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Variable ambisyllabicity

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This article is an attempt to account for data, collected from twenty speakers of Tyneside English (TE), which seem to indicate that syllabification of the oral stops in certain positions in English is subject to dialectal variation, and that the issue of syllabification is closely linked to patterns of glottal reinforcement and glottal substitution in the TE variety. Models of syllable structure based on data from 'standard' accents such as Received Pronunciation (RP) therefore fail to account for patterns in nonstandard varieties. In what follows, I propose some revisions to the RP-based account provided in Giegerich (1999) which are necessary to account for the TE data and, furthermore, I emphasize the need for a more holistic approach to studies of variation, which attempts to synthesize structural and sociolinguistic principles.

1 Introduction

One of the many complexities of syllable structure is the behaviour of segments which appear at the juncture of two syllables.[1] In Received Pronunciation (RP), textbook accounts such as Giegerich (1992) discuss, as evidence for syllabification, the following phonetic phenomena concerning consonant clusters involving voiceless stops in word-medial position:

(1) *replica* [rɛʔpl̥ɪkə]
metrical [mɛʔt̥rɪkəɬ]
Accrington [aʔk̥rɪŋtən]

Data such as these are taken to indicate that the voiceless stops following the first (stressed) vowel are ambisyllabic, somehow 'shared' between two syllables, since glottal reinforcement suggests that the oral stop is in syllable-*final* position, yet the devoicing of the following liquid suggests aspiration of the stop, which in turn suggests that the stop is in syllable-*initial* position: I follow Gimson (2001: 154, 282), who argues that aspiration of an initial voiceless stop in an accented (= stressed) syllable is manifest in the devoicing of any following liquid or semivowel.

It is important to note here that there is a link between the syllabification of the stop and the process of glottal reinforcement. In what follows, I hope to show that

[1] Much of what appears here is based on my PhD thesis (Trousdale 2000), and I am grateful to John Anderson, Heinz Giegerich, Charles Jones, Derek Britton, Dick Hudson, and April McMahon for their insight and helpful comments on aspects of what follows. I have also benefited from comments and discussion at a postgraduate seminar in the Department of English Language at the University of Edinburgh, following a paper I presented on this material; and finally I would like to thank an anonymous reviewer for his or her extremely useful suggestions for improvement. All shortcomings are entirely my own.

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both glottal reinforcement (hereafter GR) – where a voiceless stop and a glottal stop are both articulated – and glottal substitution (hereafter GS) – where articulation takes place in the glottis only, with no oral constriction – are fundamentally linked to syllabification processes in English. This link is not always fully explored by variationist accounts of G (where G is a coverall term for either GR or GS) in English. Typically, GS and GR variants of, say, (t) are considered in different phonetic environments – word-finally before a vowel, intervocalically, pre-pausally, for instance – yet the issue of syllabification is often overlooked. What is usually considered a 'fact' is that G will not occur word- or foot-initially: even the broadest-Cockney speaker would not say [ʔɒm ən ʔəɪnə ʔʊʔ ʔɪm ʔə ʔɒʔənəm] for *Tom and Tina took Tim to Tottenham*. Yet as I will show, there is evidence from Tyneside English (TE) that there are some instances of word- and foot-initial GS, albeit subject to strong lexical and sociolinguistic constraints.

The key question is this: how are the structural, social, and lexical issues to be accounted for? Generally, research has tended to explain such data *either* in terms of formal linguistic theory *or* in terms of variationist principles. Few accounts have attempted to bridge the gap between formal theory and social variation, possibly because any links between social variation and the structure of a language have been disputed: consider, for instance, Lass's claim that 'at the structural level, there is no connection between language and society' (Lass 1987: 35), or even Chomsky's earlier claim that sociolinguistic investigations tend to theoretical pretensions (Chomsky 1979: 55). Not all research into variation has developed along such lines however: Guy (1994) and Kroch (1994) have attempted to account for aspects of variation in English phonology and morphosyntax respectively by embracing both formal and variationist principles. Similarly, since the data analysed here show a clear connection between the structure of English syllables and sociolinguistic variation in the TE speech community analysed in the course of this research, the article attempts to further the debate concerning the relationship between structural and sociolinguistic analysis. These issues are also highlighted by Hudson (1986, 1997).

