, 97-120. Philadelphia: John Benjamins.
- Boersma, Paul & David Weenink. 2010. Praat: Doing phonetics by computer [Computer program]. Version 5.1.23., retrieved Jan 2010 from <http://www.praat.org/>
- Chambers, Jack. 1992. Dialect acquisition. *Language* 68(4). 673-705.
- Chambers, Jack & Peter Trudgill. 1998. *Dialectology*. Cambridge: Cambridge University Press.
- Drummond, Rob. 2010. Sociolinguistic variation in a second language: The influence of local accent on the pronunciation of non-native English speakers living in Manchester. Manchester, UK: University of Manchester Ph.D. dissertation.

- Drummond, Rob. 2011. Dialect acquisition in a second language – towards a usage-based explanation of vowel variation. Paper presented at the 8th UK Language Variation and Change Conference (UKLVC8), Edge Hill University, Ormskirk, UK.
- Drummond, Rob. 2011. Glottal variation in /t/ in non-native English speech: Patterns of acquisition. *English World-wide* 32(3). 280-308.
- Drummond, Rob. 2012. Aspects of identity in a second language: Ing variation in the speech of Polish migrants living in Manchester, UK. *Language Variation and Change* 24(1). 1-27.
- Drummond, Rob (In preparation). Dialect acquisition in a second language: A usage-based explanation of vowel variation.
- Ferragne, Emmanuel & Francois Pellegrino. 2010. Formant frequencies of vowels in 13 accents of the British Isles. *Journal of the International Phonetic Association* 40(1). 1-34.
- Flege, James Emil. 1995. Second language speech learning: Theory, findings and problems. In Winifred Strange (ed.), *Speech perception and linguistic experience: Issues in cross-language research*, 233-272. Timonium, MD: York Press.
- Foreman, Annik. 2003. Pretending to be someone you're not: A study of second dialect acquisition in Australia. Melbourne, Monash University Ph.D. dissertation.
- Foulkes, Paul, James Scobbie & Dominic Watt. 2010. Sociophonetics. In William J. Hardcastle, John Laver & Fiona E. Gibbon (eds.), *Handbook of phonetic sciences*, 703-754. Oxford: Blackwell.
- Fox, Robert Allen & Julie McGory. 2007. Second language acquisition of a regional dialect of American English by native Japanese speakers. In Ocke-Schwen Bohn and Murray J. Munro (eds.), *Language experience in second language speech learning: In honor of James Emil Flege*, 117-134. Amsterdam: John Benjamins.

- Giles, Howard. 1973. Towards a theory of interpersonal accommodation through language: Some Canadian data. *Language in Society* 2(2). 177-192.
- Giles, Howard & Philip Smith. 1979. Accommodation theory: Optimal levels of convergence. In Howard Giles and Robert N. St Clair (eds.), *Language and social psychology*, 45-65. Baltimore: University Park Press.
- Gordon, Matthew J. 2001. *Small-town values and big-city vowels: A study of northern cities shift in Michigan*. Durham, N.C.: Duke University Press.
- Ivars, Ann-Marie .1994. Bidialectalism and identity. In Bengt Nordberg (ed.), *The sociolinguistics of urbanization: The case of the Nordic countries*, 203-222. Berlin: Walter de Gruyter.
- Johnson, Daniel Ezra. 2008. *Rbrul* [computer program]. Version 1.9, retrieved Nov 2009 from <http://www.danielezrajohnson.com/rbrul.html>
- Johnson, Daniel Ezra. 2009. Getting off the Goldvarb standard: Introducing Rbrul for mixed-effects variable rule analysis. *Language and Linguistics Compass* 3(1). 359-383.
- Kerswill, Paul. 1994. *Dialects converging: Rural speech in urban Norway*. Oxford: Clarendon Press.
- Labov, William. 1994. *Principles of linguistic change*. Vol. 1 of *Principles of linguistic change: Internal factors*. Oxford: Wiley-Blackwell.
- Leech, Geoffrey, Paul Rayson & Andrew Wilson. 2001. *Word frequencies in written and spoken English: Based on the British National Corpus*. Harlow, UK: Longman.
- Major, Roy C. 2004. Gender and stylistic variation in second language phonology. *Language Variation and Change* 16(03). 169-188.

