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Glottals Past and Present: a Study of T-glottalling in Glaswegian

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Abstract

Since the turn of the century the realisation of /t/ with a glottal stop (T-glottalling; Wells, 1982: 261) has been noted as a highly-stigmatised pronunciation of Glaswegian vernacular (e.g. Macafee, 1983). To date one sociolinguistic study has examined this linguistic variable in Glaswegian (Macaulay and Trevelyan, 1973; Macaulay, 1977) and found systematic sociolinguistic variation in T-glottalling particularly in certain phonetic contexts. Since Macaulay's Glasgow study, sociolinguistic patterns of T-glottalling (and glottalization) have been studied in increasing detail, particularly in British urban accents.

This paper presents the results of the first study on T-glottalling in Glaswegian since 1973. Informal conversations and read word-lists were digitally recorded from self-selected pairs of same-sex informants, from two distinct age groups, and from two areas of the city, broadly reflecting middle and working class differences. This methodology resulted in high quality recordings of relaxed conversational speech suitable for both auditory and fine-grained acoustic analysis of phonetic variants. Here quantitative and qualitative analysis of an initial auditory transcription of the sociolinguistic patterning of T-glottalling in the two speech styles is given, which reveals clear sociolinguistic stratification and sharp stylistic variation, as might be expected. The present work offers an opportunity for a real-time observation of change in T-glottalling in Glaswegian since 1973, although with the reservation that the two studies show necessary methodological differences. Cautious comparison with Macaulay's findings suggests that there may be evidence for a sound change in progress.

1. *Introduction*

Recent studies have revealed the rampant progress of the use of the glottal stop for /t/ ('T-glottalling'; Wells, 1982: 261) throughout accents of British English. However, while research has considered glottalling in a number British urban accents, it is now almost 25 years since glottalling in Glasgow – possibly the original home of the glottal stop – has been investigated. In this paper I report the first quantitative sociolinguistic study of T-glottalling in Glaswegian since that of Macaulay and Trevelyan in 1973.

I consider first T-glottalling in general and in Glaswegian speech in particular. I then outline the linguistic situation in urban Scotland, which is relevant for any sociolinguistic study of Glaswegian. I give the methodology of the study – data collection and analysis – and then present the results. First the broad quantitative results are given, and then a qualitative analysis, in terms of the phonetic patterning of glottalling in different phonetic environments across speakers. Both quantitative and qualitative differences in T-glottalling are apparent between working class and middle class speakers, and between younger and older speakers. The present data allows an opportunity for a real-time study of T-glottalling between 1973 and 1997. I conclude the paper with a cautious comparison of the results which suggests that there may be real-time evidence for sound change in progress.

1.1. *T-glottalling in accents of English*

Wells (1982: 261) adopts the term 'T-glottalling' to describe the linguistic phenomenon of the replacement of /t/ with a glottal stop. T-glottalling is found in several different phonetic environments. Relevant for this study, note:

> *prepausal*, _#: at the end of a word before a pause, either utterance or turn-final, e.g. ... *and that*
>
> *prevocalic*, _#V: at the end of a word, and before a following word which begins with a vowel, e.g. *a lot of*
>
> *intervocalic*, V_V: between vowels in the same word, e.g. *butter*
>
> *preconsonantal*, _#C: at the end of a word, and before a following word which begins with a consonant, e.g. *but that*

A well-known feature of Cockney English, T-glottalling is becoming increasingly common in RP, and even more so in other social and regional accents of English, particularly urban. Wells' statements have been confirmed for urban accents in a large number of studies including: Norwich – Trudgill (1988) (following 1974); Cardiff – Mees (1987); Milton Keynes – e.g. Kerswill and Williams (1994), and Hull – e.g. Kerswill and Williams (1997); Newcastle – e.g. Docherty *et al* (1997). T-glottalling tends to be associated with male working class speech, although not always. Note the preference for glottalling in females in Cardiff, Tyneside and Hull, all areas where T-glottalling is not a feature of the local vernacular.

T-glottalling is also very common throughout Scotland (Johnston, 1997: 500-01). Macaulay and Trevelyan's Labovian study of Glaswegian in 1973, referred to hereafter in Macaulay's revised and published version of 1977, included glottal stops for /t/ as the only consonantal variable. This was quickly followed by research into the speech of Edinburgh schoolchildren (Romaine, 1975; Reid, 1978). This work, summarised in Macaulay (1991: 31f.), together with other studies (for a review, see Macafee, 1997) has confirmed T-glottalling as particularly prevalent in working-class speech.

1.2. *T-glottalling in Glaswegian*

Glasgow has a special place in any discussion of T-glottalling in English. It is reputed to be the original source of the glottal stop in urban British English (e.g. Macafee, 1997: 528). Whether or not this derivation is correct, it is certainly the case that T-glottalling has been particularly noted as a highly-stigmatised feature of Glasgow vernacular speech since the nineteenth century. A letter of 1892 notes: 'Strangers hurl at us a sort of shibboleth such sentences as 'pass the wa'er bo"le, Mr Pa'erson' (in Macafee, 1994: 27, n. 20). The social stigma attached to T-glottalling is well illustrated in McAllister's tirade against 'this degenerate tendency in modern speech'; McAllister (1963: 71). Such attitudes were still rife when Macaulay carried out his work.

