

VARIATION AND CHANGE IN THE VOWEL SYSTEM OF TYNESIDE ENGLISH

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ABSTRACT

This thesis presents a variationist account of phonological variation and change in the vowel system of Tyneside English. The distributions of the phonetic exponents of five vowel variables are assessed with respect to the social variables sex, age and social class. Using a corpus of conversational and word-list material, for which 32 speakers of Tyneside English were recorded, between 30 and 40 tokens per speaker of the variables (i), (u), (e), (o) and (ɜ) were transcribed impressionistically and subclassified by following phonological context. The results of this analysis are significant on several counts. First, the speakers sampled appear to differentiate themselves within the speech community through the variable use of certain socially marked phonetic variants, which can be correlated with the sex, age and class variables. Secondly, the speakers style shift to a greater or lesser degree according to combinations of the three social factors, such that surface variability is reduced as a function of increased formality. Third, the overall pattern among the sample population seems to be one of increasing uniformity or convergence: it is speculated that social mobility among upper working- and lower-middle class groups may lead to accent levelling, whereby local speech forms are supplanted by supra-local or innovative intermediate ones. That is, the patterns observed here may be indicative of change in progress. Last, a comparison of the results for the (phonologically) paired variables (i ~ u) and (e ~ o) shows a strong tendency for Tyneside speakers to use these 'symmetrically', in that choice of variant in one variable predicts choice of variant in the other. It is suggested that the symmetry in the system is exploited by Tyneside speakers for the purposes of indicating social affiliation and identity, and is in this sense an extra sociolinguistic resource upon which speakers can draw. In addition, the variants of (ɜ) are discussed with reference to the reported merger of this variable with (ɔ); it is suggested that the apparent 'unmerging' of these two classes is unproblematic from a structural point of view, as the putative (ɜ)~(ɔ) merger appears never to have been completed.

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To Vick, my parents, and in memory of my grandfather Ernest Hamnett

Newcassl's sore transmorgified, as everyone may see,
But what they're duen is nowt to what they still intend t'de.

More Innovations, a Tyneside Song
R. Gilchrist, 1842

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CHAPTER ONE: OVERVIEW

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1.0 Aims

The aims of this thesis are fivefold. First, the study is intended to provide an overview of variation in the vowel system of a single variety of English, that spoken in the Tyneside conurbation of north-eastern England. Second, it provides a detailed analysis of five vowel variables with a view to tracking changes taking place in the variety, relating the patterns in the phonetic data to a number of 'external' variables (the age, sex and social class of the individual speakers from whom the data were collected), and to differences in speaking style. Third, the results of these correspondences are interpreted with reference to current models of change in vowel systems, chiefly the 'internal' principles of sound change proposed by Labov (1994), with a view to assessing the adequacy of such models in relation to the Tyneside data. Fourth, the findings are compared with results from similar studies of change in other varieties of English, as current trends observable in English-speaking communities world-wide are rather alike with respect to one another. Specifically, the role of dialect levelling is assessed here. Lastly, an attempt is made to integrate features of the 'internal' and 'external' factors that influence vowel variation and change so as to account for aspects of the distribution of phonetic variants in the Tyneside data in the most comprehensive and objective way possible.

The data used for the study are narrow impressionistic phonetic transcriptions, drawn from a large corpus of conversational and word-list material brought together in the summer of 1994 for the UK Economic & Social Research Council-funded *Phonological Variation and Change in Contemporary Spoken British English* project (award no. R000234892; henceforth *PVC*) based at the University of Newcastle upon Tyne. This corpus, amounting to around 20 hours of natural, spontaneous speech supplemented by a formal reading of around 150 isolated citation forms (per speaker), is one of the most systematically designed and assembled sets of source material for Tyneside English (henceforth *TE*) collected to date. As such, it has provided a representative database from which very large quantities of phonological information have already been extracted, and is liable to yield equally interesting findings at other levels of linguistic structure such as syntax, morphology and lexis.¹

¹ A research project proposed by Drs. Joan Beal and Karen Corrigan at DELLS (Department of English Literary and Linguistic Studies) at the University of Newcastle aims to examine variation and change in morphosyntactic features of *TE*, such as double negation and double modals, using the *PVC* corpus in addition to the Catherine Cookson Archive material held by DELLS. The latter includes materials collected for the Tyneside Linguistic Survey (see Strang 1968).

1.1 Structure

The thesis is divided into nine chapters, including this introductory section. Following a description of the structure of the work itself, Chapter 1 begins with a brief overview of the chief issues to be addressed. The body of literature on the theoretical underpinnings of and motivations for sociolinguistic research is now vast, and a detailed review of the philosophical origins of the field is beyond the scope of this study.² Suffice it to say that the research reported here is an example of quantitative sociophonology bedded in a paradigm originated by Labov (1966), which itself has its roots in the work of Weinreich (1954) and earlier still in surveys carried out by Gauchat (1905) and Gauchat, Jeanjaquet & Tappolet (1925). The contributions to the development of the field made by James and Lesley Milroy (e.g. Milroy & Milroy 1978; L. Milroy 1987) and Peter Trudgill (1972, 1974) in the British context are referred to implicitly and explicitly throughout this work, as are more recent studies into the effects of dialect contact (e.g. Trudgill 1986; Thomason & Kaufman 1988; Kerswill 1994b).

Chapter 2, entitled 'Internal Factors', is a review of some of the problems associated with the formant frequency target model which has come to represent the state-of-the-art in quantitative sociophonology (indeed, it has become ubiquitous in research of this type being carried out in North America to the point of exclusion of other techniques; the influence of Labov's research group at the University of Pennsylvania is felt strongly in Europe too, particularly as generation of formant frequency target data can now be carried out quickly and simply using dedicated software such as Labov's *PLOTNIK 03* program).³ The chapter begins with a description of the vowel as a phonological and perceptual object, and the way in which it is integrated into a phoneme-based phonology that mediates between the lexico-semantic and phonetic levels of language. The way in which the structure of vowel systems is understood is assessed in this light. The question of how the human speech perception system handles variability in the production and perception of vowels continues to stimulate a good deal of research (e.g. Rosner & Pickering 1994, Johnson & Mullennix 1997), though in general this has tended to overlook or at best to marginalise variability arising as a product of *interspeaker* differences (such as accentual variation) in favour of *intraspeaker* variation (phonetic differences brought about by variation in speech rate, phonological context, and so on). As this thesis is concerned with phonetic variation related to the non-linguistic characteristics of Tyneside speakers, the perceived formality of the speech situation, *and* the influence of phonological context, the variability we observe is liable to be the result of

² For recent reviews and anthologies of the relevant literature, see for instance Figueroa (1994), Chambers (1995), Coulmas (1997) and Coupland & Jaworski (1997).

³ See <http://www.ling.upenn.edu/~labov/Plotnik.html>.

complex interactions between these sources. The question is also raised of how it is that listeners can factor out, or 'normalise', variation coming about as a byproduct of coarticulation or speech rate, while remaining sensitive to socially-significant variability connected to stylistic or social factors. Since the surface effects of coarticulation and socially-conditioned variation are in many cases identical (see e.g. Kerswill 1987; Labov 1986) the phonetic normalisation faculty must be able somehow to separate out the often extremely subtle variations used by speakers for the purposes of social marking from the effects of the mechanical limitations of the vocal tract organs upon the speech signal. This ability is, after all, is what motivates Labov's instrumental studies of variations in vowel quality.

The remainder of Chapter 2 is concerned with a discussion of the way in which Labov's 'principles of linguistic change' build upon a combination of structuralist (viz., qualitative, categorical, non-gradient) and quantitative (categorical, gradient) models of vowel systems. The chain shift model is especially favoured as a means of interpreting change to vowel systems as 'systems', but it is suggested that there are certain problems with Labov's approach which at present make it unsuitable as a technique for analysing vowel variation in TE, a topic which is returned to in the concluding chapter.

A review of some central issues in the ways in which linguistic and societal structures intersect is provided in Chapter 3. In this chapter it is argued that, *contra* functionalist views of language variation as a 'nuisance' factor in the communication of information, such variation is both useful, and even necessary, in the transmission of messages between speakers and hearers. The vast amount of redundancy in the speech signal, to be discussed in Chapter 2 (see above), allows speakers to elaborate socially meaningful phonetic structure within certain flexible constraints: regional and social phonetic variation (i.e. accent), is an expression of the way in which speakers exploit the 'belt and braces' nature of speech as a communicative medium. Following Keller 1994 (and many others) it is speculated that part of a speaker's success in a communicative context will depend on attention to the social as well as the semantic content of speech; a speaker must trade off being understood against being socially acceptable. Where opportunities exist to take maximum advantage of this compromise, I argue, speakers or groups of speakers may exercise what I call 'linguistic entrepreneurship': changing social circumstances bring about linguistic change because speakers see modifications to their speech behaviour as a means of enhancing their personal status in some way.

The question of dialect levelling (strictly speaking, *accent* levelling is more appropriate in the present context) is of relevance here, since there is good evidence in the literature that this has been happening for some time in Tyneside English, perhaps for more than 150 years. It has

been supposed in the past that the levelling has been in the direction of southern Standard English (see Viereck 1968, for instance), but the findings of the present study indicate that the forms which seem to enjoy most 'prestige' among the PVC speakers are more similar to those found in varieties of English spoken in northern England; given that many northern English varieties seem to be converging in the same direction, it might be argued that a *regional standard* (Edwards & Jacobsen 1987) has developed. The formation of such a regional standard is, I believe, the result of koineisation (Siegel 1985). The rate of drift toward this northern English koine appears to be mediated by the sex, age and social class of the speaker, while the direction of the changes is likely to be most evident when conversational style is compared with the more formal word list style. Some possible reasons for the differential effects of sex, age, social class and style are evaluated in the latter part of Chapter 3.

In Chapter 4, a brief social history of the Tyneside conurbation is presented. Demographic information such as this is always useful when trying to make sense of speech behaviour in a large urban speech community, particularly in view of the inaccuracy of the perception of the population of Newcastle upon Tyne as rather uniform, conservative and isolated. Instead, evidence is given to show that Newcastle, like many other British cities of the time, expanded enormously during the nineteenth century as development of the heavy industries of coalmining and shipbuilding transformed the economic and social life of the region. The influx of workers from other regions of the British Isles must have changed radically the culture and role of Newcastle, and almost certainly strongly influenced the language spoken there. Upheavals in traditional working patterns and lifestyles continue today: a shift away from heavy industry to light manufacturing and service industries since World War II has precipitated counterurbanisation among Newcastle's workforce, with associated changes in housing patterns; the inception of new economic activity in the area has brought in repeated waves of immigration from other parts of the United Kingdom. Newcastle has for the last two centuries, thus, been a classic example of a speech community in which a large degree of dialect contact is the norm and dialect levelling is virtually inevitable. In this light, the variation and change reported in this thesis are accounted for rather well.

The methods by which the vowel data were collected are laid out in Chapter 5. Details of the selection of speakers, social factors and linguistic variables are given here, as well as information on the way in which the transcriptions were initially made and then verified. The statistical techniques used in the treatment of the data are also outlined here. The bulk of Chapter 5 is comprised of the report on a small-scale pilot study carried out prior to the main investigation. In this section, a number of candidate linguistic variables, which are reported in the literature to vary either as a function of phonological context or in line with speaker characteristics, are examined using transcriptions made of the speech of a subset of eight

speakers (one per cell). On the basis of the findings of this pilot study, the vowel variables are either rejected, or are carried forward as variables to be studied in more depth in the main study. Already in Chapter 5 it becomes apparent that two variables are acting 'in tandem' in terms of the distribution of their phonetic variants among the eight speakers sampled: after Weinreich, Labov & Herzog (1968:175), Samuels (1972: Chapter 3), and others, I term this 'symmetry', a concept which is assessed more fully later in the thesis. Lastly, style shifting in line with a change in the formality of the speech situation is recorded for the eight informants, providing clues as to the nature of perceived 'correctness' among TE speakers. Five vowel variables (which, following Wells 1982, are labelled FLEECE, GOOSE, FACE, GOAT and NURSE) are found to be of especial interest on the basis of the findings of the pilot study.

Chapter 6 is a breakdown of the descriptions of these five variables given in five previous works: these works span the 20th century, give or take a decade or so, from Daniel Jones' (1911) transcription of a song, to the brief but illuminating description of Tyneside English phonology found in Wells (1982). Of the scant works on the subject published between these dates, I examine J.D. O'Connor's transcription published in 1947, Viereck's *Phonematische Analyse des Dialekts von Gateshead-upon-Tyne* (1966), and Hughes & Trudgill's (1979) short section on Newcastle English. Viereck's study is the only comprehensive treatment of the dialect, but is somewhat thin on phonetic (rather than 'phonematic') data, does not use quantitative methods, and concentrates exclusively on the speech of elderly working-class men. All these works are, however, very useful in estimating the antiquity of traditional forms, and the rate at which they are being lost. Though Chapter 6 is focussed very closely on the descriptions of the five vowel variables of interest in this thesis given in the literature listed above, other relevant sources are referred to throughout the course of the chapter. Again, we gain a better understanding of the patterns found in the data collected for this thesis if we have detailed information on the phenomena in question, and their historical development, at our disposal.

The results of the main study are to be found in Chapter 7. As with the pilot study, each linguistic variable is examined one at a time, and then related, where relevant, to its 'partner' (FLEECE with GOOSE, FACE with GOAT). In this way, we find evidence, as expected, of finely-tuned socially-conditioned variation, as well as signs of the loss of traditional TE forms as accent levelling takes place. The symmetry of the paired vowels above, but more particularly FACE and GOAT, is retained across the eight speaker groups as their traditional forms become recessive, an interesting finding from the point of view of Labov's chain shift models. Many, or most, of the patterns hypothesised are demonstrated by the data, though there are notable exceptions which are difficult to account for using existing internalist explanations (retraction of front vowels, merger, etc.); rather, external factors are invoked where internal

interpretations of these processes are difficult to support. This being the case, it seems that internal factors may be overridden where social factors require changes of particular types.

These issues are explored in more depth in the discussions chapter, Chapter 8. The key questions raised by the findings in Chapter 7 - accent levelling, symmetry and merger (and the reversal thereof) - are all clearly intertwined and interdependent in the Tyneside case, and the relationship of these factors to the sex, age and class criteria by which the PVC speakers are categorised makes the picture more complex still. Yet sense can still be made of the observed patterns if we accept that internal and external factors may contribute to language maintenance and change by differing degrees at different times: at periods of relative social stability, internal factors have the chance to predominate in dictating the direction of any changes that take place, while external factors may ride roughshod over internal ones during periods of significant social change.

Chapter 9 is concerned with the conclusions that can be drawn from the study, and assesses the extent to which the aims of the study have been fulfilled. In general, the hypotheses which motivated the study are found to be borne out in the data: accent levelling appears to be taking place in TE, and seems to be affecting the vowel system in ways which are not easily accounted for by the current theoretical model. While Tyneside English continues, if rather tenuously, to retain features that were lost in other northern varieties many centuries ago (possibly because of the north-east's comparative isolation from other areas of population) the large amounts of dialect contact its citizens will have experienced in the nineteenth and twentieth centuries as the city expanded will have disrupted this relative equilibrium. Newcastle's increased importance for the United Kingdom, and indeed the world, as suggested in Chapter 4, made the variety of English spoken there diverge ever more markedly from the speech of the inhabitants of its rural hinterland. Whether this is due, as some have argued, to the influence of southern Standard English and RP - or is, as I propose, the consequence of a convergence on a regional standard - characteristic Tyneside pronunciations appear to be on the wane. Younger TE speakers, it seems, adopt less identifiably local pronunciations perhaps through a desire to dispel the 'cloth cap and clogs' image which has been attached to Tynesiders for at least a century (but which has also been exploited - often very lucratively - by locals such as the late Catherine Cookson). Like young city dwellers elsewhere in the United Kingdom, these young speakers may be more interested in promoting the development in others of a more outward-looking, cosmopolitan image of themselves; at the same time, the stereotype of the rough-edged, no-nonsense northerner has recently acquired a certain cachet in Britain and overseas. The thesis concludes by speculating that TE is being shaped so as to reflect the wish of young Tynesiders to sound like northerners, but *modern* northerners.

Appendix 1 is a copy of the word list used during the collection of the PVC data; Appendix 2 gives example words (from Wells 1982) for each of the lexical sets used here; Appendix 3 is comprised of copies of the portions of Hughes & Trudgill (1979) and Wells (1982) that deal with Tyneside English; Appendix 4 illustrates the methods by which the transcriptions for each individual speaker were quantified, by breaking down the figures for older working class male John.

We turn next to take a brief look at some of the issues which motivate this study, so as to make it clear why it was undertaken.

1.2 General issues

The split between 'formal' and 'functional' schools of linguistics needs no introduction, as the debate between linguists in either camp, or with a foot in both, has in part driven the development of new ideas and techniques in the field since at least the 1950s, and more broadly speaking for most of this century. In a nutshell, the formalists have tended to emphasise the importance of writing 'stand-alone' grammars, which produce as output surface forms in which variability is either marginally acknowledged or not acknowledged at all; functionalists prefer to concentrate on discovering more about how language is used, and the functions to which it is put. For formalists, variation is an undesirable by-product of the processes which bring underlying forms, representations, or categories to the surface, in speech, writing or sign. Functionalists (at least those who recognise that variation is not necessarily random and may indeed be useful for speakers and hearers) tend toward theories of language that derive models of linguistic structure from what speakers actually *do*, rather than positing a set of fixed, invariant, or universal categories that underly a language, and then presenting evidence to show their surface effects (see, for instance, Fasold 1991; Guy 1996). One might think of these opposing views of language structure as 'theory-driven' (the formalists) and 'data-driven' (the functionalists). Dixon (1997) has relevant comments to make on this dichotomy:

There is one major myth in modern linguistics which is responsible more than anything else for the discipline losing contact with its subject matter, the study of languages. It goes as follows. There are essentially two types of linguist. The descriptivists, who do field work and write grammars. And the 'theoreticians' (i.e. the formalists, people working on non-basic theories), who do not gather data themselves but rather interpret it, from the point of view of their chosen formalism. The myth is that the work done by the 'theoreticians' is more difficult, more important, more intellectual, altogether on a higher plane than the basic work done by the descriptivists. This is *wrong*, from every angle. [...] every person who describes a language is also a theoretician; they have to be, to make any analytic decisions. Every point in a grammatical description is a theoretical statement, and must be justified by appropriate argumentation. (Dixon 1997:133-134).

There is too little room here to explore this topic in detail it deserves, but it should be made clear at this point that the approach taken in this thesis is one which assumes that the categories and processes comprising a theory of language should be accountable to the data, and not the reverse. Furthermore, this research is undertaken in the belief in the non-random nature of the variability which can be observed when the sound systems of languages are *in use* (variability which is not easily attributable to allophony or mechanical factors such as coarticulation, for instance). I attempt to show that there are principled reasons for the variation found in the vowel system of Tyneside English, and that the variation can be linked to - indeed, is determined by - the social characteristics of the speaker. In this sense, the research presented here can be couched in the tradition of quantitative sociophonology developed in the work of Labov (1966).⁴

Labov's methodology introduced to the generativist linguistics of the time a measure of realism informed by the standard empirical techniques used in the natural and social sciences. His adherence to Popper's principle (1959), by which (paraphrasing) 'to be right means that you have finally, abjectly, hopelessly failed to prove yourself wrong' (Labov 1972:99), entails the development of a new methodology 'with new kinds of data... But if new data has [sic] to be introduced, we usually find that it has been barred for ideological reasons, or not even been

⁴ Labov's work, as mentioned earlier in this chapter, is inspired in large part (see Labov 1994:xiii, 1997) by that of Uriel Weinreich. Ideas about the importance of socially-conditioned variation have of course been around in linguistics since the inception of the subject as a discipline, but it appears that few scholars were prepared to admit a role for variation in a formal theory of language (see, for example J. Milroy 1992, 1996). For instance, Sapir remarked in 1929 that 'it is precisely because language is as strictly socialized a type of behavior as anything else in culture and yet betrays in its outlines such regularities as only the natural scientist is in the habit of formulating, that linguistics is of strategic importance for the methodology of social science... It is peculiarly important that linguists, who are often accused, and accused justly, of failure to look beyond the pretty patterns of their subject matter, should become aware of what their science may mean for the interpretation of human conduct in general' (quoted in Chambers 1995:1).

recognized as data at all, and the new methodology must do more than develop techniques. It must demolish the beliefs and assumptions which ruled its data out of the picture' (ibid.).

The kinds of data Labov has in mind are the manifestations of language in communicative contexts: that is, language in use in social settings. Contrary to the (Chomskyan) linguistic doctrine of the time, he proposes that the communicative functions of language are its primary *raison d'être*, and that we can address the questions concerning its origins, purposes and uses only by placing it in the social contexts in which it is normally found. Generative linguists at the time concerned themselves with the investigation of language through introspection, or through the use of perhaps a single native speaker, every effort being made to eliminate variables to do with regional, social or stylistic variation, since it was (and still is) believed that the true nature of language can be divined by removing it from its normal spatio-temporal context. Because context-free language is, in the real world, unnatural and extremely rare, assuming that the study of language in isolation from its speakers is most scientifically objective approach to a theory of its structure (see e.g. Chomsky 1992) would be akin to studying other forms of social behaviour such as mode of dress, choice of newspaper, or voting habits, using a single individual. As such, isolationist approaches to language study can illuminate at best only a restricted part of the picture. Linguistic theory, Labov argues, must be derived from observable phenomena if it is to be scientifically respectable; these phenomena consist of linguistic objects and events collected in situations as uncontrived as possible.

Labov's change of focus from the grammaticality judgments of the linguist or the isolated native speaker to ordinary language users as the source of primary data is guided by what he terms the 'principle of the vocal majority': language is the property of populations of 'naïve' native speakers, and it is their vernacular speech we should study if we wish to know how language works and what it does.

The word 'vernacular' has sometimes led to the misunderstanding that [the principle of the vocal majority] focuses only upon illiterate or lower-class speech. Most of the speakers of any social group have a vernacular style, relative to their careful and literary forms of speech. This most spontaneous, least studied style is the one that we as linguists will find the most useful as we place the speaker in the overall pattern of the speech community (Labov 1972:112).

Labov's frustration with the self-referential and rabbinical nature of the debates concerning the virtues of various approaches to linguistic theory leads him to coin the term 'secular' linguistics as a synonym for 'sociolinguistics'. The latter term he dislikes, since it implies that language can be dissociated from its social functions. The search for explanations of

linguistic phenomena which are grounded in extra-linguistic domains (unlike the sorts of mathematical proof within closed algebraic linguistic models advocated by linguists such as Joos (1950)) should, Labov believes, assume centrality.

... we observe a quietistic tendency to claim that almost all our [formal] theories are notational variants of one another, that each is true in its own way and has an insight to contribute... My own view is that such equivalent theories are trivial variants, and to confine ourselves to arguing their merits is to engage in an aesthetic pursuit rather than a scientific one (Labov 1972:98).

He continues:

Either our theories are about the language that ordinary people use on the street, arguing with friends, or at home blaming their children, or they are about very little indeed (Labov 1972:109).

Labov thus extends the linguist's remit to include all aspects of language structure, be they purely grammatically internal or concerned with the intersection of linguistic and social structures. The key concept in both cases is the non-random, non-accidental nature of the patterns which can be seen in the ways language is used by a population:

Our general aim is to write the grammar of [a] speech community, with all its internal variation, style shifting, change in progress. When the data begins [sic] to fragment into unpatterned idiosyncrasies - for normative judgments for actual behaviour - then linguistics comes to a stop (Labov 1972:108).

I concur with Labov's comments here, and those of Dixon (1997) to the effect that there seems no compelling reason why the structures posited in generative linguistic theory should necessarily be superior in explanatory terms to those which are derivable (and, moreover, quantifiable) from language in use. As Pierrehumbert (1994:3) points out, 'variation penetrates further into the core of the theory than generally supposed, and variation... should be exploited rather than disregarded in investigating language'; this statement is echoed by Dressler & Moosmüller (1991), who see phonological variation as an integral part of language, rather than as 'secondary'.⁵

⁵ Attempts have been made within generative phonological theory to capture selected aspects of socially-conditioned variation using a 'variable rule' methodology (e.g. Cedergren & Sankoff 1974; Sankoff 1985; Guy 1980) and more recently within optimality theory (OT) as applied to phonological derivations (for example, Nagy & Reynolds 1997) and syntactic variability (e.g. Bhatt 1997). On the variable ranking of constraints in OT, Davenport & Hannahs (1996:77) say: 'allowing a grammar to have variable rankings... increases even more the overall power of the model; once manoeuvres like this are licit, the problem is curtailing them', concluding that 'a theory that can do anything is a theory that is, ultimately, uninteresting, since it makes no predictions concerning

Phonology can be seen as part of social action that, according to the sense given it by its actor(s), refers to the behaviour of other persons and orients its execution according to such behaviour. Since language is produced by human beings who use it to organize their social life (both via communication and cognition, the two basic functions of language), it is best described and understood as a system of goal-directed actions within its social frame (Dressler & Moosmüller 1991:36).

While making sense of patterns in (socio)linguistic data is rarely unproblematic, the recognition of real-world data as indispensable for the development of a theory of language helps to bring linguistics back into the scientific fold. It might be argued that recent discoveries in other disciplines - quantum physics, for example - entail a suspension of the agreed empirical criteria until such a time as the technology by which we can observe the objects and events predicted by quantum theory can 'catch up' with the theory itself. But linguists have no such excuse: the means by which we can quantify highly variable surface phenomena and observe changes as they are taking place are now available to all. An acceptance of the relevance of naturally (preferably spontaneously) produced performance data to the study of competence is incumbent upon anyone wishing to make useful or illuminating statements about what it means to 'know' or 'use' a language.

In the context of this study, then, we proceed on the understanding that it is important to try to stay as close to the data as possible. Some degree of abstraction away from the transcriptions themselves is inevitable - even the narrowest of impressionistic phonetic transcriptions is itself an abstraction, it being a conversion of an auditory stimulus into a visual one - but in general an attempt has been made throughout to let patterns 'fall out' of the data, rather than imposing a structure on the data from the beginning. I am aware that the use of impressionistic transcriptions is open to criticism (see for example Butcher 1982; Vieregge 1987; Nairn & Hurford 1995; Cucchiariini 1996; Kerswill & Wright 1990) but the alternative - at least the standard procedure used by Labov and his associates, as seen in the following chapter - is scarcely any more objective, and leaves as many questions open as does the more traditional method. As will be seen in Chapter 5, the accuracy of the transcriptions made of the data presented in Chapter 7 is about as good as one could hope to get in the circumstances, at around 90%. In any case, as the aim was to detect broad patterns in large amounts of data at the expense of pinpoint accuracy with small samples, I am satisfied that the findings reflect real, reproducible phenomena (see §5.2.1).

natural language... a theory survives or falls on the basis of the analyses that are done using it, not those that might be done' (1996:82). Guy (1997) is more sceptical still, arguing that the 'combinatorial explosion' entailed by each language or language variety having to choose from an astronomically large number of purportedly universal constraints is OT's fatal weakness.

Chapter 2, as noted before, is concerned with the modelling of change in vowel systems using the formant frequency model; we turn next to the principles that researchers have used to validate the representation of individual vowel sounds by the centre frequencies of their two lowest formants, and some of the issues associated with this technique.

CHAPTER TWO: INTERNAL FACTORS

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2.0 Introduction

The aim of this chapter is to link the broad theoretical arguments presented in the previous chapter to the specifics of variation and change in vowel systems. Some definitions of the concept of 'the vowel' are given, followed by a discussion of some of the links between the relevant parameters in the articulatory, acoustic and perceptual domains. An appraisal of the formant frequency model, which is currently widely used in the investigation of vowel variation and change, most notably by Labov and his associates (e.g. Labov, Yaeger & Steiner 1972; Labov 1991, 1994, 1998), is given, this methodology being evaluated in terms of the conflict between formalism and functionalism outlined in the previous chapter. It is suggested that such models are in fact somewhat flawed with respect to Labov's stated approach to sociophonology, and to the investigation of vowel variation and change in general. I argue that the investigation of chain shift (a structural concept) using instrumental techniques is well motivated, but that the validity of this approach is compromised by an over-reliance upon a formant frequency model based solely on points representing F1 and F2 measurements taken at the point of maximal formant displacement (Labov, Yaeger & Steiner 1972:29ff; Labov 1994:165).

We begin, however, with a short description of the way in which the set of vowel phonemes in a language's phonology has been conceptualised as a 'system': this idea is crucial for the elaboration of Labov's chain shift models, since it is the internally-referential and mutually opposing relationships between vowel phonemes that allow systemic equilibrium to be maintained when the system is perturbed, say through the inception of a push- or drag-chain.

2.1 Structural analysis of vowel systems

The very term 'system' to describe the inventory of vowels available to the speaker of a language or language variety implies a set of paradigmatic relationships between the individual elements that comprise the system. These relationships are expressed by qualitative (phonetic) oppositions which serve to make qualitative (semantic) distinctions; that is, the vowels are there to help make words which *mean* different things *sound* different. Vowels in such a model are thus (ideally) invariant and mutually exclusive, since a one-to-one mapping between meaning and sound would

appear to be the optimally efficient arrangement. But vowels are usually described as continuous phenomena, not categorical ones (e.g. Rosner & Pickering 1994; Stevens 1997). Nonetheless, a categorical structure obeying the *axiom of categoricity* (Chambers 1995:12-13; 26-27) which has historically tended to guide the development of linguistic theory - not least phonological theory - is in structural models imposed, or overlaid, upon such a phonetic continuum. The phonetic continuum is thus partitioned according to semantic criteria: individual tokens of vowel categories are classified according to whether they are perceived to be better exemplars of meaning A than of meaning B.

It might be pointed out at this juncture that a system is only a system by virtue of its being structured; we cannot talk of a system of vowels without implying an internal structure to that system. Crystal's (1991) definition of structure emphasises the congruence of structure and system thus:

A language... is a structure, in the sense that it is a network of interrelated units, the meaning of the parts being specifiable only with reference to the whole. In this sense, the terms 'structure' and 'system' are often synonymous (and the phrase 'structured system' which is sometimes encountered - as in 'language is a structured system' - is a tautology). More specifically, the term is used to refer to an isolatable section of this total network, as in discussion of the structure of a particular grammatical area (e.g. tenses, pronouns), and here 'structure' and 'system' are distinguished: one might talk of the 'structure' of a particular 'system' (Crystal 1991:331).

We can, recognising a language's vowels as a subsystem of the language as a whole, define a structure within that subsystem which characterises the paradigmatic characteristics of the set of vowels while simultaneously delimiting the sorts of syntagmatic relationships that obtain between each vowel and other components of linguistic structure.

Such an analysis of the vowel system, which is particularly well exemplified by the work of Martinet (1955), prevails; it underlies all Labov's work on sound change, for instance. The principles of *maintenance of contrast* and *avoidance of homophony* formalised by Martinet are the driving forces behind the chain shift model: they act as safeguards to prevent damage to the system's structure through merger, which is perceived to be the greatest threat to the functionality of the system.

It is possible, on the other hand, to think of the set of vowels in a language as a system, without automatically assuming that these structural principles apply. In natural speech, individual vowel tokens overlap a good deal without either jeopardising communicative success or incurring merger (see below). Martinet's structural models have great intuitive appeal, but they are of course something of an idealisation.

We shall, however, adhere to the use of the term *phoneme* to describe elements in the system which allow categorical semantic oppositions to be signalled,¹ despite more recent developments in phonological theory which reject this label for, but not the concept of, such higher-order elements (see Anderson 1985, Goldsmith 1995). Phonemes are, by definition, structural entities in a self-organising system, the internal structure of which is regulated by pressures to maintain the oppositions in as efficient a way as possible, while simultaneously preventing (a) the proliferation of additional oppositions through the introduction of new phonemes by split or borrowing and (b) poverty of oppositions through their loss.² The system thus aims to achieve and maintain equilibrium, since, as suggested earlier, it appears to be in the best interests of language users for the relationship between a string of speech sounds and the message intended by the speaker to be as unambiguous as possible. The nature and function of the phonological system is thus defined by the needs of the speaker to communicate meaning, and those of the listener to decode the incoming signal. The phonology can thus be seen as an encoding and decoding device.

Sound-meaning correspondences are assumed to depend upon some measure of invariance on the acoustic side. Speech is thus, in the ideal situation, as invariant as possible. Again, however, it is hard to find evidence of this in the real world: spoken language is phenomenally variable. Because it has typically been assumed that invariance is more beneficial to language users than variability (Elman & McClelland 1986:360; Ohala 1986:386; Kreiman 1997:85; Pisoni 1997:10; Nusbaum & Magnuson 1997:110), variability has been characterised as a nuisance factor (the so-called 'lack of invariance problem'). In the case of vowels, the lack of invariance is particularly complicated. Vowels, as mentioned earlier, are usually said to be

¹ Warren's (1983) account discusses in detail the multidimensional and sometimes 'schizophrenic' aspects and functions of the phoneme.

² Loss of a phonemic contrast may be tolerated in certain circumstances, specifically where the 'functional yield' or 'load' of that contrast is low. Functional yield, according to Martinet (1955) is a measure of the value of a phoneme with regard to its workload in the system of lexical oppositions: the fewer the oppositions a phoneme enters into, the greater its chances of change or loss. Samuels believes (1972:33-34) that this explains in part why symmetry in vowel systems is far more common than asymmetry (see §2.5.2), and why highly marked phonemes are lost from languages comparatively rapidly.

continuously variable in a way that consonants are not, and it is perhaps true to say that varieties of languages - certainly in the case of English - appear to vary more in terms of their vowel systems than they do consonantly. Accents of English have, by and large, been defined *as* vowel variation, at least implicitly (Labov, Yaeger & Steiner 1972; Hughes & Trudgill 1979; Labov 1991, 1994, 1998; Wells 1982). The inherent variability of the phonetic realisations of vowel phonemes might be expected to make their phonemic categorisation by the listener comparatively difficult, but the fact that listeners are able to understand speakers using accents very different from the listener's is both obvious and crucial. It has been suggested by way of explanation of this apparent paradox that varieties of a single language share a common underlying system one step removed from the phonemic system of each accent. This vowel 'diasystem' (Gumperz & Hymes 1972) is the reference set of vowel distinctions all varieties of a language have at their disposal - or deviate from - and in order to model variation in the varieties, it has been argued, we must use the diasystem as a starting point.³ Wells (1982) provides an extremely convenient means of referring to a diasystem created by combining the important features of the Received Pronunciation accent of British English and those of 'General American' English. Instead of pre-empting a description of the system of a particular variety by referring to its phonemes or phonological variables using the customary phonetic characters, Wells instead makes direct reference to the lexicon through the use of mnemonic keywords as labels for the set of words containing particular vowels (FACE, CHOICE, NEAR, etc.). In this way comparisons between different varieties of English are facilitated. Wells' keywords are used throughout this thesis for this reason, though it should be noted that in Tyneside English the lexical sets are different in several ways from those of RP or General American.

It is recognised, thus, that the analysis of vowel variation presented in this study is based on structural principles which are unsatisfactory in many ways. The structuralist approach is heavily theory-laden, but is simultaneously so universally accepted (particularly within sociophonology) that it is worth retreating somewhat in order to discuss the principles by which such structures are posited and the implications they have for our understanding of vowel variation and change.

³ Annan (1970) uses the term *koine* in this context, following Hill (1958): 'We may suppose that, for complete mutual comprehension, any two speakers of a koine must have sound systems such that 'corresponding' vowel phonemes, for instance, occupy corresponding places when plotted within their systems on a cardinal vowel chart or formant chart' (Hill 1958:454). Annan's instrumental study of five accents of English - RP, General American, Australian, Scottish, and Yorkshire - prefigures that of Veatch (1991), of which more is said later in this chapter. Note the difference between the meaning of *koine* in Annan's sense and that used, following Siegel 1985, throughout this thesis.

2.2 The vowel: some definitions

2.2.1 Distributional definition

A simple definition of the vowel is far from straightforward. Ladefoged & Maddieson (1996), for example, suggest some possible features by which vowels might be distinguished from consonants; this dichotomy seems a useful starting point. A distributional definition, according to which vowels are speech sounds which may be uttered alone and consonant sounds which must be accompanied by a vowel,⁴ is one which is supported by widely attested phonotactic constraints on languages worldwide, as the most commonly-occurring syllable structure cross-linguistically is CV (consonant+vowel). Similarly, the definition of the vowel which stresses its role in the syllable - itself a construct for which definitions diverge - makes reference to the fact that syllables tend to be built around voiced sounds in which no major strictures within the vocal tract are involved. Crothers' (1978:96) definition ('vowels can be defined as syllabic sounds produced without closure in the middle of the oral tract') takes this articulatory-cum-distributional approach to distinguish vowels from sonorant consonants, which are voiced and continuant, but are characterised by some sort of lingual or labial occlusion. A somewhat different set of initial distinctions is made by Pike (1943), who classifies speech sounds into 'vocoids' and 'contoids', both of which may be syllabic or non-syllabic. This taxonomy, as before, blends phonological function with phonetic form. 'Typical' vowels are syllabic vocoids, and 'typical' consonants non-syllabic contoids. The remaining two possibilities, non-syllabic vocoids and syllabic contoids, are characterised by vowel-like sounds which do not or cannot serve as syllable peaks (/j/, /w/ and /r/, for example, assuming /r/ to be articulated without friction or occlusion) and sounds which - in English, for example - may function as 'syllabic consonants' such as /l/, /n/, /m/, etc. The deciding factor here is that acoustic sonority peaks in the middle of the syllable; the identity of the sound which causes sonority to peak is more or less immaterial.⁵

⁴ Hence the name: *consonant* derives from Latin 'sound together' (Hoad 1986).

⁵ Clark & Yallop (1995:61) define sonority as 'energy relative to effort, or more informally to the 'carrying power' of the sound. A sonorous sound is one with high output relative to the articulatory effort required to produce it'. This definition anticipates the cost/benefit ratio discussed in connection with sound change in Chapter 3.

2.2.2 Acoustic and articulatory definitions

The sonority peak of vocalic segments is audibly conspicuous by comparison with the rest of the syllable, at least where vowels are voiced. Vowels are characterised by relatively protracted periods of energetic sound relative to the brief disruptions to the speech stream typical of consonantal segments. Within those periods coherent structures can be detected, most conspicuously the bands of relatively intense energy in the acoustic spectrum known as formants. Vowel segments are usually described as one of the few portions of the phonetic signal that can be said to attain any sort of 'steady state' by virtue of their relatively prolonged duration, which is prolonged further when the vowel receives stress.⁶ This permits the vowel to attain more closely its prototypical form or 'target' (see below). Where speech is produced at rapid rates, the vowel target may fail to be reached as the articulators do not have sufficient time to complete the necessary articulation before having to begin the next one (so-called *undershoot* - see Lindblom 1990; Lindblom *et al.* 1995).

Representation of the formant space of vowels by plotting the midpoint frequencies of the first and second formants against one another was originated by Joos (1948) and was subsequently developed by Peterson (1951) and Peterson & Barney (1952). Peterson & Barney, in their well-known paper on the acoustic cues to (monophthongal) vowel quality in American English, plot F1 against F2 values extracted from vowel tokens produced in a /hVd/ test frame (second iterations only) by 76 men, women and children, as shown in Figure 2.1(a).⁷ The figure shows that in the main the productions of each of the phonemes /i ɪ ε æ ɑ ɔ u ʌ ɜ/ fall within a contour, or 'envelope' drawn around the majority of the points in each category. An approximately quadrilateral shape emerges, within which it appears that the physical exponents of phonemes occupy certain reasonably well-defined areas.

⁶ The steady-state vowel is in fact something of a chimera in natural speech. Nusbaum & Magnuson (1997), for example, believe that too much emphasis has been placed on the study of steady state vowels, as these are 'seldom found in fluent speech where vowels are coarticulated into consonantal contexts' (1997:121).

⁷ Note that the F2 values on the y axis in Figures 2.1(a,b) are plotted on a log(F2) scale.

women and children, while (b) is based on just the men's and children's figures; in the latter case, one would hope that the removal of the female speakers would partly diminish the variability within and overlap of phoneme envelopes, and help to resolve a tighter clustering of points on the F1~F2 plane. And as phonological context and assimilatory effects have been controlled for through the use of a standard phonological frame, clustering ought to be tighter still. Yet even under such restricted - and somewhat contrived - experimental conditions, the lack of agreement between speakers' productions in the first instance, and between listeners' categorisations in the second, is conspicuous. It may be that overlapping categories would in some cases be disambiguated by differences in higher formants or in some other parameter, as Peterson & Barney suggest;⁸ indeed, overlap in two-dimensional plots such as these may very often be an artefact of the way these speech sounds have been represented, rather than a reflection of actual overlap of the sounds in acoustic terms.⁹ It may be that the variability seen in Figures 2.1(a) and (b) is brought about by accentual variation on the part of the speakers (Peterson & Barney specify only that they are speakers of 'American English', calling the paper a study of 'the vowels' as though there were just a single set), but given the highly formal circumstances of the experimental situation, one would anticipate that speakers would converge on a 'correct', 'clear' or 'careful' pronunciation close to the perceived standard. The fact that Peterson & Barney appear not to have given explicit instructions either way suggests that experimenters and subjects alike 'knew' what sorts of targets they were expected to aim for.¹⁰ Clearly, then, the use of multiple informants is liable to result in this level of ambiguity, as even at the level of the individual we could hardly expect such articulatory/acoustic consistency that a target clustered tightly around a single point would be resolved.

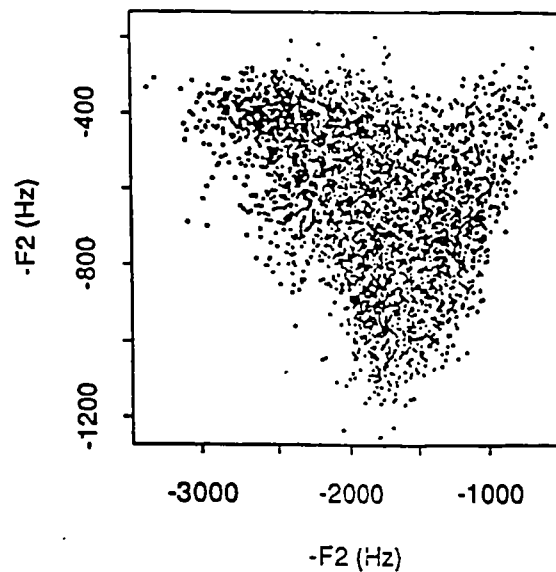
Figures 2.2 and 2.3, below, are taken from Veatch (1991:202). Veatch, not surprisingly, reports that plotting F1 and F2 values for 4,470 vowels used by a single speaker (Rita, aged 17, from Chicago) in a lengthy conversation results in a vowel triangle almost uniformly filled by tokens.

⁸ 'It is the present belief that the complex acoustical patterns represented by the words are not adequately represented by a single section, but require a more complex portrayal. The initial and final influences often shown in the bar movements of the spectrograms [i.e. formant transitions] are of importance here' (Peterson & Barney 1952:184).

⁹ Projection of the acoustic vowel space into three or more dimensions is of course a relatively straightforward matter, if rather difficult to represent on paper (see e.g. Broad & Wakita 1977; Syrdal & Gopal 1986; Clark & Yallop 1995:270; Stevens 1997:476).

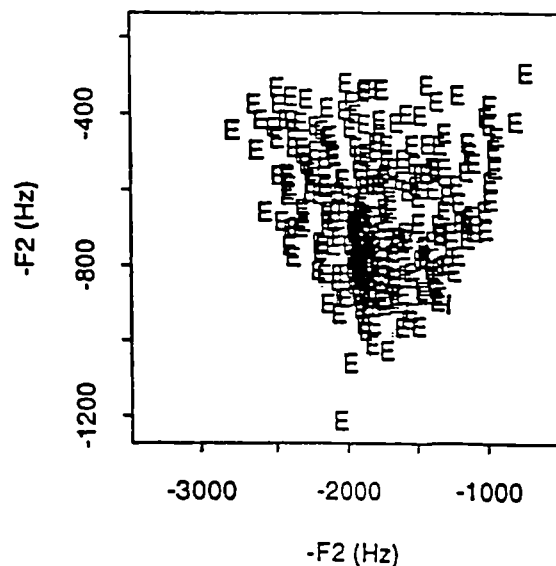
¹⁰ Some speakers, of course, may have hypercorrected to some extent, skewing the figures in the direction of the perceived standard but going *beyond* the consensus target (Labov 1992, quoted in Kerswill 1996b:201; see §8.2.5).

Figure 2.2: 4,470 F1/F2 measurements for Rita's vowels, 1990 (from Veatch 1991:202)



Veatch distils acoustic targets from this apparently random scatter of F1~F2 values by using an iterative averaging 'bootstrap' algorithm: this repeatedly plots the mean of a subset of the data for each phoneme in the system. An example of the input figures to this algorithm is shown by the plot for Rita's /ε/, in Figure 2.3 below.

Figure 2.3: Rita's /ε/ (from Veatch 1991:202)



While a pattern looking like a system of evenly spaced peripheral targets is resolved after several hundred passes, Veatch has allowed for a fixed, preconceived set of phonemes in the system, and presents the outcome as a simulation of the normalisation process. Both of these assumptions are questionable, but particularly the

latter. As Keating, Huffman & Jackson point out (1984:50), '... we have found that even languages with few vowels will essentially fill the vowel space with vowel tokens in running speech'; using sophisticated mathematical transforms may indeed reveal the location of the *mean* target, but this is not the same as resolving a *prototypical* one, nor does it say anything about the psychological reality of such targets. Veatch's methodology, it should be noted, is that developed by Labov, Yaeger & Steiner (1972) and subsequent instrumental work on vowel variation and change by Labov and his colleagues at the University of Pennsylvania (e.g. Labov 1991, 1994, 1998).

Despite these problems, however, the frequencies of the first two formants, with the addition of the third (F3) are generally agreed to be the strongest and most consistent cues to vowel identification. They can to some degree be related to the traditional articulatory parameters by which vowels are classified: height, backness (or frontness) and rounding. Lindblom & Sundberg (1971a:96-97), for instance, relate physiological parameters directly to the acoustic characteristics of vowels: the shape of the resonating cavity, configuration of the lips, the height of the jaw,¹¹ the height of the larynx, and the amount of tongue/passive articulator constriction and the point at which it occurs (palatal, velar, or pharyngeal). Palatal constrictions result in close front vowels, velar constrictions close back vowels and constrictions at the pharynx, open vowels. A set of general articulatory/acoustic correspondences are offered on this basis:

- tongue constriction in the palatal or velar region → lower F1; pharyngeal constriction → higher F1
- palatal vowels have higher F2, velar vowels lower F2, pharyngeal vowels have F2 values between these two
- retraction of tongue constriction raises F1 somewhat and lowers F2 considerably¹²
- mandibular opening raises F1, but lowers F2 for palatal vowels and raises F2 for velar vowels
- increased tongue constriction raises F2 for a palatal vowel, but decreases F2 for a velar or pharyngeal vowel

¹¹ The acoustic and perceptual characteristics of speech produced where movement of the lower jaw is controlled by use of the 'bite-block' method (Lindblom, Lubker & Gay 1979; Lubker 1979) do not differ greatly from those where the jaw is allowed to move freely, as in normal speech. This finding demonstrates the great flexibility of the vocal and auditory apparatus to produce and perceive speech sounds consistently even under highly artificial conditions.

¹² Experimental evidence reported by Flanagan (1955) indicates that a change in F2 must be a good deal larger than a change in F1 in order to make a perceptible difference in vowel quality. F1 corresponds approximately to vowel height (and sonority), so we might expect in view of the relative 'sensitivity' of F1 that height variation in vowel systems, all other things being equal, would be most the most commonly reported sort of vowel variation. It has been suggested that the number of distinctive vowel heights used in the world's languages is greater than the number of front/back distinctions because of the greater perceptual salience of changes in F1.

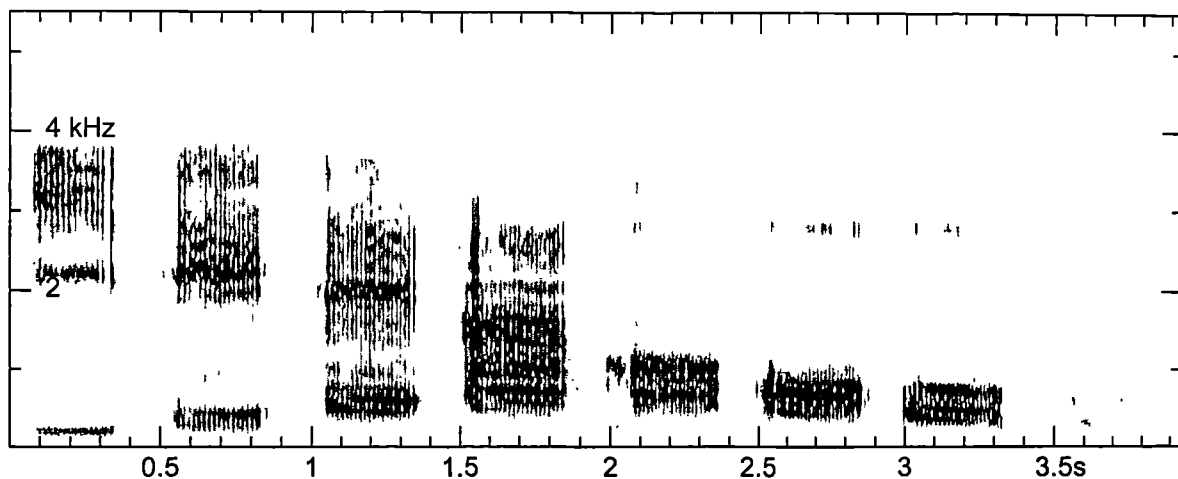
- lip rounding lowers all formants
- lowering of larynx lowers all formants

(adapted from Lindblom & Sundberg 1971a)

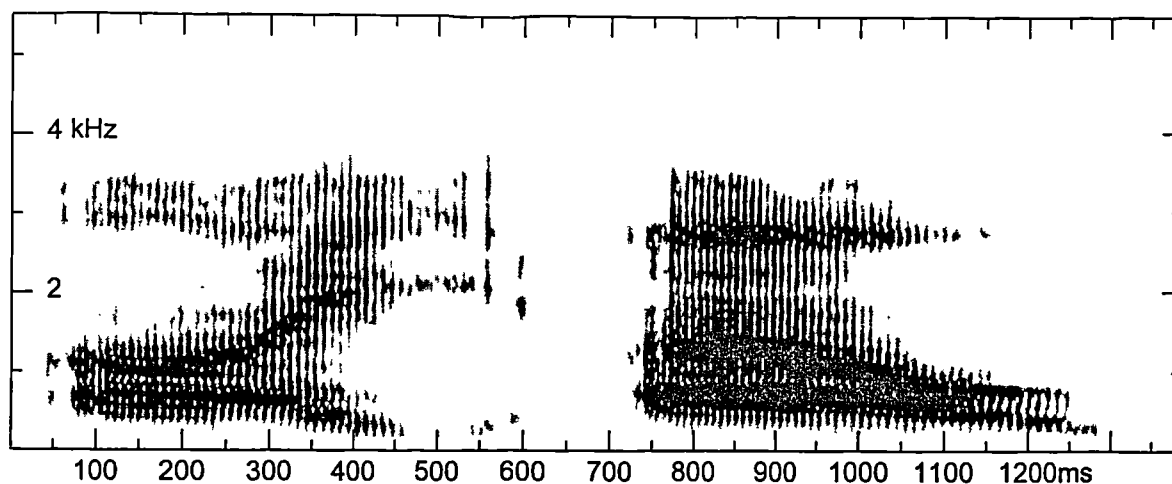
The extreme values at the corners of a triangular articulatory/acoustic space are symbolised /i u a/, and thus correspond to the extreme cardinal values schematised by Jones. Labov (1991) also uses this triangular F1~F2 space, the upper boundary of which is defined by minimum F1, and the other two by a line where $F2 = F1$ (the rearward boundary) and a line $F2 - 2 \cdot F1 = C$, where C is a constant that varies with the speaker (1991:5-6). This triangular plane is bounded by F1~F2 values in relation to which a vowel's peripherality is defined (see Figures 2.5, 2.6 and 2.7 below; also Veatch 1991).

The correspondences between vowel height and frontness can be seen in the spectrograms in Figures 2.4(a, b) below. Both sets of vowels are produced by the author, glottal stops being inserted between each of the monophthongs so as to prevent gradual formant transitions from one vowel to the next.

Figure 2.4(a): Broad-band spectrogram of the vowel series [i e ε a ɔ o u]



(b) Broad-band spectrogram of diphthongs [ai au]



The spectrograms in Figure 2.4(a, b) bear out the relationship between F1, F2 and perceived vowel quality: vowel height corresponds approximately to the frequency of F1, where a close vowel will have a lower F1 than an open vowel, while backness/frontness is signalled by changes in F2 such that front vowels will have high F2 and back vowels low F2. To some degree the lowering of F2 in the back vowel series [ɔ ɒ u] is a consequence of the lip rounding involved in the production of these sounds; it has been argued that the percept of backness and height provided by lowered F2 is augmented by the lengthening of the vocal tract created by lip rounding and protrusion. But lip rounding, of course, is more highly variable than the simple [±round] binary feature used in many vowel classification systems would suggest and indeed lip rounding is very often absent from vowels which are taxonomically 'rounded' (Fromkin 1964; Linker 1980; Lisker 1988). In any case, as Crothers points out, 'rounding is not an independent perceptual dimension which can be separated from the front-back dimension' (1978:98). The representation of isolated vowels as in Figures 2.4 (a,b) by the frequencies of their first two formants, therefore, should not ignore the fact that lip rounding serves to lower all formants, especially where canonically unrounded vowels such as [i] or [a] produced with some lip rounding (say, where they appear adjacent to [w]) are to be plotted next to unrounded tokens of [i] and [a].

2.2.3 Summary

We thus have some preliminary definitions of the vowel deriving from the articulatory, acoustic and distributional characteristics of vowels and vowel-like sounds, and most phonetic and phonological treatments of vowel segments tend broadly to agree on definitions which make reference to these parameters. These definitions should be taken as complementary to one another, of course: purely articulatory, purely acoustic and purely distributional definitions are of little use on their own. Phonetic definitions of vowels which make no reference to the sorts of phonological structures in which they are found (such as the syllable, in phonemic categories, or phonological variables) are not particularly informative, for instance, as some sort of context is required for the phonetic data to be meaningful. Indeed, it is doubtful that one can say anything useful about the vowel without reference to at least two of these aspects. The feature-based treatments of Roman Jakobson and linguists of the 'Prague school' acknowledge this: the inventory of distinctive features devised by Jakobson, Fant & Halle (1952) and later consolidated in Jakobson & Halle (1956) is based on both articulatory and acoustic considerations. In this schema, *vocalic* sounds have a 'sharply defined formant structure' by comparison with *consonantal* ones, for example, and are in articulatory terms 'voiced, with free passage of air through the vocal tract' (see Clark & Yallop 1995:429; Halle 1983:96-98)). As Rossi (1996:98-99) points out, the 'mix-and-match' approach to the postulation of Jakobson, Fant & Halle's distinctive features may have had a lot to do with the fact that Jakobson was a linguist, Fant an engineer, and Halle a phonetician; no doubt the contribution of each reflected his own particular concerns. Chomsky & Halle's 'universal' features (1968:298ff) refer chiefly to articulatory factors, though there is some admixture of acoustic and perceptual correlates, while the feature system of Ladefoged (1982:254ff) is similarly articulatory/acoustic, with the distributional feature 'syllabic' serving to distinguish between (i) vowels and sonorants which may occupy syllable nuclei, and (ii) other speech sounds. Latterly, less segmentally-based non-linear phonological theories (such as Articulatory Phonology (Browman & Goldstein 1990) or Dependency Phonology (Anderson & Ewen 1987), and spin-offs such as Charm Theory (Kaye, Lowenstamm & Vergnaud 1985)), have redefined vowel articulations as composites of 'gestures', 'subgestures' and 'components'. While these elements are grounded in articulation, they are associated with certain acoustic consequences - 'lowness' with 'sonority', for example.

2.3 Target models

The implications of all these theoretical models are roughly the same, however: we can link individual articulations with specific acoustic products, and vice versa. This connection has usually been taken to imply invariance at some level (Elman & McClelland 1986; Pisoni 1997; Nusbaum & Magnuson 1997). While the enormous surface variability of speech is taken for granted by all researchers in linguistics, the expectation here is that for all instances of sounds categorised as 'vowel *x*', we are likely to find somewhere in the acoustic signal 'pattern *y*', if we only look hard enough. As discussed above, there is general agreement that the frequencies of the lowest three formants map will map in one way or another onto the percepts of individual vowel qualities (see Stevens 1997); this is of course the assumption underlying Labov's sociophonetic work. Vowels, that is, have target frequencies, and probably also target articulatory configurations, which they may or may not attain, but these targets must therefore be represented within the phonology in some invariant or semi-invariant way. This approach has come to be known as the *target model* (e.g. Rosner & Pickering 1994:281ff). Stevens (1983) links the articulatory and acoustic domains in a one-to-one manner:

The acoustic information that distinguishes one vowel from another, and that can be used to classify vowels, resides in portions of the speech wave in which the spectrum is changing relatively slowly and in which the amplitude of the sound within a syllabic nucleus is close to its maximum value. The spectrum shape for a vowel during such a time interval is determined primarily by the frequencies of the spectral peaks, or formants. These formants are directly related to the vocal-tract shape, as determined by the position and configuration of the tongue and lips (Stevens 1983:254).

Similarly, Veatch (1991) argues very forcefully for such a mapping operating in both directions, stressing that the 'main fact of acoustic phonetics' is the correspondence between oral aperture and changes in F1 (this being the principal cue to vowel height and the main contributor to vowel sonority), and that vowel frontness is 'precisely correlated' with F2 frequency.

The main acoustic cues to vowel quality are direct correlates of the degree of mouth-opening and the position of the tongue body relative to the node and antinode of the second resonance, that is, of the degree of tongue-body frontness... F1 and F2 directly reflect articulatory configurations, and... the phonological and auditory dimensions of vowel space - height and frontness - are directly related to the two formant frequencies *and* to the articulatory configurations that they reflect... Thus auditory vowel height and frontness, F1 and F2, and articulatory degree of mouth-opening and of tongue-body frontness are three physically incontrovertible representations of *phonetic* vowel quality. For this reason, F1-F2 space is itself an excellent representation of vowel quality (given a fixed vocal tract length) (Veatch 1991:22)¹³

It is significant that Veatch, as a graduate student of Labov's and a 'sociophonologist', should be quite so vehement in his defence of the 'formant frequency target' technique; it is in fact open to criticism from experimental phoneticians (e.g. Ladefoged & Harshman 1979; Rosner & Pickering 1994:284-285) and sociophonologists alike, since the assumptions upon which the technique rests are on rather shaky ground. For one thing, it is uncontroversial that vowel quality is a product of overall vocal tract configuration, and is not solely dependent upon the position of the tongue body (a point which is understated to some extent in the literature; see e.g. Stevens 1997:§2.2).

The next section will be comprised of a discussion of the problems of modelling vowel quality using F1~F2 sampling, and is followed by a criticism of the way in which acoustic phonetic data are worked into the current Labovian paradigm. Specifically, the assumption is challenged that the frequencies of the first two formants sampled at the vowel's midpoint or at the *point of maximal formant*

¹³ Crothers (1978), for instance, is not happy about this equivalence of mechanical and acoustic events: 'Descriptive linguistics generally use articulatory parameters, the position of the lips and tongue, to identify vowel quality. Since tongue position is not observable without special equipment, its specification is just a conventional label, not necessarily accurate, which linguists associate with a particular sound and the kinaesthetic experience of producing that sound. The easiest way to bring outdated linguistic terminology into line with modern phonetics is to interpret the articulatory descriptions as specifying acoustic qualities. In the process of translation, however, certain articulatory labels, such as lip rounding or central tongue position, lose the independence they appear to have if interpreted literally. The vowel [a], frequently referred to as central, is so only in acoustic terms (F2 neither high nor low). Articulatorily, the traditional term is wrong, since there is considerable retraction of the tongue, making [a] actually further 'back' than [u] in articulation' (Crothers 1978:97). Diehl & Kluender make a similar point in connection with the attempt to map acoustic parameters to phonological ones in a direct fashion: 'It is a serious theoretical oversimplification to attempt to partition the acoustic signal into orthogonal substructures each corresponding to, say, separate distinctive features' (1987:228).

displacement (corresponding to a supposed articulatory or acoustic target; henceforth PMFD) are sufficient to specify a vowel's perceived quality to the listener; I follow Hillenbrand & Gayvert in arguing that '... phonetically relevant information is lost when vowel spectra are reduced to formant representations' (1993: 698) and Peterson & Barney (1952:184) in that '... the complex acoustical patterns represented by... words are not adequately represented by a single section, but require a more complex portrayal. The initial and final influences often shown in the bar movements of the spectrograms [i.e. formant transitions] are of importance here' (Peterson & Barney 1952:184; see footnote 8 of this chapter).

2.3.1 Formant frequency target models of vowel production and perception: problems

Accounts of the mechanisms by which vowels are produced ought to allow for the fact that speakers differ widely with respect to the size, weight and shape of their vocal apparatus. Vocal tract length, for example, is highly divergent between men and women, and between adults and children. Moreover, it is not fixed, even for an individual speaker, as Veatch would like; its momentary length varies continuously in speech as the lips protude in the rounding of rounded vowels and certain consonants, and as the larynx moves up and down within the neck. The latter results in perturbations to the supralaryngeal vocal tract length and volume, which in turn has consequences for the resonance quality of the sounds produced. In other words, the human vocal tract is a long way from the uniform two-tube model described by Fant (1960:66) and employed for the purposes of exemplification by Veatch (1991:13), and many others. As such, it is unrealistic to assume that the acoustic products of the human vocal apparatus will be as consistent with the articulations that produce them as is the case in Fant's idealised model.

Direct observation of the vocal organs during speech is of course no easy matter. Imaging of the vocal tract during the production of vowels (such as Daniel Jones' 1960 X-ray investigation, the study by S. Jones (1929) reported by Ladefoged (1982:202), or Perkell (1969)) suggests that vowels which might be judged perceptually equidistant, such as the cardinal vowels of Jones' system, need not map onto articulations in any obviously systematic way (Lindblom & Sundberg 1971b; Butcher 1982). Catford (1977:175) stresses the proprioceptive element involved in the categorisation of auditorily equivalent qualitative steps between the cardinal vowels, which he asserts 'feel equidistant from each other in terms of both auditory and

proprioceptive sensations';¹⁴ Catford also cites the early classifications used by Alexander Melville Bell and Henry Sweet, who 'were almost certainly not attaching articulatory labels to auditory sensations but were directly labelling estimates of the general shape and location of the tongue based on proprioceptive feedback' (1977:169). An apparently objective means of classifying vowels by the location of the highest point of the tongue, then, is discredited to a large extent by the lack of direct correspondence between the height/backness of the tongue body and predictable acoustic consequences, the arbitrariness of perceptual equidistance, and the discrepancy between 'intended' signal, actual signal, and percept.

Acoustic productions in human speech may in fact vary widely despite apparently similar configurations of the vocal organs, and, by the same token, similar acoustic results may derive from very different articulatory configurations, as the vocal apparatus appears to be flexible enough to allow dissimilar articulations to produce acoustically similar or identical effects (Lindau 1978; Lindblom & Sundberg 1971a; Ohala 1989; Rosner & Pickering 1994:285). The effect of speech rate, for example (Gay 1978; Johnson & Strange 1982; Gottfried, Miller & Payton 1990) will often radically alter the acoustic characteristics of a vowel without significantly altering its perceived quality, while the acoustic influence of surrounding consonants may be large without producing any significant perceptual changes. Strange *et al.* (1976) and Strange, Edman & Jenkins (1979), for instance, conclude from experiments on perception of vowels in C_C frames that 'vowels coarticulated with consonants in natural speech utterances often fail to reach their target formant frequencies. Furthermore, the extent and direction of this target 'undershoot' varies as a function of the particular consonantal context in which the vowels are embedded as well as a function of overall speaking rate' (Strange, Edman & Jenkins 1979:644).

The effect of consonantal context (which is, after all, where most vowels appear in normal speech), in combination with the number of segments or syllables being articulated per second, serves to distort and mask the formant frequencies of the vowel itself. Ohala (1981:189) asserts that 'some of most important acoustic cues for primary place of articulation and certainly for secondary place of articulation are F2 and F3 transitions spreading from onset and offset of consonant into preceding and following vowels (respectively)' and that such formant transitions may last 30 to 60 milliseconds - that is, for a good proportion of the average vowel. 'Under certain conditions,' he continues, 'all of or a major fraction of a vowel's total duration may be 'colored' or

¹⁴ For discussions of the role of feedback in speech production, see MacNeilage (1981); Lieberman & Blumstein (1988:94-95).

distorted by these transitions' (ibid.). One might imagine, then, that different vowels produced with flanking consonants would thus be more difficult to distinguish from one another than isolated vowels where no such interference could take place. 'If the critical cues for the identification of vowels are their target frequencies,' Strange, Edman & Jenkins argue, 'then isolated vowels should be perceived more accurately than vowels produced in consonantal context' (1979:644). The most striking result of their experiment, however, is that vowels in isolation were identified *less* reliably by listeners than were vowels presented in consonantal context. This confirms Potter & Steinberg's remark in a report of an early experiment (1950): 'It should be noted... that we are representing a vowel by a single spectrum taken during a particular small time interval in its duration. Actually a vowel in the word... undergoes transitional movements from initial to final consonant. Not only does the spectrum of the vowel change with time, but the ear in identifying the word has the benefit of all the changes' (Potter & Steinberg 1950:815).

There is obviously a good deal of evidence, then, that while plotting the frequencies of F1 and F2 measured at the vowel midpoint or PMFD against each other is a useful means of indicating what the vowel *might* sound like. But it says little about how the vowel is actually perceived and subsequently categorised: the process of normalisation, while rather poorly understood, is responsible for a good deal of transformation of the signal between its raw physical characteristics and its effect upon the listener in terms of the transmission of meaning.

An important point which emerges from the discussion of the effect of consonantal context upon the perception of vowel quality is that of the contribution of transition cues. I am suggesting here that Labov's instrumental sociophonology may be overly reliant upon the assumption that it is the F1 and F2 values of the temporal midpoint or locus of greatest formant excursion that will provide the listener with the least ambiguous perceptual cues. The experimental work of the authors listed in the previous paragraph indicates that CV/VC formant transitions may in fact contribute at least as much to vowel perception as do the formants at the vowel's midpoint/PMFD. A selection of evidence from the significant number of similar experiments confirming this hypothesis is summarised in §2.3.2 below.

2.3.2 Coarticulation of vowels and consonants increases accuracy of vowel identification

The sharing or spreading of features between adjacent sounds by coarticulation is a well-understood aspect of human speech, and is a phenomenon which must be accounted for in any reasonably comprehensive theory of phonology. Most investigations, however, have tended to concentrate on coarticulation of consonant to consonant. Coarticulation of vowels to consonants, and vice versa, is a topic which has received less attention in the literature, possibly because attempts to describe coarticulatory processes have generally employed sets of features which apply to either vowels or consonants, but not to both. Indeed, the separation of vocalic and consonantal articulations into separate 'tiers' is explicit in many theoretical treatments (as in Articulatory Phonology, in which gestures involving the tongue body are specified independently; see e.g. Browman & Goldstein 1990). Given that both types of speech sound employ the same articulators, and that vowel and consonant articulations overlap a good deal in natural speech, the vowel-consonant dichotomy might seem ill-motivated from an articulatory point of view. There is, however, a good deal of phonetic evidence of just such a separation: Öhman (1965), for example, examined coarticulatory effects in VCV sequences spoken by Swedish, American and Russian talkers, and found (among other things) that traces of the final vowel are already observable in the transition from the initial vowel to the consonant: that is, while the first vowel is being uttered. 'A VCV utterance of the kind studied', Öhman states, 'can, accordingly, *not* be regarded as a linear sequence of three successive gestures' (1965:165), and, at least in the Swedish material, 'the articulatory system 'prepares' for the medial consonant during all of the initial vowel. The effect resembles the nasalization of vowels before nasal consonants, which in many languages may effect [sic] the entire vowel, from the moment it starts, even when the vowel is prolonged. Evidently, the fact that a consonant may color a prolonged preceding vowel speaks against the notion that the neural instructions that control the stream of articulatory gestures of an utterance may be regarded as a simple sequence of temporally well-defined impulses, each of which corresponds to a single unit of a linguistic transcription of that utterance' (ibid.:167). Öhman's claim to have 'clear evidence that the stop-consonant gestures are actually superimposed on a context-dependent vowel substrate that is present during all of the consonantal gesture' (1965:165) anticipates the way in which consonants are in some sense 'overlaid' on a continuous vocalic tier in Articulatory Phonology.