- Meyerhoff, Miriam. 1998. Accommodating your data: The use and misuse of accommodation theory in sociolinguistics. *Language and Communication* 18(3). 205-225.
- Milroy, Lesley & Matthew Gordon. 2003. *Sociolinguistics: Method and interpretation*. Oxford: Blackwell.
- Mougeon, Raymond, Katherine Rehner & Terry Nadasdi. 2004. The learning of spoken French variation by immersion students from Toronto, Canada. *Journal of Sociolinguistics* 8(3). 408-432.
- Munro, Murray J., Tracey M. Derwing & James E. Flege. 1999. Canadians in Alabama: A perceptual study of dialect acquisition in adults. *Journal of Phonetics* 27(4). 385-403.
- Office for National Statistics. 2010. *Mid-year population estimates 2009*. London: Office for National Statistics.
- Payne, Arvilla. 1980. Factors controlling the acquisition of the Philadelphia dialect by out-of-state children. In William Labov (ed.), *Locating language in time and space*, 143-178. New York: Academic Press.
- Rindal, Ulrikke. 2010. Constructing identity with L2: Pronunciation and attitudes among Norwegian learners of English. *Journal of Sociolinguistics* 14(2). 240-261.
- Sankoff, David, Sali Tagliamonte & Eric Smith. 2005. *Goldvarb X: A variable rule application for Macintosh and Windows*[computer program]. Retrieved Jan 2009 from <http://individual.utoronto.ca/tagliamonte/goldvarb.htm>. Department of Linguistics, University of Toronto.
- Schleef, Erik, Miriam Meyerhoff & Lynn Clark. 2011. Teenagers' acquisition of variation: A comparison of locally-born and migrant teens' realisation of English (ing) in Edinburgh and London. *English World-wide* 32(2). 206-236.

- Sharma, Devyani. 2005. Dialect stabilization and speaker awareness in non-native varieties of English. *Journal of Sociolinguistics* 9(2). 194-224.
- Shockey, Linda. 1984. All in a flap: Long-term accommodation in phonology. *International Journal of the Sociology of Language* 46. 87-96.
- Siegel, Jeff. 2010. *Second dialect acquisition*. Cambridge: Cambridge University Press.
- Stanford, James N. 2007. Dialect contact and identity: A case study of exogamous sui clans. East Lansing, MI: Michigan State University Ph.D. dissertation.
- Straw, Michelle & Peter L. Patrick. 2007. Dialect acquisition of glottal variation in /t/: Barbadians in Ipswich. *Language Sciences* 29(2-3). 385-407.
- Tagliamonte, Sali & Sonja Molfenter. 2007. How'd you get that accent? Acquiring a second dialect of the same language. *Language in Society* 36(5). 649-675.
- Trudgill, Peter. 1986. *Dialects in contact*. Oxford: Blackwell.
- Uritescu, Dorin, Raymond Mougeon, Katherine Rehner & Terry Nadasdi. 2004. Acquisition of the internal and external constraints of variable schwa deletion by French immersion students. *International Review of Applied Linguistics in Language Teaching* 42(4). 349-364.
- Watt, Dominic & Lesley Milroy. 1999. Patterns of variation and change in three Newcastle vowels: Is this dialect levelling? In Paul Foulkes & Gerard Docherty (eds.), *Urban voices: Accent studies in the British isles*, 25-46. London: Arnold.
- Wells, John. 1973. *Jamaican pronunciation in London*. Oxford: Blackwell.
- Wells, John. 1982. *Accents of English*. 3 vols. Cambridge: Cambridge University Press.
- Wolfram, Walt, Phillip Carter & Beckie Moriello. 2004. Emerging Hispanic English: New dialect formation in the American south. *Journal of Sociolinguistics* 8(3). 339-358.

TABLE 1

Participants

LoR (years)	Male	Female	Total
0-2	5	6	11
2-4	9	9	18
4-6	6	5	11
	20	20	40

TABLE 2

Complete List of Influencing Factors Under Consideration.

Factor		Measurement	Type
Gender		Male/female	Factor
Age		18-40	Continuous
Length of Residence (LoR)		2-72	Continuous
Level of English (LoE)		2-10	Continuous
Formal English instruction aged	7-10	yes/no	Factor
	11-14	yes/no	Factor
	15-18	yes/no	Factor
Formal English tuition after leaving school		yes/no	Factor
Formal English tuition in the UK		yes/no	Factor
Use of Polish	at work	0/25/50/75/100%	Continuous
	at home	0/25/50/75/100%	Continuous
	socially	0/25/50/75/100%	Continuous
Use of Polish (mean)		0-100%	Continuous
Future plans		no plans/stay in UK/return to Poland	Factor
Attitude towards Manchester (ATT)		1-7	Continuous
Awareness of local accent (AW)		1-7	Continuous
Desire to change accent (CHA)		1-7	Continuous
Motivation to improve pron. (MOT)		1-7	Continuous
Native speaker partner		yes/no	Factor