To date there is only one study of T-glottalling in Glaswegian. Macaulay (1977) considered the speech of 48 speakers, 16 10-year old children, 16 15-year old children, and 16 adults (parents). These informants were stratified into four social classes according to occupational category: I, IIa, IIb, III. T-glottalling was examined in two speech styles,[1] a relatively formal interview, and reading some sentences aloud. Sociolinguistic differences were clearest 'before a pause' (= prepausal) and 'before a vowel' (= prevocalic and intervocalic) (Macaulay, 1977: 45).

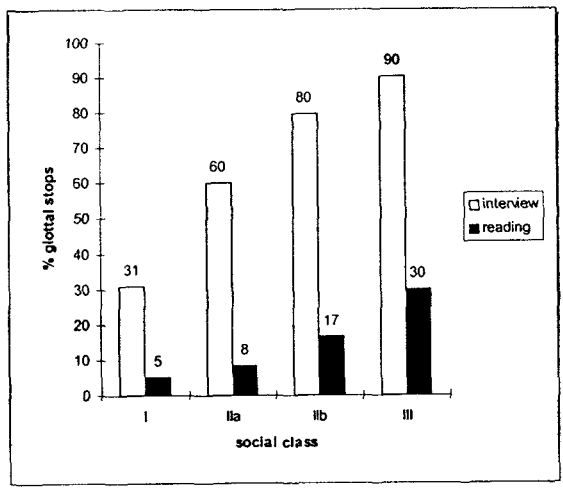

Figure 1

The results revealed clear sociolinguistic and stylistic variation; see Figure 1. Analysis of tokens 'before a vowel' into 'word-medial' (e.g. *water, started*) and 'word-final' (e.g. *that is*) showed that glottal stops were categorically absent in word-medial position for Class I adults. Younger speakers tended to use more glottals than older speakers, at least for Classes I, IIa and IIb. Differences of sex were most obvious in Class IIa and IIb informants, with males producing more glottal stops than females. The stigmatised nature of T-glottalling was confirmed by the results for reading aloud, which generally showed a shift to the prestige variant [t].

1.3. *The linguistic situation in Glasgow*

Macaulay's study, following Labov's early work, assumed that for each linguistic variable there was a continuous dimension of variation; the position of variation along the continuum would correlate with independent variables, such as social class, age, and sex. Sociolinguistic patterns would be apparent in terms of a linear increase (or decrease) in variation. Macaulay's quantitative results for T-glottalling could be used to argue for the existence of a sociolinguistic continuum for this variable in Glaswegian: higher social class informants used less glottal stops and lower class more. However another dimension may also be important when considering sociolinguistic variation in Glaswegian, the linguistic variety spoken by speakers of different class backgrounds in the city.

The linguistic situation in Glasgow is complex; for discussion, see Macafee

(1983, 1994, 1997). Nevertheless, for the purposes of description, it is possible to recognise the existence of two historically distinct language varieties: Scottish Standard English and Glasgow dialect. Like Scotland in general, Glasgow represents a 'traditional' dialect area, where a 'coherent alternative language variety' (Wells, 1982: 4) exists alongside the standard. Within Wells' framework for describing English accents, an accent in a traditional dialect area can be expected to show differences from the standard most clearly in lexical incidence, but also in terms of phonemic system, phonotactic structure, and allophonic realisation.

Scottish Standard English (SSE) – a variety of English similar to standard English English spoken with a Scottish accent (e.g. Aitken, 1979; Abercrombie, 1979) – is spoken by many middle class speakers. Glasgow dialect (or vernacular) is spoken by many working class speakers. Historically, this variety continues a variety of west Central Scots, with influence from Irish English, its own distinctive slang, and the results of continual dialect levelling towards SSE (Macafee, 1994: 26f.). There are generally very negative attitudes towards Glasgow dialect (e.g. Menzies, 1991), which has become identified with a large industrial city in decline and its associated social problems. The relationship between these varieties can be modelled as a linguistic continuum (after Aitken, e.g. 1979). In Glasgow and much of the urban Central Belt, working class speakers tend to style-drift up and down the Glasgow dialect (Scots)/SSE continuum according to sociolinguistic context.

Johnston (1983: 1), after Knowles (1978), points out that the range of variation in standard and vernacular varieties is not always organised along a linear continuum. Historically, the varieties of the middle and working classes in Glasgow are derived from two distinct, yet related sources. Macaulay's finding of variation in T-glottalling according to social background is entirely expected. Working class speech continues urban Scots, which has shown T-glottalling for at least a century. Middle class speech, typically SSE, has no recorded history of T-glottalling beyond what is assumed for other standard varieties of English. However, given that Glasgow is a traditional dialect area, continuing two once distinct linguistic systems, it is not impossible that while appearing quantitatively continuous, T-glottalling may in fact be qualitatively discrete for speakers of working and middle-class backgrounds respectively.

1.4. *Research questions for this study*

Macaulay's work was on Glaswegian speech collected over 25 years ago. This paper considers the results of T-glottalling in speech data recorded from a sample of Glaswegian speakers in 1997. There are three main research questions:

1. What is the sociolinguistic nature of T-glottalling in Glasgow now? Is there still sociolinguistic patterning in terms of class, age and gender, and how is this reflected quantitatively and qualitatively?
2. Are all glottals the same? Is there any evidence to suggest systemic differences in T-glottalling which correlate with social class and the Glasgow dialect/SSE distribution?

