THE ROLE OF GENDERED SOCIOLINGUISTIC VARIABLES AS PERCEPTUAL CUES

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Abstract

This paper investigates perceptions of speaker-indexical information from gender-specific phonetic variables in the absence of speakers' fundamental frequencies. The results revealed that listeners not familiar with a dialect under investigation were not sensitive to speaker-indexical information embedded in the phonetic variants. The results also showed that in their evaluations, male and female listeners often did not differentiate between localised and supra-local variants. Finally, the perceptual differences noticed between male and female listeners were not statistically significant.

1. Introduction

Previous socioperceptual studies focus on identifying speaker indexical information such as ethnicity (Purnell et al. 1999, Wolfram 2000), geographic origin (Bezooijen & Gooskens 1999, Clopper et al. 2005) or personality traits (Lambert et al. 1960, Ball & Giles 1988, Bezooijen 1988). Researchers have also investigated female and male voice identification (Biemans 2000, Munson & Babel 2007). Even though it has been established that listeners are quite accurate at identifying adult female and male voices, it is still unclear how listeners identify gender in the speech signal (Munson & Babel 2007). Literature provides evidence that fundamental frequency impacts femininity and masculinity judgments (Munson & Babel 2007, Foulkes et al. 2010). However, fundamental frequency is not always a decisive factor. First of all, there is an overlap of female and male pitch ranges, such that a lower-pitched female voice might be erroneously taken for a higher-pitched male voice and vice versa (Foulkes et al. 1999, Biemans 2000). Furthermore, Johnson et al. (1999) showed in their study that a voice judged as most stereotypically female had lower mean fundamental frequency than the non-stereotypical female voice.

Finally, it has been reported that listeners are able to distinguish male and female speakers in the absence of acoustic information present in speakers' fundamental frequency (Coleman 1971, Lass et al. 1975, Assmann & Nearey 2007, Hubbard & Assmann 2013). These findings imply that parameters of the vocal tract are not the main factors deciding whether a speaker sounds feminine or masculine, which further means that gender-specific acoustic information does not rely heavily on fundamental frequency.

Because fundamental frequency is not the main cue to speakers' gender identification, it is hypothesised that when speaker-social information embedded in fundamental frequency is not accessible to the listener, this type of information can be identified from gender-specific phonetic variants.

Therefore, this paper examines the role of sociolinguistic variants as cues to the identification of the speaker-social information when listeners are exposed to speech that sounds gender-ambiguous.

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This study has the same aim as Foulkes et al.'s (2010) study. It is hypothesised that listeners familiar with the dialect and particular variant realisations should be sensitive to speaker indexical information embedded in gender-correlated phonetic variables. However, listeners with no previous exposure to the dialect are not expected to be able to access this information.

A set of gender-correlated phonetic variables identified in the Newcastle dialect were selected for the purpose of this study. Variables are sociolinguistically marked in terms of speaker gender, age and social class. It was decided to use Newcastle English phonetic variant in the study for the following reasons (Milroy et al. 1994a, 1994b, Docherty & Foulkes 1999, Watt & Milroy 1999, Watt 2000, Watt 2002, Watt & Allen 2003, Foulkes et al. 2005, Beal et al. 2012). Firstly, Tyneside English is characterised by rich realisations of vowel variants, stop realisations, and others. Because Newcastle is considered to be the hub of the North East region, its dialect has been extensively researched and described (Milroy et al. 1994a, 1994b, Docherty & Foulkes 1999, Watt & Milroy 1999, Watt 2000, Watt 2002, Watt & Allen 2003, Foulkes et al. 2005, Beal et al. 2012). Furthermore, Tyneside English is stereotypically perceived as the variety spoken in all of the North East.

While further research will investigate and compare perceptions of speaker-social information provided by Tyneside listeners, North East listeners and listeners from outside of these two regions, the present paper focuses on listeners from outside of the North East or Tyneside area, who are hence unfamiliar with the dialect.

Perceptions of Newcastle-localised variants were compared and contrasted with perceptions of other localised variants or non-marked supra-local variants.

2. The Newcastle dialect

Great Britain is characterised by an abundance of regional dialects. The North East of England, with the Newcastle dialect being one of many spoken in the region, is no different. However, outsiders tend to have a distorted view of the North East. They seem to neglect a number of distinct dialects, such as Sunderland or Middlesbrough dialects, present in the region and consider the Geordie dialect to be spoken anywhere up north (Pearce 2009, Beal et al. 2012). However, each of the dialects in the region is characterised by distinctive phonetic features.

Variation in the use of some vowels and consonants is one of the main phonetic cues revealing social and regional characteristics of the speakers within the North East (Beal et al. 2012: 26). However, there is also rich variation within the Newcastle dialect in terms of the use of phonetic variants. In fact, the Newcastle dialect is characterised by an array of localised phonetic variants, which are marked sociolinguistically, as they are not only gender- but also age- and class-specific (Watt & Allen 2003: 269). It is these features that distinguish Tyneside speakers from speakers south of the River Wear or Teesside speakers (Beal et al. 2012). It is also these features that distinguish speakers within the Newcastle dialect.

The section below provides an account of variation and possible realisations of the FACE, GOAT and NURSE vowels investigated in the study.

Two perceptually prominent vowels in Tyneside English are the FACE and GOAT vowels (Watt 2000, Beal et al. 2012). Not only is there a significant variety of realisations of these vowels but also different variants are used by older and younger speakers (Watt 2000).

Watt (2000, 2002) lists three types of realisations of the FACE and GOAT vowels and groups them into monophthongs, centering diphthongs and closing diphthongs. The most commonly occurring and unmarked variants of FACE and GOAT in Tyneside English are the monophthongal realisations, [eː] and [oː]. These realisations are also found in other varieties of North East English, and as such, are supra-local (Beal at al. 2012: 31).

Monophthongal [eː] and [oː] are found across male and female speakers of different ages and social backgrounds in Newcastle English. The only exceptions are older working-class male speakers who, instead, use the centering diphthong [ɪə] as a realisation of the FACE vowel. The GOAT vowel is realised as monophthongal [oː], the centring diphthongal [ʊə] or the fronted monophthongal [ɵː] in this group of speakers (Watt & Milroy 1999, Watt 2000, 2002, Beal at al. 2012).

