TELEVISION CAN ALSO BE A FACTOR IN LANGUAGE CHANGE: EVIDENCE FROM AN URBAN DIALECT

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This article considers two instances of rapidly accelerating linguistic change in Glaswegian vernacular, TH-FRONTING and L-VOCALIZATION, both typically associated with the Cockney dialect of London. Both changes have been underway for some time, but took off during the 1990s. In this article we consider a range of factors that are contributing to the rapid proliferation of these forms in the speech of inner-city Glaswegian adolescents. Our multivariate analysis shows very strong effects for linguistic factors, as well as strong positive correlations with social practices relating to local Glaswegian street style, some links with dialect contact with friends and family living in England, and—perhaps surprisingly—also positive correlations with strong psychological engagement with the London-based TV soap drama *EastEnders*. Our results suggest that the changes are being propelled by several processes: ongoing transmission and at the same time continuing diffusion through dialect contact; the local social meanings carried by these variants for these speakers; and strong engagement with a favorite TV drama. For this community at least, engaging with a favorite TV drama is an additional accelerating factor in rapid linguistic diffusion.*

Keywords: language change, linguistic diffusion, media influence, dialect contact, social practices

1. BACKGROUND. The discovery of the rapid spreading of TH-FRONTING ([f] for /θ/ in e.g. *think*) and L-VOCALIZATION (the vocalization of coda /l/ in e.g. *milk*, *people*) in the Scottish vernacular of the least mobile, working-class youngsters in Glasgow in the late 1990s (Stuart-Smith 1999) provoked a flurry of press interest. The traditional association of these features with accents of the South East of England, and in particular, popular London, meant that the media themselves immediately pointed to watching television dramas based in London as the cause, especially the long-running soap *EastEnders*. While uncommon in Scottish English, however, there had been sporadic anecdotal reports of these innovations in Glaswegian dialect since the 1980s (Macafee 1983), and even as early as the 1950s (Stuart-Smith et al. 2007). We seemed to be witnessing the sharp ascent of the S-curve of two changes already in progress.

Both changes (along with others, such as DH-FRONTING, T-GLOTTALLING, and R-LABIALIZATION) had also been observed to be swiftly diffusing north from one urban center to the next (Trudgill 1986, Foulkes & Docherty 1999, Kerswill 2003). Trudgill (1986, 1988) was the first to try to account for them in young working-class Norwich speakers who showed no obvious connections with Londoners. He suggested that a combination of factors could be driving the changes, including less overt opportunities

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for diffusion via dialect contact and the nature of the changes themselves (most variants are present in the speech of young children and as peripheral variants even in adults; Kerswill 1996). He also wondered whether exposure to these features in the speech of characters in popular TV shows such as the gritty London detective drama *Minder* might have some kind of impact on speakers' potential receptiveness to adopting the features in their own speech, particularly given their likely associations with 'street sophisticated toughness' (Trudgill 1986:53). A decade later, Williams and Kerswill (1999), following Foulkes & Docherty 2001, also speculated about a possible role for broadcast media and possible exposure to 'youth norms' via presenters and TV shows, again given their appearance in young speakers in the isolated East Yorkshire town Hull. At the same time, they noted the role of class-based ideologies in accelerating the spread of these changes. This factor was also important for the working-class adolescent innovators leading the Glasgow changes, since they were evaluated, along with other local nonstandard features, as distinct from the speech of 'posh' middle-class speakers (Stuart-Smith et al. 2007).

These speculations about media and language change, and the seemingly paradoxical changes in Glasgow, so far away from London and with a very different political, cultural, and social context, led to our investigation of media and language change. From the outset we knew that the changes were already in progress, probably originally through processes of geographical diffusion. We also knew that local language ideologies and social practices were involved in their transmission through the community (Stuart-Smith et al. 2007; cf. Lawson 2011). This study moves the consideration of this instance of linguistic diffusion a step further by including factors to do with media, and especially television, though we were unsure of what we would find, since we did not even know that Glaswegian adolescents would watch TV shows set in London. Our results confirm that both changes are now linguistically strongly embedded for this community. They also show that shared social practices are an important factor in their transmission. And—to our surprise—factors capturing strong psychological engagement with *EastEnders* also emerged as significant, thus providing the first empirical evidence to show that alongside linguistic and social factors propelling these changes in progress, psychological engagement with a TV show can also help accelerate the propagation of rapidly diffusing linguistic change.

1.1. Language variation and change and broadcast media. The starting point for any discussion about language change and media has to be the locus of language variation and change itself, namely social interaction. The history of linguistic evolution, and certainly what we can witness from the earliest historical records, demonstrates that language variation and change arise from processes that take place between speakers during live social interaction. When people talk with each other, tiny adjustments are made on the individual level, and over time, and in conjunction with numerous other factors, but especially personal, social, and ideological, these shifts can lead to community-level systemic changes (Trudgill 1986, Milroy 1992, Labov 1994, 2001, 2010, Eckert 2000, 2008, Milroy 2002).

Mediating language through writing, initially through the introduction of archaic writing systems, and then through printing and especially the printed book, is known to have had some impact on language variation and change in spoken language, both in terms of structural change and the ideologies surrounding linguistic variation, and in terms of the interrelationship of the two (on the history of English, see e.g. Smith 1996, Milroy & Milroy 1999, Agha 2003, and on the future of new media and spoken language, see e.g. Tagliamonte 2012:344–45). At the same time, it is clear that such

changes took place alongside the continuing and continual processes of language variation and change arising from social interaction—the primary role of social interaction as the locus of language change was not altered.

The advent of broadcast media at the turn of the twentieth century, and hence the mediation of language at first through audio alone (phonograph and then the radio) and then through the audio-visual medium of film and then television (e.g. Bushman & Huesmann 2001), provided a different kind of experience of spoken language, alongside the usual spoken interaction. The expectation was that exposure to (standard) language varieties from radio and television broadcasting directly into people's homes would lead to sweeping structural changes in spoken language. But the popular prediction of widespread standardization caused by broadcast media is in stark contrast with the wealth of sociolinguistic studies demonstrating the vigorous maintenance of local dialect diversity, such as in varieties of English observed since the 1970s (e.g. Milroy & Milroy 1985, Chambers 1998, Labov 2001). Again, there is no reason to assume that experiencing language via broadcast media has in any way displaced the primary locus of systematic linguistic change from live social interaction (Labov 2001:228).

This is not to say that aspects of language may not be affected by media. Vocabulary and phrases are easily transmitted by media influence (Trudgill 1986, Rice & Woodsmall 1988, Charkova 2007). The intelligibility of standard accents can be greater than that of regional ones, and this may result from exposure to standard varieties via broadcasting (Clopper & Bradlow 2008). The shift to the representation of regional standard, and then nonstandard, varieties in broadcast media has led to a far greater awareness of regional dialect diversity, and more generally of dialects beyond one's own (Milroy & Milroy 1999). Across sociolinguistics, however, media influence on language seems to be limited to specific features, especially lexical, discourse, and pragmatic, which are also available for overt comment. But there are two possible exceptions, which also constitute particular kinds of language change: standardization of traditional/regional dialects, and rapidly diffusing linguistic changes, which are the subject of this article.

1.2. DIALECT STANDARDIZATION AND BROADCAST MEDIA. While research on English dialects has not indicated standardization as a result of exposure to broadcasting, there are other contexts where media influence has been related to structural change. In South America, Naro's (1981) study of syntactic variation in Brazilian Portuguese showed significant correlations of the increased use of the standard construction with reported exposure to 'novelas', or popular soap dramas. Naro interpreted this result in terms of a vicarious desire to relate to 'the culture of the surrounding higher socioeconomic levels' (1981:86) overtly expressed by his informants. Naro and Scherre (1996) again reported significant correlations for the same variety, but with a variable that combined many aspects of exposure to and engagement with media. Carvalho's (2004) study of innovative palatalization spreading from Brazilian Portuguese into a lower-prestige variety of Uruguayan Portuguese did not find correlations with exposure to TV, though her informants themselves attributed this feature, and others, to attempts to emulate socially desirable language represented on Brazilian television shows.

Many countries in western Europe have experienced a high degree of geographical and social mobility since the Second World War. This has led to substantial dedialectalization of regional dialects; it has also been suggested that national broadcasting of standard dialects may have played a role. Saladino (1990) explored exposure to TV as a factor in standardization in a south Italian dialect, but did not find positive correlations. Lameli's (2004) study of dedialectalization of a regional German dialect, by contrast, suggests that the introduction of radio broadcasting into people's homes was also a fac-

tor (cf. Schmitz 2005). Alongside a number of lexical changes, a few grammatical changes in Austrian German are argued by Muhr (2003) to be related to exposure to German television programs.

These examples share a particular sociolinguistic context in several respects: first, the local regional dialect or dialects show a markedly different linguistic system from the standard variety; second, the standard variety usually enjoys higher prestige than the local dialects; third, these linguistic and social differences are usually well above the level of overt awareness and so are highly enregistered for dialect, and standard, speakers (Agha 2003); and fourth, there is often community awareness that dialect speakers who use standard forms are actively trying to emulate standard norms found in broadcast media (Trudgill 1986, Carvalho 2004). The evidence from sociolinguistic studies in these contexts suggests that broadcast media can play a role in structural linguistic changes leading to standardization of dialects. But it is also clear that media influence, even when overtly acknowledged as a factor, is not necessarily easy to establish (contrast, for example, Naro's (1981) findings with those of Carvalho (2004)).

1.3. Rapid linguistic diffusion and broadcast media. Sociolinguistic research has identified and documented a group of structural changes that are rapidly accelerating across time and space. Examples can be found at different linguistic levels, from the phonological level, such as the raft of consonantal changes sweeping through UK urban accents (Foulkes & Docherty 1999, Kerswill 2003), to the discourse/pragmatic level, shown by the international explosion of the quotative *be like* across different varieties of English (e.g. Tagliamonte & D'Arcy 2007, Buchstaller & D'Arcy 2009; see also Sayers 2014). These changes show particular linguistic and social characteristics, and the mechanisms propelling them forward through and across communities involve a complex intersection of linguistic and social factors, with the latter often also relating to social symbolism and language ideologies.

Rapid linguistic diffusion is characterized linguistically by the recycling of linguistic elements (Buchstaller 2008), whose linguistic patterning may be restructured as they transfer across, and become embedded into, local community grammars (Buchstaller & D'Arcy 2009, Cheshire et al. 2011). For example, th-fronting in Glaswegian involves the spread of a phonetic variant that is already present in children's speech, and that must adapt to the local Scottish English linguistic constraints on the phoneme /θ/, for which a local variant [h] (e.g. *I [h]ink*) already exists with a particular lexical distribution. Labov (2007) distinguishes processes of transmission across generations from those of diffusion, which involves the later adoption of features during dialect contact by adult speakers who already have acquired their linguistic system. Initial propagation by diffusion is then followed by transmission, as Cheshire and colleagues (2011:155) state: 'once a feature is accepted into a speech community, we can assume it "goes native", and is adapted by speakers to fit the existing linguistic structure and sociolinguistic repertoire'. Interestingly, recent research on the spread of habitual invariant *be* in AAVE in Springville, Texas, shows that in certain sociolinguistic contexts diffusion is not necessarily a 'one time' event (Cukor-Avila & Bailey 2011). Their data show how the feature diffused to post-WWII speakers but then was diffused again in the post-1970 generation, with transmission only beginning in the 1990s. Their research on the diffusion of *be like* in the same community also extends the scope of the process, showing both 'infusion' of the forms by adolescents from surrounding areas attending Springville School, and a consequent structural adaptation of both the diffused form and the local host grammar (Cukor-Avila 2012).

