

# VOICE QUALITY IN GLASWEGIAN

Jane Stuart-Smith

*Department of English Language, University of Glasgow*

## ABSTRACT

Glaswegian vernacular is well known for a stereotypical 'Glasgow voice', with slack articulation, jaw protrusion, and harsh phonation. The extent to which speakers of Glaswegian really exhibit such features of voice quality remains largely anecdotal. Indeed, bar a few notable exceptions, voice quality has been largely neglected in accounts of regional and social accents of Britain. This paper presents the first sociophonetic description of voice quality in Glaswegian English, based on a perceptual analysis of conversational and read speech from 32 informants, male and female, adults and children, working class and middle class. While the results reveal few indications of stereotypical Glasgow voice quality, they confirm clear differences in voice quality according to social factors. Class differences in voice quality were particularly evident. Interestingly, middle class voice quality can be defined almost entirely in terms of the absence of typical working class settings.

## 1. INTRODUCTION

Glasgow vernacular is well-known for its distinctive voice quality. This 'Glasgow voice' is stereotypically exaggerated by television characters such as Rab C. Nesbitt, with phonetically slack articulation, jaw protrusion and harsh phonation. Glasgow vernacular in general is often impressionistically described with labels such as 'rough', 'ugly', 'harsh', and 'aggressive', and has been infamously associated 'with the unwashed and the violent' [1]. Apart from obvious links of a dialect with a large industrial city and its attendant social problems, such opinions probably also reflect subjective impressions of stereotypical 'Glasgow voice', particularly given the paralinguistic association of both jaw protrusion and harsh voice with aggression and anger in many cultures [2], and the tendency to judge individuals linguistically on the basis of stereotypical associations [e.g. 3]. The extent to which such features of voice quality actually occur in Glaswegian speech has not been documented

## 2. THE PHONETIC ANALYSIS OF VOICE QUALITY

The term 'voice quality' refers here to the overall auditory quality which characterizes an individual's speech, including supralaryngeal and phonatory features. The most important contribution to the systematic phonetic analysis of voice quality has been made by Laver (e.g. [4]). Laver's work extends the thoughts of Abercrombie [5], who described voice quality as 'those characteristics which are present more or less all the time a person is talking: it is a quasi-permanent quality running through all the sound that issues from his mouth' (p. 91). Voice quality is taken to result from two main factors, the anatomy and physiology of the speaker and 'the long term muscular adjustments, or articulatory settings [6], once acquired idiosyncratically, or by social imitation, and now unconscious, of the speaker's larynx and supralaryngeal vocal tract'; [7, p. 148].

Linguistic identification and membership of particular regional and social groups involves *acquired* speech traits, and thus sociophonetic voice quality is concerned with describing the habitual muscular settings over which speakers have a degree of voluntary control.

Much like the auditory description of vowel quality, a speaker's voice quality is described in terms of the interaction of a set of variable articulatory settings, facilitated by reference to a defined 'neutral' setting. Articulatory settings are characterized by their effects on particular phonetic segments, which are determined largely by shared physiology. For example, advanced tongue tip/blade setting will cause alveolar consonants to be fronted, making these 'key' segments for the identification of this setting. For descriptive purposes a relatively simple relationship between auditory impression and articulatory setting(s) is usually assumed. The acoustic correlates of the proposed settings have also been investigated, e.g. [4], [8].

## 3. VOICE QUALITY AND ACCENT

Despite the recognized association of voice quality with particular regional and social accents, few descriptions of British urban accents have included more than informal remarks on voice quality. This is perhaps surprising, given that voice quality is often a clear social marker, particularly for class [9], and that incorporating features of overall voice quality in a phonetic and phonological description can explain trends in segmental variation across social groups [10].

Three sociolinguistic studies have considered voice quality. Trudgill [10] on Norwich English and Knowles [11] on Scouse include discussion of voice quality in the vernacular. The typical settings of Norwich voice are: raised larynx, nasalization, high supralaryngeal tension, creaky phonation, loud with high pitch range. Scouse also shows raised larynx, but with velarization, faucalization, pharyngeal constriction, and close jaw; this combination of settings accounts for the characteristic auditory 'adenoidal' quality. Esling's examination of male speech in Edinburgh [12, 13] is the most detailed study. He found clear differences in voice quality correlating with social class. In particular, working class speakers showed tongue blade articulation, protruded jaw, pharyngealization and raised larynx, with predominantly whispery and harsh voice.