While the diphthongal FACE and GOAT variants [ɪə] and [ʊə] are found in all of the North East, they are, in fact, associated with Tyneside English and considered to be traditional and old-fashioned, and as such are characteristic of older working-class males (Watt 2000, 2002, Beal at al. 2012). [ɪə] can be also found in the speech of younger working-class males, although much less frequently than in older working-class males (Watt & Milroy 1999). [ʊə] is less frequently used by other groups of male speakers than older working-class. For example, older middle-class or younger working-class speakers use it less frequently, and younger middle-class speakers use it very rarely (Watt & Milroy 1999).

The closing diphthongs are [eɪ], which is a realisation of the FACE vowel, and [oʊ] and [ɵː], which are realisations of the GOAT vowel. Overall, [eɪ] is not a common variant in Tyneside English, yet it is becoming more popular among younger middle-class speakers. It is used most often by young female middle-class speakers, followed by young middle-class male speakers (Watt 2000).

The closing diphthong [oʊ] is also widely used in other parts of the country. In Newcastle, this realisation is used by young middle-class speakers (Watt 2000, Beal et al. 2012). The fronted monophthongal [ɵː], on the other hand, is associated with male speakers and is used most frequently by younger middle-class males but also older and younger working class males. However, the variant is becoming less common in general and female speakers refrain from using it (Watt & Milroy 1999, Watt 2000).

Finally, Watt & Allen (2003: 269) and Viereck (1968: 69, 70) provide more examples of the realisation of the GOAT vowel which make the vowel contrast in Tyneside English even more varied. For example, [ɪə] can be found in words like [stɪən] *stone,* [hɪəm] *home,* [bɪən] and *bone,* and [aː] in words like *snow* [snaː]. These pronunciations occur in older working-class male speakers and are considered to be old-fashioned even by Viereck (Viereck 1968).

Another vowel associated with significant variability in the region is the NURSE vowel, which can be realised as the localised retracted [ɔː], fronted [øː] and centralised [ɜː] (Watt 1998, Watt & Milroy 1999, Beal et al. 2012).

While the first variant is now rare and associated with older working-class male speakers, the two other variants are more commonly used in Tyneside English than [ɔː]. The centralised [ɜː] is most common and also supra-local. Watt (1998) and Watt & Milroy (1999) point out that the fronted variant [øː] is marked for age and gender, as it is associated with female speakers, and especially younger middle- and working-class females who use it more frequently than [ɜː].

In general, localised vowel variants seem to be associated with older and usually male speakers. Younger speakers, especially females, tend to prefer supra-local variants, widely used across the region and the country (Beal et al. 2012).

Overall, a decrease in the use of localised, traditional forms can be observed in Tyneside English (Watt 2000). In their place, new, non-regional forms are adopted. The process results in a reduction of the number of vowel variants in use and implies language levelling, which results in formation of a more uniform repertoire of phonetic variation, one that is closer to other varieties of British English (Watt 2000, Watt 2002). At the same time, the supra-local forms new to the region seem to be less socially and geographically marked.

3. Method

For the purpose of this study talker pitch was shifted to obtain the effect of gender-ambiguous-sounding voice.

This study uses single-word stimuli. The advantage of using single words over connected speech is that listeners can focus with greater ease on the specific type of information present in the acoustic signal (Munson 2007). At the same time, this approach allows the researcher to control for more parameters and therefore draw more reliable conclusions from the data when analysing which phonetic cues listeners rely on.

3.1. Stimuli

Stimuli selected for this study occur in three phonological contexts: word-finally in open syllables, preceding a nasal, and preceding a fricative in one instance.

A total of four voices were used in this study. Two phoneticians recorded target stimuli using Newcastle variants and two other speakers recorded fillers used in the study.

Preliminary tests revealed that in terms of the range of possible pitch manipulation and the final outcome in terms of voice naturalness, male voices gave better results than female voices. Therefore, only male voices were used in this study.

The tokens were recorded in a recording studio to .wav sound files at a sampling rate of 44.1 kHz and 16 bit mono resolution.

Speakers were in their forties and mid-twenties. All tokens were manipulated in Adobe Audition 3.0 (Adobe, 2007) using the Pitch Shifter function to raise pitch and obtain the effect of gender-ambiguous-sounding voice. In addition to preserving the tempo of the samples, high precision and default appropriate settings were selected. Pitch Shifter allows changes in fundamental frequency by semitones and cents, where 1 semitone is equal to 100 cents. Each token was manipulated individually between 1.0 and 4.0 semitones.

The algorithm implemented by the Pitch Shifter allows the speech tempo to be preserved and the formant values to be adjusted to changes in pitch (Adobe, 2007). Because this study investigates perception of gendered phonetic variables in the absence of gender-specific fundamental frequency, the aim was to manipulate only one of the phonetic cues, that is, fundamental frequency. Preserving tempo and adjusting formant values to changes in pitch sustained other acoustic features of the recordings. Furthermore, this approach allowed the researcher to control for pitch and draw more specific conclusions about the acoustic cues responsible for perceptions of speaker-indexical information.

All tokens were normalised for volume in Adobe Audition CS5.5 (Adobe, 2012) using the Match Volume function. A single token was pre-selected and the remaining tokens were matched in volume to the pre-selected token using the file total root mean square power (RMS) function and limiting settings to ensure the output files were not clipped or overly loud.

Finally, the naturalness and gender ambiguity of the stimuli and fillers were judged by a male and a female sociophonetician familiar with the dialects of North East England.

3.2. Procedure

The experiment was conducted in laboratory conditions and administered in E-Prime 2.0 (Psychology Software Tools, Inc., 2012). At the beginning of the experiment there was a training session, after which participants were given time to ask questions. A total of 396 single-word stimuli and fillers were presented over Sennheiser HD 280 Pro headphones at a comfortable hearing level, one at a time. Each stimulus was played once only. The entire session was estimated to take about 40 minutes and there were two breaks in between. Because the study was rather long, participants were instructed to time the breaks themselves.

Visual representations of stimuli were simultaneously projected onto a computer screen. In order to avoid visual priming, except for two instances referring to filler words, visual word representations excluded images of men or women. The role of visual stimuli was to help listeners not familiar with the Newcastle dialect understand the recordings. The images also served as an additional element in the study, which alleviated a possible feeling of boredom.

