Language variation, language contact and social indexicality in the acquisition of (ing) by teenage migrants

Short title: Variation, contact and indexicality in acquisition

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ABSTRACT: What is it about the acquisition of variation that is so challenging? Are some kinds of structured variation more or less easy to acquire as a second language speaker? We discuss some apparent limits on the acquisition of variation suggested by our recent work exploring how teenage migrants to the UK acquire local norms of variation. We focus on the constraints on the (ing) variable that emerged from a multivariate analysis. We find evidence for a systematisation of the variable among immigrants, involving some linguistically and cognitively predictable constraints, but also the emergence of social constraints not found in the teenage native speakers. We argue that transformation of variable constraints is a necessary artefact of the inherent complexity of sociolinguistic variables, particularly those with social indexicality. This Note delineates some theoretical and practical questions involved in (i) incorporating social indexing in variationist studies, especially of non-native speakers, and (ii) further explores reallocation (transformation) in the study of language contact.

KEYWORDS: acquisition of variation, immigration, indexicality, (ing), language contact, reallocation, teenagers

INTRODUCTION

What is it about the acquisition of variation that is so challenging? Are some kinds of structured variation more or less easy to acquire by second language speakers? This Research Note contributes to an
ongoing debate in the sociolinguistics of immigration, specifically, the limits on the acquisition of variation. Studies on second language acquisition (SLA) suggest that interlanguage variation is not random but is highly systematic and constrained by a range of linguistic and social factors (Dickerson 1975, Wolfram 1985, Young 1991, Bayley 1994, Sankoff et al. 1997, Mougeon et al. 2004, Blondeau and Nagy 2008). Yet, variation seems to be an extraordinarily complex and challenging thing for individuals to acquire, and a range of outcomes is possible. Mougeon et al. (2004) show that it is difficult to predict how variable target input will turn out in individual and group L2 speech. Likewise, Buchstaller & D’Arcy (2009) and Meyerhoff (2009) suggest the same for the speech community whether we view variation synchronically or diachronically.

Speakers acquiring an L2, or in fact any second variety, need to learn more than the grammatical rules of the target variety if they are targeting native-like competence; they must also acquire the patterns of sociolinguistic variation found in the target language community. But sounding ‘native-like’ requires (i) matching native speakers’ (NS) relative frequencies of key variants, and (ii) matching the linguistic and (iii) non-linguistic constraints on the variants in NS speech. In this Note, we review evidence that (ii) is difficult enough, while (iii) seems to be even more complex. This Note reviews evidence that replicating variation is a particularly challenging aspect of SLA, and shows that there may be reallocation (Trudgill 1986) of linguistic constraints. We then consider how learners in this corpus handle non-linguistic constraints on variation. We show that in our corpus this apparently goes beyond reallocation; constraints not found in L1 speakers emerge
in L2 speaker variation. We discuss how general principles in language/dialect contact and SLA that affect (i) and (ii) also apply to non-linguistic constraints on variation. We suggest further that some non-linguistic constraints are much easier to acquire (or invent) – here, gender – than others are – here, style, and we propose that this relates to the processes of (sociolinguistic) indexing.

INTERDISCIPLINARY CONNECTIONS: SLA AND LANGUAGE/DIALECT CONTACT

We begin by framing our discussion with a brief outline of the results of our recent work, which explores how teenage migrants to the UK acquire local norms of variation in the variable (ing). A detailed overview of methods and the social, stylistic and linguistic constraints on the acquisition of (ing) are available in Schleef, Meyerhoff and Clark (2011). Schleef, Meyerhoff and Clark (2011) is a largely empirical, descriptive analysis; the present study explores details of the results to explore why the acquisition of variation is so particularly challenging. We hope that in doing so we will strengthen links between SLA, language/dialect contact, typology (of language contact) and sociolinguistics. We aspire to a clearer sense of the kinds of generalisations we can make about the relationship between variable input and output in cases of language/dialect contact.

