Investigating Linguistic Prestige in Scotland: An Acoustic Study of Accommodation between Speakers of Two Varieties of Scottish Standard English

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Abstract

This paper investigates the attachment of overt and covert prestige to different varieties of Scottish Standard English (SSE), namely, Scots-SSE and Anglo-SSE. SSE itself encompasses wide linguistic variation and is often described as an accent continuum: at one pole are the typically "Scottish-sounding" speakers, who use a high proportion of traditional Scottish phonological features (and who are referred to as speakers of "Scots-SSE" for the purposes of this study), and at the other end of the spectrum are those who more closely emulate Southern Standard British English, using more anglicised features than Scottish (referred to here as speakers of "Anglo-SSE").

Although both varieties are broadly viewed as high prestige in Scotland, there has been little research to investigate the subtler social nuances attached to Anglo-SSE and Scots-SSE. In order to explore this, the study observes interactions between female lower-middle class speakers — a group for whom linguistic variation due to social pressure should be particularly pronounced — of Anglo-SSE and Scots-SSE. The systematic linguistic changes made by the speakers during interaction with one another are analysed with reference to the principles of Communication Accommodation Theory (Giles et al. 1991) to reveal the possible social implications of their behaviour.

The study analyses realisations of the vowels /e/ and /o/, which are typically monophthongal in quality for Scots-SSE speakers and diphthongal for Anglo-SSE speakers. To determine the extent to which speech accommodation occurs, the variants produced by speakers in interaction with others using the same speech variety are compared to those that are produced when they talk to speakers who use the contrasting variety.

There are salient patterns to the distribution of /e/ and /o/ variants in the speech of the Anglo-SSE and Scots-SSE speakers, suggesting that these are socially stratified within the given context. The Anglo-SSE group showed more evidence of convergence to the contrasting variety than the Scots-SSE group, who generally maintained their own speech style throughout the interactions. The patterns of variation appear to reflect the association of overt and covert prestige with the different varieties. The general avoidance of anglicised variants across the experiment might suggest that the speakers assigned a higher level of overt prestige to Anglo-SSE, which might have been viewed as an inappropriately formal speech style given the informality of the context. In turn, the adoption of Scots-SSE features by Anglo-SSE speakers seems to indicate that these are assigned covert prestige, perhaps as a result of their strong connotations with Scottish national identity. In general, the accommodative strategies used by the speakers during interaction with each other seem to reflect an effort to decrease the sense of an "in-group/out-group" distinction, likely perceived as a result of their different speech styles.

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1. Introduction

1.1 Overview

Sociolinguistic research has seen increasing interest in the social stratification of Scottish speech varieties in recent years. Previous studies have tended to focus primarily on the difference in social value between Scots and Scottish Standard English (SSE), generally concluding these to be the country's low-prestige and high-prestige varieties, respectively (Aitken 1979). However, it is often overlooked that Scottish Standard English, the variety consistently spoken by the upper and middle classes in Scotland, encompasses wide linguistic variation. This means that some high-status speakers retain the use of traditionally Scottish phonological features, whereas others more closely emulate Southern Standard British English (SSBE), instead using anglicised features (Abercrombie 1979, Aitken 1979). There has been comparatively little research to investigate whether the different varieties of SSE may rank higher or lower than one another in terms of linguistic prestige. Equally, few studies have explored the broader social value of Scottish Standard varieties, beyond their association with prestige. I aim to bridge this gap in the research and investigate Scottish speakers' linguistic attitudes by providing a sociolinguistic analysis of two different standard varieties: Anglo-SSE and Scots-SSE.

Quite frequently, Scottish Standard English is described as an accent continuum: at one pole are the most "Scottish-sounding" speakers, who use a high proportion of typically Scottish phonological features, here referred to as speakers of "Scots-SSE"; and at the other end of the spectrum are those who use more features of SSBE than Scottish, who will be called "Anglo-SSE" speakers. Despite the wide phonological variation between Anglo-SSE and Scots-SSE, both are native Scottish varieties in their own right and not the result of dialect contact (Aitken 1979). I present an analysis of the systematic linguistic changes made by speakers of Scots-SSE and Anglo-SSE during conversational interaction with one another, drawing on the principles of Communication Accommodation Theory (Giles et al. 1991) to reveal the possible social implications of their behaviour.

Since the two varieties are most clearly distinguishable by their respective vowel systems (Abercrombie 1979), the study focuses on the speakers' realisations of two vowels, /e/ and /o/, to determine the extent to which phonetic accommodation occurs during interaction. The vowel system of Scots-SSE is characterised by its large proportion of monophthongal variants, including /e/ and /o/, which have a single, stable quality (Jones 2002). This is typical of many traditional Scottish varieties and markedly different to the vowel system of SSBE, which has more diphthongs and a larger vowel inventory overall. Anglo-SSE is thus characterised as comprising certain diphthongal variants similar to those found in the phonological system of SSBE, such as /eɪ/ and /oʊ/, which correspond to /e/ and /o/, respectively. These variants are longer than the monophthongal Scots-SSE equivalents and are not pure vowels; instead, they show a noticeable change between two separate vowel sounds within the syllable.

Speakers' realisations of the salient phonological variables /e/ and /o/ are compared across two conditions ("same-variety" interaction versus "mixed-variety" interaction) to determine how they may be socially stratified and how the patterns of variation may fit within a broader generalisation on the social value of Anglo-SSE and Scots-SSE.

1.2 Linguistic Prestige in Scotland

Linguistic and social prestige are closely related, such that prestige norms generally derive from the speech of high-status speakers, and those that use them tend to be perceived as higher in status. However, given the degree of variation in the speech of Scotland's highest social groups, it is difficult to determine a strict set of phonological features that can be said to represent the prestige norm in Scotland. Research thus far has found no clear indication that either Anglo-SSE or Scots-SSE is perceived as the nation's most highly prestigious speech variety — rather, they compete with one another as Scottish standard languages (Johnston 1984, Schützler 2014). However, the current study, amongst several others, finds evidence that the two varieties can be differentiated at a more fine-grained level by their association with overt and covert prestige.

Overt prestige is attached to speech varieties that are widely accepted as high status (or standard), whereas the positive significance of a speech style with covert prestige lies within its embodiment of local or cultural norms (Trudgill 1972). Romaine (1980), who investigated Scottish speakers' linguistic attitudes towards different

Scottish speech varieties, found clear evidence of overt and covert prestige associations with Anglo-SSE and Scots-SSE. The Scottish participants in her study gave a negative evaluation of Anglo-SSE speakers with respect to likeability and national identity, but rated them highly on social status, suggesting that they attached overt prestige to anglicised forms. On the other hand, the more typically Scottish-sounding varieties appeared to hold covert prestige, and their speakers were ranked low in social status but high in most other social attributes.