3. Can we identify differences in T-glottalling since 1973? Studies across Britain suggest an apparent increase in T-glottalling – do these real-time results support this for Glaswegian?

2. *Methodology*

This study of T-glottalling is variationist, carried out in the Labovian paradigm of quantitative sociolinguistics. While there have been a number of quantitative studies of Scottish English (see Macafee, 1997), there has also been discussion about the relevance of such methodology in the Scottish context (e.g. Macafee, 1994; 1997), particularly with concern about the focus on phonological variables, which are not always the most appropriate to capture sociolinguistic differences in Scottish speech (e.g. Macaulay, 1991). Johnston (1983) examined the validity of the Labovian approach in the Scottish context, with particular reference to stylistic variation. His data from Edinburgh showed some irregular patterns of stylistic variation, which he explained in terms of the salience of the variable for the speaker as of 'high', 'medium' or 'low' consciousness with respect to the dialect. Johnston's conclusion was not to abandon the Labovian approach, but rather to modify the predictions of the model so that data from traditional dialect areas could be accounted for. Note that in Johnston's data T-glottalling emerged as a 'high-consciousness' variable, in other words, a stereotypical feature of the dialect, overtly commented on by informants, which showed regular patterns of variation.

Variationist methodology is used because the primary object of study is a phonetic/phonological variable. Such a methodology is entirely appropriate provided that (a) the linguistic context of Glaswegian, and its potential effect on patterns of variation, is remembered; hence (b) quantitative analysis is used in conjunction with qualitative analysis; and (c) the claims made on the basis of the findings are recognised for what there are, namely the speech behaviour of a very small number of individuals, which can only be indicative, but not necessarily representative, of the city as a

whole.

2.1. *Data collection*

The data from which the results are drawn were collected as part of a wider study into Glaswegian, with particular emphasis on the analysis of phonetic and phonological variation and change in Glaswegian (see also Stuart-Smith, forthcoming). Following the interesting results of the ESRC-funded Phonological Variation and Change project on Newcastle and Derby English, our data were collected with a view to possible acoustic analysis, and a similar methodology was used.

The speech data for the study were collected in summer of 1997. They comprise a set of high-quality digital (DAT) recordings. 32 speakers were recorded in same-sex dyadic conversations of up to 45 minutes. They then read out a word-list. The conversational speech is for the most part relaxed and casual (the least casual speech is to be found amongst the adult middle-class speakers). The social profile of the speakers is given in Table 1.

Speakers	**adolescent (13-14)**	**adult (40 +)**
working class (male)	4	4
working class (female)	4	4
middle class (male)	4	4
middle class (female)	4	4
Criteria		
working class (inner city)	born/raised and resident in area	born/raised and resident in area
middle class (suburban)	born/raised and resident in area	resident in area at least 20 years

Table 1

The speakers were drawn from two areas of the Glaswegian conurbation, representing broadly urban working-class and suburban middle-class areas. These two areas were primarily selected by choosing two representative schools, using external educational and social criteria (percentage of exam passes; percentage of school leavers going on to further education; percentage of children receiving clothing grants). ('middle class' is roughly equivalent to Macaulay's Class I; 'working class' to his Class IIb and III; R. Macaulay, personal communication.) The adults were approached via existing social networks, such as the university, a local women's centre, a teacher training college, and a local church. Both adolescents and adults chose their conversational partner.

2.2. *Data analysis*

The discussion of T-glottalling in this paper is based on the auditory transcription of all potential sites for glottal stops in the conversations and wordlists. The transcription, which was cross-checked for reliability, was carried out by the author, and by two final-year students experienced in practical phonetics. The number of instances of /t/ transcribed in the conversations varied according to speaker (average number: 75). Variants of /t/ were transcribed in three phonetic environments: prepausal (e.g. *but #*); prevocalic (e.g. *a lot of*); and intervocalic (e.g. *water*). The wordlist offered examples for all three positions.

Following Macaulay (1991: 33), preconsonantal tokens were not transcribed, both because of the difficulty of perceiving a clear glottal stop before a following consonant (particularly alveolar) and because this environment was least informative in terms of social variation (Macaulay, 1977: 45). The wordlist recordings allowed relatively narrow transcription of variant pronunciations, the conversations less so, given the fast speech rate of some speakers.

Three main phonetic variants were identified auditorily:

– a released stop, often dental, transcribed [t]. Preglottalization of the type discussed in Wells (1982: 260-61) was observed in the wordlist data, but was more difficult to identify in the conversations. No distinction is made for the purposes of this paper.

– a glottal stop, transcribed [ʔ]. [ʔ] is assumed here to be the complete replacement of the oral articulation by glottal stop, although it is acknowledged that it is very difficult to ascertain with certainty complete lack of articulatory closure in all cases. Preliminary acoustic analysis of the wordlist tokens show that differing acoustic

patterns of glottal stops are present in this data (cf. Docherty and Foulkes, 1995).