Our L2 learners moved to the UK in their teens, often with little previous exposure to English, sometimes forming quite dense friendship networks among other migrants in their school. In this respect, they are similar to other studies of later migrants (e.g. Wolfram 1985, Young 1991, Adamson and Regan 1991, Bayley 1994, Major 2004).
However, in contrast to the subjects in those studies, our teenagers benefit from a certain amount of overt attention within the school focused on their successful acquisition of English fluency, and some of them end up with friendship networks that consist of more native speakers than migrants. In this respect, they are more similar to children and adults acquiring French as an L2 in Canada and advanced learners in instructed and study abroad environments (Nagy et al. 2003, Uritescu et al. 2004, Mougeon et al. 2004, Howard et al. 2006, Blondeau 2008, Blondeau and Nagy 2008). Our investigation shares with this research the strong focus on language learning.

Our study also shares common ground with research on the acquisition of sociolinguistic variation by second generation speakers of English in minority speech communities. Walker and Hoffmann (2010) document direct replication of local constraints, but Horvath and Sankoff (1987) found differential acquisition of local variation in second generation speakers. Mougeon and Nadasdi (1998) show that different sociolinguistic constraints may set minority subgroups within a speech community apart from the dominant speakers.

In short, the issues relevant to this Note go beyond the sociolinguistics of immigration. They apply to a wide variety of language contact situations. Our data is relevant to typology (since it speaks to the distinctiveness of contact varieties), dialect contact (since it concerns the processes that give rise to socially and linguistically sensitive variation, and the acquisition or emergence of a new variety), and language contact (since it speaks to ongoing debates about the degree of structural simplification that necessarily accompanies the emergence of creoles and mixed languages).
METHODS

Our study was conducted in two high schools, one in Edinburgh and one in London, where recent immigration has led to an increase in the number of non-locally born students. A locally-born female research assistant interviewed both Polish migrants and teenagers from local British families of roughly the same socioeconomic class in friendship pairs in both schools. The local kids’ speech provides us with an indication of the local norms that the teenage migrants would be exposed to most frequently. Speakers were recorded in free conversation and also performing a short reading task of 17 sentences, which allows us some measure of comparison between differences in speech style, in the sense of attention to speech (Labov 1972). The interviews were transcribed orthographically using ELAN, resulting in a time-aligned corpus of around 200,000 words. Personal information and language attitudes were collected in a short questionnaire and a verbal guise test, which required the teenagers to listen to short recordings of speakers with London, Edinburgh, Manchester, Birmingham, Newcastle, Polish, RP and Scottish Standard English accents (results of the attitude data have been published in Clark and Schleef 2010).

Our samples are summarised in Table 1. The Polish teenagers were all aged between 12-18 years (mean age of 14) in both London and Edinburgh. Each adolescent had spent between seven months to 5 years in the UK (mean of 2.5 years in both cities). Their exposure to English in Poland would have been limited, with the teaching of
English usually done by Polish speakers who (we are told) may have rather limited English skills themselves.ii

We examined the variable realisation of (ing) (the alternation between [ɪn] and [ɪŋ] in unstressed syllables) among the native and non-native teenagers in Edinburgh and London. Previous cross-varietal research on (ing) has found a relatively stable set of linguistic and non-linguistic constraints (summarised in Labov 2001, Hazen 2006). A detailed overview of methods, independent variables and examination of the results of our study are available in Schleef, Meyerhoff and Clark (2011). We considered the following independent variables:

- Preceding phonological segment: velar/glottal, apical, other.iii
- Following phonological segment: velar/glottal, apical, other V or C, pause.
- Grammatical category: we distinguished proper noun, pronoun, simple noun, adjective, gerund, verb, preposition, discourse marker.
- Number of syllables in the word: 2, 3, 4.
- Priming of the variable: realisation of previous (ING) variable: [ɪn] or [ɪŋ] (Abramowicz 2007), an across-word measure.
- Priming of segment: a preceding alveolar, nasal, other segment in the word.
- Speech style: reading, speaking.
• Speaker sex: male, female.
• Attitude towards Edinburgh/London accent based on verbal guise data: continuous measure

We also included several variables that only applied to the Polish migrants, including overt attitude towards living in Edinburgh/London, friendship network, self assessment of proficiency in English, time spent learning English, time spent living in the UK, and age at arrival.

Unclear tokens, the [ɪŋk] variants, iv and the first token of (ing) from every speaker were excluded (the first token cannot be coded for preceding (ing)). This generated 1833 tokens of (ing) from the Edinburgh speakers and 1556 tokens of (ing) from the London speakers.