In the remainder of this article, I want to explore the concept of ambisyllabicity, considering data from both RP and TE. In section 2, I present an account of ambisyllabicity based on accounts of RP; in section 3, I provide information about the informants who provided the data analysed in this article, and some aspects of the method of data collection; in section 4, there is a discussion of the data so collected, showing how the material suggests variation in the syllabification, glottal reinforcement and glottal substitution of the voiceless stops between RP and TE; in section 5, I give an account of ambisyllabicity which can handle both the RP and TE data, showing how this relates to patterns of glottal reinforcement and substitution in TE; and in section 6, I discuss some of the wider implications of the account presented in section 5.

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2 Ambisyllabicity

The concept of ambisyllabicity – indeed, the very existence of such a phenomenon – is one which has provoked much debate in recent research (see, for instance, Rubach (1996) and Jensen (2000)). Ambisyllabicity in English can be said to arise from a conflict between two principles of syllabification, the Maximal Onset Principle (MOP) and the Complex Rhyme Condition (CRC). The MOP (Vennemann, 1972; Anderson & Jones, 1974; Giegerich, 1999) may be stated thus:

(2) MOP
On the condition that no phonotactic constraint is violated, syllable boundaries are to be placed at that point at which onsets[2] are maximized.

The principle given in (2) is of importance for the syllabification of segments in a sequence $V_1C_1C_2V_2$, for instance, in words such as *athlete* and *asleep*. My formulation of the MOP conflates both the Sonority Sequencing Generalization (SSG) (Selkirk, 1984) and the Law Of Initials (LOI) (Vennemann, 1972). The SSG states that the segment which functions as the syllable peak must be preceded by and/or followed by segments of decreasing sonority. Thus, in *athlete*, it is not possible to syllabify both the fricative and the approximant in the coda of the first syllable – since /l/ is more sonorous than /θ/, coda maximization would result in two sonority peaks in one syllable. The LOI states that medial clusters must not violate any phonotactic constraints associated with initial clusters: by this I mean that if a consonant cluster is banned from appearing in morpheme-initial position, it will also be banned from occurring in morpheme-medial position. Thus, in *athlete*, despite the fact that /θl/ as a sequence conforms to the SSG, and such a sequence would maximize the onset of the second syllable, it is in fact impossible as an onset of any syllable since there are no morphemes (in essence, no words) in English which begin /θl/. So in *athlete*, /θ/ forms the coda of the first syllable, and /l/ the onset of the second. Only this syllabification satisfies both the SSG and the LOI. By contrast, in a word such as *asleep*, both the fricative and the approximant form the onset of the second syllable: since the /sl/ sequence obeys both the SSG (since /l/ is more sonorous than /s/) and the LOI (given well-formed morphemes such as *slap* and *slick*), the MOP applies.

The second principle, the CRC (cf. Giegerich, 1999), may be formulated thus:

(3) CRC
Stressed syllables must contain rhymes associated with (minimally) two X-positions.

X-positions refer to the timing tier of autosegmental representations of syllable structure, where quantitative characteristics are displayed, linked via association

[2] I am assuming the following basic syllable template: the *onset* of a syllable is the (optional) consonant (sequence) which precedes the most sonorous segment (usually a vowel), called the *nucleus*. This nucleus can also be followed by further consonants, which form the *coda*. Together, the nucleus and coda form the *rhyme*.

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lines to the melody tier, where qualitative characteristics of phonemes are represented: in RP, each consonant and lax vowel is associated with one X-position; each element of a diphthong is associated with one X-position; and each tense vowel is associated with two X-positions. Thus the CRC in (3) above renders forms such as */ka/, */mɒ/ and */pɛ/ ill-formed as (stressed) monosyllabic words in English.[3]

The MOP and CRC relate to ambisyllabicity in RP in the following way. In a word such as *bitty*, the MOP dictates syllabification of the oral stop in the onset of the second syllable, yet the CRC dictates syllabification of the stop in the coda of the first syllable. When such a conflict of syllabification arises, the segment is said to be part of the coda of the first syllable, while simultaneously being part of the onset of the second: it is ambisyllabic, and therefore undergoes glottal reinforcement since it occurs in the coda of a stressed syllable. In a word such as *Beatie*, however, the MOP dictates syllabification of the oral stop in the onset of the second syllable, and the CRC is satisfied by the tenseness of the stressed vowel (tense = associated with two X-positions), so there is no conflict: there is no ambisyllabicity, and the stop, being associated only with the onset of the second syllable, is not subject to glottal reinforcement.