– an alveolar tap, transcribed [ɾ]. A tap was found sporadically in a few speakers. As might be expected, it occurred regularly in imitations of American speech, e.g. the phrase *alrighty then* in two working class boys.

Two other variants occurred less often. One, which was difficult to distinguish from the tap, is described here as a 'voiced [t]': [t̬] (possibly [d]). This only occurred in prevocalic position, in the speech of two of the middle class men (in e.g. *got it, about a*) and in one working class girl (in *got it, about it*). Wells (1982: 326) reports a similar variant for London Cockney. The second variant was found in the speech of only one speaker, a middle class girl, and there only in prepausal position (e.g. ... *but#, .. and that#*). She showed complete deletion of the glottal stop, sometimes with breathy-voiced aspiration. This variant may be an idiosyncrasy, but it is noted here given the observation of a similar sounding [h] variant for /t/ in Irish English by Kallen (1998).

3. *T-glottalling in Glaswegian: quantitative results*

The quantitative results for T-glottalling in wordlists and conversations are presented in Table 2. In this and all figures descriptive statistics are presented which show only numbers of glottal stop variants, given as percentages for ease of comparison. The unequal numbers of variants in the wordlist and conversational data mean that these data are less suitable for parametric statistical tests. The non-parametric Mann Whitney U-Test (independent samples) was used to test for statistical significance of differences of data groupings ($p < 0.05$). The results are presented and compared briefly with previous findings; the implications of the results in terms of real-time changes since Macaulay's 1973 study are discussed in section 5 below.

3.1. *Social class and T-glottalling*

Working class speakers showed considerably more glottal stop variants than middle class speakers ($p = 0$) across both speech styles. This result was also found within each style (wordlists $p = 0.001$; conversations $p = 0$). The sharp divide in T-glottalling across social class is entirely in line with Macaulay and Trevelyan's results (1973: 61f.; cf. Figure 1), and also those of Edinburgh schoolchildren in Reid (1978: 166f.), as well as more generally in accents of English across Britain.

	Conversation			WordList		
	MC	**WC**	**Total**	**MC**	**WC**	**Total**
	% (n/N)	% (n/N)	% (n/N)	% (n/N)	% (n/N)	% (n/N)
adult female	45 (35/77)	92 (74/81)	69 (55/79)	0 (0/36)	8 (3/36)	5(2/36)
adult male	43 (34/81)	90 (67/74)	67 (51/78)	3 (1/36)	8 (3/36)	5 (2/36)
all adults	**44 (35/79)**	**91 (71/78)**	**68 (53/79)**	**3 (1/36)**	**8 (3/36)**	**5 (2/36)**
young female	81 (58/72)	99 (80/81)	90 (69/77)	5 (2/36)	84 (30/36)	45 (16/36)
young male	74 (57/78)	89 (45/51)	82 (51/65)	5 (2/36)	62 (22/36)	33 (12/36)
all young	**78 (58/75)**	**94 (62/66)**	**86 (60/70)**	**5 (2/36)**	**73 (26/36)**	**39 (14/36)**
Total	**61 (47/77)**	**93 (67/72)**	**76 (57/75)**	**5 (2/36)**	**41 (16/36)**	**23 (9/36)**

Table 2

3.2. *Gender and T-glottalling*

Perhaps surprisingly no quantitative gender differences were found, either overall, within the two speech styles, or within the social classes (see e.g. the results for the conversations, Table 2). At first sight this might seem at odds with Macaulay's results, where male speakers generally used more glottal stops than female speakers in both speech styles (Macaulay, 1977: 45, 47). However, a closer look at the earlier findings for interview style reveals that while gender differences were pronounced in Class IIa speakers, they were virtually non-existent for Class I and III speakers. Otherwise in 1973, marked gender differences for working class speakers were only found tentatively in the reading style, where male speakers (Class III men, and 15 year old boys from Class III and IIb) used more glottal stops (Macaulay, 1977: 52).

3.3. *Age and T-glottalling*

Overall, younger speakers tended to produce more glottal stops than older speakers ($p = 0.015$), although the pattern for the two speech styles was different for working class and middle class speakers (see Table 2). When reading the wordlists, the middle class children produced about the same, very low, percentage of glottal stops, as the middle class adults. The working class children, however, produced far more glottals than the working class adults ($p = 0.002$). The situation is reversed in the conversations. Here, the working class speakers of both age groups produce a very high percentage of glottal stop variants, but the middle class speakers vary, with younger middle class speakers producing far more glottal stops than older speakers ($p = 0.016$).

Macaulay also found that T-glottalling was more likely in younger speakers than older speakers. In his interviews age differences tended to be more pronounced in higher class speakers than lower class speakers; Class III speakers showed almost no age differences, with all speakers using very high percentages of glottal stops, as here. Reading aloud his results were slightly different. 15 year-olds from Classes III and IIb did show considerably more glottal stops, but this was restricted to boys; Class III men also showed a similarly high degree of T-glottalling.