RESULTS

We refer to Schleef, Meyerhoff and Clark (2011) for full details of our methods and regression analysis. Tables 2 and 3 below give an overview of the constraints that proved significant for the respective populations, including Rbrul (Johnson 2009) weights for each factor. v

Polish teenagers seem to adopt three different strategies for just this one variable:

• They replicate some of the constraints found in the speech of the locally-born teens (marked in bold). This is the case for only primingvi in Edinburgh and dissimilation from the preceding segmentvii (cf. Hazen 2006) in London.
• They partially replicate some constraint patterns found in the locally-born teens by re-ordering them (marked in italic). In Edinburgh, the weighting of factors within grammatical category and number of syllables is different for the two groups. Note that Polish adolescents living in Edinburgh and London seem to distinguish a nominal-verbal continuum, which their local peers do not have, but which is documented widely for other varieties of English. Nouns favour the velar variant, verbs favour the apical variant, and other categories fall in between the two.

• They introduce novel constraints unattested in the speech of their locally-born peers (unmarked). This concerns several variables.

INSERT TABLES 2 AND 3 ABOUT HERE

In short, we find a diversity of patterns broadly consistent with other research on L2 variation and variation in long-term language and dialect contact. The task of replicating L1 variation seems to be sufficiently complex that the Polish teenagers resolve it in multiple ways. Mougeon et al. (2004) suggest it is futile to try and predict how any variant will be handled by any individual or small group of speakers. We agree, but nevertheless suggest some generalisations can be made.

DISCUSSION

The complexity of transferring variation
Essentially, as we see it, the problem facing the Polish teenagers we have been looking at is fairly straightforward. What do you replicate in a language contact situation when the input is variable? This problem is common to all situations of language and dialect contact, but it seems clear that teenagers and adults in contact situations resolve the problem rather differently from L1 children. L1 learners replicate the variable input with variable output. This requires them to identify:

- a) the variants and their relative frequencies,
- b) the independent linguistic and non-linguistic factors constraining those variants, and
- c) the ordering of specific constraints in those factors.

How children know that a variable is stable (and requires replication of the conditions and rate of their parents’ variation) or a change in progress (requiring a steady shift away from their parents’ and grandparents’ norms, Labov 1994, 2001, 2010) is less well-discussed. L1 learners must be sensitive not only to the frequencies of variation, but also capable of making two other kinds of categorisations:

- they have to stratify their community into different age cohorts, and
- they have to identify differences in relative frequency of the variants in the speakers they have identified as members of different age cohorts.

This is what presumably gives directionality and a steady rate (cf. Kroch 1989) to a change in progress.
Teenage or adult L2 learners do not have access to the same richness of information about the nature of a variable that an L1 learner does. Whether this is because of a reduced plasticity in adolescents’ and adults’ language faculty (due to physiological changes), or whether it is because they get much less exposure than little children do to the language before they (must) start producing it is surely an important question. However, it is not crucial to our principal interest here, namely to establish the complexity of learning variable input beyond childhood, and to understand better how general principles such as reallocation (Trudgill 1986, Britain and Trudgill 1999) are implicated.

Reallocation involves the retention of all or some variants that were part of the input when two or more varieties come into contact. Crucially, the retention also involves specialisation of the variants, e.g. they are reallocated in complementary distribution to each other. The case study we are considering here is a distinct sub-set of the kinds of examples discussed by Britain and Trudgill (1999). Specifically, our case study involves:

- speakers of mutually incomprehensible languages come into contact;
- a linguistic variable that occurs in only one of those languages, where the distribution of its variants is constrained by linguistic and non-linguistic factors;
- speakers of the language without the variable seem to want to replicate the other group’s variation in their own output.
There is a small, but growing, body of data that examines what happens when variation in one linguistic variety is replicated in another variety. Meyerhoff (2003, 2009) suggests that reallocation in these contexts very frequently involves transformation under transfer. Essentially, this describes the reallocation of the relative importance of variable input constraints in the output variation. For example, Nadasdi et al. (2003) show that immersion learners of French replicate one L1 linguistic constraint on the form of the future (presence or absence of a temporal adverbial), but they reallocate (transform) the effect of specific and non-specific temporal adverbs so that it reverses the pattern found in L1 speech.

