Ongoing change in modern RP

Evidence for the disappearing stigma of t-glottalling[*]

Anne Fabricius
Roskilde University

1. Introduction

The present study is a sociolinguistic examination of *t*-glottalling, the pronunciation of syllable-final /t/ as glottal stop [ʔ], in the British English sociolect known as RP or Received Pronunciation (also known under other names such as "The Queen's English" or "BBC English"). This accent variety, like every other variety of living language around the world, is subject to variation and change, a truism which is sometimes forgotten in lay discussions of RP. Because the accent has a special and somewhat peculiar place among accents of English, it is sometimes implicitly treated as though normal sociolinguistic processes somehow pass by speakers of RP. This occasionally leads to claims in the media that "no-one speaks RP anymore".[1] This arises because RP is in fact an ambiguous term, and most lay usages do not make this clear. In the present paper the

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[1]. See e.g. John Morrish, "The accent that dare not speak its name". *Independent on Sunday*, 21 March 1999. http://www.phon.ucl.ac.uk/home/estuary/morrish.htm

ambiguity is resolved using a distinction between "native-RP" (n-RP) and "construct-RP" (c-RP).[2] The former is an object for sociolinguistic observation, whereas the latter is an idealised construct involving the notion of "norms". Change in RP is thus conceived of as two related, but separate, processes: change in n-RP or change in c-RP. The former is change in speech/pronunciation over time, the latter change in language norms or notions of correctness over time.

The main focus of this paper is on variation and change in n-RP, treating RP as a sociolinguistically interesting accent variety. Sociolinguistic studies of elite varieties are rare, Kroch's (1995) study of the speech of the upper class of Philadelphia standing hitherto almost alone in the literature. The present study is an examination of *t*-glottalling as one of the new and variable forms within the variety that linguists (e.g. Trudgill 2001) now call "modern RP". It reports the results of an empirical study of ex-public school students interviewed at Cambridge University in 1997 and 1998. This study used a Labovian sociolinguistic theoretical framework and quantitative methodology to explore the question of whether *t*-glottalling in the speech of young RP speakers showed signs of becoming an accepted "standard" feature. By examining quantitative *t*-glottalling usage in conversational and reading passage data according to various social factors, the analysis presents evidence of patterns of usage and evaluation suggesting that the previously stigmatised, vernacular and regional status of *t*-glottalling is currently disappearing in Britain.

2. Current changes in RP

There are two relevant processes currently affecting the "place" of RP within the British speech community. Firstly, Southern British English regional varieties are undergoing accent levelling towards a pan-Southern non-standard norm (Kerswill and Williams 1994, 2000; Williams and Kerswill 1999), which means that previously distinct non-standard varieties are becoming more alike in certain consonantal features and in their vowel systems. The number of speakers of these levelled varieties is considerable, and with increased social and personal mobility, the contacts between such speakers and RP speakers are also considerable. The concomitant of this is that RP is being affected by this levelled

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2.   My naming of this distinction evolved from discussions with John Wells in 1997.

variety of speech. Wells (1982,1: 104) predicted this when he wrote: "Mainstream RP is now the subject of imminent invasion by trends spreading from working-class urban speech, particularly that of London." Recent research (Harrington, Palethorpe and Watson 2000) into the changing forms of the pronunciation of certain vowels by H. M. the Queen in her Christmas messages between the 1950s and 1980s shows even this member of the Royal Family to be no sociolinguistic isolate. The forms and norms of RP inevitably drift, and as RP is influenced by the Southern British speech community (Nolan and Kerswill 1990), vernacular forms coming from London will be influential. As Trudgill (2001) also points out, "RP itself … has acquired — as it always has over the generations — forms that before were part of local, notably southeast of England accents".

Secondly, it seems that in Britain attitudes towards a "posh" accent (one of the folk linguistic terms for RP) have changed and are changing. RP is no longer necessarily an accent to which non-RP speakers aspire (Trudgill 2001). Stereotyped negative social qualities such as unfriendliness, aloofness or arrogance have been shown to be associated with an RP voice (as revealed in matched guise studies in Britain; for a summary see Giles *et al.* 1990). The use of (U) RP (the term is from Wells 1982: 280–83) accents for villains in recent Disney films such as *The Lion King* and *Tarzan* is evidence of the strength of these negative associations, as well as their accessibility for American and British audiences alike (for an in-depth analysis of English accents and dialects used in Disney feature films, see Lippi-Green 1997: 85–101). Alongside this, some commentators report that community conceptions of accent "correctness" and the extent to which correctness matters are probably changing in that younger speakers are reported to be somewhat less sympathetic to accent prejudice than their forebears (Lewis 1985: 255; Cruttenden 1994: 81).

3.   Received Pronunciation, n-RP and c-RP

"Received Pronunciation" is perhaps the most well known name for a specific form of British English pronunciation. The term dates back to the work of Alexander J. Ellis (1869–89: 23), who defined it as a distinctive and socially acceptable form of pronunciation current in professional and royal circles, especially in London. Daniel Jones (the first Professor of Phonetics at University College London) adopted the term for the third edition of his *English Pronouncing Dictionary* (Jones 1926).