Rapidly diffusing changes are also linked by their role in carrying social meaning. Linguistic features that are able to spread so far seem to depend on a special intersection of linguistic variation with a range of social meanings (Labov 2001, Milroy 2007). Specifically, diffusing features are often linked with very locally defined social meanings that in turn relate to broader supralocal language ideologies (Eckert 2000, 2008). So, for example, using quotative *be like* allows speakers to exhibit associations with more distant stylistically attractive groups, places, or social-ideological spaces (Tagliamonte & D'Arcy 2007). Tagliamonte and D'Arcy also point out that such associations could kick-start an innovation, following Labov's (2001:462) observation that 'acceleration of a linguistic change logically begins when the incipient change is attached to or is associated with a particular style or social group: A social category like *burnout* or a neighborhood like *Kensington*'. They suggest for *be like* that the 'associated social category was *Valley Girl* and the place was *California*' (Tagliamonte & D'Arcy 2007:212).

So, rapid linguistic diffusion is motivated and accelerated by a combination of factors working together, from the fragmentation of social networks and enhanced opportunities for geographical mobility, to the association of social meanings with variation during shared social practices and developing social identities. What raises the question of media as an additional factor is another characteristic, namely that these changes are often observed to be proliferating in varieties that are geographically separated from each other and/or from their supposed source, and where opportunities for direct and/or sustained interpersonal communication seems limited. As such, they look like examples of what Eckert (2003) refers to (further developed by Milroy (2007)) in her discussion of what are now called 'off the shelf' changes:

> We also fortify our view of the vernacular as natural, or at least ingrained, in our view of the necessity of regular contact for the spread of change. We have all been told by non-linguist acquaintances that language change comes from the television. The idea that language change could be accomplished in such a trivial fashion is part of the popular 'bag o' words' view of language … that we're all tired of dealing with. However, we shouldn't ignore the possibility that not all changes are equal. We need to ask ourselves what kind of changes require the kind of repeated exposure that social interaction gives, and what kinds can be taken right off the shelf. (Eckert 2003:395)

The idea that broadcast media present sociolinguistic resources for speakers to appropriate and creatively combine in a process of stylistic bricolage (cf. Eckert 2008) for the speaker's own purposes is well supported at the level of discourse from sociolinguistic studies of interaction (e.g. Rampton 1995, Androutsopoulos 2001). The question is whether this notion can be extended to structural elements of the grammar.

Buchstaller and D'Arcy (2009) present a comparative study of the local embedding of globalizing *be like* in different international varieties of English in terms of linguistic and social constraints. Their results suggest that the similarity of diffusing features may be rather superficial: media may have facilitated the rapid spread of *be like* but only at the level 'of the surface form of the variant and some apparently universal constraints' (2009:322). The actual distributions can be understood only if it is also assumed that supralocal transfer of features is accompanied by local restructuring of the grammar and reallocation of social meaning by the adopting community (cf. Britain 2002, Cheshire et al. 2011, Cukor-Avila 2012).

We might also ask what is on the media 'shelf', and how media representations of language relate to community usage (Stuart-Smith & Ota 2013). In fact, there is a complex reciprocal relationship between media representations of linguistic variation and actual community norms (Coupland 2007, 2009). Tagliamonte and Roberts (2005) looked at intensifiers, such as *really*, *totally*, and *so*, as used by the characters in the

popular American television show *Friends*. Their results showed patterning similar to that found in contemporary spoken English, but also showed that the frequency of *so* used by the female characters showed a clear relationship with the popularity of the show. They concluded both that 'media language actually does reflect what is going on in language' and that 'these media data appear to pave the way; language is more innovative in the media than in the general population' (Tagliamonte & Roberts 2005:296).

It is also not always evident that broadcast media are providing the model. Dion and Poplack (2007) systematically compared the frequency and linguistic constraints of *be like* in the speech of Canadian Anglophones in French-speaking Quebec with those in a corpus of American English film and television shows. Not only was the number of instances of *be like* in the media corpus very low, particularly in the scripted shows, but they also found different linguistic constraints in the two corpora. These findings are difficult to reconcile with the assumption that English-speaking Quebec speakers could be learning *be like* from broadcast media in the same way as they might from sustained interaction with American English speakers. This in turn raises key questions about how people might learn about social and linguistic behaviors from broadcast media.

1.4. THE INFLUENCE OF BROADCAST MEDIA ON SOCIAL BEHAVIOR. In the early twenty-first century, broadcast media form 'part of the global sociolinguistic condition of a speech community' (Androutsopoulos 2001:4; cf. Coupland 2009). Simply in terms of the possibility for exposure to media language, the statistics for television ownership and viewing are impressive: Bushman and Huesmann (2001) provide figures for the global ubiquity of television sets and hours of viewing per day for American households, showing the increase of viewing from 4.5 hours per day in the 1950s to 7.25 hours per day in 1998. Watching television has become the main leisure activity apart from sleeping for people of all ages (Strasburger 1995:2, Bushman & Huesmann 2001). The mass media, including television, are a social institution (or set of institutions) that plays an integral role in the everyday life of most of the world's population, and that constitutes a complex bundle of social factors for the sociolinguist to consider.

Media provide more than opportunities for mass exposure to information, events, and associated instances of language use, fictional and otherwise. Some television programs constitute social phenomena. A good example of this is the English popular drama *EastEnders*, a 'soap', which since 1985 has portrayed the detailed personal lives of a small group of mainly working-class, London Cockney families who live in 'Albert Square' in 'Walford', a fictional area of the East End of London. New half-hour episodes of *EastEnders* are aired four times a week during prime viewing time, repeated again later each viewing night, and are collected together in a weekend 'omnibus' edition, enabling viewers to watch again and/or catch up on missed episodes. The televised shows are supported by an official BBC website, which gives plot summaries for each episode. The exact figures for the viewing audience vary over the years that the program has been on the air, but at the time of our study *EastEnders* was particularly popular, attracting around eighteen million viewers per episode, almost one-third of the UK population. Such large audiences result in widespread informal discussion of the plot, as well as of the lives, feelings, and potential actions of characters carrying key storylines. Thus, alongside substantial potential exposure to the media representation of the 'Cockney' accent (dubbed 'Mockney' by the media), the wide appeal and the format of the drama, which concentrates on the lives of seemingly ordinary people, means that viewers can and do become highly engaged emotionally and psychologically with the characters and their stories (Buckingham 1987, Gillespie 1995).

Broadcast media have effects on social behavior (McQuail 2010), but the nature, intensity, duration, and even the description and investigation of these effects is disputed. Early research on media effects before the 1960s tended to work with assumptions of a 'powerful media', often described in terms of transmission models with a source sending a message to a receiver, thereby provoking a largely unwitting response. However, systematic investigation to test this, such as the Payne Fund studies of the 1930s looking at the impact of film on children, or electoral campaign research of the 1940s and 1950s, failed to find evidence for direct effects of this kind, and led to a revised notion of 'limited' effects, which work in conjunction with other social factors (Klapper 1960:8).

Such results led to a shift, with some researchers concentrating on media use, and others assuming more complex models that allow for audience response and processing within their social and cultural context ('mediated' effects). Not surprisingly, most research into the largely unplanned effects of broadcast media, and especially television, has focused on antisocial effects, such as aggression and violence. While there is some evidence from correlational studies and behavioral experiments to indicate positive links between media violence and aggressive behavior (e.g. Lefkowitz et al. 1972), it is interesting to note the conceptual framing of the influence of media on violence. For example, Bushman and Huesmann (2001:223–24) preface their review: 'The theme of this chapter is *not* that media violence is *the* cause of aggression and violence in our society, or even that it is the *most* important cause. The theme is that accumulating research evidence has revealed that media violence is *one* factor that contributes significantly to aggression and violence in our society' (their emphasis).

Early research on media effects on cognition in its broadest sense was preoccupied with attitudinal change. However, while researchers expected to find that media would influence and change attitudes, and that attitudinal change was linked to behavior, evidence was difficult to find (Gunter 2000:195; cf. Bargh et al. 1996). But media do seem to affect our perceptions of the world. Subsequent research on 'cultivation effects' by Gerbner and colleagues has shown, for example, that television consistently portrays a more violent world than reality, and that heavy viewers are more likely to show television bias in their perceptions of real violence. As McQuail (2010:83) states: 'The main thing to emphasize is the degree to which the different media have come to be interposed between ourselves and any experience of the world beyond our immediate personal environment and our own direct sensory experience'. It has also been recognized for a long time that some viewers may exhibit para-social interaction with characters from favorite dramas, with whom they enter into vicarious psychological relationships, almost as extended members of their family and friendship circles (Horton & Wohl 1956, Abercrombie 1996).

Current cognitive psychological modeling of media influence assumes that learning from, and/or responding to, media is fundamentally dependent on the existing stored experience of the real world that each viewer brings to media, and on their individual social cognition (Berkowitz 1984, Bargh et al. 1996, Gunter 2000). These models also observe that psychological engagement with media, programs, and characters, and attention paid to media, is much more important than simply being exposed to them (Gunter 2000:163). Media-effects research thus offers methods for investigating media influence, and also findings and theoretical modeling from which we can offer predictions. If broadcast media are involved in language change, we might expect them to play a rather limited role, and one that would exist in a reciprocal, but distinct, relationship with other social factors (see Brandt 2000:2165).

1.5. Research questions for this article. This article reports results for two changes, th-fronting and l-vocalization, which look like typical instances of rapidly accelerating linguistic diffusion in the vernacular dialect of Glasgow. We investigate the evidence for the factors that have been assumed to be important in driving these changes forward: diffusion through dialect contact with Southern English speakers (Kerswill 2003), social identity in social practices (Stuart-Smith et al. 2007; cf. Eckert 2000), and positive attitudes toward London accents (Trudgill 1986). We also include factors capturing exposure to and psychological engagement with television, and especially dramas set in London.

We ask two questions. (i) Are these changes still in progress for this community? (ii) Why are these changes taking place? We first present an outline of our methodology, and the larger research project from which these data and results are drawn (§2). Section 3 provides the observed distributions for each variable, which are also consistent with interpretations of apparent- and real-time change: in response to question (i), we can confirm change in progress for both variables. As a precursor to the inclusion of media factors, in §4 we summarize briefly the results of an additional study we carried out at the same time as the data collection, comparing 'media-Cockney' and Glaswegian. We then tackle question (ii) using a large-scale, multifactorial regression study that explores the relative contribution of linguistic and social factors involved in these changes, giving the methodology for the regression study (§5) and the results (§6). Finally, we discuss the implications of the results that emerged for linguistic factors and for social factors, particularly, social practices, dialect contact, attitudes toward accents, and engagement with TV. We then conclude our discussion of the interplay of processes pushing forward these two sound changes in this community: ongoing transmission and at the same time continuing diffusion through dialect contact; the local social meanings carried by these variants for these speakers; and, as an additional accelerating factor, strong psychological engagement with a favorite TV drama.

2. Methodology. The Glasgow Media Project is the first stage in a long-term program of research investigating the relationships between broadcast media and language variation and change (Stuart-Smith 2006, 2011, Stuart-Smith & Timmins 2010). We tackled the broad issue of broadcast media as a contributory factor in language change by focusing on the rapid spread of consonantal innovations in Glasgow. We narrowed the research question to a restricted set of factors: we took a single medium (television) and considered the possible impact of one selected media-represented linguistic continuum (called here 'media-Cockney') on another selected linguistic continuum (Glaswegian vernacular), with respect to specific features of accent (consonants and vowels), in the speech of one stratified age group (working-class adolescents) within their overall social context.