However, accounts of TE data (such as Docherty, Foulkes, Milroy & Milroy, 1995; Docherty, Foulkes, Milroy, Milroy & Walshaw, 1997) provide evidence of G phenomena which differ from the preceding: in TE, words such as *apron*, *matron*, and *micro* surface with stops which display G; yet, given the outline of ambisyllabicity above, there is no motivation for G, since the stops – if we accept the RP-based analysis – are syllable-initial: since the vowel in the stressed syllable is either a tense monophthong or a diphthong, the CRC is satisfied, and there is no ambisyllabicity. And if the stops are unambiguously syllable-initial, there should be no G.

There has been much discussion of the sociophonetics of G in TE recently (see, for instance, Docherty et al. (1995), Docherty et al. (1997), Docherty & Foulkes (1999, 2000)); but my concern here is rather with what the variants of G in TE can tell us about syllable structure in that variety (as opposed to RP). To this end, based on my auditory analysis (on which see further section 3 below), I will classify variants of the oral stops in TE very broadly as follows. The first variant is localized GR (which is very like Docherty & Foulkes's 'Type 2' (1999: 57) glottalized variant); the second is supralocal GR (that is, the type found in RP and other accents of English); the third is GS (that is, no oral constriction); and the fourth is a variant with no audible glottal constriction. The first variant, localized GR, is what Wells (1982: 374) describes as being characteristic of TE; and the issue of the local vs. supralocal distinction is of central importance for the social correlates of the variants (cf. Milroy, Milroy & Hartley, 1994).

[3] Cf. Vennemann's formulation of Prokosch's Law as follows: 'In stress accent languages an accented syllable is the more preferred, the closer its syllable weight is to two moras, and an unaccented syllable is the more preferred the closer its weight is to one mora. The optimal stressed syllable is bimoric, the optimal unstressed syllable is unimoric' (Vennemann, 1988: 30).

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As noted in section 1 above, it is not often the case that syllabification is considered as 'important' in the (usually variationist) analyses of G in English. Generally, G is seen as only a segmental issue, and there is no perceived need to refer to prosodic units such as the foot and the syllable. I am not sure whether this is because such variationist data is itself not normally considered 'important' for structural analyses: in general, variationist and structural investigators have had little to say to each other on suprasegmental issues. However, there seems to be variability even in the standard reference accent RP, on which many structural analyses are built: Wells (1982: 260–1) discusses GR in RP, claiming that 'English people do not have strong feelings about which is more elegant of ['həʊpləs, 'həʊʔpləs], ['mætrəs, mæʔtrəs], ['iːkwəl, iːʔkwəl].' But elegance and the feelings of those English people who speak RP are not what is interesting about the data Wells provides: what is interesting is that, according to standard accounts of syllable structure, the stop in *hopeless* and *equal* is in a different syllable (the second – unstressed – one, if we accept the MOP and CRC) than the stop in *mattress* is.

When considering these variable data, then, it seems that it may be necessary to modify the existing account of ambisyllabicity in order to deal with the TE data, and possibly even for some RP data too. In the remainder of this article, I provide an analysis of these patterns, based on data collected as part of Trousdale (2000), which not only complements the findings of Docherty et al. (1995) and Docherty et al. (1997), but which, as I discussed above, seeks to broaden the scope of the debate by considering the data in the light of both syllable theory and variationist theory – for it is necessary to draw on both to account fully for the patterns which emerge from the data.

3 Data collection and informant issues

The data analysed in this article were collected by me from twenty informants from South Gosforth, a mainly residential area approximately two miles north of the city centre of Newcastle upon Tyne, in the northeast of England. The *South Gosforth Ward Poverty Profile* (SGWPP 1995) provides socioeconomic data on the area, based in part on the census in 1991. Compared to many other areas in the city of Newcastle upon Tyne, South Gosforth is relatively prosperous, with a high proportion of owner-occupied properties, and relatively low levels of unemployment (at the time of the census, 5% in the ward, compared to 13% in the city as a whole). The socioeconomic makeup of the South Gosforth area bears some resemblance to that of the Braniel and Andersonstown areas of Belfast, investigated by the Milroys and others between 1975 and 1981: like South Gosforth, Braniel and Andersonstown are located on the periphery of the city; many of the informants selected in these three areas could be described as broadly upper-working to lower-middle class (cf. Milroy 1987: 75); like the South Gosforth informants, many of those resident in Braniel and Andersonstown had either originated from or had family ties with areas of much lower status within the city centre (cf. Milroy, 1987: 75–6); and the