The concept remains in use in linguistic descriptions of British English (although it also has its critics), and it is the subject of lengthy analysis in works such as Wells (1982), Cruttenden (1994), and Lewis (1985); for extensive discussion see Fabricius (2000: 27–36). Interestingly, "Received Pronunciation" presently seems to be becoming more well known; the term is becoming more frequent on BBC radio chat programmes, e.g. on BBC4 and the World Service (B. Collins, p.c.), as well as in newspapers. Some of the interviewees in the present study also spontaneously mentioned "Received Pronunciation" and "RP".

Other terms used in academic descriptions include "General British" (Lewis 1972), and "Southern British Standard" (Wells and Colson 1971: 6). It is also usually described as having several varieties: a neutral variety called "mainstream RP" or "General RP", an upper-class "U-RP" or "Refined RP", as well as a variety known as "near-RP" or "Regional RP" exhibiting localisable features to some extent.

The status of "regionalisms" or regionally identifiable features continually provides a problem for discussions of RP. Cruttenden acknowledges this when he writes that "[s]ome phoneticians, on the basis that part of the definition of RP is that it should not tell you where someone comes from, would regard 'Regional RP' as a contradiction in terms" (1994: 80). Cruttenden identifies Regional RP with "Estuary English", which Wells (1998) defines as "standard English spoken with an accent that includes features localizable in the southeast of England", a formulation which "… highlights the two chief points: that it is standard [i.e. uses Standard Grammar] (unlike Cockney) and that it is localized in the southeast (unlike RP)" (Wells 1999a).

It is important to note that the term Received Pronunciation is often used ambiguously. It refers to a codified norm which we have called c-RP (construct RP), the normative pronunciation described in dictionaries, especially pronunciation dictionaries, such as Jones' *English Pronouncing Dictionary*, now in its fifteenth edition (Roach and Hartman 1997), the *Longman Pronunciation Dictionary* (Wells 2000 [1990]) as well as Lewis (1972) . In addition, the term refers to the accent variety n-RP (native RP), an accent used by those who acquire it as native speakers, a group of people who have grown up within Great Britain. The former has specific applications where a standardised, non-variable pronunciation is required, most likely in situations such as certain broadcasting genres and EFL teaching, while the latter exhibits the variation expected of all human speech. As such, n-RP, like any other language variety is a potential object of sociolinguistic study. The consequence of this distinction between n-RP and c-RP is that we can no longer talk about change in RP: either it is

change in n-RP we are concerned with, or change in c-RP. The two processes are related, but separate. The former is change in language form over time, the latter change in language evaluation or attitude over time. The former is an object for sociolinguistic observation in the classic Labovian sense, the latter may also be explored, but other means are necessary (see e.g. Wells' 1999b study of pronunciation preferences as one example). Successive waves of change in the forms of n-RP gradually become part of c-RP.

4.   *T*-glottalling: An empirical study

T-glottalling is generally recognised as having its origins in regional varieties of English in Scotland and the Southeast of England, especially London (see Wells 1982,1: 261; Andrésen 1968: 18). This feature has rapidly spread to regional varieties in many parts of Britain. The recent spread of *t*-glottalling in many parts of Britain is documented in many studies in Foulkes and Docherty (1999), where the editors also note that "[g]lottal(ised) forms of voiceless stops … have become so ubiquitous as to generate regular (and almost always unfavourable) comment in the media" (1999: 11).[3] Sociolinguistic data from many parts of Britain reveals *t*-glottalling to be used by at least some groups of speakers, although phonological constraints (such as whether or not *t*-glottalling occurs word-internally in words like *butter*) and age and social class profiles vary widely across the different areas. This variation is to be expected, since *t*-glottalling remains an as-yet-incomplete change in progress.

    In addition, *t*-glottalling has for some time been posited as a new feature within RP. Wells (1997: 19, 21), for instance describes *t*-glottalling in RP as an innovation with two distinct stages. Its first stage, *t*-glottalling before a following obstruent or sonorant consonant across a syllable or word boundary, appeared in the mid-twentieth century. The second stage of *t*-glottalling extended the phenomenon to word-final position before vowel or pause, and this stage is dated to the late twentieth century. In terms of current usage then, Wells suggests that all word-final environments can show *t*-glottalling, while word-internal environments are divided between those which are part of RP and those which are not. Glottalling in certain word-internal syllable-final

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3.   Foulkes and Docherty here make no distinction between word-final t-glottalling (*not only*, *quite soon*) and word internal t-glottalling (*butter*, *bottle*). Only the former is considered in the present study.

environments is accepted as being RP (*football*, *Gatwick*), while *t*-glottalling intervocalically (as in *water*) and before syllabic /l/ (as in *bottle*) remains outside RP. One point of interest for the present study was to evaluate to what extent usage studied quantitatively reflected this historical spread of *t*-glottalling.

The data analysed for the empirical study (Fabricius 2000) consisted of tape-recorded dyadic interviews between the author and a group of university students with public and independent school backgrounds recorded at the Department of Linguistics, Cambridge University, in 1997. The majority of interviewees were contacted through advertising in college common rooms and subsequent e-mail or telephone contact, while some speakers were contacted using a previous interviewee's social network.