3.4. *Style and T-glottalling*

A comparison of T-glottalling across all speakers shows a marked difference between casual conversation and reading aloud the wordlist ($p = 0$), with far more glottal stops produced in the conversations. This difference persists within both working and middle class speakers ($p = 0$), although working class speakers show a greater tendency for glottalling when reading the wordlist than middle class speakers ($p = 0.001$). The reason for this lies in the high degree of glottalling by younger working class speakers in the wordlists. The results are generally similar to the tentative findings for style shifting in Macaulay (1977: 52f.); see also Reid (1978), and elsewhere in Britain (e.g. Trudgill, 1988).

4. *T-glottalling in Glaswegian: qualitative analysis*

The quantitative analysis of T-glottalling in the 1997 data revealed sharp differences according to social class and age. These results are in general in line with Macaulay's earlier results, reflecting a sociolinguistic continuum, with increase in social class correlating with decreasing numbers of glottal stops (and vice versa).

However these numbers did not reflect my intuitive feelings about the patterning of T-glottalling. It seemed to me that there was a definite systematicity in the distribution of T-glottalling according to phonetic environment which correlated with age and social class.

In order to investigate this, a qualitative analysis of the patterning of glottal stops according to phonetic environment was carried out for the conversational data. Most studies of T-glottalling in accents of English have assumed that phonetic environment is potentially important, and have considered the relative frequency of glottalling in different environments, sometimes with reference to social class.

The relative frequency of glottal stops according to phonetic environment across all speakers in the 1997 conversational data for Glasgow was compared with results from four other Scottish studies (Romaine, 1975; Reid, 1978; Macaulay, 1977; summarised in Macaulay, 1991: 31f.); see Table 3.

Researcher	**Macaulay**	**Romaine**	**Reid**	**Macaulay**	**Stuart-Smith**
Location	**Glasgow**	**Edinburgh**	**Edinburgh**	**Ayr**	**Glasgow**
most frequent	(#C)	#V	(#C)		
↑	#V	##	##	##	##
↓	##	(#C)	#V	#V	#V
least frequent	V__V	V__V	V__V	V__V	V__V

Table 3

The new Glasgow data agree in showing glottal stops to be least likely in intervocalic position. The ranking of the other positions is most like that found in Edinburgh schoolchildren by Reid, and Ayr adults by Macaulay. (Romaine's results seem unusual; Macaulay, 1991: 32.) The ranking does not, however, agree with that of the earlier Glasgow study. Macaulay's finding that glottals are less likely in prepausal than prevocalic position may perhaps be explained by the formality of the

discourse and by the relative position of the tokens in the overall discourse structure. The spontaneous speech in the current study was generally casual. Macaulay's data were from interviews which elicited 'careful, rather formal speech' (p. 21). Moreover, in Tyneside speech it emerged that glottalling is very rare turn-finally (Docherty et al, 1997). Macaulay's 'prepausal' position includes utterance-final and turn-final tokens. It is just possible that a similar process was operating in Macaulay's sample of Glaswegian, perhaps provoked by the format and formality of the interview.

4.1. *Phonetic patterning: older speakers*

The most illuminating analysis of the 1997 data was found when the phonetic patterning of T-glottalling was examined with respect to social class and age. The average number of glottal stops in each of the three phonetic environments is shown for older working class and middle class speakers in Figure 2a.

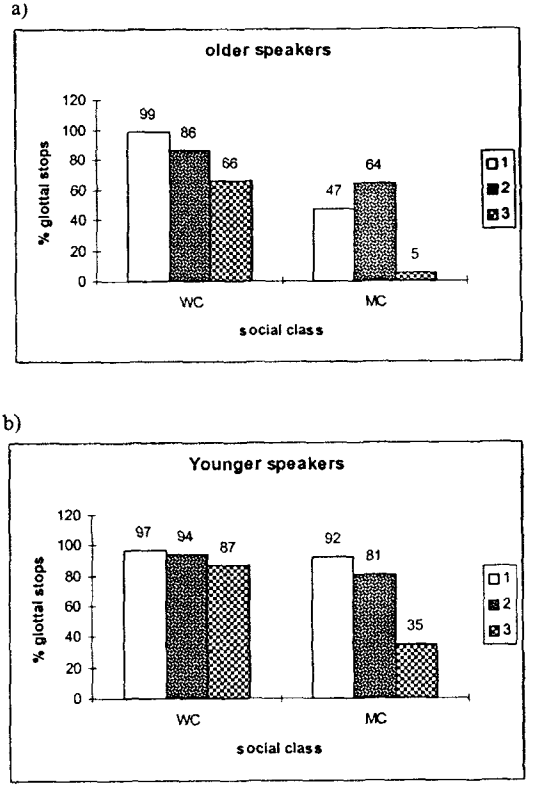

Figure 2

The bar chart clearly shows a difference in patterning according to phonetic environment in working class and middle class speakers. When all instances of exceptions to T-glottalling were examined, a set of descriptive rules to describe T-glottalling emerged for each social class; see Table 4.