If vowel quality is thus coloured by the presence of flanking consonants, one would expect vowel identifiability to decrease where coarticulation takes place: surely, one would think, the multiple acoustic guises a vowel may assume would make for a reduction in the ability of listeners to categorise the vowel successfully. But this, apparently, is not the case. Gottfried & Strange (1980) presented untrained listeners with a series of V and CVC stimuli, asking them to categorise each vowel using pre-prepared orthographic classifications. Though the medial (CVC) vowels were produced with mid-syllabic formant values which were less differentiated in vowel space than were isolated vowels, as one would expect given the transitions at either edge of the medial vowel, the medial vowels were identified far more accurately. Ranking of individual CVC contexts shows that flanking labial stops resulted in the most accurate identification, followed by /k/, and lastly isolated vowels. Initial and final /g/ were not found to aid identification of the coarticulated vowels. Also, no significant advantage of word over non-word stimuli could be ascertained, so it would appear that in this case familiarity was not a factor. Gottfried & Strange do, however, accept that in non-experimental speech lexical cues are probably extremely important: 'we do *not* mean to imply, of course, that vowel perception in natural situations is not aided by higher-order lexical factors' (1980:1633); they also deny the influence of phonotactic cues, saying 'it does not appear that the superior identification of vowels in these consonantal contexts can be attributed to the fact that lax vowels are phonologically more appropriate in these phonotactic environments. Rather, we conclude that identification of coarticulated vowels is more accurate than isolated vowels because the former are more richly specified acoustically, and thus perceptually less ambiguous than isolated vowels' (ibid.).

While Gottfried & Strange do specify abstract acoustic invariance as the basis of vowel recognition, they also criticise target theories:

Vowel targets have been considered the primary acoustic cue (and sometimes the only cue) used by perceivers to identify vowels. According to widely accepted accounts of vowel perception (Joos 1948; Ladefoged 1967) a vowel is perceived in relation to its static location in an acoustic 'vowel space'... Formant frequencies of coarticulated vowels vary as a function of the phonetic identity of the consonants, the overall speaking rate, and even the individual style of speech (Gottfried & Strange 1980:1626).

Hillenbrand & Gayvert, likewise, concur that '... perceived vowel quality is strongly correlated with the frequencies of the two or three lowest formants,' but 'the acoustic properties of vowels vary depending on the individual talker, the rate of speech, and

the phonetic context in which the vowel occurs' (1993:694). Vowel perception is cued by multiple channels, some of which predominate at certain times, and others at other times. The formant frequency model is thus too simplistic to account even for the highly controlled, and somewhat artificial, data that Gottfried & Strange present to their subjects. If the picture is this complicated at such a formalised level, we must begin to wonder about the validity of the formant frequency model in the analysis of cursive, spontaneous speech.

Results of a similar experiment carried out by Macchi (1980) diverge somewhat from those of Gottfried & Strange. Macchi found no large differences between the reliability of identification of vowels in isolation and vowels in context, and while concurring with Strange *et al.* (1976:213) that 'acoustic information distributed over the temporal course of the syllable is utilized regularly by the listener to identify vowels', she suggests that vowel identifiability in her own experiment may have had more to do with the listeners' experience of the speaker's voice. Listeners misidentified just 2% of the vowels when tokens were presented in single-speaker blocks, a figure which rose to 8% when the order of the speakers on the tape was randomised.¹⁵ The accuracy of these figures, and the small difference between the blocked- and random-speaker conditions, may be due to the facts that Macchi controlled for speakers' and listeners' dialect and also used rhyming English words as response stimuli. She also suggests, interestingly, that identifiability of vowels spoken in the absence of a following consonant - that is, in CV syllables or vowels in isolation (especially low vowels) - may be enhanced by the tendency of speakers of certain dialects to produce a marked offglide in the absence of a following consonant (see §8.2.1).

Rakerd, Verbrugge & Shankweiler (1984) conducted an experiment virtually identical to that of Gottfried & Strange, presenting subject with American English vowels in

¹⁵ More recently, the question of the contribution of the listener's experience of the speaker has informed studies such as that of Nusbaum & Magnuson (1997) or Nusbaum & Morin (1992). Nusbaum & Morin found that perceptual accuracy was reduced when words produced by different speakers were randomly intermixed. They speculate that mixed-speaker presentation caused listeners to shift their attention to acoustic properties more relevant for speaker identification than for word recognition. This has implications for the functionality of variation discussed in the next chapter, in that shifts in the allocation of attention may be detrimental for vowel identification. Listener experience may also enhance the perceptibility of individual words: Guion (1995) reports evidence for the greater perceptibility of frequent lexical items (see Ganong 1980). Drawing on Lindblom *et al.*'s H&H Theory (1995), in which the principle of sufficient (rather than maximal) contrast is central, Guion claims that 'since frequently used words are often heard by the listener, and are in some cases quite predictable (e.g. some function words or politeness formulae), their production need not be extremely careful for the listener to understand what the speaker intended. In other words, the hypo-production of frequent words provides sufficient contrast for the listener to lexically disambiguate the words intended by the speaker' (1995:107).

isolation and in /pVp/ contexts. They found that for open vowels, identification was more reliable when the vowel was in context, while close vowels were identified more accurately when presented in isolation. This finding runs counter to expectations. Given that open vowels are more sonorous than close ones, by virtue of their higher F1, one might expect them to be more perceptually 'robust' in both contexts. Rakerd, Verbrugge & Shankweiler speculate that this may be because of the ambiguity of the orthographic choices they gave the subjects - sequences such as <ee> and <oo> are perhaps less ambiguous than are the conventions they used for the open vowels.

This experimental evidence, then, casts doubt upon the validity of the formant frequency model, especially as it pertains to normal speech produced at fast conversational rates and in casual, less careful styles. Indeed, and paradoxically, the findings of Strange, Jenkins & Johnson (1983) suggest that complete removal of the central steady-state portion of a coarticulated vowel may not hinder its identification. A comparison of identification scores for such 'silent centre' syllables (where the CV/VC transitions are left intact) against those for 'variable centre' syllables, where only the transitions are removed, shows that identification of the silent centre vowels is better than that of variable centre syllables. Accuracy of identification, moreover, was as good for silent centre syllables as it was for *unmodified* CVC syllables. In some sense, then, any 'steady-state' portion of the vowel may be redundant for the purposes of vowel identification, a conclusion which runs absolutely counter to the formant frequency model, and indeed our intuitions about speech perception in general.

Harrington & Cassidy (1994:357), on this basis, propose that vowel identification depends on dynamic cues rather than a single 'static' spectral slice at vowel midpoint. They cite Huang (1992), who found that improvements in identification could be made by sampling formant frequencies at one-quarter and three-quarters of the way through the vowel, as well as at the midpoint. 'According to this [dynamic] view' they argue, '... vowels are conceived of as characteristic *gestures* having intrinsic timing parameters. These dynamic articulatory events give rise to an acoustic pattern in which the changing spectrotemporal configuration provides sufficient information for the unambiguous identification of the intended vowels... under the dynamic theory of vowel perception, speech production is inherently dynamic and, compatibly, listeners extract dynamic information distributed throughout the segment in decoding the speech signal' (Harrington & Cassidy 1994:358). It is the portions of the signal which do *not* attain steady-state, then, which promote successful parsing: '... articulatory movement, and therefore the changing acoustic signal as it unfolds in time, provides

listeners with the prime cues to vowel identification.' (1994:368). Even monophthongs, which are traditionally conceived of as the most static kind of speech sound, may be characterised by inherent formant movement important for their perceptual identification, according to Harrington & Cassidy, although they find that identification is generally no better from three spectral slices than from one. Diphthongs, as one would expect, perform better on multiple spectral slices because, Harrington & Cassidy say, they have multiple targets distributed in time (1994:364; also Holbrook & Fairbanks 1962).

Bladon & Lindblom (1981) and Bladon (1982) argue against the formant frequency model on three counts: (i) it throws away information in the physical stimulus; (ii) formants are difficult to determine unambiguously in any physical representation of the speech wave; (iii) the relationships between perception and the physical properties of stimuli are complex (summarised by Rosner & Pickering 1994:153-154; Rosner & Pickering agree that all three arguments are correct, but deny that they carry any force). Clearly, though, these arguments are compelling when we are dealing with speech outside the laboratory. The clarity of the patterns reported from experiments like those above where non-word, monosyllabic or citation-form stimuli are recorded and analysed in optimally variationless conditions, using sophisticated mathematical transforms and filtering techniques, is liable to deteriorate where spontaneous conversation recorded in noisy environments is the object of study.

The 'dynamic cues' theme is explored more fully by Ohala (1992), who proposes that 'optimal speech events (from the auditory point of view)' are 'those which are known as 'transitions' or the boundaries between traditional segments' (1992:172). Transitions are characterised by acoustic events such as bursts, rapid changes in formants and amplitude, changes from silence to sound and vice versa, and changes from periodic to aperiodic excitation and vice versa. Ohala rejects the notion of steady-state postures adopted by the speech organs, and, *pace* Stevens (1983) and Veatch (1991), stresses the non-linear mapping between the articulatory and the acoustic domains (though he concedes that within these domains one may find evidence of 'near steady-states').¹⁶

The communicative value of these transitions, Ohala believes, lies in the ways in which they break the signal into parsable chunks. He refers in this connection to the

¹⁶ Ohala argues that 'the claim, often encountered, that the speech signal is continuous, that is, shows few discontinuities and nothing approximating steady-states in between, is exaggerated and misleading. The claim is largely true in the articulatory domain (though not in the aerodynamic domain). And it is true that in the perceptual domain the cues for separate segments or 'phonemes' may overlap, but this by itself does not mean that the perceptual signal has no discontinuities. The claim is patently false in the acoustic domain as even a casual examination of spectrograms of speech reveals' (1992:172).

information-theoretic work of Mandelbrot (1954), who hypothesises that any coded transmission subject to errors (such as speech) could 'effect error reduction or at least error limitation by having 'breakpoints' in the transmission' (Ohala 1992:173). These 'dead' points, having durations typically in the range 50-200 milliseconds, demarcate chunks of the signal with relatively high information density, though the dead points themselves are not devoid of informational content; in terms of 'bits' of information, they simply transmit at a lower rate than do the 'rapid acoustic modulations they separate' (ibid.) They provide, in essence, a breathing space in which the listener may decode the preceding chunk of high density information, and prepare himself/herself for the next one. Note that by Ohala's definition, the near steady-state portions (vowels, sonorants and fricatives, which have relatively protracted durations) are the dead portions: as far as high-speed communication of information between speaker and hearer is concerned, the actual characteristics of these sounds are more or less irrelevant (see also Walley & Carrell 1983).

Consequently, this barrage of stop-start information embodies a high level of redundancy: at any one point in the signal there are multiple cues by which the listener may decode the speaker's meaning, and the listener is given time during the dead periods in which to filter out information relevant to the parsing process. The cues may be low-level ones such as formant transitions into and out of vowel segments, or higher-order cues such as lexical or phonotactic factors, but their function as disambiguation devices is the same. Ohala gives as an example the near-word 'skrawberry': though the phonetic signal may provide cues for a voiceless velar plosive, the target voiceless *alveolar* plosive is restored in the perception process by making reference to the nearest 'known' or 'real' form.¹⁷ Ohala emphasises the active nature of speech perception (also Ohala 1986), whereby listeners may use different strategies to extract meaning from the signal, as do later authors such as Elman & McClelland (1986) or Nusbaum & Magnuson (1997), who state that 'human speech perception requires an active control system in order to carry out processing' (1997:116) which employs 'a feedback loop structure to systematically modify computation in order to converge on a single, stable interpretation' (1997:122). By contrast, they say, 'passive control structures represent invariant mappings between inputs and outputs' (ibid.).

Hence, it can be argued that speech perception is not strongly dependent upon any particular cue or even set of cues, such as F1 and F2 frequency. In natural situations,

¹⁷ For examples of the perceptual restoration of linguistically-relevant information missing from the speech signal, see Warren (1970); on 'gestural mirage', whereby articulations are perceived where none took place - as in the speech of glossectomees - see Fowler (1990).

listeners do not have to parse speech by simply distinguishing individual sounds or isolated vowels: they have syllable- and word-sized units on which to draw, while prosodic, contextual and visual (particularly, facial) cues to plug into the speech perception process if these are required. My point is this: for vowel perception - in English at any rate - listeners may be able actually to recover the speaker's intended message *without* the fine-grained formant frequency information that Labov's models are so heavily dependent upon. In the face of the evidence for the multi-channeled nature of speech as a communicative medium, should we assume, as Labov does, that F1~F2 values are so crucial for vowel identification?

2.4 Normalisation

Clearly, the ability to comprehend spoken language in the absence of invariant cues must be directly related to the listener's experience with a language. One speculates as to how early in life such ability is attained, and the process by which children gain adult-like competence in this sphere (Pisoni 1997). It may be significant in this connection that vowel articulations typically pose few difficulties for children at the phonological acquisition stage: Dodd (1995) and Pollock & Keiser (1990) provide evidence of the disparity between production errors in consonantal articulations and those in vowel articulations. Table 2.1, adapted from Dodd (1995), shows that for five developmentally disordered Australian children, articulatory problems were found almost exclusively in the consonantal domain.

Table 2.1: Speech errors by five children in a longitudinal study of developmental phonological disorder (adapted from Dodd 1995)

Child →	R.	L.	E.	D.	S.
Total words in sample	1,667	1,104	1,222	1,365	1,218
System simplification (%):					
Consonant errors	42.4	25.0	18.3	20.1	19.5
Vowel errors	2.1	2.2	1.9	1.3	0.9
Unclassifiable (e.g. lisps, /f/ → [h])	0.8	2.1	0.8	0.9	1.4

The pattern in Table 2.1 is typical of disordered phonological acquisition cross-linguistically, as Leonard (1995) points out: '... there is general agreement that vowels reported to appear earlier and with greater accuracy in the speech of normally developing children are also produced with greater accuracy by children with [phonological impairment]' (1995:579).

Why do children, even those with development speech disorders, find it easier to learn to produce the subtle phonetic contrasts required for vowel production than those entailed by consonants? Leonard's generalisation suggests, perhaps, that vowels are articulatorily 'simpler' than consonantal articulations. This is somewhat counterintuitive, as one might expect the fine motor control required to make subtle vocalic distinctions would create early on at least as many difficulties as would consonantal articulations. The comparative frequency of errors in consonantal production during childhood would thus seem to fit with Ohala's idea of the rich but relatively compact informational content of the high-speed transitions that consonants represent; 'dead' periods in the speech wave (such as vowels) which are information-poor, or at any rate marginal to the communicative enterprise, would promote learnability. Alternatively, it may be that consonantal errors are more conspicuous to the investigator by virtue of the readiness with which vowel variation is filtered out by listeners. Since the vowel space is a continuum, there may be greater latitude for error to go unnoticed, as errors in target attainment by children may be attributed, for example, to the influence of consonantal context. The distortion by coarticulation of vowels in natural speech is so ubiquitous that vowel variation can easily be accounted for by recourse to factors other than that bringing about the distortion.

Indeed, the process of categorisation of idiosyncratic speech sounds into structural units is so successful in dealing with contextually-conditioned variation that as speakers of English we do not - or even cannot - perceive effects such as nasalisation of vowels in the neighbourhood of nasal consonants without training in 'veridical' perception (learning to hear speech sounds in isolation from their linguistic meaning, as in a phonetics class).¹⁸ Socially-conditioned variation is similarly filtered out (though see below) such that we can recover, say, the target *can* from the signal [k^hɪən] when listening to a speaker of New York City English, the target *cane* from an identical signal if the speaker is from Tyneside, and the target *keying* as spoken by a Glaswegian. The crucial concept here is again that of experience: normalisation of vowels depends upon previous exposure to a speaker's vowel system.¹⁹ This process

¹⁸ Guion (1995), following Ohala (1993a,b), suggests that sound change takes place on the rare occasions when the listener, switching into veridical mode for some reason, misperceives (i.e. fails to normalise) a speaker's utterance, then applying the misperceived form in his or her own speech. See also Lindblom *et al.* (1995); Guion (1996).

¹⁹ Nusbaum & Magnuson (1997), stating that 'in order to carry out talker normalization, it is necessary to derive information about the talker's vocal characteristics', report on Gerstman's (1968) model, in which the point vowels [i u a] 'are used to scale the location of the F1-F2 space of all the other vowels produced by a given talker. Because the point vowels represent the extremes of a talker's vowel space, they can be used to characterize the talker's vocal tract extremes and therefore bound the recognition space' (1997:119). Whalen & Sheffert (1997) argue that non-linguistic sounds produced by the vocal tract, such as the noise a speaker makes during the inspiration of breath prior to speech itself, contribute

allows the listener to pigeonhole incoming vowel sounds and to pass them onto the semantic processing level, in real time. Errors are generally rather uncommon, even in noisy conditions. Cases of miscomprehension such as those in which speakers of very widely divergent dialects come into contact or when non-native speakers have difficulties making particular vowel contrasts are of course exceptions to this, but are nevertheless untypical of language in everyday use. Hence, the ability of listeners to normalise must depend upon the existence of phonemic categories, or phonological variable categories, which organise and to some extent control the extreme variation in vowel qualities that we can observe even for a single vowel type.

By way of answering the question 'how do listeners 'undo' or factor out distortion in speech?' Ohala (1981:181) compares auditory categorisation to the human visual faculty. It is possible to have optical illusions, for example, and a visual stimulus can be recognised as a particular object even if much of the stimulus is missing, or is otherwise defective in some way. Also, Ohala claims, the plasticity of human vision is sufficient to correct for such things as inverted vision given sufficient time, and it permits 'colour constancy' (the ability to discriminate colours into particular categories even under radically different lighting conditions, whereby the optical signal for, say, some particular colour is physically shifted to a quite different region of the spectrum).²⁰ Speech, like visual information, is 'extremely noisy', and it is the capacity to discern patterns in the noise, and to enhance the signal-to-noise ratio in speech perception, that allows us to make sense of what we hear. Ohala believes that listeners use as many possible cues as they can in order to disambiguate the information being communicated:

... the listener who has to learn the pronunciation of words by hearing them from others has multiple sources of information concerning the pronunciation norm: other speakers' pronunciations, other listeners' reactions to his attempts at pronunciation, and, in certain literate cultures, the spelling. But there is another source of error correction: the listener's experience with speech. Confronted with a potential distortion, the listener can acquire sufficient experience to be able to factor it out (1989:184).

a good deal to the speed and success with which the listener is able to normalise the speech of an unfamiliar speaker.

²⁰ Ohala stresses the commonalities between the human perceptual systems: he argues that domain-specific explanations miss the point that categorical perception is effectively the same in many areas of cognition, and criticises linguists for neglecting this: '... currently popular phonological representations 'explain' sound patterns by conjuring up a vast array of devices and conventions that seem to apply exclusively to speech' (1990:266). See Harnad (1987) for an overview of research into categorical perception in speech and other spheres.

Diehl & Kluender (1987) similarly stress the information-rich aspects of the speech signal, and the uses of multi-channel redundancy to the listener: 'a high level of redundancy is required to ensure accuracy of recognition' (1987:238). There is, they say, 'almost no significant aspect of acoustic structure that is irrelevant to phonetic categorization', and that 'experienced listeners make use of all potentially relevant cues for phonetic categories, provided these cues are detectable' (1987:226). Diehl & Kluender diverge from Ohala's view, however, in their contention that 'relatively localized (e.g. syllable-sized) portions of the acoustic signal generally do not contain sufficient information to specify phonetic categories unambiguously' (1987:226), but agree that

all acoustic properties of segments or features must apparently be judged relative to their context. Nevertheless, it is very likely that some acoustic cues are more stable or reliable than others, and that experienced listeners know not only what the cues are, but also how to weight them in relative importance... Phonetic classification, like virtually all other forms of high-level cognitive activity, is regulated by an extensive store of knowledge. This knowledge is largely tacit, and it encompasses most of the regular acoustic consequences of speech production, including the full range of acoustic correlates of phonetic categories and the myriad ways in which phonetic coarticulation, utterance rate, and other prosodic and contextual variables affect those correlates (Diehl & Kluender 1987:237-239).

More recent work, such as that of Pisoni (1997), further reminds us that because the speech signal carries many types of information simultaneously, the normalisation faculty must be highly flexible in order to cope with variability deriving from multiple sources:

When compared to other perceptual systems, there can be little doubt that speech perception is extremely robust and adaptive over a wide range of environmental conditions that introduce large physical changes and transformations in the acoustic signal. For example, normal hearing listeners can adapt easily to changes in speakers, dialects, speaking rate, and speaking style, as well as a wide variety of acoustic transformations, including the presence of noise, reverberation, and the use of different transducers without any noticeable difference in performance (Pisoni 1997:9).

Later, Pisoni criticises approaches which assume that the listener's perception of the speech signal is based on a small and/or fixed number of perceptual parameters, other information carried by the speech signal being irrelevant. Such an attitude is implicit in the formant frequency model.

... the assumption of an idealized symbolic representation for spoken language has encouraged researchers to search for simple first-order physical invariants and to ignore the problem of stimulus variability in the listener's environment. Variability is simply treated as a troublesome source of 'noise' in the acoustic signal... Very detailed stimulus information in the speech signal is processed by the listener and becomes part of the memory representation for spoken language. One of the assumptions of this 'nonanalytic' approach is that stimulus variability is, in fact, a lawful and highly informative source of information for the perceptual process; it is not simply a source of noise that masks or degrades the idealized symbolic representation of speech in human long-term memory. According to this view, listeners encode particulars rather than generalities... Rather than discarding the 'indexical' attributes of speech in favor of a highly abstract symbolic code like a string of segments or phonemes, the human perception and memory systems appear to encode and retain very fine details of the perceptual event (Pisoni 1997:10).²¹

Pisoni, like Diehl & Kluender, stresses that the high level of redundancy in the speech signal should also make us wary of assuming that any particular combination of acoustic features will produce an identical percept, and that speech sounds which the listener hears as 'the same' will necessarily arise from an invariant set of acoustic events. 'Spoken language', he states, 'is a highly redundant symbolic system that has evolved to maximize transmission of linguistic information. In the case of speech perception, research has demonstrated the existence of multiple cues for almost every phonetic contrast... Speech is inherently multidimensional in nature: it has been extremely difficult to formalize a set of explicit rules that can successfully map speech cues onto discrete phoneme categories' (Pisoni 1997:27).

As Pisoni points out, variability deriving from factors such as speech rate, coarticulation of vowels to phonological context, or momentary voice quality (within-talker, or *intraspeaker* sources)²² and between-talker (*interspeaker*) sources such as differences in accent, gender, or characteristic voice quality has thus been considered as undesirable noise in the signal. This is hardly surprising given a past concentration in speech research upon highly controlled and artificial linguistic behaviour, elicited in

²¹ Indexical features of the speech signal are, according to Pisoni, those which provide information about the talker's voice (including accentual features); linguistic features carry the speaker's intended message (Pisoni 1997:10-11).

²² Lotto, Holt & Kluender (1997) present evidence to show that breathy voice quality, which is more common in the speech of female English speakers, may affect the perceived height of vowels in listening tests. Breathiness, it appears, makes vowels sound closer (i.e. nearer the [i ~ u] continuum) than those produced with modal phonation.

laboratories using contrived stimuli such as nonsense utterances or formal reading passages.

Because stimulus variability was thought to mask or obliterate the underlying idealized symbolic message, factors known to create variability in the speech signal were deliberately reduced or eliminated. These factors were viewed as nuisance variables that needed to be controlled in experiments. For example, the traditional approach to acoustic-phonetic research typically used a small number of talkers, usually only one or two, reading carefully constructed experimental materials in citation format under extremely good recording conditions in the laboratory. Also, each experiment typically addressed only a single specific research issue using a very small sample of highly controlled test materials, such as isolated nonsense syllables, words, or short sentences. [...] The consequence of this traditional research strategy... was that little if any effort was made to study the contribution of different sources of variability directly or to try to understand how variability affected speech perception or spoken-word-recognition performance in human listeners (Pisoni 1997:13-14).

Labov's work is thus an important departure from the use of instrumental phonetic techniques to investigate small-scale linguistic phenomena elicited in the laboratory: his vowel studies combine the methodologies of the instrumental phonetician with those of the sociolinguist. My argument here is that his approach to demonstrating the reality of changes such as the Northern Cities Chain Shift (Labov, Yaeger & Steiner 1972; Labov 1986, 1991, 1994, 1998) using the formant frequency model is problematic, because it disregards the evidence which suggests that even were consistent acoustic cues to be present, it could not be guaranteed that listeners would perceive them in an equally consistent way. A good deal of the acoustic variation which Labov presents as proof of a perceived change may be factored out by listeners through normalisation. Furthermore, changes in formant frequency serving to distinguish vowel percepts *x* and *y* in controlled laboratory experiments may not be robust enough in natural speech to create any such distinction. A good deal more latitude can be allowed in the production of natural speech at normal rates if the multiple (phonetic, contextual, visual, pragmatic) cues to speech perception are exploited by speakers and listeners. Pierrehumbert (1994), for example, anticipates the problems involved in generalising the properties of highly formal, artificially elicited speech to the type of language that is the interest of sociolinguists:

The vowel space... exhibits nonlinearities... there seems to be [great] latitude for different societies to agree on different organizations of the vowel space. Even the categories which draw on the most non-linear aspects of speech acoustics exhibit more variability in running speech than when produced in isolation; a preponderance of studies using phonemes or syllables in isolation may have resulted in overestimation of stability of these categories (Pierrehumbert 1994:20).

That is, when dealing with spontaneous vernacular speech - rather than single citation forms in fixed phonological environments of the sort used by Peterson & Barney (and which are standard in experimental phonetics generally, as outlined above) - the lack of clear patterns in cross-comparisons of formant frequencies is liable to be magnified enormously. As suggested in the preceding discussions, factors such as speech rate, degree of coarticulation with surrounding segments, voice quality and random error or fluctuation are inevitable even for a single speaker, in a noise-free environment, performing a highly controlled task such as reading a word list or written text. Where speakers are asked to respond to interview questions, to extemporise freely on subjects provided by the fieldworker or chosen at random, or - worst of all from the point of view of collecting 'clean' data - interacting with one another in conversational settings, the potential for obtaining the sorts of clear-cut patterns (which, as we have seen, are difficult to access by the laboratory phonetician at the best of times) dwindles ever smaller. The increasing use of Bark or Mel scale representations of the vowel space in order to detect sound change (see e.g. Iivonen 1995; Aulanko & Nevalainen 1995) may go some way to closing the gulf between acoustic signals and their normalised percepts. No mention of Bark scalings is made in publicity information advertising the features of Labov's increasingly widely-used *PLOTNIK 03* formant extraction and plotting program, however.²³ Nor, apparently, is the role of duration in vowel identification considered. Labov's insistence on observation, classification and interpretation of spontaneously produced vernacular speech as the tasks of the genuinely objective linguist is difficult to reconcile with his simultaneous adoption of a technique which has been shown to model even static vowel systems rather unreliably; the gap between extraction of frequency values for the first two formants of vowels in uncontrolled speech and Labov's principles of linguistic change is a very large one indeed. We return to this theme below.

²³ Normalisation is said to be a feature of this program, though the term is actually used to refer to formant ratio adjustment for the purposes of mapping samples for different speakers onto one another, rather than to normalisation in the cognitive sense.

The body of literature on normalisation is, needless to say, extremely large. In view of the legion of factors involved in turning acoustic information into semantic information beginning at the perceptual level, there are still innumerable questions to be asked. The reader is referred to studies such as those of Harshman & Papçun (1976), Holmes (1986), Johnson & Strange (1982), Johnson (1990), the comprehensive review of the literature made by Rosner & Pickering (1994), and the collection of papers in Johnson & Mullennix (1997).

To sum up the main points made so far, then:

- the definition of 'the vowel' is dependent upon the intersection of parameters in the articulatory, acoustic and distributional domains
- similar articulatory configurations may yield dissimilar acoustic results; similar acoustic results may be the product of dissimilar articulations
- certain features of the speech signal (viz., the relative frequencies of the first three formants in the spectrum) have been demonstrated to correlate fairly closely with perceptual vowel quality, and to a lesser extent the articulatory gestures that modify it
- formant frequencies of vowels in isolation may be less reliable cues to vowel quality than those of the transitions where vowels are coarticulated with consonants
- vowel duration and voice quality may be of importance in normalisation
- normalisation relies upon a host of cues, of which the frequencies of the first two or three formants are just a subset

A point emerging from these is:

- modelling vowel systems by the acoustic characteristics of their exemplars is problematic: conscious decisions as to segmentation of an acoustic continuum may not reflect those made by the normalisation faculty of the speech perception system (that is, how do we know that the criteria by which we categorise vowels in phonological theory are anything like those by which our speech perception systems categorise vowels for us?)

An associated problem concerns the way in which some types of variation are normalised while others are allowed to pass through the normalisation 'filter' unaltered. How, for example, does the often very subtle socially-conditioned phonetic variation reported by sociolinguists slip through the normalisation net, such that it may become stratified? Also of significance for Labov's work, and for the study presented here, is the question of how listeners can categorise speech sounds as exemplars of vowel category *x* if the target of the vowel is undergoing rapid change. In such a scenario listeners are expected to modify their own phonologies in line with innovative variants which, by definition, are 'bad examples' of the phonemic category they represent. Why are these variants not normalised back toward a more prototypical

value? How can the target be persuaded to shift its position, when at the early stages of a vowel change the great majority of instantiations of the vowel category will remain as they were before? What are the pressures that force such reorganisations of the vowel system if, presumably, preservation of the *status quo* would be the most logical, efficient or parsimonious option?

Detailed answers to the above questions are beyond the scope of this thesis, though acknowledgment of their importance is clearly crucial. My position here would be that a realistic approach to finding answers for them would depend on the study of language in its natural settings, since as a sociolinguist I believe that it is human beings and their social interactions that are responsible for linguistic variation and change, rather than, as per the structuralists, the internal mechanics of linguistic systems alone. Placing language in the real world of speakers in social interaction, we cannot realistically expect to understand the way that vowel systems are kept static, or how they vary and change, unless we acknowledge the centrality of the roles of the speakers and listeners who implement these processes. The essential concept here is of the *complementarity* of speaker and system: the system has no autonomy, but is instead a property of the language faculty of individual speakers which is shared by them to a greater or lesser degree. This theme is revisited in Chapter 3, in connection with the work of James Milroy (1992).

For the remainder of this chapter, however, I will return to the structuralist conception of the vowel system, as this is the schema which underlies the Labovian chain shift model, and is (fundamentally) the approach taken in this thesis to the study of variation and change among the vowels of Tyneside English. In the following sections I discuss two conflicting principles: *avoidance of homophony* (or *preservation of contrast*) and those concerned with *economy* (either of phonological inventory, or to do with ease of articulation and perception); these are the mechanisms by which the chain shift model is said to work. I conclude by discussing some of the theoretical and practical problems associated with Labov's adoption of the model.

2.5 Conflicting structural principles

2.5.1 The emergence of phonological structure

Though the actual phonetic forms of utterances in a language and the rules that generate them are generally arbitrary, the fundamental concerns of phonology cross-linguistically are the same: 'get information from the inside to the outside, and decode

incoming information, in as efficient a way as possible.' Many researchers (e.g. Dressler & Moosmüller 1991)²⁴ emphasise the importance in an efficient phonology of increasing perceptibility at the expense of pronounceability, but as virtually all listeners are also speakers, these factors ought to balance out fairly quickly. These conflicting - or complementary - factors are, indeed, used to explain the origins of both ontogenetic and phylogenetic sound patterns, since they are manifestly the 'bottom line' if language is to be used for communication.

The system of oppositions we know as a 'vowel system' is presumably derived from phonetic signals at the acquisition stage, but the question of how normalisation might take place before the formation of phonological categories by which they are pigeonholed is a vexed one.

According to Kiparsky (1995):

Learners impose [orderly phonological systems] on the phonetic data, by grouping sounds into classes and grouping them into a system of relational oppositions, and by formulating distributional regularities and patterns of alternation between them. The reason languages have phonological systems of only certain kinds would then have to be that learners are able to impose just such systems on bodies of phonetic data (1995:654).

This does not really answer the question of the origin of the structure that is overlaid on the phonetic data, but the question of how normalisation is achieved during the early stages of language development might be explained by likening the process of categorisation in speech to that in other fields (such as vision, as mentioned earlier). What is quite clear, however, is that many features of vowel phonologies are not language-specific - hence, arguably, universal - and that certain features of vowel systems are predictable from other features. The vowels of a language with a three-vowel system, such as Classical Arabic, for example, will always be /i a u/, while those of a five-vowel system (the commonest type of vowel system cross-linguistically; see Crothers 1978; Disner 1980; Maddieson 1984, 1986) are almost invariably /i e a o u/, viz., a triangular, symmetrical system. Languages such as Japanese, Hawai'ian, Maori and Spanish, or at least the forms of these languages which are most commonly described, are said to feature such systems.

²⁴ 'From both a semiotic and functional point of view perception is the superordinate aim, pronunciation being its means' (1991:137).

An important contribution to the understanding of how such imposition of order on apparently semi-random variation comes from the work on *emergence* which has occupied Björn Lindblom and many of his associates for several decades. Liljencrants & Lindblom's computer simulation of the self-organisation of vowel systems (1972; henceforth L&L) has become a classic of its kind, as it harnesses the chief principles that are thought to govern the shape of static vowel systems and the constraints within which they may change, which can be summarised as follows:

- maximal perceptual contrast
- avoidance of homonymy
- symmetry

These principles are, of course, implicit in earlier structural treatments of vowel systems, and are based on those postulated by Martinet (1952, 1955) to explain stability and its maintenance in vowel systems cross-linguistically. Martinet formalised the idea of vowel systems as 'systems' - that is, as phonological elements in (indeed defined by) paradigmatic oppositions with respect to one another. In such a schema, vowels - treated effectively as acoustic or articulatory 'targets', as per the target models - would avoid encroaching upon their neighbours' area of the vowel space, so as to prevent merger taking place. Samuels (1972), also drawing upon Jakobsonian structuralist principles, outlines the mechanism by which mutual oppositions are maintained:

Each phoneme, ideally, must remain at a point of full, if not always maximum, differentiation from its neighbours in its system (vocalic or consonantal), so that the groups of words in which it occurs remain distinguished and viable. If one phoneme shifts, others will also shift in such a way that the differentiation is preserved ('push-chain mechanism'), while others again will automatically increase their area of possible realisation by moving into the vacated space ('drag-chain mechanism') (Samuels 1972:31).

From a structural point of view, merger is practically the worst thing that can happen in a vowel system, since the loss of contrast entailed by merger will create, or risk, more homonymy. Homonymy in this view is damaging from the point of view of the speaker and costly to the listener, as in either case the signal, being more ambiguous than before, must be disambiguated at the expense of time or articulatory effort (circumlocution, paraphrase, more emphatic/careful/clearer pronunciation), and perceptual effort. As a result, vowel systems will organise themselves in such a way that vowel qualities are maximally contrastive, which means that they will be located at approximately equal distances from one another in the space, by which the risk of

merger is reduced. Front vowels will be as front as possible, back vowels as back as possible. Vowel systems containing three phonemes, such as Classical Arabic, will have vowels two of which are maximally close and one maximally open, while five vowel systems, as per Spanish and Japanese,²⁵ will exploit that area of the vowel space as near midway between close and open as possible. Interaction of these forces results in symmetrical systems.

The L&L model works by taking these principles and building them into a computer simulation as independent parameters. It assumes a uniform vowel space in which a set of points (vowel phoneme targets or prototypes) will seek locations maximally distant from one another, for any given number of phonemes in the system. They liken this model to a basin of water into which magnetised corks are dropped: the magnets are polarised such that they repel one another, and as additional corks are introduced, the system achieves an equilibrium whereby the corks find a stable, symmetrical pattern. The results of their simulations match - in some sense - the observed patterns in natural languages, although as the size of the phoneme inventory increases, so the mathematical model tends to diverge from the natural systems. The beauty of this experiment, however, is in the way that abstract phonological structures emerge from the more-or-less random input, under the guidance of a small, very simple set of principles.

L&L believe this emergent behaviour to be the origin of sound patterns in vowel systems, arguing that since the point of language is to pass information to a listener, information should be structured in such a way as to promote perceptibility while simultaneously being maximally easy on the speaker. The optimal phonological system would thus be one which exploits pre-existing physiological, phonetic and perceptual structures, rather than one that has to tailor the phonetic signal to a set of essentially unnatural linguistic categories.

Lindblom's subsequent work (e.g. Lindblom 1988, 1990; Lindblom *et al.* 1995) has revised the maximal contrast principle to one of *sufficient* contrast, as he takes into account the fact that speakers vary the amount of articulatory effort they expend in speech depending on, for example, speech rate, speaking style, or their attitude to the listener. Phonetic variation is thus on a scale of 'hyperspeech' to 'hypospeech' (so-called 'H&H Theory', Lindblom 1990; Lindblom *et al.* 1995). In other recent work,

²⁵ Japanese, of course, is usually said to have an unrounded [u] in the close back area. Acoustically this vowel is more central than peripheral, suggesting that the inclusion of Japanese in this schema is in fact more of an idealisation than an objective statement about the vowel phonology of the language.

Lindblom and his colleagues report on more sophisticated simulations which derive various structural features from random input: an inventory of optimum syllables emerges from a very parsimonious set of initial conditions (Lindblom, MacNeilage & Studdert-Kennedy 1984; Lindblom 1992).²⁶ The divisions between vowel systems from consonantal systems in this acoustico-perceptual work are done away with here, in recognition of the fact that dynamic (especially transition) cues are perhaps the most important cues to segment identification; Lindblom (1986) stresses that the relationships between vowel and consonant domains should be acknowledged more fully, instead of accepting a natural distinction between the two classes of sounds: 'vowel systems tend to become syntagmatically as well as paradigmatically optimized, that is, as different as possible not only with respect to other vowels but also with respect to the consonants they appear next to' (1986:41).

While these ideas may well have caught on among the experimental phonetics and theoretical phonology communities, in sociophonetics the notion of a vowel system in which canonical vowel qualities are only ever *marred* by consonantal influence, rather than being enhanced by it, is still very much the current one. An examination of the schema developed by Labov to account for the behaviour of vowel targets in chain shift, for example (see §2.6), confirms the autonomy of the vowel system; the changes made to the vowel system are internally referential, and the structuralist principles of contrast and symmetry are left largely unquestioned.

2.5.2 Teleology in structuralist linguistics

The drive toward symmetry is sufficiently strong, according to some commentators (see in particular Anderson 1973; Crothers 1978; Disner 1980; Schwartz *et al.* 1997) that perturbations to the system may be repaired by loss of the element causing the asymmetry. This is one of a number of hypotheses put forward to account for the loss of /h/ from many varieties of English - /h/ has no voiced counterpart, as the other voiceless consonants of English do, and is consequently becoming recessive.²⁷ Anderson (1973) attributes many language change phenomena to this pressure:

²⁶ Keller (1994) provides an interesting account of evidence for emergent phenomena in linguistics generally. See also Andersen (1989); Lüdtkke (1989).

²⁷ This perhaps also accounts for the rarity of /x/ in modern varieties of English: though /x/ and /ɣ/ are reported to have been phonemes of Old English (Quirk & Wrenn 1955:16), /ɣ/ was subsequently merged with other phonemes or elided altogether. /x/ then became vulnerable to merger or loss itself, as the pressures on the phonology to preserve symmetry are said to target 'unpaired' phonemes first.

A recent... consideration of language change attempts to account for modification by recourse to internal linguistic factors, that is, by reference to the linguistic system as a whole, and by the manner in which individual parts of the system (in relation to one another) affect the entire linguistic design. Emphasis is placed on the paradigmatic aspect of change. This approach leads to explanatory structural hypotheses of change. Underlying these structural hypotheses are the paradigmatic relations of structural units to each other in the system or subsystems of the language, their function in the paradigm, and the assumption that all languages tend towards a symmetrical phonological configuration (Anderson 1973:3).

Some of the terminology used here is revealing about Anderson's conception of language structure: like Joos (1950), he uses the word 'design' to refer to the overall system of structural oppositions obtaining within the phonology. Joos' 'mathematics of linguistics' acknowledges the double meaning of 'design', one of which implies a conscious or teleological (goal-driven) pressure to structure language in a better or more efficient way, the other of which is a descriptive term referring only to the characteristics of the quasi-accidental oppositions. But Anderson implies that the former is his preferred meaning, and so we are faced with the problem of having to explain where information concerning the 'goal' is stored. Darwin was careful to stress that the theory of natural selection made no claims to define such goals, so language evolution in the structuralist sense cannot be compared with the evolution of biological organisms. Rather, language evolution is Lamarckian: features are developed or acquired within the lifetime of a single individual, who then passes these features on to the successive generation, working within the constraints laid down by a biological substrate. Thus, there is no need to invoke the autonomy of the phonological system as though it were an organism or a genotype in its own right (see Lindblom *et al.* 1995, McMahon 1994:Ch.9).²⁸

Structuralist accounts of the histories of vowel systems lose one explanatory principle which is commonly used in discussions of teleological change to consonantal systems: that of *ease of articulation*. The ease of articulation principle is usually exemplified by lenitive processes such as Grimm's Law, or by changes such as the spirantisation of intervocalic consonants in Spanish. The underlying theme here is one of simplification: a long series of complicated articulations is more difficult to produce than a short sequence of simple ones. Coarticulations are phonologised, segments coalesce or elide, and idiosyncratic forms (like loan words containing non-native

²⁸ For critiques of the teleology problem see Lass 1980; Adamska-Salaciak 1989.

phonological features, or infrequent consonant clusters) are levelled. In British English, for example, we read that sequences such as /fn/ and /kn/ were lost several centuries ago, /x/ and /ʌ/ are 'extinct' in most varieties, /t/ is increasingly frequently realised as [ʔ], /h/-dropping is on the increase, post-vocalic rhoticity has become recessive and labial variants of /r/ are becoming more and more widespread, and so on. Such changes are generally analysed as reduction or loss of some sort: a feature, a gesture, a quantum of articulatory energy. It is unusual to find examples of the reverse, fortitive situation; consonant or vowel epenthesis or /r/-sandhi in English, for instance, are notable by virtue of their unusualness, and indeed are difficult to integrate into current non-linear phonological theories, since loss of segments is a great deal easier to account for than are segments which appear, as it were, from nowhere.

Changes to vowel systems, on the other hand, typically take the form of qualitative substitutions which do not alter the overall structure of oppositions, and hence it cannot be argued very plausibly that ease of articulation is a factor. While it may or may not be true that [s] is easier to produce than [t], say, it is difficult to see how one vowel quality could be easier to articulate than another.²⁹ According to the structuralist conception of the vowel system, chain shift is an inevitable result of change in any particular area of the system - hence Labov's preoccupation with chain shift as 'what happens to vowel systems when they vary or change' - so if we wish to find articulatory or perceptual reasons for this phenomenon, we must look for recurrent trends in chain shifts when we find evidence for them.

2.6 Chain shift: target theory in dynamic vowel systems

As soon as we bring the idea of change to static vowel systems into the equation, we begin having to acknowledge that the autonomy of the system is not complete: for changes to take place, linguistic exchanges must take place between speakers (Milroy 1992; see also §3.1.3 and §3.4.3). Alternatively, the transmission of changes from one speaker to another, and from one speech community to another, would have to be assumed to proceed using some hitherto undiscovered channel, such as telepathy, for instance. In the process, the change may be accelerated or retarded, depending upon the willingness of each individual or group to adopt it. Thus we are firmly within the domain of sociolinguistics. Many commentators, however, have continued to treat vowel change as though it takes place entirely within the system - in this view,

²⁹ Ohala (1993a:260) is sceptical of 'ease of articulation' accounts: '... although 'ease of articulation' is often appealed to as a cause of sound change, no one has found a way to measure total energy expenditure in speech in order to establish convincingly its relevance.' See also Ohala (1995a,b).

speakers are simply a vehicle or 'pipeline' (Ohala 1981:178) for changes that the system makes to itself for its own ends. The extreme interpretation of this scenario is that of some sort of parasitical organism taking advantage of its host: this idea is clearly absurd, but it has been referred to, at any rate analogously, throughout the functionalist literature. Samuels' discussion of chain shift, for instance, exemplifies well the concept of the vowel system as semi-independent of the speakers who use it:

Circular shifts of vowels are... detailed examples of homeostatic regulation. The earliest changes are mechanical (though they may be triggered or accelerated by extralinguistic factors...); the later changes are functional, and are brought about by the favouring of those variants that will redress the imbalance caused by the mechanical changes. In this respect circular shift differs considerably from merger and split. Merger is redressed by split only in the most general and approximate fashion, since the original functional yields are not preserved; but in circular shift, the combination of functional and mechanical factors ensures that adequate distinctions are maintained. To that extent at least, the phonological system possesses some degree of autonomy (Samuels 1972:42).

In a similar vein, Martinet (1955:88ff), reported in Weinreich, Labov & Herzog (1968:143), attributes chaining phenomena to an attempt to resolve the conflict between 'the asymmetrical geometry of the speech organs and the (presumably) psychophysical economy of symmetrical utilization of distinctive features [that] guarantees a permanent instability of sound systems'. As we are dealing with gradient phenomena taking place within a continuum, it is hard to see how the use of distinctive features fits here: as Samuels (1972:32) points out, 'the spacing of vocalic phonemes is governed mainly by tongue position, so that the whole area of the classic 'vowel quadrilateral' is available for *gradual* shift, without sudden abandonment of one articulation and adoption of another... The view that vocalic changes are always discrete, and result from rules of the form '→[+tense/lax/grave/acute, etc.]' is difficult to reconcile with the proved existence of movement in phonological space.' These gradual shifts are, however, lexically abrupt, so that categorical distinctive features have a role in describing changes *post hoc*, but cannot account for the progress of sound changes while they are in train. The reader is referred to McMahon (1994), who provides a more detailed discussion of this problem in the context of the neogrammarian and structuralist models.

Samuels' view of the actuation of chain shift, like Martinet's, refers to both physiological and acoustic causes: overcrowding of the low back area of the vowel space may precipitate an upward and forward movement of targets (Labov's first and

third principles of chain shift, respectively). This overcrowding is itself said by Samuels (citing Martinet 1952) to be the result of two opposing factors: the inherent asymmetry of the articulatory space in the supraglottal tract (i.e., the fact that there is more phonological space available for front vowels than for back ones)³⁰ and the phonological drive for symmetry, which attempts to match each front vowel with a back counterpart irrespective of space limitations. At the same time, a pressure to optimise contrast urges vowels to maximise sonority (by raising F1, i.e. by falling). Since the area toward which low and back vowels move (the high and front region occupied by /i/ and /y/) is characterised by *low* sonority, however, rising vowels arriving there will immediately be required to fall again.

Since, from an acoustic point of view, sonority is itself one of the elements contributing to stress, it follows that raising of the tongue in contexts calling for greater stress must defeat its own object, and that this will be remedied only by pronouncing the new raised vowels with more energy still. The ultimate result of such a process, if it took place unchecked, would be a concentration of vowels (or, by merger, of vocalic yields) in the high or high-front areas (Samuels 1972:41).

This clearly is not the case, although we will see in later chapters that wholesale fronting and raising of vowel targets in many varieties of English is fairly widespread. The conception of chain shift as a sort of 'convection' effect, whereby vowels rise to the top of the available space, then fall back to the bottom to begin the cycle anew, is rather like the movement of water or air where a temperature differential is involved, but instead of heat, sonority is the factor that keeps the acoustic fluid in motion. Similar analogies have often been applied to the best-known chain shift, the 'Great Vowel Shift' of English during the late Middle and Early Modern English periods.

³⁰ Lindblom (1986:38) claims that '... for a vowel pair with a small spectral distance, the predicted perceptual dissimilarity must be made dependent on whether the vowels are front or back. For instance, although [y:] and [ø:] may have a spectral distance similar to that for [u:] and [o:], the front pair is heard as more dissimilar. It is as if listeners make their space more spacious at the point where universal perceptual space seems most crowded. The lesson appears to be that the more language-dependent plasticity the subjective vowel space possesses, the greater we should expect the discrepancies to be between natural systems and systems derived from a theoretical universal baseline.' Citing three sets of matching 'facts' ((i) that articulators have greater mobility at the front of the mouth (e.g. lips, tongue tip), (ii) that there is a richer supply of structures for sensory control at anterior vocal tract locations, (iii) that acoustic-perceptual effects are greater at the front than at the back), Lindblom speculates as to whether this asymmetry of 'vocal tract sensori-motor representation' applies to vowels. 'Does it,' he asks, 'contribute to the primacy of height (sonority or F1) over front-back (chromaticity or F2) distinctions and the favouring of contrasts produced in anterior articulatory regions that have expanded sensory representations?' (1986:39)

2.6.1 The Great Vowel Shift

Most descriptions of the evolution of the vowel system of English seem to accept as a given the series of reorganisations of the connections between the lexicon and the system of vowel phonemes in Middle English known collectively as the 'Great Vowel Shift' (Jespersen 1949, Wolfe 1972).³¹ In a change of this type, there is apparently no loss or gain to the phonological inventory, merely a 'reshuffle' of existing phonemes.

The Great Vowel Shift (GVS) has been described so widely elsewhere that no detailed introduction is necessary, but at this stage it is useful to point out that the GVS is a reconstructed description, not an explanation, of a set of changes that are thought to have taken place over several centuries in geographically dispersed varieties of English. Our understanding of the GVS depends on indirect evidence (idiosyncratic spellings, puns, rhymes)³² from a fragmentary written record, and evidence from synchronic variation in English which suggests fossilisation of individual stages of the shift (such as the persistence of /u/ in words of the MOUTH set in Scotland and parts of northern England, including Tyneside; McMahon 1994:31). As such, a good number of the posited stages have had to be interpolated by historical linguists, some of which stretch plausibility a little; it often seems that the principles by which a phenomenon such as chain shift is expected to work are fixed before evidence is sought in support of the model.

There is too little room here to review the vast literature on the subject, but it is perhaps worth mentioning that the acceptance of the GVS as a 'fact' about the history of English has led to its appropriation by phonologists and sociophonologists for various purposes. Chomsky & Halle tackled the GVS using distinctive feature and rule addition conventions within their SPE framework; Wang (1968), Ladefoged (1971), Wolfe (1972) and Stockwell (1978) attempted to refine this account by proposing more parsimonious feature- and rule-based analyses of the same phenomena. More recently, Stockwell & Minkova (1988, 1998) have appraised the GVS and similar changes in the light of developments in phonological theory. James

³¹ Jespersen (1949), in fact, coined the term, though he had already proposed the idea of a coherent, interrelated set of shifts as early as 1909 (see Labov 1994:145).

³² In the absence of standardised orthography, of course, scribes and typesetters in earlier periods were inclined to modify spellings in line with localised variation and changes in pronunciation. Invented spellings for modern non-standard English pronunciations, such as those used in dialect poetry, dialect dictionaries, etc., can hardly be said to reflect exact phonetic values, on the other hand, so one must be wary of the assumption that orthographic variation in the historical record *necessarily* reflects fine-grained differentiation in the spoken language, or that they do so accurately.

Milroy (1993), on the other hand, is sceptical of the analysis of the GVS as a unified phenomenon, since the unity of the shift can only be appreciated by observing its end-product. From a speaker-oriented point of view (which is, after all, that taken by the sociolinguist), the GVS 'represents a codification of the outcomes of a number of changes that have taken place over the centuries at different times and places as a result of multiple speaker innovations and with many different influences and social motivations involved' (J. Milroy 1993:186). In Milroy's opinion, '... what we think we know about the history of English... is often mediated through Neogrammarian views, as in the... English Great Vowel Shift' (1993:182), the problem being that if one subscribes to the Neogrammarian conception of gradual phonetic change leading to abrupt lexical/phonemic change (the keystone of the chain-shift model, and the mechanisms by which it is thought to work), one effectively separates the language from its speakers. 'When speakers are excluded in this way, it becomes easy to believe that linguistic change is language-internal, independent of speakers and imperceptible' (1993:182; see also J. Milroy 1994; Lass 1992).

Assuming that speakers and speakers' linguistic behaviour are in essence no different today from how they were in previous centuries (a version of the so-called 'uniformitarian principle') we should reject the view of English as more or less historically uniform until recent times, as it has often been portrayed (see, for instance, most standard university textbooks on the history of English, such Pyles & Algeo 1982; Baugh & Cable 1991; also Nicolaisen 1997). The virtually universal acknowledgment of the GVS as an 'event' in the history of English betrays the tacit acceptance of numerous - somewhat archaic and subjective - theoretical and political ideas in linguistics as it stands; Milroy believes that we should recognise our own prejudices in this respect, and try to suppress them or do away with them altogether if we are to proceed on an objective programme of research into (a) what language is like and (b) how it is used by ordinary speakers.

The main recurrent assumption in the literature is the unilingual development of English as an entity changing through time within itself with relatively little appeal to the possible effects of language contact or variability generally, and a tendency to dismiss from the canon those developments that do not lead to present-day standard English. Associated with this is a tendency to discount or explain away attested variability - in other words the focus has been on uniform states of language... the general effect of subscribing to this ideology has been to chart the history of the (standard) language retrospectively as a mainly unilinear, relatively unbroken continuum (Milroy 1996:170).

It is more obvious now than it used to be that such views have socio-political assumptions behind them, implicitly characterizing language as a socio-political entity but presenting it as if it were a structural entity: 'standard' forms and varieties are chosen for study largely because they are thought of as being superior to, and more important than, other varieties (ibid.:181).

As the best-known, indeed prototypical, example of the chain-shifting of vowel phonemes, the GVS and the principles reconstructed to explain it have defined an entire subfield of sociophonological theory, championed by Labov and outlined in impressive detail in his 1994 *Principles of Linguistic Change, volume I* (PLC). Bearing in mind Milroy's concerns about the neogrammarian foundations upon which the chain-shift model is built, however, it should start to become clear that Labov's dedication to the idea of linguistics as the study of language as it is actually used, rather than the study of some idealised, set of abstract formal relationships, is somewhat at odds with the instrumentally-based methodology used in PLC, and the assumptions that motivate and justify its adoption.

Through presenting acoustic data as though they directly represented normalised vowel percepts, the formant frequency model neglects the fact that the speaker-listeners who *use* the vowels sometimes thousands of times a day have sufficient linguistic experience to allow them both to factor out acoustic variation, and to use the plasticity of the production/perception system to their advantage (see §3.1). Also, as Aulanko & Nevalainen (1995) point out, the problem with acoustically analysing vowels collected in natural situations is that they vary 'in many ways due to many factors which may lead to them *looking as if they're undergoing change*' (1995:464; italics mine); factors such as phoneme-internal variation, lexical type and token variation, the effects of immediate phonological context, and the linear versus logarithmic scaling of results may persuade the researcher that he or she is seeing an

effect which could be interpreted as change, but which is in fact just an artefact of the methodology.

2.6.2 Mergers, near-mergers, and non-mergers

As stated above, merger is a 'worst-case scenario' for vowel systems as far as functional and systemic considerations are concerned. Mergers, according to Garde's principle of *the irreversibility of mergers by linguistic means* (1961), cannot be reversed once complete, except by wholesale borrowing from varieties with which the dialect featuring the merger comes into contact (the extra-linguistic nature of dialect contact, presumably, being what Garde is referring to by the term 'linguistic means').³³ After merger is complete, speakers no longer have access to the original word classes associated with each phoneme, and so the lexical items in each set cannot be sorted out again. Mergers are thus entropic information sinks into which useful contrasts disappear, and once they have occurred the system must work extremely hard by way of compensating for the loss - by re-establishing a contrast elsewhere through split, for example - and by restoring symmetry where at all possible. In the ideal situation, mergers can be recovered from even without contact with unmerged varieties, but as far as the system is concerned, prevention is better than cure. Martinet's *margins of security* around each individual phoneme serve to prevent the excessive overlap of the *fields of dispersion* which arise inevitably from the phonologically- and stylistically-determined scatter of tokens around a target. Merger takes place, it seems, when the field of dispersion of one phoneme becomes enlarged, or alternatively when a phoneme's margin of security is weakened or narrowed in some way. How this might come about is unclear: theories about random drift which gradually becomes channelled in a particular direction are usually invoked to explain why instability is introduced into the system.

It should be easy to find instrumental evidence of ongoing or completed mergers, however: the overlap of adjacent envelopes in an F1~F2 plot, or example, may at first sight appear to indicate that a merger is taking place, and is usually taken as evidence of such a process. It is certainly true that the first and second formants for a pair of perceptually equivalent vowels might be identical or very similar. But if one were to take F3 into account, one might find that a pair of vowels coinciding in F1 and F2

³³ The 'spatial correlate' of Garde's principle has been dubbed 'Herzog's principle' (see Labov 1994:602; also Chapter 8 of this thesis): in brief, *mergers expand at the expense of distinctions*. This might be interpreted as an increase in articulatory ease, for surely losing contrasts makes life easier for the speaker, if more difficult for the listener. Merger cannot of course be allowed to continue unchecked: life becomes more difficult for the speaker fairly quickly if the listener's ability to comprehend the speaker deteriorates beyond a certain point.

were well separated in acoustic space by differences in this parameter; assuming that because vowel targets overlap when viewed from one direction is akin to assuming, for instance, that the sun and the moon coalesce during a solar eclipse. Apart from anything else, the frequencies of F1 and F2 taken at the vowel midpoint or PMFD may coincide while the remaining portions of each vowel are radically different. So it may well be that pairs of vowels which are audibly merged to the investigator, and which are instrumentally identical according to F1 and F2 values measured at the vowel midpoint or at maximal displacement, are in actual fact quite distinct for native speakers of the language or dialect. Faber's (1992) study of vowels in Salt Lake City English demonstrates this point very well: she found no distinctions between /i/ and /ɪ/, /e/ and /ɛ/, and /u/ and /ʊ/ simply by measuring F1 and F2 - i.e., the vowels were merged, by the usual criteria - but found also that Salt Lake City speakers could categorise tokens of each vowel readily and accurately. She concludes, 'Utah speakers must be supplementing or maintaining contrast between tense and lax vowel pairs with some feature not usually associated with English vowels' (1992:66). A follow-up study of near-mergers in Utah English using discriminant analysis (Faber & di Paolo 1995) concludes:

... our analyses have shown that vowel pairs that are not distinct along any one measureable dimension - F1, F2, f_0 , or spectral slope - may be distinct when all dimensions are considered simultaneously. This result underlines the importance of describing vowels in terms of as many dimensions as possible, not merely those dimensions that, like the first and second formant frequencies, are a priori assumed to distinguish among vowels... What we have shown is that, by and large, Utah speech contains sufficient information to enable Utah listeners to perceive the contrasts. Our emphasis has been on potential distinctiveness, which, after all, is logically prior to actual discrimination by listeners. This emphasis differs from that of Labov et al. (1991), who suggested that listeners may not make use of minimal distinctions in actual language use... By providing a detailed mechanism by which contrast can be preserved and enhanced in the case of one near-merger, we hope to have cast further suspicion on the notion of 'reversal' of merger (Faber & di Paolo 1995:65).

Faber & di Paolo's findings suggests that we should be very careful in classifying similar vowels as merged, particularly if we are not a native speaker of the dialect or language in which they occur. Garde's principle is formulated so strongly, and so widely accepted as a law of sound change, however, that we must always look to explanations other than simple 'unmerging' of merged forms: that the merger was mistranscribed by phoneticians, was never complete, that speakers were in control of two vowel systems simultaneously, or that it only ever applied to those speakers

whose speech was investigated. Such apparent mergers, the vowels of which are either subsequently unmerged or are still distinct for native speakers, are usually assigned the label 'near-mergers' or 'reported mergers', as few counterexamples to Garde's principle have ever been offered that could not be explained by recourse to other factors. Conversely, Trudgill & Foxcroft (1978) offer evidence that vowels may be merged in the sense that speakers cannot tell them apart, although the vowels are physically different: 'the most interesting point to emerge from [our] work is that it seems that if the approximation is close enough, speakers will themselves perceive the vowels as identical even when they are not' (1978:75); 'it may be that, as in the cases reported by Labov, there are small phonetic differences between the two lexical sets which remain unnoticed not only by the native speakers who make them but also, in this case, by the analysing linguist' (1978:76). In the latter case, apparent unmerger would be doubly likely, since linguists' judgments of whether or not vowels are merged on the whole tend to be fairly reliable. 'Alternatively,' Trudgill & Foxcroft continue, 'it might be that speakers have been able to keep these vowels phonologically or psychologically distinct through 'knowledge' of pronunciations used by older speakers in the speech community or through stylistic alternations. Whatever the explanation, it is clear that approximation may be a complex kind of process, and that reports of mergers should be treated with caution' (1978:76-77). These issues are raised again in the analysis of the NURSE variable in Tyneside English (§7.4; §8.2.5). The reported MEAT~MATE merger in the English of Northern Ireland is explored by Milroy & Harris (1980); for a detailed discussion of near-mergers and unmergers in general see Chapter 13 of Labov (1994), Labov (1975) and Labov, Karen & Miller (1991).

2.6.3 Peripherality

A key factor preventing merger in Labov's schema is the availability of two 'tracks' within the vowel space along which vowels may rise or fall, bypassing one another without risk of merger. These tracks are 'peripheral' and 'non-peripheral', as seen in Figures 2.5 and 2.6. Figure 2.5 shows the relative position of the peripheral and non-peripheral tracks with respect to the front and the back of the vowel space; Figure 2.6 extends peripherality and non-peripherality to include the close and open regions as well.

Figure 2.5: Peripheral and non-peripheral tracks in front and back (from Labov 1994: 172)

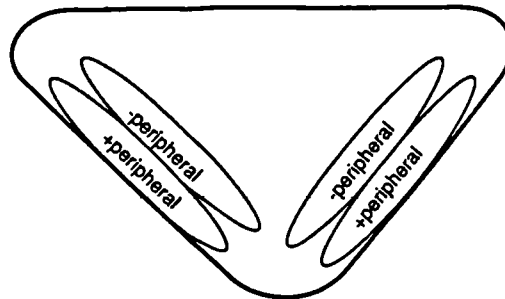
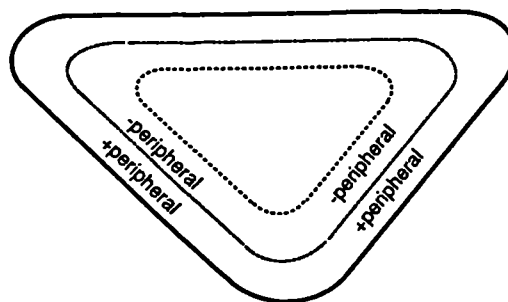


Figure 2.6: Peripheral and non-peripheral tracks (from Labov 1994:177)



The inner non-peripheral track in Figure 2.6 is delineated from the peripheral track by a boundary defined by a 33% reduction in the size of the triangular vowel space; the inner boundary of the non-peripheral track is drawn around a triangle 66% smaller than the vowel space. As such, peripherality 'is not an absolute location in phonological space but, like height or frontness, a relationship determined by the elements of the system as whole. A peripheral element is closer to the outer envelope of the vowel system than a nonperipheral element' (Labov 1991:11). The distinction is based partly on instrumental evidence and partly on phonological considerations such as tenseness versus laxity (or length). It usefully explains, however, the interactions of vowel targets in chain shifts which appear to move along opposing paths, an effect that has been commented upon a good deal in the past. Labov (1994:221) quotes Sievers' (1850) remarks on this phenomenon:

It is well known that short and long vowels are frequently differentiated by opposite directions of movement... The basis for this lies in the frequent operation of the law that the articulation of a sound will be the more energetic and complete, the more strongly it is present in consciousness, that is, the greater its amplitude and length. This accounts for, in the case of the long vowels, not only the raising of particular articulations of the tongue (in placement and degree of tension), but the increase in rounding, when it is present. The short vowels, on the other hand, which involve only a brief movement of the tongue, will not reach their specific amount of displacement from the rest position of the tongue, or tension, that is, there will be initiated a shift of the vowels with strong articulations to sound with more neutral articulations, as far as tongue and lip position, as well as tension, is concerned (Sievers 1850:279).

Labov, Yaeger & Steiner, in the proposal submitted for the research project published in 1972 as *A Quantitative Study of Sound Change in Progress*, reinforce the validity of the two-track schema through reference to acoustic evidence:

The more precise view of phonological space which we obtain with spectrographic studies shows us that the raising of tense vowels, in front and in back, takes place along a peripheral route, with relatively extreme second formant positions. The falling of the short vowels and diphthongal nuclei takes place along a less peripheral path, well separated from the raising track, but still distinctly front and back rather than central... Thus we see diphthongs or short vowels passing downward in close proximity to the long or tense vowels, but preserving a distinct separation. One might believe that such narrow distinctions cannot be preserved by speakers. But evidence from our research in New York City shows that vowels can maintain such distances - even though native speakers do not consciously hear them as 'different' when they reflect consciously about them' (Labov, Yaeger & Steiner (ms:9-10), quoted by Wolfe 1972:136).

The apparently paradoxical non-merger of rising Middle English /ē/ with /ī/, for example, the latter of which was falling and diphthongising to /ai/ (a product of Labov's *Upper Exit Principle*), is explained by the nucleus of /ī/ switching from the peripheral to the non-peripheral track while it fell. /ī/ thus sidestepped upcoming /ē/ by centralising to [əi], or something similar. This account has the advantage of answering Dobson's (1968) criticisms of Orton (1933) and Ellis (1874) concerning the impossibility of the non-merger of rising /ē/ and falling /ī/ (which should have merged at a value Labov labels [ey]), but does not fit with the available evidence from orthoepists and grammarians. Presumably, though, the difference brought about by the centralisation of the nucleus need only have been a small one: as Labov, Yaeger &

Steiner point out, it could have remained unnoticed at the conscious level to speakers and orthoepists alike (see Labov 1994:146). These subtle subphonemic differences are invoked a good deal in PLC,³⁴ with justification, but in a sense there is so much latitude in situations like that above (given that orthography is rather obscure where subphonemic variation is involved, and that historical commentators had no standard phonetic transcription system) that Labov's account is more or less impossible to disprove.

Evidence from synchronic sound change is useful in this regard, but as we have seen, the means by which Labov proposes to investigate ongoing change - viz., the formant frequency model - is far from unproblematic. The main points are summarised below:

2.7 Summary

The formant frequency target model of vowel variation and change works under the following assumptions:

- the frequencies of the first and second formants (F1 and F2) correspond in a one-to-one fashion to (a) articulatory configuration and (b) auditory quality
- other perceptual cues are secondary, or even irrelevant
- measurements of F1 and F2 are best taken from a single spectral slice at the vowel midpoint or point of maximal formant displacement (PMFD), if these do not coincide
- F1 and F2 at the vowel midpoint/PMFD are better determinants of vowel quality than are formant transitions or any other cues
- vowel duration and voice quality are not primary cues to vowel identification
- the distribution of points on the F1/F2 plane will reflect psychological or proprioceptive vowel spacing and oppositions
- there is a direct mapping from acoustic structure to phonological structure
- elongation or expansion of a field of dispersion indicates the movement of a target in a particular direction
- sound change may be taking place by lexical diffusion where elongation of a field of dispersion is due to the influence of phonological context (e.g. adjacent nasal segments)
- where F1 and F2 values for two (phonemically opposing) vowels overlap, merger is ongoing or complete
- dynamic vowel articulations, such as diphthongs, are adequately represented by points denoting F1~F2 values sampled at some point during the diphthong's nucleus

³⁴ Labov, indeed, devotes an entire chapter to an attempt to resolve paradoxes in this way. The raising of back vowels in Valais (after Gauchat, Jeanjaquet & Tappolet 1925), for example, in which mid-open /ɔ/ is raised to /u/ via /oC/ (/oC/ simultaneously falling to /ɔ/) without merger taking place, is similarly explained by recourse to 'track-switching' (1994:222-244).

- the vowel system will avoid merger where at all possible, by implementing chain shift
- chain shift is almost always triggered when vowels change: isolated changes are rare
- chain shift takes place along outer and inner 'tracks' along the periphery of the vowel space; the involvement of central vowels in chain shift is thus atypical, and perhaps prohibited
- normalisation has an ambiguous role in vowel perception: it filters out inter- and intraspeaker variation of various sorts so as to permit high-speed processing of often highly variable signals, but does not prevent listeners from distinguishing between male versus female speakers, adults versus children, speakers with diverse regional and social accents, etc. Nor is it so powerful that extremely subtle socially-conditioned phonetic variation is factored out

We have seen in this chapter that there is good evidence to counter many of these assumptions, and thus we must take care not to accept at face value findings made on their basis. As Rossi warns, 'instrumentation does not make science, nor should it be confused with the experimental method' (1996:97); in the case of sociophonological investigations of variation and change in vowel systems the formant frequency model is almost ubiquitous, however, and its importance is in general accepted uncritically. A survey of current research on the phonetics of vowel change, particularly that underway in North America,³⁵ reveals that the formant frequency method is increasingly recognised as the norm; as mentioned earlier, Labov's formant extraction and plotting program *PLOTNIK* has become a standard methodological tool. Figures 2.7 and 2.8, below, are examples of plots created using this program (the plots representing the vowel spaces of these two speakers appear repeatedly in Labov's work; in Labov (1994) they are intended as demonstrations of the validity of the two-track model).