Listeners were instructed to listen to each stimulus and evaluate it using a Visual Analogue Scale (VAS) slider with a 0 to 100 point scale, incrementing by 1 point and logging participant choices on the *x* axis (Groot, 2013). Listeners were also asked to go with their first impressions and to not overthink their choices. Furthermore, the pace at which the stimuli were presented and the fact that listeners heard each stimulus once only gave listeners just enough time to reach a decision.

Stimuli were presented in a fixed order and the slider was reset to a midpoint position on the scale after each evaluation. Additionally, the slider did not allow for stimuli to be left unrated and so, in order to proceed, participants had to move it.

Each speaker was evaluated three times along three dimensions: how male or female they sounded, how old or young they sounded and how middle class or lower class they sounded. These alternatives were presented in a mixed order for each block in such a way that every stimulus was rated along only one dimension per block and on all three of them in total. Each participant rated all three blocks.

3.3. Participants

Listeners were volunteers recruited from the undergraduate and graduate student bodies at the University of York. Four male and four female listeners participated in the study. Listeners were ages 19 to 24. Additionally, a Newcastle male listener, aged 26, took part in the study.

All listeners considered themselves to be middle class and, except for the Newcastle listener, all participants were speakers of varieties other than the Newcastle English or a North East English variety. Except for one female and two male listeners, all participants declared

speaking one or more foreign languages. None of the participants suffered from flu or reported a hearing impairment.

3.3. Data analysis

As has been already mentioned, male and female groups were comprised of four participants. Each participant evaluated between two to three words in each of the conditions. This means that data were clustered and they could be correlated rather than independent. First, in order to analyse data, median values for each of the participants were determined. Applying this type of measure ensured that data were independent which, in turn, allowed statistical analysis. Because the data distribution was skewed, a non-parametric Mann-Whitney test was applied. This type of test compares differences between two medians. In this case, median values in male and female groups were compared. Additionally, because of the small size of the total sample, the exact probability option of the test was selected.

It was hypothesised that there might be differences in perception of the variants between male and female listeners. For this reason, results in the two groups are presented separately. However, because one of the participants was a Newcastle listener, it was decided that he should be included in the analysis for the sake of providing a brief comparison of the results obtained in the male and female groups of listeners from outside of the North East with the results provided by the user of the variety under investigation. However, data provided by the Tyneside listener were excluded from statistical analysis.

Because there were only four listeners in the male group and four more in the female group, it was decided that bar plots, rather than box plots, should be used when visualising experimental results.

The slider appeared at the midpoint on the scale after each audio stimulus was played. Additionally, the continuum evaluation scale itself was quite long, which made it relatively easy for the participants to drag the slider back to the centre of the scale if they wished to rate a token at 50 per cent. However, when interpreting the results, it was assumed that ratings in the range between about 45 and 55 per cent on the scale report mid-evaluations and refer to gender-ambiguous-sounding voice. As has been mentioned, the age differences between participants were not significant as all listeners were in their late teens and early to mid-twenties. Therefore, as far as age evaluation is concerned, it could be assumed that perceptions of speaker age should not differ to a considerable extent between the participants. Thus age evaluations between 45 and 55 per cent on the scale were analysed as referring to young but mature-sounding voices. Finally, midpoint evaluations of speaker social class could mean that the speaker is somehow bringing features of the two classes together, yet not sounding definitely middle- or lower-class.

4. Results

The following section focuses on the evaluation of speaker-indexical social information of localised and supra-local vowel variants of FACE, GOAT and NURSE occurring in Tyneside English.

The localised FACE [ɪə] variant is characteristic of older working-class male speakers and [eː] is a supra-local variant (Watt & Milroy 1999, Watt 2000, Beal et al. 2012). A closer look at the results presented in Figure 1 provides some interesting observations.

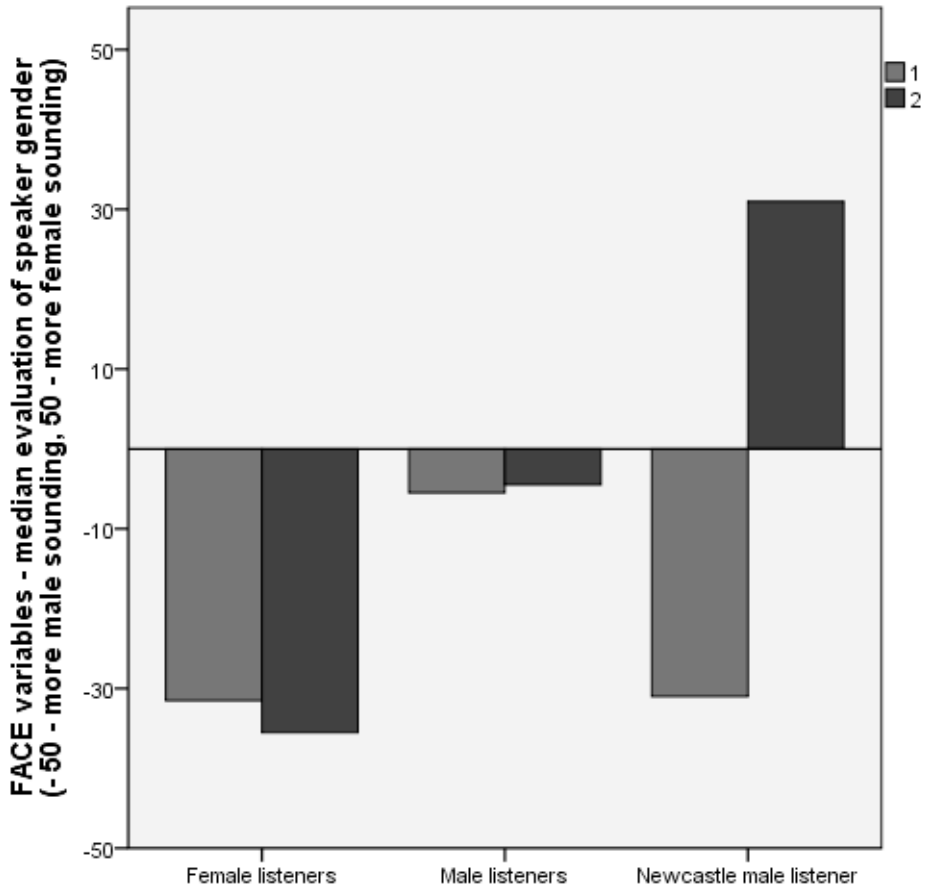

Figure 1. FACE localised [ɪə] (1) and supra-local [e:] (2) variants -- evaluation of speaker gender.