The results of the current study show a similar association of overt prestige to Anglo-SSE and covert prestige to Scots-SSE. They are thus very much in line with Romaine's (1980) findings regarding speakers' perceptions of each other's personal traits. Interestingly, however, the results of a study by Stuart-Smith et al. (2007) showed the opposite pattern to Romaine's and my own: in their case, the subjects associated a high level of covert prestige with features of Anglo-SSE, whereas Scots-SSE was held as the overtly prestigious variety. Stuart-Smith et al. (2007) hypothesised that contextual factors, in particular that of social class, played an important role in determining these prestige associations. Their subjects were members of the working class who had only experienced Scots-SSE among the speech of their local higher-status groups. This led to a negative evaluation of Scots-SSE as the domain of the higher social classes and thus to its establishment as the community's overtly prestigious variety. In turn, Anglo-SSE came to hold covert prestige for the working-class speakers by allowing them to disassociate themselves from the higher classes.

The inconsistent results of previous studies show that the social value of Scots-SSE and Anglo-SSE varies widely according to the speech context, which makes it difficult to make broad generalisations about either one being held as overtly or covertly prestigious. Bearing this in mind, the generalisations made in this study are relevant only to the particular subject group and do not necessarily apply to the wider community.

1.3 Communication Accommodation

Speakers consistently demonstrate high sensitivity to linguistic prestige during conversation (Trudgill 1972, Giles and Ogay 2007). On this premise, I propose that the social stratification of Scottish speech varieties can be reliably investigated by observing interaction between speakers of Scots- and Anglo-SSE. In effect, conversation serves as a platform for speakers to negotiate and convey social category membership by means of linguistic accommodation. Communication Accommodation Theory provides an account of linguistic variation as the outcome of a speaker's intention, be it conscious or subconscious, to perform various social actions within an interaction (Giles et al. 1991). Thus, by analysing the communicative strategies used between Anglo-SSE and Scots-SSE speakers, it should be possible to draw inferences about their attitudes towards each other and their respective social groups (Giles and Ogay 2007).

Previous studies have shown evidence of accommodation in the acoustic-phonetic dimension (Pardo 2006, Stuart-Smith et al. 2011), which suggests that the interlocutors' speech variety can have a direct influence on the speakers' linguistic behaviour. Consequently, patterns of phonetic variation that result from conversational interaction may reveal something about the speakers' perceptions of their interlocutors' speech — and, in turn, about the interlocutors themselves — serving as good evidence for the purposes of this investigation.

Regarding the issue of linguistic prestige, Giles and Ogay (2007:297) explain that during interaction "it is generally expected that people in subordinate positions would converge to those in superordinate positions (called *upward* convergence)". This theory is supported by work by Giles (1973), who found that speakers of a low-prestige regional variety increased their use of overtly prestigious features (and simultaneously avoided stigmatised features) when faced with an interviewer who used a standard variety.

Convergence reflects a speaker's intention to gain social approval by reducing the social distance between themselves and their interlocutor (Bourhis et al. 1975), but this does not always entail upward social convergence; speakers may equally adopt a lower-prestige variety (known as *downward* convergence) in order to appear more co-operative or to show affiliation to an alternative social group (Giles and Powesland 1975). They may resist convergence entirely, e.g., to assert personal identity, or even use divergence to disassociate themselves from an interlocutor if they perceive the association to be negative (Bourhis and Giles 1977). In these cases, the speech variety that is adopted holds covert prestige for the speakers.

The speaker's intention and the subsequent choice of communicative strategy is largely context-specific; paralinguistic factors like context formality and the speaker/interlocutor demographic bear a strong influence on linguistic behaviour (Labov 1972a, 1990, Trudgill 1972). It can therefore be difficult to discern the motives behind the use of a particular speech style, and in most cases there is no single explanation that can be given. Eckert (2008) stresses that the indexicality of a linguistic style is not static, but in fact constitutes a range of social meanings that are activated according to situational factors (Eckert 2008). So, it is important that sociolinguistic analysis of a speech style is not restricted to a single social dimension such as prestige, but accounts for all potential social implications as presented by the context.

2. Methodology

2.1 Participants

Research has consistently shown that paralinguistic factors such as gender, age, and social class can influence linguistic behaviour (Labov 1972a, 1990, Trudgill 1972). In order to discern the social implications of speech alone, I therefore focus on the speech of a single demographic group, namely, lower-middle-class women. I have chosen this particular group for two reasons: 1) women tend to be more sensitive to prestige language and use higher rates of overtly prestigious linguistic features than men, so their speech may provide a clearer indication of the community's standard variety than men's (Labov 1990); and 2) the lower-middle class is more sensitive to social pressures than both the lower and upper class, for which reason they can be considered the most "linguistically insecure" (McMahon 1994:244). This generally leads to conscious avoidance of stigmatised features and often instances of hypercorrection (Labov 1972b). So, the speech of the lower-middle class should comprise many features of the overtly prestigious variety within their community.

A total of 8 participants, who were Scottish-born, lower-middle-class female speakers aged 18–25 (split equally into Anglo-SSE and Scots-SSE speakers), were recruited through advertisements on a social media site. None of them were previously acquainted with one another. To give an indication of class status, the participants submitted some background information prior to the investigation (including hometown, level/type of education, and parents' occupations). All explicitly identified themselves as members of the lower-middle class, except one who identified as working class. However, their answers to the background questionnaire stated that all had either attended private schools and/or a prestigious Scottish university, which confirmed a certain homogeneity across the group in terms of class.

The participants were not informed of the purpose of the investigation, in order not to draw conscious attention to each other's speech styles. However, they were debriefed at a later stage.

2.2 Phonetic Variables

Abercrombie's (1979) account of Scottish standard phonological features establishes a basic Scottish vowel system which he considers to be the foundation from which many middle-class speakers diverge in the direction of Anglo-English pronunciation. This study focuses on the vowels /e/ and /o/, corresponding to the FACE and GOAT lexical sets, two features of Abercrombie's (1979) basic vowel system that are commonly anglicised by middle-class speakers. Vowels are inherently susceptible to the effects of accommodation as a result of their graded and inexact acoustic quality (Pardo 2010). Therefore, if accommodation occurs during the experiment, it is likely to be evident from an acoustic analysis of vowel quality.

These vowels are qualitatively different in Anglo-SSE and Scots-SSE. At the most "Scottish" end of the SSE continuum, /e/ and /o/ are usually realised as monophthongs (Abercrombie 1979, McClure 1995). However, for some middle-class speakers, they are diphthongised to /ei/ and /ou/ (or /əu/), respectively (Deterding 1997), as they are in SSBE. The starting point of the anglicised FACE vowel is centralised in the vowel space and the target of its trajectory is near /ɪ/, while the corresponding Scots-SSE monophthong is produced with a higher, fronter quality. The anglicised GOAT vowel begins on an open, centralised quality and its off-glide remains as centralised but noticeably lower. In Scots-SSE, the production of /o/ is monophthongal, low, and further back in articulation than the Anglo-SSE variant.