TABLE 3

Rbrul Output for STRUT Variation, 35 Speakers

Application value: NBrEng	<i>Factor</i>	<i>Log-odds</i>	<i>Tokens</i>	<i>Response proportion</i>	<i>Factor weight</i>
NS partner	yes	0.655	517	0.362	0.67
<i>p < 0.05</i>	no	-0.655	2028	0.182	0.33
LoR	continuous scale	+1	2545		
<i>p < 0.01</i>	months	0.062			
ATT (Attitude)	continuous scale	+1	2545		
<i>p < 0.01</i>	score	0.559			
LoR:ATT					
(interaction)	continuous scale	+1	2545		
<i>p < 0.05</i>		0.041			
Not significant:	<i>Gender, Age, LoE, AW, CHA, MOT, Use of L1/L2, Future plans, Formal English instruction.</i>				
Model	deviance 1868.84	df 6	intercept -1.533	mean 0.218	
	Speaker ID random standard deviation: 0.963				

Figure 1: Bar Chart Showing Distribution of Target STRUT Tokens for All Speakers -

Auditory Analysis (0 = [ɐ], 1 = [ɸ], 2 = [ə], 3 = [ʊ], 4 = [u])

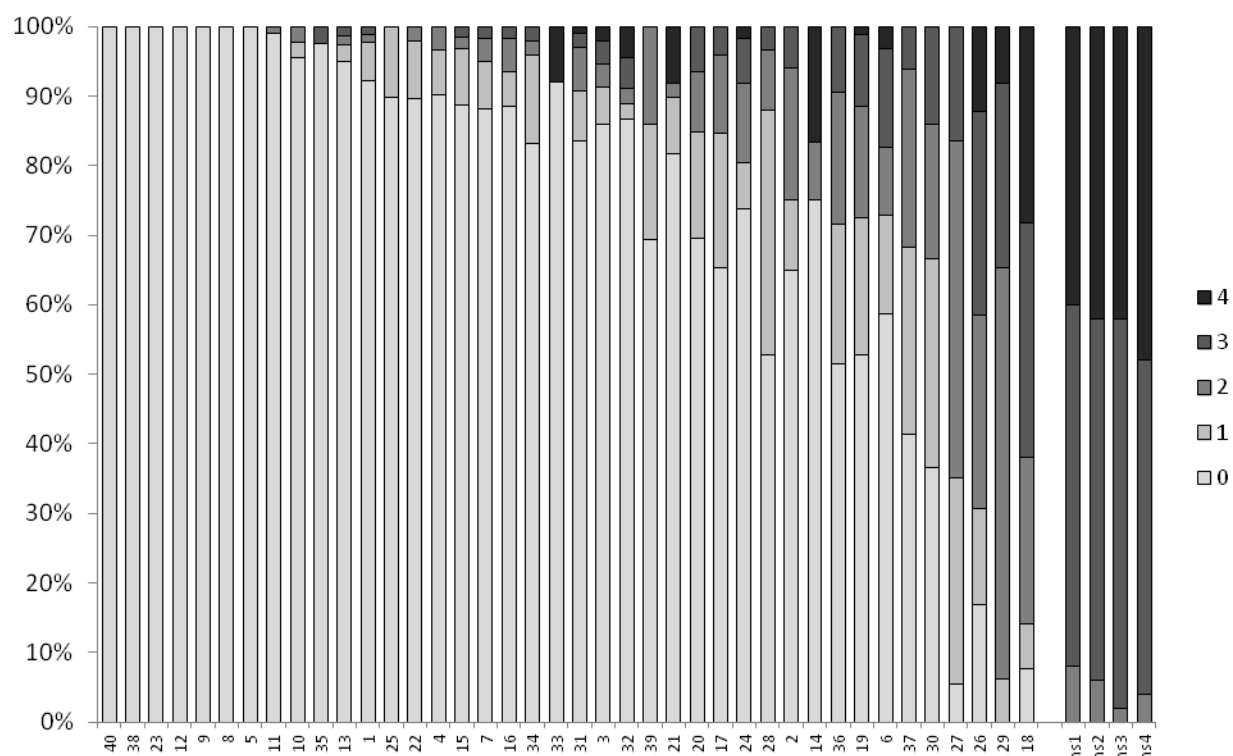
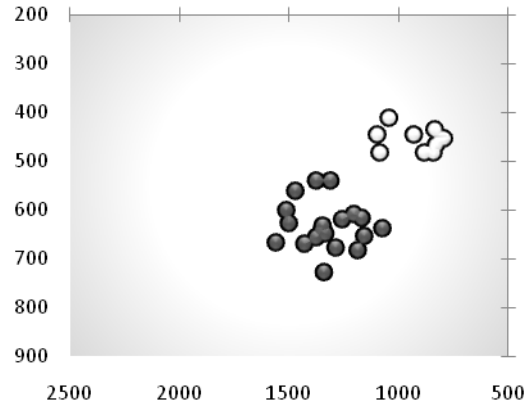