Overall, the localised variant was evaluated as male-sounding by all groups of listeners (Fig.1.). As can be seen, the female group and the Newcastle listener in particular strongly perceived the variant as male-sounding. However, male listeners identified it as much less male-sounding than female listeners or the Newcastle listener.

Even though [ɪə] is, in fact, found in speech of older male speakers, male and female listeners were not expected to be sensitive to the localised Newcastle variant. Thus the results need to be accounted for differently. One possible explanation is that upon hearing an unfamiliar variant people tend to perceive it as lower class and male-sounding (Beal et al. 2012). At the same time however, the supra-local variant [e:] was evaluated by the male and female groups of listeners almost identically to the localised [ɪə] variant. This would suggest that to these listeners, the two variants did not differ to any considerable extent.

Nevertheless, a difference in evaluations of the two variants provided by the Newcastle listener can be noticed. Interestingly, while the localised variant [ɪə] was judged as male-sounding, the supra-local variant [e:] was perceived as female-sounding. Thus it seems that the Newcastle listener was sensitive, at least to some extent, to the two phonetic realisations of the FACE vowel present in Tyneside English.

Figure 2 presents speaker age evaluation of the FACE vowel variants under investigation.

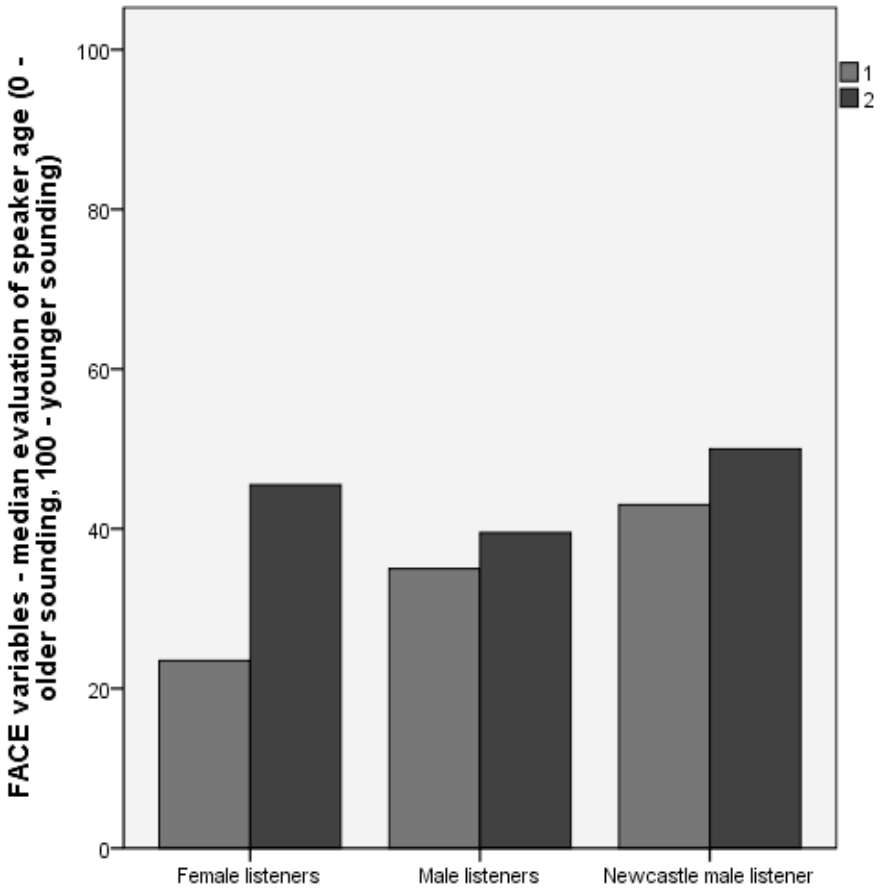

Figure 2. FACE localised [ɪə] (■1) and supra-local [eː] (■2) variants -- evaluation of speaker age.

As far as speaker age evaluation is concerned, it can be easily observed that both male and especially female listeners judged the localised variants as older-sounding.

Even though female listeners found also the supra-local variant to be overall rather older-sounding, they did find it as mature-sounding and considerably younger than the localised variant. Male listeners, on the other hand, did not perceive the two variants to be significantly different.

The results produced by the Newcastle listener in terms of age identification confirm the expected for the most part. Both variants were perceived as mature but young-sounding, yet, the localised variant was identified as slightly older-sounding.

Figure 3 illustrates evaluations of speaker social class on the basis of the FACE vowel variants.