³⁵ See, for example, the programme for the NWAVE 26 conference, held in Quebec in October 1997; an Internet version is available at <http://www.fl.ulaval.ca/nwave26/>.

Figure 2.7: Vowel system of Jerry Thrasher, 20, Leakey, Texas [1969] (from Labov 1994:171)

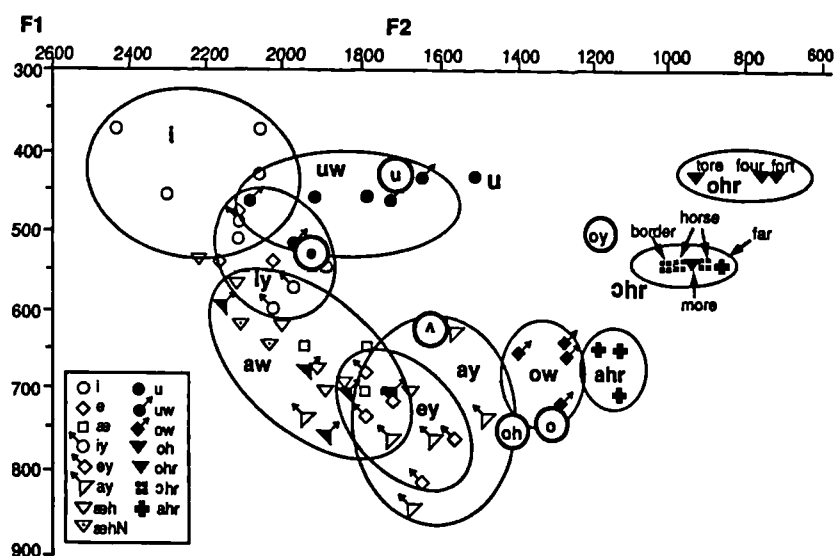
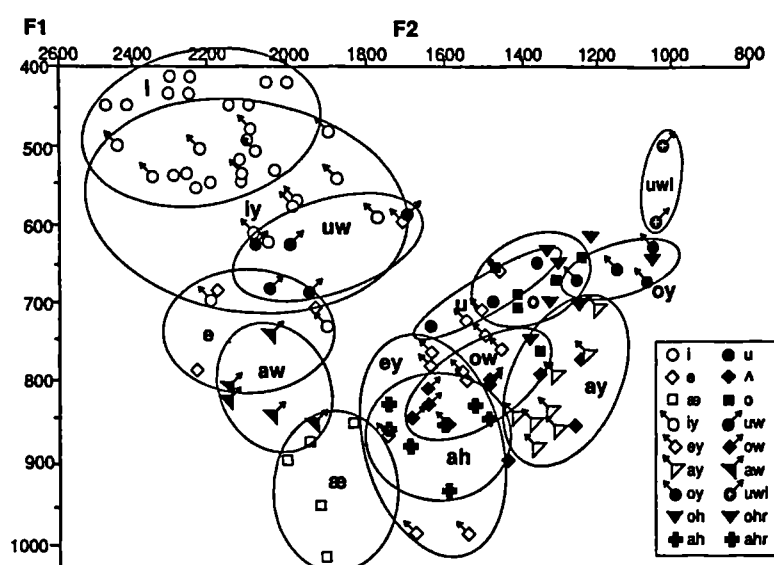


Figure 2.8: Vowel system of Marie Colville, 39, Millwall, London [1968] (from Labov 1994:169)



Interpretation of these diagrams is not straightforward; certainly, I have difficulty reconciling my own reading of the plots in Figures 2.7 and 2.8 with Labov's comments:

The vowel space [reproduced as Figure 2.5, above] sums up the observations... about London [Marie Colville] and Texas [Jerry Thrasher]. In both front and back are two ellipses, one near the periphery of the vowel space, one closer to the center. The diphthongs /ay/ and /aw/ rise along the peripheral ellipse, while other upgliding vowels are located on the nonperipheral ellipse. Other chain shifts are spaced along the back ellipse, involving the raising of back vowels before /r/. [...] There are also rising vowels. The arrows in [Figure 2.5] show that rising vowels follow a path along the peripheral ellipse (Labov 1994:172).

Apart from the fact that no arrows are visible in Figure 2.5, the commonalities between the London and Texas vowel systems - which, incidentally, Labov groups together as exemplars of the third of the 'three dialects of English' - are far from obvious. In both cases /uw/ appears to have fronted toward /i~/iy/, certainly, and /ay/ is in an approximately similar relative position in both cases. But it takes a trained eye to see that the two vowel systems are related more closely to each other than they are to others Labov schematises in PLC, and it is not at all clear how one goes from plots like those Figures 2.7 and 2.8 to the two-track model. Clearly, a good deal of idealisation is required here. The significance of overlap of targets in the F1~F2 plane, for example, is sidelined in those cases where no merger is thought to be taking place, but brought to the fore where merger becomes an issue. Similarly, it is difficult to predict where Labov will use exceptions to the broad patterns to demonstrate some weighty point or another, or will simply marginalise them. The predictive power of his models - which is, after all, where their true value would lie - is, in my opinion, weakened by these inconsistencies.

That chain shifts may take place is not disputed. Nor is it denied that certain patterns are found time and again in the way vowel systems vary, and in the way vowel variation gives rise to vowel change. The auditory effects of phenomena such as the Northern Cities Chain Shift are very salient, and formant frequency plots are useful as backup for impressionistic judgments of changes in vowel quality. But the use of this technique as a means of checking auditory transcriptions appears to have lost out to a methodology which is based on precisely the reverse of this: formant measurements in Labov's research paradigm are taken first, and later backed up impressionistically, *if need be*. As Labov says, 'phonetic differences are greatly reduced in impressionistic transcriptions of elicited forms' (1991:2); 'an impressionistic transcription will usually fall short of the full range of differences between dialects. It seems that understatement in impressionistic transcription is inevitable. There is a general

tendency for impressionistic phonetics to be governed by previous expectations: once an utterance is understood, and words are assigned to historical classes, we tend to hear radically divergent phones as slight variants of the phones we are used to. This is one reason that many sound changes in progress have gone undetected until they were almost completed. For an accurate view of dialect differences, instrumental analysis is needed, combined with repeated rehearsings of comparable forms' (1991:3). In a somewhat earlier paper, Labov (1986) talks of checking 'suspicious pairs' (vowel formant frequencies which do not fall within an expected range) using auditory comparison of neighbouring tokens, which he accepts is an 'essential step in validating an analysis' (1986:405).

Nothing, of course, is said about listener normalisation: the formant frequency plots show un-normalised *acoustic* values, and from these Labov derives his principles of linguistic change. The role of the listener as an agent of sound change is here, I feel, underemphasised: the listener is exposed to the linguistic behaviour of others through a speech perception system which has to normalise some aspects of the signal, but not others. The problem is that we do not as yet know which parts of the signal are allowed to pass beyond the peripheral auditory system to deeper structural levels, and which are not. Nor is it clear whether the plasticity of the normalisation faculty - the feature that allows switching between linguistic and veridical perception, for instance (Guion 1995) - varies momentarily or over longer periods time, such that *indicators* rising to levels of conscious awareness (as *markers*; Labov 1994:78) are normalised less at some times than at others. Do some speakers normalise the signal less, or in a different way, from others, thus allowing vowel targets to reposition themselves in terms of their phonological representation? Does the transmission of sound change depend upon normalisation being bypassed, or temporarily 'switched off', as Guion (1995) and Ohala (1993a,b) suggest? And why are qualitative changes to some vowels participating in chain shifts more salient than others? Labov's accounts of the mechanisms underlying chain shift do not address these questions satisfactorily. Some degree of convergence between normalisation research (see, for example, the collection of papers in Johnson & Mullennix 1997) and the sociophonological work of Labov would no doubt be greatly productive: there is an urgent need to bridge the gap between internally and externally conditioned signal variability and the way in which signal percepts are fed into the language processing structures in the brain. The relative neglect of accentual variation in normalisation research is matched by the almost complete disregard for questions concerning normalisation in Labov's work.

This thesis is based on data which are collected using the more traditional impressionistic transcription method, for the reasons outlined in the preceding discussion. It should by now be clear that I am not wholly convinced of the usefulness of the formant frequency approach, at least in its present form, and particularly as it pertains to my own data. There are patterns in the Tyneside data that could, arguably, be attributed to the operation of principles of chain shift, as discussed in Chapter 8, but it may well be that no evidence for this could be obtained using instrumental techniques. In any case, I am confident that the degree of phonetic variation that can be heard in the Tyneside vowels is more than sufficient to render instrumental analysis unnecessary: the auditory difference between [ø:] and [ɔ:], say (two variants of the NURSE vowel) is extremely salient and does not require acoustic analysis to show that this is so. Also, as discussed in §5.2.1, the findings of parallel studies on the same vowel variables (see L. Milroy 1996) are extremely similar to my own. There is, therefore, good reason to think that the results presented in Chapter 7 are as reliable as those which would be obtained using Labov's techniques; given that the relative precision of F1~F2 measurements is in any case often subsequently compromised by attempts to fit formant frequency data to a highly abstract two-track model, the advantages of the instrumental approach over the impressionistic are not obvious.

The traditional parameters of frontness/backness, open/close (plus two intermediate heights *close-mid* and *open-mid*) and rounded/unrounded are thus used to classify the vowel tokens recorded for this study. I have also adopted the term *peripheral* in the conventional sense: peripheral vowels are those produced near the boundaries of the (perceptual) vowel space. Likewise, *monophthong* and *diphthong* are used to label vowel sounds which are heard as having one or two perceptible qualities, respectively. That there are numerous problems with this approach is acknowledged, and this traditional taxonomic system is used with reservations. The chief advantage of the technique, however, is that it allows very large amounts of data to be collected comparatively quickly. No normalisation between the vowel spaces of male and female speakers is required.³⁶ In addition, it allows direct comparison to be made between the present data and pre-existing accounts. Criticisms of impressionistic transcription made by, for example, Butcher (1982) or Kerswill & Wright (1990) are heeded: attempts at the narrowest possible transcription are usually more time-consuming than they are beneficial, especially where individual tokens are later to be collapsed into broader variant categories. It is hoped that an appropriate balance has been struck here between detail and representativeness.

³⁶ If we are to accept that men and women are using the same set of phonetic variants for sociolinguistic functions, we must treat two speech sounds that *sound* the same as tokens of the same type. It is difficult to see how else changes could diffuse through a speech community.

The present chapter has dealt with some of the problems and issues concerned with models of variation and change in vowel systems that focus principally on internal factors. The following chapter, by way of balance, comprises a discussion of external influences that may explain stratifications of variation and the directions in which change may proceed.

CHAPTER THREE: EXTERNAL FACTORS

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3.0 Introduction

The previous discussion of strictly 'internal' factors should make clear the motivation for the dichotomy between internal and external: external factors are non-linguistic categories which might be expected to influence linguistic behaviour, given what we know about variation and change at the intersection of linguistic structure and social structure. The variation which is found in the PVC corpus can be attributed to both internal and external factors independently, but it makes more sense to think of an interaction of the two types of influence as an explanation of the patterns we see.

There are four 'external' factors controlled for in the corpus of material used for this study. They fall into two types: (i) speaker characteristics (age, sex, social class) and (ii) speaking style. These are discussed more fully in §3.3 - §3.6 below.

Sections 3.1 and 3.2 deal with general issues surrounding the relationship between language variation and functional considerations. The search for invariance in language that in part motivates generativist linguistics - and much of experimental phonetics, as seen in the previous chapter - has tended to encourage the equation of functionality with uniformity: in such a framework, disruptions to language structure coming about as a result of external factors such as dialect or language contact, for example, are 'remedied' by internal mechanisms that restore equilibrium wherever possible. The position taken here is one which argues that the variation that occurs in all natural languages is not dysfunctional, but instead serves to complement their communicative potential, and, like Thomason & Kaufman (1988), I assume that 'it is the sociolinguistic history of the speakers, and not the structure of their language, that is the primary determinant of the linguistic outcome of language contact. Purely linguistic considerations are relevant but strictly secondary overall' (Thomason & Kaufman 1988:35).

3.1 Variation and function

It can be supposed that the large amount of variation that is a normal feature of any natural language has two types of communicative function.¹ First, it has a function to communicate social, pragmatic and phatic information: information about the speaker's social characteristics (age, gender, socioeconomic background, etc.), certain

¹ I confine myself here to *spoken* natural languages.

aspects of context-dependent and/or non-literal information (irony, surprise, etc.), and information about the speaker's attitude toward the listener (identification, respect, and so on).² Second, in line with the views of work on speech perception carried out by Elman & McClelland (1986) and Pisoni (1997), it may serve to enhance, rather than to distort, the communication of purely semantic information.

Assuming, realistically, that variation is an inevitable byproduct of language in use (see for example Faber 1992, Ohala 1993a,b; Guy 1996), a language user's linguistic competence must incorporate an ability to handle a very large amount of variability in the spoken language that he or she encounters. Since I am working within a framework that assumes that language is a form of social behaviour (Weinreich, Labov & Herzog 1968; Labov 1966; Milroy 1992), whereby language is used by speakers to create and maintain interpersonal relationships of various types, this ability would presumably include a facility to range up and down a continuous socio-stylistic scale in order to accommodate most readily to the speaker's conversational partner(s). The reduction of phonetic variability coming about through accommodation would have the additional bonus of simultaneously reducing the production and perception costs to listener and hearer, since, as Nusbaum & Morin (1992), Pisoni (1997) and Johnson & Mullennix (1997) show, talker variability tends to slow down speech recognition. Accommodation thus permits speakers to communicate information in the least linguistically 'costly' way, but in a way which maximises social benefit to him or her. Cost might be defined as the amount of energy expended in production and perception weighed against the benefits accruing to speaker and listener: the speaker must balance 'production costs' (energy expended in articulation) with perceptibility ('perception costs') on the listener's part. The listener's ability to normalise the signal through categorical perception, as seen earlier, will depend to a significant extent upon experience of the speaker's phonetic behaviour (Nygaard, Sommers & Pisoni 1994). As conversation progresses, the listener's

² Laver (1994:§1.10) distinguishes between *linguistic*, *paralinguistic* and *extralinguistic* behaviour. 'The commonest form of linguistic behaviour,' he states, 'is communicative behaviour which uses the dual-level code of spoken language made up of... phonological and grammatical units', while 'paralinguistic behaviour in speech is communicative behaviour that is non-linguistic and non-verbal, but which is nevertheless coded, and which is designed to achieve two goals of conversational interaction. These are the communication of the speaker's current affective, attitudinal or emotional state (such as anger, sadness, excitement, disappointment, happiness, cordiality, etc.), and the regulation of the time-sharing of the conversation' (1994:21). Non-vocal components - gesture, body movement, facial expressions - play a large part in paralinguistic behaviour. Extralinguistic behaviour, on the other hand, is the 'residue of the speech signal after analysis of all coded linguistic and paralinguistic aspects is complete. Non-coded, extralinguistic aspects of speech are often rich in evidential information about the identity of the speaker, particularly with respect to habitual factors such as the speaker's voice quality, and overall range of pitch and loudness. Extralinguistic behaviour is thus informative... but not communicative' (Laver 1994:22-23).

increasing familiarity with the speaker's voice will allow the speaker to reduce production costs while simultaneously keeping perception costs to a minimum. Convergence of speaker and listener through accommodation is clearly desirable in such cases, since it makes communication faster, less costly, and at the same time 'greases the social wheels': where speakers of a single language or language variety do not accommodate to each other one may assume a lack of social identification, or even hostility. Lippi-Green (1997), for example, formulates accommodation theory as follows:

Listeners and speakers will work harder to find a communicative middle ground and foster mutual intelligibility when they are motivated, socially and psychologically, to do so. Conversely, when the speaker perceives that the act of accommodating or assimilating linguistically may bring more disadvantages than advantages, in in-group terms, he or she may diverge even farther from the language of the listener. (Lippi-Green 1997:70)

When talking about 'maximisation of contrast' or 'enhancing perceptibility' in the context of language in use, then, we should take the speaker's attitudes to the listener into account, as well as the similarities or differences between the forms of the language each typically uses. Accepting that the operation of the phonology-internal factors underlies all use of spoken language is not the same as assuming that observation of these factors by speakers and listeners always comes first when these language users interact. That speech sounds will temporally and acoustically overlap one another, often to a very large degree, is a reality of human speech in unconstrained, natural conditions, but such interference does not appear to hamper comprehension a great deal (especially where speaker and listener are already familiar with one another and/or the specific variety being used). Overlap of this kind will, moreover, take place irrespective of its 'undesirability' from the point of view of the phonological system. As Milroy (1992), quoting Brown (1982:77), points out:

Much of our discourse is *unplanned* and *listener-oriented*, in which speakers 'don't seem to be talking about very much' and in which the primary goal is the 'maintenance of friendly relationships'... speakers in casual social contexts are not usually concerned with avoiding homonymic clash or with being especially clear and explicit: they are satisfied if the conversation progresses successfully, and the success of the conversation is judged in social terms. If misunderstandings occur because of homonymic clash or for any other reason, they can be repaired if necessary: speakers appear to accept the results of vagueness and ambiguity on the assumption that 'intended' meanings

will be clarified *if necessary* as the conversation proceeds' (Milroy 1992:40-41).

Looked at in this way, the 'maintenance of contrast under all possible circumstances' argument upon which Labov's chain shift models depend starts to look a little reductionist, and too simplistic. Since language exploits the very noise-prone channel of speech, a great deal of redundant information must be packed into the signal if successful reception of a message is to be achieved (Elman & McClelland 1986; Pisoni 1997). This 'belt and braces' approach has an important consequence: where one or another channel (lexical context, phonological context, transition cues, etc.) is almost always going to succeed in making the relevant contrastive distinction, others can be used for communication of *non-contrastive* information. A large amount of socially and stylistically relevant information can thus be incorporated into the signal without hampering the communication of semantic distinctions via phonetic ones (Pisoni 1997).

3.1.1 Exploitation of variation: a sociolinguistic resource

In the case of the vowels of varieties of English, then, we expect to see variation not only tolerated, but actively exploited, for communication of information of the various sorts outlined above. It has long been supposed that accentual variation in English is more or less equivalent to vowel variation; Wells (1982), Hughes & Trudgill (1979), Labov, Yaeger & Steiner (1972) and Labov (1991, 1994, 1998) are all good examples of this assumption. Labov's broad typology of accents of English - outlined in *The Three Dialects of English* (1991) - is based entirely on vocalic criteria, ignoring consonantal factors such as post-vocalic rhoticity, which might be said to be the central feature of variation in English, in that it divides the speaker populations of varieties of English world-wide into approximately equal halves. Consonantal variation, in Labov's view, is secondary from the point of view of understanding both the typology of English dialects, and also of understanding the principles by which the language changes. Examples of differences between varieties of English at the consonantal level are, in fact, relatively rare in the literature. It is probably the case that tracking of historical changes to the consonant system of English has led to the idea that subphonemic consonantal change takes place very slowly in comparison with that in vowel systems, but there are several possible reasons for this: the Roman alphabet (as used by English speakers) seems perhaps to be less versatile at representing minor consonantal differences than it is at showing small vocalic ones, and even where structural change has taken place (loss of the initial cluster [kn], for

example) the orthography remains unaltered.³ Also, it may be that the relative subtlety of some consonantal variation may be enough to prevent its being noticed by historical commentators. Recent evidence from studies of very subtle but highly systematic distinctions between variants of glottalled and glottalised voiceless stops (Milroy *et al.* 1994; Docherty & Foulkes 1995; Docherty *et al.* 1997) or final /t/ (Docherty & Foulkes 1996) suggest that there is probably as much fine-grained socially-correlated variability in consonantal production as there is in vowel production, demonstrating that the bias towards thinking of synchronic accentual variation and diachronic sound change in terms of modifications to vowel systems may be a misguided one. As such, the assumption that the communication of information is tolerant to variation in many areas but ultimately depends upon invariance in *some* portion of the speech signal (such as the perceptual anchor points provided by high-speed consonantal transitions as Ohala 1992 suggests) is open to criticism.

Spoken language is thus not penalised by variation, but rather is enabled by it. Since complete linguistic uniformity is *de facto* an impossibility where abstract categories are to be externalised using an inherently noise-prone carrier medium, the language grammar must in some sense 'accept' that noise and variability in the signal entails the development of a system robust enough to cope with such environmental disruption. This may involve the evolution of new structures, or it may take short-cuts via *exapted* structures. Exaptation (see McMahon 1994:338; Gould 1997) is the process by which structures developed for one purpose come to be used for a quite different one; in the case of language, surface variation licensed by the robustness of the production and perception systems might be reappropriated for purposes of social marking, much as purely functional structures in other organisms are modified for reasons which are not immediately functional, but serve some indirectly useful purpose.⁴

An example of a biological structure adapted to a 'tangential' function, analogous to the appropriation of phonetic cues for social marking, might be changes to the feathers

³ This is of course true of the way written English represents vowels, but other than changes such as the loss from early Modern English of word-final [ə] in e.g. *name* and changes in systemic oppositions through merger and split, historical changes to the vowels of most varieties of English over the last 500 years or so have generally been qualitative rather than structural (hence the development of the chain shift model).

⁴ Citing the exaptation of organic structures in hyaenas, snails, the Irish elk and modern humans, Gould asserts that 'causes of historical origin must always be separated from current utilities; their conflation has seriously hampered the evolutionary analysis of form in the history of life' (1997:10750). The Irish elk (*Megaloceros*) is a classic case in point: its gigantic antlers, which grew up to 12 feet (3.6 metres) across - probably as some sort of sexual display - were so heavy and cumbersome that the increasing metabolic demands entailed by growing, maintaining and simply carrying them around are thought to have led to the species' extinction (Gould 1977).

of modern birds. Feathers are, obviously, first and foremost required for insulation and (in most birds) for flight. But variation in their surface colours, shapes and markings goes beyond pure survival function. Indeed, in the males of many bird species, practical requirements such as camouflage or aerodynamics are flouted: feathers may adapt for apparently decorative purposes, and may also serve to mark an individual's status (as in peafowl and some other pheasants), age (differences between sexually mature and immature herring gulls, for instance), and of course biological gender (male versus female chaffinches, mallard, etc.). The usual argument is that adaptations such as these are purely to do with enhancing an individual bird's chances of reproduction, the life of the individual being expendable as long as the perpetuation of the genetic line of which the individual is a representative can be guaranteed (Dawkins 1989). But one would imagine that if survival for the purposes of reproduction were paramount, obvious physical impediments such as the peacock's tail, or the long streamer-like tail feathers of the quetzal and some birds-of-paradise (or barn swallows: see Norberg 1994; Cuervo, Delope & Moller 1996) would never have developed in the first place. Still less would the situation have reversed such that colourful birds with ever larger, heavier and more cumbersome feather structures tend to be *more* sexually successful than rivals of the same species (Andersson 1994). Few bird species, after all, have no natural predators; the entire elaborative enterprise seems on the face of it extremely dangerous and dysfunctional.⁵

The analogy with language here is straightforward: underlying structure may have evolved for communication of bottom-line semantic information and nothing else, and in a sense it may look after its own interests if left alone, but it is modified and elaborated for *non*-functional (or at any rate indirectly functional) reasons to do largely with social marking. Of course, one crucial difference is that human speakers have the ability consciously to modify their speech patterns while birds cannot change their coloration or morphology at will, but we may assume that the capacity for language to allow non-functional elaboration is an inbuilt 'design feature'.⁶ The use of

⁵ Norberg's analysis of the function of the tail-feathers of the barn swallow illustrates this point well: 'In some birds, sexual selection, owing to female preference for long tails in mate choice, has led to tails large enough to constitute serious handicaps in flight, incurring a cost in terms of natural selection. Elongated tails also occur among species that depend heavily on flight for foraging, but then usually only the outer tail feathers are long, often being drawn out into narrow streamers. Apart from their role in mate choice, no functional explanation has ever been given of these tail streamers' (1994:227).

⁶ Small (1994) reports on accentual variation among two communities of chimpanzees in East Africa. Though separated by only 150 kilometres, males of either troop employ vocalisations which are clearly of the same general type (so-called 'pant-hoots') but which are aurally and acoustically significantly different from one another. These vocalisations are apparently used to signal status, whereby high-ranking males use more pant-hoots than lower-ranking ones; male chimps often give these calls when near the centre of their territories, so they cannot be seen purely as markers of territorial defence. 'More important,' Small remarks, 'was the observation that males seemed to vary their calls according to who

language in social interaction may run counter to certain principles in a functionally hazardous way, but presumably there are gains to be made in some other sphere, such as enhancing the status of some individual or social group. The flexibility afforded to users of language by the linguistic resources they have at their disposal is doubly advantageous: it allows a very large amount of potential variation constrained within limits imposed by interactional factors to do with intelligibility *and* social acceptability.

3.1.2 Keller's hypermaxim

This principle can of course be invoked in order to account for some aspects of language change. Keller (1994:106) believes that change comes about as a result of *shortage* in some area - language change acts as a compensatory or therapeutic process, filling a gap here, redressing a balance there. It has advantages over the random selection seen in nature, in that its course can to some extent be guided by speakers themselves. This is not a teleological argument, however: it depends on selection of forms through their immediate social acceptability, rather than because they satisfy some internal, systemic requirement. Speaker-hearers are active rather than passive participants in the adoption and integration of new linguistic forms.⁷

The shortages which we as communicators encounter do not only have a selective effect; they also increase the rate of variation. The reason is that variation in the domain of culture is not, as in nature, dependent on chance. It arises mainly through human creativity, which anticipates selection... As part of our linguistic and communicative competence, we all use more or less good strategies to mastermind our communicative enterprises. To act always means to try to transform a relatively less desirable state into a relatively more desirable one. It goes without saying that this is also true for communicative action. The hypermaxim governing our communication is therefore

Talk in such a way that you are socially successful.

was within earshot. Oestrous females or favourite male grooming partners were not the targets. Instead, males pant-hooted most often when alliance partners - males with whom they shared strategic connections - were close by. This suggested that the call was connected to male-male bonds. These bonds are more than simple friendships. Alliances form the interpersonal backbone of male chimpanzees' relationships with each other, and help to decide rank positions' (Small 1994:34). It is not difficult to imagine that early on in the development of human language a means of carrying out social marking of this type through linguistic cues would have been of benefit to in-group members.

⁷ See Weinreich, Labov & Herzog (1968).

What is considered successful differs from case to case, from situation to situation, from individual to individual, from group to group, and from addressee to addressee (Keller 1994:106).

In recognition of the functional constraints operating on the linguistic systems that speakers employ to achieve this social success, and drawing on Martinet (1960) in which economy is invoked as a factor influencing the scope of language change, Keller modifies the maxim to

Talk in such a way that you are socially successful, at the lowest possible cost (Keller 1994:107)

Keller's hypermaxim, then, could be said to represent the sociolinguistic principles that govern the speech behaviour of all normal individuals, while integrating the physiological/perceptual and system-specific requirements (optimal contrast among the elements of an optimally parsimonious phoneme system) of the phonologies that allow them to communicate in the first place. Just what might constitute social success, and how one might gauge costliness, is unclear. But since part of being communicatively competent⁸ must surely involve the ability to assimilate rather readily certain features of the communicative competence of others - in particular, those who are clearly already socially successful - working out how to achieve social success at the least possible cost need not involve much in the way of trial and error, or other costs, on the individual's part. In this way, sound changes which are perceived to be a means of improving the individual's social lot are liable to proceed rather quickly.

3.1.3 Speaker and system: linguistic 'entrepreneurism'

Opportunities for a speaker to widen his or her stylistic repertoire ought to be taken advantage of wherever possible in this connection, since (presumably) the greater the speaker's linguistic flexibility, the higher the chances of his or her social success. Speakers in possession of multiple or highly variable phonological systems varying systematically as a function of style or situation - those speakers located somewhere around the middle of the S-curve of change, for instance⁹ - are best placed to achieve social success at the least possible cost. Such speakers are able to accommodate more

⁸ See Gumperz (1997); Hymes (1972, 1992).

⁹ The S-curve model of linguistic change was first elucidated by Wang & Cheng (1970) and developed by Cooper (1982) but has been implicit in treatments of the social and lexical diffusion of change for a good deal longer than this. See Figure 3.1 in §3.4.3, below.

successfully than others to the greatest possible number, and while lagging somewhat behind those who are leading the sound changes, do not mark themselves out as 'lame', 'old-fashioned', or 'conservative' by their failure to adopt current language forms. Language change can be advantageous from the point of view of both the speaker *and* the system, of course: the system may gain from changes which regularise or optimise the sets of oppositions which define it, while speakers may benefit from the enhanced communicative and social possibilities afforded to them by the ability to vary their speech according to the circumstances. In this way, it pays for language continually to vary; as I have implied, the achievement of stable equilibrium is not necessarily a good thing as far as system or speakers are concerned, despite the fact that processes like merger, chain shift and accent levelling all appear to share equilibrium as their 'goal'. Faber (1992) points out the oddity of a situation in which we have come to think of long-term stability as the norm for so long that we conceive of variation and change as necessarily dysfunctional: 'rather than occurring despite the linguistic competence of speakers and hearers, sound change occurs as a *result* of their linguistic competence' (1992:60). Milroy (1992) takes a logical approach: 'variation and change... must be functional for speakers of languages: if this were not so, languages would be uniform and they would not change' (1992:38-39; see also Chambers 1995: Ch.5; Lindblom *et al.* 1995).

It is this idea of the complementarity of system and speaker that allows us to make sense of some of the patterns we see in the vowel data presented in Chapters 5 and 7. The high degree of variation we see in the Tyneside data is not an encumbrance to speakers but a boon: it presents them with opportunities to carry out social tasks and fulfil obligations at minimum personal cost. The patterns of levelling we can see are not so much to do with optimising communicative efficiency by getting rid of the idiosyncratic forms of each vowel variable available to TE speakers. Rather, their loss *deprives* TE speakers of part of their ability to distinguish themselves by linguistic means from one another and from speakers of other varieties. In this sense, from a social viewpoint, levelling may in some ways be dysfunctional. A discussion of the processes of levelling is presented in the following section.

3.2 Dialect levelling

In Chapter 2 it was suggested that the Labovian formant frequency model in treatments of change to vowel systems had become more or less synonymous with 'instrumental sociophonology', to the extent that Labov's (1994) principles of linguistic change are not even principles of *sound* change, but chiefly principles of

chain shift in vowel systems, since Labov deals with virtually nothing else. In this light it starts to look as if this is what change in vowel systems is all about, and indeed, the great number of studies which have appeared using this methodology have tended to go in search of chain shift as though it were by default the most 'natural' thing to happen when a vowel system undergoes change (for cross-linguistic applications of Labov's formant frequency paradigm see, for example, Lennig 1978; Yaeger-Dror 1996; Veatch 1991; Fought 1997; Labov 1998). Labov thus follows a structuralist path in this respect, which clashes somewhat with his avowed intention to steer away from the notion of the autonomy of the grammar from the speakers who make use of it. To be fair, his focus on structural considerations in *Principles of Linguistic Change* is probably to do with his decision to publish the 'internal factors' volume first, and no doubt the balance will be redressed somewhat in favour of speaker-based, 'external' factors, when Volume II appears; the third volume, 'cognitive factors', should appear some years after this (Labov 1994:1).

Chain shift, of course, is a mechanism 'evolved' to prevent simplification of the series of oppositions that define the vowel system; its function is to avoid merger of vowel targets. However, there is a large body of evidence - including that described in this thesis - to suggest that simplification may in fact be at least as common in vowel systems as is chain shift, whether it be through merger or through the loss of variants of phonological variables through various socially-induced processes of change. Reduction of the range of phonetic variants available to speakers is known to come about through a dialect coming into contact with other varieties, through the processes generally described as levelling or convergence. Hinskens (1996) defines the first process thus: 'Dialect levelling is... the reduction of structural variation - of both qualitative, internal variation *and* variation between varieties of a language, say, dialects. It makes dialects more homogeneous' (1996:1). The second, convergence, 'can be defined as the becoming structurally more similar of languages or language varieties' (ibid.). These processes are of course closely interrelated.

Large-scale migration is usually cited as the cause of these contact-induced processes (Siegel 1985; Trudgill 1986) since a 'critical mass' of speakers is presumably needed for convergence/levelling to take place; individual incomers are unlikely to make much of an impact. Varieties of equal status may be levelled with respect to one another, or, where the status relation is asymmetrical, the extent of convergence will be more marked in the lower status variety (see §8.2.5). It has traditionally been assumed that convergence of a variety of English will always be in the direction of an institutionalised standard such as the RP accent of British English, or, in the US,

toward the 'General American' accent used by the broadcast media and corresponding approximately to the English used by inhabitants of the western and midwestern states.¹⁰ This assumption, which underlies much of the work carried out by dialectologists in the nineteenth and twentieth centuries in both Britain and the United States (see Viereck 1968 in connection with Tyneside English), tallies with popular ideas about the loss of dialect forms: that is, traditional localised vocabulary, syntax and pronunciation is dying out under the influence of standard, prestige forms. The latter, after all, are tacitly (or overtly) promoted in schools, are the varieties used throughout radio, television and film, and are associated with the economically and socially successful. As a result, local varieties come to be stigmatised, since these forms are then associated with low social status, ignorance and lack of education. The perceived convergence of high-status educated varieties of south-eastern British English toward a less statusful levelled variety which has come to be known as 'Estuary English' (Rosewarne 1984; Coggle 1993; Wells 1994) has exercised the popular press a good deal recently (Hymas 1993; Bex 1994). Ascherson (1994), for example, states in an article entitled *Britain's crumbling ruling class is losing the accent of authority* that 'the upper-class young already talk Estuary English, the cockneyfied accent of the South-east', while John Honey (Wynne-Jones 1997) opines that as British Prime Minister, Tony Blair should be more careful to avoid the use of 'Estuary' features in his speech. Blair's characteristic elision of final /d/ and centralisation of /ɪ/, Honey asserts, is not befitting of someone of such rank; he believes Estuary English to have 'reached epidemic proportions, and it is now common to hear it among school teachers and university professors'. Wynne-Jones reports that 'as Prof Honey railed against declining standards in British schools and the poor example set by public figures, his entire address began to resemble a Blair speech, with the Prime Minister at his most messianic. Some of the perpetrators of the academic fraud of anti-grammar were 'in... this... very... building' (the London University Institute of Education)'. The extent to which the stigmatisation of Estuary English has received institutional blessing is confirmed by the remarks of Gillian Shephard, the then Education Secretary and initiator of the 'Better English Campaign', in a report published by the Department of Education and Employment: 'Our young people must leave school able to speak clearly and effectively in Standard English. Communication by grunt is not good enough... I should stress that these initiatives are not about accent. I have no wish for everyone from the North East, or from Norfolk,

¹⁰ See Wells (1982:467-490). General American, it should be noted, has never achieved the elevated status of RP, and as such has never enjoyed the same level of prestige; it is, however, generally agreed by Americans to be the most 'correct' and 'attractive' variety of American English, and like RP, is rarely thought to be an accent at all by those who speak it and/or who approve of its status. See Lippi-Green (1997).

or even from the *Thames Estuary*, to drop their rich regional accents in favour of so-called BBC English' (DOEE 1995; emphasis mine). Evidently, these establishment figures are united in their distaste for and resistance to linguistic change; the fact that Standard English and RP have been changing since their emergence as recognisably independent varieties appears to have escaped many figures in the educational and political circles, however. Certainly, the influence of nonstandard varieties on RP is hardly a new thing (Wells 1994). Nor would it be true to say that internally-motivated change in RP is resisted by the supposed innate conservatism of its speakers: Eustace (1970), for example, reports on /o/- and /u/-fronting among Eton schoolboys in the mid-1960s, while Henton's (1983) study, replicated by Bauer (1985), demonstrates that RP may be at least as fluid as any non-standard accent. Thus, the supposed convergence of non-standard varieties upon the standard (which motivated Ellis (e.g. Ellis 1874), Wright (1898-1905) and other rural dialectologists to begin large-scale collection of dialect forms in the late nineteenth century) means that non-standard speakers have to fix upon a moving target, while if RP speakers are 'cockneyfying' their speech (Wells 1994), they must be meeting these levelling forms midway. Estuary English is usually described as just such a 'bridge' between high- and low-status forms.

The common assumption, then, has been that the general trend is for non-standard accents of British English to converge on RP,¹¹ and that it is only recently that RP has begun to reciprocate, as its previously unassailable status has started to erode. But many recent studies do in fact confirm that convergence toward standard forms is not automatic where levelling takes place. There is thus a third option here: convergence may take the form of the creation of 'interdialect' forms (Trudgill 1988) which occurred in neither or none of the contact dialects, or a dialect may tend toward what have been termed 'local standards' or 'regional standards' (Wolfram 1991; Edwards & Jacobsen 1987).¹² Both are common phenomena, and both pertain to the data collected for this study. In particular, reference to a 'pan-northern' English will have to be made, since it appears that the PVC speakers may be converging on this variety rather than a southern, RP-like standard. Local standards are, like institutionalised standards, more uniform in terms of structure and variability than traditional local dialects, but are the outcome of the operation of normal sociolinguistic processes

¹¹ Viereck (1968) analyses change to the phonological system of Gateshead English in precisely these terms.

¹² In attitude testing Edwards & Jacobsen found that speakers of regional standard varieties of Canadian English scored most highly on competence, success and status measures *and* were rated as favourably as speakers of other forms in terms of perceived integrity and attractiveness. The linguistic situation in Canada is of course quite different from that in the UK, but it is possible that in future the present (declining) status of RP may be matched by that of regional standards of British English.

rather than conscious or planned modification. Convergence toward a local standard in British English can often look very like levelling of non-standard dialects or accents to Standard English or RP, as the two types of standard often share features, but since the status of local standards is low by comparison with acknowledged, national-level standards, and the former enjoy no institutional endorsement, it is difficult to compare the two types of standard in terms of 'prestige' in the received sense. Indeed, the status of Standard English and RP is not particularly high in certain parts of the United Kingdom, and as such convergence toward them is actually rather unlikely (see Milroy 1980, 1997; Milroy & Milroy 1993; Beal 1985).¹³

3.2.1 Koineization

Associated with levelling is the creation in contact situations of new varieties with new features, especially where the existing population is rather small. This process, which has been given the rather cumbersome label *koineization* (originally by Samarin 1971:134; see Siegel 1985:364ff), is 'the formation of new varieties as a result of the contact between speakers of different dialects of a single language' (Kerswill 1994b:1). Siegel distinguishes two types of koines produced in contact situations. The first type, a *regional* koine, 'results from contact between regional dialects of what is considered a single language' (1985:363) and 'usually develops as the lingua franca of a geographical area in which different regional dialects are spoken... often [becoming] expanded in form and function to become a regional standard or a literary language' (1985:376). *Immigrant* koines, on the other hand, also involve contact between regional dialects of what is considered a single language, but the contact 'takes place not in the region where the dialects originate, but in another location where large numbers of speakers of different regional dialects have migrated' (1985:364).

Koineization appears to have resulted from the admixture of incoming communities during, for example, the population of some British New Towns; Kerswill (1994a, 1996a,b,c) and Kerswill & Williams (1997) report on such a situation in the New Town of Milton Keynes. Kerswill (1994b) describes the way in which the development of a koine typically progresses:

¹³ An alternative angle is supplied by Leith (1997:112): 'contrary to what many people think, regional pronunciations in England are not dying out. Although in some respects they have changed quite dramatically within living memory, the direction of change has not always been towards RP; the accents of the big cities - London, Liverpool, Birmingham, Newcastle - have if anything intensified certain phonetic differences across the generations'. Leith does refer to regional norms in areas of England away from London and the south-east, however, so he perhaps sees the large provincial cities as foci of levelled regional norms rather than as insular pockets of dialectal stability as implied by the above remark.

In the first stage of the process, the initial, mainly adult migrants bring with them their own dialects, but are themselves under varying degrees of pressure to modify their speech. The next generation is linguistically less heterogeneous, but it is usually the third generation that eventually settles on a set of linguistic features (a subset of the features found in the input varieties, together with certain simplifications...) that define a new, relatively uniform variety. (Kerswill 1994b:2)

The process of course depends upon the pressure among groups of children and adolescents to conform with one another linguistically, and so an understanding of koineization will depend upon the observation of the speech behaviour of children (see in particular Kerswill 1994a, 1996b; Romaine 1989). Children brought into the community from elsewhere before the age of around seven years - a very common event in, for example, new towns - will acquire the koine perfectly. Chambers (1995) reports research on Canadian immigrant children in England showing that beyond this age children start to lose the ability to distinguish and adopt the fine-grained phonetic patterns which would mark them out as 'natives'; after about fourteen the ability seems to be lost altogether. It is not clear whether koinés would be easier for children to acquire as a 'second dialect' than other dialects are, but if koinés are indeed structurally simpler, this might well be the case: Britain (1997a:162ff) provides evidence of the differential rate of acquisition of koineized forms in the Fens, a phenomenon he attributes to variation in rule complexity (also Trudgill 1989:229; Kerswill 1997:7).

It is speculated in Chapter 4 that Tyneside English may have koineized to some extent during the nineteenth century: with over half of the population of the city in the mid-nineteenth century having been born elsewhere, Newcastle exemplifies the classic contact situation.¹⁴ The decline of characteristically Northumbrian elements in Newcastle speech probably began around this time, though the parallels with Scottish English may have meant that certain forms such as [hus] and [dun] for *house* and *down* were eroded less quickly. The fact that they have survived until the end of the present century is usually attributed to the isolation and insularity of the city and the innate conservatism of its citizens, though as we will see, this portrayal is inaccurate.

¹⁴ We should be careful about assuming that the large-scale admixture of speakers of a multitude of varieties of English (and other languages) in nineteenth-century Newcastle *automatically* resulted in levelling or koineization. As Dillard (1972) points out, 'speakers of different dialects may be in some stable contact situation, with well-defined social roles, for long periods without appreciable levelling' (1972:300, in Siegel 1985:364). Since social roles in post-war British society have been a good deal less well-defined than in previous periods, however (e.g. Marwick 1996), levelling processes that were already taking place in TE are liable to have been accelerated.

Remoteness from large centres of population in the south is not necessarily a handicap: Kerswill & Williams (1997:245) see London and the Scottish central belt as dual 'epicentres' of linguistic influence. This might explain why high rising intonation on declarative utterances and features such as intervocalic glottal stop appear to have reached Tyneside by a route which is rather opaque if it is assumed that these forms have spread northward from London. It is quite possible that these reached Newcastle from Scotland, as both features appear to have been present in Scottish English for a good deal longer than is supposed to be the case in British English generally (James Milroy, personal communication). It seems likely that the rapidity with which TE began to be levelled with respect to northern English and the varieties of the south and midlands was characterised by differentials between certain subgroups within the Tyneside population, for instance female speakers or members of higher social classes.

I began this chapter by dealing with some of the issues concerning the intrinsic advantages of phonetic variability to speakers and listeners. The existence of such variability, it was argued, allows speakers to adjust their linguistic behaviour so as to accommodate to the person or persons to whom they are speaking, as a means of increasing their opportunities for social success. Long-term accommodation of speakers to each other may result in the creation of new speech forms: this has been called dialect convergence/levelling. Associated with this process is what has come to known as koineization; there is evidence that urban varieties of English in south-eastern Britain are converging on a regional koine. On this basis, it is hypothesised that Tyneside English is converging on a (northern) regional koine, and that the rate of convergence will vary according to the social characteristics of the speaker. Specifically, it is expected that working class speakers will maintain traditional localised speech forms more consistently than will middle class speakers, and that female speakers will adopt levelled forms more readily than will men. Evidence that the process is ongoing should be provided by differences between older and younger TE speakers. In the following section I shall deal with the gender, age and social class factors in turn.

3.3 Gender

Discussions of language and gender almost invariably focus on women's language, as though 'gender' and 'female' were one and the same thing. Also - as has been pointed out on many occasions - the conflation of gender with biological sex, and the way in which the terms are commonly used interchangeably, is problematic (Eckert 1989;

Chambers 1995). As there is no room here to explore this theme in great detail, however, a good place to start is the often-repeated generalisation that women tend to observe more closely than do men the received notions of what it is to 'talk properly' or 'nicely' (see for example Labov 1990). This is probably the commonest observation made about language variation as a function of gender. Women are said to avoid stigmatised speech forms and forms associated with low-status groups, wherever possible, and are more sensitive to and conscious of the connection between language habits and social success. They may often go beyond what is 'expected' of them, attempting to imitate the speech of a higher social group in order to appear more educated, cultured, or correct (hence the term to describe this phenomenon, *hypercorrection*). Such behaviour has usually been attributed to considerations of social class: since women, at least in the West, have historically tended not to have held occupations in the usual sense, status has been accorded to them by dint of their husband's rank or profession. This *status by proxy* argument (see Trudgill 1972:182-183) has been attacked from various quarters, since it assumes (a) that high-status language *is* men's language and (b) that gender can be subsumed under the heading of class or status (see Spender 1980; Cameron 1990; L. Milroy 1994).

Some counterarguments to the first point involve the role of the women in the child-rearing process: since it is women who generally take responsibility for the care and upbringing of children, on balance a greater proportion of the linguistic values passed on from one generation to the next will be transmitted by women. Notions of prestige, correctness and beauty in language are thus perpetuated by females more than by males (though they are often institutionalised in the education system and elsewhere in 'establishment' organisations, the administration of which tends to be dominated by men). It also makes little sense to talk of 'men's language' and 'women's language', as while men in this scheme of things are supposed to enforce rigidly the linguistic norms laid down by the patriarchal society, they simultaneously favour low-status, stigmatised forms in their own speech. Trudgill's formalisation of the 'hypocritical' attitude of men toward conflicting sets of language norms refers to the *overt prestige* of institutionally-endorsed, standard or near-standard varieties and the *covert prestige* of forms which signal in-group solidarity, physical and mental toughness, trustworthiness, and so on (Trudgill 1972; Chambers 1995:§5.4.1). Women who attempt to take advantage of this duality find that covertly prestigious forms are prestigious only when used by men; where men are positively evaluated by other men (and many women) by virtue of their use of such forms, women are condemned, often in the strongest possible terms. Gordon (1997), for example, played recordings of women speaking low-status urban forms of New Zealand English to a panel of higher-

status New Zealand women: when asked to guess the speaker's occupation, suggestions such as 'massage parlour worker' or 'prostitute' were offered; 17-18 year old schoolboys who were asked to listen to a recording of a middle-aged working-class woman judged her to be a 'slut' or a 'slag' (1997:49). Women with low-status accents, moreover, were judged to be more likely to smoke than those speaking higher-status forms.¹⁵ Language attitude surveys carried out on English around the world, such as Elyan *et al.*'s (1978) study of attitudes toward female RP speakers, tend to report in much the same way on the differentials in the way the use of identical language forms by men and women are evaluated by observers: in a nutshell, 'women should be more careful about the way they speak than men need to be.'¹⁶ Whether this expectation is imposed by men upon women, or by women upon themselves, is a moot point. Coates (1986), for example, points to the absence of a satisfactory explanation of why women should orient their language more towards prestige norms than do men; though we are fairly sure of what the prestige norms are, and we can measure gender-based differences systematically and reproducibly with respect to those norms, we have still to arrive at an understanding of the connection between these differences and their causes.

The second criticism of Trudgill's status by proxy theory (that gender should be considered independently of class) has had some impact in redirecting the methods by which sociolinguistic data are collected. Labov's seminal *Social Stratification of English in New York City* (1966) collapsed gender and class in a way that was fairly standard in social science research at the time. However, a reanalysis of Labov's data undertaken by Horvath (1985) in which gender was promoted to the rank of independent variable demonstrated that the effect of gender upon the distribution of socially-marked variants in the New York City data was actually stronger than that for class. Replications of other studies in which gender had been considered a marginal factor often report the same findings (see Coates 1986). Currently, the trend in sociolinguistic treatments of gender appears to be one that acknowledges the existence of *difference* between the genders prior to the assumption of patterns based on asymmetrical power relationships mediated through men's and women's language (the models of so-called *deficit* (Lakoff 1975) and *dominance* (Zimmerman & West 1975);

¹⁵ Bayard (1991:19) reports similar findings to those of Gordon: female speakers of working-class New Zealand English elicited labels such as 'glue sniffer, unemployed, on the dole' (in Gordon 1997:49).

¹⁶ One particular finding of Elyan *et al.*'s study is at first glance paradoxical: RP-speaking women were simultaneously evaluated as more feminine *and* more masculine than female speakers with Lancashire accents. The femininity and masculinity scales were presented separately, rather than as poles on a continuous scale, but it appears that RP's 'double-edged sword' is explained by the likelihood that the expected prestige-consciousness of women makes others perceive female speakers of RP as particularly prestige-conscious, and thereby more 'feminine'; the association of RP with status, education, wealth and power (typically masculine traits) may account for its perceived masculinity.

see further Maltz & Borker (1982); Eckert (1989); Cameron (1995); Wodak & Benke (1997)).

3.3.1 Innate sex differences in language

The biological basis for gender differences (i.e. sex-based gender differences) in linguistic behaviour is rather difficult to interpret. On the face of it, results like those of Shaywitz *et al.* (1995) or Diehl *et al.* (1996) argue convincingly for the role of physiologically- and neurologically-based sex differences as underpinnings of culturally determined gender-correlated behaviour. Shaywitz *et al.*'s study demonstrated that a high degree of lateralisation of neural activity among male subjects in a rhyme-detection test was not matched by activity in the brains of women performing exactly the same task. The female subjects tended to exhibit a global pattern involving both hemispheres about equally, suggesting that since the perception and processing involved in this simple task was carried out very differently by men and women, the location of other language functions could well be sex-specific. Chambers (1995:132-133) reviews other literature showing that men are more liable to stuttering and dyslexia than are women, and are more likely to suffer aphasic speech disorders following brain injury. These studies demonstrate that certain apparently gender-based differences in speech behaviour may be grounded in differences in the language-related structures of the brain.

Diehl *et al.*'s study of vowel production in males and females suggests that physiological differences (to do with the length and cross-sectional area of the vocal tract) may explain the greater dispersion of vowel categories (\approx targets) in the F1~F2 plane for women than for men. The reasoning here is that since women tend to have higher vocal pitch than men, some means of compensating for the deleterious effects of increased F0 on vowel identifiability must be sought. Spacing out the targets in F1~F2 space would thus optimise the perceptibility of individual vowels. This, indeed, is the explanation offered by Henton (1983:366; 369-370) in her study of changes to RP: female RP speakers are 'maintaining... acoustic distance from males by lowering their formant frequencies' and that 'wherever possible, female speakers will make the necessary articulatory compensations to secure a wider, more 'peripheral' vowel space.' The implication here is that female RP speakers may be distinguishing themselves from male RP speakers for functional *and* social reasons. Given the attitudes toward RP as spoken by women reported by Elyan *et al.* (see above), it does not seem surprising that these female speakers might want to establish themselves as less 'masculine' by playing up the 'feminine' aspects of RP; being thereby potentially

more comprehensible would certainly be a fortunate by-product, if it were not the rationale for the change itself.

Chambers believes that some of the social disadvantages experienced by women around the world are compensated for to some degree by their 'greater verbal skill',¹⁷ but even where no such disadvantages are obvious (as might well be the case for Elyan *et al.*'s 'androgynous' RP-speaking women), he claims, differences between men and women in terms of their use of standard versus stigmatised variants can still be found.

... notably when [gender differences] are found in MC groups in modern industrial societies where gender roles overlap almost entirely, they seem to be... inexplicable. In these instances, it is plausible to speculate that we are seeing another effect of the sex-based difference: **the neuropsychological verbal advantage of females results in sociolinguistic discrepancies such that women use a larger repertoire of variants and command a wider range of styles than men of the same social groups even though gender roles are similar or identical.** The tendency for women to take on gender roles requiring greater mobility may be a *result* of their innate sociolinguistic advantage rather than a *cause* of it. (Chambers 1995:136-137; emphasis in original).

If we follow Chambers' argument, it looks again as if the separation of internal (neurological, physiological) and external (psychological, social) factors is going to be difficult where gender-based variation is observed. I am, however, sceptical of this in the case of male-female differences in the Tyneside material (see Chapter 7): it is the women who appear to be leading a levelling *away* from the larger phonetic repertoires that continue to be used by the men, and there is little evidence of the women's greater stylistic competence. This may of course be due to the fact that they are accommodating upward in the conversation sessions as well as during their word list recordings. Also, one might expect the differential behaviour of males and females to be more consistent from one generation to the next if the biological substrate played such a large role. Speaker age, of course, interacts with gender in various ways as a factor modifying linguistic behaviour: the plasticity of the language faculty during childhood and adolescence is reduced significantly during adulthood. §3.4 deals with aspects of age-related differences.

¹⁷ Chambers (1995:132) refers in this connection to the summary given by Maccoby & Jacklin (1974:75-85).

3.4 Age

3.4.1 Age grading

Aging is obviously not a socially-determined process, although of course there are recurrent patterns from generation to generation in terms of social habits, including linguistic ones (so-called 'age-grading'). Age-graded behaviour is very obvious in aspects of social life such as mode of dress, taste in music, art and food, or choice of leisure activity; the age-related stratification of such behaviour is more obvious still when violated (a pensioner on a skateboard, for instance, or a teenager who prefers smoking a pipe to smoking cigarettes). The same is true of age-graded linguistic behaviour, most conspicuously in the lexical sphere - the incongruity of fashionable playground slang being used, say, by an elderly judge - but also in the domain of phonology. Examples of age-graded phonological variation are in fact rather difficult to find, perhaps because the structural mechanisms which are triggered by significant change anywhere in the system prevent variations being 'reset' and reused in this way (but see Britain 1997a:141, 1997b). Chambers (1995:190-193) drawing on Macaulay (1977) offers by way of example the distribution of non-initial glottal stop in Glasgow; it seems that among working-class Glaswegians this feature is retained throughout life, while middle-class speakers tend to lose it in favour of the more standard [t] in the relevant contexts as they get older. [ʔ] is in some sense 'too hot to handle' as far as the MC speakers are concerned; it has its place in childhood and adolescence, where the perceived 'toughness' associated with the feature is perhaps of use within the peer group. But such is the salience of [ʔ], and so strong is the attached stigma, that MC speakers entering the workplace or higher education may feel that too much is at risk if they continue to use it. Alternatively, the greater number of other varieties that individuals will come into contact with during adulthood may serve to reduce or level out very localised features (McMahon 1994:241). Great care must be taken when looking at phonological change over time, then, to ensure that what is being observed is not age-grading but long-term change which will have a permanent or semi-permanent effect upon the language. Investigation of such long-term change can be carried out using two methodologies: one which uses *apparent* time, the other which aims to detect change in *real* time.

3.4.2 Apparent time and real time

Again, a shortage of space precludes an in-depth analysis of the advantages of either approach; see Eckert (1997a). In brief, the real-time methodology takes separate 'snapshots' of a linguistic community at points in time, separated by perhaps a decade or a generation. The lifetime of a researcher, changing trends in fieldwork techniques, and of course the unwillingness of funding bodies to wait ten or twenty years for research results, limit the span over which real-time studies can be carried out. Changes in most urban varieties of British English can be investigated using recorded archive material, though this tends to be rather randomly assembled and cannot be much more than a century old; ideally one would wish to have two identical sets of data controlled for as many factors as possible, perhaps even taken from the same speakers, where one could be sure that differences between the first and the second sets were an artefact of their temporal displacement, and nothing else. Trudgill's 1992 replication of his 1972 study of Norwich English and Cedergren's repetition of her study of the sociolinguistic situation in Panama (1984) are perhaps the best known examples of sociophonological research carried out in real time; controlled (socio)phonetic experiments such as those of Henton (1983) and Bauer (1985; 1994) which replicate Wells' (1962) formant analysis of RP vowels, are similarly informative. Practical considerations, however, dictate that apparent-time methodology must be used in the majority of cases (see L. Milroy 1987; Labov 1994, Chapter 3).

Apparent-time studies work under the assumptions that older speakers do not tend to modify their linguistic repertoires during adulthood, and that they will continue to speak in much the same way they did when they were adolescents. In this way, they can be treated as a benchmark against which patterns seen in the linguistic behaviour of younger speakers may be assessed. Again, a 'snapshot' of a particular community at a particular time where speaker age is controlled for can be used as a means of detecting linguistic change: '[apparent time] studies involve looking at synchrony and attempting to perceive the seeds of diachrony in it' (McMahon 1994:240). Age-graded behaviour is a particular hazard here: 'it is in principle impossible to distinguish age variation in apparent time which signals a change in progress, from some linguistic feature which simply varies with age, becoming apparent in the speech of people of a certain age. Younger people sometimes behave differently from older ones in other respects; why should certain linguistic features not also be restricted to particular age groups?' (ibid.). Where replication is impossible or impractical, or directly comparable

historical backup is unavailable, evidence from language surveys is the next best thing; we can piece together real-time evidence in support of our synchronically-based hypotheses. Chapter 7 of this thesis is an example of this technique.

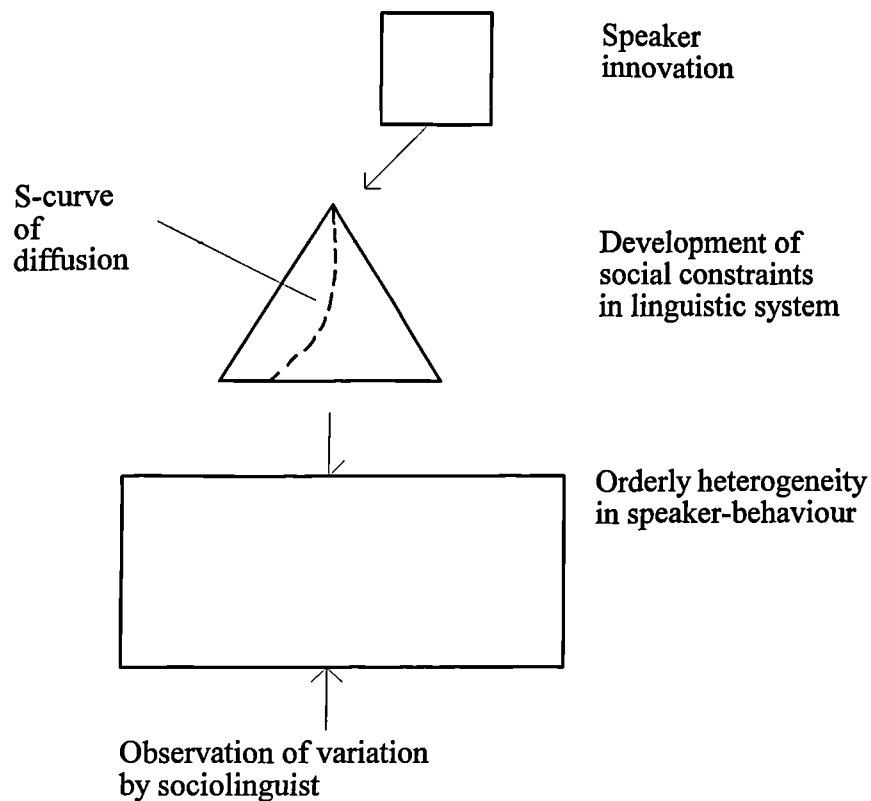
Having taken the possible influence of age grading into account, we can on the basis of generational differences measured at a single point in time be reasonably confident that the language is changing, perhaps irreversibly, in a particular direction. Where sound change takes place rapidly - say, within a generation - we might see the change as being 'self-contained': it starts and ends within a speaker's lifetime, and is then transmitted to the subsequent generation. Problems arise when we find evidence for long-term sound change which spans longer periods than this: if an individual change in a particular direction takes centuries rather than decades to complete, it begins to look as though the system has a 'life of its own', and as though the language is evolving toward some ideal state. Most contemporary linguists have difficulty coming to terms with this idea, as teleological explanations for language change are in essence unsatisfactory, as discussed in §2.5.2. It is relatively easy to explain many cases of long-term sound change by recourse to ideas about simplification through ease of articulation, and so forth. But as seen in Chapter 2, the preservation of equilibrium that is the defining characteristic of the chain shift model implies a teleological mechanism operating over long periods of time. This can be likened to a 'relay race' in which speakers are assigned the role of carrying out a certain portion of a long-term sound change.

3.4.3 Long-term sound change: the 'relay race' analogy

It should perhaps be mentioned at this point that the criticisms of the chain shift model on these grounds are unjustified in some ways. Historical treatments of the English Great Vowel Shift (GVS) have tended to highlight the purposefulness of the changes while downplaying the role of the speech communities who carried them out, and from this angle we may begin to think of speakers as runners who carry the change forward a certain distance before passing the 'baton' to the next generation. The absurdity of this approach to the way sound changes take place lies in the entailment of the child having to know the direction that the change had taken historically, and the way to take it on in the same direction during his or her lifetime. To come to the rescue of this explanation of long-term apparently coherent changes like the GVS, with all its implicit teleological, functional and deterministic underpinnings, Labov (1989) points out that generations are not discrete, but overlap in time. A child brought up in a community of any size may interact with speakers of *every* age, and

will thereby have access to several previous stages of a change; in addition, each older speaker will exhibit speech forms which vary along the direction of the change as a function of style. Of course, this does not answer the question of how the child is to know that elongation of a vowel's field of dispersion at right angles to the stress/time dimension (as per Labov 1986:407) is indicative of a change in progress; Labov's model implies that the child's developing phonology is highly sensitive to such distortion, and having been thus triggered will implement the next stage of the change as the child grows up. In such a scenario it is very difficult to evade the characterisation of the phonology as both autonomous and teleological. Even if the system is denied full autonomy, the functionalist *avoidance of merger* principle (see §2.5 and §2.6, in the previous chapter) demands to some extent that speakers conform to the system, rather than vice versa (see §3.1.3, above). Milroy's discussion of the differences between linguistic *innovation* and linguistic *change* (1992:164ff) incorporates the notions of system versus speaker, and elaborates upon the problem areas with which Weinreich, Labov & Herzog's *Empirical foundations* (1968) were concerned, most notably the *actuation*, *evaluation* and *embedding* of innovations. Speakers can, and do, innovate extremely frequently, but it is only on rare occasions that such innovations become integrated into the linguistic system as changes per se (see also Ohala 1989). An innovation can be called a change if, having been transmitted to some critical number of speakers and evaluated favourably, it is embedded in the linguistic system as a new form. The process is schematised by Milroy as shown in Figure 3.1.

Figure 3.1: Model of transition from speaker-innovation to linguistic change (from Milroy 1992:170)



The essence of the schema in Figure 3.1 is that changes to a system can only become changes if the innovations that give rise to them are evaluated positively by the speakers who are going to implement the changes. Even if a change has arisen through system-internal pressures, it must nevertheless be transmitted between individuals who may very well attach social meaning to the change. Where the social significance of the change is viewed negatively by one group or another, embedding may not take place. Thus, the progress of a change may be arrested at any point if the attitude of speakers toward it changes: once a chain shift is triggered there is no guarantee that it will be completed, as speakers may thwart its progress for social reasons. This argument of course assumes that speakers and systems are independent of one another, and that there is frequently a conflict of interest between the two. The theoretical problems associated with the speaker-system dichotomy are beyond the scope of the present study, though the question of 'fossilisation' of chain shift in progress will be returned to in Chapter 8, as will speaker versus system as competing explanations of the patterns of variation and change observed in the Tyneside material.

We turn next to the third of the external factors used to divide the PVC sample population, social class.

3.5 Social class

Reid (1989) provides evidence for the centrality of linguistic behaviour in the definition and perception of social class differences, as shown in Table 3.1.

Table 3.1: Rank order of social class criteria (from Reid 1989:39)

<i>(a) men and women</i>	<i>(b) women only</i>
1) The way they speak (33)	1) Appearance and behaviour (53)
2) Where they live (28)	2) Family background (50)
3) The friends they have (27)	3) Attitudes, beliefs & political views (45)
4) Their job (22)	4) Style of life (42)
5) The sort of school they went to (21)	5) Education (38)
6) The way they spend their money (18)	6) Occupation (31)
7) = The way they dress (12)	7) House/area in which they live (13)
7) = The car they own (5)	8) Income (13)
	9) Prestige/standing in the community (11)

(a) is based on answers to 'Which two of these would you say are the most important in being able to tell which class a person is?' A card was shown listing the factors above (in a different order). Rank order is shown on both items chosen, treated equally.

(b) is based on answers to 'Ring a number in the first column to show which you think is the best single indicator of a person's social class. In the second column the next best and then the third.' Items were listed in a different order to that shown above. Rank order is based on the percentage of women using each item in whole response, each item treated equally.

Figures in brackets following the criteria are the percentage of respondents using that item.

The figures in Table 3.1 demonstrate the primacy of language behaviour in social psychology: those in column (a)¹⁸ in particular confirm the intuitive notion that despite outward appearances (mode of dress, place of residence, occupation, etc.) an individual's speech patterns are the best cue to the social stratum to which he or she belongs. Indeed, 'the way they speak' is rated highest by quite a wide margin, while place of residence comes in second place. The choice of place of residence as the principal factor determining social class in the PVC corpus design thus seems well motivated.

¹⁸ Source: National Opinion Polls (1972).

Column (b),¹⁹ reporting a survey in which only women were polled, shows a somewhat different pattern: language factors are not mentioned explicitly, though this may be because respondents were expected to choose from a predetermined set of answers. It might be supposed that speech is considered to be one aspect of 'appearance/behaviour', however. If language is rated as a cue to social status in the same way by women as it is by men and women together - and there are good reasons for thinking that this is the case, as seen earlier - the psychological inclusion of accent and dialect in the 'appearance/behaviour' category is virtually a certainty. Clearly, the factors listed in Table 3.1 are inseparable in the majority of cases, in that income, say, is determined in large part by occupation, which is itself dependent upon the individual's educational background, just as the way a person speaks will be influenced by family background, the type of school he or she attended, and general attitudes, beliefs and political views.

Of the factors used in the PVC corpus design, social class is thus the most difficult to define, since it is not a binary opposition like gender,²⁰ nor scalar like age, but an amalgam of factors: quantitative ones (income, years in education beyond the age of 16, and so on) and qualitative ones (type of housing, occupation, etc.) and as such may be extremely subjective.²¹

Rickford (1986:215) divides the ways in which social dialectologists deal with class into three broad approaches:

- 1) Ignoring it, or minimizing its importance;
- 2) Taking it into account, but in simplistic, informal terms;
- 3) Studying it substantially, with the help of multi-index scales in which informant scores on scales like occupation, income and education are combined.

The first two of these approaches, according to Rickford, are 'associated with the regional dialectologists of yesteryear' (1986:215), while the third has become most

¹⁹ Source: Reid (1978).

²⁰ For the purposes of this research, gender is an equipollent binary variable, though it is accepted that neither sex nor gender are necessarily binary features (see Bing & Bergvall 1996).

²¹ Such are the inconsistencies and contradictions in social class as a concept that Pakulski & Waters (1996) go so far as to claim that it should be put out to theoretical pasture: introducing their book on class by saying that 'books about class should no longer be written', they continue 'we might defend [our having written one] on the grounds that class is a historically relevant concept... [but] we also intend it to be a pronouncement of the last rites of a faithful theoretical and conceptual servant. We believe not that class theory and analysis were a waste of intellectual effort but rather that their season and purpose have come to an end' (1996:vii).

common among sociolinguists. But at present there exists no standard measure of social class available to researchers in the field; in any case, indices devised for one community may be quite unsuitable as a way of classifying individuals in another, and the relative contribution of one factor (such as income) may be larger in one community than in another even when the indices are calculated in the same way (see §3.8).

Some social class indices used for sociolinguistic research have been extremely elaborate (e.g. that used by Trudgill 1974), often relying upon intuitive or arbitrary classifications (why, for example, does Trudgill group individuals earning over £20 per week together with people earning less than £9 per week in the same *annual* income category ('under £999')?) Others use measures based upon judgments made by laypeople about the status of various occupations (Blishen 1971:499-504, cited in Chambers 1995:42) or by local fieldworkers whose knowledge of the area of study may be a very reliable indicator of whether a particular community is, say, 'working class' or 'middle class'. The latter is in fact the method used for the PVC corpus: rather than having to calculate socioeconomic index scores for each speaker, it was decided to sample the speech of residents of two housing estates in the west of Newcastle upon Tyne (Newbiggin Hall and Chapelhouse, in the wards of Woolsington and Westerhope). These were identified by the fieldworker as broadly upper working class and lower middle class respectively, a decision which is backed up by evidence from the 1991 census which took into account, among other things, proportion of car ownership and unemployment levels in each ward. Thus, while a simple 'MC/WC' division may seem rather crude, it could be thought of as shorthand for a more complex set of social divisions rather than as an example of the sort of classification generating data 'the reliability, replicability and validity of [which] must remain open to serious question' (Rickford 1986:215).²²

The transition area between the working and middle classes is generally agreed to be the locus of linguistic innovation and change (Labov 1966 *et passim*; Milroy 1992; McMahon 1994:244). It appears that class-consciousness may be strongest in these borderline communities, since increased mobility among upper working-class individuals as a result of education and income allows a blurring of the boundary between class categories.²³ Where the entrenched traditional English class system is

²² Aspects of the linguistic behaviour of the Tyneside speech community have been studied using a social network approach, though this has concentrated on bi- or multilingual speakers from various minority groups (Li Wei 1995; Milroy, Li Wei & Moffatt (1991).