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informants from both the Newcastle and Belfast communities had a similar range of employment types (cf. Milroy 1987: 76–7). But as a whole, the South Gosforth area of Newcastle is perhaps more middle class than the Andersonstown and Braniel areas of Belfast.[4]

The twenty informants fell into four pre-existing social groups, so that each cell contained five speakers, of the same sex, and roughly the same age (the older speakers were aged between 44 and 60, while the younger speakers were aged between 14 and 24). The four groups are given the following labels: OF (older females), OM (older males), YF (younger females), and YM (younger males). One session per network was recorded, each for three to four hours, resulting in fifteen hours of recording. All subjects in each network were recorded together, in a six-way exchange (five informants plus me as the investigator). However, the groups were regularly interrupted by neighbours, friends, and family: the recordings were never halted at this point, but only the speech of the five 'original' informants provides the data for what follows. There was no set format for the recordings, and being relatively familiar with the groups for a considerable period of time meant that my presence was at best overlooked entirely, and at worst marginalized. The recordings were made using a Marantz PMD201 recorder, and the data below are based on my auditory transcription of those tapes. For each speaker, I attempted to collect thirty tokens of each variable – (p), (t), and (k) – in eight different phonological environments, as follows:

(i) word-final before a nonapproximant consonant
(ii) word-final before an approximant consonant
(iii) word-final before a vowel
(iv) pre-pausal
(v) word-medial before an obstruent
(vi) word-medial before an approximant
(vii) word-medial before a syllabic nasal
(viii) word-medial before a vowel

Had this been achieved, this would have meant collection of 14,400 tokens; however, it was not always possible to collect a sufficient number of tokens from each group. In total, 5,881 tokens were recorded, about 40% of the ideal number, with variants of (p) being significantly lower (770 in total) than those for (t) and (k) (3,063 and 2,048 respectively). In addition to the GR, GS, and full-release variants, discussed in section 2 above, which are characteristic of all three variables, two further variants of (t) were scored: an alveolar tap [ɾ] and a retroflex approximant [ɹ].

[4] For more detailed information on the socioeconomic characteristics of the area, see http://www. newcastle.gov.uk/pr.nsf/a/SouthGosforthWardProfile.

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4 Data

4.1 Syllable- and foot-initial glottalling

In the discussion of patterns of G in RP in section 1 above, it was suggested that G applies only to stops which are either (a) unambiguously in the coda of a stressed syllable or (b) ambisyllabic. However, a small number of instances from the data collected suggest that this is not always the case in TE. In all but one of the four social groups (the OF group, not tabled below, being the exception) there was evidence to suggest that G occurs unambiguously syllable-initially, as table 1 indicates (the figures indicate the number of instances of G in each case):

Table 1. *Syllable-initial G in TE by social group*

	OM	YM	YF
to/till (e.g. *went to*, *here till*)	5	0	9
time(s) (e.g. *sometimes*, *three times*)	2	1	4
-teen (e.g. *nineteen*, *fourteen*)	1	4	1
-ity (e.g. *celebrity*, *identity*)	2	1	2
-ton (e.g. *Washington*, *Cramlington*)	4	0	0

Where the stop was preceded by a stressed vowel and a sonorant consonant, and followed by an unstressed vowel, there was only evidence of GS – for instance, *contact* [kɒnʔaʔk], *altar* [ɒlʔɐ] and *presenter* [pɹəzɛnʔɐ]; and there were even some instances of foot-initial GS, as in *settee* [sɛʔiː] and *tattoo* [taʔuː].

4.2 Ambisyllabic stops

The data which follow concern different variants of the (p), (t) and (k) variables when they appear medially before an approximant consonant. This environment is crucial for purposes of exemplification, since the phonetic behaviour of the segment following the stop is central for determining whether or not the stop is ambisyllabic: if the sonorant following the stop is devoiced, then the stop itself is syllable-initial (and thus aspirated); if the stop undergoes G, then it is syllable-final; if both processes occur, the stop is ambisyllabic.