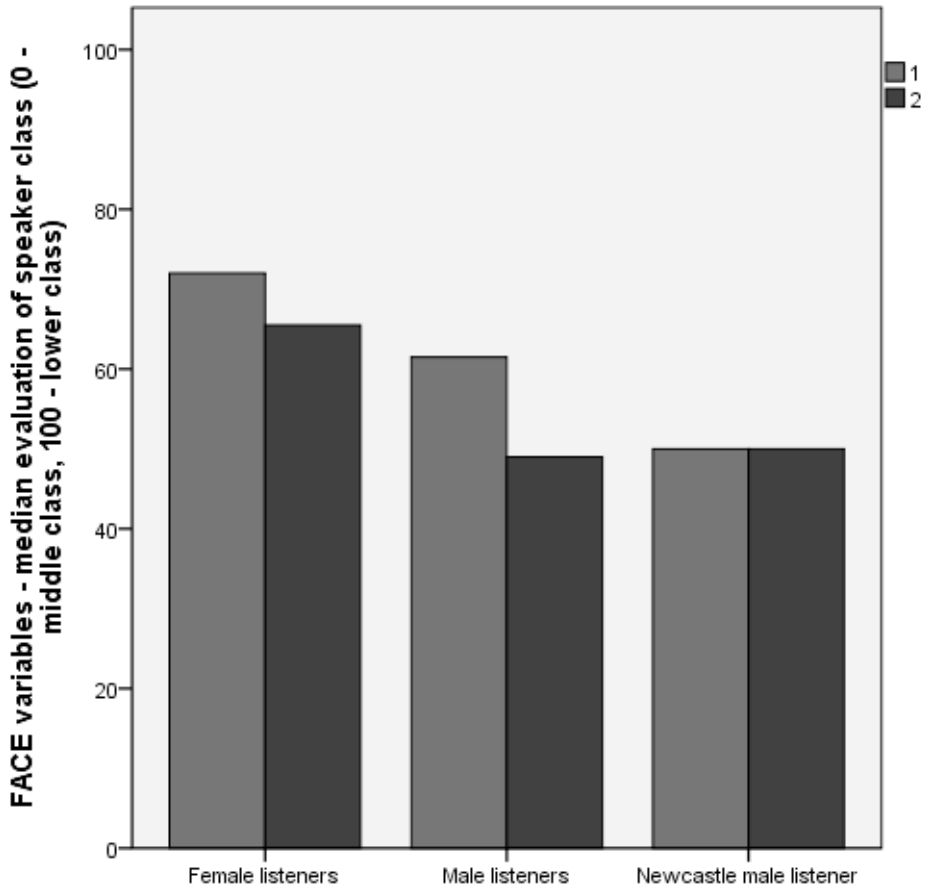

Figure 3. FACE localised [ɪə] (■1) and supra-local [e:] (■2) variants -- evaluation of speaker social class.

Overall, speaker social class of the FACE localised variant was evaluated as lower class by both female and male listeners. The supra-local variant, on the other hand, was categorised as lower class sounding by female listeners and as combining middle and lower class features by male listeners.

Furthermore, a difference between male and female evaluations can be noticed. Female listeners perceived the recordings to be generally more lower-class-sounding than male listeners, who by contrast, found them to be slightly less lower-class-sounding.

The Newcastle male listener categorised both variants at midpoint. It could be that the variants were, in fact, identified as being used by speakers combining middle- and lower-class features. The other possibility is that the listener did not feel comfortable evaluating the class parameter. Whether or not there is a pattern will be investigated in the following sections of the paper.

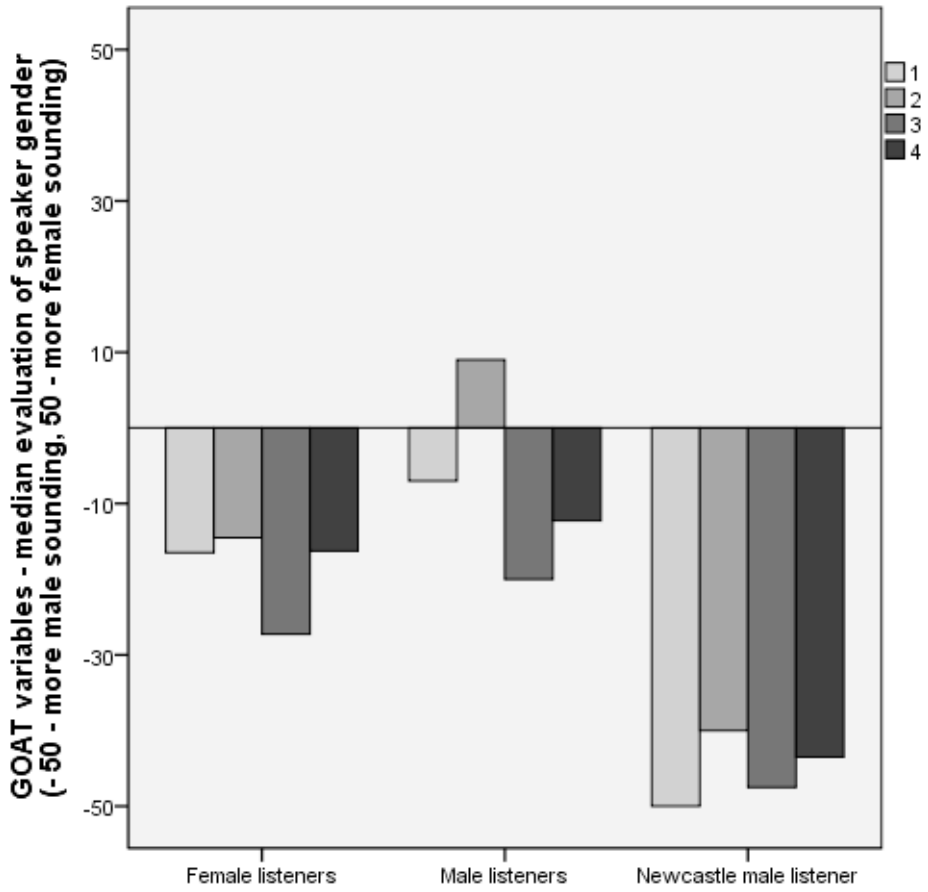

Figure 4. GOAT localised [ʊə] (1), [ɵː] (2) and [iːə] (3) and supra-local [oː] (4) variants -- evaluation of speaker gender.

Figure 4 presents evaluations of speaker gender of the three localised GOAT variants, the centring diphthong [ʊə] fronted monophthongal [ɵː], archaic [iːə] and the supra-local monophthongal variant [oː]. All variants in the GOAT group are associated with male speakers in Tyneside English (Viereck 1968, Watt 1998, Watt 2000, Beal et al. 2012).

The centring diphthong [ʊə] is characteristic of older working-class males, [ɵː] is used most often by younger middle-class males but also older and younger working-class males and [iːə] is found in the speech of older working-class males.

Both localised and the supra-local variants were categorised as male-sounding by all groups of listeners. The only exception was the fronted monophthongal [ɵː] variant, which was perceived as slightly female-sounding by the male listeners. It is worth pointing out however, that across male and female groups of listeners the archaic variant [iːə] was evaluated as the most male-sounding of all the variants.

Interestingly, the Newcastle listener perceived the supra-local variant along with the localised variants as definitely male-sounding.

The shift in perceptions between male and female speakers observed earlier in gender evaluations of the variants of the FACE vowel can be noticed here as well. In general, the male group found the voices to be less definitely male-sounding than the female group.

Figure 5 shows judgements of speaker age of the GOAT vowel variants.