The aim was to interview speakers from both the North and South of England, however, the male speakers in the sample were primarily from London and the Home Counties.[4] This enables us to make clear generalisations over this region, while more investigation is needed on male speakers from the approximately 43% of independent secondary schools which are located outside the Southeastern area. The Southeast is over-represented in the sample, as it provides 75% of the 24 speakers, while only approximately 57% of independent secondary schools are within this area (figures obtained from http://www.isis.org.uk).

The conversational interviews followed a standard procedure, progressing from initial questions on factual data to questions about school reminiscences, experience of university, studies and plans for the future. Speakers were also asked about their knowledge of foreign languages, their "speech upbringing" such as correction by parents, as well as their experience of public speaking, acting, debating, elocution or other language-related activities. This was followed by questions about attitudes to accent and how accent relates to job prospects. This part of the interview varied in length, according to how willing the speaker was to relax and "chat" for extended periods of time. A few interview segments were around 25 minutes, while most on average lasted 45–50 minutes.

The interviewees were then asked to read a passage aloud (an adapted section of Chapter 3 of *Room with a View* by E. M. Forster). The 1998 interviews furthermore included an extra reading passage and short sentences (see Fabricius 2000: 155–7). The interviews concluded with a discrimination test in

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4.   The Home Counties: Kent, Surrey, East Sussex, West Sussex, Hampshire, Berkshire, Buckinghamshire, Bedfordshire, Hertfordshire, and Essex.

which speakers were asked to make judgements between two differing pronunciations of /t/ in short sentence items designed to present word-final /t/ in different phonetic environments (see further below).

During two periods of fieldwork in Cambridge (October 1997 and October 1998), a corpus of 46 interviews was obtained; in addition, one expatriate British speaker was interviewed in Copenhagen as part of a pilot study. 47 interviews in total formed the corpus from which the sample used in the present project was drawn. Eight of these interviews were with speakers older than 35, but these were disregarded because of their small number. From the 39 remaining interviews, a judgment sample was gathered on the basis of certain criteria. The aim was that the sample should be equally divided between male and female speakers, and large enough to enable statistical analysis. A group of 24 speakers was seen as a suitable sample size balancing practical limitations and statistical requirements of representativeness. The following table shows how the sample of 24 is related to the corpus of 47 interviews.

Table 1. Selection of the judgement sample

	Male		Female	
	Independent School	Comprehensive/ Grammar School	Independent School	Comprehensive/ Grammar School
Not used:				
Older speakers (8)	4	0	4	0
Younger speakers (15)	7	3	3	2
Used:				
Judgment sample (24)	12	0	11	1

The chosen speakers had all attended independent schools, bar speaker F4, who attended a comprehensive school (after attending an independent primary school). She was included because her family, although living in the Midlands (where the speaker grew up), had a southern public school background (her father had boarded at preparatory and public school from the age of seven).

In order to group the speakers according to social class, parental occupation was located on the Cambridge Scale (Prandy 1992; Rose 1995; for details see Fabricius 2000: 77–8). Cambridge Scale scores span from 0 to 85. The highest-ranking parental occupation was used to determine a speaker's score. The only speaker who scored below 60 was F9. Her father was an "officer in the armed forces", which is a single category in the Cambridge Scale with a score of 57.

Had the Cambridge Scale contained categories for different ranks, the score would probably have been on or above 60 (her father was a Wing Commander in the Royal Air Force). Strictly on the basis of the Cambridge scale, she was slightly outside this group, but she matched the educational criterion, having attended an independent girls' school.

While social class and educational criteria were important for the present study, linguistic criteria were also crucial. A phonemic definition of mainstream RP was used as a linguistic check on the speakers chosen according to social and educational background. In order to provide independent confirmation of my judgments of these speakers as representative of young people's RP speech, three professional phoneticians were asked to listen to a sample reading passage tape and provide assessments of the localisability of the speech recording. One judge listened to the tapes on two separate occasions.

While there was inter-speaker variation, with some informants showing more conservative RP features, and others showing newer features, the judges agreed that overall, clear regional affiliations were difficult to assign. Four of the twenty-four speakers were identified by some but not all judges as having minor regionally-specific features. These were M5, M8, F4, and F9. The two male speakers were judged to have London features (only M8 is a Londoner). The female speakers were identified as being "a little Northern or North-western". F4 has grown up in the Midlands. However, her speech was also judged as "inconspicuous RP" by two of the four assessments (from two different judges), so the regional affiliation was not obvious to all. F9 has by contrast lived mainly in the South-West of Britain, not the North. Not all judges made consistent and accurate regional identifications for these four individuals, and so for the purposes of the present study the group was deemed overall to be representative of non-localisable speakers.

The analysis presented here encompasses two parts of each speaker's tape. The first part is the initial interview under one stylistic rubric which I will refer to as "interview style". The second part is the reading passage 1, here referred to as "reading passage style". A second reading passage and word lists included in the interviews were not used in the present study.

The twenty-four chosen interview tapes were transcribed orthographically in full using a Sony Dictaphone transcriber, model BM89T, with accompanying headphones. The tape was then listened to again, and each instance of word-final /t/ following a vowel was identified and transcribed as one of the possible variants for that particular position. The chosen "envelope of variation" was variation in pronunciation of word-final /t/, immediately preceded by a vowel,

and followed by vowel, consonant or pause. The coding followed a standard form to enable a computer-based counting procedure.