Table 2 below provides data for the stops in this environment. In the table, 1 represents a variant which displays local GR; 2 is supralocal GR; 3 is (supralocal) GS; and 4 is a variant with no G: in other words, this follows the classification of stop variants outlined in section 2 above.

The data show that in three of the four social groups (again, the OF group is exceptional here), there are syllabification patterns – and patterns of G (both GS and both types of GR, local and supralocal) – which show a marked departure from patterns in RP as discussed in section 1 above. In each of these instances the first

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Table 2. *Examples of words demonstrating application of PA and G in TE, by social group*

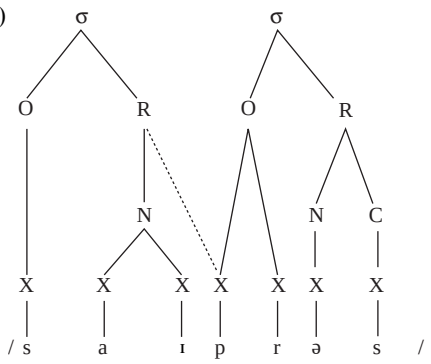
Group	Word	Variant
OM	*Cyprus*	1
	country	3
	introduced	1
	secret	1
	Auckland	1
	local	3
	equal	1
OF	*central*	4
	country	4
	Auckland	4
YM	*country*	3
	secret	1
	sacred	3
YF	*waitress*	2
	country	2
	matrix	2
	Oklahoma	2
	lycra	2

syllable is the one which takes the primary stress, except *introduced* where the first syllable has secondary stress; and each of these syllables is heavy (as we would expect if we assume that only heavy syllables can be stressed), in that it has a complex rhyme consisting of at least two X-positions. But, crucially, there is no motivation – in terms of stress – for the stops (whose variants are given in the third column) to be considered as 'part' of that stressed syllable. This contrasts with instances such as *metro* or *macro*, where the first syllable is stressed, but contains only a lax vowel, which is associated with only one X-position: in order to satisfy the CRC, the stop (which forms part of the second unstressed syllable under the MOP) must be ambisyllabic. Yet in *Cyprus*, *central*, and *Auckland*, this is clearly not the case. In all of the above examples for the OM, YM, and YF groups, the stops undergo either GS or GR and yet are clearly aspirated since the following sonorant is devoiced. In other words, if, as is assumed here, the G behaviour of stops is indicative of syllabification, then the syllabification of the stops for the majority of these speakers is not identical to that of RP; we need to suggest that the syllable shape for these words for these speakers is different from that of speakers of RP. In *Cyprus*, for instance, the syllable shape is that in (4) opposite.

So the data here seem to me to prompt a number of questions. The first is this: are the patterns with unambiguous syllable-initial G (*times*, *-ton* etc.) part of the same general phenomenon as the patterns with foot-initial G (e.g. *tattoo*, *settee*), where ambisyllabicity might be considered even more unlikely, and are either or both of

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(4)



these linked to the ambisyllabicity described above? Secondly, if the patterns *are* linked, how are we to account for this phenomenon in terms of a generalized phonological structure? And thirdly, how are we to link this to the distribution across various social groups?

5 Analysis

Let us assume that ambisyllabicity in TE arises derivationally at both the lexical and postlexical levels; to put this another way, let us suggest that ambisyllabicity in TE is both a lexical and postlexical process. The lexical ambisyllabicity in TE is exactly the same as in RP and other varieties of English, and is invoked to explain why /t/ in *pity* is associated with both the coda of the first (and stressed) syllable as well as the onset of the second, as discussed in section 1 above.

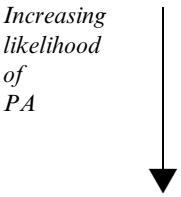
However, additionally in TE, there is a postlexical ambisyllabification process, which I formulate in (5) below:

(5) *Postlexical ambisyllabification* (PA) (TE, not RP)
Ambisyllabify all voiceless oral stops in intersonorant position, irrespective of boundaries.

(5) would then account for the analysis of *Cyprus*, given in (4) above, which is not accounted for by the conjunction of (1) – the MOP – and (2) – the CRC: the lexical process would fail to ambisyllabify the stop, suggesting that the stop would be syllable-initial, thus liable to undergo aspiration but not G. Furthermore, (5) can account for other patterns too: G variants of (t) in (a) *three times* and (b) *tattoo* are both motivated by (5) despite the fact that in (a) the ambisyllabification is across a word boundary and in (b) the target stop is foot-initial.