Apart from Esling on Edinburgh, there are only informal comments on Scottish English and/or Glaswegian voice quality. Abercrombie [14] refers to Sweet's claim of the 'pig's whistle' (possibly describing a type of harshness), though admits that he has never heard it. Knowles [11] mentions that velarization is found in some Scottish varieties, while Laver [4] comments on the frequent occurrence of harshness in some urban Scots accents and later [2] on wider range of lingual articulation in 'many Scots accents'. Specific comments on aspects of Glaswegian voice quality [e.g. 15] refer to pharyngealization, and in localized speech, to a protruded lower jaw setting.

## 4. METHODOLOGY

### 4.1. Data

The perceptual analysis of Glaswegian voice quality presented here is based on an analysis of a socially-stratified speech dataset, collected in the spring and summer of 1997 for the Glasgow Speech Project. Speech was recorded from 32 speakers, male and female, children and adults, from two different areas of the Glaswegian conurbation, representing broadly middle and working class areas. Informants were digitally recorded on DAT using wide frequency response clip-on microphones speaking in casual conversation with a same-sex partner and reading a wordlist. (For further details and analysis of these data, see [16, 17, 18].)

### 4.2. Data analysis: The VPA Protocol

The Vocal Profile Analysis (VPA) protocol is a clinical tool, devised for the systematic perceptual analysis and transcription of voice quality (e.g. [19]). Section 1 of the VPA protocol was used here, with minor modifications.

I established a VPA profile for each of the 32 speakers, for their conversational and read speech separately. It is important to note that the speakers were transcribed in random numerical order, which did not reflect their social grouping. This order was different for the two genres. While it would certainly have been desirable to have more judges to transcribe the data, the overall validity of the transcription would seem to be confirmed by a relatively high degree of consistency in setting, and setting values, in speakers across the two speech types.

Once the transcription was complete, I analysed VPA profiles qualitatively and quantitatively. The qualitative analysis consisted of drawing up a verbal description summarizing the VPA profile. Eight sociolinguistic groups of 4 speakers were assumed according to class (MC/WC), age (young/old) and gender (male/female). The verbal descriptions for each group were pooled, and settings observed in 3 or more speakers were noted. This produced a qualitative profile of shared features of voice quality for each group. These group profiles were then conflated in a similar way to give overall group characteristics, such as 'all MC speakers', or 'all WC female speakers' and so on. In this way shared and distinctive settings of voice quality could be identified for groups of speakers according to social factors of class, age and gender.

Observed degrees of settings were then quantified giving simple descriptive statistics (e.g. mean, standard deviation) for each articulatory setting for groups of speakers. Once the qualitative analysis had identified particular articulatory settings (or degrees of settings) as characteristic of social groups, these were then tested for statistical significance using the non-parametric Mann Whitney *U* Test. Thus in the following discussion, a setting is considered distinctive if a) it was identified from the qualitative analysis (and was thus apparent in the majority of speakers in a group), and b) if the difference in the group means was subsequently found to be statistically significant at  $p < 0.05$ .

## 5. RESULTS

### 5.1. General points

The analysis of the VPA profiles revealed characteristic constellations of articulatory settings for each group for both

speech styles. Even with such small numbers, speakers seem to conform broadly both to their assumed 'category' (e.g. WC men, MC girls, etc.), and to wider social groupings observed anecdotally in Glasgow.

Two settings were completely absent from both speech styles: labiodentalization and minimized jaw movement. The lack of labiodentalized setting correlates with the observed lack of a 'labial r' pronunciation for /r/ in Glaswegian, which is becoming more widespread in urban accents in England.

Across both conversational and read speech a cluster of settings was shared by all speakers in the Glaswegian data: advanced tongue tip/blade, raised tongue body, nasalization, and tense, whispery voice. The advanced tip/blade setting accounts for the observation that alveolar consonants may be realized as dental in Scottish English (e.g. [20]). The observation of nasalization and whispery voice, if to differing degrees, across all speakers is similar to the findings reported for 50 adult speakers in Mackenzie Beck [19]. She also reports over half of the speakers as showing higher than neutral laryngeal tension. She offers a potential explanation for this in the unnaturalness of the recording situation, but given that 'tense voice' was found in relaxed conversational Glaswegian, it may also be a genuine feature of the (south-eastern) Scottish accents spoken by most of her informants.