The data collected in October 1997 was initially analysed during January/February 1998. The data collected in October 1998 was analysed in the period January to April 1999. In May 1999, all 24 tapes were analysed again. After a pause of several weeks, the 24 tapes were then analysed a third time. Agreement rates between the first and second analyses were around 90%, between the second and third analyses around 95%.

The analysis identified instances of glottal stop, a complete glottal closure without any accompanying [t]-onset. Other variants such as glottally reinforced [ʔt̚, ʔtʰ], ejective [t'], aspirated [tʰ], tapped or voiced variants were transcribed but classified as "other". Following the identification of glottal stops, scores for each of the 24 speakers were calculated for *t*-glottalling in five phonetic environments and two speech styles. This data was then correlated with factors related to social background in order to reveal the sociolinguistic status of *t*-glottalling. Unlike many sociolinguistic studies which examine the effect of age or social class differences, the present study is an analysis of a group which is homogeneous regarding age and social class, as explained above. The sociolinguistic analysis in the present study therefore involves other types of social background features. These features were divided into two categories which were labelled "educational" and "social" factors. The four educational factors describe the type of schooling the interviewees have received, distinguishing between different types of primary and secondary education, the latter using three separate measures of school status (for details see Fabricius 2000: 87–9).

The social factors used included sex, region of origin and parental background (the last-mentioned is not discussed here; see Fabricius 2000: 86). The region of origin factor was included post-hoc, and did not form part of the original selection criteria. I divided the informants into groups according to the area in which the speakers had lived for the majority of their lives. Dividing lines were placed between London, the Home Counties, and the rest of England. The male speakers were concentrated in the Southeast, while the female speakers were concentrated in the Home Counties and the rest of England (speakers from the South West, Midlands and North-West are included here). This skewing arose because the male speakers recorded within the "rest of England" category (South West, Midlands and North West) generally had near-RP accents with recognisable regional phonemic features, and were therefore not suitable for the present study.

Owing to the small number of "rest of the country" male speakers, the

Table 2. Numbers of speakers by sex and region

	Male	Female	Total
London	5	2	7
Home Counties	6	5	11
Rest	1	5	6

present study cannot contrast that category with the Southeastern male group. Although the female category has a more even distribution of region of origin, the differences in the male versus female sample sizes across the regions suggest that better statistical data would be obtained by examining region alone, that is by summing the male and female groups across regions.

The various phonetic environments, two speech styles, and sociological factors were then combined in order to test for significance. Individual scores for the separate phonetic environments in the two speech styles were combined with a set of data coding the various sociological factors discussed in the section above to produce a set of matrices which could be analysed by a multi-factor ANOVA analysis.

5.   Some results of the corpus study

5.1   *T*-glottalling and style-shifting

Figure 1 illustrates the average differences between interview style and reading passage style across the five word-final phonetic environments, showing that *t*-glottalling in the data examined here is subject to style-shifting. Here we can see that considerable style-shifting between interview and reading passage styles occurs word-finally before all consonant categories (although least before stop consonants), as well as before pause and vowel. On the basis of this, we can observe that *t*-glottalling for these speakers is a variant which is avoided in more monitored styles of speech, although the extent to which speakers style-shift away from *t*-glottalling depends on the following phonetic environment.

5.2   Regional differences in t-glottalling in interview style and reading passage

Secondly, the question of regional variation in *t*-glottalling was also examined, bearing in mind that the social criterion of "non-localisability" is often used in

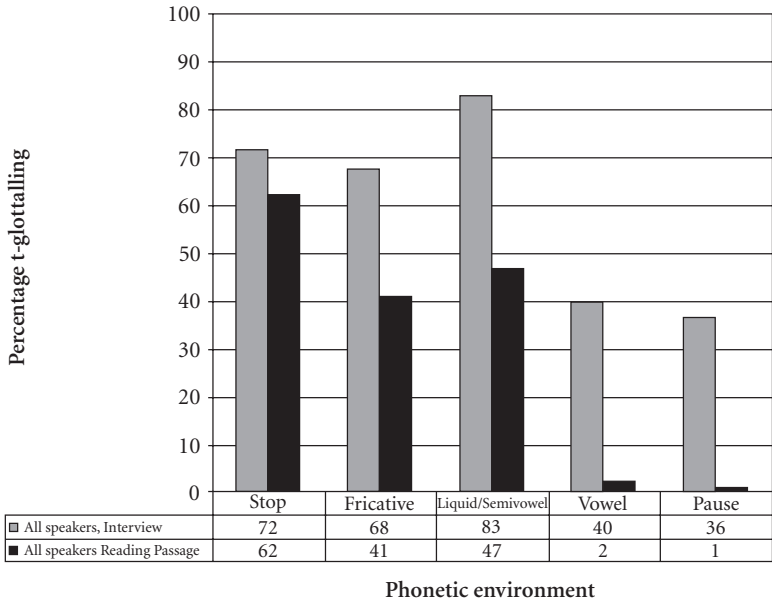| Phonetic environment	Stop	Fricative	Liquid/Semivowel	Vowel	Pause
■ All speakers, Interview	72	68	83	40	36
■ All speakers Reading Passage	62	41	47	2	1

Figure 1. Averages for interview and reading passage style in percent (based on Fabricius 2000: 94, 116)

the definition of RP (see Section 3 above). By dividing the speakers into groups according to their home residence, whether in London, the Home Counties, or elsewhere, rates of *t*-glottalling use could be examined on a regional basis. The results presented in Figure 2 suggest that we can see a regional spread of *t*-glottalling from London outwards in the interview style speech analysed here, but it is not possible to pinpoint its limits, since the sample does not contain sufficient male speakers from further afield than the Home Counties.