Monophthongal /e/ and /o/ are not limited to the vowel system of Scots-SSE, but are shared by working-class Scots varieties. The monophthongs are not stigmatised as other Scots phonological features are (Aitken 1979, Menzies 2004), but since the lower-middle class tends to be particularly sensitive to working-class variants that are also present in their own speech, lower-middle-class Scots-SSE speakers may nonetheless be wary of using /e/ and /o/ (Labov 1972b). This sensitivity will likely be heightened by the presence of Anglo-SSE speakers. Aitken stresses that the modified versions of the basic Scottish vowel system (those with more anglicised features) are "all but criterial for the "educated" or socially "acceptable" middle-class accents of Scottish English" (1979:111). So, if Scots-SSE speakers show a preference for the anglicised FACE and GOAT variants over the monophthongal Scottish variants, this could indicate that they attach overt prestige to Anglo-SSE.

2.3 Procedure

To elicit speech samples, participants in the current study were asked to play a game of "Guess Who" (Hasbro Inc. 1979). In pairs, the players would each pick a character and then take turns to ask one another questions to deduce which character the other was holding. The game requires the communication and active participation of

both players to complete. The players were asked to respond to their partner in full sentences rather than giving single-word answers to ensure that plenty of speech data were provided.

The experiment took place over two days, with 4 participants taking part on each. The participants were first divided into pairs of the same variety so that acoustic measurements of vowel quality could be taken before exposure to the contrasting variety. These would later be used as a basis for assessing the degree of phonetic change between interactions. They then switched partners and played the game with the two speakers of the other variety. Previous studies suggest that phonetic accommodation between speakers is rapidly induced, with shifts occurring within the first 10 minutes of interaction (Clark and Garrett 2004, Pardo 2006); accordingly, 12 minutes of interaction were recorded for each pair of speakers.

2.4 Data Coding and Measurements

The audio files were fed through Praat (Boersma and Weenink 2014) to provide spectrographic information from which all words containing FACE or GOAT vowels were then segmented and phonemically transcribed. A total of 358 tokens of /e/ and 485 tokens of /o/ were extracted by visual inspection of the spectrograms. (The automatic formant measurement feature provided with the software was not used due to its occasional inaccuracy.) This total excludes both the tokens which could not be clearly analysed for their acoustic quality, either as a result of the participants talking simultaneously or of interference from background noise, and those which were preceded by /w/, /j/, /r/, and /l/, since co-articulatory effects are often induced by this environment: approximants can disturb the positioning of the first two formants, which are central to the analysis of vowel quality (Ladefoged 1993). As such, 64 tokens were removed.

Frequency values were measured at two points for each vowel token — at 20% (T_1) and 80% (T_2) of the total duration — to which a Euclidean distance formula could be applied ($T_2 - T_1$). This shows the change in vowel quality between the on-glide and off-glide and provides a parameter to distinguish between monophthongal and diphthongal realisations (Harrington and Cassidy 1999). Typically for this measurement, the values of F1 and F2 are combined, but this gives an indication of vowel trajectory length alone and does not account for the direction of diphthongisation. As noted by Schützler, "vowels which are markedly different acoustically may very well have the same or at least comparable trajectory length" (2014:146). Therefore, in order to determine whether accommodation occurs, it is important that the vowels' qualitative position is considered. Accordingly, measurements of diphthongisation were taken separately for F1 and F2.

Although realisations of /e/ and /o/ differ most noticeably between Anglo-SSE and Scots-SSE in terms of diphthongisation, the variants also differ qualitatively with respect to the initial vowel target. Evidence of accommodation may therefore also be observed as a change in vowel onset position. For this reason, the measurements of diphthongisation were considered in combination with those of the vowels' initial targets (T_1), again for F1 and F2 separately, to allow for a more fine-grained analysis of speakers' productions.

3. Results

3.1 The GOAT vowel

The data were fitted to box and whisker plots using the "ggplot2 package" of R statistical software (Wickham 2009, R Core Team 2013) to depict changes in vowel formant values. For both vowels, speakers showed minimal changes in diphthongisation in the F2 dimension between conditions, suggesting that this attribute was not affected by accommodative processes. As such, I focus on the data from F1, which shows clearer differences, beginning with an inspection of the GOAT vowel.

Figure 1 compares the quality of /o/ produced by speakers in the same-variety and mixed-variety conditions. The x-axis shows the speaker group (Anglo-SSE or Scots-SSE), and the colour of the plot represents the speech variety of the interlocutor: the plot is red for interaction with an Anglo-SSE speaker and blue where the interlocutor is a Scots-SSE speaker. The further a given boxplot is from zero, the longer the F1 trajectory length, that is, the greater the degree of diphthongisation. A positive value indicates a decrease in F1 frequency between the vowel onset and offset, meaning that the vowel becomes qualitatively higher across its production; a negative value means an increase in F1, and the vowel becomes lower.

Realisations of /o/ for Anglo-SSE speakers are consistently diphthongal and show little change in mean F1 trajectory length (TL) between the two conditions (TL difference = 14.1Hz). Scots-SSE speakers, however, show an increase in F1 trajectory length of 22.7Hz in the mixed-variety interaction compared to the same-variety interaction. These speakers diphthongise /o/ to a greater extent when talking to Anglo-SSE speakers (TL = 42.4, SD = 73.6) than in the same-variety condition (TL = 12.9Hz, SD = 76.9). The diphthongal realisations elicited by the mixed-variety condition have a higher offset than onset, resembling the typical Anglo-SSE pronunciation /oʊ/, but since they are not diphthongised to quite the same extent as the Anglo-SSE speakers' variant (TL = 74.5, SD= 73.6), this looks like a case of partial convergence.
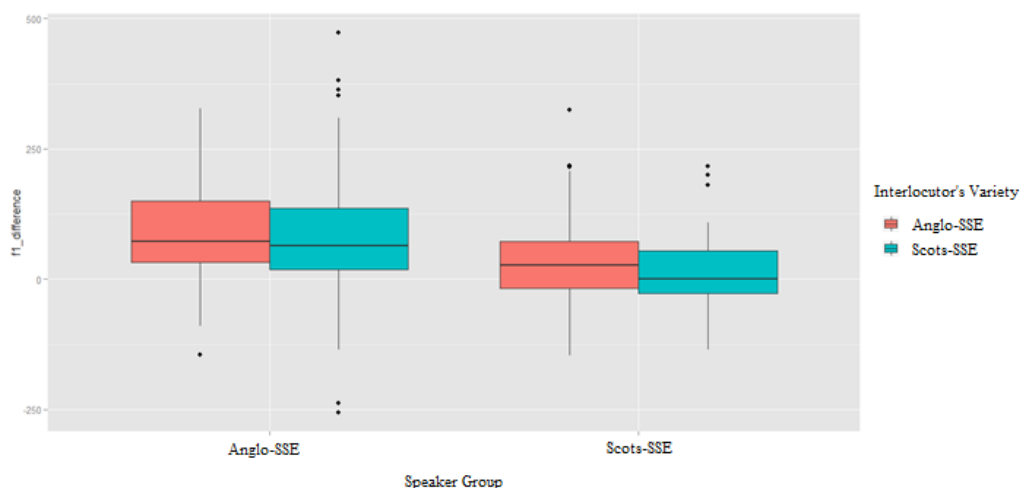
Figure 1: Comparing the quality of /o/ between same-variety and mixed-variety interactions for Anglo-SSE and Scots-SSE speakers as a group: difference in F1 value between the vowel onset and offset.