### 5.2. Age and voice quality

The main aspect of Glaswegian voice quality which correlates with age is what is called here 'supralaryngeal tension'. In the VPA protocol it is possible to identify degrees of both 'tension' (SLtense) and 'laxness' (SLlax), although some caution must be exercised with these settings (for 'overall muscular tension', see e.g. [2]). In both conversations and wordlists children seemed to show more laxness. WC young speakers in particular showed a high degree of laxness in conversational speech, and in read speech WC girls as a group showed laxness. This laxness is directly linked to the slacker articulation of obstruents, especially fricatives, observed in young WC speakers. All adults showed greater tenseness while reading the wordlists, perhaps due to the unfamiliar activity of reading aloud.

Young MC speakers showed two other characteristics - extensive lip movements and specifically tongue blade, as opposed to tongue tip, articulation. In general little extensive (or minimized) movement was observed for the data as a whole, but this finding is not contrary to expectations for Scottish English [2]. The use of blade articulation is reminiscent of Esling's Edinburgh results, since he also observed blade articulation in boys, as opposed to men, though this was restricted to the working class speakers. He ascribes this and the few other supralaryngeal age-related differences (palatalization, velarization, and advanced tongue root) largely to intrinsic differences resulting from boys' smaller vocal tracts [12], and those of phonation to possible artefacts arising from his method of analysis [13].

### 5.3. Gender and voice quality

Overall, gender differences in Glaswegian voice quality are mainly reflected in degrees of nasalization, creak and whisper. In both speech styles, greater nasalization was found in male than female speakers. This gender difference persists for WC speakers, and qualitatively, but not quantitatively for MC

speakers. The auditory quality of nasalization does not necessarily require velic lowering, and can be invoked by different interacting articulatory strategies [4]. This makes the finding of both nasalized and (auditorily) denasalized settings in the WC girls' wordlist speech less contradictory than it might appear. The transcription reflects the observation that these girls' oral segments sound nasalized, but that their nasal segments are not fully nasal. Exactly this is reported for Scouse by Knowles [11], who reports both a 'nasal twang' and an 'adenoidal' quality occurring simultaneously. Nasalization is often used by male WC speakers to imitate a particular type of MC speech, associated with upward social mobility (also characterized by high pitch); a couple of such imitations occur in the recorded conversations.

The overall finding of more creaky voice in male than female speakers in both speech styles is similar to the reports for RP and 'Modified Northern' English in [21]; see also [19]. The gender difference is increased in the wordlists, where all female speakers use more whispery voice. If 'whispery voice' is to be equated with Henton and Bladon's 'breathiness' [22], this again would seem to agree with their observations for speakers from the same corpus. We note too that although more whispery voice is an indicator of WC in the conversational speech overall, WC women and girls still show substantially more whispery voice than their male counterparts.

A further gender difference in WC speakers is also apparent qualitatively in the conversational data: more men and boys show lip-rounding or protrusion. In MC speakers greater supralaryngeal tension is found in women and girls, than in men and boys in the wordlist data. We also note that MC girls are identified as having slightly raised larynx and lip spreading when reading the wordlists. These settings with tongue blade articulation and tongue body fronting and raising together conspire to raise their auditory pitch. Interestingly their conversational speech does not share this constellation of settings, suggesting that reading aloud is a separate linguistic activity for these speakers; cf. [12]. We can only speculate as to whether the effect is intended to sound 'feminine'.

#### 5.4. Social class and voice quality

The most complex and extensive differences in Glaswegian voice quality correlate with social class. As in Trudgill's description of Norwich English, differences in voice quality are very important for signalling existing and original social background in Glaswegian, although the relationship between class and language is somewhat different. The difference between e.g. WC to MC speech entails a potentially significant phonetic and phonological shift from a form of Scottish Standard English to a form of Scots, which will include differences of lexical incidence and possibly of system. The different forms of speech also show substantially different voice qualities. Describing differences in articulatory settings therefore allows a number of generalizations about segmental differences between WC Scots and MC Scottish Standard English to be captured, but voice quality alone cannot complete the account [5].

In conversational speech WC speakers are distinguished from MC speakers by showing predominant degrees of open jaw, raised and backed tongue body, possible retracted tongue root, supralaryngeal laxness, and whispery voice. In adult speakers differences of open jaw and whispery voice are most apparent,

while in children open jaw, backed tongue body with retracted tongue root and supralaryngeal laxness are typical of WC, as opposed to MC speakers. Interestingly MC voice quality can be defined almost entirely in terms of the absence of these settings, which recalls Johnston's [23] discussion of Scottish and Northern social accent climbing in terms of deletion of vernacular features (as opposed to the adoption of 'prestigious' ones). The only MC features are the possible presence of advanced tongue root in MC men, describing an impressionistically 'hollow' quality, and tongue body fronting in MC girls.