At the level of main effects these apparent regional differences were not statistically significant. However, the statistical method also allowed more fine-grained analysis in the form of individual planned comparisons to be made. One such comparison showed the London and Home Counties group to be significantly different from the "rest" group in their use of *t*-glottalling overall. The following table shows that significant differences were present at the level of simple effects in the pre-pausal and pre-vocalic environments.

The pattern for the two phonetic environments is different, however. While the pre-vocalic environment shows a step-wise pattern across the three regions, the pre-pausal environment only steps down between the Home Counties and
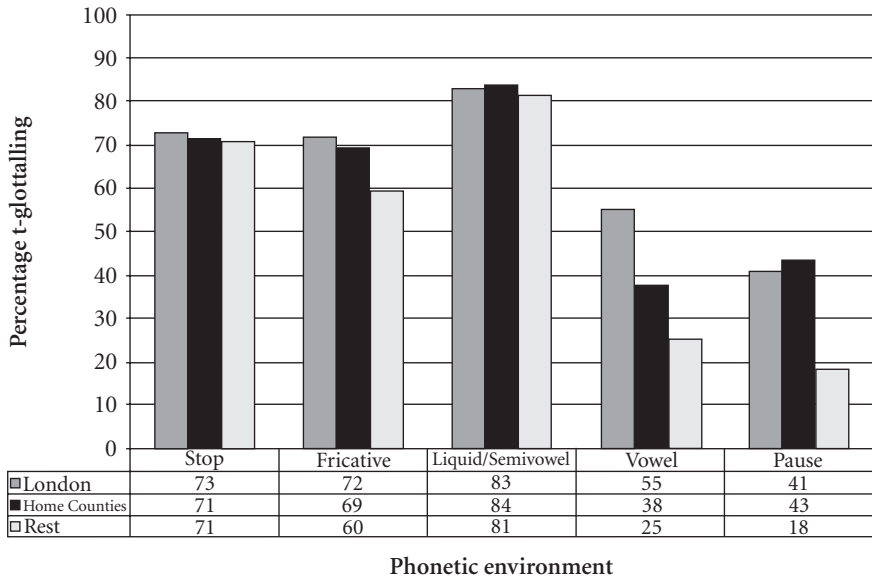
	Stop	Fricative	Liquid/Semivowel	Vowel	Pause
London	73	72	83	55	41
Home Counties	71	69	84	38	43
Rest	71	60	81	25	18

Phonetic environment

Figure 2. Interview: *T*-glottalling by region in percent (from Fabricius 2000:98)

Table 3. Interview simple effects: Region and environment

Simple Effects	F	df	*p*	Means in %	London	H.Counties	Rest
Region at S	0.037	2,60	0.964	S	73	71	71
Region at F	1.291	2,60	0.283	F	72	69	59
Region at LS	0.038	2,60	0.963	LS	83	84	82
Region at V	6.664	2,60	**0.002**	V	55	38	25
Region at P	5.479	2,60	**0.007**	P	41	43	19
Environment at London	13.449	4,84	**<0.0001**				
Environment at H.Counties	29.628	4,84	**<0.0001**				
Environment at Rest of England	32.226	4,84	**<0.0001**				

"rest of England" groups. This result was interpreted as showing a historical progression of *t*-glottalling across the regions with waves of *t*-glottalling spreading out from the epicentre of this change, London English. The first wave is *t*-glottalling pre-consonantally, the second wave seems to be *t*-glottalling pre-pausally, the third wave *t*-glottalling pre-vocalically. This progression matches Wells' (1997) observations on the chronology of *t*-glottalling outlined in Section 4 above. The data in the present study moreover suggests that pre-pausal *t*-glottalling began earlier than pre-vocalic *t*-glottalling. In terms of a

non-regional criterion for c-RP, the figure above reveals that only word-final pre-consonantal *t*-glottalling shows non-localisability in interview style: only *t*-glottalling pre-consonantally is used at a similar quantitative rate (that is, with no statistically significant differences) across the three regions.

5.3 Absence of clear-cut male/female differences in most of the data

Because of the male dominance in my Southeast group, it could be suggested that this regional result reflected a male preference for *t*-glottalling, a result which would provide an interesting tie to the status of *t*-glottalling as a socio-linguistic marker (and thus its lower level of use in reading passage speech). However, it must be emphasised that no statistically significant male/female differences were revealed in analyses using ANOVA, as Tables 4 and 5 show.