The plots were expanded to include a breakdown of individual speakers to determine whether the effects were consistent across the group or if variability was exhibited at the individual level. The prefix "AS" is assigned for Anglo-SSE speaker and "SS" for Scots-SSE speakers. Figure 2 depicts variation in the diphthongisation of /o/ as conditioned by the different interactive contexts, highlighting clear differences between speakers. In the mixed-variety context, speakers AS2, AS3, and AS4 show a reduction in diphthongisation, which may reflect convergence towards a Scots-SSE monophthongal pronunciation. Conversely, AS1 shows increased variation in vowel quality in the mixed-variety interaction and becomes more diphthongal (TL increase = 68.3Hz).

Speakers SS3 and SS4 show the greatest changes in vowel quality between interactions: the mixed-variety condition yields greater GOAT diphthongisation for both speakers than the same-variety condition, and the variant they produce resembles the anglicised diphthong /oʊ/. During the mixed-variety interaction, realisations of /o/ are comparable between speakers SS3, SS4, AS2, and AS3 in terms of diphthongisation (TL values = 38.3Hz, 38.4Hz, 57.5Hz, and 53.4Hz, respectively). It is possible that the speakers converge upon a variant that is intermediate in quality between Scots-SSE and Anglo-SSE pronunciation.
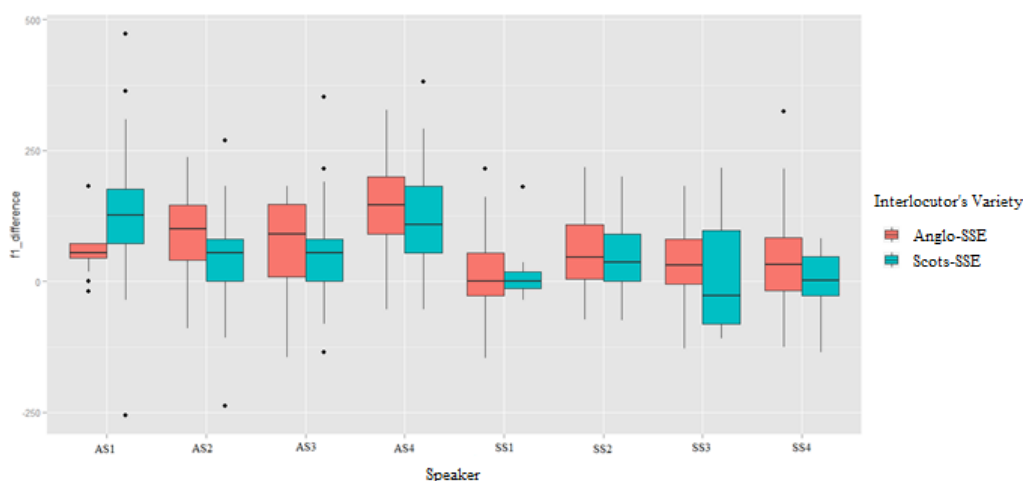

Figure 2: Comparing the quality of /o/ across same-variety and mixed-variety interactions for individual speakers: difference in F1 value between the vowel onset and offset.

To determine the likelihood that the changes in diphthongisation reflect speech accommodation, F1 trajectory measurements are compared with those taken for the onset quality of GOAT. The combination of these measurements permits a more fine-grained judgement of qualitative similarities between different speakers' realisations.

Figure 3 shows the effect of the mixed- and same-variety conditions on F1 onset value (OV) of /o/ for the two speaker groups, and Figure 4 shows the corresponding F2 values. The y-axes for these figures, labelled "F120" and "F220", respectively, show the frequency value of F1 and F2 as taken at the 20% point of the vowel's realisation. In the mixed-variety context, subjects AS2, AS3, and AS4 have higher F1 onset values, meaning that

the vowel is higher in quality than in the same-variety context (OV difference = 23.1Hz, 90.2Hz, and 98.9Hz, respectively).
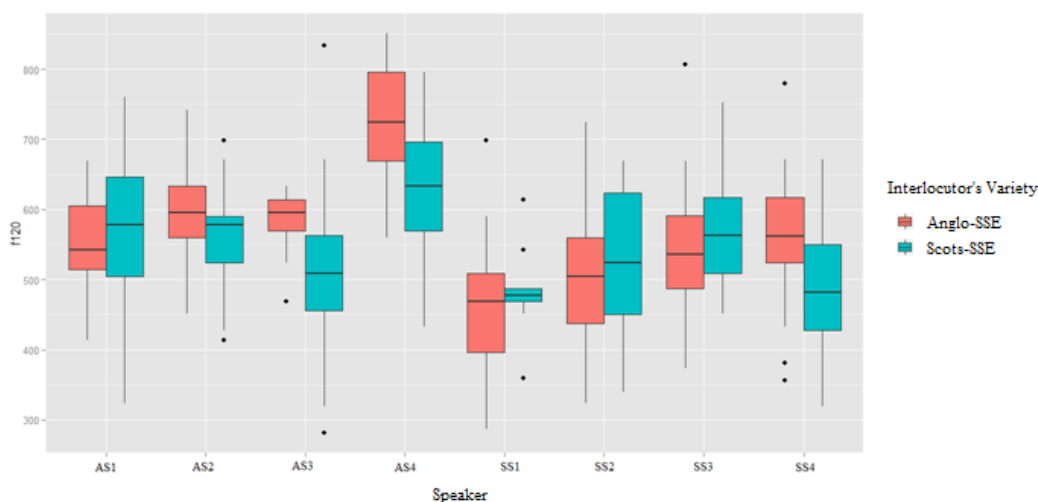

Figure 3: Comparing the onset position of /o/ across same-variety and mixed-variety interactions for individual speakers: F1 values at the vowel onset.
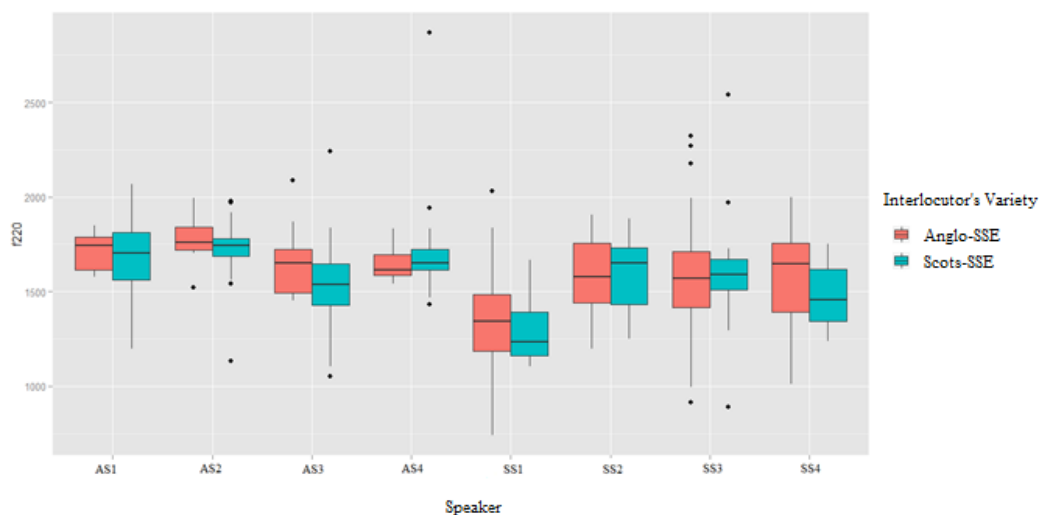

Figure 4: Comparing the quality of /o/ across same-variety and mixed-variety interactions for individual speakers: F2 values at the vowel onset.