Similarly, Blondeau and Nagy (2008) find that Anglophones in Montreal replicate some factors that favour use of an overt complementiser in English when they are speaking French, e.g. subject of the matrix clause, but the kind of subjects that favour presence of an overt complementiser are transformed and are different in English and French. Meyerhoff (2009) finds that Bislama seems to reverse the effect of several constraints on argument deletion found in a substrate language of Vanuatu. Buchstaller & D’Arcy (2009) observe the same kind of transformation of constraints in the replication of be like as a quotative in different varieties of English.

In our study, we seem to find evidence of transformation under transfer in the manner that the migrant teenagers in Edinburgh have reordered grammatical constraints on (ing) and produced a different pattern to their local peers (Schleef, Meyerhoff and Clark 2011).

Why should this be? Recall the three discrete steps required to replicate variation (a)-(c), above. We argue that for learners beyond
childhood, the steps in (a)-(c) are sufficiently complex that reordering of constraints is a necessary (or highly likely) artefact of the task. Constraints in the interlanguage may, in effect, be collateral damage in the acquisition process. Steps (b) and (c) require highly detailed levels of linguistic analysis. Successful identification of (b) and (c) may require more input or time than is available to teenage L2 learners before they must start using the variation in everyday interactions. Our evidence from linguistic constraints suggests that this leads to imperfect learning (in cases of non-replication of constraints), possibly partly influenced by the application of cross-linguistic phonological principles (the assimilation and dissimilation effects with immediately preceding and following segments, for instance). Output may also be due to the Polish teenagers taking as their reference and input more than just their same age peers. We found evidence for the emergence of grammatical category constraints, for which there is evidence in speakers of other varieties of English that they may be exposed to.

Transformation of social and stylistic constraints
We have observed in our case study that the Polish teenagers seem to be particularly likely to transform variable stylistic and social constraints. We would suggest that this is not unexpected. We have argued that the process of acquiring variation is a complex one, especially for non-child learners, and that this complexity generates the noise that manifests itself as reallocation and transformation of the rankings of linguistic constraints. Non-linguistic constraints, we suggest, are inherently even more complicated than linguistic
constraints, making transformation under transfer even more likely. We now consider evidence of this from stylistic and social constraints.

**Style and gender**

Among the locally-born teenagers, style is a significant constraint on (ing), but style is not picked up as a significant constraint by the migrant teens. In general, the adolescent migrants seem to acquire linguistic constraints before non-linguistic constraints (e.g. attitudes, gender, etc.), and when non-linguistic constraints do start to emerge, there is a tendency for them to be associated with group categories, i.e. ones that already have a large degree of social meaning to teenagers, e.g. gender.

In London, gender emerges as a significant constraint among the Polish migrants but it does not replicate the pattern usually found in native speaker communities: Polish boys strongly favour the velar realisation of (ing), and Polish girls favour the apical realisation. Native speaker stratification usually is the other way around. In Edinburgh, too, gender emerges as a distinct but non-significant trend (see Figure 1). In Edinburgh, the social constraint that emerges as significant is friendship networks. Since among teenagers, gender and friendship networks are not unrelated (teenagers tend to hang out with same sex peers, Cameron 2005: 28), we would like to suggest that the gender effects in London and the friendship network effects in Edinburgh are perhaps different facets of the same processes of translating variation into sociolinguistically meaningful patterns.\(^{ix}\)

INSERT FIGURE 1 ABOUT HERE
Similar findings have also been reported in other studies. Non-NSs create gender or class distinctions not found in NS production of the same variable, sometimes failing to produce stylistic stratification found in NSs (Adamson and Regan 1991, Major 2004, Mougeon et al. 2004). This suggests an important question: Why do the effects of some specific non-linguistic variables (in this case, gender) very often outweigh the effects of other non-linguistic variables? We will make two points here that suggest an answer to this question, both related to the principle of transformation under transfer.