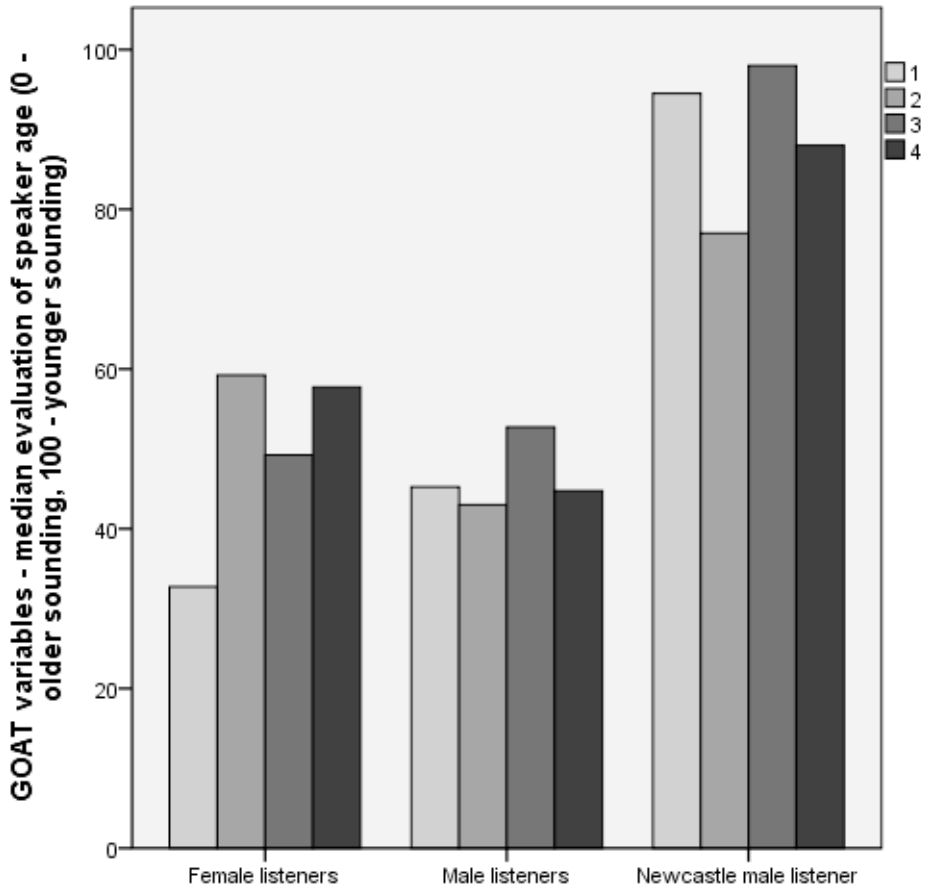

Figure 5. GOAT localised [ʊə] (1), [ɵː] (2) and [iːə] (3) and supra-local [oː] (4) variants -- evaluation of speaker age.

Evaluations of speaker age show that female listeners found the [ʊə] diphthong to be older-sounding and the monophthongal [ɵː] along with the supra-local monophthongal [oː] to be slightly younger-sounding (Fig. 5).

The archaic diphthongal [iːə] was categorised as used by mature but young speakers, which might suggest that the listeners were uncertain as to how to evaluate it. Male listeners, by contrast, rated all variants around the midpoint, finding them to be mature but young-sounding. [ʊə], [ɵː] and [oː] were perceived to be only slightly older-sounding than [iːə] in this group of listeners.

The Newcastle listener, on the other hand, perceived all variants as definitely young-sounding.

Figure 6 illustrates speaker class evaluations of the GOAT vowel variants.

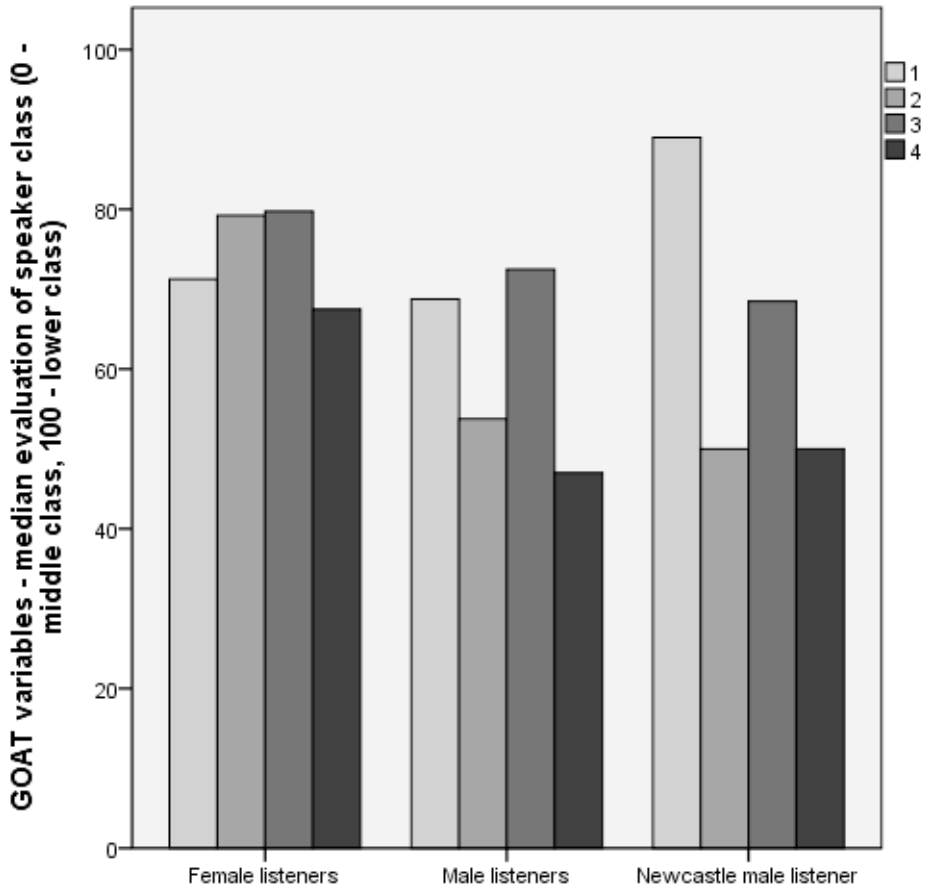

Figure 6. GOAT localised [ʊə] (1), [ɵː] (2) and [iːə] (3) and supra-local [oː] (4) variants – evaluation of speaker social class.

Class evaluation results reveal that female listeners found all variants to be lower-class-sounding. However, there was more variation is class perception in the male group. While the centering diphthong [ʊə] and archaic [iːə] were also found to be overall lower-class-sounding, the fronted monophthong [ɵː] was rated as only slightly lower-class-sounding and the supra-local monophthong [oː] was perceived as slightly more middle-class-sounding. This might suggest that the two variants were found to be used by speakers combining features characteristic of the middle and lower classes.