Although AS4 produces a higher, less diphthongised variant when talking to Scots-SSE speakers than to Anglo-SSE speakers, the vowel remains qualitatively different from those produced by the Scots-SSE speakers, which are higher still and close to monophthongal. Again, this appears to be only partial convergence. Speaker AS2 shows less diphthongisation in the mixed-variety condition, but she retains a front realisation of /o/ rather than assimilating towards a Scots-like back position. This may be explained by Pardo's (2013) observation that patterns of accommodation vary widely between speakers, such that in some cases a speaker may converge on one acoustic-phonetic attribute but not another. On the other hand, the GOAT variant used by AS3 does match the SSE variant in overall quality. In addition to reduced diphthongisation and higher onset position, she shows assimilation to Scots-SSE in the F2 dimension during the mixed-variety interaction (the onset of /o/ is further back in position than it is in the same-variety interaction). This may suggest that this speaker is more susceptible to the influence of Scots-SSE than the others and amounts to near-full convergence.

For SS4, the mixed-variety condition yields a lower, fronter variant than the same-variety condition. She also diphthongises /o/ more in the mixed-variety context, though not to the same extent as the Anglo-SSE speakers do. Speaker SS3 also assimilates to Anglo-SSE in terms of GOAT diphthongisation, but the onset of /o/ remains fairly high and back and thus more closely resembles a Scots-SSE pronunciation overall. Speaker SS1 shows the greatest increase in vowel variation from the same-variety to the mixed-variety context (SD increases by 29.5). Although this suggests that she is influenced by Anglo-SSE, there is no indication of convergence: F1 onset barely changes

between interactions (OV mixed-variety = 459.3Hz, same-variety = 483.5Hz), and the variation is skewed in the direction of Scots-SSE pronunciation.

Interestingly, speaker AS1 shows a higher F1 onset value in the mixed-variety context than in the same-variety context (OV difference = 51.7Hz), meaning the vowel becomes lower as well as more diphthongal (see Figure 2). So, the GOAT variant she produces when talking to Scots-SSE speakers is overall more anglicised than it is when she talks to fellow Anglo-SSE speakers. It has been suggested that speech convergence is, to an extent, automatic (Pickering and Garrod 2004), so this shift is surprising and could in fact be the result of divergence.

3.2 The FACE Vowel

There are qualitative changes in realisations of FACE for both groups of speakers between conditions, but to a lesser extent than for GOAT. Figure 5 shows that Anglo-SSE speakers diphthongise /e/ less in the mixed-variety context compared to the same-variety context (TL difference = 25.6Hz), while SSE speakers show an increase in diphthongisation of /e/ in the mixed-variety interaction (TL difference = 5Hz). As a result, both groups produce /e/ with a similar degree of diphthongisation when interacting with each other (TL values = 43.3Hz, 38.9Hz, SD = 80, 85.2, respectively). Interestingly, compared to the Anglo-SSE group, the Scots-SSE speakers show a greater increase in variation from the same-variety to the mixed-variety context. (For Anglo-SSE speakers, the same-variety versus mixed-variety standard deviations from the mean are 69 and 79.9, while for Scots-SSE speakers they are 44.1 and 85.1.)
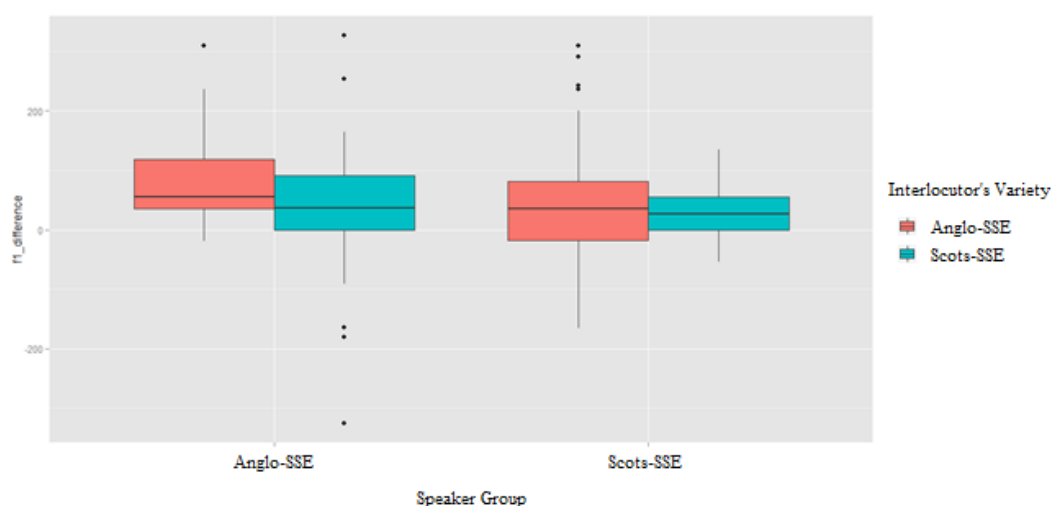

Figure 5: Comparing the quality of /e/ between same-variety and mixed-variety interactions for Anglo- and Scots-SSE speakers as a group: difference in F1 value between the vowel onset and offset.

The data was again broken down to permit inspection of individual speaker changes in diphthongisation. Figure 6 shows that the two speaker groups are less clearly distinguishable with respect to FACE diphthongisation than GOAT diphthongisation (with the exception of AS4, who is noticeably more diphthongal than the others). This means that only slight shifts in vowel quality are evident between the two interactive contexts.

Figure 6 shows that the greatest change occurs for AS4, who becomes less diphthongal when talking to Scots-SSE speakers than to Anglo-SSE speakers (TL difference = 91.1Hz), to the extent that the /e/ variant she produces is on a par with that produced by the Scots-SSE speakers during the same-variety interaction. This speaker showed the same pattern for /o/, which suggests that she is using convergence.

SS2 also exhibits a change: she shows greater variation and is more diphthongal in the mixed-variety condition than the same-variety condition (TL difference = 38.1). When talking to Anglo-SSE speakers, the variant she produces transitions to a higher position for the offset and resembles the pattern of the Anglo-SSE variant /eɪ/. However, this speaker does not show the same kind of accommodative pattern for /o/, so it is unclear whether the increased diphthongisation of /e/ is the result of convergence to Anglo-SSE or of another process.

The measurements of F1 and F2 onset values show clearer differences between conditions than those for diphthongisation, and more so in F1 than F2 (see Figures 7 and 8). All speakers show considerably increased variation in F1 onset position in the mixed-variety context compared to the same-variety context (see Table 1), whereas this pattern is not as noticeable in the F2 data (see Table 2). This is not unexpected, since FACE is primarily distinguishable between SSE and SSBE in terms of height rather than backness (Schützler 2014).