First, not all identities attract equal amounts of attention in society. Gender is a social category that attracts a high degree of attention in people’s lives. People can (and do) make inferences about a person’s identification with gender identities based on rather superficial data (cf. Holmes 2006, Queen 2007, Eckert and McConnell-Ginet 2006). The same is true for a person’s friendship networks, which tend to be highly influenced by gender. Now, suppose that a group of L2 speakers are acquiring some variation that is socially or linguistically constrained in the NS speech community. The Polish teenagers are competent language users even though they are not yet competent London- or Edinburgh-English users. Part of their linguistic competence involves knowing that variation is available as a potential resource for marking social and linguistic information. Once they acquire an awareness of the sociolinguistic variants in the English they are picking up, they can reinterpret and transform that variation so that
it marks a social category that is of high relevance in their lives, even if this differs from what NSs mark with the variable.

We suggest that identities that attract a high degree of attention (e.g. gender and friendship networks, as discussed above) are prime loci for NNS transformation. Indeed, although NSs in Edinburgh and London show no significant gendering of the (ing) variable, we assume like all other case studies of teenagers in sociolinguistics, they will be doing gender (and friendship networks) in different, possibly more complex, ways.

We suspect that our observed gender/style difference cannot wholly be attributed to how much exposure the Polish teenagers get to (ing) in different contexts; it seems reasonable to assume their participation in school life as a whole exposes them to many models of more formal speech in their teachers’ and peers’ own formal styles. And yet, style constraints do not show up in the Polish teenagers’ use of (ing). By contrast with gender and friendship networks, doing ‘being formal’ does not seem to be an aspect of a student’s identity that attracts as much attention in the initial stages of L2 acquisition. But this is somewhat tendentious: further research following the lead of Rehner et al. (2003), Lacoste (2008) and Starr (2009) is needed into how teachers’ variation feeds students’ acquisition.

While this argument may explain why NNSs co-opt variables to mark gender and friendship networks in the first place, it does not explain why (in the studies we have reviewed and our own data) gender effects are often transformed or reversed (when compared to natives), e.g. males using more of the non-standard form than females. This brings us to our second point. Ochs (1992) and Eckert (2008)
propose that the association of linguistic variants with social attributes and social groups such as gender is an indirect relationship, mediated by more direct indexicalities such as stance, act, activity, or style. Hence, gender (and similar social identities) is a much more complex indexicality than any of the linguistic constraints we have discussed. Acquiring this specific constraint is difficult. It does not only require NNSs to identify (a) variants and their relative frequencies, (b) the independent linguistic and non-linguistic factors constraining those variants, (c) the ordering of specific constraints in those factors, but also (d) the stances, acts, activities, and styles that index gender.

Evaluating sociolinguistic approaches to indexicality

We have already argued that (b) and (c) are sufficiently complex cognitive tasks that transformation of constraint rankings will emerge as noise. If that is the case, it is unrealistic to expect migrant teens to be able to add (d) without there being regular transformation of constraints. Thus, the complexity of the indexicalities involved in expressing gender and style and the importance of the concept of gender in students’ lives may jointly explain the sociolinguistic outcome of transformation under transfer found in this study.

However, this brings up one important conceptual question, which we can only speculate about, as much further research is needed to answer it fully. If indeed gender is usually marked indirectly, we might have expected a stance such as ‘casual’ (even in the limited way we and other studies – e.g. Adamson and Regan 1991, Major 2004 – have defined style, i.e. style as an expression of attention to speech\textsuperscript{v}) or an activity like ‘reading aloud’ to emerge first as significant non-
linguistic constraints on (ing) among the Polish teenagers. We might expect that marking of characteristics such as gender or friendship network would only emerge after these stances or activities have achieved some shared recognition. The indirect relation between a standard/non-standard feature, formal/casual styles and femininity/masculinity should still emerge here. The existence of an indirect relationship between variants and gender is very clearly what Ochs (1992) argues for, and we believe Eckert’s (2008) discussion of (ing) and (t) strongly implies this too. Gender is not among the sets of fundamental indexicalities for either variable that she discusses in detail.

And yet, this does not seem to be the case for the Polish teenagers. In Edinburgh, they have produced a network effect without having a distinction between reading and conversation styles; in London, they have produced a gender effect, also without showing a significant distinction between reading and conversation styles.