It is interesting to see that the pattern of evaluations found in the male group is somewhat similar to the one seen in the Newcastle listener.

The evaluations provided by the Newcastle listener correspond with the social classes of speakers who use the variants under investigation.

Interestingly, the results suggest that the Newcastle listener and, somehow, male listeners were possibly sensitive to indexical information such as speaker class carried by the Newcastle GOAT variants.

Figure 7 presents evaluations of speaker gender of the NURSE vowel variants.

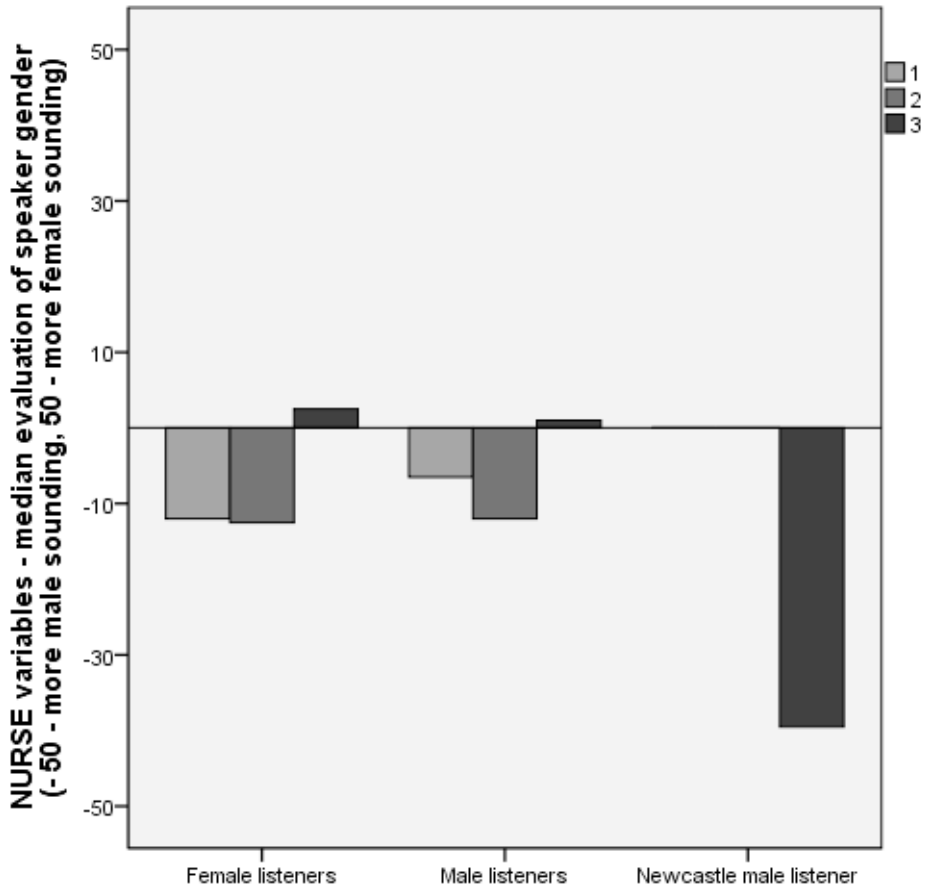

Figure 7. NURSE localised [øː] (1), [ɔː] (2) and supra-local [ɜː] (3) variants -- evaluation of speaker gender.

The final vowel investigated in the study is the NURSE vowel (Fig. 7). Fronted [øː] is typically found in young middle- and working-class females but also in older working-class females. While the retracted [ɔː] is used by older working-class males, the centralised [ɜː] is a supra-local NURSE variant (Watt 1998, Watt & Milroy 1999, Beal et al. 2012).

Both groups of listeners categorised the local variants almost unanimously as overall male-sounding. However, male listeners found the retracted variant to be more female-sounding. Furthermore, the evaluations were in the upper regions of the midscale which means that the listeners did not find the variants to be strongly male-sounding.

The supra-local variant was perceived as non-gender-specific by the two groups of listeners.

Interestingly enough, the Newcastle listener categorised the localised variants as gender-ambiguous, yet he categorised the supra-local variant as definitely male-sounding.

Figure 8 illustrates evaluations of speaker age of the NURSE vowel variants.

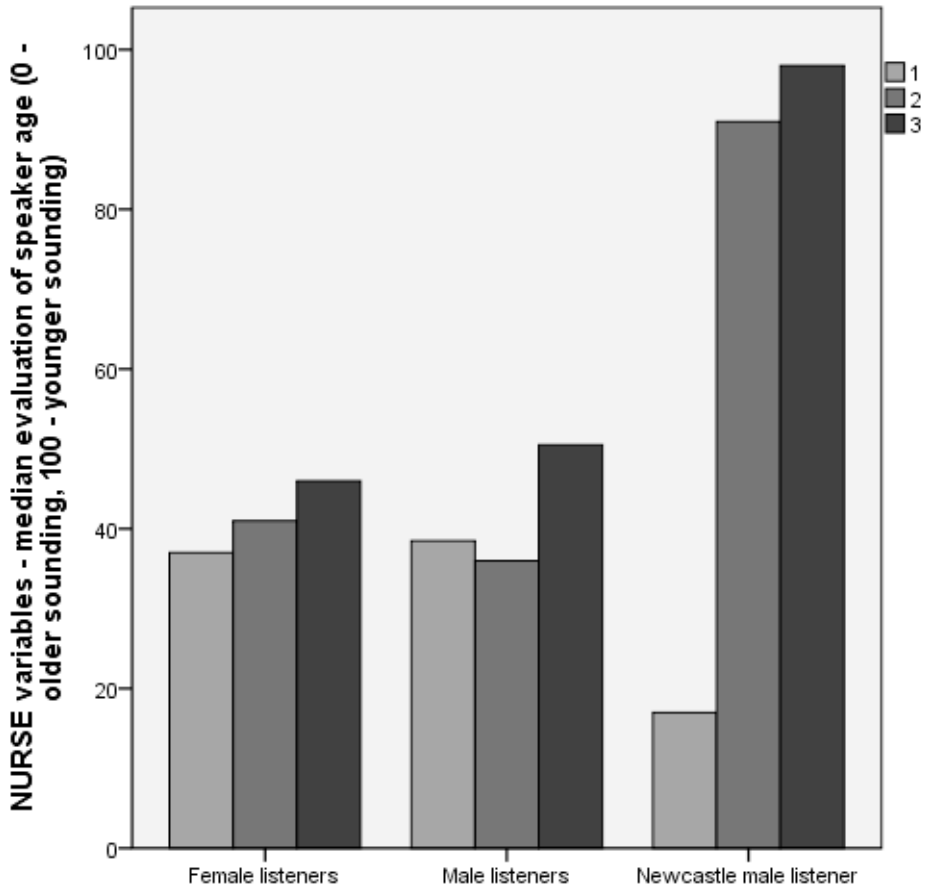

Figure 8. NURSE localised [øː] (1), [ɔː] (2) and supra-local [ɜː] (3) variants -- evaluation of speaker age.