Our approach integrated the methods from media-effects research with those of variationist sociolinguistics. We carried out a large-scale correlational study and a television/language experiment. This was supplemented by a linguistic analysis of a sample of popular dramas set in working-class London and representing different varieties of media-Cockney (§4 below), and with qualitative data from interviewing and participant observation by the fieldworker. This article presents some results from the correlational study.

2.1. Data collection. The research took place in Scotland's largest city, Glasgow. Scotland is culturally and politically different from England in several ways, having its own distinct legal, educational, and health systems, and since 1999, its own Parliament.

Glasgow is also geographically distant from England, being 100 miles from Carlisle, the closest English city, and some 450 miles from the English capital, London. Within Glasgow, we worked with informants from Maryhill, an interconnecting series of urban wards a couple of miles to the northwest of the city center. These working-class communities experienced substantial disruption as a result of urban regeneration programs implemented in the 1960s and 1970s, which involved the demolition of a substantial proportion of their housing stock and relocation of inhabitants to bleak housing 'schemes' on the periphery of the city. The urban wards involved in our study are characterized by low employment and patches of urban deprivation; very few people voluntarily move into these areas. We worked with forty-eight informants, thirty-six adolescents and twelve adults, recruiting younger speakers from the local secondary school and a feeder primary school, and men and women from local pubs and a women's center. The data collection took place in two phases over eighteen months, during which a press embargo was maintained to prevent potential contamination of our data by local press coverage of the project. The purpose of the project was introduced as research into Glaswegian social life and language.

We collected digital recordings of spontaneous conversations of up to forty minutes from self-selected, same-sex pairs, followed by reading of a wordlist from all informants. The adolescents also completed a substantial structured questionnaire to elicit additional information: demographic, social, attitudinal, relating to dialect contact and to media exposure and engagement, with the latter questions similar in design and content to those used in media-effects research. This was followed up by a one-to-one informal interview with the fieldworker, who also engaged in participant observation at the schools over the four-month data-collection period. We present results from the first phase of the project in Table 1.

AGE GROUP	CHRONOLOGICAL AGE	NUMBER OF INFORMANTS	GENDER	SCHOOL
1	10–11 years	12	6 M, 6 F	Primary
2	12–13 years	12	6 M, 6 F	Secondary
3	14–15 years	12	6 M, 6 F	Secondary
4	40+ years	12	6 M, 6 F	Adults from same area

TABLE 1. Social profile of informants.

2.2. LINGUISTIC VARIABLES. In order to consider the hypothesis that television might be a factor in the diffusing changes, we also needed to look at variables for which media influence has never been suggested. We therefore analyzed data for seven phonological variables, which fell into three groups in terms of their status as changes for this community: (i) diffusing changes: three innovating consonantal variables, TH-fronting, L-vocalization, DH-fronting; (ii) ongoing vernacular change: derhoticization of postvocalic /r/; and (iii) stable sociolinguistic variation: realization of the vowels /a/, /u/, and /ɪ/, which are stratified according to social class in terms of vowel quality (working-class speakers show retracted qualities for /a/, fronted [ʉ] for /u/, and lowered and retracted qualities for /ɪ/; see Macaulay 1977), but which are not reported to be changing. The realization of the vowels, along with typical Glaswegian realizations of consonants and prosodic features of timing and intonation, means that our informants sound thoroughly Glaswegian.[1] The consonant innovations thus represent a very few features embedded in an otherwise Scottish vernacular.

[1] For example, our acoustic analysis showed that the variation in Scottish English /a/ and /u/ is conditioned entirely by the adjacent phonetic segment, and does not align in any way with the lexical distribution of the

Here we present the results for the two diffusing changes, TH-fronting and L-vocalization, which are well advanced in Glaswegian. The results for the other variables are presented in Stuart-Smith et al. 2014. However, we note here that the vowels showed almost exclusively significant effects for linguistic factors, with very little evidence for social factors of any kind. This overall result is interesting for two reasons. First, Glaswegian vowels and consonants are patterning rather differently, and consonants (or a few consonants) are doing rather more social work than the vowels for these speakers. Similar findings have also been observed in other UK accents (Foulkes & Docherty 1999). Second, it has never been suggested that Glaswegian vowel realizations are changing in the direction of Southern English. Our failure to find evidence of variation patterning with any social factors that would account for such a change (e.g. dialect contact, attitudinal factors, engagement with the television) seems entirely appropriate.

The two consonant variables discussed in this article represent both innovation, with respect to earlier, traditional forms of Glaswegian vernacular, and diffusion, to the extent that these changes have been observed to be spreading across other urban British dialects (Kerswill 2003). Stuart-Smith 1999 and then Stuart-Smith et al. 2007 identified use of [f] for /θ/ and vocalization of coda /l/ to a high back (un)rounded vowel in the Glasgow corpus collected in 1997. The two realizations are not expected in Glaswegian vernacular, which is a leveled variety of West Central Scots (Macafee 1983), at the Scots end of the Scottish English continuum (Aitken 1979, Stuart-Smith 2003), though sporadic appearances of both are noted in Macafee 1983, and the earliest reported usage of TH-fronting was just after the Second World War among recruits doing National Service training. For both variables, the innovative variants are nonlocal, nonstandard alternatives to an existing array of local nonstandard variation. /θ/ can also show [h], as in *I [h]ink*, in some lexical items, and coda /l/ also shows Scots vocalization in a restricted lexical set (e.g. *a'* for *all*) (Stuart-Smith & Timmins 2006, Stuart-Smith et al. 2006).

The recordings were digitized using a Kay CSL with a sampling rate of 44kHz, 16 bit. The analysis of the linguistic data was informed by previous analysis of these variables (Stuart-Smith et al. 2007). All tokens of the wordlist and all audible tokens from spontaneous speech (i.e. not obscured by overlap, noise, or laughter) were subjected to narrow auditory transcription from repeated listening to the waveform; portions of the data were cross-transcribed. The results of the narrow transcription were then grouped into broader variant categories. Each consonant showed an expected range of allophonic variation. We concentrate here on the results for the innovative variant categories. [f] for /θ/ represents voiceless labiodental fricatives varying in degree of approximation. [V] for /l/ represents a range of realizations heard as vowels with no audible laterality, and varying in quality from [o] to [ʊ] to [ɤ].

The distribution of the innovative variants was established: across the sample, across speaker groups, across phonetic environments for each variable, and over time, both apparent—comparing adolescents and adults, and real—comparing these data collected in 2003 with the 1997 corpus. The real-time comparison is tentative, given the difference in sample sizes: eight adolescents in 1997 versus thirty-six in 2003. In order to gain an appreciation of the differences in distribution according to main speaker groups, style, and real and apparent time, statistical testing was carried out using chi-square tests,

corresponding two phonemes in English English (ScEng /a/ vs. EngEng /a ɑ/, ScEng /u/ vs. EngEng /ʊ u/). Qualitative analysis of the FACE and GOAT vowels also showed exclusively monophthongal realizations, as expected for Scottish English, with no evidence at all of diphthongal variants as in English English.

given disparity in cell sizes and some low numbers.[2] The fact that each speaker presents multiple observations compromises the assumption of the independence of tokens for testing for 'style' and 'word position'. We interpret the results with caution, and, given the multiple comparisons, only results with $p < 0.001$ are discussed throughout. The proportion of use of each variant in each style for each of the adolescent speakers in 2003 is shown in Figure 1: no single speaker dominates the distribution.

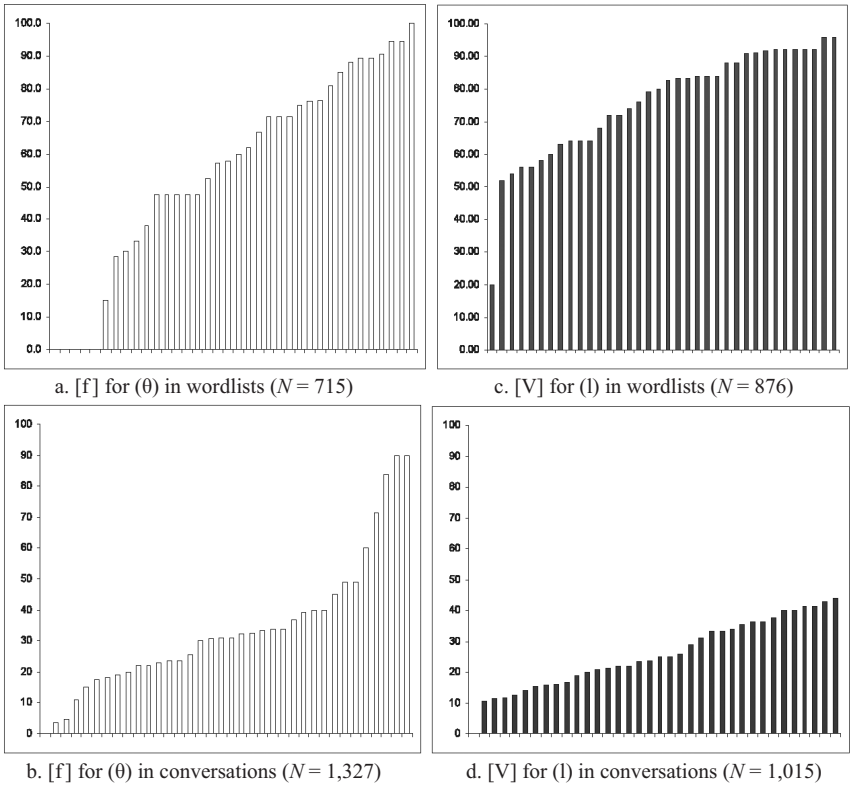


FIGURE 1. Distribution of the percentage of use of TH-fronting and L-vocalization for each of the thirty-six adolescent speakers in order of frequency. For both variables the reduction in spontaneous speech relates to the existence of a local Scots nonstandard variant that is blocked by the orthography in read speech.

3. ACCENT CHANGE IN PROGRESS IN GLASWEGIAN. The distribution of the innovative variants in read and spontaneous speech is given in Table 2, and according to phonetic environment in Table 3.

3.1. TH-FRONTING. TH-fronting is increasing in apparent and real time. In read speech the adolescents use [f] for around half of their variation for /θ/ (55.4%), and far more than the adults, for whom only one instance was noted. They also use [f] more than was found in 1997, increasing from 30% to 55.4%. TH-fronting is more likely in word-medial and word-final position, and less likely in word-initial position. Comparison with 1997 (word-initial: 19%, medial: 62%, final: 32%) shows that the increased use of [f] occurs

[2] Some differences between distributions could not be tested because the cell size was too low, for example, when adults produced too few instances of the innovative variant.

	[f] FOR (θ)		[V] FOR (l)	
WORDLISTS				
	%	TOTAL *N*	%	TOTAL *N*
1F	45.9	118	72.6	149
1M	66.2	107	74.7	141
2F	54.7	118	75.6	144
2M	50.9	122	79.3	144
3F	55.4	125	75.9	149
3M	59.2	125	77.9	149
4F	0	115	38.5	148
4M	0.8	121	26.9	141
TOTAL		951		1,165
CONVERSATIONS				
1F	35.9	239	28.6	113
1M	55.0	116	21.7	112
2F	21.6	253	31.0	222
2M	33.6	161	17.8	105
3F	33.3	281	32.1	226
3M	27.4	277	23.2	237
4F	2.3	220	15.1	246
4M	0.8	172	19.6	168
TOTAL		1,719		1,429

TABLE 2. Distributions of [f] and [V] for (θ) and (l), respectively, in wordlists and spontaneous speech. 1 = 10–11 years, 2 = 12–13 years, 3 = 14–15 years, 4 = 40–60 years, M = male, F = female. Average percentages are shown for the use of the variant by each age/gender group, followed by the overall total number of instances of the variable for the same group.