²³ Popular topics of conversation among the young PVC informants were car-buying and foreign holidays. Many of the younger speakers planned to travel abroad in the following summer months,

being levelled, then, we ought to be able to observe a reduction in the clarity of the patterns of socially stratified linguistic behaviour that forms the basis of Viereck's three co-existent phonological systems (1966, 1968; see also Chapter 6). That is, we expect to see a pattern of convergence away from traditional Tyneside dialect forms in the direction of the speech being used by middle class TE speakers. This is borne out in the data gathered for this study (see Chapter 7).

We should be careful, on the other hand, not to let preconceived associations between social class and various kinds of behaviour colour our expectations of what speakers in each class are liable to do linguistically. Macafee (1994), for example, points out some of the misconceptions under which sociolinguists frequently work. She contends that 'sociolinguists - or any scholars interpreting the working class from outside - should be very circumspect about reading into the data either their own values or those they believe to be dominant in the society' (1994:111), and that convergence toward more standard language varieties by speakers of non-standard forms is to do with a desire for *intelligibility* rather than one for *correctness*; considerations of practicality outweigh those of ideology. The comparative uniformity that is brought about by such convergence is not a sign of increased identity between working class and middle class so much as the consequence of a realistic attitude of working class speakers toward their own language varieties. This realism is tempered by insecurity, however; Macafee states that 'whatever views other classes may hold, I knew from experience that the working class are not ashamed of being working-class. And yet there is shame, and anxiety, self-doubt, and an inability (for most working-class people) to stick up for their own way of life if it is challenged' (1994:114). Macafee reports on the work of Thelander (1980), who suggests that the levelling of rural dialects in Sweden is the result of working class people being ashamed of sounding old-fashioned. Macafee also cites Sennett & Cobb (1972), who believe that the greatest social stigma attaches to poverty. 'Poverty humiliates. It prevents people from attaining their full potential as human beings. It prevents them from acting as they would prefer to act, and from being the patient, generous, self-controlled people they would prefer to be' (Macafee 1994:114). 'As Sennett and Cobb see it', she continues, 'the working class are caught in a double bind, since neither inherited working-class status nor personal social mobility can offer complete self-respect. There is always a nagging self-doubt (a weakness that is ruthlessly exploited by commodity advertising). [...] Rightly or wrongly, the working class tend to see educated people as more

some intending to work or study temporarily overseas. Opportunities like these would have been virtually unknown to Viereck's (1966) informants.

developed human beings and to defer to them accordingly, while often hating themselves for doing so' (1994:116).

The process of levelling that is hypothesised to be taking place in Tyneside English may thus have a good deal to do with the reluctance of young TE speakers to cast themselves as old-fashioned, as old-fashionedness in an urban industrial setting tends to be congruent with poverty. The speakers in the younger age group, having grown up during the Thatcherite boom, may have quite different attitudes towards poverty as the lot of the working class or the 'poverty as virtue' argument used by earlier generations to justify the perpetuation of economic imbalance through the class system (see Marwick 1996 for a discussion of the effect of Thatcherism upon social consensus in Britain; Smith (1994:123ff) analyses the deepening of the north-south divide that was created by Thatcher's economic policies). The occupations, lifestyles, and pastimes that had traditionally been associated with Tynesiders in the past are unlikely to hold many attractions for young Tynesiders of any social class today, and so we might expect to see linguistic convergence between our young working- and middle class speakers just as there is undoubtedly a measure of convergence between these groups in other domains. Complete subscription to middle class values among young working class speakers is unlikely, however, since - as Macafee suggests - loyalty to the local community will continue to be a potent force in terms of the shaping of social behaviour.

The last of the external factors used in the analysis of the PVC material is that of style. Two speaking styles were elicited - spontaneous conversation and reading (word-list) style - in order to assess the directions in which the TE speakers adjusted their linguistic behaviour when the formality of the situation was increased.

3.6 Style

3.6.1 The observer's paradox

The importance of the collection of naturalistic speech data is clear if one wishes to understand the processes by which language variation leads to language change. However, as Labov pointed out in his description of the fieldwork methodology used for the New York City study (1966), when speakers know they are being recorded they tend to adjust their speech behaviour towards a perceived 'correct' or 'prestigious' norm. With most speakers this is an automatic reaction, and is extremely difficult to counteract, since speakers of the non-standard varieties that sociolinguists are

generally interested in often hold negative attitudes toward their own speech, and fail to understand that the fieldworker wishes to collect the sort of language they would use among their peers. On the other hand, speakers may exaggerate their local language features for the benefit of the fieldworker, because they wish to demonstrate the idiosyncrasies of the variety, or because they wish to be seen as a good exemplar of the local language community. In either case, the very act of observing the object of study changes the nature of that object.²⁴ Accommodation by the fieldworker to the informant can also be problematic, especially where the fieldworker is him- or herself a local: Trudgill (1981) reports on fieldwork carried out in Norwich (his native city) in which he became aware of accommodating to the speaker, who then (one assumes) began to converge on Trudgill's speech. This circularity needs to be controlled for also, perhaps by using fieldworkers from linguistic backgrounds very different from those of the informants.²⁵

Short of covertly recording the speech of others, there appears to be no way of eliminating observer's paradox effects when carrying out fieldwork of the sort typically conducted by sociolinguists. The best that one can hope to achieve is the minimisation of such effects by allowing the speakers to 'forget' they are being recorded, either by conducting a relatively long interview in a informal, relaxed style, or by doing away with the interview format altogether. This might involve reformulating the interview as a simple conversation, and attempting to elicit large amounts of data by yielding the floor to the speaker as often as would be the case in a natural conversational exchange. The elicitation of naturalistic speech may be facilitated further if the fieldworker allows him- or herself to be outnumbered, as the informants may feel more confident in a peer-group than in a one-on-one situation (i.e. participant observation). Better yet, the fieldworker may stay out of a conversation altogether, remaining on the sidelines while two or more informants are recorded in conversation with one another. The fieldworker who collected the PVC corpus material (see Chapter 5) conducted the recording sessions in this way, avoiding involvement in the conversation, and even eye-contact, by pretending to be engrossed in some other activity such as reading or making notes, and often sitting with her back to the speakers in another part of the room. As she carried out the fieldwork alone and came as a guest into the speakers' homes in the majority of cases, the speakers are unlikely to have felt intimidated by the recording situation. Using a technique such as

²⁴ As a rule, adjustment 'upward' is more common than the opposite.

²⁵ William Labov (personal communication) suggests the use of North American fieldworkers in British settings, and vice versa, as the expectations of informants regarding the style of speech they feel they should adopt in the recording situation are neutralised when an outsider is perceived to be unaware of the subtle social marking attached to local speech forms. Some problems with this aspect of data collection are explored in Milroy (1987).

this, then, speakers are under no pressure to answer questions and are less likely to feel that they are being examined or criticised, since (at least in my experience) language professionals such as representatives of university linguistics departments are popularly perceived to be the most linguistically prescriptive of all social groups.

It is not claimed that the data corpus used for this study is as representative of naturally occurring Tyneside English as it is possible to be: instead, it seems by virtue of every effort having been made to reduce observer's paradox effects that the corpus is the most naturalistic set of recordings of the variety yet collected using ethical procedures.

Of course, the observer's paradox can work in the sociolinguist's favour as well: it is the upward shift in the speech patterns of informants as a result of their being asked to perform certain tasks requiring a heightened degree of attention that motivates the collection of word list material. These factors are considered below.

3.6.2 Attention and monitoring

The definition of 'style' as referred to in this context is that characterising the changes in linguistic behaviour coming about as a result of change to the type of linguistic activity in which a speaker is involved. In this case, the linguistic activities are free conversation with a peer, spouse or sibling, and reading a list of printed words aloud. The first, as described above, is the most common, natural type of language behaviour, and accounts for the vast majority of the situations in which language is used. The second is somewhat artificial, and requires of the speaker a good deal of attention and concentration.²⁶ Tasks of this sort are common in school settings; as schools tend to espouse the rather prescriptive linguistic values held (or forced upon) educational policymakers, it is not surprising that adult speakers will associate reading aloud with the ideas of 'correctness', 'clarity of enunciation' and 'propriety' that are instilled in them while during childhood. This effect may be exaggerated for older speakers, since over the last three decades a general relaxation of attitudes toward language variation has resulted from, or perhaps resulted *in*, a reduction in the teaching of formal grammar and pronunciation to children, and a greater tolerance of previously highly stigmatised spoken forms. We might expect, then, to see that the

²⁶ For a discussion of some of the problems associated with the term 'attention' in style-switching contexts see Kerswill (1987). Labov's use of attention as an independent variable directly affecting the use of prestige/non-prestige variants of linguistic variables (1972:97-99, 208), for example, is thought by Kerswill to make the distinction between 'level of formality' and 'attention' unclear. Kerswill believes that a change in the level of formality independently affects the distribution of variants and the amount of attention paid to the task (1987:42).

differences between older speakers as a function of style are reduced among younger ones: since the elevated position of the received standards for English has been undermined in recent decades, switching between styles in recognition of 'talking normally' and 'talking properly' is probably less marked for younger speakers today. On the other hand, if older speakers are generally more conscious of the importance of speech behaviour in terms of creating favourable impressions of themselves in others, we might find that when being recorded they tend to adjust their conversational language upward also, such that the differences between conversational style and word list style are reduced. In a similar way, we may find that middle class speakers will style switch more markedly than working class ones, perhaps because of greater awareness of the expected norms; alternatively, the greater discrepancy between conversational and word list style may reside in the sample for working class speakers, because of the greater social distance between the informant and the fieldworker, and the informant's desire to appear well-educated. These possibilities are explored in the results of the pilot study in Chapter 5 and those of the main study in Chapter 7.

A wider range of styles would be advantageous, of course: Labov (1966), for example, used five styles (casual speech; semi-formal structured interview; reading passage; word list; minimal pairs) by which a clear pattern of stratification could be seen in the language of his New York English-speaking subjects. Within the first category some further stylistic variation was allowed for - interaction with a third person, for instance - while the inclusion of the well-known 'danger of death' prompt was intended to elicit the least monitored, most unselfconscious mode of speech. In the PVC corpus, however, just two speaking styles are allowed for in the design. As seen in Chapters 5 and 7, the differences between 'free conversation' versus 'word list' styles are sufficient to demonstrate that for the PVC speakers, style switching is a consistent habit.

3.7 Interactions

The interactions between the four extralinguistic factors discussed above are complex, and give rise to some extremely complex linguistic patterns. Age, for example, is found to influence speech behaviour in quite different ways between the sexes. In Britain, older males typically use forms characteristic of the locality, but simultaneously observe notions of 'correctness' more scrupulously than do younger ones; young men are perhaps more concerned with establishing their 'toughness' and local loyalties than other groups. Labov's study of the English spoken on Martha's Vineyard (1963), for example, demonstrated that young men were increasing the

proportions of low-status localised variants of /ai/ and /au/ in their speech, despite a general levelling of the island's dialect in the direction of a mainland norm; he concluded that this was because they wished to assert their identities as Vineyarders in preference to becoming assimilated to the large numbers of tourists who thronged the island in the summer. Llamas (1998) reports on young men in Teesside who adopt low-status phonological forms from the south-east of England while continuing to use stigmatised local variants, a phenomenon she attributes to the 'image consciousness' of these speakers. This 'resistance to southern hegemony' among speakers of non-standard varieties of English in the north of England is, according to Beal 1998, responsible for a process of counter-levelling that serves to slow down the adoption of non-local forms in areas like Tyneside. It is possible that a revival of interest in local varieties of English may go some way to preserving dialect forms, but it is doubtful whether the publication of dialect literature and the activities of dialect societies are likely to be of much interest to young people, who, after all, are ultimately responsible for the perpetuation of these forms in the future.

Female speakers of English are generally more uniform with respect to one another than are men, and, as seen earlier, avoid localised forms where possible. Young females, on the other hand, appear to favour innovative forms more than other speakers do. Much of the change in the vowel systems of varieties of English, indeed, appears to be led by young women (Luthin 1987; Cheshire, Kerswill & Williams 1998; Torgersen 1997:76, etc.). Differences between the sexes are found to be more exaggerated in working class communities, perhaps because gender roles and the gender-based division of labour are more clearly defined at the lower end of the social scale. Elyan *et al.*'s attitude survey (1978) discussed above demonstrates that the blurring of gender roles among the upper middle classes is matched by the ambiguity of RP as a marker of 'femininity' versus 'masculinity', a finding also suggested by the results of an experiment by Edwards (1979) showing that pre-pubescent RP-speaking boys were judged to be female more often than were pre-pubescent boys with other accents.²⁷ Since higher-status speakers appear to be less concerned about the differentiation of the sexes by linguistic means than do lower-status ones, then, we might expect to see convergence on a levelled form taking place more rapidly among the middle-class speakers sampled in the present study. This in fact appears to be the case (see Chapter 7).

²⁷ The popular association of RP with effeminacy among speakers of non-standard accents of British English is exemplified by Burchfield (1981), who quotes a Carlisle radio programme organiser averse to following BBC pronunciation recommendations: 'If we pronounced everything the way suggested here our Northern listeners would feel we're a bunch of poofters' (1981:6-7).

3.8 Summary

The list of external factors could be extended almost indefinitely: since the logical limit of variationist research stops not with networks, nor peer groups, nor even individual idiolects, but with individual styles within an individual idiolect, we must choose the parameters by which we divide the sample population in a principled and careful way. We should be especially careful not to overlook factors which may be crucial for an understanding of the patterns observed, but in keeping with the law of parsimony we should not multiply factors beyond necessity. As Nagy (1997:406) points out, for every factor we incorporate at least one more study must be carried out; like Kerswill (1994b:115), she warns against accidentally attributing a trend to the wrong factor because the right one was not examined. The balance which must be struck between the inclusion of too few and too many external factors has typically been guided to a large extent by the researcher's intuition; as a purportedly scientific enterprise, Nagy feels, sociolinguistics here perhaps leaves a little too much to chance. She believes that a standardised sociolinguistic paradigm is necessary if a coherent account of the interface between language and society is to be arrived at within the foreseeable future, but even with the development of a proven set of standard tools, the sociolinguist's remit outlined in Labov (1972) will nonetheless remain vast. Recall from Chapter 1 Labov's manifesto for would-be sociolinguists:

Our general aim is to write the grammar of [a] speech community, with all its internal variation, style shifting, change in progress. When the data begins to fragment into unpatterned idiosyncrasies - for normative judgments for actual behavior - then linguistics comes to a stop. (Labov 1972:108)²⁸

Labov advises caution here, however: 'methodological rigor [in sociolinguistics] is often justifiably identified with the dead-end of a worn-out approach' and that 'methodologists [proceed] on the hopelessly unrealistic program that everything which can be described should be' (1972:99). Empirical approaches to the social sciences in general have often been criticised on the grounds that patterns can be detected even in

²⁸ Contrast this formulation with Romaine's comments on Labov's belief in the 'validity of sociolinguistic research [being] measured in terms of its ability to relate sociolinguistic data to the central problems of linguistic theory' (1982:6). This, she believes, is too narrow of scope: 'formalism in and of itself is not sufficient to support a theory of language which will account for sociolinguistic phenomena in an integrative and illuminating fashion' (ibid.); '... a more fundamental question is whether we are willing to accept theories which cannot handle all the uses/forms in which language may manifest itself in a given speech community over time. A viable social theory of language must present a coherent account of how particular uses, functions and kinds of language develop within particular speech communities. This will require the testing of methodology on new and different kinds of data' (1982:4).

random noise if one looks hard enough, and that correlations of the cause-effect type are often assumed where no such relationship actually obtains. As Milroy points out, '... complaints about the superficiality of 'external' explanations of change are in a sense self-fulfilling prophecies. Clearly, if you concentrate exclusively on abstract systems of language and do not develop a coherent and accountable theory of the social embedding of language change, your comments on the possible social reasons for changes will inevitably be *ad hoc* and superficial' (J. Milroy 1992:28). If we are to make sense of the linguistic patterns we see in every normal speech community, choices about the social factors we wish to use as independent variables must be determined to some degree by anecdotal or intuitive judgments, or selected on the basis of the researcher's knowledge and experience of the speech community to be scrutinised. While 'common sense' decisions about what to include and exclude should strictly speaking be sidelined in a maximally objective sociolinguistics, we should also acknowledge that methodologies developed for other speech communities (North American urban populations, for example) are not necessarily relevant or applicable to the community of interest in a British setting.²⁹

Phonological complexity of kinds that have not so far been handled by standard techniques are particularly likely to be observed in speech communities in northern areas of the British Isles. In cities like Newcastle, Edinburgh and Belfast the range of variation from the most 'non-standard' to the most 'standard' is much greater than in most North American communities. If, in these British cities, we simply apply the classic techniques and demonstrate that certain variables co-vary in a single phonetic parameter with some social variable such as socioeconomic class, we run a real risk of superficiality. (Milroy 1992:38-39).

Although the non-linguistic factors according to which the PVC corpus is structured are relatively few, and are rather traditional, they are well-motivated, relevant, and produce exactly the sorts of results which are hypothesised for the Tyneside speech community. Tyneside is fairly typical of the urban British scene, but at the same time

²⁹ Labov, Yaeger & Steiner (1972) did conduct research in the UK and Ireland as part of their *Quantitative Study of Sound Change in Progress*: 'Field work in England [sic] in the summer of 1971 gathered data in fifteen cities: London, Bristol, Cardiff, Birmingham, Liverpool, Carlisle, Lancaster, Glasgow, Edinburgh, Newcastle, Leeds, Manchester, Norwich, Dublin and Limerick. Consultations with dialectologists in Edinburgh and Leeds confirmed the fact that many of our exploratory findings had not been reported before, since British dialectology has not done extensive work in urban areas. In almost every city visited we were able to record phenomena of considerable interest to our general study of sound change, though it would be premature to say that we had actually observed sound change in those areas without the same kind of systematic sampling that was carried out in New York and Detroit' (1972:13). The information they supply on Newcastle English (actually that of Gateshead) is, however, extremely scanty here and is altogether absent from subsequent publications (see Labov, Yaeger & Steiner 1972:97; §8.2.1 of this thesis).

its population and the local speech forms they use have features which make it particularly interesting from a sociolinguistic point of view. As England's northernmost city, it is often said to be the last bastion of traditional urban dialect in the country; its distance from London and its relative isolation are thought to have preserved speech forms representative of the English of earlier centuries. But as we will see, the situation is somewhat more complex than this.

An introduction to the social and industrial history of the city of Newcastle is given in the following chapter; it is hoped that this information will help account for the process of variation and change that we see in Tyneside English. Chapter 4 goes into the subject in some detail, in the belief that an understanding of the processes of linguistic change in the conurbation is enhanced by an appreciation for the social and demographic changes that have produced Newcastle's English-speaking population.

CHAPTER FOUR: A BRIEF SOCIAL HISTORY OF TYNESIDE

CHAPTER FOUR: A BRIEF SOCIAL HISTORY OF TYNESIDE

4.0 Introduction

This chapter will outline some of the chief influences on the social and industrial development of the Tyneside conurbation, making specific reference to the heterogeneity of the population that came about through large-scale immigration from other areas, and to the effect that this may have had upon the variety of English spoken in the area. It is suggested that the contribution of immigrant Scots played a particularly significant part in the history of Tyneside English.

The informants sampled were all inhabitants of the north-western outskirts of the city of Newcastle upon Tyne, though some of the older speakers hail from other areas of the Tyneside conurbation. We assume here that an analysis of the features of the English of Newcastle upon Tyne can be extended to include Tyneside generally: this is taken to include Gateshead, Jarrow, Wallsend, North and South Shields, Tynemouth, Ponteland and other towns and areas of the conurbation. Many local speakers maintain that speakers from south of the river speak in a distinctly different way from those from north of the river, such that an isogloss bundle runs along the course of the Tyne from the western limits of the conurbation to the coast. Some north Tynesiders rather dismissively lump Gateshead together with Sunderland, some ten miles (16 kilometres) south-east of Newcastle on the River Wear, asserting that the English of Gateshead is to all intents and purposes the same as that of Sunderland. When pressed to specify differences, however, the usual responses make reference to archaic, stereotypical features of 'Geordie' versus 'Makem',¹ many of which are recessive, extinct or just inaccurately reported, and so it is difficult without more concrete

¹ *Geordie* is the nickname given both to Tynesiders and to the dialect they speak. It is said by Graham (1987:4) to derive from the name originally attached to the unpopular and mentally erratic King George III, but which by extension came to mean any foolish person. Graham suggests that negative attitudes among the middle classes toward pitmen in the nineteenth century resulted in the label *Geordie* being attached to local mineworkers, and then again by extension to anyone from the north-east. It is more likely, however, to come from the commonly-used diminutive form of the given name *George*, a habit which is also common in Scotland (cf. *Doddie*, *Dode*). Joe Wilson's popular song *Ah Wish Yor Muther Wad Cum* (c. 1850-1860), transcribed by Jones (1911) and reproduced in Chapter 6, is typical of songs, poems and comic stories featuring a protagonist invariably called *Geordie*, though it is not uncommon today to hear female Tynesiders referred to as *Geordie lasses*, so the term's meaning has become more general still. *Makem* (also *mackem* or *makum*) on the other hand, is used to refer to inhabitants of the Wearside city of Sunderland, or more generally to anyone from the north-east of England south of the Tyne and north of the Tees. Beal (1993a:1) speculates that the origin of this nickname may be to do with shipbuilding, viz., 'makem and takem' ('make the ships, and take them down the river'). It has acquired a pejorative sense when used by Tynesiders; the relationship between Tynesiders and Wearsiders is often antagonistic, particularly where the rivalry between the Newcastle United and Sunderland Athletic football clubs is concerned. *Pitmatic*, lastly, is the general name sometimes used for the sociolect of north-eastern coalminers (see Wells 1982:350; The New Geordie Dictionary at <http://www.geordiepride.demon.co.uk/dictionary/htm#P>).

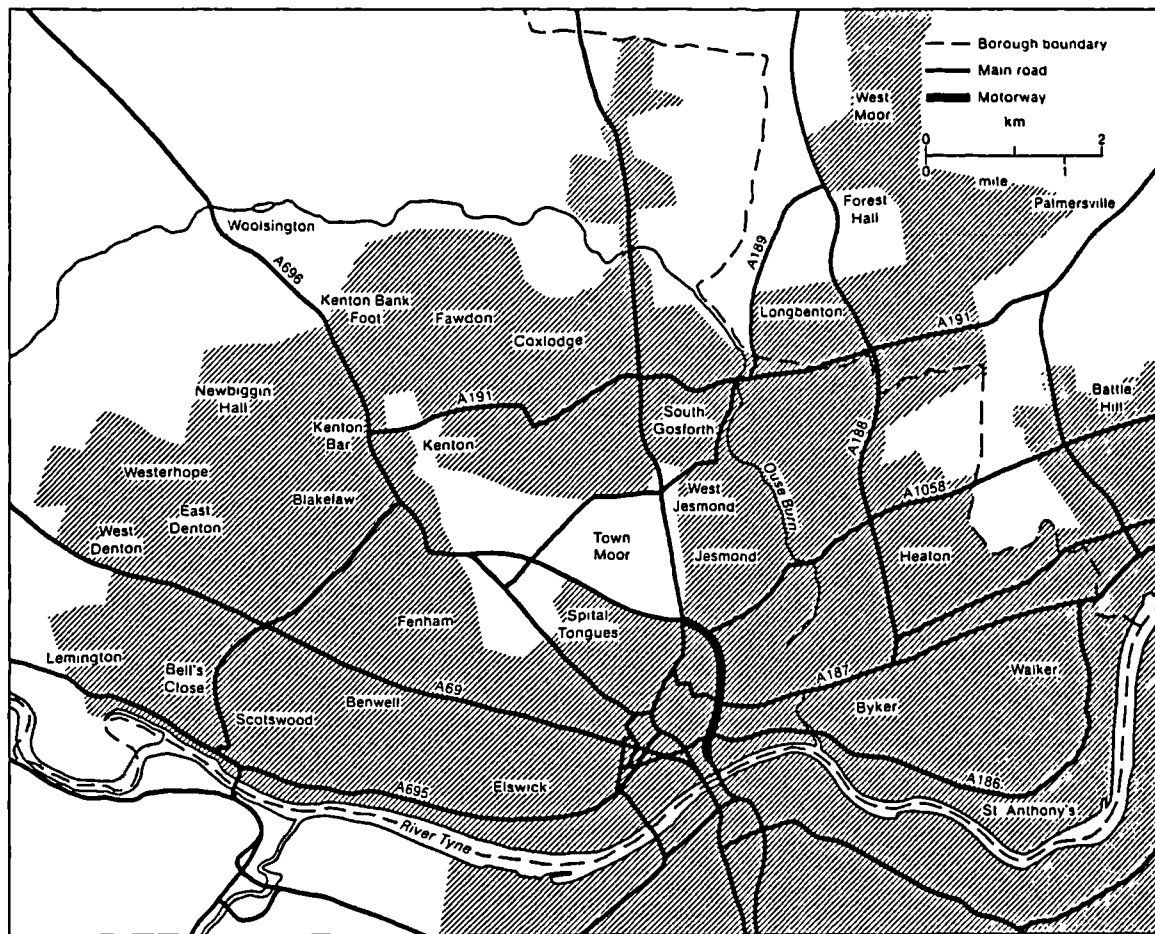
evidence to say whether the dialect boundary is still current. Beal (1993a:2) offers evidence of two features distinguishing Tyneside speech from Wearside speech - /h/-dropping and 'burr-retraction' of the vowel of the NURSE set (see Páhlsson 1972; Chapters 6 and 8 of this thesis) - taken from the 'bidialectal' menu of a restaurant on Wearside thought to lie on an isogloss dividing Tyneside speakers wishing to order *hot dogs* and *borgas* from Wearside speakers preferring *'ot dogs* and *burgers*. But these are presumably Tyneside/Wearside differences, rather than strictly 'north-of-the-Tyne/south-of-the-Tyne' ones. It is unlikely, for example, that Viereck's study of the English of Gateshead (1966) would have drawn very different conclusions if he had carried it out on the other side of the river, as the Newcastle and Gateshead communities are nowadays not so very different linguistically speaking; it seems that civic pride among Gateshead people, based upon the independent status and identity of their town, and the often disdainful attitudes held toward south Tynesiders by inhabitants of Newcastle, are sufficient for speakers on either side to feel that they speak very differently, even if these differences are now rather small.

An understanding of the social relevance of the linguistic patterns we see in Tyneside English is greatly enhanced by an appreciation of some of the most important social and demographic characteristics of the region. In the following section I will concentrate specifically upon Newcastle, since this is the largest city in the Tyneside conurbation and indeed the largest city in what Wells calls the 'far north', and is in every way the economic and cultural centre of north-eastern England.

4.1 The city of Newcastle upon Tyne: social history and demography

Figure 4.1 shows the present extent of the city of Newcastle. A number of the areas referred to in the text are labelled; the location of the city centre is obvious from the way in which the roads converge at the lower centre of the map. Part of Gateshead is shown as the hatched area lying to the south of the river.

Figure 4.1: Newcastle upon Tyne (from Barke & Buswell 1992:7)



4.1.1 Origins

Newcastle takes advantage of a narrow point in the River Tyne some ten miles (16 kilometres) from the North Sea coast. It is uncertain whether the site was inhabited before the Romans established a camp and built a bridge (*Pons Aelius*) across the river at a point near the present Swing Bridge; a considerable amount of traffic must have used the bridge during the Roman occupation, probably largely as a means of supplying Hadrian's Wall, which marked the northern boundary of Roman-controlled Britain, and indeed the Empire, until the withdrawal of Imperial troops and administrators from Britain in the fifth century. Discontinuous Saxon and Anglian settlement (at sites known as *Munecaceastre* (Monkchester) and *Ad Murum*, respectively) after the Romans left was probably disrupted by incursions from Scotland and Scandinavia, and appears not to have developed into a town of any size. The city of Newcastle can thus really only be dated from the foundation in 1080 of a settlement around the 'new castle' built by Robert Curthose, the illegitimate son of William the Conqueror, who had unsuccessfully attempted to bring Scotland under Norman control

and, in retreat, wished to control traffic across and along the River Tyne as a means of stabilising England's northern frontier.

4.1.2 Industrial history: coal, ships, and steel

The Tyne drains the largest river basin in the north of England and is a river of some considerable size, and so it was perhaps inevitable that a town springing up on its banks would come to be of importance. The river, in combination with the discovery of viable coal seams in the late Middle Ages, ensured that Newcastle would become one of England's most important port cities during the following centuries; as Mess (1928:39) puts it, 'coal and a tidal river are the *raison d'être* of urban Tyneside.' The earliest coal mining in Britain began on Tyneside during the reign of Elizabeth I, and rapidly came to be the principal industry of the area throughout the eighteenth and nineteenth centuries, a fact reflected by the phrase 'taking coals to Newcastle' which has passed into common usage in English around the world. According to Mess (1928:66) 'the Tyneside area is (1) a coal-mining area, (2) a coal-exporting area, draining a much larger area, (3) a coal-marketing centre for a still greater area,' and it is often said that Newcastle's greatest contribution to the development of the United Kingdom as an imperial power was its coal industry. It was particularly the demand for coal by the rapidly expanding city of London that served to ensure the centrality of the coal industry to the economic activity of the north-east for several centuries, and for this reason a large influx of labour came in from other parts of the country. Between 1801 and 1901, according to Buswell (1992a:15) the population of Newcastle grew from 28,294 to 215,328, an increase of almost 800%. Mess cites 1804 as a year in which a particularly large number of 'strangers' came into Northumberland to share in the high wages earned by pitmen; County Durham he calls the 'melting pot of the UK' at this time, and we can assume that Newcastle shared in this pattern of immigration. Despite high local birth rates, the demand for labour during these decades was such that workers from even quite distant parts of England (particularly Yorkshire, Staffordshire, Lancashire and Norfolk, but also Kent and Sussex) came in to work in the coal- and coal-related industries. The incomers from Norfolk, for example, were engaged in the task of embankment and deepening of the Tyne, as on the Clyde at Glasgow, so as to allow larger shipping further up the river; it seems that in the eighteenth century the draughts of boats entering the port had been restricted by sandbars and gravel banks upriver as far as Newcastle (Mess 1928:28). Pressure from the citizens of Gateshead and North and South Shields over a period of about a decade ensured the passing of the Tyne Improvement Act in 1850, and as a result the tonnage of coal being exported from the Tyne ports was thereafter boosted enormously. Coal exports seem to have peaked at the beginning of this century, with over 21 million tons being exported annually. But as coal mining had started in the north-east much earlier than in other parts of Britain, the seams were largely worked out

by the first decades of this century. A large part of Newcastle in fact stands on a network of exhausted mine tunnels.

One advantage to miners on Tyneside and in County Durham during the latter half of the nineteenth century was the availability of free housing to underground workers who were married, or, if no house was available, the pit company would pay an allowance of 10d. per man per day (Mess 1928:69). The social conditions for Tyneside pitmen were in this sense something of an improvement on those elsewhere in the British coalfields, though Mess comments that the quality of the housing - typically, the so-called 'one-up', a terraced brick house with two medium-sized rooms - was often very poor, and that poor sanitation and hygiene was to blame for the frequent epidemics of influenza and tuberculosis that affected the workforce. A good proportion of these buildings are still standing, and they have in certain areas become very desirable properties.

The availability of coal and labour in large quantities was also a prime incentive for the location of factories and foundries along the Tyne during the Industrial Revolution. Many chemical works, chiefly those involved in the manufacture of alkali, were built along the Tyne, while the iron and steel industry assumed an importance that was to last well into the twentieth century. Improvements in the production of iron and steel resulted in spectacular growth of shipbuilding and associated heavy industry along the Tyne during the nineteenth century. Newcastle had in fact been noted for shipbuilding as early as the 1600s. In 1727, Daniel Defoe remarked that 'Newcastle is a spacious, extended, infinitely populous place... They build ships here to perfection... and as the coal trade occasions a demand for such strong ships, a great many are built there.' The manufacture of iron ships, especially after the invention of steam power, became a key feature of industrial activity on Tyneside during the Victorian period: the Jarrow Yard was established in 1851, with Palmer's yard coming in 1862. Such was the energy of the Tyneside ship industry in the subsequent decades that some 57,000 tons of iron ships were launched annually. Atkinson (1980) cites an astonishing pair of statistics: during the 1880s and '90s British shipbuilding produced four of every five ships launched in the entire *world*, while at times the north-east of England alone produced more than 40% of the world total.

Other heavy industries associated with transport, especially railways, also came to be of importance to Tyneside during the nineteenth century. The world's first railway, of course, was built on Teesside under the supervision of George Stephenson, who was born in 1781 in the colliery village of Wylam, near Gateshead. The engineering works founded in 1823 by his son, Robert Stephenson, was followed by the company W.G. Armstrong of Elswick 24 years later, while a number of locomotive building firms such as Hedley, Blenkinsop and Hawthorn

made a name for Tyneside in their field. The heavy engineering industries of Tyneside were of course to thrive during times of war as ships, heavy guns and other ordnance could be produced by existing plants (Lord Armstrong of Armstrong Vickers, for example, having invented the rifled cannon in 1855, with that company continuing to manufacture armaments until very recent times). The First World War was a particularly active time for these industries, but the end of the war seems to have marked a turning point in their fortunes: after 1918 heavy industry on Tyneside appears to have gone into a decline that has precipitated a number of important changes to economic activity along the river: the trend in the latter half of this century has been a general shift from heavy to light and service industries, as elsewhere in post-industrial Britain.

Until the Industrial Revolution Newcastle had enjoyed a monopoly on the Tyne port facilities, and also to a large extent those on the Wear. However, once the monopoly was broken coal began to be exported from other North Sea ports such as Amble, Blyth, Sunderland and Stockton. But, like Newcastle, these ports all suffered a decline; the coal industry, and the shipbuilding and fishing industries that were also centred around such ports, have all virtually disappeared. Such port activity as remains is concerned predominantly with automotive export (especially from the Nissan plant at Sunderland, opened in 1984), the offshore oil industry, and the timber trade. Timber yards importing wood from Scandinavia are still in business, but are similarly much reduced in comparison to the early years of this century. Economic links with Scandinavia continue today (many Norwegian students attend the universities of Newcastle, for example), while ferry services to Norway and Denmark are run out of North Shields during the summer.²

Other manufacturing industries were on a relatively small scale: quarrying and brickmaking, for example, textiles, or the manufacture of glass (centred on South Shields, at one time the largest producer of glass in England), never became as important for the north-eastern towns and cities as elsewhere in Britain. Mess and Atkinson both speculate that the economic downturn in Tyneside starting early in this century may have had to do with the over-reliance on certain industries, such as shipbuilding, which seemed secure at the time; a broader balance of trades and greater versatility in the workforce may have postponed the decline until later in this century. Atkinson is uncertain as to why Newcastle never developed a significant machine-tool industry, for example, and why the Tyneside automotive industry went into decline early on while others such as Morris at Cowley were very successful. Mess comments

² Some 500,000 [sic] Scandinavians are reported by Walsh (1997:38) to visit Newcastle every year. This figure is probably overestimated by at least a factor of ten, however, since the entire population of the city is only around a quarter of a million. Nonetheless, the retail industry on Tyneside has come to depend in part upon the spending power of Danes, Norwegians and Swedes who come specifically to take advantage of the high quality but relatively inexpensive shopping that Newcastle provides.

'time after time it has seemed as if a term had come to the prosperity of the river; but as one industry or one market has failed, another has risen to take its place' (1928:39).³ At the time Mess was writing, of course, the economic health of the UK as well as that of continental Europe and the United States was deteriorating fast; it is not surprising that he concludes his survey by commenting gloomily upon the future for the dwindling number of Tynesiders in work, and the neglect of the British government to support the ailing industries which had been responsible for the rapid economic boom of the previous 150 years. The Jarrow Crusade of 1936, in which hundreds of men marched on London to protest about their desperate circumstances, was a consequence of the way in which the people of the north-east were hit particularly badly by the economic depression in the years leading up to the Second World War (Smith 1994).

The industrial areas and shipyards of Tyneside, as well as many residential areas, were heavily bombed during the war. It was thought that Newcastle's position on the east coast made the city particularly vulnerable to invasion, and so during the 1940s a large number of children were evacuated to western and rural England. Indeed, some of the older speakers recorded for the PVC corpus reminisce about their experiences as evacuees. Others who were in their teens or twenties during wartime were active in the armed services and found themselves posted to various parts of Britain, or mobilised in areas of conflict around the world. Clearly, these speakers will have had a good deal of contact with speakers of other varieties of British English, and probably also with Americans, Canadians and Australians - it would be fair to say that the role of conscription as a factor helping to trigger the levelling of varieties of British English since 1939, and possibly even since 1914, has tended to be overlooked as a factor in the language's development. The (usually involuntary) admixture of men, women and children from all social classes, religious groups and educational backgrounds during the world wars will undoubtedly have had a significant influence upon the nature of English accents and dialects. There is surprisingly little in the literature on this topic, however.⁴

³ Austin & Buswell (1992:66) blame this reversal of fortune on a 'failure to perceive new technical and scientific trends' particularly within the chemical industry.

⁴ Pear (1955:90) hints at some of the effects mobilisation might have had on spoken English: 'the mixing of classes and of sexes in the Forces and Civil Defence in World War II, as well as the present popularity of scientific terms has decreased the frequency of certain taboos. In the Forces, the use, by men and women, of ugly words for ugly facts may have been in self-defence, even in a semi-conscious shifting of blame to their elders, as if the speaker implied "To disclaim personal responsibility for this, I call a spade a spade."' Pear continues, '... life in the Forces with the consequent temporary shaking up of strata did much to displace certain speech-patterns of our society. [...] There are no rules, but quickly changing affectations, into which the speaker must 'feel' himself. Such fashions resemble those governing women's dress, for if lower classes borrow a mode from the upper, the initiators usually drop it' (ibid.).

4.1.3 Immigration to Newcastle

It would be wrong to assume that the Tyneside population was in any way homogeneous in previous centuries. The influence of Scandinavia has been strong since the times of the Danelaw and continues today; the innumerable Scandinavian placenames throughout the area testify to the predomination of Scandinavian settlers during the two or three centuries before the Norman Conquest. As we have already seen, the importance of Newcastle as a provincial centre was guaranteed from the 17th century onward, and the influx of workers from other parts of England was at times heavy. From the linguistic point of view this should not be ignored. As Mess comments, 'with so much immigration in the past, the Tynesiders of today are, like almost all populations of industrial areas, of very mixed stock' (1928:32). An important aspect of this immigration is the very large number of Scots who migrated to Newcastle in the nineteenth century, although the influx of people from north of the border has been steady since the Union of Scotland and England in the early eighteenth century, and for perhaps a hundred years before that. Mess remarks that 'the Scotch element in the population of the two counties [Northumberland and Durham] is very marked. Northumberland was, in 1911, the English county with the highest proportion of Scotch-born inhabitants; Newcastle came next to Barrow-in-Furness among English county boroughs, with Tynemouth third, South Shields fifth, and Gateshead sixth' (1928:34). He continues:

The Scotch element has had an influence in shaping the life of the community quite disproportionate to its numbers. Certainly, whether by the infusion of actual Scotchmen, or by nearness and affinity of tradition, Northumberland has many features in common with Scotland, e.g. the strength of Presbyterianism, the observance of the Scotch quarter days, the tradition of a small dwelling (Mess 1928:34).

Beal (1993b) makes a similar point: '... movement from Scotland to Newcastle is still very common: the city has a thriving Caledonian society for the comfort of expatriates, and the coastal resorts of North Tyneside and Northumberland are subjected to an annual invasion during 'Glasgow Fortnight' in July. The strongest influence on the dialects of Tyneside and Northumberland is undoubtedly from Lowland Scots, but this can hardly be called an outside influence given the common origin of these dialects; it must rather be said that the continuing close relationship between Scots and Northumbrians has served to maintain and reinforce the linguistic similarities between their dialects' (1993b:189-190).

Beal and Mess both cite the contribution of Irish incomers to Newcastle, who, like the Scots, 'by the distinctiveness and the strength of their traditions... exercised an influence out of all

proportion to their numbers' (Mess 1928:29; also Beal 1993b:189). It appears, however, that the Irish population in Newcastle, though large - peaking at over 8% of the population in 1851 following successive potato crop failures in Ireland - was never as integrated as the Scottish one. The Irish tended to settle in the same part of the city, Sandgate, the men being taken on primarily as labourers, with some 73% of adult Irish males being involved in this, and women in low-grade occupations in retailing and service (see in particular Sill 1992). Despite living near the Tyne among riverworkers the Irish seem to have been excluded from river-based work, suggesting that the Irish presence was unwelcome, though Barke (1992a) has found no evidence of hostility toward the Irish as such. Newcastle was thus more cosmopolitan during the nineteenth century than modern perceptions of the city might lead one to expect: in 1851, about 54% of the Newcastle population was born outside the city (Barke 1992a:34), meaning that locals were actually a minority for a time. Influx from other parts of the British Isles slackened off by the beginning of the twentieth century but was balanced by incomers from continental Europe during the war (either prisoners of war brought in as cheap labour, or refugees from Axis-occupied territories), and later from the remains of the British Empire.

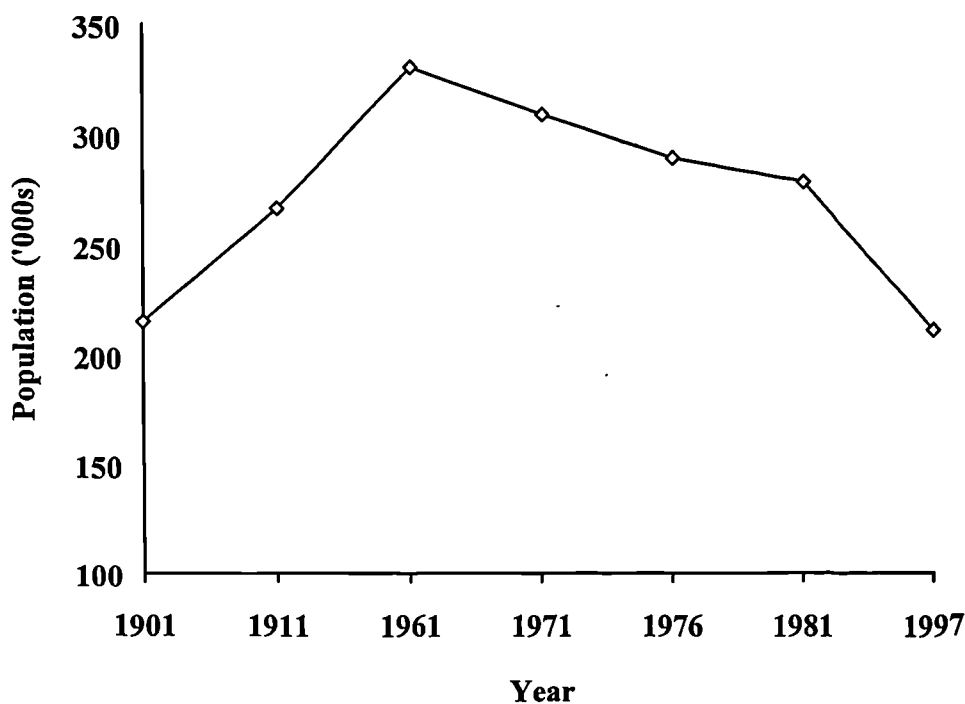
Since the war, immigration has been chiefly from the New Commonwealth, particularly Pakistan, India and Bangladesh, though on a far smaller scale than in other English cities: in 1971, the proportion of Commonwealth immigrants in Newcastle was 1.3%, as compared to Birmingham's 6.7% and Bradford's 7.1% (Barke 1992b:60-61). To a lesser extent, immigrants have come from south-east Asia and Africa; Newcastle's 'Chinatown' is home to a considerable number of families originating in Hong Kong and Taiwan, and is the area in which many Chinese businesses such as restaurants and supermarkets are based. Newcastle's two universities, of course, continue to attract UK and international students in large numbers. For these reasons, among others, Newcastle has been for a long time a city with a population as heterogeneous as that of other large British cities, though perhaps less obviously so. 'Contrary to the rather insular image of Newcastle,' says Barke (1992b:60), 'the city has been the recipient of immigrants from far afield for many years'. Contact-related language change of just the sort we can observe in modern TE, therefore, probably began with the rapid expansion of the city at the end of the eighteenth century, and will have continued at a greater or lesser rate since then. The evidence shown in subsequent chapters suggests that the process may be accelerating as a result of contact with other varieties of English, but also because of the radical shift in employment and residence patterns in the city within the last three or four decades.

4.1.4 Counterurbanisation

Despite its current popularity as a place to study, work or settle, Newcastle's population continues to shrink: it 'has in fact become a net exporter of population, not the least reason for this being the decentralisation of commuters to neighbouring settlements' (Barke 1992b:60). These communities - Whitley Bay, Tynemouth, Gosforth, Newburn, Longbenton and Castle Ward rural district - have been incorporated into the Tyneside metropolitan area as the city spread along the line of the river to the east. To the north this spread was checked by the Town Moor and the Nuns Moor, large areas of common land; the Tyneside conurbation is a narrow strip of densely built-up townscape reaching perhaps two or three miles into the hinterland north of the river. For individuals employed in the city, then, it is a simple matter to live out of town and to travel to work within a reasonably short time. The development of the East Central Motorway in the 1960s did a good deal to reduce the problem of city centre traffic congestion, while the construction of an underground railway - the Tyneside Metro - in the 1980s complemented an already well-developed public transport system.

The depopulation figures speak for themselves: they are summarised by Figure 4.2.

Figure 4.2: Depopulation of Newcastle in the 20th century



Sources: Barke & Buswell (1992); James et al. (1997)

Between 1966 and 1971 nearly 26,000 people moved away from the city; in 1971, just 42% of a workforce of some 152,000 were resident in Newcastle, though this rose slightly by the end of the 1970s.⁵ This movement coincides with the change in industrial activity during these decades. The shift away from heavy industries based around the Tyne and toward light and service industries necessitated the construction of new business sites in flat, open areas well served by road and rail networks: these sites are located chiefly downstream, to the east of the city centre (Shiremoor Trading Estate, for example), beyond the Town Moor (North Gosforth, Regent Centre) and south of the river (Metro Centre, Team Valley Trading Estate, Washington New Town). Many of the employees of these businesses, as might be expected, have similarly moved away from the city centre so as to be closer to their places of work.

As of 1992, seven out of ten Newcastle workers were involved in retail, office-based employment, education and health; financial-sector businesses (banking, accountancy, insurance) have also become extremely important to the economic life of the city, though these have tended to locate in city-centre premises abandoned by earlier manufacturing and retail industries, or in purpose-built office blocks such as Swan House or All Saints Business Centre. The retail industry in the city centre is still very important, particularly those located in or around the Eldon Square Complex, though the opening in 1986 of the Metro Centre at Gateshead (said to be Europe's largest shopping development) has tended to lure shoppers away from city centre stores. Retail developments such as this may force some city centre outlets to close, accelerating the decline of central Newcastle as a place to work. 'Newcastle and similar cities,' according to Austin & Buswell (1992:66), 'are no longer the workshops of the world but service, administrative and retailing centres of their region', and it is estimated that around 2.5 million people depend upon the city for employment, shopping, education, entertainment and recreation (Buswell 1992b:56).

The various factors involved in this process of counterurbanization are outlined by Cross (1992:12-23). These are divided into four main areas:

- i) longer distance commuting*
- ii) residential preference for non-metropolitan areas*
- iii) economic change in favour of peripheral areas*
- iv) employment decentralisation*

Longer distance commuting, as in (i), becomes a practical possibility as the proportion of car owners increases. Also, as mentioned earlier, the provision of a metropolitan railway which runs along both sides of the Tyne from Newcastle to the coast means that problems of traffic congestion are greatly reduced. The second factor, residential preference for non-metropolitan

⁵ See also the North Regional Planning Committee's (1967) report *Mobility and the North*.

areas, clearly favours those from whom geographical mobility is feasible: this excludes to a large extent the unemployed (see below). The centrifugal movement of new retail and service industries typifies point (iii), while this decentralisation of employment is followed quickly by decentralisation of employees.

4.1.5 Unemployment

The outward trend discussed above has tended to exaggerate the differences between the 'haves' and the 'have-nots' in Newcastle. Mobility (both geographical and social) is of course tied to factors such as education and social class, and the differentials in income and opportunities that result from them. Unemployment on a large scale, especially long-term unemployment, became particularly acute during the 1970s and '80s, with, for example, the closures and cutbacks at the Swan Hunter yard and at Vickers, both of which had been large employers. Unemployment peaked during the Thatcherite recession, attaining a figure of 26,000 in 1986, of which almost half were long-term unemployed. Young people were hit especially hard by this. The move away from occupations which had been dominated by men towards those typically carried out by women (service industries and light manufacturing, particularly food, drink and tobacco) was sufficient to slow the decline for a while, though the automation of many production-line and clerical functions meant that women were also laid off in large numbers during this period. Between 1978 and 1981, a third of all full-time jobs held by women were lost, 9,600 of which were in the service sector. Today, a large increase in the number of low-paid casual and part-time jobs, most of which are carried out by women, is typical of employment patterns in the '80s and '90s in Newcastle and in other British cities; average household incomes are thus very low, and living circumstances correspondingly inadequate. In 1986 some 40% of the Newcastle population was in council accommodation, much of which is of an exceedingly low standard (Peck & Morphet 1992:82-83). Various initiatives have been introduced ('Inner City Partnership Areas', 'Enterprise Zones', the Urban Development Corporation, and so on) to help counteract the recession which continues today for many inner-city Newcastle residents, though it is difficult to see where jobs of the sort required by the long-term unemployed, many of whom are unskilled and unqualified, might come from.⁶

⁶ At the time of writing, in August 1998, the loss of 1,100 jobs at the Siemens microchip plant at Wallsend and 670 jobs at Sunderland cranemakers Grove Worldwide Ltd. had just been announced. Trade union representatives forecast another 2,000 - 3,000 more redundancies in supplier companies in the north-east and elsewhere. As of December 1998, a further 600 jobs will go with the closure of Fujitsu's semiconductor plant at Newton Aycliffe in County Durham. Notice of these redundancies comes just a few weeks after De La Rue, the banknote printer and credit-card maker, announced 375 layoffs, its Gateshead plant bearing the brunt of the cuts. The unions appealed to the Blair government to try to prevent more job losses in the north-east of England, as unemployment rates in the region are already the highest in mainland Britain at 7% (*The Independent*, 3rd August 1998, p4; 12th August 1998, p8).

Thus, the figures quoted earlier concerning the proportion of employees working in Newcastle but living out of town is not tied directly to simple depopulation *per se*; rather, they reflect the fact that those living in the city centre are increasingly likely to be unemployed, while those living out of town are almost certainly in reasonably well-paid occupations. The general Newcastle pattern is typical of patterns seen elsewhere in Britain, Europe and North America, though there are several exceptions in Newcastle's case to the correlation between geographical peripherality and favourable socioeconomic conditions. Barke (1992c:81), for example, expresses surprise at the figures collected for the Woolsington ward, which lies at the north-western edge of the Newcastle metropolitan area (see Figure 4.1), and is one of the areas in which fieldwork for the PVC project was carried out. Woolsington actually falls within the worst 25% of Newcastle wards on a composite scale based on four factors (proportion of 16-17 year-olds in full-time education; proportion of single-parent families; proportion of adult males in unskilled manual occupations; total unemployment level), and as such seems not to have benefited greatly from the centrifugal pattern described earlier. Woolsington is, on the other hand, considered by locals to be a comparatively well-to-do suburb; Barke & Buswell's figures reflect the fact that Woolsington ward was in 1982 the second largest city ward in terms of area, and includes some of the most depressed areas of west Newcastle as well as some of the most affluent (see Peck & Morphet 1992:83).

4.1.6 The future

Buswell (1992c:87-88) summarises recent demographic change in Newcastle as follows:

- population in decline since World War II
- housing increasingly located in suburban and peripheral locations
- increased separation of workplace and residence
- increased segregation of social groups and economic activities
- car ownership has risen, public transport has been reinvigorated
- family size declining
- increasing proportion of elderly people
- family life less easily defined (higher divorce rates, more one-parent families)
- student population has risen
- higher unemployment rates, especially long-term
- more women in workforce
- increase in part-time work
- death of employment in traditional sectors
- domination of service industries

Buswell concludes his analysis in much the same way as had Mess nearly seventy years earlier. He believes the future of the city to lie in 'the hands of outsiders... [it] is going to

depend upon the reconciliation of the tension between 'local' and 'central' interests, unless some form of regionally devolved government is likely to emerge' (1992c:87). The results of referenda in Scotland, Wales and Northern Ireland held in 1997 and 1998 have shown that decentralisation of administrative power is becoming a feature of sociopolitical life in the United Kingdom, and indeed there is some, albeit fairly minor, pressure for a similar assembly to be established in the north-east of England, with Newcastle as its natural base.⁷ Buswell predicts a small increase in population to 292,000 by 2006, of which a high proportion will be elderly, and foresees a continuation of the counterurbanisation process, with a deepening gulf between the upper-working and middle-class employed and the unemployed and poor. Ghettoisation of the latter groups is therefore inevitable if the trend continues. In many respects, then, Newcastle is following the pattern established in North American cities, though in the Newcastle case the segregation will be to do with educational and social class factors rather than having a racial or ethnic basis, as is the case in the United States.

Newcastle will be, Buswell argues, a more dispersed city at the end of the twentieth century, despite a forecasted slowing of the counterurbanisation process. He expects 'the attraction of the surrounding small towns and villages, especially west into the Tyne valley and north and north-east into south Northumberland [to] remain, particularly as road communications continue to improve; some suburban development into the Green Belt looks inevitable. Unemployment will remain high, the labour market will be further restructured and much housing quality will deteriorate so that the 'inner areas' will remain as apparently intractable problems' (Buswell 1992c:88). Importantly from a social levelling point of view, 'cities like Newcastle can no longer be seen in provincial isolation; increasingly they are part and parcel of a national system and with the onset of the Single Market in 1992, a European system' (ibid.).

The tension between local and central interests that Buswell refers to is particularly interesting in specific connection with the linguistic behaviour of Tynesiders: we might consider that the relaxation of linguistic differences between residents of Newcastle and the larger northern-English community reflects a willingness among Tynesiders to become more fully integrated with the region as a whole. But as mentioned previously in this chapter, we should be wary of thinking of earlier forms of TE as at all homogeneous, as it seems unlikely that the population of Newcastle (as a city rather than as a medium-sized town) was ever homogeneous: like other British cities during the Industrial Revolution, the growth of the city was characterised by a small indigenous population being boosted several times over by a

⁷ Cf. the debate on this subject broadcast from Newcastle's Council Chambers in *Inside Out*, BBC Radio 4, 9th September 1998.

highly diverse body of immigrants. The substrate that we assume in order to make sense of the levelling process that seems to be affecting the vowel system of modern TE is thus the product of earlier levelling and possible koineisation. It is possible, for instance, that the persistence of an effect in TE very similar to the Scottish Vowel Length Rule is attributable to the continuing influx of Scottish speakers (and also, perhaps, the continued use of /u/ in words of the MOUTH set), where other urban varieties of the north have lost these. The retraction of the NURSE vowel in TE may be a similar reflex to that found in some forms of Irish English (indeed, [ɔɪ] is stereotypical in Irish pronunciations of words like *sir* and *thirty*),⁸ or that the influence of the Celtic substrate has resulted in certain similarities between TE and Liverpool English (spirantisation of word-final /t/, fronting and unrounding of NURSE to [ɛ], for example) and features such as pre-aspiration of word-final /p t k/.⁹ A lack of space unfortunately prevents a more detailed investigation of this.

4.2 Language attitudes

An interesting feature of the English used on Tyneside is the stigma attached to the variety equally by outsiders and by Tynesiders themselves. TE is often said to be the 'hardest accent of English to imitate',¹⁰ or at least to imitate convincingly, and one of the most difficult to understand for English speakers unfamiliar with the dialect. TE speakers themselves, perhaps partly as a result of these perceptions, are often surprisingly sensitive about their pronunciation. Comments or questions about aspects of Tyneside speech are often interpreted as criticisms or jibes, and it has been my experience that Tyneside people, even those working in language-related fields such as speech therapy, sometimes find the idea of studying the Newcastle variety - as though it were 'just another form of English' or 'of phonetic interest' - amusing or perverse. Alternatively, they may feel patronised. On many occasions as a lecturer in phonetics in Newcastle and Durham (and I regret that I have as yet only anecdotal evidence of this) I have been told by local female students who have children that they themselves are proud to speak with a Tyneside accent, but will actively correct their children for using specifically Tyneside forms. The consensus is that any Tynesider wishing to improve his or

⁸ No coarticulatory account can convincingly be made in the Irish case: burr retraction is not relevant to Irish English, in which variants of post-vocalic /r/ are coronal.

⁹ Llamas (1998) reports the pronunciation of NURSE in Middlesbrough (Teesside) English to be [ɛ:], which she speculates may be related to immigration of Welsh and Irish workers, while Beal (1993b:190;§6.6.1) attributes the second person plural pronoun *yous* in TE to possible Irish influence. See also Knowles (1978).

¹⁰ As a teacher of phonetics to students of acting studies at Queen Margaret College Edinburgh in 1993, I found that this view was more or less axiomatic; indeed, it was stated categorically in some of the accent handbooks produced for training purposes. The impenetrability of 'broad' Newcastle English to outsiders is often exploited in film and television: TV comedian Harry Enfield takes advantage of various 'Geordie' stereotypes, while a character purportedly from Newcastle in Steve Coogan's *I'm Alan Partridge* is comical simply by virtue of his unintelligibility.

her social or financial lot would be wise to avoid obviously localised forms in favour of something sounding less 'common', 'ignorant', 'ugly', or 'wrong'.¹¹

Attitudes towards TE such as these, it appears, have been around a long time: Beal (1994:1-2) cites interesting evidence to show that awareness of the perceived 'coarseness', 'vulgarity' or 'incorrectness' of Tyneside English has been troubling the citizens of Newcastle since the introduction of standardised orthography and the rise of Standard English in the eighteenth century. Beal cites Alston (1965) who states that outside London, there were more grammars of English (including pronunciation manuals) published in Newcastle during the 1700s than in any other city in the entire English-speaking world. A good proportion of publications of this type were written by Scottish, Irish or northern English grammarians, showing us that 'by the laws of supply and demand, the need for guides to 'correct' usage was felt particularly keenly by... Geordies and other provincials' (1994:1). Crowley (1991:79, in Beal 1994:3) continues this theme: 'it was precisely those who were the marginalised but aspirant who were the most sensitive to the indices of linguistic and social identity in a turbulent culture'. The continuing sensitivity of Tyneside speakers to local speech forms is reflected in the data presented in this study: the informants recorded for the PVC project appear to be fully aware of the various negative associations that others might have with their speech, and to adjust it accordingly (see footnote 19 in Chapter 5, for example). For some speakers, however, these patterns are more than simple accommodatory or stylistic adjustments: they appear to have become entrenched. What we are seeing is not just the effects of the 'observer's paradox' nor simple age-grading:¹² it is, I argue, long-term change in the direction of a less localised, less stigmatised form. Many young Tyneside English speakers, it appears, wish to throw off some of the baggage of the perceived parochiality, uncouthness and uneducatedness that has been visited upon them by outsiders for the last two hundred years, and to present themselves as part of a wider, more worldly, more dynamic urban British population. A detailed survey of language attitudes on Tyneside has thus far, to my knowledge, not been carried out, but the results of such a survey would undoubtedly be extremely interesting.

¹¹ I am grateful to Paul Foulkes for a telling extract from a (Tyneside) student's essay in which it is remarked that 'someone who speaks with RP is more likely to be successful than someone who speaks in a broad regional accent, or, if you were about to undergo brain surgery and met the surgeon beforehand you would be horrified to hear him speaking in a broad Geordie dialect, not unlike the speech of Paul Gascoigne [the professional footballer]'. Similarly, Tom Cookson mentions in a television biography of the late best-selling novelist Catherine Cookson that despite never having lost her Geordie accent his wife 'always spoke nicely' (*The Catherine Cookson Story*, Tyne-Tees Television, broadcast on 11th January 1998).

¹² See §3.4.1.

4.3 Summary

To conclude this section, then, we can see that social changes which have shaped the history of Newcastle have followed a pattern rather typical of British industrial cities. These are, in brief: a rapid explosion of population in the late eighteenth and early nineteenth centuries associated with coal mining, largely by immigration from rural areas of England and from Scotland and Ireland, with a concomitant growth in heavy and manufacturing industry. These mainstays of the economy went into decline around the beginning of the twentieth century, with resultant mass unemployment and urban degeneration. Since the Second World War a shift away from manufacturing to light and service industries has resulted in the relocation of large employers away from the city centre. The workforce, having become increasingly mobile because of rehousing to less overcrowded new developments, a higher level of car ownership, and improvements to public transport, has tended to move close to the new business areas on the outskirts of the city, and to associated New Towns and satellite communities in the 'commuter belt'. The population of the city itself has declined, though the city centre continues to be a focus for employment and services for a large part of the north-eastern region. Admixture of local and non-local population, in addition to a certain amount of social levelling with respect to class, education and income (at least among the employed), has led to a reduction of social differences among the Tyneside population. These changes are reflected, or enhanced, by reductions in the differences between Tyneside speech and a general northern lect.

We turn next to a description of the methods used to investigate some of the effects the demographic patterns discussed above may have had on the language of Tyneside people. Chapter 5 also includes an account of a pilot study carried out in autumn 1994, which was intended to allow the isolation of a relevant number of linguistic variables prior to the main investigation itself.

CHAPTER FIVE: METHODS

CHAPTER FIVE: METHODS

5.0 Introduction

This chapter deals with the research methodology used in the collection and analysis of vowel data drawn from a sample of conversational and word list style Tyneside English. Broadly speaking, the procedure follows that developed in the ground-breaking work of Labov's (1966) study of linguistic variation in the English of New York City, incorporating techniques introduced into urban dialectology by James and Lesley Milroy during and subsequent to their work on Belfast vernacular (1978). The set of informants chosen for this study is divided according to certain speaker variables - sex, age and social class - while the linguistic categories to be investigated are determined by a combination of factors, principally:

- variables which have been described by previous authors as characteristic of, or peculiar to, the dialect (thereby supplying a 'real-time' method of comparison);
- lexical frequency (infrequent categories being comparatively difficult to investigate from the point of view of data collection and tests for statistical significance);
- phonetic (and consequently social?) salience.

The methodology is presented in two parts: first, a general description of the way in which data were collected and classified, and second, a report of a small-scale pilot study run prior to the assembly of the material upon which the main study itself is based (see Chapter 8). A brief outline of the methodology used for both the pilot study and the main study runs as follows:

- 1. Selection of linguistic variables*
- 2. Initial selection of phonetic variants of linguistic variables*
- 3. Transcription of conversational material*
- 4. Transcription of word list material*
- 5. Categorisation of individual tokens into variant types*
- 6. Results and discussion: analysis and interpretation of data*

The hypothesis to be tested in the study presented here is that regular patterns emerging from the interaction of the social and the linguistic variables in the sample are indicative of (a) the systematic use of certain phonetic forms as markers of social affiliation and (b) change to the phonological system over time.

First, however, it is necessary to describe the corpus of spoken material used for this investigation, and to discuss the social variables by which the informants are classified.

5.1 The corpus

The data upon which this study is based are drawn from a large corpus of spoken Tyneside English which was originally compiled for the research project *Phonological Variation and Change in Contemporary Spoken British English*. The project, as indicated above, was aimed at the examination of various aspects of sociolinguistic variation observed in TE. To these ends, it was necessary to collect a large sample of the language variety spoken in the Newcastle area which could be taken to represent the linguistic habits of the conurbation's inhabitants. The collection was carried out during the summer of 1994 by the project's fieldworker, Penny Oxley.

Part of the value of the PVC corpus lies in the fact that it does not attempt to do too much: only four independent variables were incorporated into its design (speaker sex, speaker age, social class, and speaking style), and it was anticipated that a modest number of phonological variables would be analysed using the corpus. Compare this with the ambitious programme outlined by Strang (1968) for the *Tyneside Linguistic Survey*, a project for which a vast amount of data in the form of interviews and readings was collected and analysed.¹ The survey identified over 300 linguistic variables which were thought to be worthy of study, in several domains (segmental and prosodic phonology, morphology, syntax, lexis, etc.). But even with the enormously enhanced computing power available today, calculation of correlations between speaker variables, stylistic variables and the distribution of numerous linguistic variants would be a mammoth task if undertaken on this scale. So while the PVC corpus might be criticised for its relatively crude dissection of the TE-speaking population and the modest number of phonological variables it was designed to elicit, it provides a large and ready source of high-quality recordings which represent the most up-to-date large-scale sample of the dialect. One advantage of this material over other databases that have been used for the study of TE (see Chapter 6) is its naturalness: the fact that the fieldworker, a local, exploited a set of second-order network contacts ('friends of friends') and made no attempt to 'interview' the informants as such, has resulted in a set of recordings which provide a reliable insight into the ways in which TE is developing in the 1990s.

¹ Collectively known as the *Tyneside Linguistic Survey Corpus*, edited by J. Pellowe & V. Jones (see Oxford Text Archive at <http://ota.ox.ac.uk/>). See also Pellowe (1976); Pellowe *et al.* (1972).

5.1.1 Informants

The general aim of the PVC project was to establish correspondences between the social characteristics of a sample of Tyneside English speakers and the use of specific exponents of linguistic variables, and thereby to propose that TE speakers utilise differences between themselves and others in order to maintain, increase, or decrease relative degrees of social distance. The speaker variables by which the informant sample was subdivided are sex, age and social class. These are outlined in brief below (the reader is referred back to Chapter 3 for a fuller discussion).

5.1.2 Speaker variables

It is uncontroversial, at least among sociolinguists, that the age, sex and social class categories are associated with structured linguistic variation and that they are liable to lie behind marked differences in the distribution of linguistic variants in a sample such as that presented here.² The motivations for assembling a pool of speakers according to these criteria were based not on confirming a set of predictable behaviours in such-and-such a group, but to use these broad categories as a means of splitting the speaker sample in relatively easily defined and reproducible ways. A social network analysis of the speakers used for this study was not thought necessary, as the social class criterion appears adequate; this is not to say that a social network approach to the Tyneside population is at all incongruous (see for example Li Wei 1995).

The gender criterion is unproblematic here, as is age (with two widely separated age groups being used) though the question of social class is evidently more open to interpretation than either of the aforementioned categories, as discussed in the previous chapter. This issue is taken up again further below.

Gender

The use of speaker gender as a factor in the analysis of variability in the Tyneside vowel system is clearly a departure from previous descriptions of the vowel phonology of this dialect. Even Viereck's relatively large-scale study (1966) failed to include any female speakers in the informant sample, although the *Tyneside Linguistic Survey* and Zuydam's more recent study of Tyneside vowels (1987) both incorporate gender into their designs. As

² Despite the reservations expressed by Eckert (1989) and Freed & Greenwood (1996) about the implied synonymy of the terms *sex* and *gender* in much sociolinguistic literature, these terms will be used interchangeably from here on, since it should be clear that when the term *sex* is used, *gender* is meant.

will be seen, the gender factor is responsible for some radically differing patterns of distribution in the present study, and is therefore indispensable from the point of view of understanding the ways in which Tyneside speakers use the phonetic exponents of particular vowel variables as social markers. Gender appears to be a strong, or the strongest, determinant of the use of glottal and glottalised stops in TE (Milroy *et al.* 1994; Rigg 1987; Hartley 1992) as well as of 'final released /t/' (Docherty & Foulkes 1996), so it should not be surprising to find evidence for TE speakers behaving similarly with respect to the use of vowels.

Age

As with gender, it is a simple matter to select speakers on the basis of their age as a means of observing linguistic material which is likely to exhibit differences between one group and another. In this case, two age groups - one composed of speakers of between 16 and 25 years of age, the other of speakers aged between 45 and 65 years - were used. The age thresholds are somewhat arbitrary, except that the use of informants under 16 years of age may prove problematic in the sense that the linguistic behaviour of adolescents still attending school tends not to have settled into the adult pattern typical of each individual's social group; speakers over 65 years of age have by and large retired from the workplace and are therefore to some extent 'out of circulation', linguistically speaking, in comparison to individuals who maintain links with large numbers of people outside their immediate peer group.