Another option, then, might be to consider other perspectives on the indexicality of sociolinguistic variation. Silverstein’s (2003) proposal of first- to $n$th-order indexicality has clearly been influential on Eckert, and Silverstein’s approach is much less clear about the internal relationship between different kinds of sociolinguistic index. For Silverstein, an attribute such as social class may be a first-order indexicality (unlike Ochs, for whom a social class index would presumably derive indirectly from the direct indexing of stances and activities). Under Silverstein’s approach, there is nothing to prevent the Polish teenagers from generating gender or friendship networks as a first-order index when trying to make sense of the sociolinguistic
complexity of (ing) in the speech community around them. And yet, although Silverstein (2003) sometimes disavows the idea of an ordered relationship between what he calls first-, second-, third- to n-th-order indexicalities, it seems to us that a close reading of his proposal does suggest that some indexical relationships are taken to be more fundamental than others. At the very least, under Silverstein’s perspective, some indexical relationships depend on other indexicalities for their interpretive strength.

Notwithstanding the differences we have just indicated, Ochs, Silverstein and Eckert share a commitment to the idea that the social meaning of variation is a function of more than social group memberships. Instead, the social meaning of variation involves the speaker’s disposition to self and others, and social expectations and restrictions about the use of different variants. Whether interactional stances and speech acts or activities should in all cases be central to the emergence of indexes with larger social groups and identities remains open to debate, but it seems that under all three approaches, we might expect the Polish teenagers to acquire or create a system of stylistic stratification of the variable before they acquire or create stratification based on gender or friendship network. And yet they do not. We cannot draw on the kinds of detailed attitudinal data about (ing) that Campbell-Kibler (2007) does in order to rule out the possibility that they do have subtle understanding of the stances and activities indexed by (ing), nevertheless it seems to us that the migrant teenagers in our study are building up their own autochthonous system starting with more concrete, rather than more abstract, indexical relationships.
In sum, our reading of Ochs, Silverstein and Eckert suggests that foundational exponents of the notion of indexical meaning for variation require or are inclined to see multiple indexicalities as in some way ordered. This is not always easy to independently evaluate with empirical data such as is available to us. We concur with Eckert (2008) that it may be theoretically and methodologically premature to assume that any kinds of indexicalities are primary or more likely to be marked first and more strongly than any others.

Connecting L1 and L2 acquisition of variation

Clearly, further work in this area is much needed, including work that directly compares L1 and L2 acquisition. We see a need not only for comparison of the ordering of constraints in the two modes of acquisition, but also a more systematic exploration of the relationship between L1 and L2 speakers’ constraints on the same variable. We note, for instance, that although it is true that the Polish kids in London and Edinburgh have not produced significant stylistic constraints on (ing), the locally-born teenagers in both locales have. Perhaps we need to adopt a broader perspective, in which we see the speech norms of the two groups of teenagers as more dynamically interrelated. In other words, perhaps our data indicates that gender and network indices do emerge indirectly from a direct indexing of a style or stance, but that the migrant teenagers are using the stylistic stratification of (ing) in their locally-born peers’ speech as the basis for how they subsequently tailor (ing) to do further social work. (Why the local kids do not similarly create indirect indexes based on style, is another question entirely.)
CONCLUSION

Polish teenagers in London and Edinburgh seem to be using various different strategies to deal with the variable realisation of (ing) in the English of the speech community they have moved into. This is evidence for a systematisation of the variable; it involves the emergence of some linguistically and cognitively predictable constraints, but also some interesting non-linguistic constraints not found in the teenage native speakers. We hope that we have specified in a bit more detail the order and nature of the acquisition of variation. Certain types of linguistic constraints seem to be more easily acquired than more complex non-linguistic constraints that are involved in processes of indirect indexing. We have suggested that the social category of gender is a social constraint that attracts a high degree of attention, and learners often use it to make sense of variation in the input. We have argued that transformation under transfer is an important principle underlying the different resolution of variable input and that it can be usefully extended to migrant speech. It deepens our understanding of sociolinguistic variation among immigrants, and it also delineates some important questions about how we might continue to explore – in practice and in theory – the nature of social indexes in speech, and the process of reallocation in the study of language contact.