But (5) as it stands is too powerful, in that it would also predict *this room is a tip* as potentially surfacing in TE as [ðɪs ruːm ɪz ə ʔɪʔ], and this is clearly undesirable. We therefore need a set of constraints for (5). Ideally, we need a 'cline' of environments in which PA takes place, from least to most frequent. Based on the data collected, this is suggested in figure 1 below:

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(a) stop is both word- and foot-initial
(b) stop is foot-initial but not word-initial
(c) stop is word-initial but not foot-initial
(d) stop is medial; coda of stressed syllable is complex[5]
(e) stop is medial; onset of unstressed syllable is complex
(f) stop is medial, immediately preceded by tense vowel or diphthong, and immediately followed by unstressed vowel

Figure 1. *Environments for PA in TE*

In other words, figure 1 suggests that the application of PA is least likely in environment (a), in instances such as *tip* or *three times*, and the likelihood increases in instances such as *thirteen*, *tattoo*, and *settee* (environment (b)), *listen to* (environment (c)), *introduce* (environment (d)), *Cyprus* (environment (e)), and *Peter* (environment (f)). This order is suggested by the frequency of G in these environments: for instance, the only instance of environment (a) was in the phrase *x times*, where *x* is a numeral, so ambisyllabicity of stops in (a) is practically nonexistent. The same is true of (b) and (c) where there are only a handful of words which display this pattern. Clearly, word- and foot-initial G is highly constrained in TE (especially the former, being restricted merely to *time(s)*, *till* and *to*; thus we could reformulate (5) as (6) below:

(6) PA (TE only)
Ambisyllabify voiceless oral stops in intersonorant, non-word-initial position
Exceptions: *to*, *till*, and *times*[6]

However, even these constraints are insufficient, because the conditioning is not simply linguistic, but sociolinguistic also; we need to incorporate the sociolinguistic distribution of such variants to achieve a fully adequate picture of this phenomenon in TE – there is a need to synthesize the structural and sociolinguistic patterns. Specifically, the speech patterns of the OF group stand out here; the only environments in which PA seems to have taken place for this group are environments (e) and (f) – in other positions, no PA takes place. This accounts for the data in table 1, where it was shown that in *central*, *country* and *Auckland*, the stops were not glottalized, yet the following sonorants were devoiced. This suggests, for the OF group, a syllabification pattern of *central* as given in (7) opposite. Thus the application of (6) is variable in the TE speech community investigated; the OF group had a more restricted application of (6) than is the case for other groups.

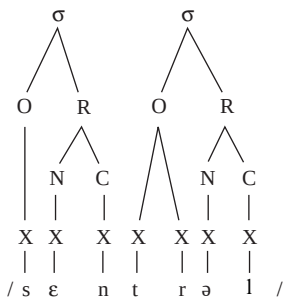
Clearly we want to explain why this should be: why should the OF group show a restricted application of (6)? In order to explain this, we need recourse to the

[5] 'Complex' in (d) and (e) refers to the structure of the coda and onset respectively after the incorporation of the stop.

[6] That a postlexical rule should have lexical exceptions may be an indication that it is becoming lexical, though there is no apparent time evidence for this in the present corpus: there is no suggestion of a wider set of lexical exceptions being used by younger speakers in comparison with older ones.

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(7)



evidence concerning patterns of G in TE provided by other variationist studies, such as Milroy, Milroy & Hartley (1994) and Docherty et al. (1997). These studies suggest that women – particularly young women – were favouring supralocal variants of (t), which in the case of TE is GS, while the males were favouring localized forms (GR and Weakening). Given that the PA is a localized pattern – different from the lexical ambisyllabicity which characterizes both TE and RP – we might expect the female groups simply to avoid this pattern, at least to some extent; and this seems to be what is happening with the OF group: they have a restricted application of a localized postlexical rule.