The split between the age groups of 20 years spans almost a generation and is therefore likely to yield linguistic differences which can, all other things being equal, be directly related to the speakers' ages. The risk of apparently age-related effects (such as age-grading) is inevitable in a sample in which no longitudinal component exists, but conversely the 9-year range in the Young age group and the 20-year range in the Older may help compensate for this.

Social class

Rather than having to devise a complex measure of social class, it was decided during the design of the PVC study to relate social class directly to (a) place of residence and (b) the social networks of the fieldworker's initial contacts. While place of residence alone is no guaranteed predictor of the social identity and affiliations of an individual speaker, the fact that the fieldworker was passed on to friends and relatives of the two initial contacts (one from each residential area) was sufficient to ensure that speakers who were anomalous with respect to a simple correspondence between social class and place of residence would be omitted from the sample.

Two areas of Newcastle were thus selected as fieldwork sites: Newbiggin Hall estate in the Woolsington ward (for the working class sample) and Chapelhouse estate in the Westerhope ward (for middle class speakers). The identification of these areas as potential sites for data collection was made by the fieldworker's husband, who has 'longstanding business/social contacts within the city' (Oxley ms:1) and who, as a native inhabitant of Tyneside, had 'little difficulty in identifying certain areas... as being broadly working or middle class' (ibid.). Information derived from ward statistics to be found in the General Census of 1991, moreover, indicates that these areas differ from one another in a number of socioeconomic dimensions, and that therefore a sample of residents from either estate would provide linguistic data representative of the two broad social classes of interest. In practice, however, some data collection was carried out at Rutherford High School, whose catchment area includes Benwell and Fenham, which, like Newbiggin Hall, are characterised as working class areas.

A figure of four speakers per condition (gender \times age \times social class = 32) was thought large enough to provide a sufficiently large corpus of spoken material for the original PVC study, and small enough to be representative of the TE speech community while remaining manageable from the point of view of time entailed in data collection and analysis. The use of four speakers per cell, moreover, ensures that should one speaker in the subgroup prove linguistically 'atypical' with respect to the other speakers in the group, the (hypothesised) similarity of the other speakers in that group should balance out the anomalies.

Table 5.1: Composition of speaker sample

	MIDDLE CLASS		WORKING CLASS	
	Older	Young	Older	Young
Male	4 speakers	4 speakers	4 speakers	4 speakers
Female	"	"	"	"

5.1.3 Fieldwork

Penny Oxley recorded a total of 34 speakers of Tyneside English in June 1994. She made initial contact with the individuals subsequently used as informants through a personal acquaintance, and was then, exploiting second-order network ties, was passed on in a 'friend of a friend' capacity between the families and groups of friends that were asked to provide the speech sample. This has advantages over random methods of informant selection in that the

likelihood of obtaining recordings from individuals in socially tightly-knit groups is higher than samples drawn from impersonal sources such as census documentation, electoral registers, or telephone directories (Milroy 1987). It is, moreover, advantageous to exploit the existence of networks of interpersonal contacts in the construction of an informant sample when more 'objective' measures are the alternative means of speaker selection, as the latter factors are not always a reliable guide to the social circumstances of the speaker.

During the collection of recordings of WC speakers the supply of informants dried up, and to achieve the desired number of recordings for this group it was necessary to make a second contact through a teacher at Rutherford High School. Four recordings were carried out there to complete the quota of working class speakers.

As a way of minimising the effects of self-consciousness or monitoring (i.e. counteracting the observer's paradox), the speakers, apart from those recorded at the school, were recorded in their own homes, or in the home of the person with whom they been asked to make conversation. They were requested to talk freely for approximately one hour, or as long as they could comfortably do so, on any subject. They were given to understand that there would be little input or interference from the fieldworker, but on a number of occasions it was necessary for the fieldworker to intervene when the conversation appeared to flag; she asked one or both of the informants direct questions in the expectation that this would prompt the conversational partners to resume their interaction.

The equipment used was a Sony professional-quality DAT recorder with a Sennheiser microphone which was placed facing the informants and away from the fieldworker. It seems from the content and nature of the conversations which were recorded that the speakers quickly became oblivious to the presence of the microphone, and that the ostensibly formal 'interview' situation did little to impede the naturalistic exchanges of ideas, information and opinions between either speaker. Oxley notes in the fieldwork report that only occasionally were questions directed toward her, and that it was rare for the pair of interlocutors to attempt to include her in the conversation. However, it should be mentioned that several of the speakers confessed after the conclusion of the recording that they had been using their 'telephone voice' or 'best English', contradicting somewhat the claim that the speakers became completely unaware of the tape recorder during the course of their conversation.³ In the sense that some of the more stereotypical features of Tyneside English such as [ɔ:] in words like *bird* or tags like [jə'na:] *you know* are comparatively infrequent, the corpus may represent a slightly more elevated style of speech than one might obtain using covert methods. However, given the ethical issues that forbid data collection in this way, it would seem that the corpus

³ Cf. Fred's question to the fieldworker (footnote 19, below).

used for this study is still sufficiently rich in phonological variation between speakers to be ideal for research of this sort.

The individuals who were chosen for the recordings were to a large extent self-selected: that is, through Oxley's initial contact, the subjects who were subsequently asked to have their speech recorded were spouses, siblings, or friends of one another. As suggested above, this is generally a well-guided and fruitful way to proceed - after all, it guarantees that the speakers used will not be linguistically isolated from others in such-and-such a social group - but on the other hand, to choose inadvertently an individual whose speech is atypical of the speech community at large may mean that this speaker is liable to come from or head a family exhibiting speech patterns as atypical as his or her own (say, a member of a family who has lived elsewhere for some period of time).

Table 5.2 lists the speakers whose recordings were used in the main study.

Table 5.2: Speakers used in the main study

SPEAKER GROUP	SPEAKERS' NAMES
OLDER MC MALE	Neil, David, Harry, Steve
YOUNG MC MALE	Will, Richard, Philip, Nick
OLDER WC MALE	Fred, Jack, Frank, John
YOUNG WC MALE	Mark, Craig, Brian, Ian
OLDER MC FEMALE	Brenda, Jean B., Jean E., Eileen
YOUNG MC FEMALE	Ruth, Alison, Victoria, Katherine
OLDER WC FEMALE	Sylvia, Ada, Sheila, Ann
YOUNG WC FEMALE	Tracey, Helen, Kelly, Lindsey

Each pair of speakers was matched for age and class, and wherever possible for sex. A number of the recordings are of mixed-sex pairs, but of these two are of married couples (Fred and Ada, Sylvia and Jack) and the other of siblings (Kelly and Lee). For the main study, the Kelly/Lee recording was omitted, with Kelly's conversation with Lindsey being used instead; Lee was dropped altogether as an informant for the main study, but was used in the pilot study (see §5.4).

As mentioned earlier, the informants were allowed to talk freely with one another on subjects of their choosing, after about 45 minutes of which they were instructed to read aloud a word list of some 150 items. The conversational material forms the backbone of the analysis presented in Chapter 7, while the word list material provides an insight into the sorts of stylistic variation that TE speakers exhibit when monitoring their speech in a more formal context.

5.1.4 Conversational material

The first, and main, part of each recording is composed of informal, unstructured conversation between pairs of speakers. In this way, a sample of the kind of day-to-day language Tyneside speakers use in normal interaction with friends, family and colleagues could be obtained. Assuming that patterns of variation and the dissemination of innovative forms are negotiated and agreed upon by speakers in the course of normal conversational exchanges, the likelihood of being able to detect and track such variation and change is greatest where access to these exchanges can be gained.

5.1.5 Word list material

In order to investigate whether TE speakers consistently use stylistic variation in their speech as a function of the formality of the linguistic situation, the design of the data collection incorporated a word list which, when presented to speakers, would elicit spoken forms which might differ from comparable forms found in the conversational material. Furthermore, by virtue of the fact that they are generally pronounced with greater 'care' on the part of the speaker, citation forms tend to be free of any interference by extraneous (word-external) phonetic or prosodic context, and are usually comparatively 'clean' in terms of background noise (from speaker overlap, interruptions, and so forth). The word list can be found in Appendix 1.

5.2 Transcription

The entire word in which each token occurred was transcribed, as closely as possible, using IPA symbols. The intention here was to provide a sufficient level of phonetic detail to allow a balance to be struck between the amount of useful articulatory, acoustic and perceptual information that could be recorded using the IPA alphabet, and the redundancy of providing an excessive degree of detail which would be surplus to the requirements of the study.

Despite the large number of individual variants which were transcribed for each variable, it was assumed that the phonetic parameters which would be of interest (such as height, degree of fronting, lip rounding, etc.) could be used as a means of subcategorising the set of tokens collected. A sample of 40 tokens in which up to twenty separate vowel qualities had been recorded would therefore prove unproblematic from the point of view of running statistical tests on the data, as these separate classifications could be collapsed into a workable set of two or three variants which would highlight rather than obscure the gross patterns of variation that might be observed in the data.⁴

The question of normalisation of data from the speech of male as opposed to female speakers, as well as older versus younger speakers, was not addressed at this stage. It is taken as implicit that the classification of individual vowel tokens by the researcher is carried out in a way that resembles the normalisation process used by the informants themselves. Hence, vowel qualities that were perceived by the author to be identical were transcribed as such, regardless of whom they were produced by. This issue is by no means trivial, but as seen in Chapter 2, the possible alternatives are perhaps equally subjective. Throughout the transcription process every effort was made to be as consistent as possible, though it is acknowledged that this methodology is itself fraught with problems. In view of the amount of data that would have been generated by instrumental analysis of 40 tokens for 32 speakers for five variables (even limiting the representation of each token to a maximum of four F1~F2 values),⁵ however, a trade-off between phonetic 'objectivity' and social breadth had to be struck. This is not to say that formant frequency analysis of Tyneside vowels would not be worthwhile or interesting, but as one would have to limit the number of speakers in order to make such a project realistic, one would need to be absolutely certain of the representativeness of the informants chosen. In other words, one would gain transcription consistency at the expense of the representativeness of the conclusions drawn on the basis of the results. Furthermore, the classification of phonetic events into phonological categories (phonemes, variables) is a necessity whatever methodology one adopts, and in the case of instrumental analysis almost as subjective as the use of impressionistic transcription, since one has to decide on the basis of subjective judgments as to which physical tokens fit which abstract type. The number and systemic role of phonological types is, of course, decided beforehand and is dependent upon impressionistic descriptions of the language, and in this way the objectivity of instrumental analysis is compromised to a large extent.

⁴ An alternative treatment of the data which would avoid reduction of the amount of detail in the transcriptions would be advantageous, in that any distortion of the results due to the simplification of the data could be compensated for. Such a treatment is sketched briefly in Chapter 9.

⁵ Two values for monophthongal variants (midpoint, or PMFD), four for diphthongal ones (start- and end-point, excluding obvious transitions).

The translation of (selected aspects of) speech signals into written symbols involves a great deal of subjective analysis of the sounds themselves on the part of the researcher in either case. The classification by means of a small set of atomic symbols of comparatively stable periods in the sound wave characterised by the localisation of acoustic energy in narrow frequency bands is an intricate process which brings a large number of cognitive factors into play, as we saw in Chapter 2. There is little space to discuss this fully here: some of the problems involved in the representation in the visual domain (written symbols) of objects in the aural domain (acoustic or auditory events) can be found in Vieregge (1987), Kerswill & Wright (1990), Nairn & Hurford (1995), or Cucchiaroni (1996).

5.2.1 Retranscription

So as to check the reliability of the transcriptions made for the main part of the study, a set of retranscriptions of a subset of the conversational material were made using exactly the same procedure as before. The retranscriptions were made several weeks after the original transcriptions were collected, so as to neutralise the effect of familiarity with the material and associations of particular phonetic forms with individual speakers. Retranscription of the conversational material was considered more important than repetition of the transcription of the word list data, as contextual factors, speech rate, and the general lack of fieldworker control over the production of each informant's speech means that the potential for mistranscription is a great deal more serious when one is dealing with spontaneous conversational speech.

For practical reasons, the number of informants used was reduced to eight - i.e. one speaker per cell - and the number of tokens to be collected for each vowel variable was reduced from a working minimum of 40 to a maximum of 25. In this way a comparison of the transcriptions - of the same material - would show whether the phonetic detail recorded during the first pass through the recorded conversations for each of the eight speakers reflected real acoustic characteristics of each of the vowel tokens in question, had been accidentally mistranscribed, or was simply spurious. An index (in this case a percentage of 'forms agreeing' as against 'forms disagreeing') could then be estimated for each speaker, and an impression of the overall fit between the two data sets arrived at. An agreement of more than around 85% between old and new transcriptions of the same material would appear to be adequate for a study in which impressionistic transcriptions of highly variable speech are used as source data; a figure in the region of 90% might constitute a threshold at which we can be fairly sure that the patterns detected in transcribed utterances reliably represent patterns that speakers themselves are actually using. Given the vast amount of inherent phonetic variability for each individual speaker, and variability between speakers within each speaker group, let alone variability

between groups, it might be unrealistic to expect agreement at a level higher than 19 tokens in 20 (95%), even where a particular speaker's samples for each variable are rather uniform. If we are to accept that a figure of less than 5% corresponds to statistical significance where correlations are being tested for, for example, agreement on the order of 90% can be considered well within a tolerable limit for error when we are dealing with the fit between two sets of data derived from qualitative, rather than quantitative, measurements.

The total number of vowel sounds transcribed does not meet the stated target of 1,000 tokens (i.e. 25 tokens of 5 variables, for 8 speakers), reaching a total of 801 tokens. The shortfall, which is on the order of between four and five tokens per variable per speaker, is accounted for by the fact that the retranscription was done 'blind', whereby the first 25 tokens of each vowel variable were transcribed without reference to the original transcription. This meant, in many cases, that the material being transcribed on the second pass was drawn from a slightly earlier part of the recording than was the first, and thus one or two tokens do not match up on either end. Each of the tokens were classified into broader variant categories according to the criteria described in Chapter 7.

Most of the speakers chosen were speakers other than those used for the pilot study, as familiarity with the recordings made of the pilot study speakers (whose conversational material was already used twice before the retranscription exercise) might have begun to interfere with the 'objectivity' of the transcription process. Speakers Harry & Nick (MC), Brenda & Victoria (MC), John & Mark (WC), and Sheila & Kelly (WC) were selected, more or less at random, as speakers whose samples were to be retranscribed.

The overall agreement figure for the five variables attained 89.4%, which is comfortably within the range desired. The figures for the FLEECE and GOOSE variants exceeded 95% agreement, while the retranscription of GOAT variants was at 92%; those for FACE and NURSE were at approximately 85%. The original transcriptions form the basis for the present study.

A second means of estimating the reliability of the transcriptions comes in the form of transcriptions of the same material made by other listeners. James and Lesley Milroy's parallel studies carried out on these and other Tyneside vowel variables using the PVC corpus agree very closely with the figures presented below and in Chapter 7. Lesley Milroy's figures for 1,112 tokens of FACE and 1,130 of GOAT (Milroy 1996, 1997), for instance, correspond extremely well to my own: in both cases the fit between the scores is very highly significant (FACE $r = 0.939$; $p < .002$ where figures for [e:] and [ɪə] are compared; GOAT $r = 0.959$; $p < .002$ where [o:], [ʊə], [ə:] and [ou] are compared; see the next section for an explanation of

what these figures represent). Thus we can be doubly certain that the figures upon which this thesis is based are reproducible (see also Watt & Milroy, forthcoming).

5.3 Statistical analysis

Tests for the statistical significance of certain distributional patterns in the data collected for this study were made using log-linear models.⁶ The chief advantage of this technique as applied to the data presented in Chapter 7 is that it permits the effects of more than one independent categorical variable to be measured simultaneously, and allows the best model of the data to emerge by iteratively fitting successively more complex models. In this way models are 'tried out' until a satisfactory result is obtained. The general criteria for the evaluation of the models are (i) that a model should contain as few effects or terms as possible (i.e. the most parsimonious model is the best one) and (ii) the difference between the expected or predicted frequencies and the observed frequencies should be acceptable. Log-linear models are effectively an elaboration of the χ^2 test: the terms originally multiplied in χ^2 analysis are replaced by a linear combination of logarithmic terms (hence log-linear model). χ^2 tests are in fact carried out on each consecutive model until a 'saturated model' (one containing the maximal number of effects) is reached. The saturated model will, by definition, yield a perfect fit between the expected and the observed frequencies, with an associated χ^2 of zero. One thus aims to find strong effects for the independent variables in the first few models one fits, since the probability scores obtained - even those which surpass the 5% significance threshold used here - become increasingly difficult to interpret with each successive pass (see Rietveld & van Hout 1993: 299-302; Christensen 1990). The inclusion in the models of a variable which takes within-group variation into account ensures that the effects reported for the social variables are greater between groups than within groups; this is clearly of importance where hypotheses depending upon relative homogeneity within each speaker group are to be tested. The software used for the statistical analysis of the conversational material was the Numerical Algorithm Group's *GLIM* program, version 3.77, running on an IBM-compatible PC. For the subsequent tests for correlations between pooled speaker group scores for paired variables, Pearson product-moment correlation coefficients, denoted by r , were calculated using *Minitab*, version 10. A linear coefficient approaching 1 indicates that two series of data are increasingly closely correlated (Hatch & Farhady 1982: 192-203). From these coefficients, probability values were estimated using Table 6.2 of Neave's *Statistics Tables* (1978:58). So, for example, for two samples of 32 observations apiece, a Pearson coefficient r of 0.396 would be significant at the 5% level ($p < .05$; $p >$

⁶ I am indebted to David Walshaw for his assistance and advice with statistical matters throughout the course of this research.

0.01), while $r = 0.328$ would not. Note that it is not usually possible to arrive at exact p values using this technique, since Neave's tables give critical values only.

The choice of linguistic variables for analysis in the main study were arrived at through the findings of a small-scale pilot study carried out in autumn 1994. These findings are reported in the next section.

5.4 Pilot study

This section is comprised of a description of a small-scale pilot study which was carried out using the PVC corpus material. The pilot study was intended to provide an overview of the kinds of variability to be found in the corpus, and to suggest a number of vowel variables whose variants might be linked to the social parameters age, sex and social class in terms of their distribution across the sample. Patterns of variability in the phonetic realisations of the variables selected, furthermore, might be revealing in terms of the structure of the phonology of the Tyneside vowel system, since it would be hoped that the internal symmetry and coherence of vowel systems - if these are to be meaningful concepts - be apparent at the surface level. The interaction of phonetic variability and the social factors used in the design of the corpus, in combination with previous descriptions of the phonology of the Tyneside vowel system, it was hoped, would provide an interesting picture of the interface between surface phonetic events and underlying phonological structure. In addition, the use of greater or lesser proportions of particular phonetic variants in the speech of the informants would reveal a number of the ways in which TE speakers organise themselves into various social groups.

The pilot study uses virtually the same methodology as that used in the main study described in Chapter 7, and had a twofold function: first, an confirmatory function, and second as a exploratory one. That is, its purpose was to demonstrate that the sorts of variation phenomena one might wish to investigate in this variety were salient enough to lend themselves to a large-scale analysis using conventional methodology. At the same time, it was anticipated that additional phenomena (such as previously undescribed phonetic variants, or counterintuitive patterning of speech forms) might be discovered in the corpus material during the transcription or data analysis process.

A brief outline of the pilot study methodology runs as follows:

1. *Selection of linguistic variables*
2. *Initial selection of phonetic variants of linguistic variables*
3. *Selection of subset of speakers*
4. *Transcription of conversational material*
5. *Transcription of word list material*
6. *Categorisation of individual tokens into variant types*
7. *Results and discussion: analysis and interpretation of data*
8. *Elimination of linguistic variables, where appropriate*
9. *Proposal of candidate linguistic variables for main study*

Each of these steps is discussed in more detail below.

5.4.1 Selection of phonological variables

While part of the aim of the pilot study was to establish which vowel variables in Tyneside English would be worthy of study from a variationist perspective, to some extent the choice of variables was determined beforehand. In this sense the pilot study is not purely exploratory but seeks to confirm that the kinds of variation discussed in previous accounts are still extant in Tyneside English, and that they might be fruitful as objects of study in the context of accent levelling as a linguistic phenomenon.

In total, nine vowel variables were investigated in detail for the purposes of this thesis. All of these are systemically monophthongs, and of these all but two are phonemically long. The pilot study outlined below is a study of six of these.

Suggestions for variables to investigate came from several quarters, as listed under (a) to (d) below.

a) Previous descriptions of the phonology of Tyneside English

The most obvious candidates for a study of this kind are the salient phonological variables which can be considered to be more than the comparatively neutral *indicators* - instead, they should be *markers* (Labov 1966 *et passim*) which can be shown to be stratified along social lines. Some may have, of course, already achieved the status of *stereotypes* or 'phonological icons'. Since the latter were, until recently, virtually the only features that were commented on in formal and informal descriptions of nonstandard varieties of English, we find numerous references to such conservative phonetic forms as [wa:k] for *walk* or [na:] for *know* in

practically all treatments of TE. Forms such as these, then, seem a viable starting-point for an assessment of the current state of the Tyneside vowel system.

Other technical sources, such as sample findings from the Tyneside Linguistic Survey project or Zuydam's (1987) dissertation are useful from the point of view of targeting specific features of the Tyneside accent, since these had both discussed vowel variability which would clearly benefit from further, more detailed, investigation.

The role of indirect evidence and non-technical descriptions of the pronunciation of Tyneside English should not be underestimated in this context. Attempts by non-linguists to indicate localised pronunciations using orthographic conventions such as <ur>, as in *a lurd of blurks* (Viz 88), or <or> in *Horvud Yoonivorsity (Harvard University)* to represent both /ɑ:/ and /ɜ:/ (Jennings 1995:118), are useful from the point of view of revealing both what is salient to locals and non-locals about Tyneside accents, and of the vowel qualities themselves. The informal dialect dictionaries (e.g. Todd 1987, Graham 1987) can also be helpful in this capacity, bearing in mind the fact that they tend to condense as much non-standard phonology and lexis into as small a space as possible. Beal (1998) champions the use of such sources as important contributions to our understanding of non-standard English on Tyneside and elsewhere, since in the virtual absence of detailed technical treatments of urban varieties before the 20th century, the dialect poetry, songs, misspellings and idiosyncratically spelled reported speech are the only information we have available to us.

b) Suggestions made by researchers on the PVC project

As research on TE phonology within the PVC project has tended to concentrate on consonantal features, there was clearly scope for analysis of socially-conditioned vowel variability using a similar methodology. Initial studies of some of the variables used in the pilot study, and four of those examined in the main study, had been carried out by James and Lesley Milroy prior to and concurrently with the present investigation, providing useful corroboration with the findings presented here (see §5.2.1, above).

It was considered important, however, to avoid excessive overlap of work carried out here in Newcastle and similar work on vowel variability being conducted at the University of Michigan, and for this reason certain vowel variables (specifically, the PRICE and MOUTH diphthongs) whose phonetic exponence is thought to be related to the social characteristics of Tyneside speakers have been overlooked in the study reported here.

c) *Previous exposure to the variety in informal contexts (literature, television, film, radio, theatre, personal contacts)*

Tyneside English is probably given more exposure today at a national level than it ever has been: the popularity of television shows such as *The Likely Lads* (first broadcast in 1964), its sequel *Whatever Happened to the Likely Lads?*, *Auf Wiedersehen Pet*, *Spender*, *Crocodile Shoes*, *Byker Grove* and *Our Friends in the North* has contributed a good deal to this over the past three decades. It is for football that Newcastle is particularly famous, however. The increased amount of attention the national media has paid to Newcastle and north-east England in general over the past few years following the success of Newcastle United Football Club is another part of this awareness-raising process. Given the cultural and linguistic revival in Tyneside (Beal 1998), which some commentators go so far as to call a 'renaissance' (e.g. Morrison 1994), many of the commonly reported misconceptions encountered about Newcastle in other, even northern, parts of England - that Newcastle is in Scotland, for example - are likely to disappear.⁷

The novels of the late Dame Catherine Cookson, which are typically set in working-class areas of the north-east during the nineteenth century, are enduringly popular in Britain and around the world. In 1997, her books made up nine out of the ten most borrowed works in British libraries for the second year running.⁸ Many of Cookson's characters, as far as orthography permits, are depicted with broad Tyneside accents and frequently use local dialect words and expressions. Her novels *The Black Candle*, *The Black Velvet Gown*, *The Fifteen Streets* and *The Gambling Man* have been made into television films. Clearly, then, she has done more than most to familiarise readers and viewers around the world with aspects of Tyneside pronunciation and lexis that would otherwise go unnoticed on such a scale. Cookson died on June 11th 1998, having written over 100 novels, which combined sold over 100 million copies in 18 languages, making her one of the most widely read novelists of all time.

⁷ The linguistic similarities between rural and urban Northumbrian English and Lowland Scottish English, as we saw in Chapter 4, is no doubt a factor contributing to this perception. Beal (1993:189-190) credits Lowland Scots as 'the strongest influence on the dialects of Tyneside and Northumberland', though given the common origin of Scots and Northumbrian English, she sees this 'continuing close relationship between Scots and Northumbrians [as having] served to maintain and reinforce the linguistic similarities between their dialects'.

⁸ Source: *Keystrokes* online magazine 10(1, part ii). URL: <http://www.writelinks.com/keystrokes/keys1-10b.htm#Cookson>.

d) Knowledge of general patterns of variability in the vowels of other varieties of English (and other languages)

Since the phonemes of vowel systems in structural phonological models are, by definition, organised into sets of mutual oppositions to one another, and principles such as front-back symmetry (Crothers 1978; Schwartz *et al.* 1997) and maximisation of contrast (Liljencrants & Lindblom 1972) are believed to constrain their possible configurations with respect to one another, analysis of proximate or 'paired' phonemes might be fruitful here. In this sense, it is logical, if one is interested in the variability in the FACE vowel, for example, to observe simultaneously the behaviour of GOAT, assuming that these variables are both found in the system. Similarly, inconsistency in the production of TRAP might have consequences for START, and so on.

On the basis of the criteria above, then, a total of six vowel variables were selected for analysis in the pilot study. These variables are listed below, accompanied by mnemonic keywords as per Wells (1982:§2.2); see Appendix 2 for information on the lexical content of these word classes. Note that four of these sets are notated by multiple keywords: this indicates that Wells' classes are not entirely appropriate for our purposes here, as they are tailored to conform to phonological distinctions pertaining specifically to RP and General American English. The THOUGHT versus NORTH-FORCE distinction, for example, is not relevant to TE, since the modern form of the dialect is non-rhotic. The mergers proposed here are based roughly on the set of distinctions used by younger working-class speakers in the PVC corpus (though see below).

- | | | |
|----------|----------------------------|-------------------------|
| (e) FACE | (a) TRAP~BATH ⁹ | (o) NORTH~THOUGHT~FORCE |
| (o) GOAT | (a) PALM~START | (o) LOT~CLOTH |

For the sake of clarity and convenience, the merged classes TRAP~BATH, START~PALM, NORTH~THOUGHT~FORCE and LOT~CLOTH will be referred to by using the first keyword only: that is, by TRAP, START, NORTH and LOT. It should be borne in mind that the linguistic behaviour of our Tyneside informants allows them to be located on a scale from 'markedly local' to 'RP-influenced north-eastern English' and that the membership of these lexical sets will vary accordingly. We may expect to record pronunciations which allow certain items to alternate between one lexical set and another: for example, the form *can't* may be classified as a member of both the TRAP and START classes, just as various pronunciations of the word *do*

⁹ These sets are not distinguished in Tyneside English, both taking [a(:)]. Note, however, the exceptions *master*, *plaster*, *disaster* reported by Beal (1985, 1994), which take [ɑ:] and may 'hover', to use Wells' expression, between the TRAP~BATH and START~PALM sets.

may lead to its inclusion as a member of the GOOSE, FACE and FLEECE classes simultaneously.¹⁰ Such variability is hypothesised to correlate closely with the social factors by which our informants are classified.

FACE and GOAT, as is discussed more fully in §5.4.6, are both extremely salient in terms of their phonetic variability, and are hence good candidates as sociolinguistic markers in TE. As 'mirror images' of one another by the principle of symmetry, one might expect these vowel categories to have rather similar phonetic exponents, as well as expecting these exponents to have comparable distributions with respect to the social characteristics of the speakers using them.

5.4.2 Initial selection of phonetic variants of linguistic variables

The vowel of TRAP is said by Wells (1982:375) to vary in length according to the characteristics of the following final consonant or consonant cluster. Thus, for example, by virtue of the voicing of the final consonant(s) *lad* is [la:d], *band* is [ba:nd], but *slant* and *laugh* take [a]. Included in the set which may take long [a:] are the THOUGHT items *walk*, *talk*, *all*, *wall*, *war*, etc., and GOAT set words like *snow* and *cold*, though probably for the most conservative Tyneside English speakers only (see Viereck 1966, Hughes & Trudgill 1979, Beal 1994). In the analysis described here, on the other hand, those THOUGHT forms taking [a:] are classified differently, being treated as alternative pronunciations of [ɔ:]. Thus *walk*, *talk*, etc., take the unmarked [ɔ:] but may on occasion be heard with the traditional [a:].

START, is reported to be realised either by an RP-like [ɑ:] or by a rounded [ɒ:] in Tyneside English. According to Pålsson (1972), the rounding on (ɑ) where it is followed immediately by etymological /r/ in forms like *cart* or *farm*, and at a greater distance in *master* and *plaster*, is a function of the tongue retraction involved in the articulation of the traditional Northumbrian uvular fricative or trill: so-called 'burr retraction' or 'burr modification'. More precisely, the rounding is the final outcome of a change which brought [e:] or [ɛ:] in *master*, *plaster*, *cart*, *farm* to [ɑ:] and ultimately to [ɒ:]. Beal contends, however, that 'burr-modification... of [e:] to [ɑ:] in *master*, *plaster*, *cart*, etc. is a feature of the twentieth century, depending as it does on the rapid and recent loss of post-vocalic [r] in [Northumbrian] dialects' (1985:42; see also Chapter 8). Thus, a causal relationship between tongue retraction and lip rounding is posited where the articulatory motivations for such a relationship are less

¹⁰ A central problem in the analysis of any vowel system, particularly a complex one like that of Tyneside English, is the difficult question of the assignment of phonetic forms to phonemic categories. Allophonic alternations are readily accounted for by phonological conditioning, but such alternations are rarely categorical at the fine-grained phonetic level at which we are working here, and may vary across the variety to such an extent that social conditioning may provide a more plausible account of the observed variation. The possibility that sound change is taking place by lexical diffusion complicates matters still further.

than clear, especially since the vowel retraction is supposed to have taken place after the disappearance of the feature that precipitated it in the first place. It was not anticipated that forms containing [e:] or [ɛ:] would be found in the PVC corpus, but it seemed reasonable to expect to find plentiful evidence of the rounding of START to [ɒ:] given that Beal reports this to be a comparatively recent feature of the variety.

The vowel of NORTH, (ɔ), is variable in Tyneside English to the extent that there appears to be a good deal of phonetic overlap between it and several other elements in the vowel system. Firstly, the reported merger of NORTH and NURSE would not only entail a greatly enlarged lexical set, but would imply the existence of a large range of phonetic possibilities given that the central area of the vowel space would be comparatively clear in the absence of a stressed long central vowel (see Hughes & Trudgill 1979:66). Therefore, the scope for phonetic variation in this lexical set might potentially be larger than for other vowels in the system. Secondly, the vowel space appears to be rather crowded toward the open back area, and one might expect speakers, all other things being equal, to favour variants which promote discriminability of vowel qualities from one another. Words of the NURSE set, however, were not grouped with NORTH, as the status of the merger of these two sets is in doubt. Identification of NURSE words is made on the basis of etymology with reference to the pronunciation of NURSE forms in varieties where no such merger is reported to have taken place.

LOT may be of interest in Tyneside English, as the traditional form in Northumbrian English is an open-mid front rounded [œ:] in words of this set. John Local¹¹ reports its occurrence in recordings made for the Tyneside Linguistic Survey in the 1960s and '70s, while Krause (1989, cited by Rydland 1998) reports that in the rural Northumbrian English of Lowick, Northumberland, the traditional front rounded [œ(:)] in the LOT and CLOTH sets (as well as a few GOAT words) is still extant. It is therefore possible that such pronunciations might be heard in conservative Tyneside English. Lowick, on the other hand, is a small village located around 50 miles north of Newcastle and speakers living there are likely to have retained such forms far longer than urban Northumbrian speakers would be expected to do. At best, then, we might expect pronunciations like [lœ:t] (for *lot*) to be found sporadically in the speech of our older Tyneside speakers, and as no recent descriptions of Tyneside English make mention of such forms in words of this lexical set their existence in such positions is a matter, for the moment, of speculation.

With these six vowel variables as a starting point, then, an investigation of the phonetic characteristics of the vowel systems used by a sample of Tyneside speakers can be begun.

¹¹ Personal communication. [œ:] appears 'regularly with 'surrounding' labials'.

5.4.3 Selection of subset of speakers

Eight speakers, or one speaker per condition, were chosen from the total of 32 for the pilot study. These speakers were selected more or less at random, although for the sake of speed the recordings of working class speakers where a male and a female speaker were recorded together (viz., Fred with Ada and Kelly with Lee) were used. It is possible, indeed probable, that the interaction of the conversational partners in these two pairs was slightly different in nature from that where speakers were paired male-male or female-female, but since Fred and Ada are married partners and Kelly is Lee's sister, any effects this may have produced would be minimised.¹² They are in any case likely to be incidental to the general aim of the pilot study, which was to establish a set of likely linguistic variables to investigate further.

The eight speakers used are shown in Table 5.3.

Table 5.3: Speakers used in the pilot study

	Male		Female	
	MC	WC	MC	WC
Older	Harry	Fred	Jean	Ada
Young	Will	Lee	Victoria	Kelly

5.4.4 Transcription of conversational material

The transcription of the conversational material (henceforth FC = 'free conversation') was carried out first. Guy (1980) recommends a minimum of thirty tokens of each variable in studies of this kind, and so a total of between thirty and forty tokens per vowel category was aimed for per speaker. The tokens used had to bear primary word stress, as this would go some way to eliminating variations in vowel quality as a function of the shorter duration and 'undershoot' effects observed in vowels in unstressed syllables (e.g. Lindblom 1983). For FACE, GOAT, TRAP, NORTH and LOT this was unproblematic, since these vowels occur extremely frequently in English. The infrequency of START, however, meant that sample sizes were comparatively small, even when the entire c. 50-minute conversation session was passed through.

¹² It is interesting, however, to note that Kelly's speech behaviour is noticeably less confrontational when she is recorded in interaction with her female friend Lindsey; Lee, as Kelly's older brother, clearly prefers a somewhat combative conversational style when interacting with his sister. In the main part of the study, however, the Kelly/Lindsey recording was used and the 'sibling rivalry' factor is eliminated.

The entire word in which each token was found was transcribed as closely as possible using IPA symbols. A ceiling of ten iterations of the same word was imposed in order that a range of lexical items in each of the sets be collected; in all sets samples of this size would otherwise be dominated by very frequent items. The paucity of START items in the speech of the eight informants meant that this criterion had to be relaxed, however.

5.4.5 Transcription of word list material

The patterns found in the conversational material for TRAP, START, NORTH, LOT, FACE and GOAT are to a certain extent repeated in the word list style (henceforth WL), though, as anticipated, they are somewhat 'levelled' with respect to one another and to a set of non-local targets. Indeed, the phonetic exponents of the TRAP, NORTH and LOT variables are so invariant across the samples for the eight speakers that it is easy to justify the claim that these do not vary in any interesting way in Tyneside English; effectively, these vowels do not differ from the analogous vowels found in other northern English varieties.

The word-list itself is not ideally designed for the elicitation of a comprehensive set of vowel productions, however. The vowel of CHOICE, for example, is not represented anywhere. Other vowel classes are catered for to a greater or lesser extent, since in the design of the word list it was considered more important to include items intended to elicit various consonantal features of Tyneside English (glottalling and glottalisation, /t/→[r], and so forth) than to ensure a balanced spread of items exemplifying each vowel contrast in a set of lexical and phonological contexts.

The range of phonological contexts and etymological categories that is provided by the items on the word list is thus rather limited, and part of the reason for the absence of much in the way of variation may be the small number of stimuli for each vowel category. NORTH, for example, is exemplified by just five words (*caught*, *daughter*, *chortle*, *haunt* and *bought* in *I bought it*), and of these the vowel in all but one item precedes [t]; similarly, START is catered for by *cart*, *can't*, *carter*, *half-past* and *half-cut*. In the latter case, we might expect to see a lack of consensus on the pronunciations of *half* (supra-local [a] vying with typically Tyneside [ɑ:] or [ɒ:]) and possibly *can't*, which was read as [l^hanət] by one older WC male whose sample was not included in the pilot study. Given that for these two vowels we can expect a maximum of 40 tokens for the entire speaker group, the uniformity of responses is hardly surprising.

Each of the vowel variables examined for the pilot study is discussed in more detail in §5.4.6 below.

5.4.6 Categorisation of individual tokens into variant types

TRAP, START, NORTH, LOT

On the basis of previous descriptions and impressions drawn from preliminary passes through the recordings, it appeared that for TRAP, START, NORTH and LOT the variants fell clearly into pairs, as indicated in Table 5.4.

Table 5.4: Variants of TRAP, START, NORTH and LOT

Variable	Variant 1	Variant 2
TRAP	[a] e.g. <i>bat</i> [bat]	[a:] e.g. <i>bad</i> [ba:d]
START	[ɑ:] e.g. <i>calm</i> [kɑ:m]	[ɒ:] e.g. <i>farm</i> [fɒ:m]
NORTH	[ɔ:] e.g. <i>form</i> [fɔ:m]	[a:] e.g. <i>all</i> [a:l]
LOT	[ɒ] e.g. <i>cot</i> [kɒt]	[œ:] e.g. <i>lot</i> [lœ:t]

Analysis of the distribution of these variables is consequently fairly straightforward.

FACE and GOAT

It became clear very quickly, however, that the very wide range of phonetic values recorded for the variables FACE and GOAT would necessitate their subsequent categorisation into a smaller number of variant sets. Many of the individual vowel qualities were in any case recorded on so few occasions as to warrant their absorption into a generalised categories such as 'monophthongal' or 'fronted'. Similarly, phonological conditioning of variants cannot be investigated with a sample as small as that used in this pilot study, so any effects of preceding or following context on the choice of variant used are overlooked for the time being.

The hypothesised symmetry between the close-mid vowels of FACE and GOAT is reflected in the fact that both of these vowels clearly exhibit very similar patterning with respect to the phonetic characteristics of their variants. The most frequent variants found in the limited corpus used for this pilot study are the monophthongs [e:] and [ɔ:], which vary somewhat in length according to the voicing status of the following consonant (see Viereck 1966:68-69), though this variation, which appears to be allophonic and thus more or less categorical, is not of special interest here. FACE and GOAT are both heard as centring diphthongal variants with peripheral or near-peripheral nuclei followed by glides to [ə], which is either fully central or slightly more open than this (often notated [ɐ] in the main study reported in subsequent

chapters, and the descriptions provided by other researchers). Lastly, both vowels can be heard as upgliding diphthongs [eɪ] and [ou], similar to those which can be heard in midland and southern varieties. In the case of GOAT, the nucleus of the diphthong may be fronted to some extent, as per RP.

The fronting of GOAT may apply also to monophthongal realisations of this vowel, which disrupts the symmetry obtaining between the phonetic exponents of FACE and GOAT, since FACE has no counterpart to this variant.¹³ We find with great frequency, particularly in the speech of our male Tynesiders, the fronted form [ø:], which appears to be a development of the archaic [ø:] as a variant of the the vowel of TE GOAT.¹⁴

The phonetic values recorded for FACE and GOAT, and the categories into which these were collapsed, are shown in Tables 5.5 and 5.6. For the sake of convenience, monophthongal variants are indicated by the symbols [e:], centring diphthongs by [ɪə] and [ʊə], and upgliding, RP-like diphthongs by [eɪ] and [ou], though as can be seen the actual qualities recorded in each of these categories vary somewhat from these 'reference' values. The symbols are ranked in terms of frequency of occurrence, most frequent at the top of each column.

Table 5.5: FACE: phonetic values collapsed into variant categories

<u>e:</u>	<u>ɪə</u>	<u>eɪ</u>
[e(:)]	[ɪə]	[eɪ]
[ɛ(:)]	[iə]	[ɛɪ]
[ɪ(:)]	[eə]	
[i]	[ɛə]	
[ɪe]		

¹³ A centralised [ë:] may occasionally be heard in certain contexts. It appears that a following nasal consonant promotes the use of this particular variant, suggesting that the recorded centralisation may instead be mistranscription as a consequence of nasalisation. Here we have an example of the potential unreliability of impressionistic IPA transcription.

¹⁴ See Rydland (1995, 1998) for a discussion of the distribution of front rounded vowels (specifically, [ø:]) in the English of two Northumberland villages.

Table 5.6: GOAT: phonetic values collapsed into variant categories

<u>O:</u>	<u>Uə</u>	<u>Ə:</u>	<u>OU</u>
[o(:)]	[ʊə]	[ə(:)]	[ou]
[ɔ(:)]	[oə]	[ɐ(:)]	[əʊ]
[u(:)]	[øə]	[ø(:)]	[ɔʊ]
[uo]	[eə]		[əʊ]
[oɔ]			

Such collapsing together of sometimes very different phonetic qualities is justifiable on two counts. First, the analysis of correspondences between linguistic variation and the social characteristics of speakers can only be practical if the range of variants is restricted. This is particularly the case where formal statistical modelling of data is to be carried out. Given that these transcriptions are made using purely auditory methods, and that the speakers used in the pilot study were of different ages and sexes, it is inevitable that some of the fine-grained variation will arise as a by-product of, for example, the differing voice qualities of each of the informants, and a host of other factors such as the characteristics of segments neighbouring the vowels themselves (/r/-colouring, nasalisation, palatalisation), prosodic features (intonation, stress), speech rate, and certain discourse functions - turn-final lengthening, for example - of items in which the relevant vowel segments appear. With these considerations in mind it seems reasonable to distil the surface variation into a manageable set of categories, taking care to ensure that the variants proposed reflect the sorts of variants which speakers themselves are likely to use.

Secondly, the fact that many of the variants recorded in the pilot study occurred only once or twice (in a sample averaging slightly over 300 tokens for all variables save START) means that they are unlikely to be of any great significance as far as speakers of Tyneside English are concerned. One possible exception to this is the case of the upgliding diphthongs [eɪ] and [ou], which are rather infrequent, but are clearly liable to be of relevance in the discussion of sound change with reference to accent levelling which constitutes the theme of this study. These variants, though rare, should be assigned to a category of their own, as there are suggestions that they are in all probability representative of a related set of innovations being implemented in the variety by younger speakers. This issue is raised in the discussion of the results of the pilot study, which are presented in the next section.

5.4.7 Results: quantification of data

Conversational material

The results of the pilot study are divided into two sections. The results for those variables having two variants are treated first, while the results for FACE and GOAT are dealt with separately.

TRAP, START, NORTH, LOT

Table 5.7 shows the results, speaker by speaker, of the analysis of TRAP, START, NORTH and LOT. In each pair of columns, the results for the 'marked' (traditional, conservative, archaic) variant is found on the right.

Table 5.7: Results of pilot study for TRAP, START, NORTH, LOT

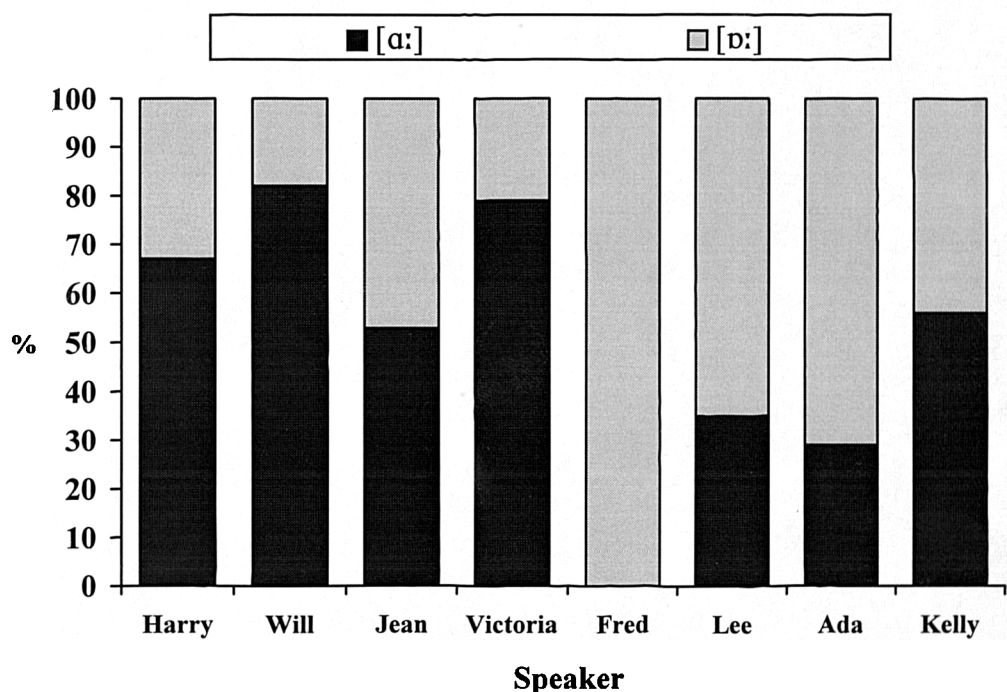
	TRAP		START		NORTH		LOT	
	[a]	[a:]	[ɑ:]	[ɒ:]	[ɔ:]	[ɑ:]	[ɒ]	[œ:]
Harry	40	-	6	3	36	1	35	-
Will	38	-	14	3	35	1	27	-
Jean	40	-	8	7	40	-	32	-
Victoria	38	-	11	3	37	-	37	-
Fred	37	-	-	13	37	-	31	-
Lee	39	-	7	13	32	-	27	-
Ada	39	-	2	5	36	2	35	-
Kelly	39	1	5	4	30	-	34	-

It is clear from Table 5.7 that it is only the vowel of START that varies to any great extent. Problematically, this is also the least frequently recorded of the six variants looked at in the pilot study, with all samples being significantly smaller than the minimum stipulated sample size of 30 tokens. These figures should therefore be taken as a rough guide only. However, the distribution of the 'marked' variant of this vowel, [ɒ:], is broadly as anticipated: it is the form preferred predominantly by working-class speakers, and by older speakers within both groups. Young middle-class speakers, who are believed to be leading a set of sound changes away from marked local forms in Tyneside English, strongly prefer the unmarked, unrounded variant [ɑ:]; to some extent this pattern is echoed in the sample for the young working-class

speakers, in that a comparison of the figures for the YWC M and YWC F speakers with those for the corresponding older speakers reveals that the young male and females may similarly be moving away from [ɒ:] as a variant of the START vowel.

The small sample sizes for this variable, as mentioned before, preclude any serious interpretation of these figures, but these general patterns may be easier to visualise if the figures are converted into percentages (rounded to the nearest whole number) and presented in graphic form, as in Figure 5.1.

Figure 5.1: Distribution of variants of START, all speakers, FC style (%)



From a lexical point of view, there is little evidence that the choice of [ɑ:] over [ɒ:] - or vice versa - in words of this set is determined by the etymological or phonological characteristics of such words. The items that were recorded (for all eight speakers) are listed below:

are, Army, bar, barbecue, barbie, barber's, barn, can't, car, card, cars, charcoal, Derbyshire, far, farms, garden, gardener, half, hard, harder, hardly, larking, larks, market, park, parliament, part, rather, retarded, Sara, start, started, starts, yard

Virtually all the words recorded in this category are of the <ar> type (Wells' more restricted START set), and since the exceptions *can't*, *half* and *rather* are, like the <ar> items, pronounced using both variants, it would not be accurate to say - at least on the basis of the small sample described here - that there appear to be any consistent correspondences between lexical item and choice of [ɑ:] or [ɒ:]. What variation there is, then, can be accounted for by the social factors alone.

The scarcity of this vowel in the speech of the eight Tyneside speakers sampled in the pilot study was taken to be representative of the corpus as a whole, and so it was decided that in-depth analysis of this variable using statistical methods might be frustrated. For this reason, START was eliminated. TRAP, NORTH and LOT were likewise discarded as variables of interest. Variation in the production of TRAP and LOT in Tyneside English, as far as the traditional forms reported in the literature are concerned, appears effectively to have levelled out. NORTH will reappear later, in the main study, with reference to its reported merger with words of the NURSE set, but is deemed here to be of interest only in the context of this merger.

The results of the analysis of FACE and GOAT, on the other hand, are of larger potential significance, as these vowels appear to vary a great deal phonetically, this variation, it is hypothesised, being tied to the social characteristics of Tyneside English speakers.

FACE

Table 5.8 shows the distribution of the three variants of FACE among a sample of 301 tokens. While the unmarked variant [e:] is generally favoured over [ɪə], and [eɪ] is very infrequently used (except by young MC female Victoria), a pattern related to the social factors sex, age and social class can be discerned. The smaller figures in parentheses in Table 5.8 represent the percentage scores corresponding to each figure.

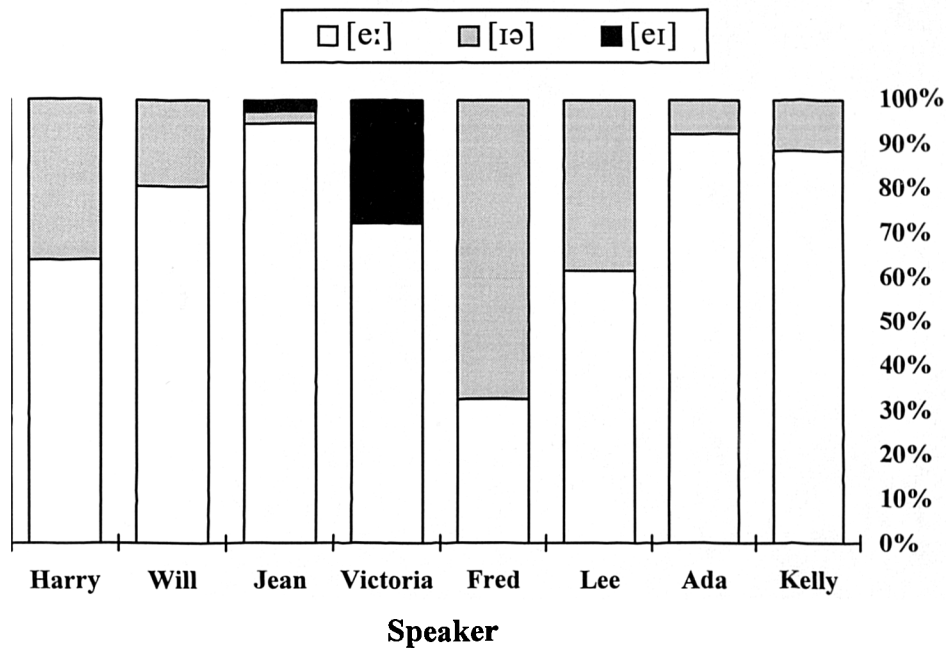
Table 5.8: Variants of FACE, all speakers, FC style (% in parentheses)

	[e:]	[ɪə]	[eɪ]	Total
Harry	23 (63.9)	13 (36.1)	-	36
Will	29 (80.6)	7 (19.4)	-	36
Jean	37 (94.9)	1 (2.5)	1 (2.6)	39
Victoria	26 (72.2)	-	10 (27.8)	36
Fred	13 (32.5)	27 (67.5)	-	40
Lee	24 (61.5)	15 (38.5)	-	39
Ada	37 (92.5)	3 (7.5)	-	40
Kelly	31 (88.6)	4 (11.4)	-	35

The use of the traditional centring diphthongal variant, [ɪə], is typically avoided by female speakers, while for one male speaker (OWC Fred) it is in fact the 'default' variant. Indeed, the pattern is almost exactly as one might predict, with the older male speakers using centring diphthongs a great deal more than their young counterparts, in both classes. For female speakers the traditional variant is more or less absent (save for eight tokens of a total of 150, or just over 5%), though young WC female Kelly's four tokens comprise some 11% of her sample. Given Kelly's much lower score for the same variant in the main study where the recording of Kelly in conversation with her female friend Lindsey was used (see §7.3.1), it is suggested that in the present case she may be accommodating to her brother Lee, who uses the centring diphthong in over a third of his sample.

Charting these percentages as in Figure 5.2, for the purposes of more direct comparison, the pattern becomes a little clearer.

Figure 5.2: Distribution of FACE variants, all speakers, FC style (%)



In both social classes, the distribution of the centring diphthong is rather similar: the age-related pattern, whereby older males Harry and Fred use [ɪə] a good deal more than do the young males Will and Lee, is reversed for females. That is, the local form is avoided almost categorically by older females Jean and Ada (as is the 'prestigious' form [eɪ]). The young females Victoria and Kelly use the marked variants [e:] and [eɪ], but differ in their choice of these variants. As the prestigious form is likely to be associated with social class, one might expect Victoria to use it more than Kelly; in the small sample above we see that Kelly's use of the unmarked variant [e:] is nearing categoricalness and [eɪ] is not recorded at all.

These patterns should be compared with those discussed in the following section, as they provide some evidence that the symmetrical, or mutually dependent, relationship between FACE and GOAT is indeed a feature of the phonology of Tyneside English, and that speakers exploit this for the purposes of social marking.

GOAT

The vowel of GOAT, as discussed earlier, has one 'extra' variant by comparison with FACE in TE, so we are dealing here with a four-way split in the distribution of its variants. The presence of the fronted [ə:] in the inventory of variants provides a set of interesting additional possibilities for TE speakers, and it is clear from the results of this pilot study and from those

of the main study for which it was carried out that it carries a heavy social 'load' as far as the intersection of notions of 'maleness' and 'localness' (or 'class', 'regional loyalty', and so forth) are concerned.

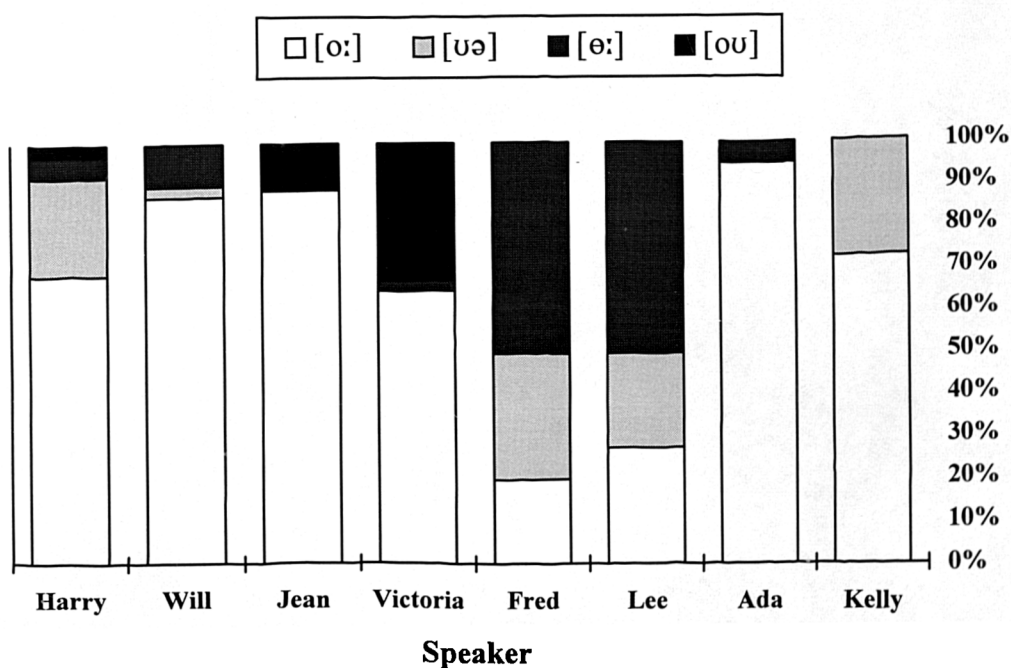
The 315 GOAT tokens recorded for the pilot study break down as shown in Table 5.9. Figures in parentheses represent the percentage score for each variant of the speaker's sample.

Table 5.9: Distribution of GOAT variants, all speakers, FC style (% in parentheses)

Speaker	[o:]	[ʊə]	[ə:]	[ou]	Total
Harry	27 (69.2)	9 (23.1)	2 (5.1)	1 (2.6)	39
Will	35 (87.5)	1 (2.5)	4 (10)	-	40
Jean	32 (88.9)	-	-	4 (11.1)	36
Victoria	26 (65)	-	1 (2.5)	13 (32.5)	40
Fred	8 (20)	12 (30)	20 (50)	-	40
Lee	11 (27.5)	9 (22.5)	20 (50)	-	40
Ada	38 (95)	-	2 (5)	-	40
Kelly	29 (72.5)	11 (27.5)	-	-	40

Figure 5.3 summarises these figures in graphical form.

Figure 5.3: Variants of GOAT, all speakers, FC style (%)



Once more, the use of the unmarked variant [o:] patterns in the same way for the two class groups, with the effect being more marked amongst the working-class group. That is, the two older males use least, followed by the young males; older females Jean and Ada prefer [o:] to the virtual exclusion of other, more marked variants, and its usage drops off again among the young females, as their preference for the marked variants [ou] (for Victoria) and [ʊə] (for Kelly) becomes apparent. It is suggested, again, that Kelly may be using the characteristically male variant [ʊə] more than she might in conversation with a female partner such as Lindsey, as she accommodates to her rather domineering older brother Lee in the conversation used here.

Generally speaking, [ʊə] is a feature of the speech of the male speakers in this sample, particularly the working class males Fred and Lee. Both the latter speakers, however, prefer the equally local [ə:], using it in exactly half their samples. An approximately similar effect, somewhat reduced, may be seen in the figures for the middle-class males: Will's preference for the unmarked [o:], and to a lesser extent for the fronted variant [ə:], might indicate that younger middle-class speakers on Tyneside - and indeed, younger speakers in general - prefer to avoid localised forms, on the whole. This hypothesis is investigated more fully in the following chapters.

Lastly, the prestigious variant [ou] is quite clearly a feature only of middle-class Tyneside speech; it is used fairly frequently by Jean (one in nine tokens being [ou] in her sample) and to a greater extent by Victoria, for whom almost a third of tokens were recorded as this variant.

5.4.8 Comparison of results for FACE and GOAT: symmetry

A direct comparison of the data for FACE and GOAT is possible if we chart, again using percentage scores, the frequencies of each of the variants of FACE with the corresponding variants of GOAT (i.e. eliminating the fronted variant [ə:] for which FACE has no counterpart). The correspondences are very obvious when each pair of variants is charted together, as Figures 5.4, 5.5 and 5.6 show.

Figure 5.4: Symmetry of peripheral monophthongal variants of FACE and GOAT, all speakers, FC style (%)

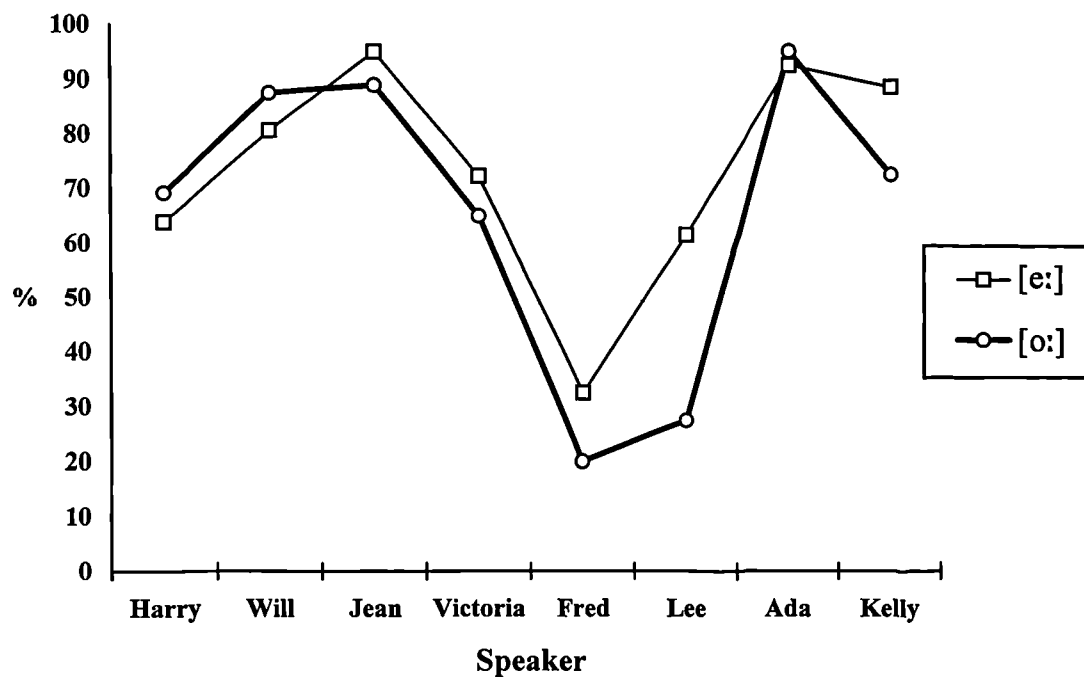


Figure 5.5: Symmetry of centring diphthongal variants of FACE and GOAT, all speakers, FC style (%)

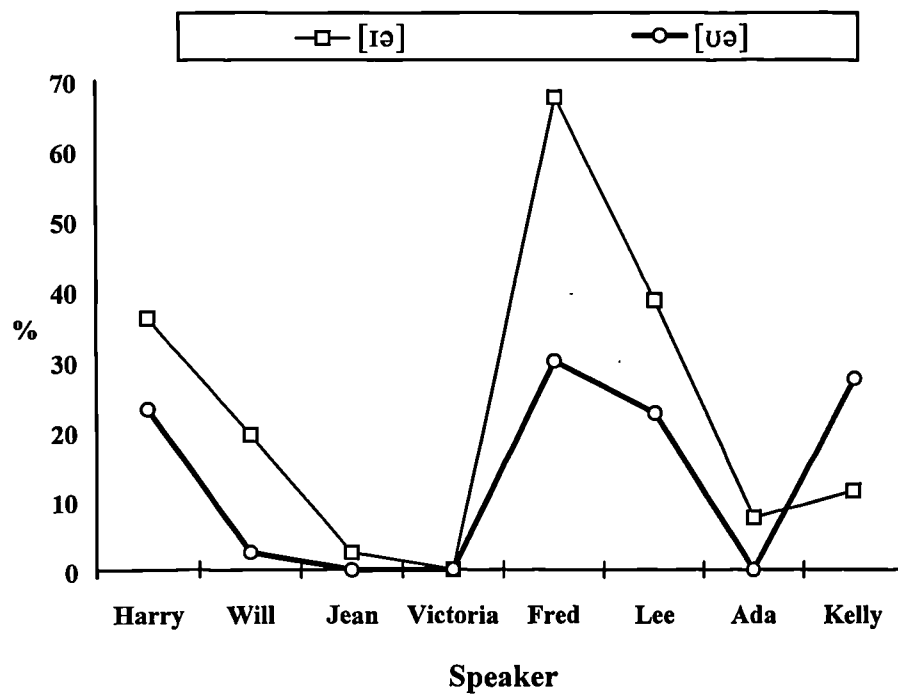
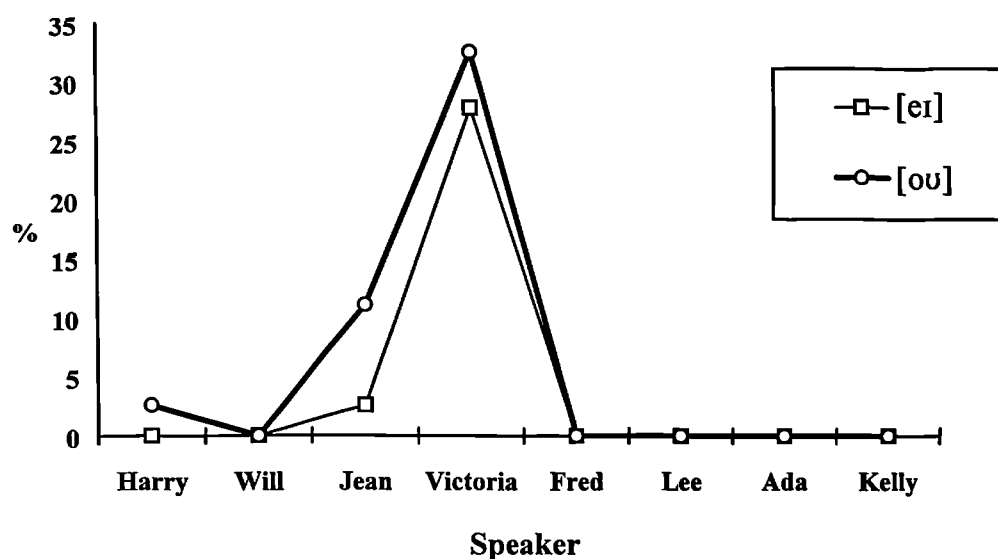


Figure 5.6: Symmetry of closing diphthongal variants of FACE and GOAT, all speakers, FC style (%)



The small sample sizes used here entail that statistical testing of the data should be approached with caution. The general trends we see in the figures above, however, indicate that the classification of variants of FACE and GOAT as 'parallel' with respect to one another is amply justified. The Pearson product-moment correlation coefficients for the above data for FACE and GOAT, and their corresponding p values, are summarised as follows:

[e: ~ o:] (all speakers, FC style): $r = 0.888$; $p < .01$

[ɪə ~ uə] (all speakers, FC style): $r = 0.757$; $p < .05$

[eɪ ~ ou] (all speakers, FC style): $r = 0.969$, $p < .002$

Compare these results with those for the parallel case in the main study (§7.3.3): this effect is robust and almost certainly has not arisen by chance.

Summary

In summary, then, we have obtained through this small-scale investigation of some of the vowel variables of Tyneside English as they are used in FC style a more detailed understanding of some of the kinds of variation that are evident in the speech of the PVC informants. We have, for example, seen that:

- some of the variation we had been led to expect to be observable in the Tyneside vowel system is recessive to the point that evidence of it cannot be found in a sample of this size, or indeed may never be found at all in the contemporary variety¹⁵
- a relatively small sample such as that reported on here is sufficiently large to reveal patternings of (potentially) socially significant features in the speech behaviour of Tynesiders
- such features may be suggestive of larger-scale patterns in the phonology of the variety, and may indicate sound change in progress

More specifically, we can see that for the FACE and GOAT samples we have two closely comparable sets of data which allow us to speculate on the relationship between these two variables. As far as speakers are concerned, it seems, the choice of variants for one of these variables, and distribution of such variants in their speech as a function of lexical, phonological or stylistic factors, seems to determine fairly reliably the choice and distribution of exponents of the other variable. This is an assumption which is quite justifiable on the basis of the striking similarities between the paired figures represented in Figures 5.4, 5.5 and 5.6.

The FACE and GOAT variables are thus ideal candidates as linguistic variables to study in more detail, and indeed they have been selected as variables for the main study described in the following chapters.

5.4.9 Word list material

TRAP

The TRAP vowel varies a little in backness in the pilot study word list data, with a slightly retracted [a] appearing occasionally before the velar stops [k] and [ŋ] in word-list items *back* (in isolation and in *I back it*), *acrid*, *hacker*, *hackle*, *packet* (*pick up a packet of firelighters*), *tractor* (*jump up on the tractor*), *pack* (*pack it in or beat it*) and *bank*. This is, however, rather subtle and sporadic, and does not appear to vary systematically with any social factor. A readier explanation of this can be made by appeal to a simple phonetically-motivated backing

¹⁵ It is argued elsewhere in this study that the sorts of variation described in even comparatively recent publications like Wells (1982) were recessive at the time the data for such works were collected. Without going out of one's way to collect archaic features of the dialect, then, it is only to be expected that examples of forms like [lœ:t] *lot* will be so infrequent as to be negligible. On the other hand, it is possible that the PVC corpus is not a true reflection of the current state of Tyneside English, and that our working-class speakers are accommodating to the fieldworker, or are otherwise subject to observer's paradox effects.

process which retracts front vowels before velars, which is far from unusual in spoken English.

More interesting is the strong tendency of younger women to pre-aspirate word-final voiceless stops which follow the TRAP vowel (and others) in items like *cap*, *that*, *sack*, and so on. Strictly speaking this is a consonantal effect, or at least an aspect of voice quality (i.e. breathiness), and not a vocalic one. It is thus beyond the scope of the present study to investigate this effect further, but such pre-aspiration is clearly a feature of female speech on Tyneside, and is deserving of detailed analysis at some future point.

NORTH

Again, there is little to be said about the phonetic quality of this vowel, other than that it resembles that of most other varieties of British English and is consistently an open-mid back rounded monophthong. The scarcity of tokens of this vowel, as mentioned above, means that we have a total of just 41 examples of NORTH.