	[f] FOR (θ)			[V] FOR (l)	
WORDLISTS					
	%	TOTAL *N*		%	TOTAL *N*
word-initial	43.8	249	prepausal	73.1	386
word-medial	62.7	59	preconsonantal	38.0	71
word-final	60.2	407	postconsonantal	85.2	419
TOTAL		715			876
CONVERSATIONS					
word-initial	30.2	739	prepausal	20.8	528
word-medial	21.1	479	preconsonantal	17.6	289
word-final	78.0	109	postconsonantal	55.1	198
TOTAL		1,327			1,015

TABLE 3. Distributions of [f] and [V] for (θ) and (l) respectively, in wordlists and spontaneous speech. Average percentages are shown for the use of the variant in each phonetic environment, followed by the overall total number of instances of the variable in that environment.

at the word edges, both initially and finally. There is one instance of a gender difference: the boys in the youngest group use [f] more than the girls in the same group.

In spontaneous speech, adults show only five instances of [f] (1.5% of the variation), in comparison to the adolescents, for whom [f] constitutes around a third of their overall variation (34.5%). There is also an increase in [f] from 1997 to 2003 (26.2% to 34.5%). TH-fronting is most likely in word-final position, which is also where the increase in real time is most apparent (1997: word-initial: 31%, medial: 9%, final: 9%). The youngest age group use [f] more than the two older groups, which boils down to the youngest boys using more [f] than the older boys. Within the age groups, the younger boys (age groups 1 and 2) use more [f] than the girls.

If we compare TH-fronting across the two speech styles, we find proportionally more [f] in read speech than in spontaneous speech. There are two likely reasons for this distribution, which was also found in the 1997 corpus. The first relates to the place of [f] entering Glaswegian vernacular as a competing nonstandard variant alongside the healthy existing local nonstandard variant [h]. [h] does not occur at all in the reading of the wordlist, both because it is blocked by the orthography (traditional dialect forms are rarely elicited using standard orthography), and because it is prosodically extremely unlikely in utterance-initial position. [h] in spontaneous speech is also lexically restricted, occurring mainly in the lexemes *think* and *thing*, and some derivatives (e.g. *something*), which in turn reduces the possible occurrence of [f] in word-initial and word-medial position. This also accounts for the different distributions according to word position in the two speech styles, and in particular for the predominance of [f] in word-final position, where [h] may not occur (for more details, see Stuart-Smith et al. 2007). Despite what we might expect, position in the word is not straightforwardly related to the frequency of the words themselves. Nielsen's (2010) analysis of lexical frequency, word position, and TH-fronting in the same data showed no effects of lexical frequency and only an effect of position in word, again word-final position.

Second, most of our adolescent informants did not demonstrate correct or closely monitored speech in the direction of the regional standard in the wordlist reading task. Rather, their readings had an air of performance (Baumann 1992), with some laughing and commenting on the words, and others rattling through the list (cf. Coupland 2009:290). A particular stance was being taken with respect to both the task (reading a wordlist for a recording—an unusual thing to do) and the persons present (the fieldworker, from the University, and their conversational partner; cf. Kiesling 2009). This stance is expressed across their linguistic variation, in an increase of all possible nonstandard variants; [h] was not available to them, so [f]—which does not yet seem to be subject to the same level of overt suppression in Scottish English—could be exploited in its place (Stuart-Smith et al. 2007).

3.2. L-VOCALIZATION. L-vocalization is also clearly underway for this community. In the wordlists, both apparent-time and real-time comparisons are statistically significant. Adolescents showed vowels for around three-quarters of their variation (76%) in comparison with adults who used them a third of the time (33%). Vocalization has also increased since 1997, from 47.1% to 76% in the 2003 data. The increase in L-vocalization since 1997 is predominantly found in postconsonantal position (e.g. *middle*). There are no differences according to age and gender.

In spontaneous speech, L-vocalization is more common in adolescents (25.8%) than in adults (17.4%). It is also more frequent in 2003 than in 1997 (25.8% in comparison with 8.2%). The pattern according to position of /l/ is similar to that of read speech, with vocalization most common in postconsonantal position (e.g. *middle*). Overall there is a gender difference such that girls use more vocalization than boys, but only for the oldest adolescents.

As in 1997, far more vocalization was observed in the wordlists than in the conversations. The reasons are probably similar to those for TH-fronting, both in terms of our informants' approach to the wordlist task and its effect on nonstandard linguistic variation, and in terms of the impact of local nonstandard variation. Like [h] for /θ/, Scots L-vocalization (as in e.g. *a'*, *ba'* for *all*, *ball*) is blocked by an elicitation task that depends on reading. Scots L-vocalization is no longer a productive process, but literacy teaching creates an awareness between the two kinds of vocalization processes, at least insofar as both constitute possible nonstandard variants for /l/ (Stuart-Smith et al. 2006).

3.3. SUMMARY: SOUND CHANGE IS STILL IN PROGRESS IN GLASWEGIAN. The results allow us to answer our first question: young working-class speakers of Glaswegian vernacular are continuing to be innovative in their speech. For both variables, in wordlists and conversational speech we find evidence consistent with an interpretation of apparent-time change, with adolescents using more 'new' variants than adults, and of real-time change, with more, and extended, use of 'new' variants in 2003 than 1997. L-vocalization differs from TH-fronting in being already apparent in adult members of the community.

There is an interesting stylistic dimension to the changes, with 'new' variants being used more in read speech. This is probably for linguistic reasons, such as the restriction on local nonstandard variants to particular phonetic environments intersecting with the restrictions imposed by the reading task, and for reasons of style and/or stance-taking in the sense that our wordlists did not encourage our speakers to produce correct speech in the direction of the regional standard, but quite the opposite. These findings continue the patterns observed in Stuart-Smith et al. 2007.

Unlike the previous research we had age stratification within our adolescent sample, so that we could potentially look at differences in innovation use at different stages of adolescence (cf. Eckert 1997). In fact, these data do not show any particular patterning for age other than that which is also related to gender. The youngest boys show more TH-fronting in spontaneous speech than the older boys. There are more indications than in 1997 that these changes are associated with gender, though not in any clear direction across the variables, so it is difficult to generalize, or to link the findings with those from elsewhere (e.g. Foulkes & Docherty 2007). TH-fronting is marginally more likely in younger boys, but older girls show more L-vocalization. For these working-class speakers in Glasgow, these two variables index locality more than gender.

These two variants are certainly spreading in Glaswegian. Before we consider the social factors that may be promoting these changes, including exposure to and/or engagement with television shows in London, we give a brief summary of the findings of our phonetic analysis of media-Cockney.

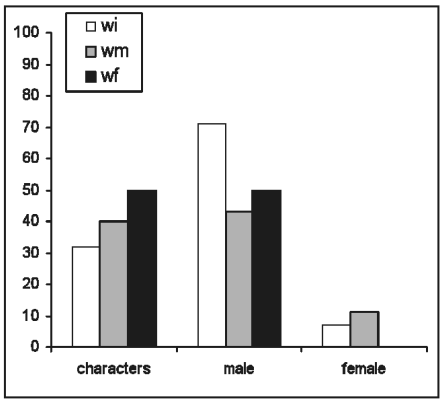
4. MEDIA-COCKNEY AND COMMUNITY NORMS IN GLASWEGIAN VERNACULAR. The first phase of the data collection was carried out during the first ten weeks of 2003. Social and media data were also collected at that time, and as soon as we knew which TV programs our informants were engaging with, we examined the phonetic features of media-Cockney. Our sampling from the television programs took place toward the end of this period. We analyzed samples from three shows, the soap opera *EastEnders*, the police drama *The Bill*, and the comedy *Only Fools and Horses*, but here we discuss only some of the findings from *EastEnders* since this was the only TV show that was found to show a significant effect in the multivariate analysis (more results are given in Stuart-Smith et al. 2014). The sample of *EastEnders* consisted of five episodes selected toward the end of our data-collection period. The characters selected for analysis covered both those mentioned spontaneously by our informants, and those who were at the time popular characters with strong story lines.

We concentrated on five stressed monophthongs (GOOSE, FOOT, KIT, TRAP, PALM) and TH-fronting, DH-fronting, and L-vocalization. The choice of features was motivated partly by general observations about Cockney and 'popular' London English (e.g. Wells 1982, Tollfree 1999) and partly for comparison with Glaswegian vernacular. The total number of instances was constrained by the inherent frequency of the phonemes and the occurrence of relevant lexemes in the scripts; the range was from 135 (TH-fronting) to

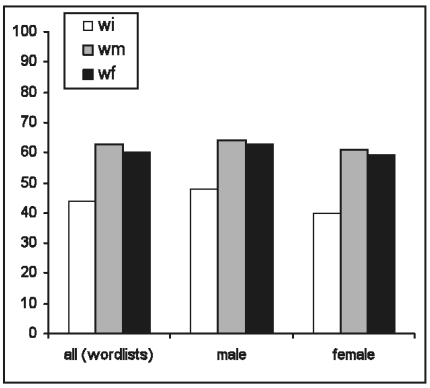
twelve (PALM). At an early stage of the research we contacted the producers of *EastEnders*, who told us that the actors did not have formal accent coaching, but were responsible for their own accent production suitable for specific characterization.

The results for the vowels showed acoustic qualities that are closer to those of South Eastern English, as reported for Ashford, Kent, in Torgersen & Kerswill 2004, than those that are expected for London English (Tollfree 1999). They are also very different from those of our Glaswegian informants, reflecting the distinct vowel systems of the two varieties. For example, Glaswegian shows single phonemes /a/ and /u/ where London English shows two (TRAP /a/ and PALM /ɑ/; FOOT /ʊ/ and GOOSE /u/).

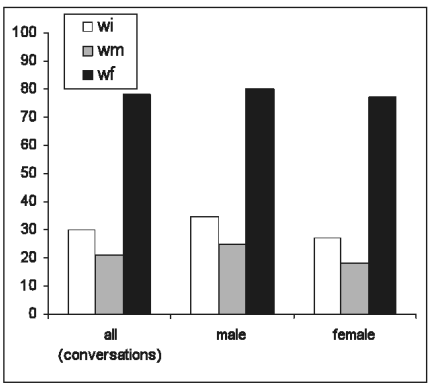
All three consonant features were found in the speech of the *EastEnders* characters, and more so in male than female characters. We illustrate the comparison of media-Cockney and Glaswegian usage and constraints with TH-fronting, which had the largest number of tokens. The results are shown in Figure 2.



a. [f] for (θ): *EastEnders* (*N* = 135)



b. [f] for (θ): Glasgow wordlists (*N* = 715)



c. [f] for (θ): Glasgow conversations (*N* = 1,327)

FIGURE 2. Percentage of [f] for (θ) in each word position (wi = word-initial, e.g. *think*; wm = word-medial, e.g. *Cathy*; wf = word-final, e.g. *tooth*) as used by (a) the characters in five episodes of *EastEnders* broadcast toward the end of the data-collection period and by the Glasgow adolescents in (b) read and (c) conversational speech.

The main findings are as follows.

- Glaswegians use proportionally more TH-fronting than is shown in *EastEnders*. In fact, characters in *EastEnders* use proportionately much less TH-fronting than is

found in Londoners (around 90% overall in Cheshire et al. 2008; cf. Holmes 2010).