Despite the wholesale increase in variation, the mixed-variety condition yields greater qualitative changes in vowel onset for Anglo-SSE speakers than for Scots-SSE speakers. This suggests that both groups are susceptible

to the influence of a contrastive FACE variant, but that the Anglo-SSE speakers are more prone to adapting their overall pronunciation than the Scots-SSE speakers.

Speakers AS2, AS3, and AS4 all exhibit a lower F1 onset value in the mixed-variety context than in the same-variety context (OV decrease = 37.2Hz, 44.3Hz, and 17.8Hz, respectively), meaning that the variants they produce when talking to Scots-SSE speakers become higher, assimilating towards Scots-SSE pronunciation. Of these speakers, only AS3 shows assimilation to Scots-SSE with respect to F2; the onset value is greater in the mixed-variety context than the same-variety context (OV difference = 104.3Hz). This means that the variant she produces when talking to Scots-SSE speakers is qualitatively high and front, amounting to full convergence to the SSE FACE variant.

On the other hand, the mixed-variety context yields a lower F2 value than the same-variety context for AS2 and AS4 (OV difference = 87.3Hz, 117.9Hz, respectively). The vowel they produce here is further back in position and thus less like an SSE variant. Overall, in the mixed-variety condition, AS4 produces /e/ with a lower, more centralised quality than the Scots-SSE speakers' variants. So, although she shows a shift in the direction of SSE pronunciation in the F1 dimension (in terms of a higher onset quality and less diphthongisation), the variant she uses is still qualitatively similar to Anglo-SSE. AS2 only displays an active shift towards Scots-SSE pronunciation of /e/ in F1 onset value, but nonetheless the variant she produces in the mixed-variety context is, unlike AS4's, fairly similar to a Scots-SSE pronunciation. When all acoustic attributes are combined, it looks intermediate in quality between an Anglo-SSE and Scots-SSE realisation and is likely the result of partial convergence. For AS2 and AS4, then, I suggest that partial convergence takes place.
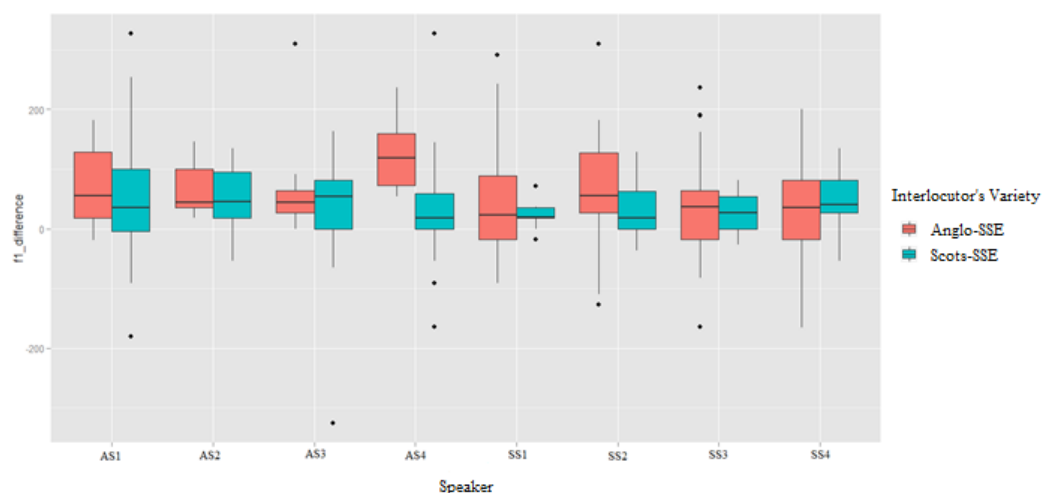

Figure 6: Comparing the quality of /e/ across same-variety and mixed-variety interactions for individual speakers: difference in F1 value between the vowel onset and offset.

Within the Scots-SSE group, SS3 shows the most change in onset quality between interactions. Unusually, in both conditions, this speaker has an even lower onset position for /e/ than some of the Anglo-SSE speakers (see Figure 7).
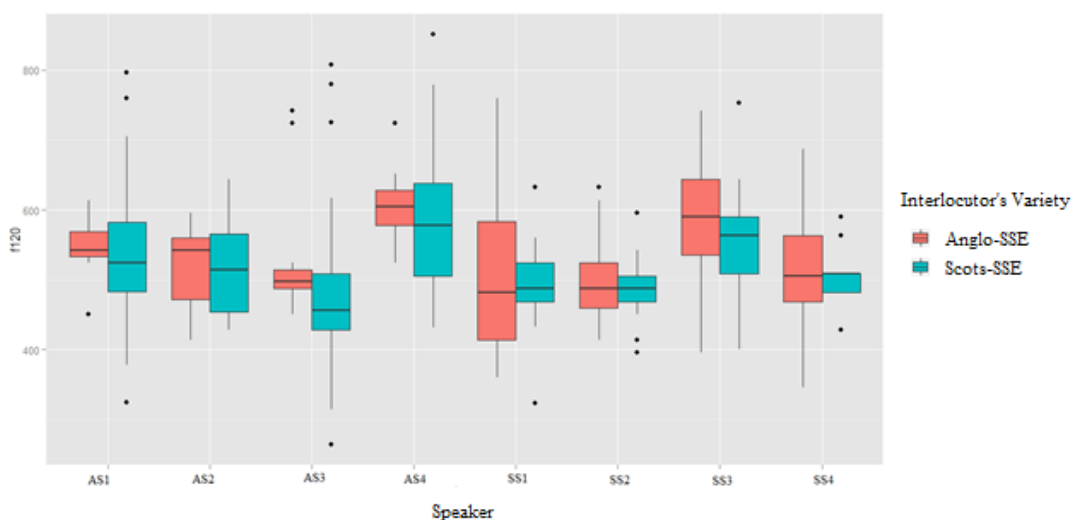

Figure 7: Comparing the quality of /e/ across same-variety and mixed-variety interactions for individual speakers: F1 values at the vowel onset.
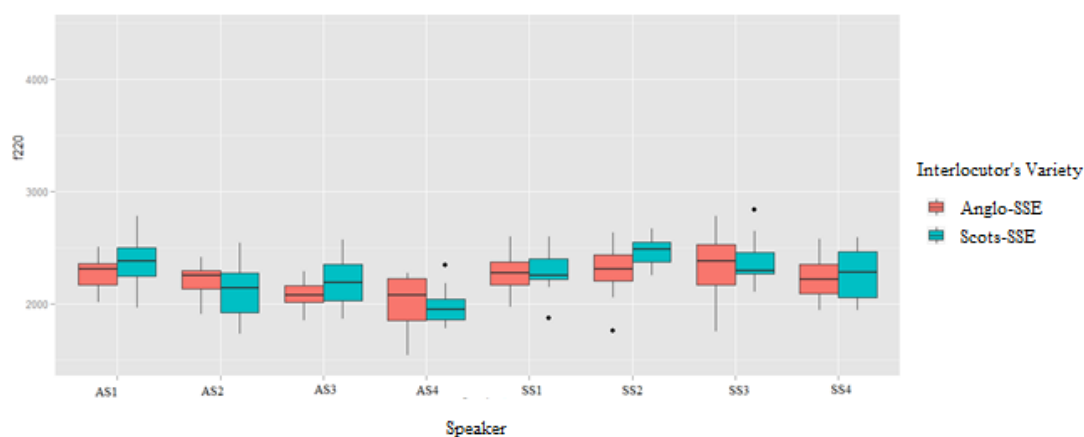
Figure 8: Comparing the quality of /e/ across same-variety and mixed-variety interactions for individual speakers: F2 values at the vowel onset.