The only feature of note in these transcriptions is the fact that the quality of NORTH very frequently overlaps, to the point of homophony, with the quality of GOAT. For many speakers, perhaps as many as a third of the entire sample of 33 (if one includes Lee), the adjacent word-list items *bought* (in *I bought it*) and *boat* are perceptually identical, or at least so close as to be indistinguishable by the phonetician's ear.¹⁶ This is all the more surprising given that one would imagine that speakers using a 'careful' speech style might make an effort to distinguish two neighbouring (and visually and semantically very different) words; in general, and more particularly by older speakers, great pains are taken to enunciate each word-list item individually and with clarity, to the point that in the phrasal stimuli, such as *he won't do that in a hurry* or *pick up a packet of firelighters*, 'normal' connecting speech processes like assimilation and glottalisation across word boundaries are precluded. If speakers are taking the word list task as seriously as this, then, it is revealing that as far as speakers are concerned a phonetic 'merger' of NORTH and GOAT may in many cases be a feature of *more* careful rather than *less* careful speech. The question of potential merger or near-merger of vowels in the in the open/open-mid region of the posterior of the vowel space is discussed more fully in Chapter 8.

¹⁶ This depends, of course, upon the speaker using a monophthongal, peripheral pronunciation of GOAT. As a result, the speakers for whom the homophony of *bought* and *boat* (and *call* and *coal*, and so on) is a feature are mostly female, and typically older and/or of the working class. Younger and middle-class females in the corpus used for this study tend to prefer closing diphthongs in word-list style.

Chortle proved particularly problematic for several speakers and was frequently stumbled over or misread, possibly because some informants had never encountered the word in its written form before, or indeed in any form. Kelly and Lee, who were recorded together,¹⁷ pronounced *chortle* as [ʃɒʔl] and [ʃɔ:tʔl], respectively, while the same two speakers experienced problems with *haunt*, Lee reading it as *hunt* [hʌnt] and Kelly as *caught* or *coat* [k^hɔ:t].

LOT

Sixteen test items containing the LOT vowel were used in the list. Of these, ten were LOT words in isolation, the others being in collocations (*I got it, I've got to do it tomorrow, I had to put it off, he's putting it off, put a comma in it*). The inclusion of items like *off* in *I had to put it off* depended on the fact that the default stress pattern of sentences like these makes the LOT items comparatively prominent. By the same criterion, *on* in *jump up on the tractor* was not included in the analysis of the LOT vowel.

No variation of significance was recorded for the LOT class, with all speakers using a consistent short [ɒ]. There was no evidence of any fronting of this vowel (see §5.4.2), and in fact the only exception to the appearance of [ɒ] in a sample of 129 tokens was Ada's reading of *alter* as [ʔaltə]. Alternatively, an explanation which makes reference to the well-documented unrounding and fronting of the vowel of words in the THOUGHT set (*walk, talk, all, wall*, etc.) to [a:] or [ɑ:] is possible, although we might have expected to find this in the sample for one of the older males instead of that for an older female.

One or two unpredicted examples of [ɒ] cropped up in word classes other than LOT, though these are probably the result of misreadings rather than the variable allocation of individual lexical items to more than one word class. The items in question were *put* (by Ada) and *butter* (by Kelly). The categorisation of *polka*, which appeared to be categorised by speakers in the majority of cases as a member of LOT, will be discussed later in connection with its simultaneous membership of the GOAT set (§7.3.2).

Pre-aspiration was again heard on several occasions in *pot* where this was produced by younger females. The tendency for pre-aspiration not to be heard in *got* of *I got it* suggests

¹⁷ Kelly's word-list recording was made during the session which included her conversation with Lee. For consistency it would have been preferable to have recorded Kelly reading the word list after her conversation with Lindsey, given that the analysis of her (Kelly's) conversational speech came from the Kelly/Lindsey recording rather than the Kelly/Lee recording. The fact that Kelly misreads a good number of the words on the word list may indicate her aversion to performing such a task in the presence of her - rather critical - older brother, or perhaps in the presence of a stranger (the fieldworker). Alternatively, it may simply be that she is unfamiliar with reading aloud or finds it difficult to concentrate on the task.

that this feature is associated with pre-pausal lengthening, a hypothesis which is borne out to some extent in the conversational material by its appearance in pre-pausal positions only.

START

The variation in START, while limited by the size of the sample (of just 41 tokens) collected, suggests that we are dealing with two variants: a strictly localised one characterised by lip rounding [ɒ:], and an 'unmarked' variant [ɑ:] very like that found elsewhere in the north of England and indeed all over Britain. The distribution of the former variant is confined to the working-class male speakers Fred and Lee in word-list style, with Lee using it in *cart*, *can't*, *carter*, *half-past* and *half-cut* (i.e. all five START words) and Fred in the *half-* elements of *half-past* and *half-cut*. The fact that Fred avoids [ɒ:] in *cart*, *can't* and *carter* may be to do with the carefulness with which he begins his reading of the word list; *half-past* and *half-cut* come later in the list. Lee, on the other hand, seems to take the task a lot less seriously than does Fred, and races through the list almost as fast as he can speak. Lee's faster speech rate, at the best of times, would give him little chance to make conscious decisions about pronunciation, such as the decision to adjust his pronunciation toward a perceived norm.

Another point worth mentioning here is older MC female Jean's use of [a] in *half-past*. *Half* typically takes [a] in the English of northern England beyond Tyneside. In much of Yorkshire, for example, pronunciations of the forms *half*, *calf*, *master*, *disastrous* taking [ɑ:] would be considered typical of southern varieties (see Beal 1985). In Tyneside, however, a back vowel in such items is more or less ubiquitous. It may be that in this case the influence of [a] in *-past* is sufficient for the preceding vowel to harmonise with it; certainly, it would be unusual to hear a form like [hɑfk^hʊt] *half-cut* or [hɑfbɪəkt] *half-baked* in the traditional Tyneside accent. On the other hand, where *half-* is relatively unstressed, in constructions like *half-past-three*, [a] may regularly be heard. Thus, it may be that Jean's reading of *half-past* is unusual only by virtue of the fact that she reads it as though it were part of a larger collocation rather than an expression in its own right.

FACE

We turn now to look at the much greater variability of the FACE vowel, which has the distinction over the vowels discussed in the preceding section of its inclusion as a variable in both the pilot study and the main study.

The word list is again somewhat deficient in FACE items. These items - *gate* (included twice), *paint*, *fatal*, *later*, *hate* (in *I hate it*), *eighty* and *eight* (in *eighty-eight*), *apron*, *matron*, *made*

and *may* - are supplemented by *tables* in the phrasal stimulus *he's booking separate tables for supper*. The range of phonological contexts is thus rather limited, since most of the items used are forms in which FACE is followed by a voiceless plosive, and there are no cases of (e) + [l] or (e) + fricative (except for *staircase*, where FACE appears in non-primary stressed position).

Three phonetic variants of FACE are distinguished here: a peripheral monophthongal variant [e:], a centring diphthong [ɪə], and a closing diphthong [eɪ]. Within each variant category there is a certain amount of fine variation - in height among the monophthongs and the nuclei of the diphthongal variants, for example, or relative durations of the nuclei and the central offglides of the centring diphthongs - but the distinctions between the three categories are aurally very salient, and are vouched for by the descriptions of Tyneside vowels offered by other authors.

To a large extent the choice of variants made by each individual speaker in the pilot study group is predictable. The figures themselves, shown in Table 5.10 alongside the corresponding distribution in the FC style, demonstrate that the effect of style is likely to magnify the preference of middle-class females for the 'prestigious' closing diphthong form, and that class among the male speakers will determine whether the supra-local form [e:] will be chosen in preference to the localised form [ɪə].

Table 5.10: Variants of FACE: comparison of FC and WL styles, all speakers (%)

	[e:]		[ɪə]		[eɪ]		N	
	FC	WL	FC	WL	FC	WL	FC	WL ¹⁸
Harry	63.9	100	36.1	-	-	-	36	13
Will	80.6	76.9	19.4	23.1	-	-	36	13
Jean	94.9	-	2.5	-	2.6	100	39	13
Victoria	72.2	-	-	-	27.8	100	36	13
Fred	32.5	7.7	67.5	92.3	-	-	40	13
Lee	61.5	7.1	38.5	92.9	-	-	39	14
Ada	92.5	100	7.5	-	-	-	40	9
Kelly	88.6	92.9	11.4	-	-	7.1	35	14

¹⁸ The discrepancy in the totals for speakers Lee, Ada and Kelly is accounted for by misreadings or complete omission of certain items. Lee, for example, misreads *I hit it* as *I hate it*, while Ada reads *hate* as *have*, *apron* as [ʔapɹən] and *matron* as [ˈmatɹən]. The first *gate* on the word list is absent from Ada's recording.

5.4.10 Style shift

FACE

Even with such small samples, we can see from Table 5.10 that these speakers are style shifting in various ways. Use of the monophthongal variant [e:], which we can assume to be the least socially marked variant (in that it is neither strictly localised as is [ɪə], nor close in quality to the prestigious closing diphthong) is in FC style characteristic of all eight speakers. In WL style, however, use of [e:] is dominated by the samples for MC males Harry and Will and the WC females Ada and Kelly, and is more or less non-existent among MC females Jean and Victoria and WC males Fred and Lee. This may be because [e:] is the 'safe' form to use, in that its use assigns maximum ambiguity to a speaker's linguistic or social loyalties: it is simultaneously 'northern' but is not stigmatised in the same way as [ɪə] might be.

However, use of the centring diphthong [ɪə], which is clearly the least prestigious variant of FACE available to these speakers, *increases* for three of the male speaker groups (especially for WC males Fred and Lee, who have [ɪə] for 12 of 13 and 13 of 14 FACE tokens respectively). It appears that this variant is considered by these speakers to be a more careful, perhaps emphatic, pronunciation of the vowel. Indeed, the rise in the use of [ɪə] in WL style for Fred and Lee is matched by a decrease in [e:]. The direction of style shift is thus in direct contrast to that recorded for most of the other speakers, which tends toward [e:] and [eɪ].

Will patterns with Fred and Lee in WL style, using [ɪə] on three occasions, in the words *gate* (second citation), *made* and *may*. What is interesting about this is that his sample splits into two: the initial FACE items *gate*, *paint*, *fatal*, *later*, *hate* (in *I hate it*) *eighty* and *eight* (both in *eighty-eight*), which come near the beginning of the word list, are all read with monophthongs, but by the time FACE appears again nearly three-quarters of the way through the word list, he has changed (or more likely reverted) to [ɪə]. Like Lee, then, it may be that Will is less conscious, or deliberately less observant, of the formality of the 'reading aloud' situation. The distinction between Harry and Will here is perhaps to do with the changing emphasis on 'elocution' or 'clarity of pronunciation' in school-based education, in combination with a greater desire on the part of older speakers to accommodate to the perceived status of the fieldworker or to adjust their speech behaviour in response to the heightened formality of the task.¹⁹

¹⁹ In the Fred/Ada recording, Ada goes first to read the word list. Fred asks the fieldworker, as Ada begins to read the list aloud, 'Do you want us to say it the way it is on there, or the way we would normally say it in a Geordie accent?' Ada responds, saying, 'I'm just speaking the way I'd normally say it.' Clearly, these speakers are fully aware of the sorts of style-switching which take place in such situations, and can specify the difference between a mode of pronunciation used for reading aloud in a formal way and 'normal', Tyneside-accented

The closing diphthong [eɪ] is avoided completely by the male speakers in both styles. The association of this variant with female speech is thus liable to be reinforced; compare the figures in Table 5.10 with those in Table 7.17 in Chapter 7. The appearance of the closing diphthongs is in WL style confined to just the samples for MC women Jean and Victoria, with the sole exception of Kelly's first citation of *gate*. Both Jean and Victoria use [eɪ] exclusively (though note that Jean uses [e:] in *staircase*), and as such represent the 'opposite extreme' from the WC men, whose patterns of [ɪə] usage are almost equally consistent. That is, where any particular ('marked' or 'unmarked') variants are favoured in WL style, the preference tends to be observed very consistently.

It must be remembered here, however, that the figures for WL style are very small, and those for FC style barely any larger; the conclusions of the above commentary should therefore be treated with caution. It seems likely, however, that replication of this study using a larger number of tokens in each category will yield similar results, since the findings reported in this pilot study are consonant with what we already know about the distribution of localised forms in TE. Chapter 7 discusses such a replication using a sample of 32 speakers instead of eight, and larger numbers of tokens drawn from FC style for this variable.

There is little discernible patterning of variants by phonological context here, and given that the sample sizes are very small, that we are dealing here with only eight speakers, and that the FACE word list items are unbalanced with respect to following context, it is doubtful that useful conclusions could be drawn from any apparent patterning. The question of lexical or contextual influence on choice of variant in the word-list material is put aside until the FACE variable is revisited again in connection with the main study.

GOAT

Like FACE, this vowel is conspicuously variable even within the speech of the subset of speakers sampled for the pilot study. The words on the list in which the GOAT vowel appears in stressed position, however, number only eight: these are *boat* (included twice), *total*, *motor*, *wrote* (in *I wrote it*), *load*, *go*, and *won't* (in *he won't do that in a hurry*).²⁰ The

speech. It is interesting that Fred believes that the written forms of the words on the page represent the formal register more closely ('the way it is on there') than they do his own day-to-day pronunciation. Since Fred uses [ɪə] in all but *matron*, he may have decided to override any perceived need to accommodate upward.

²⁰ *Polka*, which was provisionally included in the GOAT set, appears to have variable lexical class membership, sometimes patterning with LOT. For only two speakers in the pilot study did a relevant value crop up: the young female speakers Victoria and Kelly use [o^U] and [o:], respectively, where elsewhere the pronunciations [p^hɒlkə] and [p^hɒlkʔə] are heard. Kelly read *polka* twice, first with [ɒ], then with [o:], suggesting she might be aware of the ambiguity involved in assigning certain infrequent or loan words to lexical sets.

characteristics of each speaker's production of the GOAT vowel in the non-primary stressed syllables of *micro*, *metro* and *tomorrow* were also noted, as these are typically unreduced in these words' citation forms and may be of relevance.

The phonetic variants of GOAT parallel those found for FACE (a long peripheral monophthong [o:], a centring diphthong [ʊə],²¹ and a closing diphthong [ou], with the addition of a non-peripheral (i.e. fronted, or at any rate centralised) long monophthong symbolised [ə:]. The figures for each category, for each individual speaker, are compared with those for GOAT in the FC style, as shown in Table 5.11.

Table 5.11: Variants of GOAT: comparison of FC and WL styles, all speakers (%)

	[o:]		[ʊə]		[ou]		[ə:]		N	
	FC	WL	FC	WL	FC	WL	FC	WL	FC	WL ²²
Harry	69.2	62.5	23.1	-	2.6	37.5	5.1	-	39	8
Will	87.5	100	2.5	-	-	-	10	-	40	8
Jean	88.9	37.5	-	-	11.1	62.5	-	-	36	8
Victoria	65	-	-	-	32.5	100	2.5	-	40	8
Fred	20	-	30	50	-	-	50	50	40	8
Lee	27.5	37.5	22.5	-	-	-	50	62.5	40	8
Ada	95	100	-	-	-	-	5	-	40	7
Kelly	72.5	100	27.5	-	-	-	-	-	40	8

The style shift pattern in the data for FACE in Table 5.10 is repeated here: MC speakers favour the supra-local variants [o:] and [ou] in WL style, avoiding the local variants [ʊə] and [ə:] altogether. Within the MC group, [o:] is more typical of males Harry and Lee, while [ou] is favoured by Jean but more especially by Victoria, who uses it in all eight test words. It might be said, then, that just as [e:] is the least marked variant of FACE (being particularly associated with neither high or low status forms of Tyneside English, or with both rather than one or the other), [o:] is unmarked with respect to the other variants available.

In WL style the localised form [ʊə] is used only by Fred. Fred uses [ə:] in *go*, *boat* (first citation), *total* and *load*, while Lee's *wrote* (in *I wrote it*), *boat* (second citation), *load* and *go*

²¹ The nucleus of tokens included in this category may be fronted and/or lowered somewhat, though the fact that a glide is discernible presumably means that the nucleus is not fully centralised. The transition from nucleus to glide might, of course, be a product of unrounding rather than lingual movement, but given that the percept of centring is so salient, the actual articulation involved may be less important from the point of view of the transmission of sound change than the characteristics of the percept reaching the hearer's ear.

²² Ada reads *won't* as *wouldn't*.

also take this vowel. It is interesting that Lee, like Will with the FACE vowel (see above), runs through the first cluster of GOAT words - *boat*, *total*, *motor*, *I wrote it* - using [ɔ:], but switches to [ə:] for the second (*boat*, *load*, *go*). This, in addition to the patterns of preference among the middle-class speakers for [o:] and [ou], might suggest that as far as these speakers are concerned, the four variants of GOAT we are dealing with here might be ranked in terms of 'prestige', running from [ʊə] (least prestigious, or at any rate most traditional or oldest) through [ə:]²³ to [o:] and finally [ou] (most prestigious, and innovative; see §7.3.2). Thus, it may be the case that speakers who consistently use [o:] wish to be seen as neither old-fashioned and of low status, nor 'snooty' or 'trendy', while those who prefer the centring diphthong [ʊə] are unconcerned by considerations of the stereotypes of ignorance or poverty attached to traditional Tyneside speech (see Thelander 1980; Macafee 1994). Speakers who use [ou] may do so in order to demonstrate a relatively high social standing, to sound better educated and more worldly, or to signal their desire to dissociate themselves from the negative stereotypes of Tynesiders; the fronted monophthong [ə:], as Lass (1989) and Rydland (1998) have suggested, may be a fudged form which is localisable at least to Northumberland or County Durham, but carries less of the burden of stigma attached to the 'very old fashioned' [ʊə] form. Again, and more acutely in the case of GOAT, the sample sizes for WL style are problematically small. The reader is referred forward to §7.3.2(d) for further information on style shifting in this variable where larger samples are used.

The variants used by each of the eight speakers in the *micro*, *metro* and *tomorrow* items mirror closely those used in test words where GOAT appears in a position of primary stress, as Table 5.12 indicates. It should be noted that *micro* and *metro* appeared adjacent to one another on the word list, and for no speaker did the qualities of GOAT differ in these two words.

²³ Lass (1989) comments that the appearance of [ə:] for GOAT in Tyneside English 'might be taken as an approach to the southern quality of the first mora of the diphthongs in *coal*, *bone*, *oak* (under the at least dubious assumption that [æ:] or [ɔ:] is closer to the RP nucleus, with its often somewhat front onset, than the traditional northern [ʊə] and [ɪə] for these categories)' (1989:188). On the basis of SED material, furthermore, Lass reports that [ə:] is 'perceived in many cases to be innovative': at Northumberland 5, *foal* (III.4.1) as [fʊəl] and [fə:l] are judged 'very old' and 'modern', respectively; likewise, the first of two responses for *road* (IV.3.12) at the same location is [ə:], with [ʊə] described as 'very old fashioned' (ibid.).

Table 5.12: GOAT in unstressed syllables in WL items *micro*, *metro*, *tomorrow*: choice of variant, by speaker

	<i>micro</i>	<i>metro</i>	<i>tomorrow</i>
Harry	[o:]	[o:]	[o:]
Will	[o:]	[o:]	[o:]
Jean	[ou]	[ou]	[ɔ:]
Victoria	[ɔu]	[ɔu]	[ou]
Fred	[ə:]	[ə:]	[ə:]
Lee	[ə:]	[ə:]	[ə]
Ada	[o:]	[o:]	[o:]
Kelly	[o:]	[o:]	[o:]

The realisations of the GOAT vowel in *tomorrow* range from [ə] to the 'full' vowels found in stressed GOAT syllables. One would expect, on balance, the full vowels to be more frequent in citation forms, though comparable data from the conversational material are lacking here. From (unsystematic) observation of vowels lacking a high degree of word or sentence stress in Tyneside English, it appears that even in rapid spontaneous speech, certain vowels - such as that of the first syllable of forms like *confirm*, *concerned* - are not reduced to schwa or elided altogether as is the case in other British varieties. The status of non-primary stress-bearing and unstressed vowels in Tyneside English is clearly very different from the status of these vowels in other accents of English, which is unfortunately a subject beyond the scope of the present study.

5.5 Elimination of variables

As was suggested earlier in this chapter, not all of the variables initially chosen for analysis are suitable for a study of this sort: a lack of socially-conditioned variability (and even allophony) is evident for TRAP, NORTH and LOT, while START varies allophonically and socially to a limited extent, but is lexically rather scarce (see also Zuydam 1987). These variables are, for this reason, omitted from the main study reported in Chapter 7.

5.6 Variables chosen for main study

The FACE and GOAT vowels are taken forward for the main part of this study, as the sorts of variation we see using the word-list data from a small subset of our 32 speakers are potentially extremely revealing. The patterns of symmetry seen in §5.4.8 are of special

interest, as they reveal aspects of the internal coherence of the vowel system which appear to be independent of socially-conditioned variation to a certain degree. In this regard, the variables FLEECE and GOOSE are brought in: where TE speakers are making use of the symmetry of the variants of FACE and GOAT, it is quite possible that evidence of a similar pattern in the close vowels can be found, as previous treatments of the variety have suggested (see Chapter 7).

The central vowel NURSE is likewise included, as during the pilot study it became clear that this variable was likely to be of interest: while it had been suspected early on that the vowel would have levelled to a more or less standard quality [ɜ:] in modern TE, it was found that both the traditional retracted form and an innovative, front rounded form [ø:] could be heard with great frequency in the PVC recordings. From the point of view of the reported merger of NURSE and words of the NORTH~THOUGHT~FORCE set, and the development of a new variant which has apparently only very recently entered the variety (§6.5, §7.4), NURSE seems particularly interesting.

In the absence of 'real-time' data, we must turn to earlier (technical) descriptions of the phonology of TE. Chapter 6 is comprised of a review of five analyses of the vowel system of the variety, concentrating specifically upon the five variables (FLEECE, GOOSE, FACE, GOAT and NURSE) that have been chosen for analysis.

CHAPTER SIX: PREVIOUS ACCOUNTS OF THE FIVE VOWELS

CHAPTER SIX: PREVIOUS ACCOUNTS OF THE FIVE VOWELS

6.0 Introduction

In this chapter a review is made of five previous phonetic descriptions of the TE vowel variables (FLEECE, GOOSE, FACE, GOAT and NURSE) to be analysed in the main part of this study. These are taken chronologically: Daniel Jones' transcription of a popular nineteenth-century song published in *Le maître phonétique* in 1911 is discussed first, followed by O'Connor's (1947) analysis of the phonological system of some Tyneside schoolboys. The relevant sections of the larger-scale study of working-class Gateshead men carried out by Wolfgang Viereck in the late 1950s and published in 1966 are discussed, and finally, the concise treatments of the salient features of TE offered by Hughes & Trudgill (1979) and Wells (1982) are assessed in relation to the five vowel variables of interest. Reproductions of relevant sections of the texts of Hughes & Trudgill's¹ and Wells' accounts are supplied in Appendix 3.

It should be noted that this is not an exhaustive survey of available literature; what these works provide is a useful overview of the sort of variation in these vowel classes that was salient to their authors, over a span of almost a century. The works tend to be cited the most often in relation to the Tyneside variety, and represent various methodological approaches to variation that have been used in twentieth-century dialectology. There is no room, for example, to go in depth into the findings of the Tyneside Linguistic Survey, nor can the scope of this work be extended to include detailed information on other vowel variables. Instead, it is hoped that this background information will serve to support the claims made in the concluding chapters about the process of accent levelling as it pertains to TE, and some of the theoretical considerations concerning system coherence and symmetry.

6.1 Jones (1911)

Jones exemplifies some of the features of TE with a transcription of Joe Wilson's song *Ah Wish Yor Muther Wad Cum* dictated (probably not sung) to him by a male speaker

¹ Note that Hughes & Trudgill's text reproduced in Appendix 3 is taken from the third edition of *English accents & dialects* (1996). It does not differ substantially from the text of the 1979 edition, except for the following amendments: (i) the section is titled *Northumberland* rather than *Newcastle (Tyneside)*; (ii) the placename *Newborn* in the 1979 edition has been corrected to *Newburn* (see footnote below); (iii) the vowel quadrilateral diagram, which contained several errors, has been omitted altogether.

of indeterminate age. The pronunciations found in the transcription may be representative of the informant's own speech, or it may have been recited in a dialect 'broader' than that of the speaker. In either case, if we are to take the phonological characteristics of the text Jones has transcribed as indicative of the variety spoken in Tyneside at that time or at some earlier period, we are presented with a good number of features of relevance to the five variables examined in this study. Jones' text, minus punctuation marks and original footnotes, is reproduced below.

Transcript of *Ah Wish Yor Muther Wad Cum* (Joseph Wilson, c.1860?), adapted from Jones (1911)

	Original	Gloss
	kom dʒo:di ha:d ðə beən	Come Geordie hold the bairn ²
	as fu:ə a winiət bi læŋ	I'm sure I won't be long
	əd tʃæk ðə dʒu:l mi'sel	I'd take the jewel myself
	bot ri:əli a:z nət stræŋ	But really I'm not strong
5	ðo:z flu:wəɹ ənd ko:ulz tə get	There's flour and coals to get
	ðə hu:s-tɔ:nz ðo: nət dʒon	The house-turns ³ they're not done
	sou ha:d ðə beən fə feəz	So hold the bairn for fairs ⁴
	jəv ɔftən dʒond fə fon	You've often done it for fun
	si: dʒo:di held ðə beən	So Geordie held the bairn
10	ðou seəɹ əgʒən hiz wil	Though sore against his will
	ðə pu:ə bit θiŋ wəz gud	The poor bit thing was good
	bət dʒo:di həd ni: skil	But Geordie had no skill
	hi: hədnt its moðəz we:iz	He hadn't its mother's ways
	hi: sət bjəθ stif ən nom	He sat both stiff and numb
15	əfo: faiv minits wəz pa:st	Before five minutes was past
	hi: wiʃt its moðə wəd kom	He wished its mother would come

It is not clear whether Jones is basing his transcriptions on the productions of a real speaker, or is presenting the sample as an amalgam of typically Tyneside features. As will be shown in this chapter, previous published descriptions of TE have concentrated exclusively on male speech, presumably because it was thought to exhibit a greater number of non-standard features than does female speech and was therefore more interesting; if Jones is recording the speech of an actual person, it is likely to have been a male speaker. However, the absence in the transcription of certain features - like fronting of (o) - that we might expect to see in such a sample of

² *Child* (Jones: 1911:184).

³ *House-work* (Jones 1911:184).

⁴ 'For fairs' is glossed by Jones as 'seriously' and by Todd as 'with serious intent' (1987:18).

archaic vernacular TE used by a male Tynesider is notable. The entire transcription, indeed, is an odd mixture of markedly local forms like [winiət] *will not*, [wæd] *would*, [stræŋ] *strong* and apparently standard-like forms such as [ko:ulz] *coals* and [we:iz] *ways*, but without further information the significance of this variability can only be speculated upon. No commentary of any sort accompanies the sample text.

6.1.1 FLEECE

Jones' transcription is not in fact as narrow as it first appears, as he has indicated no qualitative distinction between [i] and [ɪ] in the set *be, he, myself* [mi'sel], *his, will, bit, thing, skill, its, stiff, wished*, and *minutes*, using instead the single symbol [i], albeit with length distinctions in most cases. The words *so* and *no* both appear with [i:], which might be taken to indicate raising of [e:], while the stressed vowel of *really*, in line 4, is given as [i:ə]. Without a distinction between [i] and [ɪ], we cannot know whether Jones wishes to indicate that word-final unstressed FLEECE in forms like [dʒo:di] *Geordie* and *really*, as would be typical of the dialect, is found as [i] or as [ɪ].

6.1.2 GOOSE

This vowel is found in only four items in the text, or six if *sure* and *poor* are included.⁵ These are [hu:s(-tɔ:nz)] *house-turns*, [flu:wəR]⁶ *flour*, [dʒu:l] *jewel*,⁷ and [gud] *good*. The first two examples demonstrate the alternation between [au] and [u:] described in all treatments of TE, a feature it shares with Northumbrian and Scottish dialects (see Viereck 1968:75), though it seems peculiar that Jones has recorded the vowel as equivalent in length for both *house* and *flour* given that (at least in Scots) the vowel would be short before a voiceless fricative. *Jewel* we might have expected to see with a centring offglide before /l/ - a regular feature of this variety - though as

⁵ The lexical set labelled CURE by Wells (1982) has been kept separate from words of the GOOSE set in this analysis, so *sure* and *poor* are marginal to the discussion here.

⁶ Note the linking /r/ in the sequence [flu:wəR ənd ko:ulz] *flour and coals* (line 5), a feature which is found rather inconsistently in modern Tyneside English (Foulkes 1997). It occurs again in [as ju:əR ə winiet bi læŋ] *I'm sure I won't be long* (line 2) and [ðou seəR əgjen hiz wil] *though sore against his will* (line 10). It could be argued that this represents a remnant of the rhoticity in Tyneside English which Beal (1985:43), Viereck (1968:68) and Pålsson (1972:222) show to have been a comparatively recent feature of the dialect. Certainly, post-vocalic /r/ is absent elsewhere in Jones' text ([pu:ə bit] *poor bit*, [ðɔ: nɔt] *they're not*, [moðə wæd] *mother would*, etc.

⁷ No gloss is provided, but as the female protagonist persuades her reluctant husband to hold the child on the grounds that were she feeling stronger she would [tʃæk ðə dʒu:l] with her on the shopping trip, we can assume that she is referring to the baby.

Viereck (1966:69) points out, [u:l] and [uəl] appear to be in free variation with one another in TE.

6.1.3 FACE

The examples of FACE-class words given by Jones are of two types: those suggesting the preservation of the 'normal' dialect form (Viereck 1968:69) characterised by the sequence [jɛ] (*take*, *against*), and the curious [we:iz] *ways*, which resembles very closely the pronunciation we might expect to hear in southern varieties of British English. Viereck (1968:70) indicates that TE has tended to preserve a distinction between forms descended from Middle English /ai/ (such as *ways*) and those descended from ME /a:/ (like *take*), but what is less obvious is why *against* (ME /ai/; Jones' [əgjɛn]) should pattern with *take* and *both* rather than with *ways*, as in this transcription.⁸ *No* and *so*, which can be considered, albeit rather marginally, as members of the FACE set (*no* being found with [e:] and [ɪə] in the PVC sample on numerous occasions) are raised to [i:].

6.1.4 GOAT

The transcription contains a greater number of examples of GOAT than it does of FACE, these showing a considerable range of phonetic variation. Three GOAT items (*coals*, *so* and *though*), unexpectedly, take the diphthong [o(:)u], which is, like [ei], more typical of standard varieties than of TE. The imperative form of the verb *hold* appears twice as [ha:d] in lines 1 and 7 (compare this with the simple past *held* [hɛld], line 9, in which the etymological /l/ is retained).

The remainder of the set of items containing monophthongal [o] are, oddly, members of the (unsplit) STRUT and FOOT categories, as are listed below.

⁸ Graham (1987:5) glosses the word he spells *agven* as 'again', while Todd (1987:4) gives *agven* for both 'again' and 'against'. The etymologies of these items are clearly divergent from those which gave rise to the Standard English forms.

[kom]	<i>come</i> (imperative & infinitive)
[djon]	<i>done</i> ⁹
[djond]	<i>done it</i>
[fon]	<i>fun</i>
[bot]	<i>but</i>
[nom]	<i>numb</i>
[moðə]	<i>mother</i>
[moðəz]	<i>mother's</i>

The fact that Jones uses [ɔ(:)] to distinguish consistently between the merged NURSE and NORTH-THOUGHT-FORCE¹⁰ sets and the FOOT-STRUT set taking [o] suggests that the phonetic value of the exponents of FOOT-STRUT is indeed [o] (contrast the lack of distinction made between the FLEECE and KIT classes, which Jones treats as a purely quantitative alternation); the symbol [ω] is in any case not found elsewhere in the text, nor in the accompanying (RP) footnotes (e.g. fn.17, [wud] *would*).¹¹

Lastly, *both* appears in the text as [bjəθ], a variant which certainly by the 1920's (see Orton 1930, 1933) had become recessive. Both Orton and Viereck (1968) attribute the substitution of [jə] by monophthongs [o:] and [œ] to the influence of Standard English, which avoids the necessity of explaining apparent unmergers and gross phonetic shift by purely internal means. At any rate, the set of items alternating between [o:] and [jə], or something similar, is greatly reduced in modern TE, the older form being heard only very infrequently in the PVC corpus material.

6.1.5 NURSE

Only one example of the NURSE set is found in the passage - [hu:s-tɔ:nz] *house-turns*, in line 6 - showing the typical retracted form of the vowel. The merger of NURSE and NORTH is in evidence here, as the items *Geordie* and *afore* are also transcribed with [ɔ:]. The marginal forms *there's* and *they're* are likewise given as [ðɔ:z] and [ðɔ:], respectively, indicating that a merger of certain SQUARE-class items with NURSE and NORTH has taken place. Other SQUARE-class words appearing in the text (*bairn*, *for*

⁹ The yod forms are, according to Viereck (1968:74) 'the regular dialect development', although in his Thropton study Viereck recorded [jω] in just one item, *enough*. The popular dialect literature, of course, gives numerous examples of forms in which the yod is claimed still to be extant. Todd (1987) gives *enyuf*, *dyun*, and *hyuk* 'hook', among others.

¹⁰ Henceforth NORTH.

¹¹ Conversely, GOAT-class words have been recorded with raised and slightly fronted vowel qualities on several occasions in the PVC corpus, indicating a significant amount of phonetic overlap between GOAT and FOOT in this dialect.

fairs, and *sair* (=sore)) are transcribed with [eə] where a modern pronunciation might be closer to [ɛ:]; [eə] is typically a variant of the FACE vowel in the PVC corpus.

Though short and lacking in any explanatory information, Jones' transcription is - considering its size - nonetheless very revealing in terms of the phonology of the speaker's vowel system. Particularly interesting is the mapping of the vowel system onto the lexicon in ways which appear to have been reorganised by levelling in the modern variety, and the evidence for this transition provided by apparently incongruous forms like the raising diphthongs [ou] and [ei] in the GOAT and FACE sets.

6.2 O'Connor (1947)

O'Connor's sample is drawn from the speech of an unspecified number of boys of between twelve and eighteen years of age. O'Connor does not make it clear whether the phonetic system he describes is derived from tape recordings of his interaction with these youths, or whether his 'notes' were jotted down during the course of conversations. O'Connor probably based his system on an amalgam of the speech of a number of informants, in which case, differences between individual speakers would not be revealed. If this is indeed the way by which O'Connor's system was arrived at, it may be that from his sample he was more inclined to record unusual or stereotypical features, which almost by definition would tend to be conservative ones. The representativeness of this sample is therefore doubtful.

O'Connor neglects to indicate whether the appended text (a story about a fresh-faced southerner who attempts, unsuccessfully, to pass himself off as a Geordie by studiously recording Tyneside expressions in a notebook and then using them in inappropriate situations) is a passage that O'Connor recorded during the fieldwork from which the article derives. It may simply be an anecdote, of the sort one can find in the many collections of humorous 'Geordie yarns' and works of that ilk, that O'Connor has transcribed in IPA for expository purposes. While convincingly accurate in terms of the kind of phonetic features one might expect to see in this kind of stylised, self-conscious 'raconteur' register, it is debatable whether all of the localised features that can be seen in the passage were even in 1947 present in normal conversational speech, especially as the message of the anecdote serves to highlight the gross differences between [ˈri? ˈkani] ('right canny') Tyneside English and 'collar-and-cuffs talk', an unnamed southern variety. A full version of O'Connor's specimen transcription, with punctuation marks omitted, is given below.

Transcript adapted from O'Connor (1947:8)

ðə wəz ə 'fɛlə keəm 'ɒp tə njə'kɑ:səl ə 'kɒʔpəl ə 'je:z bak ən i 'θaʊt
There was a fellow came up to Newcastle a couple of years back, and he thought

ðə 'teɪnseɪd 'tɑ:k wəz 'riʔ 'kani sə i 'stɑ:ʔz 'treɪən ʔtə 'tɑ:ʔk əd ɪs'seɪl
the Tyneside talk was right canny, so he starts trying to talk it himself.

i 'ga:nz ə'buʔt ɔn 'bɒsəz n 'kɑ:z ən i 'hiəz pi:ʔpəl 'askən ʔfə 'sɒmɪk kaɪld
He goes about on buses and cars and he hears people asking for something called

ə 'pɛni 'hɑ:f
a penny half.

5 i θɪŋʔs 'ðɪs əz ðə weə ʔtə 'ask fər ə θri'haʔpni 'fe: sə i 'reiʔs əʔ 'dʌn ɪn
He thinks this is the way to ask for a three-halfpenny fare, so he writes it down in

ɪz 'lɪʔl 'bʊk ən gɪz ɪs'sel ə 'pɑ:ʔt ɔn ðə 'bæk fə 'bi:ən sə 'klevə
his little book and gives himself a pat on the back for being so clever.

'wɔ:n 'freɪdn'ɪt i wəz 'gann ʔ ðə 'pɪʃəz wɪð ɪz 'anʔti ðəʔt i z 'ste:ən
One Friday night he was going to the pictures with his auntie that he's staying

wɪð ən 'wen ðə 'las kɒmz fə ðə 'fe:z i asks fə 'təʊ 'pɛni 'hɑ:vz ɪn ɪz
with, and when the lass comes for the fares he asks for two penny halves in his

'bes 'teɪnseɪd 'steɪl
best Tyneside style.

10 ðə 'las 'lɒks ad əm ən ɪz 'anʔti lɒʔks ad əm ən ðə 'bəəð 'bɔ:st uʔ
The lass looks at him, and his auntie looks at him, and they both burst out

'lɑfn
laughing.

'əʔ ðə 'fɪnəʃ ðə las 'seəz tu əm 'we:z jə ʃɔ:t 'tru:zəz hɪni
At the finish the lass says to him, "Where's your short trousers, hinny?"

a dɪvn nɑ: wɒʔ jə 'tɑ:ʔkn əbut i seəz
"I don't know what you're talking about," he says.

'wei man ʃə seəz jə v gɒd ə bi 'ɒndə 'twɛ:lv ʔtə hav ə 'hɑ:f 'fe:
"Why, man," she says, "you've got to be under twelve to have a half fare."

15 əʔ 'tɔ:nz 'uʔ jə sei ðəd ə 'pɛni 'hɑ:f s 'hɑ:f ə 'tʊʔpni fe: sə i 'ga:nz
It turns out, you see, that a penny half's half a tuppenny fare, so he goes

bak tu ɪz 'kɒlər ən 'kɒfs ta:ʔk ən 'li:vz 'teɪnseɪd ʔtə ðə 'dʒo:dɪz
 back to his collar-and-cuffs talk and leaves Tyneside to the Geordies.

O'Connor does, however, entitle the paper 'The phonetic system of a *dialect* of Newcastle-upon-Tyne', and while he states that the speech he has recorded in the working-class districts of Benwell and Elswick 'almost certainly has a wider currency than this', he concedes that because he made his transcriptions on the basis of notes made at a single location (Grainger Park Boys' Club) he is 'not in a position to pontificate about its probable extent' (1947:6). Assuming that the variation in TE was as great fifty years ago as it is today, we should probably err on the side of caution and take O'Connor's sample as representative of the speech of young working-class males only, rather than of the Tyneside speech community as a whole.

In contrast to the style of fieldwork that was current during the 1940's, which most often focussed on older working-class men in rural communities as exemplars of dialectal variation, O'Connor's choice of an inner-city boys' club as his data collection site yields for us results which are more relevant than are those to be found in studies (like Orton 1930) produced at around the same time. Despite the fact that the methodology by which O'Connor arrived at his system is left largely to the reader's imagination, it seems that the data derive from conversations between a group of boys and the fieldworker, in a context which is familiar to the boys and in which they can feel relaxed and 'in control'. Hence, in this situation we would expect to find that the patterns of speech used by the youths are more typical of the language they might use amongst themselves than of that which might be found in a recording situation where the informant is being interviewed one-on-one by the fieldworker (see L. Milroy 1987). Turning to the details of O'Connor's system, we can see that the phonetic exponents of the variables in which we are interested are fundamentally similar to those recorded by other dialectological authors, and to the variants catalogued in both the pilot study and the main study of this project.

6.2.1 FLEECE

O'Connor remarks that the FLEECE vowel is 'approximately cardinal', and gives examples in the transcribed text like *he* [i],¹² *people* ['pi:ʔpəl], *being* ['bi'ən], and *leaves* [li:vz]. The phonetic value of FLEECE where the vowel occurs in unstressed syllables is similarly transcribed as [i], examples being *penny* ['peni], *auntie* ['an?ti],

¹² Wells (1982:374) claims that 'uniquely among urban accents of England, Geordie has... no H Dropping'. Most varieties of British English elide word-initial /h/ in unstressed or rapid speech; it is also likely to be stylistically conditioned. Certainly, it occurs a good deal in this passage.

hinny [ˈhʌni], *twopenny* (or *tuppenny*) [ˈtʷɒpni], and *Geordies* [ˈdʒoːdiz] (see also Wells 1982:376). Note that nowhere does O'Connor directly mention a possible allophonic alternation between monophthongal and diphthongal variants of (i)¹³ - we are left to deduce this from the way in which the word *see* is transcribed (line 15) as [sei]. This, on the other hand, is the only example of such diphthongisation in the passage, which at just fourteen lines (in the original) is scarcely a large enough sample to assess whether such an alternation was current in the speech of O'Connor's boys' club youths. Presumably, though, O'Connor would have based his phonetic system on a moderately large sample of spontaneous speech, and would therefore have noticed an alternation of this sort. We must therefore conclude that either no allophony was present in the speech of these boys, that O'Connor simply had not noticed any systematic variation in their realisations of FLEECE, or that he did not think it worth mentioning. It is puzzling, then, that *be* is given as [bi] in the expression *you've got to be under twelve*, and that *three* occurs as [θri] in *three-ha'penny* (though an inspection of the FLEECE data collected for this study reveals that in similar constructions a form which would normally take the diphthongal variant occasionally appears with a monophthong, as in *three-wheeler* [ˈθriːwiːlɐ]).

The key to the diphthong section of the vowel inventory does distinguish, however, between the diphthongs [ei] and [ɛi],¹⁴ the former being a glide from 'cardinal e to i' and [ɛi] being 'self-explanatory'. The actual distributions of these are not discussed, but it appears from the text sample that O'Connor wishes to restrict the occurrence of [ei] to words of the PRICE set (e.g. *Tyneside* [ˈteɪnseɪd], *style* [steɪl], *why* [weɪ], *trying* [ˈtreɪɪŋ], *writes* [reɪtʃs], etc.). As [ɛi] appears only once, in the word *see*, we must conclude that O'Connor intends [ɛi] to be a variant of FLEECE which occurs sporadically in open syllables.¹⁵

PRICE class items such as [riː] *right* or [nɪt] *night*, which can be considered only marginal members of the FLEECE class in that the phonetic quality is reported as [i] in spite of the class membership linguists (and speakers themselves) might ascribe to such items, appear in the transcribed monologue but once again are not overtly commented upon; neither does O'Connor make any mention of this

¹³ Local (1983) discusses fine-grained variation in the TE FLEECE vowel in connection with phonological acquisition, while Local (1990) deals with low-level allophony in the so-called *happy* vowel (after Wells 1982): it seems that the quality of /i/ in final, unstressed position varies, or 'harmonises', as a function of the rhythmic, resonance and vowel-quality characteristics of the preceding syllable. The analysis of FLEECE in the present study did not go into such detail.

¹⁴ O'Connor includes these in his list of 'falling diphthongs', confusingly; it is not clear exactly what he means by this.

¹⁵ Viereck (1966:69) claims that '/i/ has a frequent diphthongal variant [ei]... in free variation with [i]' but offers no further commentary on the lexical or sociolinguistic distribution of these variants.

raising/monophthongisation process, instead referring to the raising of the first element of [ai] to [ɛ] except where the diphthong appears before a voiced fricative (1982:376). The popular literature, on the other hand, provides us with informal evidence of [i] as a PRICE variant: Todd's (1987) *Geordie Words and Phrases*, for instance, gives numerous examples of ostensibly PRICE-class words taking [i], such as (*not*) *reet* '(not) right', *slee* 'sly', *fleein* 'flying', *ee* 'eye' (cf. Scots) and *neet* 'night'. These, like the alternate forms of words like Viereck's *home* [ho:m]~[jem] or *cow* [ku:]~[kəw] (1966:51) are, because of their derivation from forms which despite common ancestry diverged markedly from one another in the history of English dialects, arguably best treated as separate lexical entries rather than as variant realisations of a single underlying form (see also Viereck 1968).

It should perhaps be mentioned that in the main body of the article (the papers in *Le maître phonétique* being printed entirely in IPA characters at this time) O'Connor makes no qualitative distinction between [i] and [ɪ], using the symbol [i] for both, as in *between* [bitwi:n], *districts* [distrikts], *Elswick* [elzik], *this* [ðis], and so forth. Similarly, [e] is used to symbolise the short vowels of *twelve*, *stressed*, *very*, *extent*, etc., with the RP diphthong [ei] appearing in *made*, *remaining*, *behave*. And while [ɔ] is used in words like *diphthong*, *not*, *on*, *probable*, etc. to stand for what would almost certainly have been (and is) a more open vowel in the region of [ɒ], it is also a little difficult to tell whether the transcription of modern R.P. [ɔ:] throughout as [o:] in items like *almost* ['o:lmoust], reflects a genuine pattern of pronunciation or is simply a notational convention serving to keep the number of symbols used conveniently small where a high degree of phonetic detail would be superfluous.¹⁶ As a significantly larger and more variable set of symbols is used for the sample text, we can conclude that the transcription paradigm used for the monologue is more strictly phonetic than is the pseudo-phonemic system used throughout the journal.

6.2.2 GOOSE

O'Connor states that this vowel is 'distinctly fronted, sometimes quite central'. This corresponds closely to the phonetic value of the vowel used words of this class such as *school(s)*, *you*, *do*, *excuses*, etc. by the some of the younger male speakers in the modern PVC sample. In the case of PVC informant Nick, a young middle-class teenager, the preponderance of fronted exponents of GOOSE he uses might plausibly

¹⁶ It seems odd, then, that O'Connor indicates a fairly low-level assimilation /k/ → [t]/__ /l/ in /tlaus/ (for *close*) in the commentary (1947:7).

be explained by influence from the higher status accent RP;¹⁷ however, the fact that fronted variants are found in the speech of young working-class males in both the PVC and O'Connor's samples suggests that the fronting may be quite independent of any reference to a notional standard. The recording situation was likely to have been unfamiliar to O'Connor's youth club boys, leading one to predict that they might style-shift towards norms of the sort that were probably expected of them in school. It is doubtful, however, whether such self-consciousness would have interfered too greatly, particularly as O'Connor was, one assumes, greatly outnumbered. It must also have become apparent fairly quickly to the boys that O'Connor was interested specifically in the fact that their speech patterns were idiosyncratic and acted as such strong indicators of the boys' local identity, and therefore any reservations they may have had about using vernacular forms would, in theory, have dissipated fairly rapidly.

Again, the level of detail in O'Connor's commentary does not extend to a description of any alternation between [u(:)] and [əu]/[ʊu]/[ɪu], but the diphthong with 'the first element... more open than the pure vowel' (1947:7) which he transcribes as [əu] in the key appears once in the text in the open syllable *two*. In this instance, the syllable can be analysed as 'fully open', as it occurs in line 8 in the sequence *two penny halves* [ˈtəu ˈpɛni ˈhɑ:vz]; compare this with *tuppenny fare*, in line 15, rendered as [ˈtʊpni fe:], in which the syllable boundary is ambiguous. Just what O'Connor means by 'the pure vowel' is not clear; he may be referring to [u], or possibly to [ə]. In the context, however, it is more likely that O'Connor simply intends to indicate that the vowel is diphthongal, involving a glide to [u] from a more central onset, but that the first element is perhaps not quite as open as [ə]. Note that the open syllable *to* in *to him* and *to his* is given as [tu], perhaps because the [əu]-type diphthongisation tends to be associated with stressed syllables.

Trousers [ˈtru:zɪz], *about* [əˈbu:t], *down* [daʊn] and *out* [aʊt] are all transcribed with [u], as one would anticipate in male working-class speech (Wells 1982:376; Hughes & Trudgill 1979:67; Viereck 1966:68); the word *book* [bʊk], appearing in line 6 of the monologue, demonstrates that in TE *book* (and *cook*, *room*, *put*, etc.)¹⁸ belongs to the GOOSE class. A fairly consistent length alternation between [u] and [u:] can also be seen in the PVC data; this appears to depend on the voicing identity of the

¹⁷ Henton's analysis of the vowels in the speech of young RP-speaking males, which replicates a study published by Wells some twenty years earlier, indicates that centralisation of [u:] (as well as [ʊ]) is an ongoing and robust sound change. She comments 'Wells stated of his 1962 data that it was already observable that /u:/ was sometimes rather centralized, as well as being, like /i:/, sometimes rather markedly diphthongal' (1983:365), which implies that any 'target' of GOOSE towards which some middle-class Tyneside speakers might be converging would be liable to be fairly far forward.

¹⁸ *Looks* [lʊks], on the other hand, is found twice in the passage (lines 10).

following consonant, but O'Connor appears to have thought such an alternation insignificant or otherwise predictable, inasmuch as no length differences are marked for [u] despite his frequent use of [:] and [·] as indicators of quantity on other vowels in the passage (e.g. *talk* [ta:(?)k], *starts* [sta:ʔs], *gans* [ga:nz], *people* [pi:ʔpəl], *fares* [fe:z], *burst* [bo:st], *turns* [to:nz], *short*, [ʃo:t], *Geordies* [ˈdʒo:diz], etc.).

6.2.3 FACE

The FACE vowel, in O'Connor's analysis, is a monophthongal 'front vowel midway between open and close' (1947:7). The symbol O'Connor uses to indicate this vowel is [e:], but presumably, we are dealing with a somewhat lower vowel quality than this which can generally be said to lie between the cardinal values [e] and [ɛ]; potential confusion with DRESS-class items would be avoided because, according to O'Connor, the vowel quality in DRESS words is 'slightly more open than cardinal'. However, with one marginal exception (*staying*, in line 7), the FACE-class words found in the passage are all transcribed with the diphthong [eə] (*came* [keəm], *way* [weə], and *says* [seəz] (3 times)). *Staying* is given as [ˈste:ən], the 'half-long' diacritic helping to distinguish *staying* from *stain* and to indicate that two syllables are intended here. O'Connor describes the diphthong as a glide 'from closer than cardinal [e] to [ə]', which would correspond closely to the values given to diphthongal variants FACE by Viereck (1966:51), Hughes & Trudgill (1979:64), Wells (1982:375), and so on. There is in fact very little agreement on how to transcribe these diphthongs, probably because they are extremely variable in the phonetic qualities of their start- and end-points, and therefore the desire for some convenient notation for the class of diphthongal variants has led to the various authors adopting dissimilar transcription conventions. Predictably, this leads to some overlap in the use of certain sequences of symbols - for example, O'Connor and Hughes & Trudgill (1979:66) use the sequence [iə] in *hears* and *here*, the notation which Wells uses for FACE-class words (1982:375).

In the passage, *fare(s)* [fe:(z)], *where's* [we:z], and *years* [je:z] are all transcribed using [e:]. We must assume, then, that O'Connor intended [e:] to be used in this set of words (corresponding to RP SQUARE variants [eə]~[ɛ:], and apparently some items in the NEAR set). This notational inconsistency makes O'Connor's description of the phonetic system of TE at times confusing. The key to the symbols in the phonetic inventory O'Connor provides is also of limited use since no information is supplied as to the lexical distribution of these sounds.

6.2.4 GOAT

Parallel to the above situation, the vowel of GOAT has phonetic exponents of two main types: monophthongal [o:], which O'Connor describes as 'slightly more open than cardinal' (1947:7), and diphthongal [əə], which is 'mainly a lip¹⁹ diphthong, with a slight lowering of the tongue for the second element; generally reduced to ə in unstressed positions'. In fact, the distribution of these turns out to be much like that of [e:] and [eə]; [o:] appears only in (RP) NORTH-THOUGHT-FORCE words such as *short* (line 12) and *Geordies* (line 16),²⁰ while [əə], presumably, appears in all GOAT words where it is found in a stressed syllable. As it happens, there is only one example of [əə] in the entire text (in *both* [bəəð], line 10), while [ə] is represented only by three examples of the word *so* (all relatively unstressed). Hence, we can draw no very firm conclusions concerning the lexical or contextual distribution of the variants of GOAT from O'Connor's article.

6.2.5 NURSE

O'Connor indicates a merger between the vowels of the NURSE and NORTH-THOUGHT-FORCE (henceforth NORTH) classes through his use of the symbol [o:] for *burst* (line 10) and *turns* (line 15) on the one hand, and *short* (line 12) and *Geordies* (line 16) on the other. However, O'Connor mentions in the notes on the TE phoneme inventory that 'Tyneside o: may be Southern English o:, ə: or əə, as in pə:, po:, pəə (*pore*), and so on' (1947:7). [pə:] and [po:] are presumably *per/purr* and *paw*; O'Connor probably wishes to distinguish here between the members of the set *pour*, *poor*, *paw* and *pore* which have to all intents and purposes merged in modern RP but might still have been distinct in the careful, conservative RP of the 1940s. Whether O'Connor intends 'may be' to indicate an element of speaker choice in the use of the merger is ambiguous; it could equally be that he wishes again to highlight the fact that a single Tyneside vowel can be found with a much wider lexical distribution than the equivalent form in southern varieties.

¹⁹ Or possibly 'leap' (O'Connor's transcription gives [lip]), but as mentioned earlier no distinction is drawn between [i] and [ɪ] in the commentary text. The meaning of this term is in any case obscure: it perhaps refers to a diphthong the two qualities of which are distinguished only by lip rounding.

²⁰ The exception here is *thought* [θɔut], in line 2. O'Connor comments, 'the relation between these [21 Tyneside vowel phonemes] and those of educated Southern English is naturally not on a one-to-one basis' (1947:7) and cites the various possible TE realisations of *corn*, *thought* and *walk* (all RP [ɔ:]) as [ko:n] [θɔut] and [wa:k]. See also Hughes & Trudgill (1979:65) in which *roll* appears with [ɔu]; Orton (1937:129).

Finally, it should be noted that the symbol used by other authors (Wells 1982, Hughes & Trudgill 1979, Lass 1983, Beal 1985, Pålsson 1972, Viereck 1966, etc.) to indicate the retraction of NURSE - viz., [ɔ(:)] - is in O'Connor's system the vowel corresponding to [ɒ] in conventional IPA usage. That is, O'Connor transcribes *on*, *what* and *got* as [ɔn], [wɔʔ] and [gɔd], and, more confusingly, *one* as [wɔ:n].²¹ Once again our interpretation of O'Connor's analysis is hindered by idiosyncratic usage of IPA in combination with an unsatisfactory level of explanation concerning the ways in which the phonetic system he has devised maps onto the lexicon, or at any rate onto a generalised range of phonological contexts.

Viereck's comprehensive study of the English of Gateshead, published in 1966, addresses the need for a more reliable source of information on the subject. This work is discussed in the next section.

6.3 Viereck (1966)²²

Despite Viereck's assurances that he has selected a 'representative' sample of Gateshead speakers (1966:59), the twelve informants that he uses are all middle-aged or elderly males of between 55 and 82 years of age; his principal criterion for selection of informants was that their place of birth, educational background and gender be the same. His reasons for this rather narrow selection procedure were that he expected to find that men who had been born in Gateshead and who had attended only primary school were more likely to use stereotypical local forms, as he was evidently particularly keen on collecting samples what he terms 'the purest possible dialect', i.e., that of speakers whose personal circumstances - place of residence, peer-group, and so on - had changed little over the previous decades; ideally the same would be true for their spouses. As justification, he quotes Orton (1962:15): "... in this country men speak vernacular more frequently, more consistently, and more genuinely than women"; as far as Viereck is concerned, it might be true to say that most points of interest in the dialect are to be found chiefly in the speech of older men.

His twelve speakers come from widely varying occupational backgrounds: we have manual workers, clockmakers, miners, a paver, a metal founder, a train driver, and a former baker now working in a glass factory. Place of residence appears to have been the initial method by which Viereck chose his subjects, as the majority of them lived in one of three working-men's hostels in the Gateshead area. Viereck collected his

²¹ The quality (where O'Connor's [ɔ:] = modern IPA [ɒ:]) is typical of modern TE; the length is not.

²² All translations from the German original are my own.

data over the course of several years from 1959 onward, during extended stays in Gateshead; in the main these were derived from recordings of conversations between pairs of informants or between an informant and the fieldworker, often on a topic provided by the fieldworker. The research also employed the use of questionnaires devised for the *Linguistic Atlas of England* (Dieth & Orton 1952) and for Catford's (unpublished) *Linguistic Survey of Scotland*. In this way, Viereck was able to collect samples of both conversational speech and a more formal register. The study is a 'phonematic analysis' and as such is purely descriptive, so quantitative analysis of variability has not been carried out (indeed, differences in distribution of forms between speakers are barely acknowledged, although alternative forms are provided for certain vowels). Viereck does, however, make a distinction between 'broad' TE and a 'mixed' form falling between broad TE and 'Modified Standard' English (1966:51). There are thus in his system three varieties of English used in Gateshead.

Taking each of the five variables individually, we can see that Viereck's analysis accurately predicts some of the forms which can be heard in the speech of older working-class males in the PVC sample. Like O'Connor, Viereck provides us first with a description of the variants he has recorded, followed by some sample texts.²³ Like O'Connor, Viereck's sample texts come in the form of anecdotes exemplifying the kinds of misunderstandings which arise from the peculiarities of Tyneside speech. Indeed, the value of these samples lies entirely in the fact that vowel qualities in Tyneside speech are so unfamiliar to speakers of other varieties (and conversely, that vowel qualities of standard varieties are unfamiliar to Tynesiders) that misunderstanding is commonplace or even inevitable. Viereck merely comments that the phonetic transcriptions of the three 'representative texts' are reflective of 'continuous free speech' (1966:94), but in the earlier publication of these samples he assures us that 'the... passages - chosen out of the speech of many informants - represent genuine dialect as recorded by myself' (1965:6). He continues, 'As it is continuous speech, typical forms and repetitions have been preserved' (ibid.). However, the fact that they are free of false starts, repairs, incomplete sentences and other features of natural spoken English suggests that Viereck has modified them somewhat, or that they have been produced by an individual accustomed to story- or joke-telling. The fact that all three passages illustrate the same point - that Tyneside vowels are idiosyncratic - demonstrates that Viereck's choice of text is far from random, and that these represent speech which can hardly be called 'spontaneous' in the sense that this term is used in modern sociolinguistics (compare, for example, the

²³ These may be found also in *Le maître phonétique* 123 (1965): 6-7.

sample text given in Hughes & Trudgill (1979:67-68) and here reproduced in Appendix 3, which strikes one as more naturalistic than those provided by Viereck).

The system of 15 vowel phonemes that Viereck establishes for the Gateshead dialect is illustrated in the following table.

Table 6.1: Viereck's 15-phoneme vowel system for Tyneside English (adapted from Viereck 1966:67)

<i>Monophthongs:</i>	<i>Place of articulation:</i>						<i>Diphthongs:</i>
<i>Height:</i>	front		central		back		<i>Tongue movement</i>
high	/i/	/ɪ/			/ʊ/	/u/	
mid	/e/	/ɛ/	/ə/	/o/	/ɒ/	/ɔ/	/ɔi/
low		/a/				/ɑ/	/ai/ /au/
	tense	lax	lax	tense	lax	tense	

The table hints that the tense (*gespannt*) vowels are somewhat higher than their lax (*entspannt*) counterparts through the use of super- and subscripted symbols, though as far as the taxonomic system goes pairs like [e] and [ɛ] are distinguished only by tenseness vs. laxity. The three-height system is rather unwieldy, and in combination with the use of phonemic symbols we are presented with seeming contradictions such as the height-equivalence of /ɒ/ and /e/. Fortunately, this classification appears not to impinge on Viereck's subsequent *phonetic* description of TE in any way at all, leading one to wonder what the value of such a 'phonematic analysis' might be.

A fuller exposition of the exponents of the variables in which we are interested is provided in the remaining sections of Viereck's monograph. These are discussed below.

6.3.1 FLEECE

In closed syllables such as *teem*,²⁴ *night*, *feet*, *dead*, Viereck reports a 'high front tense' vowel; this is 'between short and half-long before voiceless consonants in stressed syllables' (examples *feet*, *piece/peace*, *peep*, *cheek*, *leach*, *beef*, *teeth*, *leash*) and

²⁴ Glossed as 'to pour out' (1966:101).

'long... before voiced stops, spirants and sibilants as well as before /m, n, l/ (as in *you, feed, leave, feel, fees, beam, bean*). This of course is fairly typical of accents of English in general. He states, moreover, that /i/ has a frequent diphthongal variant [ei]... in free variation with [i] (as in [di, dei; tri, trei; ni, nei] *do, tree, knee*; 1966:69). Apart from a length difference, then, Viereck has either found no systematic alternation between FLEECE variants, and makes no mention of any monophthong/diphthong alternation in open versus closed syllables.

Viereck gives numerous examples of FLEECE appearing as a cardinal monophthong [i] in unstressed syllables (as far as one can tell, since Viereck has not in fact indicated word stress in the glossary) as in [baki] *baccy* (tobacco), [blaki] *blackie* (a young person belonging to a darkly pigmented race [sic]), [bɒni] *bonny*, [budi] *boody/ie* (broken pieces of china), [kudi] *cuddy* (donkey), [ganzi] *Gansey* (Guernsey? wool sweater), [ʤɔ:di] *Geordie*, [haki] *hacky* (dirty), [hini] *hinny* ('an affectionate term resembling the south country 'honey'), etc. (1966:97-99).

In the three passages supplied, Viereck uses the three variants more or less as expected: long monophthongs in *sees* [si:z], *immediately* [əmi:diətli], *you/ye* [ji:], *treatment* [tʁi:tmənt], *eastern* [i:sten] (these last two somewhat contradicting the voicing-based length distribution described above), short monophthongs in *he* [hi] and in all unstressed positions, and diphthongs in *knee* [nei] (1966:94-96). *Knee* is, regrettably, the only example of a fully stressed open syllable in all three passages, but in the light of Viereck's earlier comments we can assume that all stressed open syllables of the FLEECE class are at least potentially realisable as [ei].

Also of relevance is the commentary (1966:69) on the 'free alternation' between [ə] and zero between /i/ and /l(C)/ in items such as *steal, wheel, eel, yield*. The same, according to Viereck, applies to /u/ and /e/, and in a wider range of contexts to /o/ (see below). This claim is amply borne out by the data drawn from the PVC corpus, and in the case of /i/ may occasionally lead to confusion between pairs such as *steal~stale, peel~pale, meal~mail/male*, etc., given that FACE is often realised as [iə]/[iɛ] in TE, particularly by male speakers.

6.3.2 GOOSE

The examples given in Viereck's *Varianten der Vokalphoneme* (1966:§9.11, pp68-70) for this variable exemplify the retention of certain MOUTH-class words in the lexical set corresponding to Wells' GOOSE class; for this 'high, back, tense' monophthong we

see (exactly parallel to the alternation Viereck describes for FLEECE) a vowel which is 'between short and half-long before syllable-final voiceless consonants', as in /hus, šut, suθ, ut, sut/ *house, shout, south, out, suit* and a monophthong which before voiced stops, spirants and sibilants (plus /m, n, l/) is long, /fju, dun, mun, stul, fud, budi/ *few, down, moon, stool, food, booty* (1966:68). Viereck makes no use of length diacritics, which suggests that the alternation is categorical and is therefore predictable from the voicing identity of the following segment (these are, however, used in the narrow phonetic transcriptions which accompany the three sample texts).

Viereck indicates that GOOSE, like FLEECE, also occurs syllable-finally as [əw] and [u] 'in free variation', giving the example words *too, cow* and *stew* (1966:69). This is, however, not the symbol sequence he uses in the three passage transcriptions, instead preferring [əu] in items like *you, do, two, who's*, and *how* (1966:94-96).

It being claimed that (as with /i/ and /e/) [ə] is freely inserted between /u/ and /l(C)/ (1966:69) in items such as *cool* and *stools*, it is interesting to note that the [ə] ~ zero alternation before [l] is the only context in which the alternation appears to be preserved in Viereck's 'mixed' variety. This register, he suggests, lies on a scale between Received Standard English (Modified Standard) and 'initially predicted and also attested pronunciation' (1966:51), and might correspond to a less 'broad' but still recognisably Tyneside accent. The other examples Viereck provides of GOOSE (viz., *moon* and *boot*) are, like *school*, predicted and attested as [miən] and [biət], but in the mixed variety are pure monophthongs [mu:n] and [bu:t].²⁵ An examination of the data in the PVC study reveals that a great deal of this type of diphthongisation takes place in *school* (and other /ul/ sites) for many speakers, as well as a clearly perceptible lowering of [u] to [o] or even [ɔ] before [l]. These effects are probably due to the unusual articulatory and acoustic qualities of lateral approximants, which in TE are only very rarely velarised/pharyngealised in post-vocalic position.

Note also that Viereck classifies *shoe* as belonging to the GOAT set, attributing to it the same vowel quality as per *robe, road, rove, bone, nose* and *hole* (1966:69). This classification is supportable if one takes into account the fact that *shoe* could quite plausibly be transcribed using [o:] in the modern data, though it is not in fact attested in around 1,300 GOOSE tokens (*shoe* being categorised in the present study as a

²⁵ Despite the fact that one might expect a long monophthong to replace a diphthong in the 'mixed style' (given that distinctive length is on balance likely to be preserved in such circumstances), Viereck, as before, contradicts his subsequent statement that before syllable-final voiceless consonants (u) is between short and half-long. Certainly, it is unusual to find [u:] in contexts like *boot* in the PVC sample.

member of the GOOSE class). However, it appears that all those GOOSE words which have been transcribed from the PVC corpus using [o:] are either open syllables or have voiced consonants as syllable closures, as in *(bed)room, school, two, move, soon, students* and *afternoon*. This is probably because (u) occurs more frequently before voiced consonants or zero than it does before voiceless consonants, rather than being due to phonological conditioning *per se*.

6.3.3 FACE

Viereck has recorded surprisingly few FACE variants for his Gateshead speakers, considering the range of exponents attested in the PVC data (see Table 7.15). This may be because he has sampled speakers from a single social group, albeit a comparatively broad one from the point of view of the class variable, if occupation is taken to be indicative of social class.

The vowel itself is described as 'mid, front, tense' and is not distinguished from /e/ in terms of height - instead, /e/ and /ɛ/ are considered a 'tense' and 'lax' pair. The short/long alternation in /e/ is exemplified by the set with word-final voiceless consonants /let fes ep mek eč sef/ 'late, face, ape, make, h, safe' (which are between short and half-long) and those elsewhere /pe ste klez em rel ren med gez/ 'pay, stay, clothes, aim, rail, rain, made, gaze' which take the long variant (1966:68-69).

Viereck notes that like /i/ and /u/, /e/ may be realised before /l(C)/ by the variants [eə] and [e] in free variation, as in [sel/seəl, pel/peəl; fel/feəl; relz/reəlz] *sail, pale, fail, rails* (also *sale* and *pail*, presumably; 1966:69). This may be related to the diphthongisation apparent in the conservative form noted in the discussion of the 'intermediate', mixed variety (1966:51); *bake, cake, made* and *name* are given as [biək kiek miəd niəm] for speakers of the broadest dialect, with monophthongal [e:] substituted as a convergent form in such items. Both of these types, as well as the centring diphthong [eə] (in all contexts), are found with great frequency in the PVC sample, though their distribution seems more strongly determined by social factors than by purely contextual ones, as Viereck suggests.

The passages yield rather few examples of variation in this vowel category. In the first passage, only *train* [tʁeən] receives a diphthongal variant; this is, in the fact, the sole example of diphthongisation of FACE in all three sample texts, the remainder taking [e:] (*lady, hesitation, frustration, name, impatience*) or [eː] (*says*). Viereck's suggested rules, or 'tendencies', at any rate, seem only weakly supported by the texts offered. The

fact that *says* appears four times with the same half-long diacritic directly contradicts the commentary on page 69, though perhaps Viereck wishes to suggest that these tendencies apply only to fully stressed content words on first iteration.

Note that *baste* /bjɛst/ is classified with *fell*, *sell*, *tell*, and *wet* as belonging to the /ɛ/ set, as, it appears, is *again* /əgjɛn/; no explicit justification is given for such classification, so we must conclude that as far as Viereck is concerned there is no place in his system of FACE variants for an opening diphthong variant like that described by Hughes & Trudgill (1979:65).²⁶

6.3.4 GOAT

Viereck records a somewhat richer degree of variety in the range of phonetic exponents of this vowel variable. The default variant is a 'middle, central, tense' monophthong, which Viereck pairs with [ə] as its tense counterpart, albeit slightly higher if the superscripting in Table 6.1 is to be taken as a guide to height. We are, then, dealing with a vowel equivalent - or at any rate similar - to IPA [ø], which tallies with descriptions of the vowel quality recorded in the PVC material and elsewhere (Hughes & Trudgill 1979:65, Wells 1982:375); it is in fact the symbol used by Viereck in the text passages. The forms [sto:n] *stone* and [ho:m] *home* are, however, given as examples of Viereck's 'mixed variety', so perhaps he does not wish to rule out the presence of fully back monophthongs in this dialect.