Social Class	**Phonetic environment**		
	(1) Prepausal (_#)	**(2) prevocalic (_#V)**	**(3) intervocalic (V_V)**
working class	obligatory	usually ([t] e.g. *put it; at all*)	usually ([t] style-drifting)
middle class	optional	optional	rarely

Table 4

T-glottalling is very usual for working class speakers. Prepausally there was only one exception, which might be described as emphatic. The woman concerned was listening to her conversational partner, but began to sound slightly impatient; eventually she broke in with *'Righ[t]'* with a released stop. Prevocalically the majority of exceptions to glottal stops fell into two categories. One was when /t/ was first in a sequence of two, in e.g. *put it, get it*. Glottalling seems to be avoided in this environment in many accents of English (see e.g. Trudgill, 1974: 174-75), not only in Scottish English (e.g. Macaulay, 1991: 35-36). The stop may also be preserved by a particularly Scottish tendency to resyllabify the sequence into one where the first /t/ begins the next syllable, e.g. /gɛ'tɪt/. This prosodic tendency to make a final consonant begin the following syllable, if this begins in a vowel, accounts for the second group of exceptions, such as *at all* /a'tal/ (cf. Abercrombie, 1979: 68; Macaulay, 1991: 35).

The use of glottal stops was also common intervocalically. In some speakers at

least, [t] in this position was clearly linked to style-shifting. The usual pattern was for speakers to begin using [t], perhaps because of a conscious attempt to use 'better' speech. One woman begins with *be[t]er, la[t]er* but about halfway through the conversation switches to forms with glottals. Instances of [t] are found mostly in past participles in *-ed* to stems ending in /t/, e.g. *shouted*, or in what Reid (1978: 162) calls more 'learned' words, e.g. *hospital, university*. The most striking instance of this style-shifting was in the speech of one of the working class men. He used [t] intervocalically categorically during his conversation until he began to talk about the rats that used to come out at nightfall where he lived as a boy. At this point he switched to glottals – and only used [t] subsequently for expected exceptions (*voted, nominated*).

For middle class speakers [t] is the norm in intervocalic position, even in quite casual speech. While some of the exceptions to glottalling in prevocalic position matched those of working class speakers, in e.g. sequences such as *put it, but on*, overall the use of [t] was much more difficult to explain. It would seem that glottal stops could be used prepausally and prevocalically, but [t] was also an equal possibility. Note that for these speakers alone prepausal glottal stops were less frequent than prevocalic ones, possibly due to a higher incidence of released stops turn-finally (though this is yet to be investigated).

There is an important point to note about style-shifting and T-glottalling with respect to the older speakers. When a working class speaker shifted to a more formal style, [t] was only inserted intervocalically, but not prepausally or prevocalically. In particular, the glottal stop was always maintained in prepausal position. A view of T-glottalling for working class and middle class speakers as a linguistic variable on the same sociolinguistic continuum might predict that working class speakers would 'improve' their speech by adding [t] across the board. However, this does not occur. [t] is only added intervocalically – in the most stigmatized position. This means that working class speakers show a different patterning of glottal stops even when style-shifting up, since the resulting pattern does not reflect that of a middle class speaker.

4.2. *Phonetic patterning: Younger speakers*

A similar analysis was carried out for younger speakers, and the results are presented in Figure 2b, and schematically in Table 5.

The pattern of T-glottalling in working class children seems to reflect an extreme form of the pattern found in working class adults. Here T-glottalling can only be described as obligatory in all positions. It is possible to explain every exception to glottalling (i.e. instance of [t]) in much the same way as for adult speech: [t] occurs as

the result of emphasis, prosody, and style-shifting.

Social Class	Phonetic environment		
	(1) Prepausal (_#)	**(2) prevocalic (_#V)**	**(3) intervocalic (V_V)**
working class	obligatory	obligatory ([t] emphatic)	obligatory ([t] style-drifting)
middle class	very likely	likely	rarely

Table 5

In prepausal position there were only two instances of [t], both emphatic. The first occurred when one of the boys wanted to change topic:

> *R: Shut up you wee shite. Just cos you're right into Mrs X's [= teacher] gear.*
> *L: shh. (pause) Righ[t] Who do you think is the nicest teacher in this school? ...*

The second was in the second of the boys' interviews, when one of the pair broke the clip-on microphone from its clip, with an emphatic *'Shi[t]'*. (This was followed by his friend reassuring him: *'Just say it fell off and broke'*!) Prevocalically, exceptions to glottalling were rare, but again explicable, either occurring (often emphatically) in 'two /t/' sequences, e.g. *at it, doubt it*, or in emphatic sequences where resyllabification might be expected, e.g. *Shu[t] up, cut i[t] off!* (horrified suspicion of what another girl had done to her pet gerbil's tail – in fact she had put it in antiseptic). Use of [t] intervocalically was limited to either *-ed* past participles, e.g. *shouted, related*, or to obvious instances of style-shifting. A bottle of spring water was left in

the room as refreshment, and reading of the label resulted in *Strathmore Carbona[t]ed Spring wa[t]er.* A polite admonishment from one boy to another was *You'd be[t]er behave yourself.* Once the microphone had been separated from its clip, the boys became a pair of stage commentators for the listener, e.g. *and now we're going to fuck abou[t] with the compu[t]er.* This speech style involved an extended intonation and more frequent use of [t] intervocalically. This is reminiscent of the mimicry reported in Edinburgh boys by Reid (1978: 165), when the number of glottal stops reduced dramatically during 'commentator' speech.