Table 4. Interview ANOVA analysis for sex

Factor	Mean Square	MS Error	F	df	*p*
Sex	218.7	803.677	0.272	1,22	0.6071
Means: Male 61%, Female 58%					
Sex × Environment	124.638	165.501	0.753	4,88	0.5586

Table 5. Reading passage ANOVA analysis for sex

Factor	Mean Square	MS Error	F	df	*p*
Sex	138.675	166.243	0.217	1,22	0.6462
Means: Male 31% Female 29%					
Sex × Environment	138.321	247.659	0.559	4,88	0.6934

There has been a great deal of discussion in the sociolinguistic literature of the relative roles of male and female speakers in the initiation and progression of linguistic change in the speech community. The major sociolinguistic theorists have discussed a general (although not universal) sex-prestige pattern (Trudgill 1972; Labov 1990) applying to stable linguistic variables, a pattern which Chambers (1995:102) sums up in this way:

> In virtually all sociolinguistic studies that include a sample of males and females, there is evidence for this conclusion about their linguistic behaviour:

> women use fewer stigmatized and non-standard variants than do men of the same social group in the same circumstances.[5]

If, as is the case here, very small and non-significant male versus female differences are found, what conclusions can be drawn? One possible conclusion is that *t*-glottalling is not stable, that it is still undergoing change for this generation of speakers. This compares with the recent rapid spread of *t*-glottalling in other varieties of British English (see above). One other possibility is that, for these speakers, *t*-glottalling is no longer a stigmatised (salient and negatively evaluated) and non-standard variant, but by virtue of its rapid recent progress through many socio-economic groups within the speech community it is in the process of becoming less salient, and, gradually, an accepted, majority variant (see Kerswill and Williams [fc.]) for a discussion of the essential role of language-external factors in determining the salience of linguistic features). Further support for the idea that *t*-glottalling word-finally is in the process of changing status comes from looking in more detail at interactions between different word-final phonetic environments in different speech styles, and in particular, differences between the separate pre-consonantal environments, results which give a more detailed picture of *t*-glottalling's place in modern RP.

5.4 Different phonological categories across two speech styles

Tables 6 and 7 below were made using Newman Keuls tests of pairwise comparison, used to examine statistical interrelationships between separate phonetic environments. A consistent result here was that, for interview style, the rates of *t*-glottalling in word-final pre-stop and pre-fricative environments were never significantly different from each other (note NS at the intersection of stop and fricative categories in Table 6). In other words, stop and fricative group together in the category of true consonant in interview style (see also Wells' discussion of glottalisation using pre-true consonant as a phonetic environment, Wells 1982: 260–1). For this speech style, true consonant environments always have *t*-glottalling occurring at a significantly different rate to the liquid/semivowel environment ($p < 0.01$).

When we compare the results for reading passage style, however, we can see

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5. Exceptions to this pattern can be found. James (1996) for instance surveys a large number of studies and disputes the extent to which this generalisation applies, pointing out the necessity of examining social circumstances closely in each new situation.

Table 6. Pairwise comparisons, interview

	Pause	Vowel	Fricative	Stop	Liquid Semivowel
Pause	x	NS	$p<0.01$	$p<0.01$	$p<0.01$
Vowel		x	$p<0.01$	$p<0.01$	$p<0.01$
Fricative			x	NS	$p<0.01$
Stop				x	$p<0.01$
Liquid Semivowel					x

that the category of true consonant does not apply here. Instead, pre-fricative glottalling consistently patterns together with pre-liquid/semivowel *t*-glottalling (NS at the intersection of the two categories). Both fricative and liquid/semivowel show *t*-glottalling at a significantly lower rate than the stop category ($p<0.01$). The analysis therefore adds to the evidence that *t*-glottalling is closely connected to phonetic environment across the two speech situations.

Table 7. Pairwise comparisons, reading passage

	Pause	Vowel	Fricative	Liquid/ Semivowel	Stop
Pause	x	NS	$p<0.01$	$p<0.01$	$p<0.01$
Vowel		x	$p<0.01$	$p<0.01$	$p<0.01$
Fricative			x	NS	$p<0.01$
Liquid + Semivowel				x	$p<0.01$
Stop					x

Returning to Figure 1, we can see that the pre-stop environment shows the smallest style-shifting gap between interview and reading passage style. It seems clear that *t*-glottalling in word-final pre-stop environments is not as strongly avoided in reading passage speech as it is in other word-final pre-consonantal environments. *T*-glottalling in the pre-stop environment is also less perceptually salient than *t*-glottalling in pre-pausal and pre-vocalic environments, which, as we have seen, are strongly subject to style-shifting.