However, this could raise a potential problem for an analysis of the speech patterns for the YF group. If the use of nonlocalized variants is a characteristic of female speech in general, surely we should expect the members of the YF group to display a restricted application of (6), as the OF group did; but this is not what happens. Members of the YF group produced forms such as *beautiful* [bjuːʔɪfəl], *thirties* [θɜːʔiz], *quarter* [kwɔːʔə], *motors* [moːʔəz], and *water* [wɔːʔə], all of which clearly show the application of the PA rule characteristic of TE. But, interestingly, the variant of (t) used in each case is GS, the supralocal form. In other words, while the ambisyllabification may be local, the variant selected is supralocal.

Furthermore, this local vs. supralocal distinction could be tied in with the ordering of the postlexical processes of G and PA. If we assume that in order for G to apply, the target stop must be at least partially associated with a syllabic coda, then PA must be ordered before G – in other words, PA feeds G: in order to predict the correct output for G, the stop must be in a syllable coda, and in cases such as *motors* and *water*, this is only the case after PA has taken place. There is also evidence to suggest that PA is an older rule than G. Evidence provided by Collins & Mees (1996) suggests that G is a late Modern English phenomenon in RP, and Trousdale (2000: 133–41) provides a summary of *Survey of English Dialects* (Orton & Halliday, 1962–3) data on G in two areas near Newcastle upon Tyne (site 303, Earsden, and site 424, Heddon-on-the-wall), where there is very little evidence of G in speakers born in the late part of the nineteenth century; by contrast, Jones (1989: section 3.5) presents a range of data from Old English onwards suggesting that the operation of a PA similar to that discussed here – though (a) not classified as postlexical by Jones, though the data clearly indicate that the ambisyllabicity is postlexical, given the

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phonological structure of the words in question, and (b) not restricted to the oral stops – is central to the production of a specific syllable shape: 'speakers tend to ''avoid'' syllable interfaces whose terminal points or contiguous edges show unique syllable domain reference. Overlapping at such junctures seems to be ''preferred''' (Jones, 1989: 189). Thus, while the young girls apply the local rule of PA first, the 'localness' is diluted by favouring a supralocal output of the second rule, G.

Such a pattern is partially upheld by an examination of the behaviour of the males, since both the older and the younger males show regular application of PA. But the older males more readily favour the local variants of G, with the younger males using both local and supralocal forms (thus, for instance, *coun**t**ry* [kʊnʔɹi] (supralocal) but *se**c**ret* [sikʔɹəʔ] (local)). In other words, the older males favour local patterns in terms of PA and G, while the younger males clearly favour local patterns with PA but partly local and partly supralocal patterns of G. We can therefore summarize the synthesis of sociolinguistic and formal data as follows: supralocal patterns of PA and G are favoured by the OF group; local patterns of PA and supralocal patterns of G are favoured by the YF group; local patterns of PA and a mixture of local and supralocal patterns of G characterize the YM group; and local patterns of both PA and G are favoured by the OM group.

6 Implications

There seem to me to be two main implications of the analysis presented in section 5 above, the first of which is central to the second. The first is concerned with the locus of the linguistic variation, and the implication thereof for the observed socio-linguistic conditioning; the second is concerned with what, if anything, such variability suggests about linguistic (specifically, phonological) structure.

The first issue to be addressed concerns what kind of a linguistic variable we are dealing with in the data discussed in section 5. Hudson (1996: 170) makes a distinction between phonetic variables (different realizations of the same phonological pattern) and phonological ones (different phonological structures for the same lexical item), and this may seem potentially problematic for the TE data presented in this article, because while the processes of G and PA are not of the same 'type' (G is a phonetic process, PA a phonological one), both are implicated in the linguistic patterns observed. These observed patterns therefore suggest two different kinds of variability, and to bring these together under one cover-all variable – (t) (or similarly (p) or (k)) – is misleading. What we have, in fact, is one phonological variable – let us call it ((ambi)), where double brackets indicate phonological variables, and single brackets phonetic ones, as is the case for (t); and where 'ambi' refers to the variable syllabification of segments at the juncture of two syllables – and one phonetic one, (t). The process of PA is concerned with ((ambi)), and the process of G is concerned with (t); ((ambi)) applies on the timing tier, (t) on the melody tier; and both ((ambi)) and (t) have variants which can be considered more or less localized, which, as was shown in section 5, speakers manipulate in

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accordance with the degree of localness they want to project (cf. Watt & Milroy, 1999).