REFERENCES


Table 1: Summary of the sample of teenagers recorded in London and Edinburgh

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th>Males</th>
</tr>
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<tbody>
<tr>
<td><strong>Edinburgh</strong></td>
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<tr>
<td>Locally-born</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Polish migrant</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td><strong>London</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locally-born</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Polish migrant</td>
<td>13</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 2: Significant constraints for Edinburgh-born teens and Polish-born teens in Edinburgh (in order of effect size; **bold** shared constraints; *italic* reordered constraints). Rbrul factor weights shows for each factor within each group.

<table>
<thead>
<tr>
<th>Edinburgh-born teens</th>
<th>Polish-born teens</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Style</strong></td>
<td><strong>Grammaratical category</strong></td>
</tr>
<tr>
<td>(reading .921, speaking .139)</td>
<td>(noun/pronoun .675, adjective .545,</td>
</tr>
<tr>
<td></td>
<td>proper noun .531, preposition .556, verb .505,</td>
</tr>
<tr>
<td></td>
<td>gerund .321, discourse marker, .042)</td>
</tr>
<tr>
<td><strong>Grammaratical category</strong></td>
<td></td>
</tr>
<tr>
<td>(pronoun .921, adjective .69, gerund .648, proper noun .528, preposition .497, noun .444, verb .394, discourse marker, .362)</td>
<td>(noun/pronoun .675, adjective .545, proper noun .531, preposition .556, verb .505, gerund .321, discourse marker, .042)</td>
</tr>
<tr>
<td><strong>Priming</strong></td>
<td></td>
</tr>
<tr>
<td>(Previous (ing): [i] .755, Previous (ing): [i] .371)</td>
<td></td>
</tr>
<tr>
<td><strong>Number of syllables</strong></td>
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</tr>
<tr>
<td>(three .657, four .492, two .463)</td>
<td>(four .885, two .508, three .358)</td>
</tr>
<tr>
<td><strong>Positive attitude towards Edinburgh accent</strong>xiii</td>
<td></td>
</tr>
<tr>
<td>(continuous, LOG -0.091)</td>
<td></td>
</tr>
<tr>
<td><strong>Following segmentxiv</strong></td>
<td></td>
</tr>
<tr>
<td>(apical .658, other .464, velar/glottal .361)</td>
<td></td>
</tr>
<tr>
<td><strong>Priming</strong></td>
<td></td>
</tr>
<tr>
<td>(Previous (ing): [i] .609, Previous (ing): [i] .394)</td>
<td></td>
</tr>
</tbody>
</table>
Table 3: Significant constraints for London-born teens and Polish-born teens in London (in order of effect size; **bold** shared constraints; *italic* reordered constraints). Rbrul factor weights shows for each factor within each group.

<table>
<thead>
<tr>
<th>London-born teens</th>
<th>Polish-born teens</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Following segment</strong></td>
<td><strong>Previous segment</strong></td>
</tr>
<tr>
<td>(velar/glottal .805, pause .663, other .452, apical .354)</td>
<td>(apical .547, other .539, velar/glottal .153)</td>
</tr>
<tr>
<td><strong>Style</strong></td>
<td>Grammatical category</td>
</tr>
<tr>
<td>(reading .684, speaking .267)</td>
<td>(noun/proper noun .724, discourse marker .651, gerund .600, pronoun .580, preposition .490, verb .345)</td>
</tr>
<tr>
<td><strong>Previous segment</strong></td>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>(apical .572, other .496, velar/glottal .299)</td>
<td>(male .720, female .352)</td>
</tr>
<tr>
<td><strong>Priming</strong></td>
<td><strong>Lexical frequency</strong></td>
</tr>
<tr>
<td>(Previous (ing): [ɪn] .553, Previous (ing): [ɪn] .332)</td>
<td>(continuous, LOG -0.977)</td>
</tr>
</tbody>
</table>
Figure 1: (ing) by gender and style in London and Edinburgh