Predictably, Viereck classifies /o/ before voiceless consonants as short to half-long, while elsewhere it is long; like the other variables discussed so far it may alternate between [ø] and [øə] in pre-/l(C)/ contexts. In addition, the diphthongal variant may also occur before stops, spirants and sibilants, as well as /m/ and /n/. The diphthongisation, as with /e/, may have its roots in the characteristic 'broad' Northumbrian form [iɛ], as in *stane* (*stone*). Orton (1937:129) suggests that the centralisation of the first element to [ə] represents an attempt to approximate to Early Standard English (see also Lass 1989) though he does not dispute that these 'may be considered just as typical of current Northumbrian as those pronunciations exhibiting the genuine representatives of old *a* and *o*₂'.

Again, Viereck's texts are a little thin on examples of the phonetic exponents of /o/, but *closed* [klø:zd], *closes* [klø:zəz] and *opens* [ø:pənz] demonstrate the long

²⁶ /jɛ/ may, after all, be considered phonetically equivalent to [iɛ] or [iɛ̃] (cf. Hughes & Trudgill's [iɛ] (1979:65)). See also Viereck (1968:69).

monophthong, while the diphthongal variant [əə] is exemplified by *home* [həəm], *moment's* [məmənts] and *boat(s)* [bəət(s)]. *So* [sə'] is described as half-long. Curiously, *story* appears with the same vowel in the first line of the third text, but Viereck offers no explanation for why this might be the case.

Note finally that a large class of words - those where /o/ precedes /l/ in other dialects, as in *old*, *cold*, *hold*, etc. - are found with [a] (but classified phonemically as members of the /a/ set); indeed, the comic effect of the first passage depends on the homophony between *cad* in a southern variety and *cold* in TE. Similarly, *know* is very often pronounced [nɑ:] ([a:nɑ:] *Ana* (the name of a foreign ship) ≈ [a:nɑ:] *I know* being the gist of the third text), though this by no means appears to be as categorical in modern TE as Viereck would have us believe.

6.3.5 NURSE

Viereck does not in fact give a separate symbol for this vowel, nor does he indicate that a separate lexical class corresponding to the NURSE set exists in TE. Instead, he proposes that a complete merger has taken place between the words of the NURSE set and those of the NORTH set (see also Wells 1982:374, where it is stated explicitly that at least in 'the broadest Geordie' the two sets are merged). Hence, the 'mid, back, tense' /ɔ/ serves for *bird*, *work* and *girl* as well as for *maud* (no gloss provided, despite this being the only example of a NORTH item given in the list of the merged NORTH and NURSE sets; 1966:68). In fact, in the lists of exemplars shown in the *Varianten der Vokalphoneme* section (pp68-69), almost all are NURSE items (*dirt*, *work*, *worse*, *lurch*; *fur*, *heard*, *bird*, *curve*, *girl*) with NORTH represented by *fork*, *cord* and *board*. The inventory of homophones is thus very large in the merged set, as we can surmise from Viereck's description that the items in the following sets must be homophonous:

girl~gall~Gaul
cord~cored~curd
bird~bored~board~burred
fur~fir~for~four~fore
 ? *heard~herd~hoard~whored~Hurd~Hird*

Work and *walk* are exempt from homophony in conservative varieties of TE, as demonstrated by the punchline of the second passage, [wɔ:k? aː kən hɑ:dli wɑ:k!] ("*Work? I can hardly walk!*"; 1966:95). From a functional point of view, the loss of distinctiveness as a result of such large-scale coalescence is problematic, particularly when the lowering of /o/ to [ɔ:] is rather frequent in this dialect. When, as is often the

case, /ɑ/ is rounded to [ɒ] in items like *farm* and *father/farther* the potential for ambiguity is still worse.

The distribution of the 'short to half-long' and long variants is exactly as described for the other variants discussed here. Once more, however, there is little evidence of such an alternation to be gleaned from the sample texts, with the examples *turns* [tɔ:nz], *hurts* [hɔ:ts], *work* [wɔ:k] (= RP *walk*) and *first* [fɔ:st] all being transcribed with long [ɔ:], the voicing or voicelessness of the following consonant notwithstanding. *Geordie*, which occurs seven times in the three texts, is rendered [dʒɔ:di].

6.3.6 Discussion

Viereck's description is thus a great deal more detailed than any previous or subsequent published analysis of the phonology and phonetics of the Tyneside vowel system (though see Watt & Milroy, forthcoming). That his speaker sample is somewhat restricted, however, means that the information he provides unfortunately only describes a rather conservative variety of the dialect, though of course this was Viereck's stated aim. He confirms in the later *Diachronic-Structural Analysis of a Northern English Urban Dialect* (1968) that he decided to stay with the field techniques of the *Survey of English Dialects* but to apply them to an urban variety, and likewise adhered to the SED doctrine of searching for 'the oldest features still extant' by examining the 'speech patterns of the lowest social classes [which] are here taken as representative of the whole urban community' (1968:66). Given that the 1951 census reveals that 89.4% of occupied and retired males in Gateshead belonged to occupational Classes III, IV and V (skilled, partly-skilled and unskilled occupations, respectively), Viereck's claim that older working-class males would be linguistically representative of the Gateshead community at large is borne out. But the omission of female speakers from Viereck's sample is regrettable, since they could be expected to account for at least half the population of the town at the time Viereck was carrying out his research.

A description of (and more convincingly genuine samples from) the corpus used might have been preferable to the hand-picked, stylised anecdotes Viereck gives by way of exemplification. These are, even so, commensurate to no great extent with the idealised, abstracted phonematic system that Viereck has laid out. The description he provides, however, while not directly comparable to the sample used for this study - it is not based on quantificational methods, for one thing - is useful in the sense that the lack of variability we can infer from Viereck's categorical statements about, say, the

realisation of the NURSE vowel as [ɔ:] across the board is indicative of changes that must subsequently have taken place.

6.4 Hughes & Trudgill (1979)²⁷

The brief, informal nature of the handbook in which the section on *Newcastle (Tyneside) English* is found restricts the authors to only superficial description of the gross differences between this accent and a standard southern variety. The chief shortcoming of the Hughes & Trudgill's (henceforth H&T) treatment of TE is the lack of provision of a phonetic transcription of the sample text; correspondences between the statements made by H&T on the nature of the phonology of TE and the monologue on the accompanying cassette must be deduced by the user. In fact, many of the comments made on specific features of the accent are based not on the monologue at all, but on a word list provided by another speaker, whose accent, we are told, 'is not as broad as that of the other speaker (even taking into account the fact that he is reading carefully)' (1979:65). The informant who provides the monologue, however, a man of around fifty years of age who has lived in and around Newcastle for most of his life, has a 'quite strong' accent which, we can assume, provides H&T with the other phonetic information they wish to include in the description. The monologue, on the other hand, is clearly spontaneous, and is replete with false starts, hesitations, unfinished sentences and fillers. It can therefore be considered of greater validity from the point of view of stylistic interference than can the sample texts supplied by Jones, O'Connor or Viereck.

6.4.1 FLEECE and GOOSE

These vowel variables are not actually directly discussed as regards quality, let alone any allophonic alternations, but it is pointed out that the word-final unstressed vowel in items like *city*, *seedy* and *happy* is /i:/ (1979:65-67; see also Local 1983, 1990) for both speakers. [u:] is cited as a variant in words with RP /au/ (*about*, *out*), though it seems rather unlikely that [u] in these contexts would be as long as, for example, the [u:] in *food*, *moon* or *ooze* (see also Viereck 1966:68-69). *Do*, in line 29 of the monologue text, is rendered as short /e/, as is *who* (line 63); it is not known whether the use of slanted brackets was intended strictly phonemically here.

²⁷ See Appendix 3.

6.4.2 FACE and GOAT

Alternation between monophthongal and diphthongal variants of FACE and GOAT is mentioned, the typical values being [e:] and [ø:] for monophthongs, and opening glides [ie] and [uo] for diphthongs. H&T remark further that 'the monophthongs would seem to be the more prestigious realisations of these vowels' (1979:65). A number of differences in the lexical distribution of vowel phonemes in TE are exemplified by *knows* /na:z/ (not a possible alternation for *nose*; cf. Viereck 1966:69, 96), *though* /ðə:/, and *no/nobody* both with /e/ (1979:67).²⁸

6.4.3 NURSE

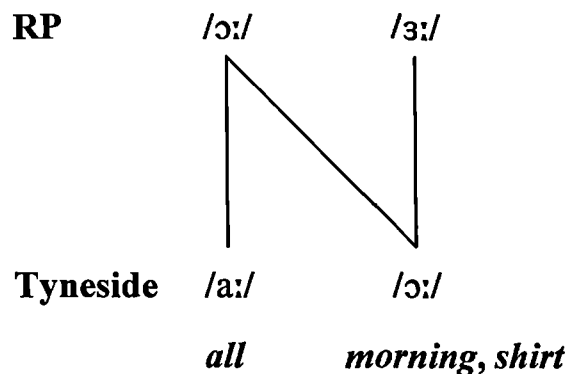
H&T, unlike Viereck, allow for the possibility that a complete merger between the NURSE and NORTH sets may not be a categorical feature for some speakers of this variety, and that its status may vary according to the speech style being employed. 'Words which have /ɜ:/ in RP have /ɔ:/ in a broad Tyneside accent. So, *first...* and *shirt...* are /fɔ:st/ and /ʃɔ:t/, homonyms of *forced* and *short*. Notice that the reader of the word list does have the vowel /ɜ:/, at least when reading, and would distinguish between *first* and *forced*' (1979:66).

They go on to state, 'By comparison with RP, the accent of Tyneside lacks one vowel, /ɜ:/, but has one extra, /a:/' (1979:66).²⁹ The complex relationship that obtains between the vowel phonemes /ɔ:/ and /ɜ:/ in RP and TE and their respective lexical classes is illustrated by Hughes & Trudgill as shown (1979:66):

²⁸ The vowel quadrilateral on page 66 of the first edition contains several errors and has been removed from subsequent editions.

²⁹ /a:/ occurs in words which have *al* in the spelling, e.g. *talking*, *called*, *all*, as distinct from those with /ɑ:/ such as *farm* and *car* (1979:66).

Figure 6.1: Lexical mapping relationship of RP /ɔ: ɜ:/ to TE /a: ɔ:/ (adapted from Hughes & Trudgill 1979:66)



Newborn, which appears twice in the orthographic transcript in the first edition and is given as an example of a member of the /ɔ:/ set (with *morning*) is a confusion with the place-name Newburn,³⁰ which demonstrates, albeit unintentionally, that the merger yields sufficiently similar phonetic forms for such confusion to take place.

The section on Tyneside in Wells' (1982) *Accents of English*, like Hughes & Trudgill's, is rather brief but gives useful information on salient features of the variety.

6.5 Wells (1982)³¹

The three pages devoted to the Tyneside accent that Wells has included in the text of the second volume of *Accents of English* (though no space is allotted to TE on the accompanying audio cassette) give more or less the same kind of information as have H&T, at a slightly enhanced level of detail. No precise indication is given of the sources on which Wells bases his commentary.

6.5.1 FLEECE and GOOSE

Wells states, 'The FLEECE vowel, /i/, has a strikingly diphthongal variant in final position: [nei] *knee*; [fɛiz] *frees* (≠ [fi:z] *freeze*)' (1982:375). 'Final' obviously means 'morpheme-finally' in this context. 'Similarly', he goes on, '/u/ has an allophone

³⁰ The third edition of the *Ordnance Survey Gazetteer of Great Britain* (1992) lists only one settlement by the name of Newburn, which is in the county of Tyne and Wear and is without doubt the town referred to in the monologue. The gazetteer lists no places by the name of Newborn. This error has been amended in the third edition of *Accents of English* (1996).

³¹ See Appendix 3.

[əu]' (ibid.; cf. Viereck 1966:69). The fact that Wells has identified this as allophony rather than Viereck's simple 'free variation' is important for the investigation of the monophthong/diphthong alternation investigated in Chapter 7.

The MOUTH vowel, according to Wells, is still in traditional dialect commonly heard as [u(:)], as is a 'compromise [əu]: *down* [dun ~ dəun ~ daun]' (1982:376). The 'compromise' Wells suggests no doubt shares features with Viereck's 'mixed' variety; speakers seem to compensate for the potential miscommunications or stigmatisation which might arise from the use of characteristically dialect forms like [dun] by approximating forms closer to a perceived standard or neutral variety.

6.5.2 FACE and GOAT

Wells describes the choice of variants available to Tyneside speakers as 'either monophthongs or opening/centring diphthongs'; these he has transcribed as [e(:)] or [eə ~ iə] and [o(:) ~ e(:)] or [ʊə ~ əə] (1982:375). Thus we might expect to find homophonous or quasi-homophonous pairs and sets like *gate/gait* and *goat*, *plane/plain* and *playing* [pleən], *low* and *lure*, and even *bay* and *beer* if H&T's [iə] is sufficiently similar to Wells' [iə]. Pairs like these are indeed found in the corpus used for my own study.

The central rounded monophthong [ə(:)], as opposed to the diphthongs which Wells suggests may be 'nowadays perhaps rather old-fashioned', is still 'a very characteristic GOAT quality both for Tyneside itself and for all Northumberland' (1982:375). The pronunciations of GOAT in the Wells' example phrase [ɑ 'dɛnt sə'pɔ:z ɑ ^nɒtʔɪst də ,kɔ:ld] *I don't suppose I noticed the cold* would be a great deal more typical of male speech than female speech in the PVC material, suggesting that women avoid this form where possible.

6.5.3 NURSE

Wells confines the merger of NURSE and NORTH to the 'broadest Geordie' only, giving the examples *work* [wɔ:k], *first* [fɔ:st] and *shirt* [ʃɔ:t] (= *short*). He attributes the retraction directly to the influence of a following uvular [ʁ] which had been a feature of the accent until the loss of post-vocalic rhoticity in TE (see Chapter 8). In a 'less broad' Newcastle accent, however, 'NURSE words have [ɜ:] or something similar, e.g. rounded centralized-front [ø:]' (1982:375). Most significantly, Wells argues that 'no hypercorrection of the type *short* *[ʃø:t] occurs: either the merger of NURSE and

NORTH was never categorical, or speakers are unusually successful in sorting the two sets out again' (1982:385). We must conclude that as long as we accept Garde's principle of the irreversibility of mergers by linguistic means (§2.6, §8.2) the merger of NURSE and NORTH was either categorical for a subset of speakers (the kind of speakers that were used as informants for all the studies discussed above, viz. middle-aged working class men) or, more strongly, that it was not categorical for any speaker of TE. Were the latter the case, the reported merger of NURSE and NORTH could have no phonological or phonetic status in past or present forms of the dialect (see Chapter 8; Watt 1996).

6.6 Summary and conclusion

Though, as mentioned earlier, this review did not aim to survey the literature on the subject of Tyneside vowel phonology in any exhaustive way, it should be clear that the five texts discussed above are useful in that they give around a hundred years' worth of direct and indirect information on salient features of the Tyneside variety, and do so in a clear and accessible way. It is also interesting to note how fieldwork methods have changed since Jones' time.

What is clear throughout the last three texts examined here is an awareness on the part of the authors of the changes that were going on in TE. Viereck, as mentioned earlier, gives no quantitative information on the variants he has recorded, but does indicate that for many speakers various traditional, standard-like, and 'fudged' forms are available, while Hughes & Trudgill and Wells suggest directions in which sound change may be taking place. Sound change taking place in TE are salient: this is not the sort of subtle phonetic drift which requires instrumental analysis to reveal it. These modifications to the vowel system are proceeding at such a rate that the authors of even brief surveys of the kind described in the texts (excluding Viereck's) feel they must include information on variability caused by the interaction of the traditional dialect with pressures from outside. Tyneside is a linguistic community which has clearly been in flux for many decades.

The development of the five variables since 1911 reported by the five accounts detailed in this chapter are schematised in Table 6.2 below.

Table 6.2: FLEECE, GOOSE, FACE, GOAT and NURSE: variants reported in Jones (1911), O'Connor (1947), Viereck (1966), Hughes & Trudgill (1979) and Wells (1982)

	FLEECE	GOOSE	FACE	GOAT	NURSE
Jones (1911)	i i:	u:	jɛ e:i	o:u jɛ a:	ɔ:
O'Connor (1947)	i i: i' ei	u: əu	e: eə	o: əə ɐ	ɔ:
Viereck (1966)	i ei	u(:) əw ɔu	e(˘) e: eə iɛ ³²	e(˘) ɐ: əə iɛ ³³	ɔ:
H&T (1979)	i:	u:	e: iɛ	ɐ: uo a: e	ɔ:
Wells (1982)	i: ei	u: əu	e(:) eə iɐ	o(:) e(:) uə e(:) əə	ɔ: ɜ: ø:

We see from Table 6.2 that, on the whole, the number of forms of each variable has increased as time has gone on. There will be several reasons for this: the superficiality of Jones' and O'Connor's treatments as opposed to the later ones; the change of focus from the most conservative, least 'adulterated' form of TE to a more balanced one (H&T, Wells) which may well have taken the speech of women and the young into account; and an acknowledgment that change may be taking place in the variety.

Viereck's later analysis (1968) of diachronic aspects of the language variation that gave rise to the English of Gateshead does recognise the last of these factors; it is, indeed, motivated by a sense of urgency. Tracing the paths of Middle English short and long (accented) vowels in RP/Standard Modern English and TE - both of which, he is keen to stress, are the products of exactly the same kinds of historical changes - he concludes that the attrition of traditional features of TE is nearing completion, and accelerating at the same time. This, he believes, explains the dearth of the 'oldest extant' vowel qualities he had expected to find in the sample that formed the basis of the 1966 research. Attributing the spread of non-local features in TE to 'education... radio, television and film' and to 'the whole linguistic climate of a large commercial centre' (1968:65), he feels that the apparent levelling 'increases the urgency of studying archaic, traditional dialect before these features disappear completely' (1968:76). Of particular interest in the context of this study are the apparent loss of the centring diphthongal variants of FACE and GOAT ([iə] and [uə]) and a simultaneous growth in the use of closing diphthongal variants of these vowels ([eɪ] and [oʊ]), as

³² Also [jɛ] in *baste*.

³³ Also [o:] in the 'mixed variety'.

well as the apparent reversal of the NURSE~NORTH merger and the concomitant development of [ø:] in words like *shirt* and *work*.

Traditional Tyneside vowel variants are still with us, as will be seen in the following chapters, and in one or two cases appearing to be bucking the levelling trend. While one can never predict the path of language change, it does appear that some of the traditional forms recorded by Viereck, Hughes & Trudgill, Wells, and indeed in this study, are unlikely to last very far into the next century. Unlike Viereck, however, I do not assume that TE is sliding inexorably into the melting pot of a uniform middle-class pan-lect; rather, it appears that the changes TE is presently undergoing are motivated by a desire among TE speakers to seem less specifically local, but still 'northern' in terms of their social loyalties.

The next chapter presents the results of a large-scale study of the five variables discussed above, which was carried out in order to investigate the patterns of levelling hypothesised to be taking place in this variety. With the information summarised in this chapter as a framework, complemented by a grounding in some of the 'internal' principles governing the behaviour of vowels in their systems (Chapter 2), the 'external' factors accounting for the socially- and stylistically-conditioned variation that is observed time and again in language research (Chapter 3), the social history of the TE-speaking population (Chapter 4), and the findings of the pilot study (Chapter 5) we may proceed in the knowledge that convincing explanations of the patterns of variation in the vowels sampled from the PVC corpus will be a good deal easier to obtain.

CHAPTER SEVEN: RESULTS

CHAPTER SEVEN: RESULTS

7.0 Introduction

The variables suggested in Chapter 5 as candidates for the full-scale study are as follows:

FLEECE	FACE	NURSE
GOOSE	GOAT	

As seen in the pilot study, the FACE and GOAT variables are interesting from a sociolinguistic point of view in their own right, but are also remarkably similar to one another in terms of the proportions of their variants used among the eight pilot study speakers. A larger sample of tokens of these vowels would confirm the symmetry of this patterning. The symmetrical relationship obtaining between FACE and GOAT is thought to apply also to FLEECE and GOOSE in TE, as suggested by Wells (1982), and so these variables are investigated in much the same way. NURSE has no obvious 'partner' vowel, and is examined in isolation; the wide range of phonetic variability and the implications of this for the modelling of the TE vowel system make the variable of particular interest. The results of the analysis of these five variables are presented in this chapter.

7.1 Data collection

Tokens of the five variables were collected using the methods outlined in Chapter 5. A total of forty tokens per vowel variable was sought, though in many cases it was not possible to attain this number, since some speakers used fewer than 40 tokens of a vowel even in 45-50 minutes of speech. Most instances of such shortfalls in the number of tokens collected were due to the speaker in question contributing comparatively little in terms of the proportion of spoken material recorded on tape; this problem was exacerbated in the case of NURSE, which is found in words bearing syllable stress only rather infrequently as compared to the other variables.¹

The data collection procedure aimed to collate sets of exponents in as wide a range of phonological contexts as possible. Where it appeared that an excessively large proportion of the sample of tokens would be accounted for by the repetition of a single lexical item, a ceiling of around ten tokens per item was imposed, with the exception of cases where the

¹ If high frequency items such as *her*, *were*, etc. bore stress more often in spontaneous conversational English, collection of 40 NURSE tokens per speaker would be unproblematic. Those content words which do typically receive a higher than average degree of stress are generally fairly uncommon from the point of view of both frequency within the lexicon and frequency of usage. A total of 1,165 NURSE tokens out of a desired 1,280 - or 91% - was collected, however, which for the purposes of this study is acceptable.

collection of a sufficiently large number of tokens would have been jeopardised had this criterion been applied strictly.

We turn now to the results themselves, dealing first with the close vowel pair FLEECE and GOOSE.

7.2 Close vowels: FLEECE and GOOSE

7.2.1 FLEECE

(a) *Variants of FLEECE*

Several authors have commented upon a salient characteristic of the pronunciation of the FLEECE vowel in TE. This feature involves a diphthongisation of the vowel in certain contexts. Wells (1982:375), for example, states that 'the FLEECE vowel, /i/, has a strikingly diphthongal variant in final position: [nei] *knee*; [fɛiz] *frees* ([fɛi:z] *freeze*)'. The quality recorded for the diphthongal form by Wells is identical to some pronunciations of FACE words in southern and midland varieties where closing diphthongs are used, such that *frees* in TE would be homophonous with *phrase* in RP; in other descriptions of the variety we see [ei], [iɪ] and [əi] to represent this vowel.

The fact that Wells describes the diphthongal variant as 'striking' suggests that these forms will be salient to other non-locals, and thus may be strongly socially marked as far as TE speakers are concerned. Also, if these forms are as salient as Wells suggests, we can rely upon his comment upon their distribution and assume that these forms confined to final positions only. Though the actual phonetic qualities recorded for diphthongal variants in the present study are multiple and rather variable, as suggested by the differing transcriptions in the preceding paragraph, we use Wells' [ei] notation to represent a generalised 'diphthongal' supercategory.

Note that Wells' 'final position' means final *within an individual morpheme*; *frees* differs from *freeze* in that the first form consists of two morphemes, the second of just one. The morphological suffixes listed below may attach to vowel-final morphemes containing FLEECE to produce minimal or near-minimal pairs of this type.

Table 7.1: Inflectional and clitic suffixes attaching to vowel-final FLEECE items²

- s	regular plural morpheme
- s	third-person singular suffix
- 's	genitive suffix
- 's	contraction of <i>is</i> or <i>has</i>
- (e)d	past participial/passive/adjectival suffix, weak verbs
- 'd	contraction of <i>had</i> or <i>would</i>
- 'll	contraction of <i>will</i> or <i>shall</i>
- 've	contraction of <i>have</i>
- ing	present continuous/gerund suffix

Diphthongal [ei] will thus be heard in such contexts irrespective of following morpheme-external phonological material. Table 7.2 lists other minimal or near-minimal pairs which exemplify this transparency (note that not all of the forms in Table 7.2 are attested in the PVC recordings, however).

Table 7.2: Minimal/near-minimal pairs containing FLEECE: allophonic alternation determined by morphological structure

<i>Affix</i>	<i>Polymorphemic</i>	<i>Monomorphemic</i>
	[ei]	[i:]
- s (<i>plural</i>)	<i>seas</i> <i>teas</i>	<i>seize</i> <i>tease/Tees</i> ³
- s (<i>3rd sg.</i>)	<i>sees</i>	<i>seize</i>
- 's (<i>gen.</i>)	<i>Lee's</i>	<i>sleaze</i>
- 's (<i>is/has</i>)	<i>she's</i>	<i>cheese</i>
- (e)d	<i>agreed</i> <i>knead</i> ⁴	<i>greed</i> <i>need/knead</i>
- 'd	<i>he'd</i> <i>we'd</i>	<i>heed</i> <i>weed</i>
- 'll	<i>he'll</i> <i>we'll</i>	<i>heel/heal</i> <i>wheel/weal</i>
- 've	<i>we've</i>	<i>weave</i>

² The clitic - 're is not included in this set, as it is not clear whether a form like *we're* (*we* being the commonest FLEECE form to which - 're can attach) is in a straightforward minimal pair relationship with forms like *weir* or *Wear* (the river name). The present continuous/gerund affix -ing is found very frequently in combination with verbs such as *see*, *be*, *ski*, *flee*, *free*, etc., but is not included in this table as comparable monomorphemic forms with FLEECE (*[bi:ŋ], *[fli:ŋ]) are phonotactically prohibited in this variety.

³ The river name, or the local television station *Tyne-Tees*.

⁴ As in, for example, *knakky-knead* 'knock-knead' (Graham 1987:30; Todd 1987:27).

If we take Wells' statement in its strongest form - in other words, interpreting the distribution of diphthongal variants in final position to mean that this distribution is mutually exclusive and exceptionless - the allophonic alternation can be stated as a pair of 'rules': one which yields diphthongal variants in (stressed)⁵ open syllables, and another producing monophthongal variants elsewhere (checked syllables). The rule determining the appearance of diphthongal variants in stressed vowel-final morphemes, and that which predicts monophthongs in stressed checked syllables, can be termed Rules I and II respectively.⁶

(b) Conversational material

As one would expect, the actual phonetic qualities of each of the two variants of the FLEECE vowel in running speech varied somewhat. Table 7.3 lists the qualities recorded; the criteria by which the sounds were classified should be obvious. Those towards the top of each column were heard most frequently.

Table 7.3: Recorded phonetic qualities of FLEECE variants, FC style

i:	ei
i(:)	ei
ɪ	ɪi
i:ə	ɛi
ɪ:	ɛi
ɛ	
e(:)	
eə	
ɛ	
y:	

The figures for the analysis of FLEECE by correspondence between syllable type and monophthongal versus diphthongal variants are shown, by speaker group, in Table 7.4.

⁵ As opposed to vowels of Wells' *happY* set, in which /i/ appears in unstressed position.

⁶ This is merely for the sake of explanatory convenience and clarity; any implication that these rules are as categorical as the use of such formalism suggests is counteracted by the findings of the analysis of the FLEECE and GOOSE variables discussed in §7.2. For a comparison of the TE alternation with the Scottish Vowel Length Rule, see Milroy (1995).

Table 7.4: Variants of FLEECE: monophthong/diphthong alternation as a function of syllable type, by speaker group, FC style (N)

Group	Syllable	[i:]	[ei]	Total
OMC M	Open	11	41	52
	Checked	140	2	142
YMC M	Open	28	62	90
	Checked	113	-	113
OWC M	Open	16	53	69
	Checked	129	-	129
YWC M	Open	7	76	83
	Checked	199	2	201
OMC F	Open	15	46	61
	Checked	159	-	159
YMC F	Open	11	72	83
	Checked	140	-	140
OWC F	Open	11	62	73
	Checked	125	3	128
YWC F	Open	5	63	68
	Checked	168	-	168

It is immediately clear that for all groups the split between monophthongal and diphthongal variants in checked syllables is very marked: that is, diphthongs occur extremely rarely in checked syllables, for all speakers. Just 7 tokens, or less than 1%, of diphthongal variants were found in the checked syllable context across the entire sample of 1,180 tokens. We can, therefore, state with confidence that the operation of Rule II is close to categorical for all speakers, and that in checked syllables only monophthongal variants will appear. Those diphthongal tokens which do appear in checked syllables can probably be accounted for by the fact that in certain contexts (especially before laterals in items like *deal*) a slight glide can sometimes be discerned. This does not appear to be consistent enough to merit the title of allophony, however.

The figures in Table 7.4 indicate that the operation of Rule I is considerably less consistent than that of Rule II. The proportions of monophthongal to diphthongal variants in open syllables are conspicuously variable, and range widely from speaker group to speaker group.

Variability in the operation of Rule I can be seen more clearly if the relevant figures are converted into percentages, as in Table 7.5.

Table 7.5: Variants of FLEECE in stressed open syllables, by speaker group, FC style (%)

Group	[i:]	[eɪ]
OMC M	21.2	78.8
YMC M	31.1	68.9
OWC M	23.2	76.8
YWC M	8.4	91.6
OMC F	24.6	75.4
YMC F	13.3	86.7
OWC F	15.1	84.9
YWC F	7.4	92.6

Log-linear modelling of the data summarised by Tables 7.4 and 7.5 confirms the non-random distribution of the FLEECE variants with respect to the social variables. A significant effect for social class ($p = .0338$) is summarised by the pooled figures for [i:] in the working-class and middle-class samples when these are presented as percentages:

	%[i:]
WC	13.3
MC	22.7

An effect almost as strong as that for class is derived from analysis of these figures by class and sex together ($p = .037$); there is a clear gender-based pattern which obtains in both class groups, where male speakers use a greater proportion of monophthongal variants in open syllables than do females. This is more marked amongst the MC speakers, which is probably as a result of the high score (31.1%) for the YMC males distorting the pattern (compare this with the similarly untypical [ə:] score for this group in §7.3.2).

	%[i:]	
	Male	Female
WC	15.1	11.3
MC	27.5	18.1

Class and age assessed together yield an effect ($p = .0453$) which achieves significance at the 5% level, though only by a slim margin. The figures for the age groups in the MC sample are practically identical, at between 22 and 23%, while in the WC group the difference between the older and young speakers is a great deal larger. Indeed, the class-based divergence between the young TE speakers in this sample is such that while our young WC speakers avoid monophthongal variants in open syllables almost all the time, a great deal more variability appears to be tolerated by young MC speakers. Here we have evidence in support of the

observation that working class speakers often use a wider range of phonetic variants in their speech than do speakers in higher social strata. As [i:] is to all intents categorical in checked syllables for all TE speakers in this sample, the options open to MC speakers are more constrained (and thus simpler in some sense) if each type of variant - monophthongal and diphthongal - is confined to its appropriate context only.

	%[i:]	
	Older	Young
WC	23.0	22.5
MC	19.0	7.9

No statistically significant effects are reported for age and sex,⁷ though the same general trends as those observed for other combinations of the social factors are implied by the low figure for the young female group in the table below.

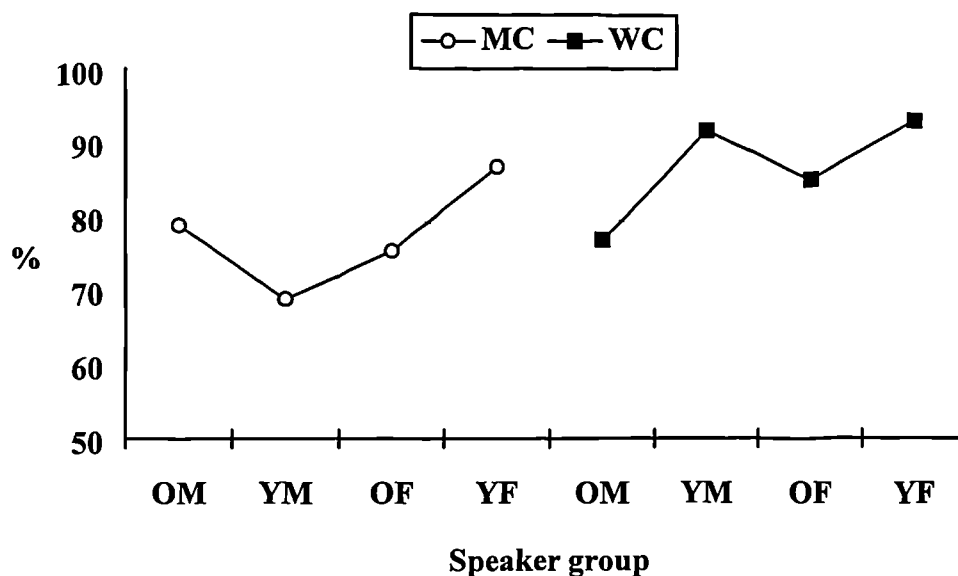
	%[i:]	
	Older	Young
Male	22.3	20.2
Female	19.4	10.6

Monophthongal variants of FLEECE in open syllables appear only half as often for young females in this sample as they do for other groups. Given that the working-class female group observes Rule I virtually categorically, and the fact that young WC males are similarly consistent with respect to this variable, it would be fair to say that Rule I is more entrenched in TE, at least in its more conservative form, than ever before.

However, the discrepancy between the samples for the young male speaker groups is rather difficult to account for in this context. The data for diphthongal FLEECE variants in Table 7.5 divided by class and presented in chart form, as per Figure 7.1, show rather similar general patterns for both class groups, except where young male speakers are concerned. The young WC males, as mentioned above, observe Rule I almost categorically, while the young MC males score lowest of all eight groups for this parameter. That a gap appears to have opened between young males of the middle classes and young WC speakers (both males *and* females) suggests that this feature may be elevating itself in terms of sociolinguistic salience from the level of 'indicator' to 'marker', in Labov's terms, though it should be noted that as yet the effect is rather minor compared with socially-conditioned variation in the other Tyneside vowels examined in this study.

⁷ An interactional effect between class and age is found to be significant at the 10% level ($p = .0866$) when sex is taken into account.

Figure 7.1: Diphthongal variants of FLEECE, open syllables, all speaker groups, by class, FC style (%)



In view of the potential vulnerability of this allophonic distinction to loss (its 'usefulness' being rather limited), it might be said that the young MC males have progressed furthest in terms of extending the use of monophthongal variants into open syllable contexts, and that this represents the 'erosion' of the categorical distinction used much more consistently by the young working-class groups.

From a lexical perspective, however, things are somewhat less clear. Examination of the transcribed items from which the data were abstracted suggests that we should be cautious about making such a strong interpretation of these patterns at this stage. Many of the items in which monophthongal variants are found in open syllables are not particularly frequent, are proper names, or are of foreign origin; we would expect, on the basis of studies of the lexical diffusion of sound changes, that it might be the more frequent items which would be affected first. A good number of the forms recorded for the open syllable context (especially in the samples for younger speakers) are elements of acronyms, for example.⁸

⁸ The names of letters (*B, C, E, G*, etc.) occurring in acronyms may be exempt from Rule I in TE, except where they occur at the end of an acronym sequence. Lesley Milroy (personal communication) remarks that in sequences of open FLEECE syllables in acronyms such as *BBC*, it is typically only the last syllable in which a diphthong is heard (viz., [bibi'sri], [ɑrtʔi'vri] *ITV*, [dʒisies'ri] *GCSE*, and so on). The question of relative stress is also an issue here. Acronyms generally have a somewhat ambiguous status with regard to both phonology and lexicon, in the sense that recently-coined acronyms are strictly speaking not lexicalised. Even established acronyms can be classified simultaneously as lexical items and sequences of free morphemes. Classification of such forms is thus far from straightforward.

The lexical items in which monophthongal variants of FLEECE were transcribed in the sample for YMC males are shown in Table 7.6:

Table 7.6: Lexical items containing monophthongal variants of FLEECE, open syllable condition, FC style (YMC males only)

Will	Richard	Philip	Nick
<i>Lee</i>	<i>degrees</i>	<i>degree</i>	<i>see</i>
<i>Lee's</i>		<i>Prix</i>	<i>GNVQ</i>
<i>BTEC</i> [ˈbitʔek]		<i>she's</i>	<i>three</i>
<i>see</i>		<i>skis</i>	<i>she's</i>
<i>three-and-a-half</i>		<i>v. (versus)</i>	
<i>CHA</i>		<i>GNVQ</i>	
<i>DSS</i>		<i>GCSE</i>	
<i>skiing</i>		<i>GCSE</i>	
		<i>three-hundred</i>	

The actual figures for the variants collected in this context are rather small, and within the YMC M sample some three-quarters (21 tokens of the sample of 28, or 11 and 10 tokens respectively) are accounted for by the speakers Will and Philip, with Richard using a monophthongal pronunciation just once in 12 tokens, and Nick producing 6 monophthongal tokens among a total of 26. It may be that with a larger sample, the discrepancy between the samples for the four speakers in this group would be ironed out. On the other hand, we could hardly realistically expect all four speakers in the group to behave exactly alike, especially where a sound change may be taking place. The data for the young MC males are suggestive of a change implemented by individual speakers of a certain type at a differential rate, and affecting certain types of lexical item (such as acronyms) before others.

We have seen from the results of the analyses of FACE and GOAT in the pilot study (§5.4.8) that vowel phonemes paired by height may behave rather similarly with respect to the phonetic nature and sociolinguistic distribution of their variants. It has already been remarked by several authors that FLEECE and GOOSE are mirror images of one another in the same way that FACE and GOAT can be said to be mutually referential, so we might expect variance of the type found in the analysis of FLEECE discussed here to be found in the corresponding data for GOOSE. In the following section, evidence is presented in support of this hypothesis.

7.2.2 GOOSE

(a) *Variants of GOOSE*

As with the FLEECE vowel, the discussion of GOOSE in TE found in Wells' *Accents of English* makes reference to an allophonic alternation, where /u/ has an allophone [əu] (1982:375). In the context of the parallel alternation in FLEECE, for which a description of the phonological conditions governing the alternation are outlined (see the previous section), we can surmise that Wells' use of the word 'similarly' indicates that these conditions are the same for GOOSE as well. That is, in syllables which are checked by one or more consonants morpheme-internally, as in *boot*, *scoops*, *lose*, *roomy* or *moonlight*, we find a monophthong [u(:)]. In syllables which are vowel-final ('open'), diphthongal realisations tend to be heard. These forms are characterised by a non-peripheral onset followed by a close back rounded glide, and while the glide is fairly consistent in quality, the first element of the diphthong may be in the region of [ʊ], [ɪ], or [ə], as per Wells' transcription. As such, the pronunciation of a word like *blue* in Tyneside English may approach rather closely the RP pronunciation of *blow* [bləʊ], for instance.

The exponents of GOOSE are listed under the monophthongal and diphthongal variant categories in Table 7.7. The symbol [u:] is used to represent the monophthongal variant, while [əu] will be the label for the diphthongal category, the offglide is perceived to be a little closer than Wells' [ʊ], although this precise quality is not necessarily heard consistently.

Table 7.7: Recorded phonetic qualities of GOOSE variants, FC style

<u>u:</u>	<u>əu</u>
u(:)	ɪu
ʊ(:)	əu
ɔ:	ʊu
o:	əu
ʌ(:)	ɛu
u:ə	ʌu
ə:	ɪo

As has been reported for FLEECE, the appearance of the diphthongal variant of GOOSE is unaffected by the presence of morpheme-external consonants following the vowel, so that

pairs like those shown below are non-homophonous. Again, a range of inflectional and clitic suffixes provide the contexts in which this alternation surfaces, as listed in Table 7.8.

Table 7.8: Inflectional and clitic suffixes attaching to vowel-final FLEECE items

- <i>s</i>	regular plural morpheme
- <i>s</i>	third-person singular suffix
- 's	genitive suffix
- 's	contraction of <i>is</i> or <i>has</i>
- (e) <i>d</i>	past participial/passive/adjectival suffix, weak verbs
- 'd	contraction of <i>had</i> or <i>would</i>
- 'll	contraction of <i>will</i> or <i>shall</i>
- 've	contraction of <i>have</i>
- <i>ing</i>	present continuous/gerund suffix

Examples of pairs distinguished only by morphological structure, rather than by phonological context, are rather scarce; those given in Table 7.9 demonstrate the general principle behind Rules I and II as they apply to the distribution of GOOSE variants, however.

Table 7.9: Minimal/near-minimal pairs containing GOOSE: allophonic alternation determined by morphological structure

<i>Affix</i>	<i>Polymorphemic</i> [əu]	<i>Monomorphemic</i> [u]
- <i>s</i> (<i>plural</i>)	<i>loos</i>	<i>lose</i>
- <i>s</i> (<i>3rd sg.</i>)	<i>mews</i>	<i>muse</i>
	<i>brews</i>	<i>bruise</i>
	<i>queues/cues</i>	<i>accuse</i>
- 's (<i>gen.</i>)	<i>Sue's</i>	<i>use/Ouse/ooze</i> ⁹
- 's (<i>is/has</i>)	<i>who's</i>	<i>use/Ouse/ooze</i>
- (e) <i>d</i>	<i>accrued</i>	<i>crude/rude</i>
- 'll	<i>you'll</i>	<i>Yule</i>
- 've	<i>you've</i>	<i>move</i>
- <i>ing</i>	<i>?brewing</i>	<i>?ruin</i>

As before, we may attribute the appearance of [əu] in 'open' (stressed) syllables to the operation of a rule we can label Rule I, while a second rule, Rule II, ensures that the monophthong [u:] appears elsewhere.

⁹ *Ouse* is a river name.

We turn next to the quantification and analysis of the distribution of these two variants in our sample.

(b) Conversational material

The aggregate figures for each speaker group are shown in Table 7.10.

Table 7.10: Variants of GOOSE: monophthong/diphthong alternation as a function of syllable type, by speaker group, FC style (N)

Group	Syllable	[u]	[əu]	Total
OMC M	Open	15	53	68
	Checked	93	-	93
YMC M	Open	17	81	98
	Checked	62	10	72
OWC M	Open	18	46	64
	Checked	69	1	70
YWC M	Open	7	78	85
	Checked	79	1	80
OMC F	Open	4	45	49
	Checked	112	5	117
YMC F	Open	15	82	97
	Checked	81	2	83
OWC F	Open	4	60	64
	Checked	94	1	95
YWC F	Open	4	89	93
	Checked	63	1	64

It is immediately noticeable that, as with FLEECE, the checked syllable context allows for a great deal less variation than does the open syllable context. The operation of Rule II is in this case not as categorical as for FLEECE, however; only in the case of the older middle-class males can full categoricalness be claimed. Diphthongal variants in checked syllables account for some 21 tokens, or 3.1%, of a total of 674. Of these, around half are accounted for by the young MC male group; in this sample all but one (9 tokens) is recorded for a single speaker, Philip, who uses forms such as [skɪul]/[skuul] 'school' and [srɪn] 'soon'.¹⁰ Philip, as will be remembered from the discussion of the parallel context for FLEECE, tends to favour diphthongal forms of FLEECE and more than do the other members of his speaker group, so this apparently anomalous behaviour is at least consistent for these two variables. Philip's GOOSE fronting is discussed more fully in §8.1 with reference to similar processes which

¹⁰ GOOSE is frequently lowered in TE to [o:] in *school* and other items in which it precedes /l/.

appear to be affecting the quality of this and other back vowels across the English-speaking world.

Clearly, though, the low figures for diphthongal variants in checked syllables suggest that on the whole [əu] is disfavoured - indeed all but avoided - where the GOOSE vowel is followed by a consonant morpheme-internally. For the purposes of this analysis, then, we can consider the association of monophthongal variants with checked syllables to be effectively categorical.

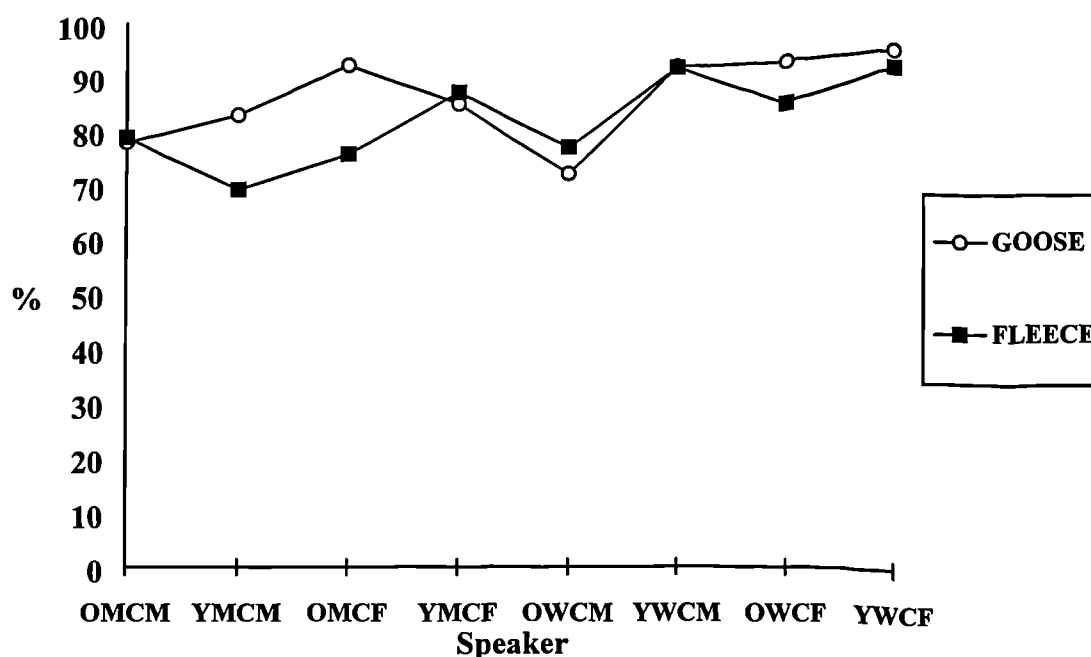
In the open syllable context, on the other hand, we see a pattern rather similar to what we might have expected on the basis of the distribution of monophthongal and diphthongal variants of FLEECE. These figures are presented as percentage scores in Table 7.11.

Table 7.11: Variants of GOOSE in stressed open syllables, by speaker group, FC style (%)

Group	[u:]	[əu]
OMCM	22.1	77.9
YMCM	17.3	82.7
OWCM	28.1	71.9
YWCM	8.2	91.8
OMCF	8.2	91.8
YMCF	15.5	84.5
OWCF	6.3	92.7
YWCF	4.3	95.7

The log-linear models of the data summarised in Table 7.11 show that the strongest effect is that for speaker sex, where $p = .0234$. The class and age variables are likewise found to have a marginally significant influence at the 5% level on the distributions of the monophthongal and diphthongal variants when these factors are taken into account in combination with speaker sex ($p = .0472$). These effects are clarified when one considers the figures for each speaker group against the others, as in Figure 7.2, as it becomes apparent that the interaction of the three social factors is rather complex. For the purposes of comparison with the corresponding situation in the FLEECE vowel, the figures from Table 7.5 are in Figure 7.2 superimposed on the scores for GOOSE.

Figure 7.2: Diphthongal variants of GOOSE and FLEECE, open syllables, all speaker groups, FC style (%)



The closeness of fit between the open syllable scores for [əu] and [eɪ] per speaker group is striking, particularly in the case of the WC speakers. Among this group, the discrepancy is greatest in the sample for the older females, though this is less than 8%. That is, the categoricalness of Rule I is under 8% less complete for FLEECE than for GOOSE, though in both cases the figures of well over 80% (92.7% for GOOSE, 84.9% for FLEECE) suggest that the appearance of diphthongal variants in open syllables is virtually categorical for these OWC F speakers. Oddly, however, the Pearson product-moment correlation coefficient ($r = 0.567$) indicates that the degree of fit between the lines for FLEECE and GOOSE in Figure 7.2 is rather low, giving no indication that this is unlikely to have arisen by chance ($p > .1$).¹¹

7.2.3 FLEECE and GOOSE: word list style

The figures for FLEECE and GOOSE provide a reasonably large sample for each speaker group when the data for individual speakers are pooled. A comparison is made here of FLEECE and GOOSE in the two speaking styles, free conversational style (FC) and word list style (WL), as per the pilot study. Note that the small sample sizes prevent formal statistical analysis: the

¹¹ If the figures for the 'problematic' YMC M and OMC F groups are omitted, the fit improves dramatically ($r = 0.907$; $p < .002$). This shows the disruption to the highly symmetrical pattern obtaining in the samples for the other speaker groups incurred by the preference among the YMC males and the OMC females for [i:] in open syllables.

evidence of phonological symmetry which are presented on the basis of the data should justify the absence of such backup.

(a) FLEECE

Since we are interested chiefly in the characteristics of FLEECE where it occurs in open syllables - having found in the conversational material that the monophthongal variant appears categorically in checked syllables - our attention is focussed on the speakers' productions of the vowel of *key*, which is in fact the only item in the word list which fits the 'FLEECE in open syllable' bill. We find that in the majority of cases, the allophonic alternation is observed very closely: [i:] appears in syllables checked by consonants morpheme-internally,¹² while closing diphthongs [ei] and [ɪi] are preferred in *key*. The latter will be indicated by [ei]. The sample sizes vary somewhat between individuals, and thus speaker groups, as the DAT recorder very often did not pick up the first few items on the word list for every speaker (especially the first citation of *sheet* and *beetle*). Misreadings were rather frequent too: *beak* was read as *break* by several speakers, while *read* [ɹi:d] was read as *read* [ɹæd]. On the other hand, misreadings provided some extra tokens to compensate for this (*bid* read by Ann as *bead*, for instance; Kelly's *wreck* as [bɹɪk] and *petrol* as ?*metre* ['mɪtʃɹe]; David's *leap it* for *lap it*; Harry's misreading of *he meant what he said* as *he meant what she said* restoring *he* with contrastive stress). The results for the FLEECE variable are shown in Table 7.12.

Table 7.12: Variants of FLEECE in checked and open syllables: all speaker groups, WL style (N)

		<u>Ch</u>	<u>Op</u>			<u>Ch</u>	<u>Op</u>
OMC M	Mon	46	1	OWC M	Mon	40	-
	Diph	-	4		Diph	-	4
YMC M	Mon	46	-	YWC M	Mon	58	-
	Diph	1	4		Diph	-	5
OMC F	Mon	48	4	OWC F	Mon	38	-
	Diph	-	-		Diph	-	4
YMC F	Mon	49	1	YWC F	Mon	45	-
	Diph	-	3		Diph	-	4

(Ch = checked; Op = open; Mon = monophthong; Diph = diphthong)

¹² Checked-syllable FLEECE items on the word list are: *sheet* (twice), *beetle*, *metre*, *beat* (in *I beat it* and *pack it in or beat it*), *beak*, *seek* (in *I seek it*), *leap*, *steep* (in *I steep it*), *read*, and *breeze*.

The figures for all working-class speaker groups show that the allophonic rule is being observed categorically - the monophthongal and diphthongal variants are in regular complementary distribution. It is among the middle-class speakers that we see a disruption to this pattern: of the young female group, Victoria has [k^hi:], while Harry's contrastively stressed *he* is similarly found as a monophthong. But it is the sample for the older females that stands out in this respect: all four tokens of *key* are pronounced [k^hi:]. Compare this with the corresponding FLEECE sample in conversation style: the older MC females score highest for monophthongal variants in open syllables, just as they do in word-list style, but the preference (24.6% [i:], as compared to 75.4% [ei]) is much less marked (see Table 7.5).

The diphthongal token in checked context recorded for the young MC males is accounted for by Philip's pronunciation of *breeze* as [bɹæiz]. It is possible, then, that for Philip the distinction that gives us pairs of the *freeze~frees* sort is neutralised. This is echoed by Philip's diphthongisation of the vowel of *brood* which corresponds to the vowel of his and other speakers' pronunciations of *brew* (and hence, presumably, *brewed*). Other than Victoria's *booking* ['buukɪŋ], which might be put down to the ambiguous lexical membership of *book* in Tyneside English (see the next section) this is in fact the only example in the word-list material, some 223 tokens in all, of apparent confusion about the distribution of [əu] across the two syllable types.

(b) GOOSE

The analysis of this vowel is complicated by the variable overlap of the RP-based lexical sets GOOSE and FOOT, and the fact that FOOT is merged with STRUT in Tyneside English (or, rather, that FOOT did not split from STRUT as is the case in southern varieties of English English). We proceed with caution, since we are dealing with two main variants of GOOSE ([u:] and [əu]) which appear with variable predictability as a function of sex, age class and style, in addition to the vowels of (RP) FOOT~STRUT forms like *book*, *foot*, etc. which very often may be heard as a rather peripheral close back rounded [u]. A phonotactic constraint prevents the vowel of FOOT~STRUT from appearing in open syllables (at least in stressed positions in citation forms), however, so we can expect the relevant vowels in words of this lexical set to be consistently monophthongal. Here we have an example of the difficulties associated with the use of RP as a benchmark by which other accents of English may be assessed: Wells' lexical sets do not map onto the phonology of Tyneside English particularly well in this case, especially when the membership of individual items may vary according to speaker style.

The schema belows indicates some of the relationships that complicate a straightforward analysis of the situation as per FLEECE.

Table 7.13: Variability in membership of GOOSE and FOOT-STRUT lexical sets, by following consonant¹³

Context	GOOSE only	← variable →	FOOT-STRUT only
V/p/	<i>coop</i>		<i>cup</i>
V/b/	<i>boob</i>		<i>cub</i>
V/t/	<i>route</i>	<i>foot</i>	<i>rut</i>
V/d/	<i>food</i>		<i>blood</i>
V/k/	<i>fluke</i>	<i>look</i>	<i>luck</i>
V/g/	<i>?Moog</i>		<i>mug</i>
V/ʈʃ/	<i>hooch</i>		<i>hutch</i>
V/ɖʒ/	<i>Scrooge</i>		<i>grudge</i>
V/θ/	<i>tooth</i>		
V/ð/	<i>smooth</i>		<i>brother</i>
V/f/		<i>roof</i>	<i>rough</i>
V/v/	<i>move</i>		<i>love</i>
V/s/	<i>truce</i>		<i>truss</i>
V/z/	<i>lose</i>		<i>fuzz</i>
V/ʃ/	<i>douche</i>	<i>push</i>	<i>rush</i>
V/ʒ/	<i>rouge</i>		
V/m/	<i>bloom</i>	<i>room</i>	<i>sum</i>
V/n/	<i>soon</i>		<i>sun</i>
V/l/	<i>fool</i>		<i>full</i>

Those items in the middle column may be found either with [u:] or with [ʊ]; that is, their membership of the two lexical sets may vary according to speaker characteristics or speech style, or even just at random. Furthermore, the vowel of the FOOT-STRUT set may unround in word-list style to approximate the 'prestige' form [ʌ] (this vowel, however, is usually closer to [ə] than to the RP value).¹⁴

¹³ Yod forms such as *duke*, *nude*, etc. are omitted here, as these take [u:] categorically.

¹⁴ It has been my experience that when teaching practical phonetics classes to students from the north-east of England who have no FOOT-STRUT split, the distinction between schwa and [ʌ] is often problematic. Such students very often cannot perceive a difference between pairs like [pəp] and [pʌp], let alone produce one, and will usually substitute [ə] when asked to produce the RP or Scottish English value of [ʌ].

GOOSE is exemplified in the word list by nine items, seven of which are unambiguously members of this set (*boot*, *Bootle*,¹⁵ *hooter*, *brood*, *booze*, *brew* and *do* (in *I've got to do it tomorrow*))¹⁶. The remaining two, *footer* and *booking* (in *he's booking separate tables for supper*) pattern with FOOT in RP and many other varieties of British English, though *foot(er)* (plus perhaps *root*, *soot*)¹⁷ and *book* (also *look*, *cook*, *took*, *brook*) are best thought of as members of the set of words falling in the middle column in Table 7.11. Older MC speakers Steve and Jean E., for instance, use [ʊ] in *booking* where the other speakers in their groups do not (ditto older WC Fred and Sylvia); the vowel of Nick's *boot* is recorded as [ʊ]. Lee reads *footer* twice, first with [ʊ] then with [u], while Sylvia is recorded as using [u] in *boot* (first citation), *Bootle* and *hooter* as well as *booking*, which is almost certainly some form of hypercorrection in response to the formality of the reading task. Jean B. and Sheila both use [u] in items normally classified as members of FOOT~STRUT (*put*, *footer*, and *putting* (in *he's putting it off*)), which may be hypercorrection in the 'opposite direction', i.e. classifying FOOT~STRUT items as GOOSE ones.

As with FLEECE, the categoricalness of the rule assigning the monophthongal variant to syllables checked by consonantal material is more or less complete as it relates to the GOOSE variable: the two exceptions are Philip's *brood* and Victoria's *booking* (see above). In open syllables, however, the pattern is rather less clear-cut than is the case for FLEECE. The figures themselves, in Table 7.14, show that all but one group have at least one monophthongal token of GOOSE in open syllables.

Table 7.14: Variants of GOOSE in checked and open syllables: all speaker groups, WL style (N)

		<u>Ch</u>	<u>Op</u>			<u>Ch</u>	<u>Op</u>
OMC M	Mon	27	2	OWC M	Mon	27	1
	Diph	-	6		Diph	-	7
YMC M	Mon	26	1	YWC M	Mon	32	4
	Diph	1	7		Diph	-	6
OMC F	Mon	27	4	OWC F	Mon	28	2
	Diph	-	4		Diph	-	6
YMC F	Mon	26	-	YWC F	Mon	28	1
	Diph	1	8		Diph	-	7

¹⁵ The name of the Merseyside town, near Liverpool, in the north-west of England. Read as *bottle* by Lee.

¹⁶ Note that *do* may be realised variably as [di:], [de:], [diə], etc., in this variety; it would be unlikely, on the other hand, to hear such localised pronunciations in word-list style. No examples of these variants are recorded in the PVC word-list material.

¹⁷ *Boot*, *coot*, *hoot*, *loot*, *moot*, *scoot*, *toot* and *zoot(-suit)* almost invariably pattern with GOOSE in accents of British English, including Tyneside English.

All but one of the monophthongs in open syllables can be accounted for by *do*, which in the phrase *I've got to do it tomorrow* receives a good deal less stress than it would were it presented in isolation.¹⁸ We may justifiably disregard these, then, since the effect of speech rate and the location of nuclear stress on the second syllable of *tomorrow* is liable to override the usual process of diphthongisation.

Eileen's *brew* [bɹu:], then, is the sole fully stressed example in this word-list data of a monophthongal form occurring in an open syllable, while Philip's *brood* (and Victoria's *booking*) are the converse: that is, diphthongal forms which are found in checked syllables. The categoricalness of the allophonic alternation in GOOSE is thus confirmed as long as we concentrate on citation forms such as these.

We can distinguish, lastly, between two types of closing diphthong in the open syllable *brew*: those with very fronted first elements, which have been transcribed [ɪu], and a less marked type with a retracted, rounded onglide [ʊu]. The latter is less salient as the glide covers less acoustic and articulatory distance, and may thus represent a variant lying midway between the local [ɪu] and the levelled [u]. [ʊu] is, of course, a variant of GOOSE that Gimson (1980:122) describes as being particularly frequent in final positions (*do*, *shoe*, *who*). 'Any exaggeration of the diphthong, e.g. [əü] or [iü], with total loss of lip-rounding on the first element (or, occasionally, on both elements),' Gimson continues, 'is typical of popular (Cockney) London speech. On the other hand, a quality of /u:/ which is too near to a pure C [u], with strong lip-rounding, is characterized as affected or over-cultivated.' We might expect Tyneside speakers using a careful mode of pronunciation to be aware of the varying status associated with these forms, and to follow a pattern as unmarked as possible: approximating [ʊu] without fully monophthongising the vowel is the pattern used by six of the Tyneside speakers (David, Harry, Brenda, Jean E., Victoria and Tracey). These are all middle-class and/or female speakers, which tallies with findings elsewhere concerning the ways in which speakers conform, to a greater or lesser degree, to the consensus norms of formal speech.

Here we may see evidence of the near symmetry in the distribution of variants of the close vowels FLEECE and GOOSE. This next section will investigate whether this pattern is repeated

¹⁸ Veatch (1991:186) argues that glides which are *phonetically* derived (i.e. not diphthongal with respect to the vowel system, such as the [əu] variant of GOOSE) are less strictly specified than those which are specified in the underlying phonology, like the 'phonemic' PRICE or MOUTH diphthongs (which of course may be phonetically monophthongs in some varieties of English). As a result, the former are less likely to be preserved intact when stress is reduced, in that they become less distinct as glides. Conversely, strongly stressed *monophthongs* - Veatch restricts this to mid vowels /e:/ and /o:/ only - may undergo raising and breaking to [ɪə] and [ʊə], which accounts for the patterns in his Jamaican Creole vowel data and arguably for the parallel pattern in Tyneside English (see also Labov, Yaeger & Steiner 1972:97).

in the close-mid pair FACE and GOAT, as was found for the eight speakers in the pilot study (§5.4.8).

7.3 Close-mid vowels: FACE and GOAT

The analysis of these variables is necessarily more complicated than that of FLEECE and GOOSE, for two reasons: first, there are a larger number of variants of each (three and four for FACE and GOAT, respectively), and second, no obvious allophonic alternation by which the data might be categorised is apparent. Certainly, none is reported in the previous literature. It appears that the distribution of the variants of FACE and GOAT is dictated largely by their function as social markers, rather than by their phonological context.

By way of investigating the possible role of phonological context, however, the data for these variables were sorted by following consonant type.¹⁹ The contexts used for FACE are as follows:

- (e)-final (i.e. open syllable) *may, grey*
- (e) + nasal *rain, game, aimed*
- (e) + voiceless plosive *ape, gate, steak, aitch, later*
- (e) + voiceless fricative *safe, case*

For convenience these will be notated, where they appear in tables and figures elsewhere in this chapter, as:

- $V\#$
- Vn
- Vp
- Vs

where V stands for 'vowel', $\#$ indicates a word boundary,²⁰ and p and s represent the categories voiceless plosive and voiceless fricative respectively. Note that in the analysis of GOAT, tokens are broken down by an additional three contexts (§7.3.2(c)).

¹⁹ Affricates $/tʃ/$ and $/dʒ/$ are treated as voiceless and voiced plosives, respectively. A relative shortage of FACE tokens before voiced stops and fricatives and $/l/$ prevented the inclusion of these environments in the analysis. These contexts are, however, used in the analysis of GOAT in §7.3.2.

²⁰ Note that unlike FLEECE and GOOSE, the presence of word-internal morpheme boundaries does not seem to be a relevant factor for FACE and GOAT. That is, there is no apparent correspondence between the vowel qualities recorded in bimorphemic forms like *rays* or *rows* and those in monomorphemes *raise/raze* and *rose*. As far as the phonology is concerned, in other words, the morphological structure of these homophonous pairs is transparent.

It is hypothesised that where levelling is taking place, it may be manifested in certain phonological contexts before others, as a combination of word frequency and phonetic 'naturalness' factors may assist or retard a change as it progresses. Likewise, the effect of heightened formality in speaking style may serve to exaggerate the movement away from localised forms. For the FACE variable, the 'context-free' data will be dealt with first, followed a discussion of context-related effects, if any, and finally a comparison of conversational and word-list material will be made in the section under §7.3.1(c).

7.3.1 FACE

A very large number of phonetic exponents of this vowel were discriminated: as outlined in the pilot study, these must be collapsed into a manageable set of variant categories, based on three criteria:

- Frequency of exponent types
- Markedness of exponent types
- Categories used in previous descriptions

The qualities recorded are listed in Table 7.15.

Table 7.15: Recorded phonetic qualities of FACE variants, FC style

e:	ɪə	eɪ
e(:)	ɪə	e(:)ɪ
ɐ:	e(:)ə	ɐ(:)ɪ
ɐ(:)	iə	eɪ
ɐ:	ɛə	ɪi
ɛ:	ɐə	əɪ
ɨ:		
ɛ:		

Despite this large amount of surface variability, these qualities clearly exemplify the categories to which they are assigned; in general, those which are difficult to categorise occur with the least frequency, suggesting that as far as speakers are concerned, the categories reported here and elsewhere in the literature are the ones actually used.

(a) *Pooled contexts*

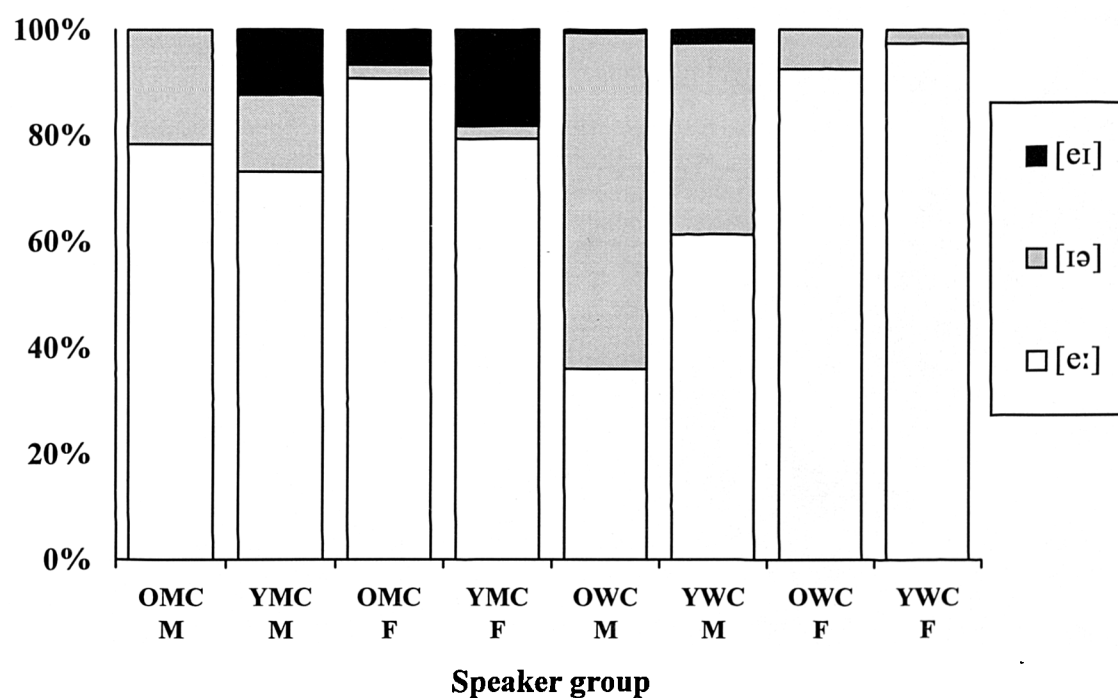
The aggregated figures per speaker group for these variants collected from the conversational material are shown in Table 7.16.

Table 7.16: FACE variants: by speaker group, FC style (N)

Group	[e:]	[Iə]	[eɪ]	Total
OMC M	112	31	-	143
YMC M	106	21	18	145
OMC F	139	4	10	153
YMC F	132	4	30	166
OWC M	63	110	1	174
YWC M	118	69	5	192
OWC F	112	9	-	121
YWC F	147	4	-	151

These figures are reproduced as percentages in Figure 7.3.

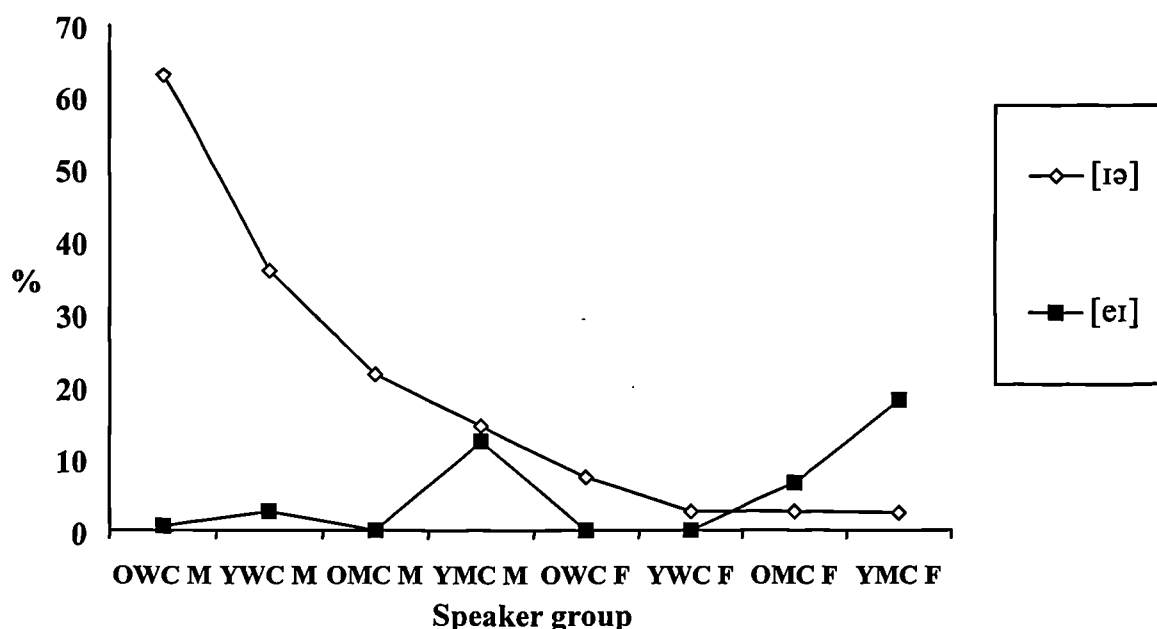
Figure 7.3: FACE variants by speaker group, FC style (%)



The patterning here is fairly clear: most speakers prefer the unmarked monophthongal variant [e:], with the exception of the OWC males, who use it just one-third of the time (36.2%). This pattern is almost exactly reversed in the YWC male sample, in which the balance of [e:] to [ɪə] is redressed. The use of [e:] is virtually categorical for the WC women, however: unlike the MC women, they avoid the 'prestige' variant [eɪ] in this sample altogether, and use only a very small proportion of [ɪə], a proportion which dwindles to insignificance in the sample for the YWC females.