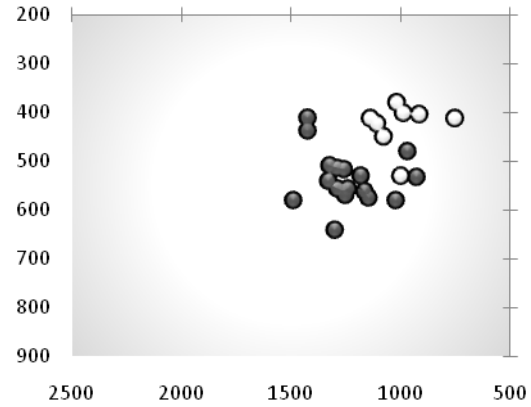
Figure 2: Acoustic Analysis Results for Six Speakers

Dark circles = target STRUT tokens; light circles = FOOT tokens.

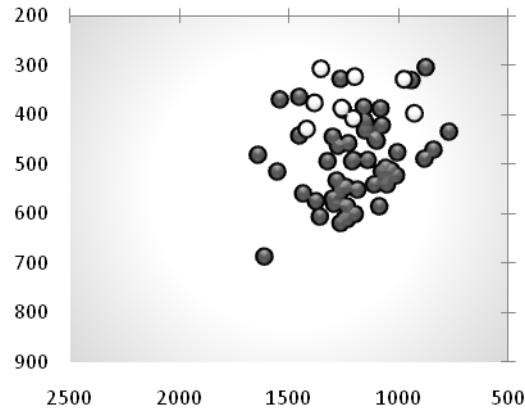
Speaker 23. Mean auditory value = 0



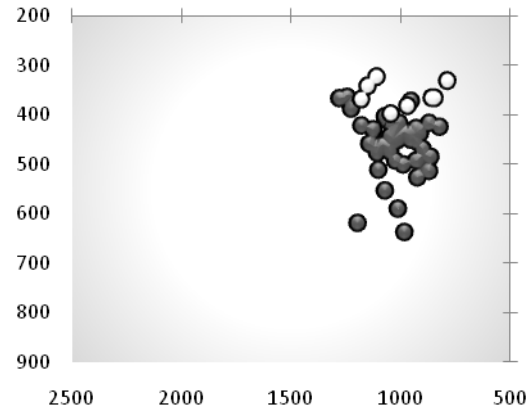
Speaker 20. Mean auditory value = 0.52



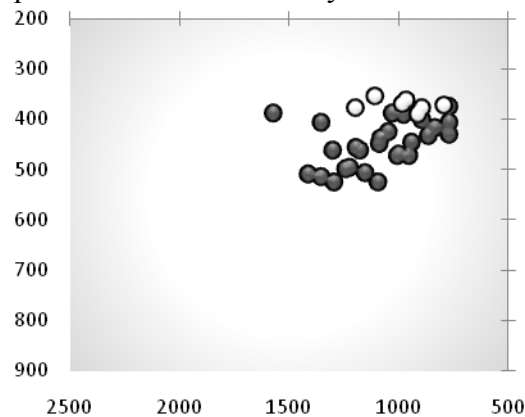
Speaker 6. Mean auditory value = 0.89



Speaker 27. Mean auditory value = 1.76



Speaker 29. Mean auditory value = 2.37