This leads to a second, more complex, issue: the relationship between phonological rule/constraint and speaker variation. This is essentially a question about generalizations, both social and linguistic. In categorizing the groups of speakers used in this study as 'younger male', 'older female', etc., I have followed a practice common in (Labovian) variationist studies, where patterns of variation are presented as group scores. This is more than just a statistical issue, crucial though the statistics are. For instance (and this point is discussed by Carr, 2000: 83), there is an undeniable subjectivity in the classification of a person as 'younger' or 'older',[7] and such subjectivity is problematic for any attempt at establishing scientific, theoretical constructs. Furthermore, within the younger male group, it is clear that individual speakers are not consistent in their use of GS variants, so that individual variation is masked by the data presented for the group as a whole (on which, see further Hudson, 1996: 177–81). In the Labovian school, this is not really an issue, given the importance of community grammars, and the sidelining of the individual speaker (see, for instance, Labov, 1989: 52). But it does raise important questions for the present discussion, central to the conception of variables such as ((ambi)) and (t); and such questions also feature in Carr (2000) and Docherty & Foulkes[8] (2000), both papers which deal with the thorny issue of the role of sociophonetic variation in phonological theory.

I would like to approach this topic by considering what the effects of postulating ((ambi)) and (t), as a phonological and phonetic variable, respectively, are. What do these variables – and the processes of PA and G which are implicitly linked to them – actually suggest about the *status* of variables in a phonological theory? I would argue that both variables concern a learned and patterned behaviour (cf. Docherty & Foulkes, 2000: 117) which is simultaneously structural and social: the claim that sociolinguistics is about the study of performance, and structural linguistics is about the study of competence, is, I believe, not proven (cf. Hudson, 1986: 1056). Thus ((ambi)) – through PA – offers alternative syllable shapes (a structural issue) as potential inputs for (t), which – through G – provides a range of realizations, many of which are socially marked.

But this raises further problems. For instance, if we allow such variables to be part of competence, how are we then to generalize from one speaker to another?

[7] There is also a (more hidden) subjectivity in the classification of a person as male or female, since these terms are often used simultaneously as classificatory in terms of (biological) sex, but explanatorily in terms of (social) gender.

[8] Docherty & Foulkes (2000) provides details of their recent work (with others) on G in TE. The present article is in a similar spirit to theirs (in terms of trying to highlight the importance of social variation for a discussion of aspects of phonological theory), though with some significant differences in focus, and a more limited scope. Their work, unlike the present article, additionally deals with instrumental phonetics, and is concerned with the three-way interface between phonetics, phonology, and sociolinguistics.

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Mufwene (1994: 208), as quoted in Docherty & Foulkes (2000: 122), argues that there is 'no compelling evidence for assuming that [individuals] develop identical speech strategies or that their competences do not vary from one speaker to another'. In other words, the generalization problem is only a problem if we assume that competences cannot vary. Docherty & Foulkes (2000: 118–19) discuss these issues in terms of multiple trace models of lexical representations, suggesting that 'variability in the stimulus is directly encoded in the lexical representation'. They also cite work by Hintzman (1986) which argues for a prototype approach to categorization, and I would suggest that such an approach has great benefits for an attempt to synthesize the sociolinguistic and structural facts presented in this article (and cf. also Hudson, 1996: 228–57). A maximal application of PA, combined with the selection of local variants of G, would result in a prototypically 'Tyneside' form for these speakers: this is the most highly localized option, and the one most regularly favoured by the older males. Variable application of PA – i.e. ((ambi)) – combined with supralocal variants of G dilutes this localness. Thus speakers, in applying ((ambi)) and, for instance, (t), locate themselves on a cline, from 'Tyneside' or 'local' to 'non-Tyneside' or 'supralocal', based on (social) prototypes for these categories. This is most properly the subject of another study, but it has been raised here as a potential means of exploring structural and social variability.

Conclusions

I have tried here to look at some of the features of G in TE from the perspective of syllable structure, and from a variationist perspective, suggesting that a full account of the data needs to address both sociolinguistics and structural issues. The patterns of PA and G discussed above are clearly grist to the mill for structural theories of the behaviour of segments at syllable junctures; yet the varying patterns in the speech community would seem to encourage a sociolinguistic analysis. Yet very few analyses attempt to synthesize the two fields of enquiry. Hudson (1986) suggests that little interaction between the two disciplines exists, despite the exciting possibilities of investigating potential common ground. I hope that this article might encourage further investigation into whatever common ground there may be.

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