Middle class children also showed a similar pattern to that found in middle class adults. Even in casual conversation intervocalic glottalling was rare. Prevocalically and prepausally glottals were much more common, but released stops were also possible, and could not be explained away as easily as for the working class children. It is difficult to assume that T-glottalling is obligatory for middle class children in the same way as for working class children. The potential difference between T-glottalling in the two groups is highlighted by a subgroup of three middle class children (two boys and one girl) who showed high percentages of glottals, equalling working class scores. They also seemed to show a similar patterning to the working class glottalling, although with the difference that the exceptional instances of [t] could not all be explained. This finding is somewhat similar to that found in the style-shifting of working class adults. When young middle class speakers use a lot of glottal stops, perhaps to 'lower' their speech, they do not just add glottals across the board, they seem to try to move towards the working class pattern.

4.3. *Phonetic patterning: Summary*

This qualitative analysis of T-glottalling suggests that, in answer to the second research question posed in 1.4, not all glottals are the same. Linguistic attempts to shift socially up and down do not involve simply increasing or decreasing the number of glottal stops used, as might be the impression from former studies of T-glottalling in Scottish English. Rather, the results here seem to suggest that the allophonic patterning of T-glottalling for working class and middle class speakers is systematically different for the two groups. Movement up or down sociolinguistically seems to involve a systematic shift: middle class children moving 'down' approximate the working class pattern, but are not entirely successful, continuing traces of their middle class pattern in the unexceptional use of [t]; working class adults trying to move 'up' approximate their middle class peers in intervocalic position, but again retain their working class pattern in the categorical use of glottals prepausally.

Thus even the humble glottal stop may continue a systematic patterning which

reflects the Scots or English heritage of the speaker. Working class Glasgow dialect (Scots) speakers show a systematic allophonic pattern in T-glottalling, which is being maintained by younger speakers. The SSE-based system of middle class speakers shows a different patterning, which is stable for adults, but which is moving towards the working class, Scots-based, system for some younger speakers. The effects of increased glottalling in non-standard English English varieties on Scottish English is difficult to ascertain, although not to be completely discounted, given the recent findings of e.g. /f/ for /θ/ in these same (working class) children (Stuart-Smith, forthcoming). It would be interesting to see whether further research on English English T-glottalling also revealed qualitative as well as quantitative difference in glottals.

These findings seem to me to confirm the Labovian approach in the Scottish context. If quantitative analysis is informed by qualitative discussion, even phonetic and phonological variables can be useful in characterising salient, if subtle, sociolinguistic differences. Perhaps it is not which variables are chosen as the subject of analysis, but how they are analysed which may be important.

5. *Glottals past and present: A real-time change in Glaswegian?*

The existence of the two studies into T-glottalling from 1973 and 1997 would seem to present a good opportunity for the observation of any potential real-time changes in this linguistic feature. However, such a comparison must be made with care. The difficulty of real-time studies is discussed, among others, by Trudgill (1988); see also Labov (1994: 72f.). Obviously the clearest obstacle in comparing the Glaswegian data directly is the different methodology adopted for each project. These are different in a number of respects including (in no particular order): background and gender of fieldworker; numbers of participants; regional location of participants (R. Macaulay, personal communication); assignment of social class; reading stimuli; spontaneous speech situation (interview v. conversation alone); number of variants transcribed. The 1997 data collection was not designed as a restudy of 1973, but in order to obtain high quality speech data appropriate for the analysis (also acoustic) of phonetic and phonological variation.

The differences between these two studies make direct quantitative comparison inadvisable. However, cautious indirect comparison is possible. In terms of social class, Macaulay's Class I can be compared with 'middle class', and Class IIb and III with 'working class'. The adolescents of this study were aged 13-14 years, and so are

roughly comparable with Macaulay's 15 year-old group. Accordingly the figures from both studies were calculated and compared visually; see Figure 3.