(F=female, M=male)
Some of the theoretical ideas of this paper were first presented at the Workshop “Dialect and Social Change in Urban Diasporic Communities” at Queen Mary, University of London in July 2010. We are extremely grateful to the audience at this workshop for much constructive feedback and many helpful suggestions, particular thanks go to Penelope Eckert, Scott Kiesling, Erez Levon, Devyani Sharma and Ben Rampton. Audiences at the University of Edinburgh, British Association for Applied Linguistics, UK Language Variation and Change and New Ways of Analyzing Variation conferences, Lynn Clark and Naomi Nagy have also provided helpful formative feedback. This research was funded by the UK Economic and Social Research Council (ESRC, grant RES-000-22-3244, AUTHOR PI, AUTHOR Co-I). Local research assistants, Lynn Clark (Edinburgh) and Shakuntala (Satori) Soden (London) conducted interviews with the teenagers; Madeline Appleton, Elsbeth Heller and David Arnold ably assisted with corpus handling. We thank colleagues at Queen Mary University London and Lancaster University for sharing advice and methods from their ongoing work on ethnic varieties in London, especially Jenny Cheshire, Paul Kerswill, Sue Fox and Eivind Torgersen. The high schools we worked in remain anonymous, but we are very grateful to the staff and students in Edinburgh and London who worked with us on this project. In particular, our thanks go to the migrant teenagers, some of whom really sweated to help us out. Wielkie dzieki!

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Progressive dissimilation is where the immediately preceding consonant is a velar (e.g. speaking up), the velar variant is disfavoured; when the immediately preceding consonant is an alveolar (e.g. sending out), an alveolar realisation is disfavoured. Regressive assimilation is where the following segment is a velar (e.g. getting caught), the velar variant of (ing) is favoured; where the following segment is alveolar (e.g. getting news), the apical form is preferred. These phonological constraints have been attested for British English but do not appear to influence (ing) in the Northern Cities of the USA (Labov 2001: 420). As we will see, they do not exhaust the possibilities for following and preceding segment effects.

The stop reinforced variant [ɪŋk] is a (minority) variant in the London-born teenagers’ speech and occurs roughly 20% of the time in the London- and Edinburgh-based Polish teenagers’ speech. We have excluded this variant as its use by the Polish teenagers is most likely due to transfer from Polish.

This analysis is based on the comparative variationist approach established by Shana Poplack and her associates (e.g. Poplack 2000). Different groups of speakers are subjected to the same multivariate analysis with factor groups and factors withing groups being held constant across populations. The resulting weightings are then compared in respect to significant factor groups and ranking of constraints within these.

Previous realisation of (ing) favours the same form in the current token.

A preceding velar or glottal segment is more likely to be followed by an apical realisation of (ing). A preceding apical place of articulation is more likely to be followed by a velar realisation of (ing).

There are obvious parallels with creole or mixed language formation.

The importance of contact with native speakers is an established finding within the literature on the acquisition of sociolinguistic variation (e.g. Mougeon and Nadasdi 1998, Mougeon et al 2004). Why friendship networks are not equally important among the Polish teenagers in London is surprising. An anonymous reviewer suggests that this may be due to the low(er) frequency of the apical variant in London; this may offer Polish teenagers insufficient exposure for them to fully internalise the constraints. This may also explain why the association with gender goes into the expected direction in Edinburgh but not in London. However, the same could be said about the velar variant in Edinburgh, yet Polish teenagers replicate the expected
pattern. Also, since we have only two variants and two sexes, if the Polish teens mark gender at all, there is a 50:50 chance they will mark it like NSs do and a 50:50 chance they will reverse it. Hence, the reversal of the typical gender effect for (ing) in London could simply be a result of transformation under transfer, independent of frequency of input.

Gender and friendship networks may reflect membership in different communities of practice, however we lack the detailed observational data that would support making claims about communities of practice in our study.

This limits what we can say about other styles but still allows us to make claims about the competence of our students in respect to formality style. While our Polish-born teenagers do not replicate style as an expression of formality, they may very well create other more contextualized styles that have escaped our analysis.

Ochs (1992) restricts direct indexing very clearly to cases of referential indexes: “the first and less common is the direct indexical relation, as when a personal pronoun indexes gender of speaker or a kin term indexes gender of speaker or referent” (343).

A positive attitude to the local accent favours the use of the apical variant.

A following apical consonant favours use of a velar (ing) and a following velar segment disfavours a velar realisation. (This contrasts with previous findings, Hazen 2006.)

A preceding apical realisation of (ing) disfavours a velar realisation.

A following velar segment strongly favours production of a velar realisation of (ing).