5.5 Male-led pre-stop *t*-glottalling in reading passage style

Moreover, one socially-defined group in the study showed a significantly higher rate of pre-stop *t*-glottalling in reading passage style. This was found in the
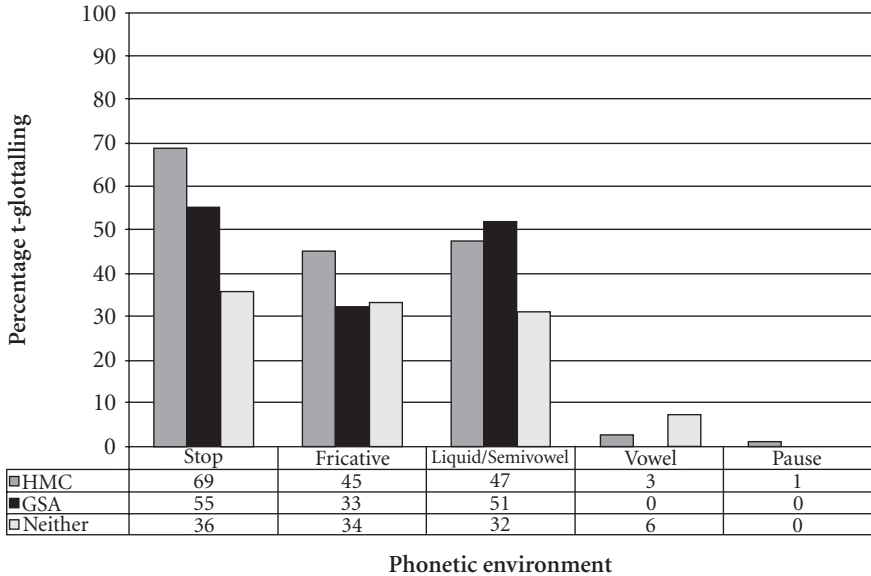
	Stop	Fricative	Liquid/Semivowel	Vowel	Pause
☐ HMC	69	45	47	3	1
■ GSA	55	33	51	0	0
☐ Neither	36	34	32	6	0

Phonetic environment

Figure 3. Reading passage: *T*-glottalling by school association in percent (Fabricius 2000: 128)

analysis which grouped the speakers according to the type of secondary school they attended, whether HMC schools (i.e. the most traditional originally male "public schools") or other "independent" schools. The relevant data can be seen in Figure 3, where, at the level of simple effects, the students who attended HMC schools (12 male speakers + 3 female speakers) show a significantly higher rate of *t*-glottalling (69%) in pre-stop environment in reading passage style than the other two groups, representing nine female speakers (55% and 36%) (F (2,86) = 3.761, *p* = 0.027). As the HMC speakers were predominantly male and predominantly from the Southeast, I interpret this finding as suggesting a Southeast-led and male-led spread of *t*-glottalling from conversational speech into more formal styles of speech. *T*-glottalling here may also be said to exhibit the characteristics of a typical male-led vernacular variant. Thus, it seems we can see evidence for *t*-glottalling's vernacular origins here in the pattern of its spread between speech styles, a pattern which is only significant in the HMC analysis, not in the male versus female analysis of reading passage speech (see also Trudgill 1988 on *t*-glottalling's real-time spread in Norwich).

5.6 *T*-glottalling in perception: Judgement sentences

As a final component of the interviews recorded in 1998, I conducted a small test of the "acceptability" of *t*-glottalling. This was done using a recording of 24 short sentences, all with standard English syntax and neutral vocabulary (Fabricius 2000: 158), designed to contain one instance of syllable-final /t/ in different types of words and with different levels of sentence stress, before a consonant, a vowel, or pause. These sentences had been read onto tape by a phonetically-trained British English speaker. Each sentence was read twice, once with a glottalled pronunciation of the single instance of syllable-final /t/, and once with the single /t/ non-glottalled (either inaudibly released [t̚] or aspirated [tʰ]). The test tape was played to the interviewees at the very end of the interview process, and the interviewees were asked to listen and decide which form *a*, *b*, or *both*, they would consider to be "good, standard or correct" (the speakers were also given the option of saying *don't know*). Responses from eight male and eight female interviewees were collated and analysed using ANOVA. The test was designed to reveal whether certain common grammatical words were regarded as "correct" with glottalled pronunciation more often than less common lexical items; that is, whether the frequency of glottalled forms in the informants' own speech also meant that speakers did not regard such pronunciations as stigmatised.

Table 8. Discrimination test ANOVA analysis (extract from Fabricius 2000: 139)

Factor	MS	MS Error	F	df	*p*
Accented vs. Unaccented	3193.172	508.949	6.274	1,14	**0.025**
Unaccented 31%					
Accented 23%					
Environment	644474.3	1520.444	42.405	2,28	**< 0.001**
Pre-vocalic 4.7%					
Pre-pausal 13.3%					
Pre-consonantal 63.5%					
Function/Content × Environment	1105.411	240.087	4.604	2,28	**0.019**
Means: (see below)					

Table 8 shows the results of the ANOVA analysis of the response data. First, we can see that there is a significant difference in the acceptability rate for

unaccented versus accented syllables with *t*-glottalling, where t-glottalled unaccented items were acceptable at an average rate of 31%, compared with only 23% for accented syllables with *t*-glottalling. Secondly, phonetic environment has a highly significant role to play, with pre-vocalic *t*-glottalling being least acceptable, pre-pausal *t*-glottalling slightly more acceptable, and pre-consonantal *t*-glottalling being most acceptable (note that the pre-consonantal environment here groups all three types of consonant environments together). Thirdly, there was a significant interaction between the content/function contrast and phonetic environment, and this was explored further by testing the simple effects and pairwise differences, as shown in Table 9 below. The pairwise comparisons showed that the mean for Function word before #Pause (15.6%) was significantly different from the means before #Vowel (4.7%, $p<0.05$), indicating that *t*-glottalling in function words before #Pause is more acceptable than *t*-glottalling of any type of word before a vowel. The content word and function word means before #Consonant (69.2% vs. 57.7%) were also significantly different from each other ($p<0.01$), showing that this grammatical division is also important in the progress of *t*-glottalling as a sound change. That *t*-glottalling in lexical items pre-consonantally should be significantly more accepted than *t*-glottalling in grammatical (function) words in similar positions is difficult to explain at the present time.