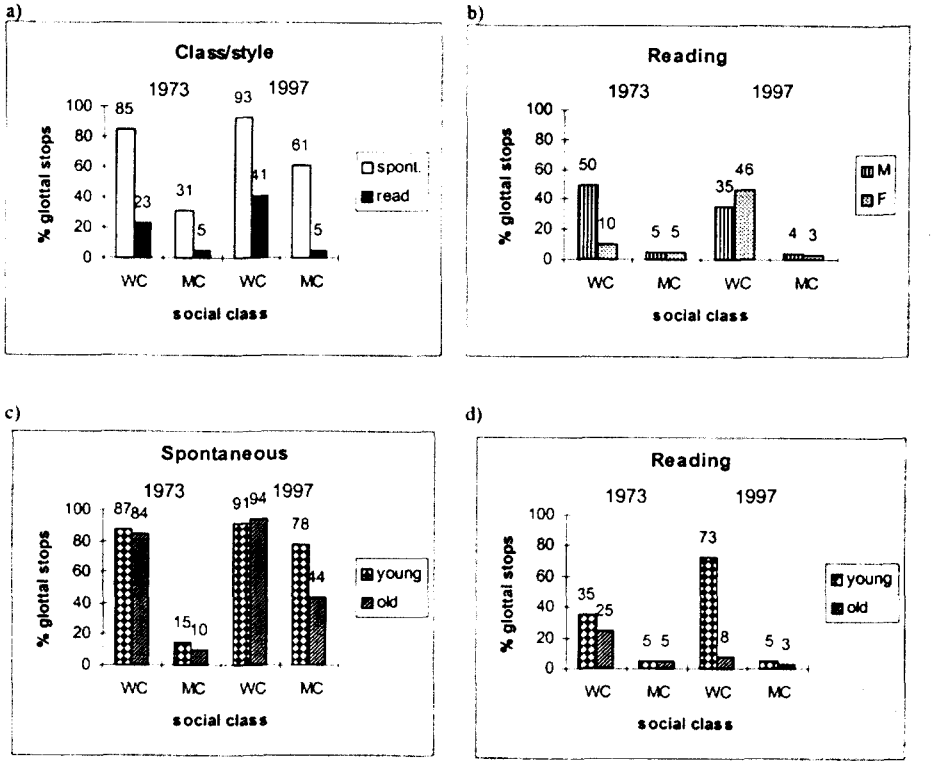

Figure 3

In both 1973 and 1997 far more glottal stops are produced in spontaneous speech than read speech across both social classes (Figure 3a). The only difference is for middle class speakers, who show more glottals in spontaneous speech in 1997 than in 1973. This may be an artefact of the difference between the type of spontaneous speech recorded - interviews in 1973, and unobserved conservations in 1997; note that the working class too show slightly more glottal stops in 1997. Alternatively this may reflect a true change of middle class speakers using more glottals. Such an interpretation would be consistent with Wells' observations for RP (Wells, 1982: 261).

Gender differences overall were not found in the 1997 data, nor in the

spontaneous speech in 1973 (for the comparable classes). There is however a difference in the read speech; see Figure 3b. In 1973 working class male speakers used more glottal stops than female speakers. In 1997 there is no longer a difference (statistically) between male and female working class speech. This is partly caused by working class men in 1997 using far fewer glottals than they did in 1973, but also by working class girls using far more (old WC males 1973: 40% ~ 1997: 8%; young WC females 1973: 10% ~ 1997: 84%). It seems unlikely that working class men have increased their use of [t] since 1973. Perhaps an aspect of the data collection is to blame, such as the gender of the fieldworker, male in 1973 but female in 1997. A young female fieldworker might also account for the increased glottalling in young working class girls. Alternatively, this may reflect an actual change in progress. If so, it would show a female preference for T-glottalling in an area where glottals are a well-established feature of the vernacular.

Perhaps the most striking differences between the 1973 and 1997 data occur when age and class are considered; see Figures 3c and d. In spontaneous speech in 1973 both age groups show a similar number of glottal stops across the social classes. In 1997 there seems to be a marked increase in the number of glottal stops in young middle class speakers. While this increase could be caused by methodological differences in the two studies, it is more difficult to isolate a particular reason. This may reflect a real increase in T-glottalling in young middle class speakers, but only in spontaneous speech. When reading aloud, young middle class speakers show similarly low numbers of glottals to adults, suggesting that for these speakers T-glottalling continues to be a strongly stigmatized.

However, this may no longer be the case for young working class speakers, who show a marked increase in T-glottalling in read speech in 1997; Figure 3d. However, the majority of the children did shift with respect to another stereotypical Glasgow dialect feature, the vowel of *house*, typically /u/ in the vernacular but /ʌu/ in SSE. It is possible that vernacular /u/ could only be elicited through an overt spelling such as *hoose*. Alternatively, the presence of /ʌu/ might suggest that reading the wordlist was exerting some form of pressure to shift linguistically, but in such a way that T-glottalling is no longer excluded as stigmatized. This finding is similar to Trudgill's results for Norwich, where younger speakers in 1983 showed a dramatic increase in glottalling in formal styles (Trudgill, 1988: 44-45).

6. *Concluding Remarks*

T-glottalling continues to be a vigorous feature of Glaswegian speech. The quantitative analysis of the socially-stratified speech data collected in 1997 reveals differences in T-glottalling according to social class and age, but not gender, with working class and younger speakers using more glottal stops. Qualitative analysis suggests that numerical differences in glottalling between social classes are not simply incremental along a continuum, but reflect two distinct types of allophonic patterning, possibly reflecting the Scots/Scottish Standard English linguistic heritage of working and middle class speakers respectively. The apparent time-change results suggest an increase in glottalling in younger speakers. Real-time change can be glimpsed by a necessarily cautious comparison of the 1997 results with those of Macaulay and Trevelyan's 1973 study. It appears that certain changes may be in progress, all in terms of an increase in T-glottalling: middle class speakers in general seem to be using more glottal stops; young working class girls now equal glottalling of their male peers. Perhaps the apparent time-change does reflect actual change: the real-time comparison shows younger speakers using more glottals, although differently according to class. Middle class children are T-glottalling more, but only in spontaneous speech: read speech still inhibits glottals. Not so for young working class speakers, who show a high degree of glottal stops even in read speech, perhaps reflecting that for these speakers at least the glottal stop is no longer the object of stigma it once used to be.

NOTES

[1] I use the term 'style' with reservation here, as indeed does Macaulay himself (R. Macaulay: personal communication; forthcoming). While I use 'style' in this paper to refer to differences in conversational and read speech (following e.g. Trudgill 1974), I acknowledge that these differences do not simply result from 'formality', but may also be due to other factors, such as differences in linguistic activity or the influence of the written standard.

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