- The social constraints are different: there is a gendered distribution in *EastEnders*, but not in Glaswegian.
- The linguistic constraints are also different: *EastEnders* characters show a distribution according to the position of /θ/ in the word that coincides with Southern English (Holmes 2010), but this is not maintained when looking within gender (male speakers use [f] more in word-initial position). The distribution of [f] in Glaswegian is different from that of *EastEnders* in read and spontaneous speech. Specifically, Fig. 2 shows that in *EastEnders* there is an increase in [f] from initial through medial and final position, but this pattern is not observed consistently in male and female characters, whereas in Glaswegian, medial [f] is as frequent as final [f] in read speech, and is the least frequent option in spontaneous speech (and this patterning is consistent for both speech styles within gender).

These findings are interesting because both the frequency and the constraints of the feature in the potential media model do not align easily with those of either London English or Glaswegian (cf. Dion & Poplack 2007). The linguistic and social constraints on TH-fronting in Glaswegian suggest thoroughly local patterning, and it has been clear for some time that the incursion of [f] for (θ) into Glaswegian is strongly affected by the existing distribution of Scots [h] for (θ) (Stuart-Smith & Timmins 2006, Lawson 2010).

Also, the linguistic constraints found in *EastEnders* male characters are different from those of London English (Holmes 2010). We suspect that this is because TH-fronting is an integral aspect of dramatic characterization, and so also subject to the constraints of speech produced in drama. This assumption is supported by an additional functional analysis that showed differences in the use of [f] according to the location (most in the Queen Vic pub), interlocutor (most when speaking to only one other character), and speech style (more in emphatic, sad, or humorous speech).

5. Identifying factors involved in the changes: the correlational study. We tackled the second research question at the level of the group, using the results of a large-scale multifactorial analysis. Designing a correlational study of this kind entails making a number of methodological decisions that balance the most appropriate methods with the specific constraints imposed by the structure of this data set, and the aims of the study itself. Here we discuss the issues that relate to our choice of regression analysis, and to the procedure selected to deal with the independent variables that were used in the analysis.[3]

5.1. Rationale and method for the regression analysis. Variationist sociolinguistics uses multivariate analysis, and particularly different kinds of regression analy-

[3] Our original plan had been to carry out a longitudinal correlational study following the use of such studies in media-effects research (e.g. Lefkovitz et al. 1972). While a single correlation could yield a link between media and behavior, that link is not in itself a demonstration of a causal relationship, which would have to be inferred. Longitudinal correlation allows testing of the hypothesis that stable or increased media contact will be associated with an increase in the behavior. We collected linguistic and social data from our age group 1 and age group 2 informants for a second time the following year. However, in the second year the individual preferences for television viewing and engagement, especially with respect to programs featuring media-Cockney, were somewhat different from that of the first year, and overall interest in *EastEnders* was reduced—in line with a national waning of popularity (Manchester-based *Coronation Street* gained the Best Soap award). This meant that from the outset, the necessary conditions for a longitudinal study did not pertain for our data. We intend to explore the contribution of the second data set in future analysis, though this will probably entail the detailed consideration of individual profiles and be restricted to descriptive analysis.

sis, to discover the relative contribution of linguistic and extralinguistic factors in the patterning of linguistic variation (e.g. Tagliamonte 2012). Recent research on the statistical modeling of social factors in particular has highlighted how the treatment of independent variables can affect the outcome of a regression analysis (e.g. Johnson 2009). Independent variables can be modeled as fixed or random effects. Fixed effects constitute controlled or relatively stable groupings to which the individual speakers belong, such as gender, age, social class, and/or other kinds of social grouping. Regression analysis using only fixed effects will fit the linguistic data of the dependent variable to the independent variables, but is prone to type I error—it can return significant results for a social factor even if this actually depends on the distribution of only one individual in that grouping. Mixed-effects modeling includes random effects, or variables, such as 'individual speaker' or 'word', that do not show clear groups or nests. This kind of modeling is well suited to sociolinguistic data for which individuals are clearly nested into a set of social factors, since it explores the relative contribution of each social factor, taking into account individual variation within each 'nest'. But mixed-effects modeling is prone to type II error—returning nonsignificant results for social factors when they might have an effect, because the individual variation exceeds the estimate for the particular grouping. It also requires the sample of individual speakers to be larger than the number of 'nests' generated by the model.

We wanted to consider the use of innovative variants for (θ) and (l) in a group of adolescents from the same working-class area of Glasgow, and try to tease apart at a fine-grained level the different possible factors that might contribute to the linguistic patterning. Our social data resulted in very many possible independent variables, characterizing different aspects of our informants' lives, from the composition of their household, the frequency of contact with friends and family outside Glasgow, their attitudes toward recordings of urban accents, and their social practices and leisure pursuits, to the number of TV sets in their home, how and with whom they watched TV, and their favorite TV programs and characters. Our first step was to reduce the number of independent variables so that regression models could be fitted (see §5.2 below). However, as one would expect with these kinds of extralinguistic variables, the grouping of individual responses across the sample of thirty-six speakers was not controlled, but varied from variable to variable. It is not clear how these factors should be modeled, and whether in fact they should be modeled as random factors, in which case the interpretation of the models would be very tricky. However, the main difficulty for implementing a mixed-effects analysis is more practical. With only thirty-six speakers we would only have been able to fit models with four social factors at a time, since otherwise the composite nesting structure that would result from such a model would lead to more nests than individual speakers, making it impossible for 'speaker' to act as a random factor. Our choice of fixed-effects regression for this first analysis of these data was both practical and methodologically conservative.

At the same time, using a fixed-effects regression incurs the risk of the results being influenced by outliers, or extreme individual speaker behavior and/or responses relative to the overall group of speakers. We therefore carried out several additional statistical analyses.

- We inspected the distributions of individual raw and proportional usages for each linguistic variable in each speech style, in order to establish that there are no individual outliers. The distributions for the proportional usages are shown in Fig. 1.
- We manually inspected the distributions of individual responses for each independent extralinguistic variable, and we removed all variables with low responses

(i.e. from less than 10% of our sample) and those with a strongly skewed distribution. This means that no variables were entered into the regression models whose responses were dominated by only one or a very few speakers.

- As a final precaution, we ran all of the final regression models on the sample of speakers minus a single speaker in turn, that is, all minus YF1, all minus YF2, and so on. The pattern of significant effects, and the size of the effects, remained constant with each individual removed from the sample. This means that we can be confident that no single individual's behavior is responsible for the significant results that are reported here.

5.2. Rationale and procedure for identifying independent variables.

Linguistic variables. Previous research on Glaswegian had already demonstrated that position in the word/phonetic environment is most important in constraining the use of th-fronting and l-vocalization (Stuart-Smith et al. 2007, Nielsen 2010). These linguistic factors were also significant when considering the distributions (§3), and so were included as key representative linguistic factors in this analysis. We recognize that many other linguistic factors are likely to constrain the use of our dependent variables, for example, prosodic context, position in the turn, or function within the discourse. Any reduction of the amount of variance explained could be at least as much due to the bias of omitted linguistic variables as to the bias of external variables relating to social, psychological, and emotional state, which are typically excluded but may play a role in any study of social behavior.

Extralinguistic variables and thematic categories. Our data collection provided us with a very large number of potential extralinguistic variables, arising from: the detailed demographic, social, and media use and engagement questionnaire, the informal interviews, the informants' conversations between each other, and the fieldworker's period of participant observation with the informants. We were theoretically interested in testing variables that captured different aspects of informants' social lives, such as their possibilities for dialect contact, their social practices, and their attitudes toward urban accents, as well as their use and engagement with TV. At the same time, we did not know which of the large number of variables within these different theoretical categories might be significant. Once we had removed all low-response variables and those with skewed distributions, we still had far too many variables to be entered into any single regression model given the number of observations for each linguistic variable.

There are essentially two ways of reducing large numbers of extralinguistic variables: manually, or using automatic methods. One of the advantages of using automatic methods such as factor analysis is that issues of colinearity or multicolinearity across sets of variables are avoided, because these methods exploit the existing colinearity in order to report the factors, or commonalities in variance across the variables. Colinearity is problematic for most kinds of regression analysis because it is assumed that variables entered into the models are independent from each other. The difficulty with using factor analysis, however, is that the factors that are automatically detected from the mass of variables often bear no relation to the theoretical categories to which they belong. It is not possible for them to be meaningfully entered into any subsequent regression analysis, since the interpretation of the results would be so complex (cf. Greene 1993:273). We therefore used a systematic manual method that enabled us to identify the significant variables, but at the same time retain control over the theoretical balance of the models. To ensure that the regression models would be as robust as possible, we also used standard statistical procedures to remove the possibility of multicolinearity (see the next subsection).

First we took all of the variables and divided them into eight thematic categories:[4] dialect contact, attitudes, social practices, television, music (including radio), film (including video/DVD), computers (including internet), and sport.[5] We outline the content of these categories before explaining the variable reduction process.

DIALECT CONTACT. The variables for dialect contact included: composition of an informant's family, location of the family members within and/or beyond Glasgow, frequency of contact with family members by seeing and/or talking with them, location of their friends, frequency of seeing and/or talking with their friends, mobile phone ownership and usage, frequency of textual contact with family and friends, and opportunities for personal mobility within and beyond Glasgow, including visiting relatives and visits to other cities in the UK.

We had previously assumed that working-class adolescents from this area of Glasgow would show relatively low geographical mobility, partly because this life stage is one during which it is difficult for individuals to travel independently (Britain 2002), and partly because of the reduced opportunities for passive contact afforded by their being born and raised in a local environment, which shows a very low number of incomers (only 2.8% were born in England, 2001 Census). We calculated a locality index for all speakers (cf. Chambers 2000), where 1 was assigned to being born and raised in the area, plus 1 if they did not live in the immediate area, and plus 1 again if both parents and all grandparents were not born, raised, and still resident in the area. The mean value of the index for the sample is 1.19, indicating that our sample is strongly local to the immediate area (only five informants had one parent or grandparent who was not local, and of these only one was not Scottish).

	WITHIN GLASGOW	BEYOND GLASGOW
face to face	1.00	0.44
talk on phone	0.36	0.56
text/email	0.49	0.19

TABLE 4. Reported contact with family and friends within and beyond Glasgow given in terms of mean indices calculated from responses from all adolescents, according to type of contact. Indices encode frequency of contact with number of potential contacts, and have been normalized by the strongest type of contact (face-to-face contact within Glasgow).

	HAVE RELATIVES	TALK TO RELATIVES	SEE RELATIVES	VISIT CITIES
Elsewhere in Scotland	0.25	0.59	1.00	0.91
North England	0.33	0.86	0.70	1.00
Central England	0.11	0	0	0.13
South England	0.28	0.42	0.38	0.53
North Ireland	0.03	0	0	—
other country	0.47	1.00	0.38	—

TABLE 5. Potential for dialect contact for the adolescent sample according to regional location of relatives (mean percentage) and to frequencies of speaking to and seeing relatives, and to visiting cities (indices have been normalized against the highest frequency within each category: 'other country', 'elsewhere in Scotland', and 'North England', respectively).

[4] While the placement of variables within some of these groups could overlap both with each other and also with 'television', we made an operational decision to ensure that each possible variable was included in one, and only one, group.

[5] The macro-variables 'age' and 'gender' turned out to be less useful for this study. While the distributional analysis shows some patterning according to age and gender, the regression models consistently failed either to be significant, or to show sufficiently high explanation of variance. It seems likely that whatever governs the age/gender differences found in the chi-square testing relates not so much to our informants being of dif-

Our informants' reported contact within and beyond Glasgow is shown in Table 4, and their opportunities for dialect contact beyond Glasgow are given in the form of the indices shown in Table 5. Our adolescents mainly engage in face-to-face contact with friends and family within Glasgow, though they also report face-to-face, telephone, and text-based contact with those outside Glasgow. Most have a few relatives beyond Glasgow, mainly abroad, but also in the North and South of England, and elsewhere in Scotland, whom they talk to on the phone fairly often but see in person less frequently, generally when relatives return to Glasgow for visits. Most show a low degree of active mobility outside the city. Beyond Scotland most opportunities for dialect contact are with the North of England.