The results for the read wordlists are rather similar: overall WC speakers show open jaw, backed tongue body, retracted tongue root, and lesser supralaryngeal tension. In adults only tongue backing is distinctive, but WC children show open jaw, tongue body raising and backing, and retracted tongue root. In read speech all MC speakers share one additional setting, fronted tongue body, potentially enhancing the difference between their speech and localized 'backed' speech; cf. Esling [12] for social differences in read and 'narrative' speech in Edinburgh.

WC voice quality shows advanced tongue tip/blade setting combined with a backed tongue body setting. Such contradictory tongue settings are attested [2]. They account for the impression of 'frontness' and 'backness' which is often apparent in broad WC speech. Since both MC and WC speech shares tongue body raising, the main difference in tongue body setting is along the horizontal axis, with WC speech showing backing (velarization), and MC occasional fronting (palatalization).

WC speech is also characterized by auditory pharyngealization, as also found by Esling in Edinburgh WC speech [13], expressed here cautiously in terms of tongue root retraction. Only slight degrees of retracted tongue root are transcribed, partly reflecting the fact that auditory pharyngealization is most clearly noticeable during liquids and semi-vowels. This highlights the grey area between 'long-term' and 'short-term' settings (traditionally secondary segmental articulation). Secondary articulations must play some part in our overall impression of voice quality, particularly in Scottish English which is rhotic, and hence which contains far more opportunities for secondary articulation than a non-rhotic variety of English.

There are few indications in these data of the stereotypical male 'Glasgow voice'. One similarity is in lax supralaryngeal tension combined with tense laryngeal tension, which would facilitate harsh voice, although this is rarely found (unlike [12, 13]). The two speakers concerned are two WC men in their late 50s; they also show slight pharyngeal constriction. Impressionistically their voice quality is closest to the stereotype, although they do not seem to show jaw protrusion, but only open jaw. Open jaw is shared by all groups of WC speakers except WC women, for whom lip rounding/protrusion is noted instead. Jaw protrusion is only characteristic of WC boys (wordlists). There seems to be an anomaly here in terms of segmental pronunciation: jaw protrusion is often noticed through a distinctive articulation of /s/. In these data WC men, and WC and MC boys share a 'retracted' /s/. This may indicate jaw protrusion, although this is only found in WC boys here. Interestingly, MC boys are adopting a variant of /s/ which may help contribute to an impression of WC voice quality.

Apart from the isolated instances of harsh voice, the main phonatory difference between WC and MC voice quality is

increased whisperiness in WC conversational speech (cf. [12]). Creak does not appear to correlate with class, as in Edinburgh, where higher class speakers showed much creakier voices [13]. In fact, if the settings characterizing Glaswegian WC voice quality are compared with those of Edinburgh there are few similarities, namely in pharyngealization, protruded jaw and more whispery phonation.

Not surprisingly not all speakers conformed to each of the eight social groups in all respects. Clearly idiosyncratic, organic factors of voice quality were involved, but there were also some anomalous cases. For example, the voice quality of one WC woman was unusual: she sounded in some respects rather MC, but her segmental pronunciation was closer to WC speakers, particularly in T-glottalling [24]. Her similarity to MC voice quality is accounted for by her fronted and raised tongue body setting, typical of the voice quality of (read) MC speech. She is a good example of Abercrombie's [5] claim that all three strands of indexical information are needed to signal social membership.

## 6. CONCLUSIONS

The main findings of the analysis can be summarized as follows:

1. Voice quality in Glaswegian differs with age, gender and class.
2. Children showed laxer supralaryngeal articulation than adults.
3. Overall, male speakers showed greater nasalization than female speakers. Gender differences were also apparent in phonation: males showed more creaky voice; females more whispery voice.
4. A specifically WC Glaswegian voice quality can be identified (with more open jaw, raised and backed tongue body with possible retracted tongue root, whispery voice). MC voice quality is best described in terms of the *absence* of WC traits.
5. There is little evidence for the stereotypical 'Glasgow voice'.
6. All speakers shared a particular constellation of settings, which probably contributes to the overall impression of their speaking with a Glaswegian accent.