Speaker 18. Mean auditory value = 2.68

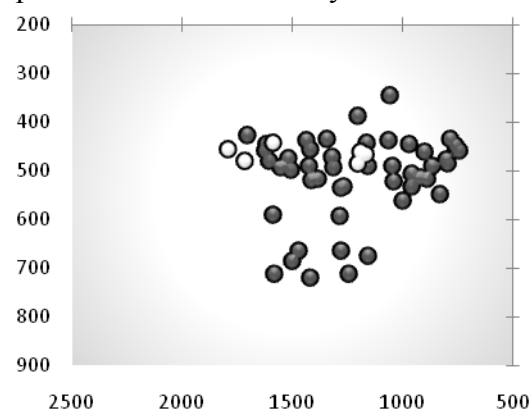
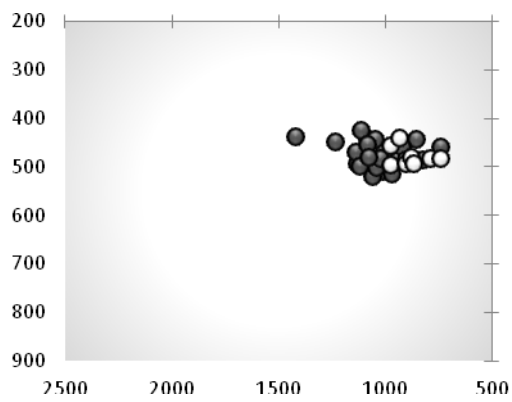


Figure 3: Acoustic Analysis Results for Two NSs

Native speaker 1. Mean auditory value = 3.32



Native speaker 2. Mean auditory value = 3.36

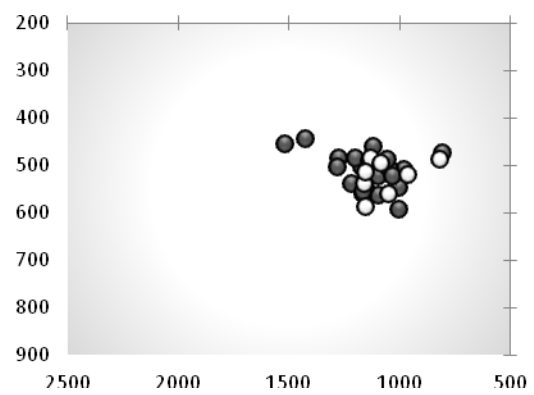


Figure 4: Proportion of NBrEng STRUT for 35 Speakers, Ordered by LoR

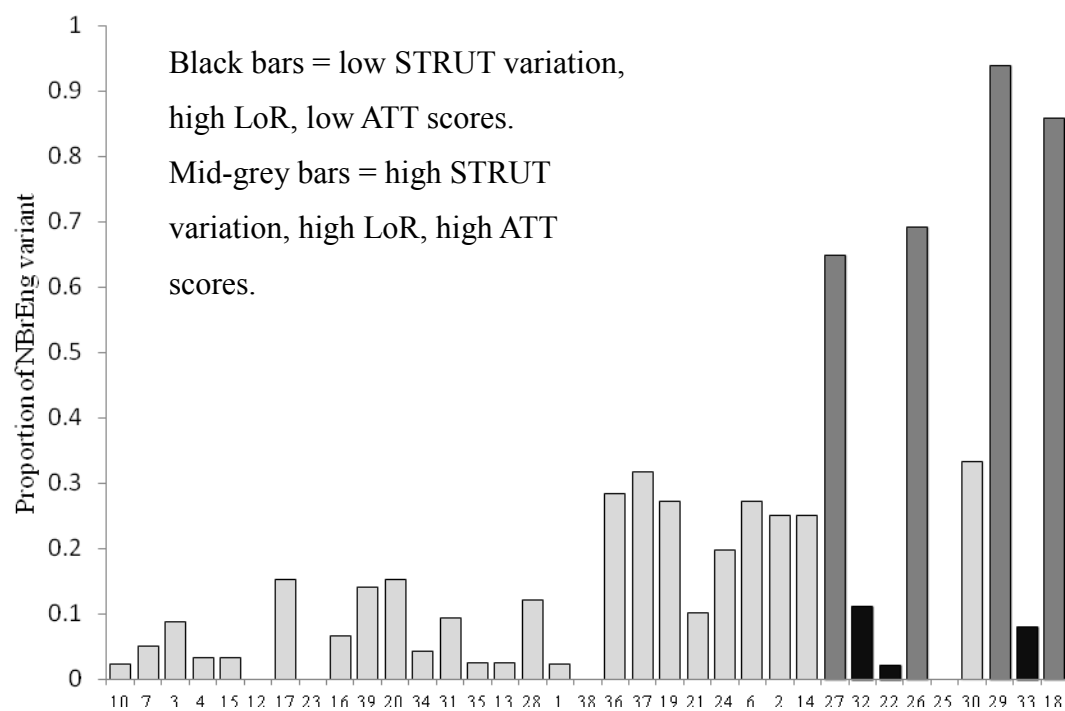


Figure 5: Mean Proportion of NBrEng STRUT Variant for All Speakers, Ordered by LoR