ATTITUDES TOWARD ACCENTS. The questionnaire began with a brief attitudinal survey that used tape-recorded extracts of young adults reading the same passage from six British urban accents (Edinburgh, middle-class Glasgow, working-class Glasgow, informal Newcastle, Manchester, and London) and RP (Received Pronunciation), drawn up by Torrance (2002). This allowed us to obtain attitudinal responses to actual recordings, and the extent to which informants were able to identify correctly the provenance (cf. Preston 1992). A later section of the questionnaire asked informants about their feelings toward seven urban accents (Edinburgh, Glasgow, Newcastle, Leeds, Manchester, Liverpool, London), this time letting us assess their 'mental image' of the accents (cf. Preston 1999). The results of the attitudinal surveys are given in Table 6. On average, London accents were rated lower than other accents, though not as low as RP, which was generally disliked.

ACCENT	CORRECT IDENTIFICATION %	AUDITORY SAMPLE	MENTAL IMAGE
Glasgow WC	44	1.2	2.2
Newcastle	40	1.7	1.5
Manchester	25	0.9	1.1
RP	19	–0.6	—
Informal London	17	0.4	0.4
Glasgow MC	11	0.8	—
Edinburgh	11	1.2	1.0

TABLE 6. Results of attitudinal surveys showing proportions of correct identification of accent recordings, and means of responses to accent recordings (played at the beginning of the questionnaire) and of responses to the question, 'What do you think about the accent in … ?' (five-point scale runs from –2 'don't like at all' to +3 'like a lot').

SOCIAL PRACTICES. While the fieldworker was able to spend some time with the informants over periods of data collection in school, the study did not include an ethnography. The variables that capture aspects of informants' social practices do so more in the fashion of an overall sketch. The originally very large number of 'social' variables, quantifying detailed aspects of their social lives, from taking part in activities in and after school, to aspects of their dress and hairstyles, and their feelings about school, Glasgow, and their future, was substantially reduced after the removal of low-response/skewed dis-

ferent ages or different genders, per se, but to overlapping sets of age-related and/or gender-based practices in which they engage. In other words, younger boys probably do not use more [f] because they are younger boys, but because their linguistic behaviors relate, and are related, to a series of intersecting factors and practices, which in turn, and indirectly, relate to their being younger boys (cf. Ochs 1992). 'Age' and 'gender' were not entered as factors in the final models (cf. Labov 2001:272, n. 16).

tribution variables. This was the only thematic category for which it was possible to create meaningful composite variables and 'cover' variables (i.e. those that were correlated with many other variables). Alongside 'reported number of friends', the social-practice variables were: 'disliking school', which was also correlated with engagement (or not) in school-based and break-time activities, as well as adherence to school uniform policy; 'going out on weekend nights', linked to going out on weekend nights and with going into the city center and more generally hanging out on the streets; and 'personal clothing choice', a composite variable made up of observed practices in clothing and hairstyle that took their school uniforms closer to local street styles (for more details of social groupings, see Stuart-Smith & Timmins 2010).[6]

There was some variation in the profiles of our informants in terms of social practices. Around half reported that they liked going to school quite a bit, and those who did not tended to be older, but there is no clear pattern of age or gender. Many said that they went out on weekend nights, secondary school informants more so, as one might expect. Again, older informants reported higher numbers of friends than younger ones. In terms of clothing, around half of the informants supplemented their school uniform with other locally fashionable clothing, jeans or tracksuits, and on their feet, sneakers with their socks pulled over their trouser cuffs. This was found more in secondary school informants than primary ones, but with no clear age/gender pattern.

TELEVISION. Variables relating to television fell into a number of different categories: ability to identify television programs on hearing a dialect recording; general reported exposure to television; television as a part of daily life (talking about TV, watching TV alone and/or with friends, talking at the TV); talk about TV as it emerged during the informal interviews and their own conversations; favorite programs and characters; and exposure to and/or engagement with TV dramas, mainly based in the UK. The questionnaire presented a list of nineteen popular dramas, chosen on the basis of an initial pilot study. Open questions elicited other programs that they enjoyed watching and/or whose characters they particularly liked. Since our focus was on the potential relationship between media representations of London dialect (media-Cockney) and the sound changes, we included four popular TV programs set in London: the soap *EastEnders*, the police drama *The Bill*, the comedy *Only Fools and Horses*, and the school-based drama *Grange Hill*.

Our informants report access to three or more television sets at home, and said that they watch TV every day, with average exposure of around three hours/day. Watching television was reported as one of their main leisure activities, but so too were hanging out, listening to music, and using computers. The London-based programs were ranked highest for watching and liking programs for each genre (police drama, comedy, and soap), reflecting popular audience ratings during the data-collection period. *EastEnders* was most often named as 'favorite program', and characters from *EastEnders* were most often given as favorites, with 'Kat' and 'Alfie' as the most popular (their on-again, off-again romance had dominated the storylines for the preceding year). London-based programs also dominated the top five programs rated for liking the accent of a program. At the same time, when asked to give the name of a television show whose accent they liked best, our informants nominated Scottish-based, and especially Glasgow-based, comedies. Analysis of talk about television during spontaneous speech showed very lit-

[6] State-funded schools in Glasgow typically insist on school uniforms, which they try to enforce as much as they are able. Our variable 'personal clothing choice' indicates often subtle shifts toward local dress and hair styles.

tle mention of television programs, perhaps partly because the context of these speech events was school (Werner Holly, p.c.). But when they did talk about television to each other, or to us, both *EastEnders* and the local Glaswegian comedies were mentioned.

In order to assess exposure (reported watching) as distinct from engagement (liking or liking and watching, having a favorite character and/or program, criticizing characters' actions), the television category regressions were run separately for exposure and engagement. We had originally planned to look at exposure and engagement with TV dramas combined into regional groups according to fictional dialect, for example, media-Cockney, media-Northern, media-Scottish, and so on. It quickly became clear, however, that individual preferences for specific programs could differ within a regional group (e.g. someone might like *EastEnders* but not *Grange Hill*), and so we reverted to specific programs, running all the models separately for each media-Cockney program (*EastEnders*, *The Bill*, *Only Fools and Horses*, and *Grange Hill*). In order to assess the relative contribution of television dramas set in London with those set elsewhere, we also included representative possible programs from the North of England and/or Scotland (e.g. *Coronation Street*, *River City*) and from outside the UK, again selected on the basis of the pilot study.

OTHER THEMATIC GROUPS: MUSIC, COMPUTING, FILM, SPORT. Four thematic groups included further variables capturing other aspects of our informants' social lives. 'Film' ranged from going to the cinema, to engagement with particular film genres (comedy, action, horror), to recording and watching films on video. 'Music' included music preferences, reported listening to music (when and with whom), purchasing music, and reporting listening to and engagement with radio. In 'computing' we recorded reported gaming and internet use (such as chatrooms or websurfing). 'Sport' ranged from actual involvement in different sports such as gymnastics or football (i.e. soccer), or supporting particular football teams, to watching particular sports on television.[7]

EXTRALINGUISTIC VARIABLES—THE VARIABLE REDUCTION PROCESS. We examined the variables within each thematic category and removed variables that showed pairwise correlations. This process was selective in order to retain theoretical balance for that category; so, for example, within 'attitudes to accents' we needed to try to retain variables that would allow us to compare different accents across the UK.

The statistical diagnostic VARIANCE INFLATION FACTOR (VIF) was used to remove multicolinearity. If the VIF is one, no multicolinearity exists. If the VIF is marginally greater than one, the minimal multicolinearity that this reflects will have no impact on the significance of the regression model. If it is much greater than one, for example above five, then the increased multicolinearity will increase the standard errors, and hence reduce the precision and stability of estimates. We set an extremely conservative limit of VIF < 1.5. Variables were removed from each thematic category until all variables were less than 1.5. The process was again selective in order to retain theoretical balance for that category. This process resulted in an optimally low-multicolinearity set of variables for each thematic category, but one that retained the main subcategories of theoretical determinants for each regression model.

[7] We recognized that there were relatively fine distinctions between some of the variables within thematic categories such as 'music', and so we considered combining them into 'larger' composite variables, relating more generally to, for example, engagement with film or music. We therefore tested each thematic group for internal consistency of the variables using Cronbach's alpha. A score approaching or beyond 0.7 indicates good consistency, and would justify combining the variables into a composite variable. However, Cronbach's alpha was always low, and never higher than 0.4, so we were unable to create composite variables for any of the thematic categories.

5.3. PROCEDURE FOR THE REGRESSION ANALYSIS.[8] The regression analysis was carried out in two phases (see Figure 3). The first phase of regressions was carried out for each dependent variable on the independent variables within each thematic group. Variables were included in a particular model only if they were significant at the 5% level. We used a general-to-specific modeling strategy (i.e. we first included all relevant variables, then dropped the least significant variables first, then reestimated, then repeated the process) in order to minimize the risk of omitted variable bias (Maddala 1988:494–96).

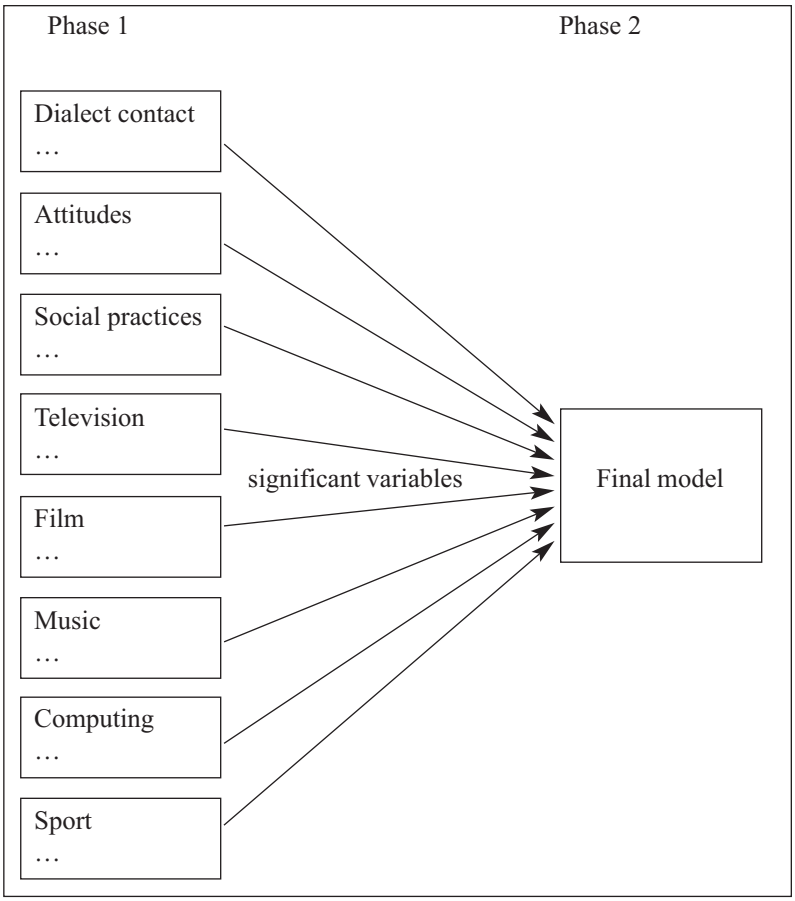


FIGURE 3. Diagram of design for regression analysis.