Age categorisation results reveal that male and female groups of listeners found the localised variants to be in general slightly older-sounding (Fig. 8).

The supra-local variant, on the other hand, was perceived as only slightly younger-sounding than the localised variants. Both male and female listeners evaluated it as mature but young-sounding.

The Newcastle listener found the female variant [øː] to be definitely old-sounding and the following variants, male [ɔː] and supra-local [ɜː], as definitely young-sounding.

Figure 9 presents evaluations of speaker social class of the NURSE vowel variants under investigation.

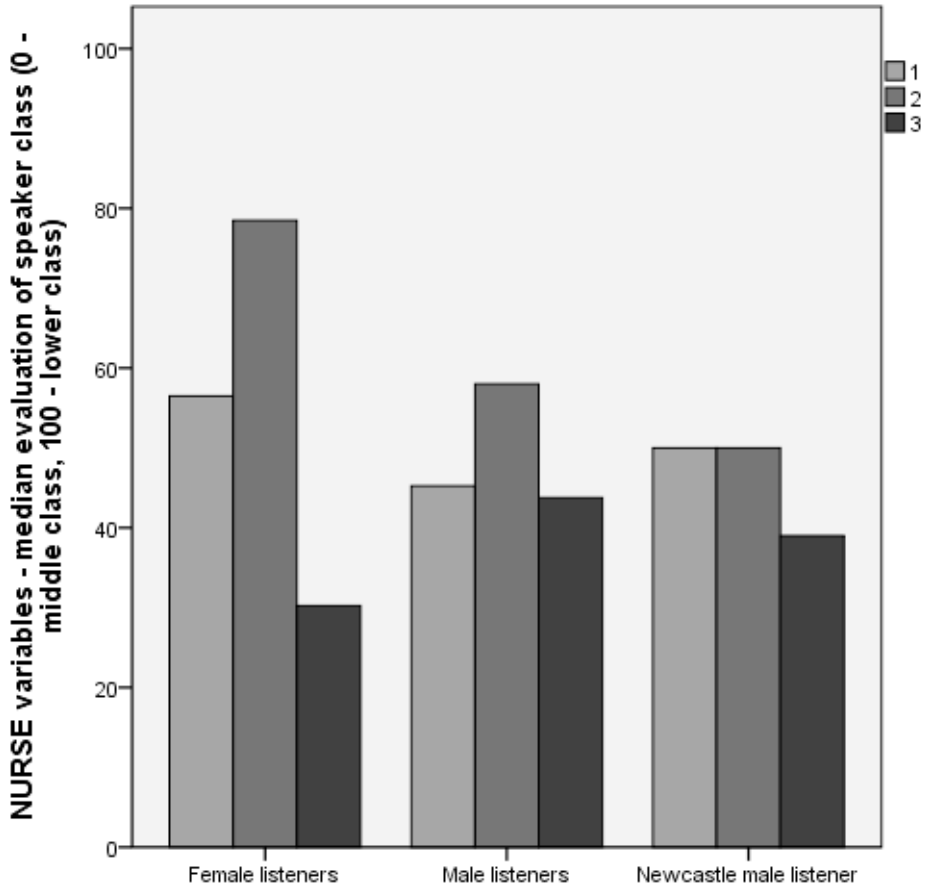

Figure 9. NURSE localised [øː] (1), [ɔː] (2) and supra-local [ɜː] (3) variants -- evaluation of speaker class.

The class evaluation results show that the female variants [øː],was categorised as combining middle- and lower-class features by the female group (Fig. 9). Male evaluations seem to be heading in the same direction yet, they are not as strong, since the variant was categorised as slightly more middle-class-sounding.

The traditional male variant [ɔː], on the other hand, was judged as slightly lower-class-sounding by the male group, and definitely as lower-class by female listeners.

The supra-local variant was evaluated as overall middle-class-sounding across all groups of listeners, with male listeners finding it only slightly middle-class-sounding.

Similarly, as was the case with class evaluation of the FACE variants, also here the Newcastle listener categorised the two lower class localised variants at midpoint.

5. Conclusions

Preliminary results show that listeners from outside of the North East did not seem to be sensitive to indexical information present in localised Newcastle variants or even supra-local North East variants, relating to gender, age or class. As a result, listeners could not extract this information form the acoustic signal with any significant accuracy. In fact, in a number of cases, localised and supra-local or even national variants were perceived as almost identical or quite similar. Therefore, the main question of the role of gendered phonetic variables in evaluating speaker-social information seems to have been answered only partially. It will be further investigated in the main study whether familiarity with the dialect under investigation provides more promising results.

Two patterns of male-female evaluations of speaker gender and class were recorded. It was observed that males tended to evaluate speaker gender as overall more female-sounding than female listeners, who found the stimuli to be more male-sounding in comparison.

The second pattern refers to evaluations of speaker class, where female listeners tended to evaluate speaker class as lower than male listeners.

Despite these patterns visible in the plots, statistical analyses did not reveal any significant differences between male and female listeners when evaluating localised or supra-local variants. However, it might be that the results of statistical tests did not indicate statistical significance simply because the sample was not large enough. Overall, there was not enough evidence to reject the null hypothesis and assume there were perceptual differences between male and female listeners.

Finally, as far as class evaluations are concerned, ratings around the midpoint on the scale suggest that perhaps listeners failed to identify any specific speaker class information, or they did not feel comfortable judging the parameter. This could be the case especially when listeners recognise a variant as familiar-sounding.

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