It is possible that this is an instance of hypercorrection, whereby a speaker uses a feature to the extent that it exceeds the typical rate of use by the group that she/he seeks to emulate as a result of social pressure (Labov 1972a). Otherwise, this may be attributable to interaction that took place before the experiment. Stuart-Smith et al. (2011) reported that the experimenter's accent had an effect on their subjects' speech, and I did speak with the participant briefly before the recording process and may have pre-emptively influenced her, since I use the Anglo-SSE variety. Regardless of this, SS3 produces a lower variant in conversation with Anglo-SSE speakers than Scots-SSE speakers. She becomes more diphthongal in the mixed-variety condition, which gives a positive indication of convergence to Anglo-SSE, but the vowel onset remains fairly front, resembling the Scots-SSE variant. Like AS2, this speaker appears to produce /e/ with an intermediate quality between Anglo-SSE and Scots-SSE. SS2 shows almost no change in F1 onset value between interactions (OV difference = 4Hz), but is affected by the mixed-variety condition in F2 onset value: her vowel is more back in position here than it is in the same-variety context, as well as being more diphthongised. Overall, then, this speaker shows assimilation towards Anglo-SSE pronunciation in two out of the three acoustic attributes measured.

Table 1: Variation in F1 onset value for realisations of /e/ across same-variety and mixed-variety interactions: Standard deviation from mean values

Speaker	SD: same-variety	SD: mixed-variety
AS1	51.5	99
AS2	53.7	68.8
AS3	96.7	95.8
AS4	54.1	95.7
SS1	80.3	98.5
SS2	47.2	56.4
SS3	83.9	73.7
SS4	44.3	75.5

Table 2: Variation in F2 onset value for realisations of /e/ across same-variety and mixed-variety interactions: Standard deviation from mean values

Speaker	SD: same-variety	SD: mixed-variety
AS1	143.7	204.5
AS2	164.9	216.4
AS3	120.1	185.1
AS4	230.2	136.9
SS1	192.1	164.2
SS2	129.3	198.7
SS3	197.5	249.5
SS4	217	170.3

3.3 Summary

Overall, the results show a great deal of variation between speakers. However, there are patterns to the data which indicate that several participants systematically modified their speech according their interlocutor, suggesting that they were sensitive to the perceived social implications of the linguistic context.

As expected, qualitative changes are clearer in the dimension of F1 than in F2. No speaker displays evidence of assimilation to their interlocutor solely in the F2 dimension; that is, where there are assimilatory changes in F2, they are consistently accompanied by corresponding changes in F1 (whether it be a change in the vowel's qualitative position or trajectory length or both). Assimilation across multiple acoustic dimensions is a good predictor of perceptual similarity (Pardo 2013), so it is likely that these cases constitute speech convergence. Overall, partial convergence towards Scots-SSE is exhibited by speakers AS2 and AS4 for both FACE and GOAT, and full convergence is exhibited by AS3. Within the Scots-SSE group, SS2 and SS3 show partial convergence to Anglo-SSE for FACE only, and SS4 shows partial convergence for GOAT only.

4. Analysis

The results have interesting consequences for theories about the social distribution of Scots-SSE and Anglo-SSE varieties and may be understood with reference to the distinction between overt and covert prestige (Trudgill 1972). Between the two groups overall, it is the Anglo-SSE speakers who display the strongest evidence of convergence to the other group in FACE and GOAT. If we accept traditional sociolinguistic assumptions concerning prestige (according to gender and class), then the adoption of monophthongal /e/ and /o/ by Anglo-SSE speakers suggests that they assign overt prestige to the features, using convergence towards Scots-SSE to give an impression of higher status. However, recalling that /e/ and /o/ are also present in stigmatised, working-class Scots varieties (Aitken 1979), it seems unlikely that these features would be adopted for the sake of social climbing. It is possible that instead this is a case of downward convergence (Giles and Powesland 1975), whereby Anglo-SSE speakers consider the Scots-SSE variants as covertly prestigious and converge not in an effort to social climb but to appear empathetic and co-operative.

In order to discern the social implications that underlie convergence in this context, I consider the speakers' general communicative behaviour during the experiment. Throughout the recording, speakers AS2, AS3, and AS4 did not rigidly stick to the experimental task but engaged in light-hearted conversation with their interlocutors, suggesting that they perceived the situation to be rather informal. Regarding context formality and speech styles, Labov (1972b) proposes that the less attention a subject pays to their own speech, the less formal their style will be. Since formal speech tends to elicit the use of overtly prestigious (or standard) features (Labov 1972a), this implies that during *in*formal conversation, speakers should feel less pressure to adhere to the use of standard language.

Although this theory seems to fit my explanation that speakers AS2, AS3, and AS4 use downward convergence to Scots-SSE (the covertly prestigious, less formal variety) in response to the casual conversational setting, I do not believe that this is the result of these subjects' lack of attention to their speech style. Contrary to Labov's (1972b) theory, Coupland (1981) proposes that speakers can equally turn deliberate attention to producing casual speech styles, not just formal ones. Similarly, Bell (1984) suggests that there are a number of contextual factors beyond formality that contribute to a speaker's choice of speech style. In this case, I believe that a high sensitivity to linguistic prestige played a role in prompting the speakers' behaviour. Within the casual setting, it is possible that the three Anglo-SSE speakers were less concerned about adopting overtly prestigious variants to present themselves as higher in status and were in fact self-conscious about their own speech being perceived as the overtly prestigious style (Trudgill 1972).

Within the casual context of the experiment, then, it is plausible that the Anglo-SSE speakers assimilate to Scots-SSE in an empathetic attempt to mitigate their own high-status position. For instance, if they are conscious of the "snobbish" stereotype of SSBE varieties (Kellermann 2001), then they may try to reduce their use of salient anglicised variants (like /eɪ/ and /oʊ/) to lower the risk of being perceived negatively by Scots-SSE speakers. This would suggest that they consider Anglo-English as the overtly prestigious variety. Additionally, research shows that "Scottish-sounding" speakers are generally perceived by Scots as more likeable and friendlier than speakers who use SSBE varieties (Cheyne 1970, Romaine 1980). It is possible that the Anglo-SSE participants were responding to a similar perception and increased their use of Scots-SSE features to make a positive impression upon their Scots-SSE interlocutors, with whom they were previously unacquainted.