[8] The regression analysis was carried out only on the adolescent data since we had already established that the adolescents were the innovators. Had we included adults, any subtle differences between the adolescents would have been obscured by the substantial overall differences between adults and adolescents. In this respect our sample is unlike a study where the cohorts within the sample are substantially different in terms of the social factors entered, which then anticipates potential differences in linguistic variation in connection with the social factors (such designs also anticipate high explanation of variance because the differences in linguistic variation are likely to be modeled well by the factors in the model). Our adolescents were all from the same area and very similar backgrounds, and would appear much 'the same' to outsiders. Our task was to tease apart the social factors in a fine-grained analysis in order to identify which factors might be contributing to variant usage.

Only the significant variables resulting from these regressions were carried forward to the second phase. The final combined models were checked for multicolinearity using the procedure described above (§5.2). We attempted to maintain theoretical balance for each model, and in particular to retain, as far as possible, at least one variable from each thematic category. Using this procedure avoided 'cherry-picking' variables for the final combined regression models: only those variables that had survived the process of variable reduction, and then showed significant effects in the first phase of thematic category regressions, were entered into the final models. The best final model for each dependent variable from the second phase is reported in §6.

Since the dependent variables were categorical (e.g. [f] as opposed to 'not [f]' for (θ)), we used logit (or logistic) regression, with exponentiated coefficients. Exponentiated coefficients (exp(B)) allow us to observe the magnitude of effects. For variables that have a positive effect on the probability of [f], the exp(B) value will be greater than one; alternatively, where the effect is negative, the value of exp(B) will lie between zero and one. In order to be able to compare the magnitude of positive and negative effects, in the final column of each table we also present a conversion into proportional change, with +/– representing the 'direction' of the effect. The last two rows of each regression table below include the sample size, *N*, and the Nagelkerke R^2, which gives an indication of the amount of the variation in the dependent variable explained by each model.

6. Factors involved in the Glasgow changes: the regression results. We do not formally report the results from the first phase of regressions because the variance explained for each group was on average very low (only 7%). The results of the best logit model for each dependent variable from the second, final phase of regressions are presented in Tables 7 to 10 below. The best model was determined as the one that showed the best explanation of variance as indicated by the Nagelkerke R^2 and the best theoretical balance of variables in the input shortlist.

6.1. Th-fronting in wordlists (logit model 1). Table 7 shows that the four main thematic categories show significant positive effects. In order of size of effect, using [f] is positively correlated first with social practices (conforming less to the school uniform and more to Glasgow street style in terms of hair and clothing), then with engagement with TV (naming *EastEnders* as their favorite program), and then with dialect contact (having contact with relatives in South England), and finally with attitudes toward accents (liking the informal London accent recording).

DEPENDENT VARIABLE = 1 IF [f] FOR (θ) = 0 OTHERWISE	EXP(B)	MAGNITUDE
word-initial position (e.g. *think*)	0.40	–248%
contact with relatives in South England	1.40	140%
like informal London accent sample	1.16	116%
personal clothing choice	3.50	350%
EastEnders is favorite program	1.64	164%
watch *Coronation Street*	0.63	–159%
watch *ER*	0.67	–150%
use internet for chatrooms	0.61	–163%
like animation films	0.24	–410%
intercept	*4.13*	*413%*
N	715	
Nagelkerke R^2	0.33	

Only variables with $p < 0.05$ are included.

TABLE 7. Logit model 1: [f] for (θ) in wordlists.

Using [f] is negatively correlated, in decreasing order of magnitude of effect, with film (preferring animation films like *The Simpsons* (mainly American accents)), computers (as well as using the internet for chatrooms), and two other TV exposure variables (watching the American drama *ER* (American accent), then watching the soap *Coronation Street*, set in Manchester). The linguistic factor of position in word shows the third strongest effect in the model: using [f] is least likely in word-initial position.

6.2. TH-FRONTING IN CONVERSATIONS (LOGIT MODEL 2). Five variables were significantly linked with TH-fronting in spontaneous speech (see Table 8). By far the largest effect is shown by the linguistic factor of position in word: using [f] is very strongly favored in word-final position. The only other positive effect is shown by engagement with TV: [f] is used more by speakers who give *EastEnders* as their favorite program and/or name it as the show with their favorite characters.

DEPENDENT VARIABLE = 1 IF [f] FOR (θ) = 0 OTHERWISE	EXP(B)	MAGNITUDE
word-final position (e.g. *tooth*)	10.67	1044%
contact with relatives in North England	0.91	–110%
EastEnders is favorite program/favorite character	1.38	138%
watch *Coronation Street*	0.67	–150%
% talking about TV in conversation	0.97	–103%
intercept	*0.97*	*–103%*
N	1,327	
Nagelkerke R^2	0.17	

Only variables with $p < 0.05$ are included.

TABLE 8. Logit model 2: [f] for (θ) in conversations.

Significant negative effects were found, in decreasing order of effect size, for watching *Coronation Street*, then contact with relatives in the North of England, and finally the proportion of speakers' conversations that related in any way to television (our informants spoke very rarely about TV).

6.3. L-VOCALIZATION IN WORDLISTS (LOGIT MODEL 3). There is a very strong effect for the linguistic factor, and significant effects for three of the four main thematic categories (Table 9). The strongest factor in the model is for social practices (personal clothing choice): the more speakers adopt Glasgow street style over the school uniform, the more they also show L-vocalization. Next, engagement with TV, and specifically liking *EastEnders* and criticizing soap characters, is also strongly correlated with vocalization. A positive, but smaller, effect of contact with relatives in the North and/or South of England is also found.

DEPENDENT VARIABLE = 1 IF [V] FOR (l) = 0 OTHERWISE	EXP(B)	MAGNITUDE
preconsonantal position (e.g. *milk*)	0.13	–800%
contact with relatives in North/South England	1.26	126%
personal clothing choice	9.55	955%
like *EastEnders*/criticize soap characters	3.77	377%
like *ER*	0.78	–128%
intercept	*0.69*	*955%*
N	876	
Nagelkerke R^2	0.20	

Only variables with $p < 0.05$ are included.

TABLE 9. Logit model 3: [V] for (l) in wordlists.

The second largest effect is shown by the linguistic factor: L-vocalization is far less likely if /l/ occurs before a consonant in, for example, *milk*. Liking *ER* also has a negative, but smaller, effect.

6.4. L-VOCALIZATION IN CONVERSATIONS (LOGIT MODEL 4). Four variables were significantly correlated with L-vocalization in spontaneous speech (Table 10). The largest effect is shown by the linguistic variable: /l/ is much more likely to be vocalized in postconsonantal position (e.g. *people*) than in any other position. The second largest effect in the model, also positive, is shown for social practices: the more that speakers show Glasgow street style and avoid the school uniform, the more they vocalize /l/. Engagement with TV, and specifically naming *EastEnders* as their favorite program, shows the smallest positive correlation with L-vocalization.

DEPENDENT VARIABLE = 1 IF [V] FOR (l) = 0 OTHERWISE	EXP(B)	MAGNITUDE
postconsonantal position (e.g. *people*)	5.55	555%
personal clothing choice	2.82	282%
EastEnders is favorite program	1.65	165%
% talking about TV in conversation	0.94	–106%
intercept	*0.19*	*–532%*
N	1,015	
Nagelkerke R^2	0.17	

Only variables with $p < 0.05$ are included.

TABLE 10. Logit model 4: [V] for (l) in conversations.

The only significant negative correlation (also with the smallest effect in the model) is with the proportion of informants' talk about TV in the conversations.

6.5. SUMMARY OF THE REGRESSION RESULTS. There are four main findings from the correlational study.

(i) Linguistic constraints are very strong: the linguistic factor is the strongest effect for both TH-fronting and L-vocalization in spontaneous speech, and is also very strong for read speech.
(ii) The strongest positive effect shown by the extralinguistic variables is found for social practices, and specifically our informants adopting more Glasgow street style in their dress, as opposed to adhering to the school uniform.
(iii) Engagement with the London-based TV soap *EastEnders* is the next strongest positive effect. This is captured by our informants reporting that it is their favorite show, having their favorite characters, and that they criticize the actions of the soap characters while they are watching.
(iv) Contact with friends and family in England also shows a positive effect for TH-fronting and L-vocalization in read speech.

Our findings help answer our second research question: a number of factors together are leading to the rapid acceleration of these two changes in Glaswegian. We structure our discussion by considering these factors in turn.

7. DISCUSSION: RAPIDLY ACCELERATING LINGUISTIC DIFFUSION IN GLASGOW.

7.1. LINGUISTIC FACTORS. TH-fronting and L-vocalization have been in progress in this variety for at least sixty years, albeit apparently to a very small degree during the first forty. Their gradual but persistent deep rooting into the linguistic system is reflected in the very strong effects for the linguistic factors for both variables. The actual

pattern of significant constraints confirms what was observed in §3. They also relate directly to the existing Scottish variants, [h] for (θ) and Scots L-vocalization, both of which are frequent in spontaneous speech but which are blocked by orthography, and so do not occur in read wordlists (Stuart-Smith & Timmins 2006). For example, in spontaneous speech [f] is most frequent in word-final position at least partly because [h] is more common in word-initial and word-medial position (e.g. *think*, *something*). Scots L-vocalization is only possible for coda /l/ (e.g. *a'* for *all*); L-vocalization is predominant in postconsonantal position (e.g. *people*) in the conversations.

This looks like confirmation of the kind of process suggested by Cheshire and colleagues (2011:155), that the innovations effectively arrive by diffusion and then 'go native' during transmission, in that they have to fit in with, and then start to encroach on, existing patterns of local nonstandard variation. These forms could be argued to be exerting structural consequences on the host vernacular of Glaswegian (cf. Cukor-Avila 2012). For example, the incursion of [f] into the restricted set of lexemes dominated until recently by Scots [h] has begun a process of erosion of this Scots lexical variant, and hence of a core structural feature of Scots dialect for these speakers (Macafee 1994).

7.2. SOCIAL PRACTICES AND SOCIAL MEANING. The strongest positive extralinguistic factor in the models captures an aspect of our informants' social practices, and specifically their orientation to local Glaswegian street style in their visible appearance—wearing tracksuits, sneakers with socks over their trousers, jewelry, and particular hairstyles, as opposed to wearing the school uniform. TH-fronting and L-vocalization have become closely linked with the development of local Glaswegian street style (cf. Eckert 2000, Lawson 2011). This is consistent with the social evaluations observed in 1997 of these and other nonstandard consonantal features as 'belonging to us' and definitely not being anything to do with 'them', that is, posh and middle-class people. This association of these particular features as 'not posh' was also observed elsewhere in the UK at the same time (Kerswill & Williams 2000, and more generally Foulkes & Docherty 1999). Trudgill (1986, 1988) also suggested social meanings linked with urban toughness, and Williams and Kerswill's (1999) discussion of 'youth norms' adds a further dimension. Wherever these features are proliferating in the UK, they are linked with a bundle of overlapping social meanings of being 'us', 'not posh', '(cool) youth', and 'urban tough'.

Tagliamonte and D'Arcy (2007:212), following Labov (2001:462), point to the association of linguistic variation with particular social categories or social groups as accelerating mechanisms in particular instances of linguistic diffusion. The groups that they mention seem to be overtly accessible for comment by both the community and the analyst. The Glasgow changes may also have been accelerated by becoming associated with particular social meanings (Stuart-Smith et al. 2007). But there is also a difference, perhaps related to the sociolinguistic context. The social meanings involved here are at once tightly connected to both the speakers' own home turf (relationships with immediately neighboring areas of the city) and at the same time to more abstract social evaluation ('posh' is relational, and does not point to any particular category or group). Also, while sociolinguists working in the UK have identified that these features share supralocal social evaluations, our Glaswegian informants are not able to articulate them beyond the local.