Table 9. Discrimination test means and simple effects (from Fabricius 2000:140)

Means and simple effects	F	df	*p*	Means:	#V	#C	#P
Environment at Content word	51.05	2,28	< **0.001**	Content	4.7	69.2	10.9
Environment at Function words	25.94	2,28	< **0.001**	Function	4.7	57.7	15.6

Here we see phonetic environments playing an important role in the overt evaluation of *t*-glottalling as a "good, standard, correct" variant, alongside other factors such as word class and syllabic prominence (here analysed as a contrast between accented and unaccented syllables).

6.   Conclusion

In summary then, the speakers use *t*-glottalling at a uniformly high rate pre-consonantally in interview style. The utterance-final position (pre-pausal)

shows greater variation between speakers, and this variation has been shown to be regionally-determined. High rates of *t*-glottalling in the pre-vocalic environment in interview style are restricted to London speakers.

In addition, pre-pausal and pre-vocalic *t*-glottalling is widely avoided in reading passage style. If we recognise London as the source of most innovations in the standard accent (Wells 1982: 106), there is support for the idea that the pre-pausal environment will become the next "widely acceptable" environment for *t*-glottalling, perhaps within the next generation or two. However, this change has not yet occurred; pre-pausal and pre-vocalic *t*-glottalling have not yet come into more formal speech, as the style-shifting results showed.

Moreover, variation in rates of usage for pre-pausal *t*-glottalling in interview style within the population do not show the same consistently high rates as the pre-consonantal environment, and so it seems premature to accord pre-pausal *t*-glottalling the same position as pre-consonantal *t*-glottalling. Pre-vocalic *t*-glottalling at a rate of more than 50% is restricted to speakers from London (55%), who form a significantly different group separate from the rest of England.

The empirical study thus concludes that *t*-glottalling in modern RP is present in pre-consonantal environments, increasingly within both speech styles, and perhaps led by male speakers within more formal speech. Glottal stop is the major variant in pre-consonantal environments, and for some speakers is also common pre-pausally and pre-vocalically in interview speech. It remains largely absent from word-final pre-pausal and pre-vocalic environments within reading passage speech. While we know that historically, *t*-glottalling entered modern RP as a vernacular change (spreading from working-class accents in London), its vernacular status is now being somewhat obscured by the progress of the sound change through the community.

Two implications of this should be emphasised here. First of all, the rate of usage of *t*-glottalling seems to be dependent on speech style. While *t*-glottalling before vowel and pause occurs frequently in interview style, it is not clear that *t*-glottalling pre-vocalically and pre-pausally are to be regarded as part of more formal styles of speech. The near-absence of *t*-glottalling in these environments in the reading passage data, combined with its low level of acceptance in the same environments in the discrimination test, indicates that these facts should be incorporated into a description of *t*-glottalling. A second result, also related to speech style, was that the category of true consonant, uniting oral and nasal stops, affricates and fricatives, could be applied to the interview style data, but not to the reading passage data. The robustness of these results across the

statistical analyses suggests that these insights should be incorporated into a full description of *t*-glottalling in modern RP.

We return now to the concept of non-localisability and reinterpret it in the light of the sociolinguistic framework presented here. Wells (1998) presents non-localisability as an important criterion for RP, and the present study provides an important methodological tool. As we have shown through the quantitative sociolinguistic analysis presented in this study, non-localisability can be tested empirically: do these socially homogeneous speakers from different regions show significantly different results? If so, the feature in question is not part of c-RP. If not, the feature displays non-localisability, and thus is part of c-RP.

The regional results based on n-RP presented above furnish a basis for deciding which non-localisable forms are to be defined as within c-RP. First, we need to acknowledge a difference between degrees of formality within an RP model. In a less formal style of speech, word-final pre-consonantal *t*-glottalling is a non-localisable feature. Word-final pre-pausal *t*-glottalling is approaching non-localisability, but has not moved significantly further than the Home Counties. Word-final pre-vocalic *t*-glottalling occurs in the speech of all speakers in the sample; but *t*-glottalling in this position at a significantly high rate (over 50%) is a localisable London feature. In reading passage speech, *t*-glottalling occurs only pre-consonantally, and is absent from pre-pausal and pre-vocalic position. All speakers show this result, and so it must be considered a widespread and non-localisable characteristic, and thus part of c-RP.

The research presented here has identified patterns of *t*-glottalling usage by young RP-speakers, and thus established its current status in modern n-RP. In addition, patterns of evaluation and non-localisability have been investigated to reveal *t*-glottalling's present status in c-RP. What then of the future? The next few generations will be crucial in determining whether *t*-glottalling advances, stagnates or regresses. If *t*-glottalling in pre-vocalic and pre-pausal environments continues to spread within spontaneous speech and then into more monitored speech, the stage will be set for it to gain overt acceptability in the latter context as well, at which point c-RP will have to be "updated" again.

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Author's address

Anne Fabricius
English Program, Department of Languages and Culture
Roskilde University
DK-4000 Roskilde
Denmark
e-mail: fabri@ruc.dk