This may also tie in with a desire to maintain a sense of national identity. Despite being no less Scottish than their Scots-SSE-speaking peers, the Anglo-SSE speakers may be sensitive to characteristics that disguise their cultural background, like an anglicised speech style, perhaps. It is noteworthy that feelings of nationalism may have been especially pertinent given the timing of the experiment, which took place in the wake of the Scottish Independence Referendum of 2014. Scottish voters had been asked to decide whether the country should be separated from the United Kingdom, and its outcome saw huge disappointment amongst supporters of Scottish

independence, who had been scarcely defeated by the British nationalists. In the midst of political upheaval, it is likely that Scots will seek to preserve and cultivate their country's traditions, like its linguistic practices. It is possible that the convergence to Scots-SSE displayed by the Anglo-SSE speakers is reflective of such efforts.

Research suggests that anglicised Scottish speakers face the threat of being falsely perceived as part of an out-group. This is captured by Romaine's (1980) study in which Scottish participants often failed to recognise Anglo-SSE speakers as native Scots on the basis of their speech alone. Research consistently shows that out-group members tend to be judged more harshly by subjects than fellow in-group members (Brewer 1979), so perhaps the Anglo-SSE speakers are concerned about being ostracised on the basis of their speech type. If so, their convergence towards Scots-SSE may be understood as an attempt to more explicitly liken themselves to the Scots-SSE speakers in terms of ethnic background, and ultimately to gain social approval (Bourhis et al. 1975). This seems particularly fitting given that monophthongal /e/ and /o/ play an important role as salient markers of Scottish identity (Wells 1982).

It seems likely that these speakers assign covert prestige to Scots-SSE features and adopt them for their favourable connotations of friendliness and likeability, and perhaps for their stronger ties to Scottish identity. In turn, this suggests that they consider Anglo-SSE to be overtly prestigious. Thus, convergence to Scots-SSE protects them from the stereotype of "pretentiousness" that is often attached to SSBE and similar varieties within casual contexts (Kellerman 2001, Menzies 2004).

If this theory holds true, then it is expected that Scots-SSE speakers should refrain from adopting overtly prestigious Anglo-SSE features, which might be considered as inappropriately formal. Indeed, these speakers show little evidence of convergence towards Anglo-SSE. If they had maintained the formality of the context by giving their responses in full sentences, I would have expected to find a larger proportion of anglicised features in their speech during both interactions. However, the Scots-SSE speakers chatted and casually gossiped throughout the recording process, which I take to mean that they felt little pressure to adopt overtly prestigious features.

The overall trend within the Scots-SSE group's speech is indicative of linguistic maintenance (Giles and Ogay 2007). Generally, the vowels they produce are qualitatively similar in both contexts, which suggests that the speakers are predominantly resisting accommodation to Anglo-SSE. There are several possible explanations for this behaviour, one of which concerns the differing levels of susceptibility to speech modification between individual speakers. Danescu-Niculescu-Mizil and Lee (2011) present evidence that some subjects are more prone to the effects of linguistic accommodation than others. However, their theory implies a certain amount of automaticity between perception and production, and this concept has been firmly dismissed by Pardo (2012), who instead suggests that social factors bear the greater influence on speech accommodation.

Giles and Ogay (2007) explain that maintenance may be used as a means of building personal identity or to convey one's own social category membership. The fact that Scots-SSE speakers resist the adoption of non-local, Anglo-SSE features could therefore represent an effort to show their Scottish heritage. This method allows them to assert national identity in a more subtle manner than if they were to use divergence and emphasise the use of Scots-SSE features in their speech. Divergence risks a negative reaction from the interlocutor — it might be perceived as an act of refusal to co-operate within the interaction or to demonstrate a low opinion of the interlocutor (Giles and Ogay 2007) — whereas maintenance poses less of a threat. In any case, this behaviour suggests that covert prestige is attached to Scots-SSE features.

The results from the Scots-SSE group are similar to those of Stuart-Smith et al. (2007), who found that middle-class Glaswegian speakers also favoured regional Scottish features over anglicised variants. Stuart-Smith et al. conclude that the use of Scots-SSE features is in fact strengthened by face-to-face interaction between Anglo-SSE and Scots-SSE speakers. Sociolinguistic research around the Scottish-English border further iterates this point, providing empirical evidence that intense contact between anglicised and Scottish varieties appears to encourage Scots-SSE speakers to maintain localised variants (Watt et al. 2013). Although neither of these studies makes explicit mention of linguistic prestige, the latter accounts for perceptions of national identity and finds that the preference for Scots-SSE features is largely driven by a desire to preserve Scottish culture. This affirms that Scots-SSE features hold covert prestige for Scottish speakers in contexts where their national identity is threatened, especially by the presence of anglicised speakers. Within such contexts, the use of local Scottish variants may provide greater social reward than would the use of overtly prestigious anglicised features. Moreover, maintaining national identity in these situations seems to be more important than avoiding potential stigmatisation for the use of working-class features. In contexts where national identity is not so salient, covert prestige may not hold for these features, and middle-class speakers may be less willing to use them.

Considering the similarities in linguistic behaviour displayed by the Scots-SSE speakers in my own study and in those that precede it, I find that my proposition — that a sense of nationalism was a conditioning factor of variation — to be well supported. As such, the maintenance of Scots-SSE variants strongly suggests that they are assigned covert prestige within the context of the experiment, as a consequence of their association with Scottish culture. This fits neatly with the patterns of variation exhibited by the Anglo-SSE speakers and does not conflict with the hypothesised assignment of overt prestige to Anglo-SSE features.

5. Conclusion and Further Directions

In summary, there are salient patterns within the distribution of the FACE and GOAT variants in the speech of Anglo-SSE and Scots-SSE speakers, indicating that they are stratified socially within the context. The social value of monophthongal /e/ and /o/ lies in their connotations of traditional Scottish culture, and they are relied upon as a means of asserting Scottish identity, which surfaces as a main priority during the mixed-variety interaction. Anglo-SSE speakers seem particularly aware of an in-group/out-group distinction (perhaps resulting from previous experience of stigmatisation for their non-local speech variety), whereby the in-group is defined by "Scottishness". Thus, as a result of their non-local origin, anglicised /eɪ/ and /oʊ/ are generally avoided. This avoidance also suggests that, given the informality of the context, the variants are assigned overt prestige; their social value lies in their association with conventional high-status characteristics.

Insofar as contributing evidence towards theories of the prestige value of Scottish varieties, the results also suggest that Anglo-SSE may hold higher social value for middle-class, female Scottish speakers in terms of prestige: given the casual nature of the conversation, the avoidance of anglicised forms could indicate that the speakers consider them to be inappropriately formal. Further research might see fit to test this theory by introducing a greater degree of formality to the context and comparing the proportion of anglicised and Scottish forms in each group's speech. This could also reveal more about the potential stigmatisation of some Scots-SSE features, like /e/ and /o/. Equally, it may be interesting to consider accommodation of non-phonological features (lexical choice, morphology, and syntax, etc.) to determine whether speakers' linguistic attitudes are predominantly influenced by accent, or if they encompass perceptions of the dialect as a whole.

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