This interpretation of the Glasgow changes confirms the importance of local and supralocal social meaning in the acceleration of linguistic diffusion (Milroy 2007). But it also extends the kind of social-indexicality that could kick-start a language change. The crucial association of linguistic variation can also be with arrays of social meaning that may be more difficult to circumscribe or fix to particular groups or places, but that

nonetheless clearly play a key role in pushing forward linguistic innovation. Eckert's (2008) notion of the 'indexical field' provides a theoretical vehicle for specifying the intersection of social meanings of different kinds, and at different levels—local and supralocal—that develop for linguistic variables. In this case, the indexical field provides the conceptual linkage between the innovations and local meanings connected to specific parts of Glasgow along with specific local social practices, and more abstract shared supralocal evaluations, such as 'youth', 'not posh', or 'urban'. The indexical field could thus be useful in future attempts to specify this kind of social-indexical starter motor for accelerating changes.

7.3. DIALECT CONTACT. We have already suggested that geographical diffusion was a likely starting point for the Glaswegian innovations (cf. Kerswill 2003). But what these results suggest is that alongside regular transmission, contact between Glaswegian adolescents with their relatives living in the South of England (TH-fronting) and the North and South of England (L-vocalization) is continually drip-feeding these changes through diffusion via dialect contact. Cukor-Avila and Bailey's (2011) recent study of AAVE in Springville shows recursive processes of diffusion in the spread of habitual invariant *be*, and 'infusion' of *be like* in the speech of the most recently analyzed generation of the same community. The Glasgow evidence is interesting because it suggests that in certain sociolinguistic contexts, diffusion by dialect contact can act to reinforce a change already undergoing intergenerational transmission.

The form of dialect contact is largely passive, since the variables capturing actual mobility were not significant. Our adolescent informants come into contact with other varieties of English when friends and family who have moved away come back north on visits to Glasgow (cf. the notion of 'infusion' in Cukor-Avila & Bailey 2011). The impact of this kind of low-level passive mobility in an area that is otherwise characterized by extremely low inward migration looks like good confirmation of Trudgill's (1986:55) suggestions that less overt forms of dialect contact might play a role in spreading these linguistic innovations. Interestingly, our findings for TH-fronting in conversations show a different result, with a negative effect of contact with relatives in Northern England. This shows that convergence may not be the only outcome of contact, and may relate to the role of language ideologies in dialect contact situations (Milroy 2002).

7.4. ATTITUDES TOWARD ACCENTS. Attitudinal factors emerged as the weakest of the four main theoretical categories: only TH-fronting in read speech showed a link with liking the informal London recording. This result may well reflect our original methodology, since the attitudinal survey elicited accent attitudes only in an explicit way. Kristiansen's (e.g. 2009) research on language variation and change in Denmark has shown that subconscious or 'covert' attitudes can be better predictors of linguistic behavior than conscious or 'overt' language attitudes. A future study of linguistic variation and attitudes toward accents elicited using covert methods (e.g. via questions not specifically about language/accents, but strongly associated concepts) might also yield better results for the Glaswegian changes.

7.5. ENGAGEMENT WITH TV. Engagement with TV, and with a particular show, the London-based soap drama *EastEnders*, was the second strongest positive extralinguistic factor after social practices for both TH-fronting and L-vocalization. Reported exposure to television in general, or specific shows, was not significant in these models. What is important is not simply watching a program in passing, perhaps because others in the family have the set on, but engaging with it psychologically and emotionally (Horton & Wohl 1956, Gunter 2000). Engagement with *EastEnders* is captured by dif-

ferent variables: speakers might express this by naming it as their favorite program, or by giving *EastEnders* characters as their favorite characters, or by really liking the program and remembering that they criticize the characters verbally as they watch it.

Is engagement with television a direct factor in these changes? We might expect TV to be an indirect factor such that media influence really depends on other social factor(s). For example, if our informants like London accents, this might predispose them to adopt typical London features if given the opportunity (e.g. Trudgill 1988:44). However, a separate linear regression analysis on attitudes toward the London recording as the dependent variable, and engagement with *EastEnders* as the independent variables, did not show positive results (Stuart-Smith 2006).

Another likely scenario is that shared social practices would lead to shared TV preferences. So we might expect kids who hang out together, or who express similar stylistic preferences in their personal appearance, also to share a passion for watching *EastEnders*, and as a corollary, also to show more innovative linguistic variation. This is not the case here. We found no significant correlations between social-practice variables and those for exposure to and/or engagement with TV. Both kinds of variables could be entered into the regression models as independent from each other. This means that children who share social practices do not necessarily share viewing habits and preferences—these are personal. So although we might expect shared social practices also to include shared television practices, we cannot assume this for these speakers. It would be very interesting to see whether studies on other communities, and/or older adolescents and/or young adults, either with more control of the TV, or who regularly watch TV programs together as in shared flats and houses, might also find links between social practices, TV preferences, and linguistic innovation.

These results suggest that our informants' personal engagement with *EastEnders* is playing some kind of a role in accelerating the diffusion of TH-fronting and L-vocalization in Glasgow. This is in line with Brandt's (2000:2165) suggestion that broadcast media might be significant 'in their function as a "medium". Radio and television are taken as catalysts which act to increase, strengthen, accelerate and reinforce existing trends in language'.[9] At the same time it is more difficult to specify how this might be happening. Other experiments in the same project investigated explicit and implicit imitation of informal London English. In these tasks we found that our informants were unable to imitate the features from either memory or recently watched film clips (Stuart-Smith 2006). It is possible that their difficulty related to the tasks themselves, or to the context of the recordings, though there was also very little spontaneous (successful) imitation in their conversations with each other either. Our informants did make specific comments about Phil Mitchell's accent (the popular 'hard man' character).

(1) a. 's just (.) pure English, no?
b. [he] says it posher
c. he talks more tough
d. Ah cannae talk like him
e. It's aw right (.) I wouldnae like to speak like it but

There is clear awareness that the accent of *EastEnders* is different, and 'English' (and so not Scottish), with some overt social evaluation of 'toughness'. But thinking a shady Cockney's accent is in any way 'posh' is difficult for any viewer who is from England

[9] 'in ihrer Funktion als "Medium", als "Mittler", Hörfunk und Fernsehen sind nicht so sehr sprachliche Innovatoren, sondern Multiplikatoren, Verstärker, teils Beschleuniger, teils Verzögerer bereits vorhandener sprachtrends.'

to understand. These evaluations, made by inner-city Glaswegian adolescents, bring into focus just how far Glasgow is from London, not just geographically (450 miles) but also culturally and socially. Overt or conscious copying of the features, or the accent, is unlikely. There is also no indication of any kind of global shift of accent, or attempt to want to 'sound' like Londoners (or any other English accent that now shows these features). This means that if our speakers are at some level using [f] and vocalized /l/ to express ideological connections with other groups, or shared or imagined communities (Anderson 2006), or perhaps somehow to sound like others (cf. Johnstone 1999), this must be taking place well below any level of possible conscious retrieval.

Another intriguing point is the lack of coincidence of linguistic and social constraints observed between media-Cockney and Glaswegian (§5; cf. Dion & Poplack 2007), but alongside significant links with engagement with TV. Buchstaller and D'Arcy's (2009) comparison of linguistic and social constraints across different international varieties of *be like* shows that the similarities are rather superficial. They suggest that while media influence may have facilitated the rapid spread of the feature, it is limited to the weak transfer of surface form and certain constraints. Our results confirm their suggestion: the changes might look as if they have just been taken off the 'media shelf' (Stuart-Smith & Ota 2013), but there is more to it than that.[10] As noted in §2.2 above, both changes had arrived in Glasgow many years before the first episode of *EastEnders* was broadcast.

Cognitive psychological models of media influence propose that viewers use their stored experience of the world, organized into schema, to decode the media texts that they watch (e.g. Harris 2004). Media influence results from forms of association or activation of individual viewers' existing knowledge, within the constraints of existing social norms (e.g. Bargh et al. 1996). If we extend this modeling to these particular changes, engaging with *EastEnders* may help accelerate the innovations because they are already present in Glaswegian, and at the same time some Glaswegian viewers may make implicit associations between the range of actual social meanings that these variants hold for them and the more stylized meanings represented on TV. This kind of interpretation assumes that the mechanism of media influence is likely to be personal, at the level of individual social cognition. Speakers might share social practices, but connections are made by individuals with their own personal TV preferences. It also assumes that Glaswegians' actual experience of producing and perceiving speech in their daily social interaction fundamentally constrains any possible media 'influence' on their phonological system; *EastEnders* is parsed through the sociolinguistic filter of being and speaking Glaswegian. While some impact is discernible here, it is limited to only a very few features and, as we might expect, is weaker than that of our informants' actual social interaction.

8. Concluding remarks. This study has considered two instances of rapidly accelerating linguistic change in Glaswegian vernacular. Both changes have been underway for some time, but took off during the 1990s. Their proliferation in the speech of apparently nonmobile youngsters led to speculations that the changes were being caused by watching popular TV shows set in London. The features were found to occur in the char-

[10] Engaging with TV may not entail the same kinds of processes of learning about accents as during face-to-face interaction. A similar conclusion can be drawn from a new experiment comparing the effects on speech perception and production from face-to-face interaction with experiencing speech through watching a film (Stuart-Smith et al. 2011).

acters of the dramas, though with different rates and linguistic and social constraints from Glaswegian speakers (and also even from Londoners). Our multivariate analysis revealed very strong effects for linguistic factors, as well as strong positive correlations with social practices relating to local Glaswegian street style, dialect contact with friends and family living in England, and—to our surprise—strong psychological engagement with the London soap *EastEnders*. These results suggest an interplay of processes, original diffusion, and then transmission within the community, topped off by diffusion through dialect contact (cf. Cukor-Avila & Bailey 2011). Previous findings suggest that the changes took off when the innovative variants became linked with particular social meanings for the speakers (Stuart-Smith et al. 2007, Tagliamonte & D'Arcy 2007). These are expressed overtly as thoroughly local, but also—unbeknownst to our informants—resonate with more abstract social evaluations of 'urban youth' allocated to these variants in many urban UK accents. Engaging with TV looks like an accelerating factor, probably at the level of individual social cognition, given that TV preferences are not clearly linked with shared social practices for these speakers.

Our findings show that broadcast media, here TV, can play a role in sound change. They also show that this role is neither necessary nor sufficient for 'causing' these changes (cf. Klapper 1960), since they appear to have been underway for decades. Nor is there any reason to assume that media should be essential for linguistic diffusion. Kerswill (2003:234) observes that TH-fronting 'spread quite rapidly in London speech during the 19th century'. Again, Milroy (2007) shows that the association of linguistic form and social personae in the spread of change is not limited to the era of broadcast media. Rather, media may offer another kind of accelerant that may function alongside other processes carrying forward language change.

Finally, these results open up more questions. In what other sociolinguistic contexts might broadcast media be linked with core structural change? We need more studies that include speakers' engagement with media alongside other social factors, in order to ascertain the extent to which the Glasgow results are typical or isolated. What do broadcast media show us in terms of language use and social meaning? If we are to understand how TV might accelerate change, we need to understand more about the kinds of implicit connections that viewers might be able to make with media representations of interaction. How do speakers process speech and language from audio-visual media without the possibility for interaction? Our physiological and psychological architecture has evolved to process human interaction, and can certainly assign social agency to nonhuman interlocutors (Reeves & Nass 1996, Staum-Casasanto et al. 2010). But there is something special about live interaction (cf. Redcay et al. 2010), which is crucial for the core mechanisms underpinning language variation and change. With more empirical research into these questions, we may be able to move beyond the recognition that media can be involved in some kinds of language change, to understanding how this might take place.

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