The investigation of Glaswegian voice quality presented here seems to be the first comprehensive sociophonetic examination of voice quality in a British urban accent for over 15 years. There is more work to be done in acoustically analysing these data, but what is given here is already sufficient to identify the existence of clear differences in voice quality according to age, gender, and above all social background.

## ACKNOWLEDGEMENTS

This paper is a shortened version of an article currently in press [13]. I am very grateful to Claire Timmins who acted as fieldworker for the data collection. I would like to thank the Leverhulme Trust for a one-year grant ('Accent change in Glaswegian: A sociophonetic investigation') which is currently supporting this work in progress.

## REFERENCES

- [1] Macaulay, R. K. S. and Trevelyan, G. D. 1973. Language, Education and Employment in Glasgow. *Final report to the SSRC*.
- [2] Laver, J. 1994. *Principles of phonetics*. Cambridge, Cambridge University Press.
- [3] Brown, B., Strong, W. and Rencher, A. 1975. Acoustic determinants of perceptions of personality from speech. *International Journal of the Sociology of Language*, 6, 11-32.
- [4] Laver, J. 1980. *The phonetic description of voice quality*. Cambridge, Cambridge University Press.
- [5] Abercrombie, D. 1967. *Elements of general phonetics*. Edinburgh, Edinburgh University Press
- [6] Honikman, B. 1964. Articulatory settings. In Abercrombie, D. et al (eds), *In Honour of Daniel Jones*, London: Longmans, 73-84.
- [7] Laver, J. 1968. Voice quality and indexical information. *British Journal of Disorders of Communication*, 3, 43-54.
- [8] Nolan, F. 1983. *The phonetic bases of speaker recognition*. Cambridge, Cambridge University Press.
- [9] Laver, J. and Trudgill, P. 1979. Phonetic and linguistic markers in speech. In Scherer, K. R. and Giles, H. (eds), *Social Markers in Speech*. Cambridge: Cambridge University Press, 1-32.
- [10] Trudgill, P. 1974. *The social differentiation of English in Norwich*. Cambridge, Cambridge University Press.
- [11] Knowles, G. 1973. *Scouse: The urban dialect of Liverpool*. PhD Dissertation, University of Leeds.
- [12] Esling, J. H. 1978a. *Voice quality in Edinburgh: A sociolinguistic and phonetic study*. PhD Dissertation, University of Edinburgh.
- [13] Esling, J. H. 1978b. The identification of features of voice quality in social groups. *JIPA*, 7, 18-23.
- [14] Abercrombie, D. 1979. The accents of standard English in Scotland. In Aitken, A. J. and McArthur, T. (eds), *The Languages of Scotland*. Edinburgh: Chambers, 54-70.
- [15] Macafee, C. 1983. *Varieties of English around the world: Glasgow*. Amsterdam, Benjamin.
- [16] Stuart-Smith, J. in press. Glasgow: accent and voice quality. In Foulkes, P. and Docherty, G. (eds), *Urban voices: variation and change in British accents*. London: Arnold.
- [17] Lawson, E. and Stuart-Smith, J. 1999. A sociophonetic investigation of the 'Scottish' consonants (/x/ and /ʌ/) in the speech of Glaswegian children. *Proceedings of the XIVth International Congress of Phonetic Sciences*.
- [18] Scobbie, J. M., Turk, A. E. and Hewlett, N. 1999. Morphemes, phonetics, and lexical items: The case of the Scottish vowel length rule. *Proceedings of the XIVth International Congress of Phonetic Sciences*.
- [19] Mackenzie Beck, J. M. 1988. *Organic Variation and Voice Quality*. PhD Dissertation, University of Edinburgh.
- [20] Wells, J. C. 1982. *Accents of English*. 3 vols. Cambridge, Cambridge University Press.
- [21] Henton, C. and Bladon, A. 1988. Creak as a sociophonetic marker. In Hyman, L. and Li, C. (eds), *Language, Speech and Mind*. London: Routledge, 3-29.
- [22] Henton, C. and Bladon, A. 1985. Breathiness in normal female speaker: inefficiency versus desirability. *Language and Communication*, 5, 221-7.
- [23] Johnston, P. 1983. Irregular style variation patterns in Edinburgh speech. *Scottish Language*, 2, 1-19.
- [24] Stuart-Smith, J. 1999. Glottals past and present: A study of T-glottalling in Glaswegian. *Leeds Studies in English*.