The use of the centring diphthong [ɪə] is evidently a male habit, while that of the closing diphthong [eɪ] is confined largely to female speakers (though note the comparatively large proportion of [eɪ] among the YMC males). This observation is borne out by the very highly significant effect found for speaker sex ($p < .0001$). Also, the distribution appears to depend upon the class factor, in that the age and sex-based patterns in Figure 7.3 are broadly similar but differ in degree. Again, this is confirmed by the log-linear models (sex + class, $p = .0001$; sex + age + class, $p = .0076$). The interaction between these factors can be seen more clearly if the 'marked' variants are compared against one another, treating [e:] as the default variant.

Figure 7.4: Comparison of distributions of centring diphthongal and closing diphthongal variants of FACE, all speaker groups, FC style (%)



The distribution of [ɪə] is precisely what might be predicted on the basis of its very highly marked status: the decrease in its use as one passes through the WC group (on the left of

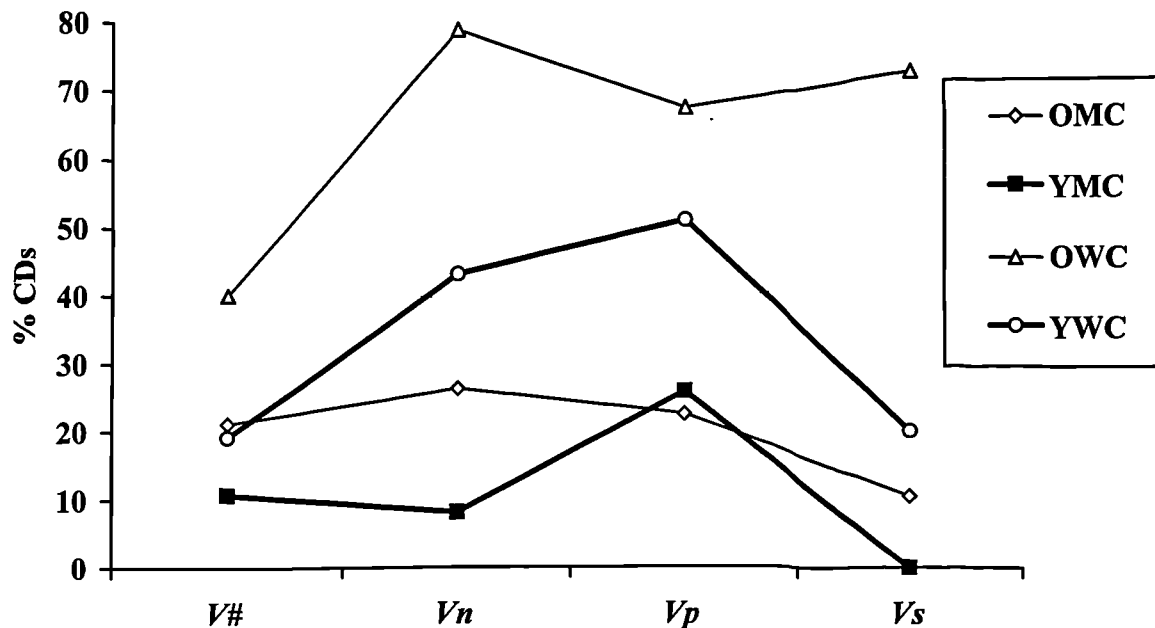
Figure 7.4) is determined by sex and age - female speakers using it less than male speakers, and young speakers less than older ones. This is a pattern we will see elsewhere in the distribution of the localised forms of the GOAT and NURSE vowels. Use of [eɪ], however, is predictably low in working-class and male speakers, and among females rises from zero in the working-class group to almost 20% among the YMC women. The exception to this pattern is the rather heavy use of [eɪ] by the YMC men; indeed, this group uses [ɪə] and [eɪ] in approximately equal proportions. This suggests that, unlike the use of [ɪə] as a marker of sex, the use of [eɪ] may be more class-based, again precisely what we would expect intuitively, since gender differences are reduced the further one travels up the social scale. It is not clear in this case, however, who is converging to whom: since prestige forms are supposed to be institutionalised as such by men rather than by women, to say that the YMC men are using 'women's' forms more often is misleading.²¹

(b) Effect of following context

The effect of following context on the distribution of the centring diphthong [ɪə] is shown to be very highly significant ($p = .0001$), though of course it should be remembered that the actual figures for female speakers are extremely low for this variant (a total of 21 tokens from an entire sample of 591, or about 3.5%). For this reason, female speakers are omitted here. It appears from the figures for male speakers summarised in Figure 7.5 that the young MC and WC groups prefer to use [ɪə] before voiceless stops /p t k tʃ/, while older males favour the pre-nasal environment. Overall levels are higher throughout for the older speakers in either class, as expected, while the gap between the age groups is much more marked in the WC males than is the case between the MC groups, implying that young WC males have had to 'go further' than their MC counterparts in levelling this feature out of their speech.

²¹ Recall from Chapter 3 the study of Elyan *et al.* (1978).

Figure 7.5: Proportions of centring diphthongal variant of FACE in four phonological contexts, male speaker groups only, FC style (%)



The proportions of [ɪə], moreover, are generally low in open syllables (*day, say, grey*, etc.) for all groups and low in the *Vs* environment for three of the groups (i.e. those other than the OWC group). Interestingly, the OWC group has a low percentage of [ɪə] in the *V#* environment while their score remains at a high level in *Vs*. This may be because open syllables have always tended to favour monophthongal realisations in TE, or perhaps it is because [ɪə] is most salient in this position and has been the first environment in which levelling has taken place. The low scores for *Vs* tell a similar story. Younger speakers, it appears, strongly disfavour [ɪə] before voiceless fricatives in words such as *safe, case*, or *racing*, but retain it in *great, grapes*, or *fatal*. Clearly, the kind of near-categorical allophonic distribution of variants in phonological contexts that we saw for FLEECE and GOOSE does not apply here. What we see in the figures for the centring diphthongal variant of FACE classified by following context is a distributional pattern which is loosely attached to age and class within the male speaker groups. The above figures can be summarised thus:

- younger speakers of both classes use less [ɪə] overall
- MC speakers of both age groups use less [ɪə] overall
- younger speakers seem to favour [ɪə] in contexts comparatively dispreferred by their elders: both young groups agree on a low use of the variant in the *Vs* context, but use a comparatively high proportion of [ɪə] in the *Vp* context

A comparison of conversation style versus word list style is made in the next section.

(c) Effect of speaking style

It will be recalled from the discussion of the word list material collected for the pilot study (§5.4.9) that the figures for an extra speaker - YWC male Lee - are included here. The inclusion of Lee as speaker 33 was considered desirable, as in the case of the word list style it is preferable to have as much data as possible given that individual sample sizes (especially those for GOAT and NURSE) are so small. Lee is not especially atypical of the young WC male group, although the possibility that his speech behaviour is affected by his having been recorded in interaction with his younger sister Kelly might be speculated upon. We have a recording of Kelly in conversation with female peer Lindsey,²² and there are clear differences between the linguistic features she adopts in this recording and those used in her recording with Lee. In the absence of a comparable set of data for Lee in conversation with a male friend, however, we must assume that Lee is making no effort to accommodate to Kelly in this case.

The word list material used here is composed of eight sets of data which are themselves made up of the individual figures for the four speakers in each subgroup. As with the conversational material, this aggregation of figures inevitably results in the clear patterns seen in the word list style data discussed in the sections dealing with the pilot study. It is hypothesised, nonetheless, that the demarcations made by the speakers among themselves on a phonetic basis will override the effects of within-group variation. That is, we expect to find that the variation between groups is greater than the variation within groups, even where change may be taking place. This fundamental principle of quantitative sociolinguistic research dictates that should we fail to find evidence of such demarcation, we must attempt all the same to account for its absence: on balance, it would be very unusual to find in a large English-speaking conurbation such as Tyneside that social stratification has no effect, or no statistically significant effect, upon linguistic behaviour. On the other hand, it is supposed here that the correlation between social stratification and linguistic behaviour may be weakening, since the whole notion of accent levelling (§3.2, §8.1) depends upon the idea that the rate of adoption or loss of certain phonetic or phonological forms becomes less and less predictable as a function of factors such as gender or (in particular) social class.

Since the samples collected for the FACE vowel in the word list style were inevitably rather small, it is probably unwise to put any store by comparison of the context-by-context figures. The figures for FACE in word list style are shown in Table 7.17.

²² No word list recording was made of Kelly on this occasion.

Table 7.17: Variants of FACE, pooled contexts, by speaker group, WL style (%)

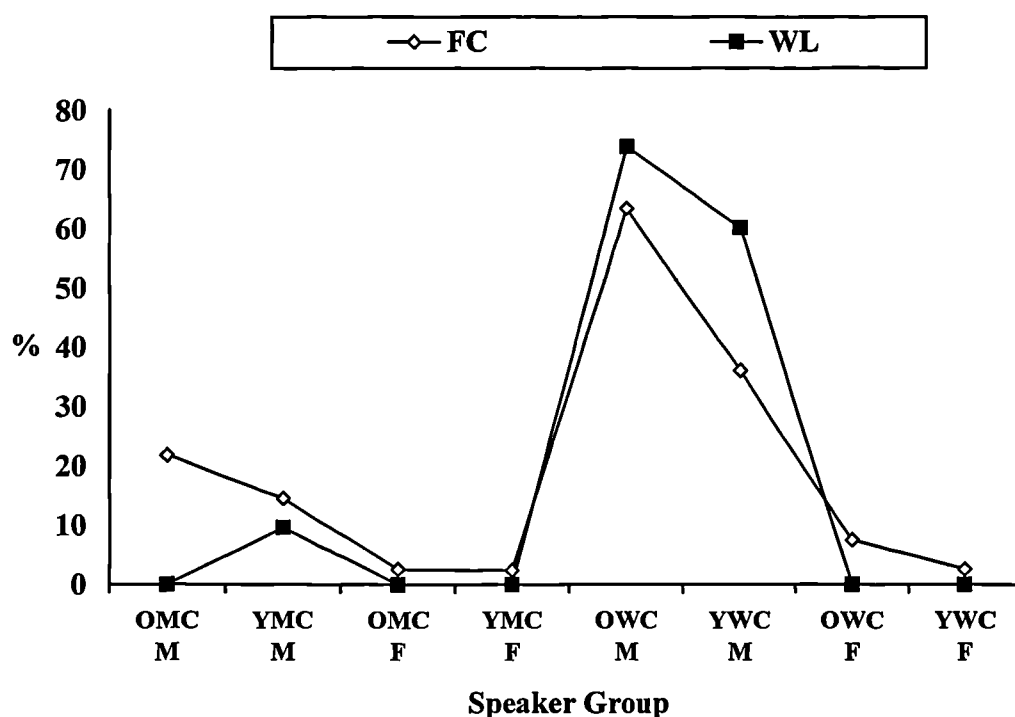
	[e:]	[ɪə]	[eɪ]	N
OMC M	84.6	-	15.4	52
YMC M	51.9	9.6	38.5	52
OMC F	26.9	-	73.1	52
YMC F	73.6	-	26.4	53
OWC M	26.4	73.6	-	53
YWC M	40.1	59.9	-	66
OWC F	72.5	-	27.5	51
YWC F	98.1	-	1.9	54

A comparison of the aggregated word list figures and those collected from the conversational material shows some surprising effects, however. For clarity, the marked variants [ɪə] and [eɪ] are treated separately from one another and from the 'default' variant [e:].

(d) Distribution of centring diphthongs: style shifting

Figure 7.6 compares the distributions of the [ɪə] variant of FACE by speaker group in the two speaking styles.

Figure 7.6: Proportions of centring diphthongal variant of FACE in FC and WL styles, all speaker groups (%)

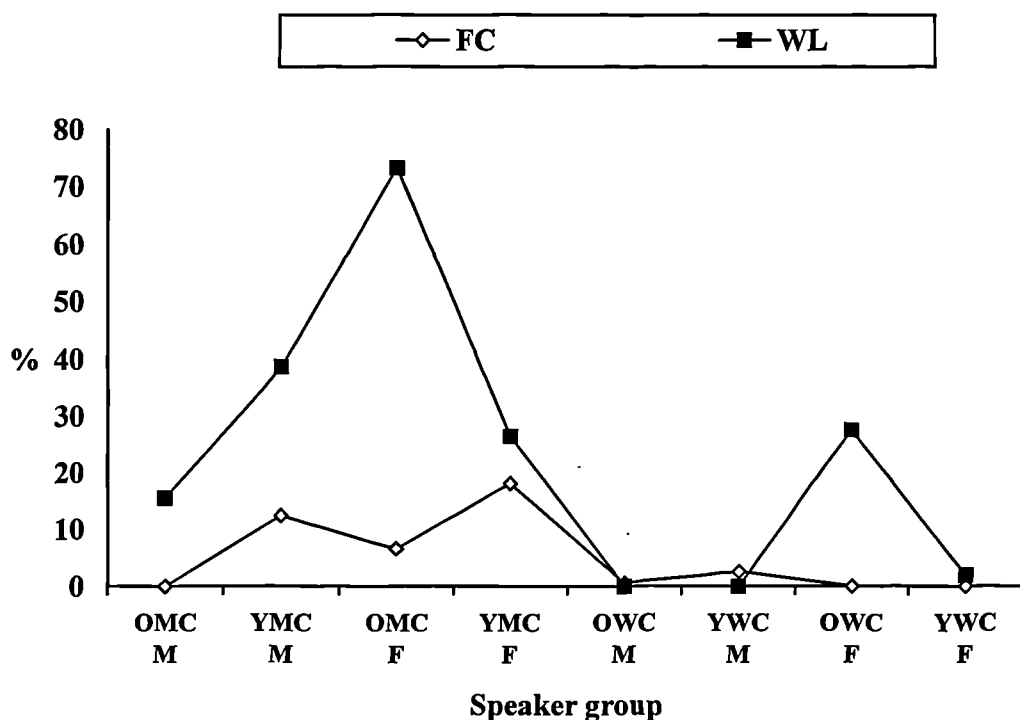


The figure shows that the general trend - for six of the speaker groups, at any rate - is a very slight reduction in the proportion of [ɪə] in WL style by comparison with FC style. But the style lines cross: two speaker groups (the WC males) *increase* their use of the stigmatised [ɪə] form in WL style, very markedly in the case of the YWC group (a difference of some 24%). This is difficult to explain. Perhaps it is because the diphthongal variant tends to be used in emphatic pronunciations of the FACE vowel (see Veatch 1991:187). Alternatively, it may be that because the word list contains a high proportion of words containing the vowel in the *Vp* context (see §5.4.9), the proportion of [ɪə] is bound to increase: it was seen in Figure 7.5 that YWC males favour [ɪə] in this environment above the others. Why the speakers in the OWC and YWC male groups should reverse the style shift is, however, unclear. The degree of fit between the two lines in Figure 7.6 is in any case a good deal better than expected: indeed, the correlation between the figures for FC and WL style is very highly significant ($r = 0.928$; $p < .002$). The centring diphthongs [ɪə] and [ʊə], however, are the only variants for which no style shifting was detected (see also §7.3.2, below). It is suggested that this is because the speaker groups using [ɪə] and [ʊə] to any great extent are less prone to style shift in the first place.

(e) *Distribution of closing diphthongs: style shifting*

The distribution of [eɪ] in the conversational and word list data is more typical of style shifts in English-speaking communities: in Figure 7.7 below we see a very marked preference for the 'prestige' closing diphthong as the level of formality increases. For the older female groups, in particular, the effect is extremely marked - a difference of some 66.6% is recorded for the OMC females, and one of 27.5% for the OWC women. The YMC males, as we saw in Figure 7.3, score uncharacteristically highly for [eɪ] in FC style (higher, indeed, than the OMC women); this effect is magnified still further by a trebling of this score in WL style. [eɪ] is avoided altogether by men of the OMC group, but adopted in more than 15% of the FACE items in the word list. This increase from zero is significant when one considers that the number of test items in the word list is fairly small by comparison with the large samples collected from FC style.

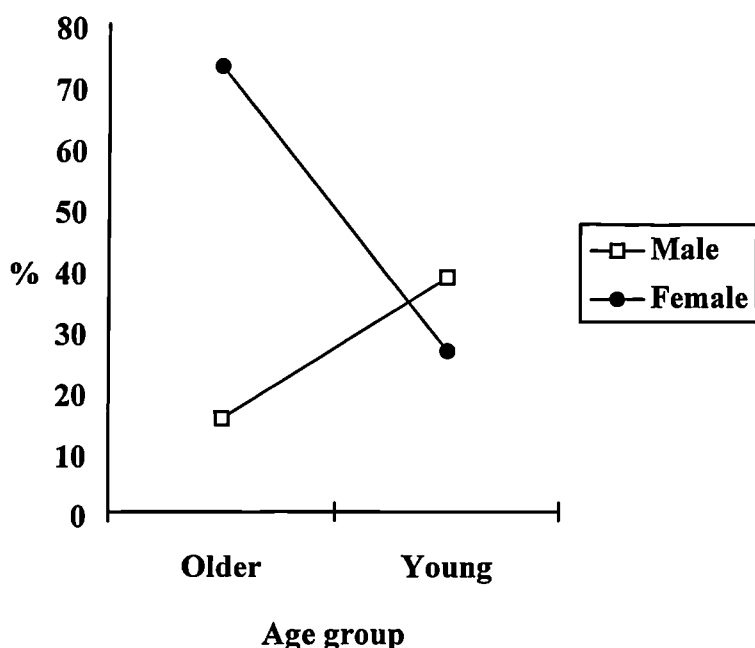
Figure 7.7: Proportions of closing diphthongal variant of FACE in FC and WL styles, all speaker groups (%)



A Pearson coefficient of 0.428 ($p > .5$) confirms the obvious lack of similarity between the data sets for either style. It should be noted that in terms of gender marking the young MC speakers are a good deal more homogeneous here than are WC or older speakers - we can take this as evidence of the levelling processes that are hypothesised to be in operation in TE. This

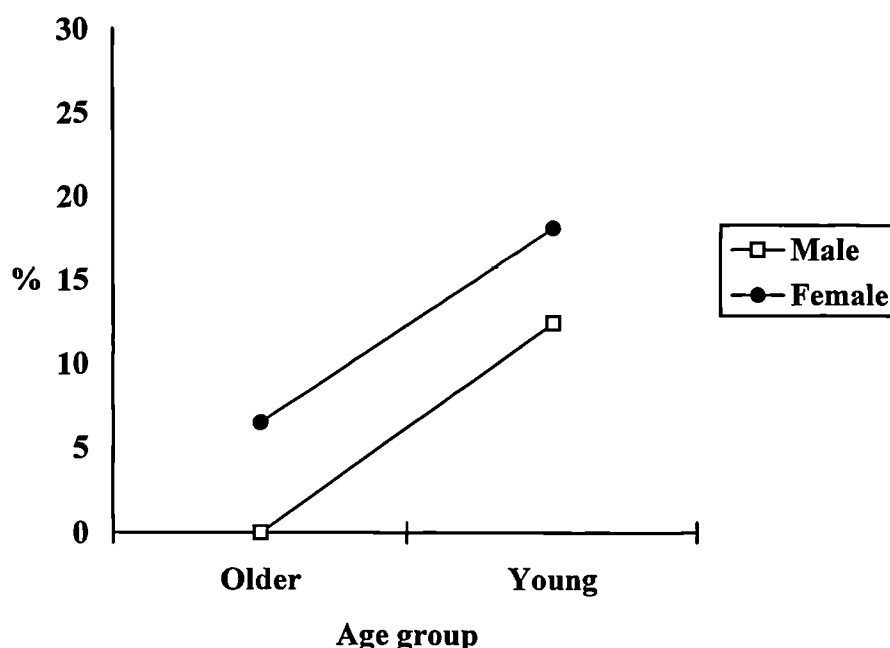
age-related effect may go part of the way to explaining the interactional effect between age and sex that can be seen in Figure 7.8.

Figure 7.8: Distribution of [eɪ] variant of FACE, middle-class speaker groups, WL style (%)



It might be better to think of this as a pattern of convergence rather than as an interaction *per se*, since the difference of 12.1% between the YMC male and female groups is fairly insignificant (being based on 6 tokens) by comparison with the 57.6% difference (some 30 tokens) between the corresponding older groups. Clearly, then, the gender marking of [eɪ] in formal style has been reduced greatly in the most recent developments affecting the FACE variable in TE, to the extent that it may be used more frequently by young MC male speakers than by their female counterparts, as is the case here. Note that in FC style this pattern of convergence is also apparent but is less marked: the interactional effect has disappeared, as shown in Figure 7.9.

Figure 7.9: Distribution of [eɪ] variant of FACE, middle-class speaker groups, FC style (%)



The proportion of usage of [eɪ] in FC style is much smaller for all four MC groups (older males not using the variant at all, as mentioned earlier). The effect is slight, but unlike the pattern seen in Figure 7.8, for both gender groups there is an age-related (older to young) increase in the use of [eɪ], rather than a distinction between males and females. It appears, then, that the use of [eɪ] is closely associated with gender in both styles of Tyneside English, but in different ways in either case. I assume this to be the influence of monitoring.

Note that although no style shift is reported for [ɪə], there is a strong effect of style shift upon the figures for the monophthongal variant [eɪ] ($r = 0.610$; $p > .1$). The question of style shift will be returned to in the discussion of GOAT variants in the following section.

7.3.2 GOAT

(a) *Variants of GOAT*

As detailed earlier (§5.4.6) four broad variants of GOAT have been discriminated: like FACE, this vowel has a long peripheral monophthongal variant [o:]; a centring diphthongal variant [ʊə] with a nucleus somewhat raised and centralised from the previous variant; a closing diphthongal variant [ou] rather like that found in midland and southern varieties of British English; and a fourth variant [ə:], which tends to be fairly central but is rather variable in

terms of height and rounding. These categories are sufficiently different from one another that classification of individual tokens into one of the four can be performed with comparative ease.

Once more, the variants recorded are pigeonholed according to these categories, as in Table 7.18.

Table 7.18: Recorded qualities of GOAT variants, FC style

<u>o:</u>	<u>ʊə</u>	<u>ə:</u>	<u>ou</u>
o(:)	ʊə	ə(:)	o(:)ʊ
ɔ(:)	o(:)ə	ə(:)	əu
u(:)	uə	ɜ(:)	ou
ʊ(:)	ɔ(:)ə	ø:	ɪu
ʊ(:)		ʌ	au ²³
ɔ(:)			
ɔ(:)			
ɔ(:)			

(b) Conversational material

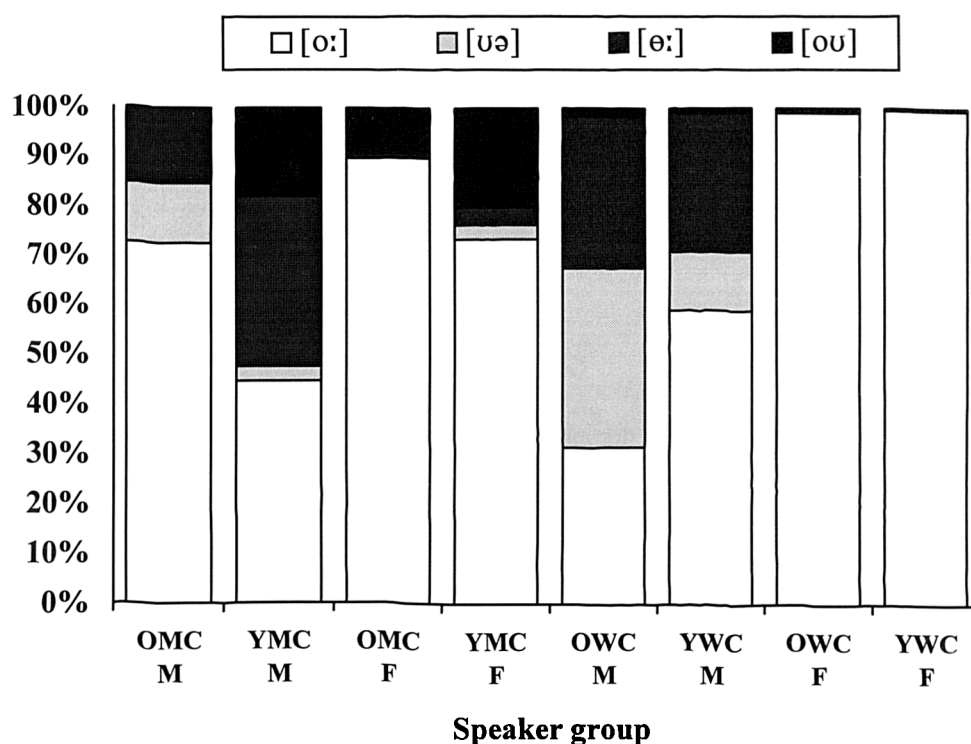
The figures for each speaker are collapsed once again into an aggregated score for each of the eight speaker groups: the latter are shown in Table 7.19 and the associated Figure 7.10.

Table 7.19: GOAT variants: by speaker group, FC style (N)

Group	[o:]	[ʊə]	[ou]	[ə:]	Total
OMC M	127	21	-	27	175
YMC M	76	5	30	59	170
OMC F	176	-	18	2	196
YMC F	126	5	34	6	171
OWC M	55	63	3	53	174
YWC M	113	23	2	53	191
OWC F	188	1	-	1	190
YWC F	196	-	-	1	197

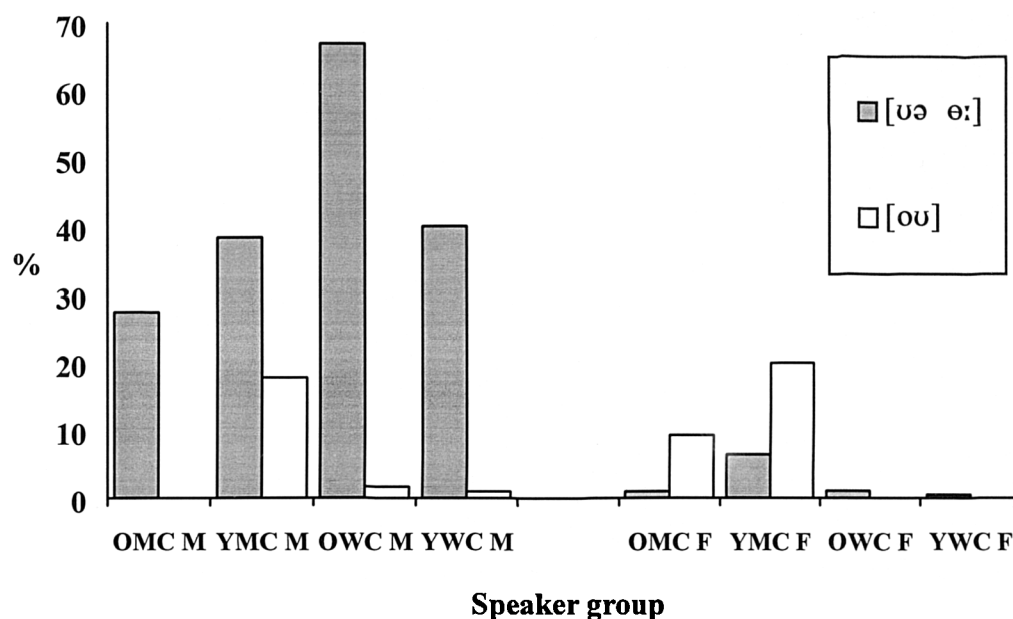
²³ It is not clear whether this variant should be included as a member of the [ou] variant category, as unlike the southern-type closing diphthongs, [au] is used only by working-class men. It appears to be a recessive local variant that occurs predominantly before /l/, as in *old*, *gold*, *soldier*, etc. See for example John's sample in Appendix 4.

Figure 7.10: GOAT variants by speaker group, FC style (%)



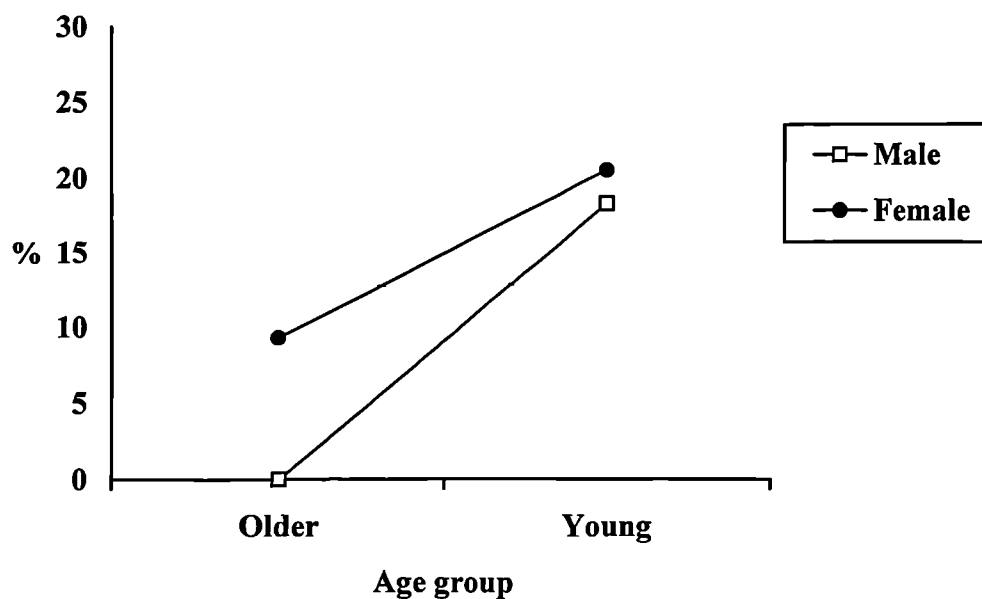
The patterns here are strikingly similar to those seen in Table 7.16 and Figure 7.3 for the distribution of FACE variants: the general preference among these speakers for the unmarked monophthongal variant [o:] is clear. Two groups diverge markedly from this pattern, however: the OWC and YMC males use just 31.6% and 44.7% of [o:] respectively. It is no great surprise that the OWC males exhibit a more even spread of variants: much as we saw for FACE, this group tend to use the marked localised variants in preference to the 'levelled' form and the marked prestige form [ou]. The second obvious distributional trend is that of the localised forms [ʊə] and [ə:] versus the prestige form [ou]: these are in approximately complementary distribution, such that speakers one type of variant will avoid the use of the other. This orthogonal pattern can be seen more clearly in Figure 7.11: the male and female groups are divided so as to highlight the obvious correlation of this pattern with gender.

Figure 7.11: Comparison of pooled figures for localised GOAT variants [ʊə] and [ə:] against prestige variant [ou], by speaker group, FC style (%)



The gender effect is indeed extremely significant statistically ($p < .0001$) where the data are configured so as to compare distributions of the localised variants against those of the unmarked [o:] and prestige [ou] forms. This is also true of a sex + class effect ($p < .0001$), reflecting the trend among MC speakers (WC speakers avoiding the [ou] variant almost completely) to increase the use of [ou] as a function of age in both sex groups. This effect is seen in Figure 7.12.

Figure 7.12: Use of [ou], MC groups only, FC style (%)

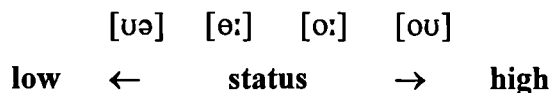


Though these figures are small, the approximation by young MC male speakers of the pattern favoured by MC women is virtually identical to that seen in Figure 7.9 for FACE. Compare this with the figures for the older MC speakers, for whom avoidance of [ou] is categorical among the men, while older MC women use the variant less even than do the young MC men.

When considered individually, the distribution patterns for [uə] and [ə:] diverge, however. Both variants are avoided almost completely by female speakers, as we have seen, while the pattern of decrease in the use of [uə] among the male groups reiterates the series OWC<YWC<OMC<YMC in the use of [ɪə] (Figure 7.4). For [ə:], on the other hand, a slightly different pattern emerges: while the OWC males use the highest figure (30.5%) followed by the YWC group (27.8%), with the OMC males using around half that figure (15.4%), the trend is counteracted by the YMC male figure of 34.7%, which is higher even than that for the most 'conservative' OWC M group. Reasons for this are unclear: it may be that [ə:] does indeed represent the intermediate form described by Orton (1937:129) and Lass (1989), and that this is seen as somewhat closer to a more prestigious RP [əu] diphthong with a centralised first element. Given the high scores among the YMC male group for the more recognisably high-status closing diphthongs [eɪ] and [aʊ], this would be plausible. Alternatively, it might be that - as with the educated young men in Labov's Martha's Vineyard study (1963), who tended to opt for local, fronted variants of /ai/ and /au/ as symbols of their loyalties to the island community - the YMC TE speaking-males see this form as a marker of

locality, but prefer to avoid the stigma of [ʊə], the use of which is, as seen in Table 7.15 above, very much a trait of low-status males in Newcastle.

We might visualise a continuum of status and stigma within the set of GOAT variants available to our TE speakers, then:



The role of [ə:] in this schema seems to be somewhat fluid, perhaps because it has two facets: as a reflex of a retracting Northumbrian [ø:] it is seen as low-status, archaic and stereotypical, but having acquired intermediate status midway between the unmarked [o:] and prestige [ou] forms it is as acceptable to young MC male speakers as it is to older WC males.

(c) Effect of context

Tokens of GOAT were classified according to the four contexts listed in §7.2 above, with the addition of three others:

- (o) + voiced plosive
- (o) + voiced fricative
- (o) + /l/

These are notated

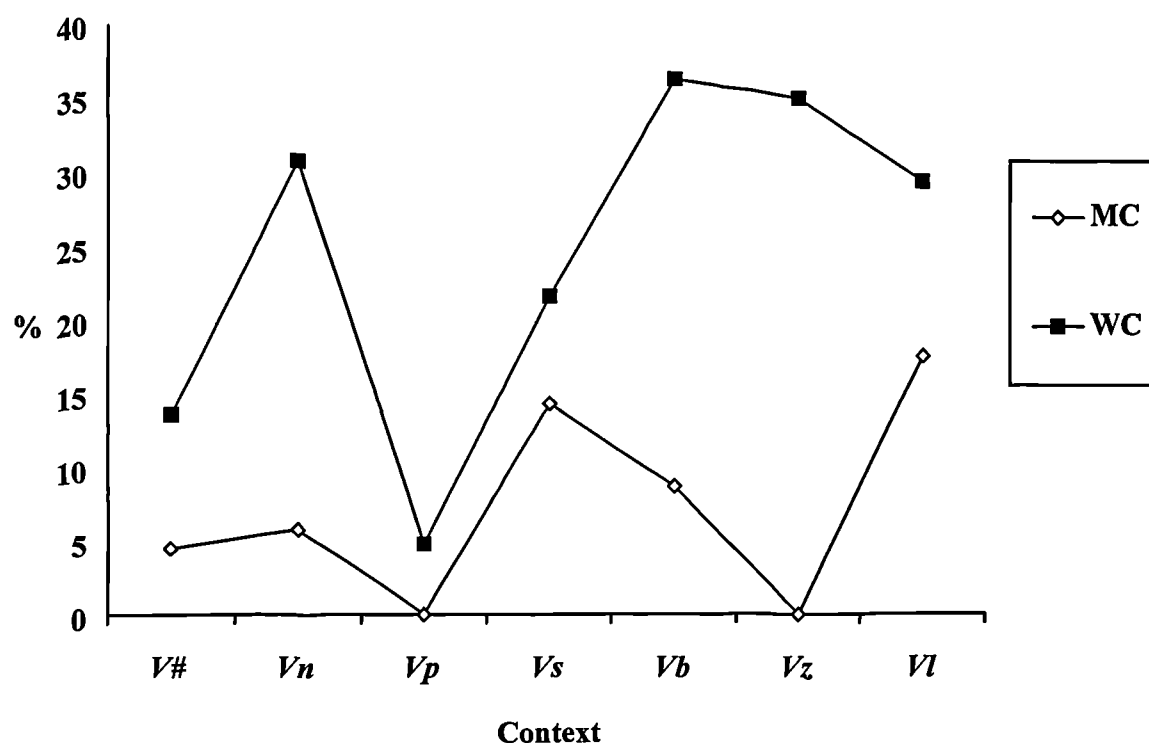
- *Vb*
- *Vz*
- *Vl*

Again, a context-related effect seems to be tied to the distribution of the centring diphthong [ʊə] most strongly: context in combination with the sex~class interaction mentioned above is very highly significant ($p = .0002$). This effect is connected to the absence of [ʊə] in the samples for females of both age and class groups. Female speakers, as seen in Table 7.15, used a total of 6 tokens of [ʊə], or less than 1% of the time; of those 6 tokens, 4 were found in the *Vl* context, which may be to do with the propensity of English speakers to diphthongise monophthongs before laterals (see Viereck 1966:69 for examples of this in TE). The remaining two tokens were found in the *Vn* context.

Among male speakers, however, the situation is rather different: as noted earlier, the YMC group strongly disprefers [ʊə], using just this variant just five times, and choosing to use higher proportions of the other three variants instead. For the remaining male speaker groups, the figures show that [ʊə] is distributed rather differently throughout their samples. The figures themselves, though small, as the [ʊə] total for each group had to be broken down still further to classify tokens by context, shows at least a tendency for [ʊə] to be spread across all but the *Vp* context among the OWC males. The use of [ʊə] in the *Vp* context is in fact avoided by all speaker groups categorically, in effect - just one token of [ʊə] before a voiceless stop was recorded from the entire sample of 1,464. This is almost certainly a sampling anomaly, however, as there is no reason to think that forms like [buət] *boat*, [k^huəp] *cope*, or [ˈsuəkʔɪn] *soaking* are in any way unusual in TE. We should be wary, therefore, of placing too much confidence in findings such as this: much larger samples per context would be required to clarify this issue reliably.

However, when the figures for the male speakers of each class are aggregated (since it appears that age is less important in this case than are sex and class) a pattern emerges which suggests that - very generally speaking - [ʊə] is most likely to appear in syllables where the vowel is followed by a nasal, a voiceless fricative or /l/. Figure 7.13 below represents this pattern. The MC men use a good deal less of the variant than do WC ones, as expected, though the preference of certain contexts over others is approximately similar. Note, however, that the correlation fails by a wide margin to achieve significance because of the class-based gap ($r = 0.281$; $p > .5$); the main area of divergence is in situations where GOAT is followed by a voiced stop or fricative. In order to test these patterns properly, however, a larger body of data is required.

Figure 7.13: Distribution of centring diphthongal variant of GOAT, male speakers only (%)



(d) Effect of speaking style

In terms of variation among the TE speakers sampled here, however, the effect of speaking style appears to be more robust than does context.

Table 7.20: Variants of GOAT, WL style, all speakers (N)

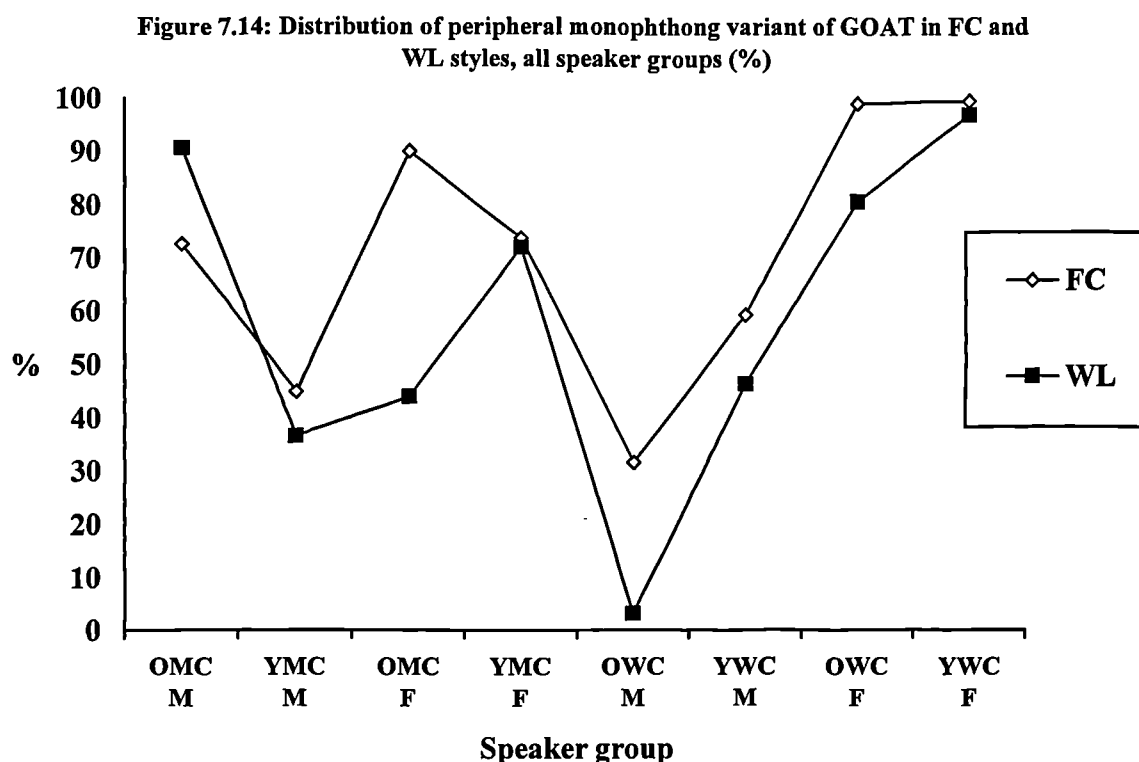
Group	[o:]	[ʊə]	[ə:]	[ou]	Total
OMC M	29	-	-	3	32
YMC M	12	-	10	11	33
OMC F	14	-	-	18	32
YMC F	23	-	-	9	32
OWC M	1	21	10	-	32
YWC M	19	2	20	-	41
OWC F	25	-	-	6	31
YWC F	31	-	-	1	32

Again, the actual figures themselves are rather small, as the number of GOAT items on the word list is limited. What stands out, however, is that the spread of variants in the word list is

relatively uniform by comparison with the analogous figures for FC style seen in Table 7.19: most speaker groups disprefer the more localised variants [ʊə] and [ə:], and use to a greater extent the unmarked variant [o:] and the prestige variant [ou]. Here we see evidence of a style shift in the direction of a less localised, more standard-like variety.

(e) Distribution of peripheral monophthongs: style shifting

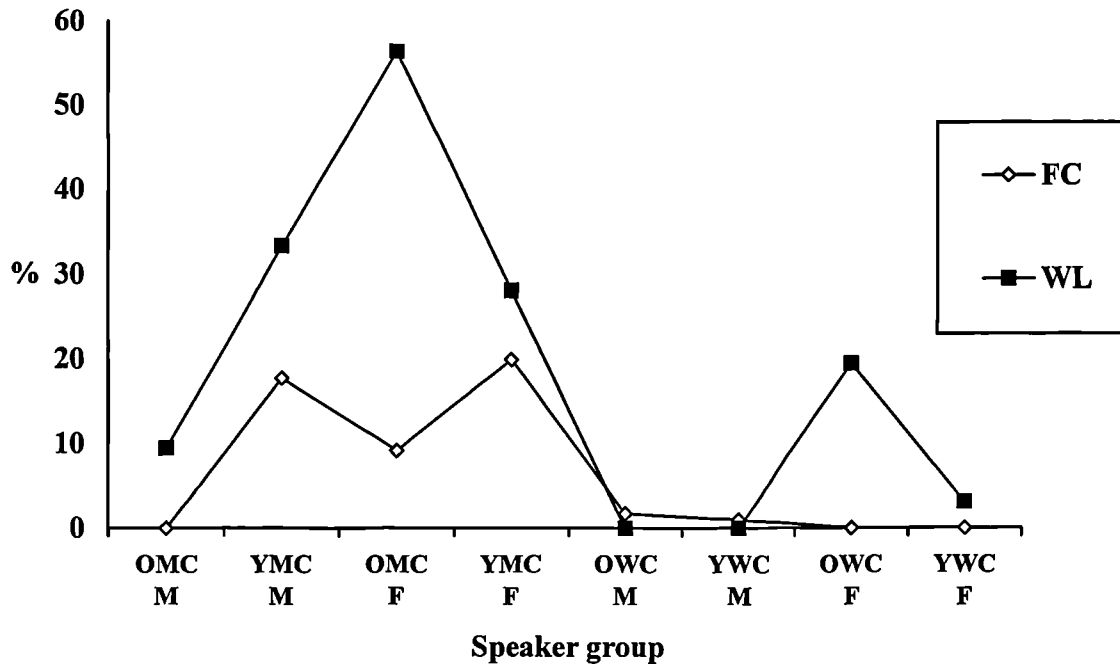
Looking first at the figures for the unmarked monophthong [o:], we see from Figure 7.14 that the change in style ($r = 0.798$; $p > .1$) effects a reduction in the use of this variant for all but one group, the OMC males. This counterexample is accounted for by the fact that in conversational style, the OMC males use, by comparison with [o:], a relatively high proportion of the fronted variant [ə:], but are more prepared to style shift toward [o:] in the formal style than are the other male speaker groups (who, like the OMC males, tend to use localised [ə:] and [ʊə] in conversational style, but do not style shift as markedly). Hence, the scores for the OMC males are 'reversed' in Figure 7.14.



(f) Distribution of closing diphthongs: style shifting

As the proportion of [o:] in WL style decreases, so that of [ou] increases for many speaker groups ($r = 0.638$; $p > .2$); Figure 7.15 shows this trend.

Figure 7.15: Proportions of closing diphthongal variant of GOAT in FC and WL styles, all speaker groups (%)

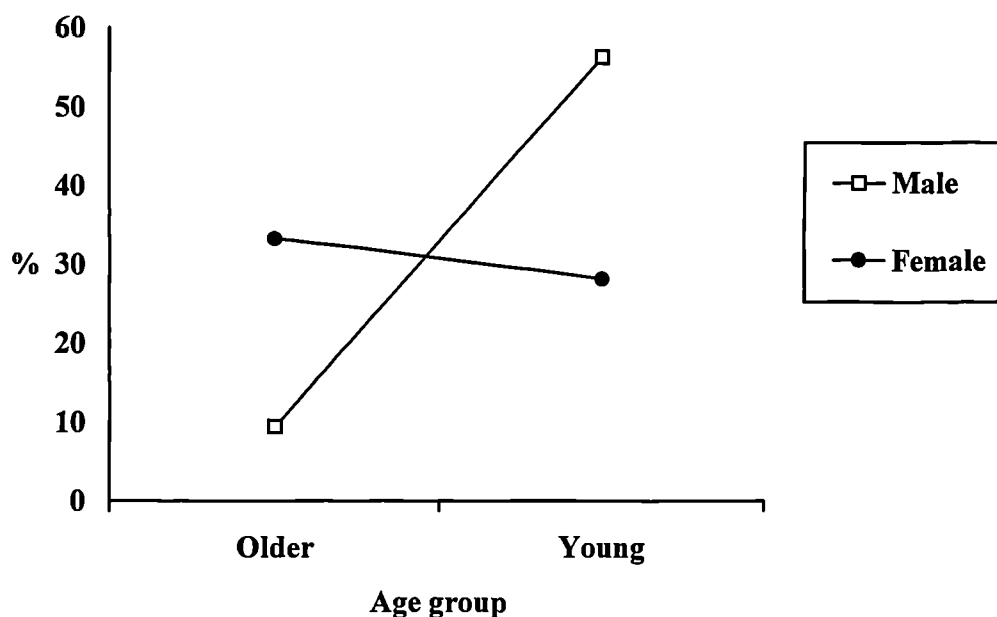


Compare this figure with that for the closing diphthong condition for FACE (Figure 7.7): the patterns are virtually identical. That is, the style shift is greatest among MC speakers, particularly the older females, who tend not to use [ou] a great deal in FC style, but use it overwhelmingly often in WL style. The younger males shift in exactly the same way as they did with [eɪ], although their scores for [ou] in FC are already relatively high. The young MC females use approximately equal proportions of [ou] in FC and WL styles, such that they cannot really be said to style shift as such, but since their score for [ou] is the highest for all groups in FC style, it could be said that the feature is becoming more of a 'fixture' in their speech. This is probably also true of the YMC males, who pattern almost identically with their female peers.

Among the WC speakers, style shifting is really only apparent in the speech of the OWC females; this is exactly what one might expect of middle-aged women such as Ada, Sylvia, Sheila and Ann, since notions of 'correctness' and 'talking nicely' are probably most strongly observed among this social group. As we saw with [eɪ], the closing diphthong [ou] is avoided almost categorically by the other speakers in the WC group: this form is perhaps seen as effeminate by the men, and as 'old-fashionable' or 'affected' by the young WC women.

In Figures 7.12 and 7.16, below, we have yet more evidence of the symmetrical relationship between FACE and GOAT in TE: we find also that, as with FACE, the use of the closing diphthongal variant of GOAT is subject to style shift among MC speakers in a pattern rather similar to that seen in Figures 7.8 and 7.9 in §7.

Figure 7.16: Distribution of [ou] variant of GOAT, middle-class speaker groups, WL style (%)



Unlike the interaction between age and sex seen in Figure 7.12, the pattern here does not seem to be one of convergence: while the use of [ou] among female speakers in WL style has apparently stabilised (there being very little difference between the scores for older and younger females here), its use among the MC men is characterised by a very strong preference by younger MC males for the form by comparison with the older men. This is contrary to the findings of Llamas (1998) in Middlesbrough: the young men sampled there avoided [ou] altogether. It is questionable, then, whether [ou] is a form coming into TE by geographical spread; instead, it may be taken up by young MC men through direct contact with speakers of, for example, RP, without there having to be an intervening spread from the south. After all, its appearance in the English of Edinburgh (Chirrey, forthcoming) is hardly dependent upon the appearance of [eɪ] and [ou] in Newcastle, the nearest large city to the south of Edinburgh. Instead, we should perhaps think of diffusion of such forms into urban varieties of British English as being dependent upon positive attitudes to speakers of RP, London or southern varieties in cities like Newcastle: this may not be the case in Middlesbrough, where the influx of outsiders has probably been on a smaller scale.

(g) *Distribution of fronted monophthong: style shifting*

Lastly, the WL data for the fronted monophthong [ø:] demonstrate the same patterning as was observed for this variant in the pilot study material. The correspondence between the FC and WL series of figures is highly significant ($r = 0.870$; $p < .01$), so no style shift appears to be taking place for [ø:]. It is practically absent in middle-class speech, and is avoided completely by female speakers, no examples of [ø:] at all being recorded in some 127 tokens of GOAT. The samples are, predictably, largest for older working-class males (20 tokens), then equal for the young male groups (10 tokens apiece). [ø:] was not recorded for the older middle-class male group in the word-list style. The appearance of [ø:] in the speech of young middle-class Tyneside males where it is absent for older MC men, and the comments of Lass (1989) to the effect that [ø:] (here [ø:]) is simultaneously traditional and 'modern' suggests we are dealing here with a change in the status of this variant, rather than adoption of a typically working-class form by speakers from non-working-class backgrounds. That is, the influence of varieties in which GOAT is realised by a vowel with a fronted (or at any rate centralised) nucleus may have had the effect of speakers reinterpreting [ø:] as a more prestigious form, or closer to the prestigious form, than the equivalent form passed down from rural Northumbrian speech, assuming of course that this is the origin of [ø:].

The structural interpretation of such a change (Labov, Yaeger & Steiner 1972; Labov 1994, Lass 1989, Veatch 1991), would portray the fronting of GOAT as a completely natural, and probably inevitable, process, and thus one would expect to hear fronted variants more frequently in speech of younger Tynesiders. Such an approach would view speakers as in some sense hindering a change that 'needs' to happen and will find any available opportunity to do so. The approach taken here comes from the opposite direction: that is, speakers wishing to differentiate themselves socially using vocalic cues may do so freely, within certain constraints imposed by considerations of comprehensibility. There must, in other words, be sufficient continuity of surface form for innovations to become changes without undue disruption to successful communication, though the strength of these constraints need not preclude the possibility of 'violations' such as merger, unmerger through dialect contact, and so forth, as speakers see fit. A 'natural' change such as the fronting of back vowels may be thwarted for centuries, as long as speakers have no sociolinguistic need for such change, or a need to preserve the *status quo*; there is surely a good deal of evidence for the 'naturalness' of front rounded vowels in English, as Lass proposes,²⁴ but there is also a great deal of evidence

²⁴ From a typological point of view, Lass argues, English ought to tend toward a front-heavy vowel system rich in front rounded vowels, since this is the typical pattern for Germanic languages (as shown by, for example, Swedish, German or Icelandic). The persistence of front rounded vowels in Northumbrian English and their reappearance in Southern Hemisphere varieties is, according to Lass, evidence of such a tendency.

to suggest that varieties of English which preserve peripheral back vowels are in no immediate danger of succumbing to such a pressure (see Chapter 8).

The exclusion of *polka* from the overall figures for this variable, as mentioned in Chapter 5, is necessitated by the fact that speakers assign it variably to GOAT and LOT. Only seven speakers of 33 - Nick, Alison, Victoria, Craig, Ian, Kelly and Lindsey - use a variant of GOAT in this form, the rest using [ɒ]. These speakers, all members of the 16-25 age group, presumably know at some level that the inclusion of *polka* in the GOAT set is optional (Kelly and Lindsey both reading the word twice, once to pattern with LOT, and the second time with [o:] and [ɔ:], respectively). Here we see a potential example of sound change by lexical transfer, whereby individual words are transferred one by one from one lexical set to another; alternatively, it may be that the infrequency of this form in the active vocabulary of younger speakers (given that such dance forms are probably unfamiliar to this age group) means that the 'transfer' is a simple case of these young speakers imitating the pronunciation of *polka* they may have heard in, for example, film and television programmes.

[ə:] of course has no 'partner' variable in FACE, and thus is exempt from the discussion of symmetry in the next section.

7.3.3 FACE and GOAT: symmetry

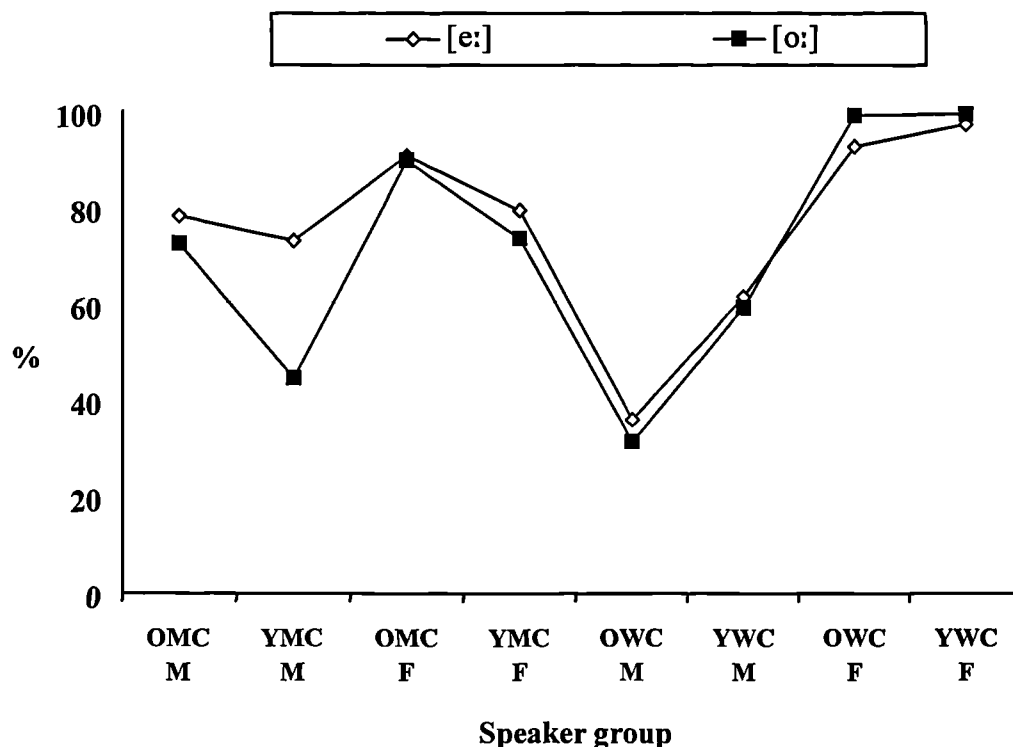
We have seen already that these two vowel variables are remarkably similar with respect to one another: they have similar variants, which are used in a similar way by the TE speakers sampled here. Furthermore, these variants vary in a similar way as a function of speaking style.

The symmetry is disrupted by the presence of the fourth variant of [ə:], however. It was originally hypothesised that this variant was disappearing from TE; this does not seem to be the case, given that the YMC male group seems to be 'reviving' it as a marker of local identity. Its decline as a localised feature seems in this way to have been arrested.

(a) *Peripheral monophthongs*

Looking at the variants which can be said to be acting in parallel, then, we see a great deal of similarity between FACE and GOAT. Figure 7.17, for instance, compares the distribution of peripheral monophthongal variants [e:] and [o:] in free conversation style:

Figure 7.17: Symmetry of peripheral monophthongal variants of FACE and GOAT:
all speaker groups, FC style (%)



The figures for [e:] and [o:] are very highly correlated ($r = 0.917$; $p < .002$). The largest discrepancy between FACE and GOAT in this series is the relative lack of fit between the scores for the YMC M group: this is accounted for by the high level of use this group makes of [ø:] by comparison to other groups.

(b) Centring diphthongs

Figure 7.18 tells more or less the same story as Figure 7.17: centring diphthongs [ɪə] and [ʊə] seem to be used in much the same way by the TE speakers (the figures being more closely correlated still, where $r = 0.964$; $p < .002$). Again, the presence of a fourth variant of GOAT means the overall percentages for the localised variant [ʊə] are inevitably lower than the corresponding figures for FACE.

Figure 7.18: Symmetry of centring diphthongal variants of FACE and GOAT: all speaker groups, FC style (%)

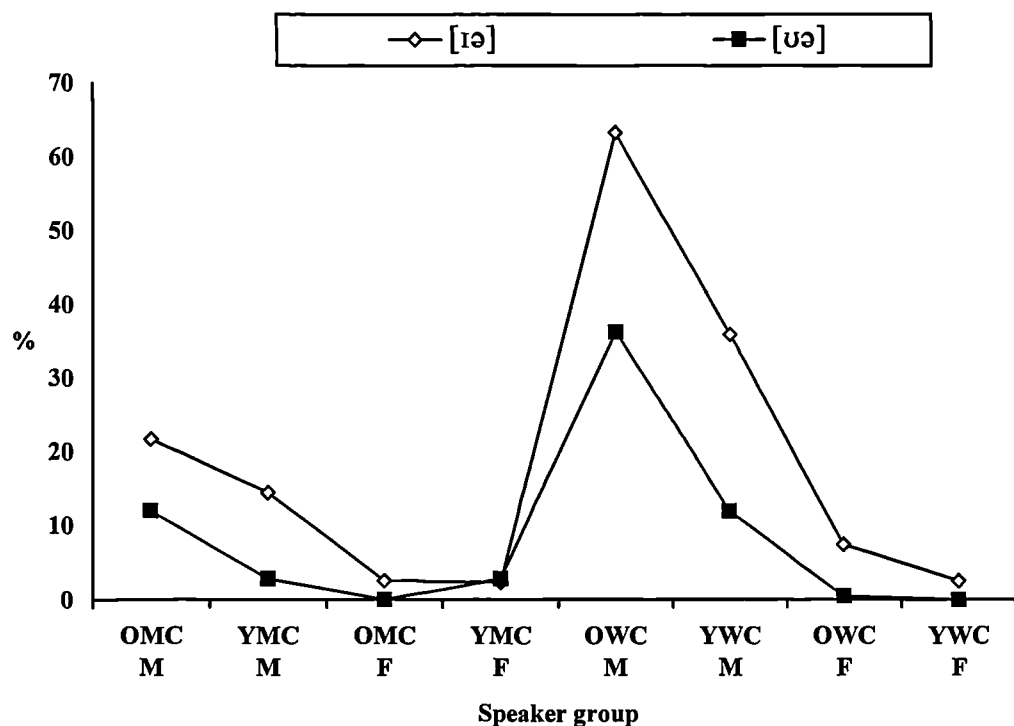
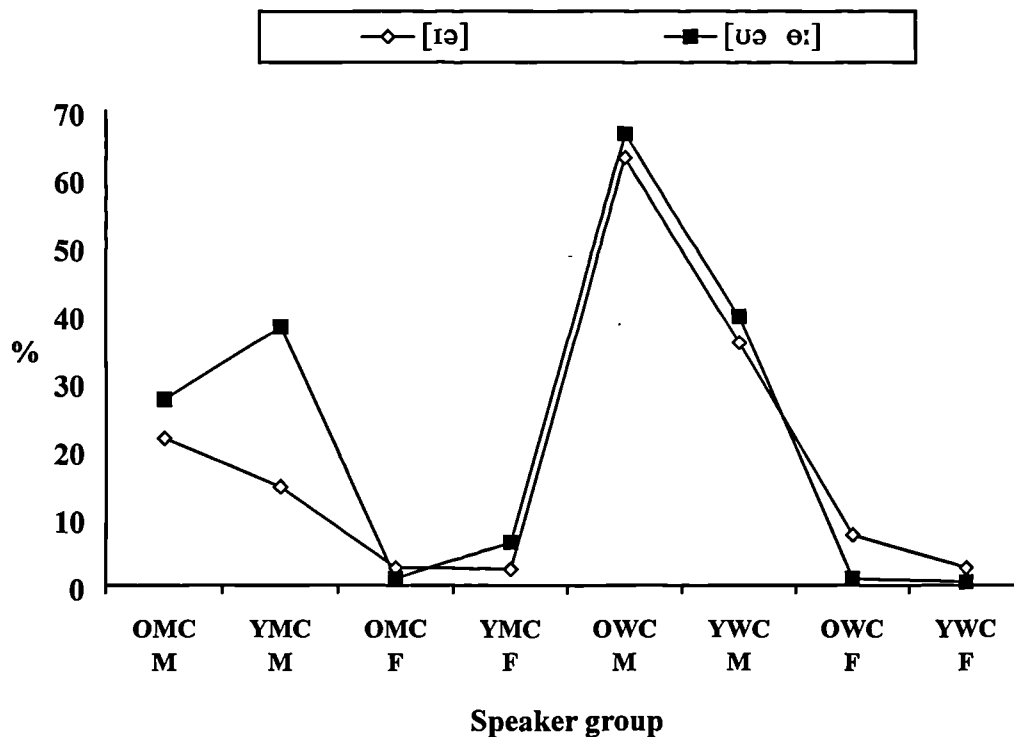


Figure 7.19: Symmetry of localised variants of FACE and GOAT, all speaker groups, FC style (%)

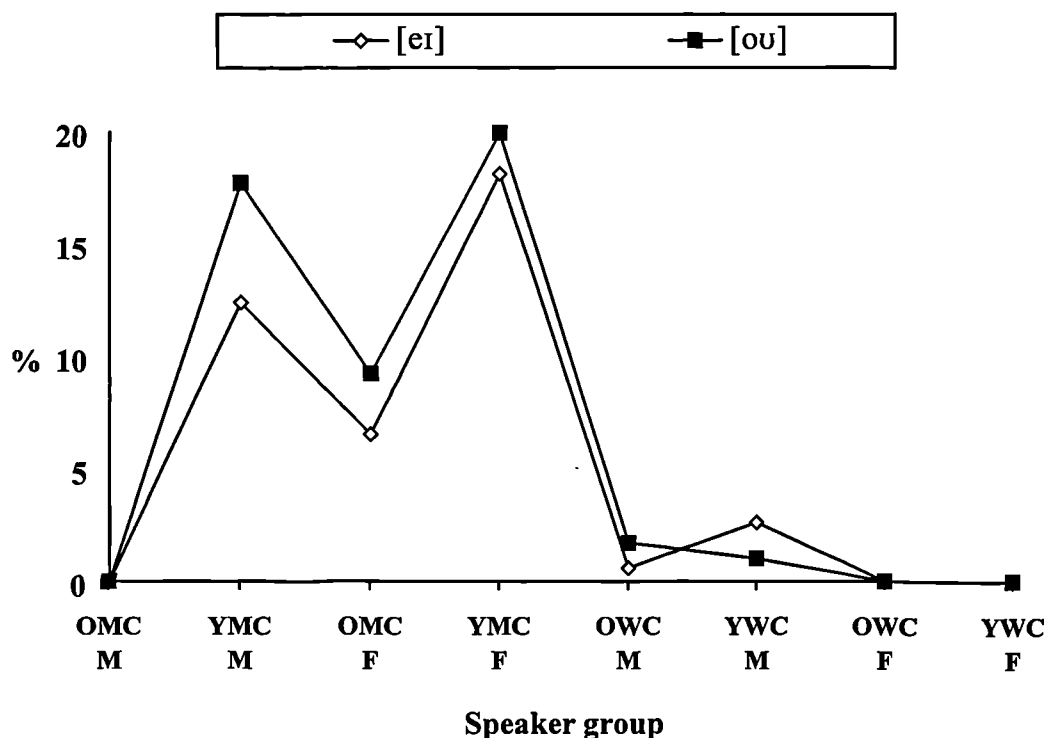


If the figures for the localised GOAT variants [ʊə] and [ə:] are pooled as in Figure 7.19, however, we can see that (visually) the resolution is somewhat improved. Again, however, it is the preference among YMC males for [ə:] that brings the FACE and GOAT scores out of line: the combination of [ə:] and [ʊə] scores for this group is sufficient to separate the scores for FACE and GOAT by nearly 25%. The Pearson coefficient, while still achieving a high level of significance, therefore shows less fit between the pooled figures for GOAT and those for [ɪə] than was the case in Figure 7.18 ($r = 0.813$; $p < .05$).

(c) *Closing diphthongs*

Lastly, the figures for closing diphthongs [eɪ] and [ou] pattern very closely indeed ($r = 0.981$; $p < .002$), as Figure 7.20 shows. They appear to be equally socially marked as far as the individual speaker groups are concerned, although overall the proportions of either variant are rather low. That the fit between them is coincidental, however, is extremely unlikely.

Figure 7.20: Symmetry of closing diphthongal variants of FACE and GOAT, all speaker groups, FC style (%)



(d) *Word list style*

In WL style the same patterns obtain, as summarised by Table 7.21.

Table 7.21: Symmetry of variants of FACE and GOAT (excluding [ə:]), by speaker group, WL style (%)

Group	[e:]	[o:]	[Iə]	[uə]	[eɪ]	[ou]
OMC M	84.6	90.6	-	-	15.4	9.4
YMC M	51.9	36.4	9.6	-	38.5	33.3
OMC F	26.9	43.8	-	-	73.1	56.2
YMC F	73.9	71.9	-	-	26.4	28.1
OWC M	26.4	3.1	73.6	65.6	-	-
YWC M	40.1	46.3	59.9	4.9	-	-
OWC F	72.5	80.6	-	-	27.5	19.4
YWC F	98.1	96.9	-	-	1.9	2.1
N	254	154	70	23	95	48

[e: ~ o:] $r = 0.913$; $p < .002$

[Iə ~ uə] $r = 0.784$; $p < .05$

[eɪ ~ ou] $r = 0.986$; $p < .002$

In the main these figures match reasonably well, in some cases extremely well. Those for the monophthongal variants [e:] and [o:] in the older MC and young WC male groups, as well as those for young females of both classes, all agree to within 7% of one another. The older WC females' figures are also rather close (to 8.1%) for these variants. Comparison of the closing diphthongal variants of FACE and GOAT shows similar agreement for the same groups in part because of the (exactly) reciprocal percentages in the cases of those groups who use just two variants, as well as close correspondences between [eɪ] and [ou] for young MC males. There are notable exceptions to the fit, however: as before, the scores for three of the male speaker groups are widely divergent (Table 7.18), while those for the MC female group (see Figure 7.21) are similarly unbalanced. Some possible interpretations for the disagreement in the proportions of corresponding variants of both vowels are offered below.

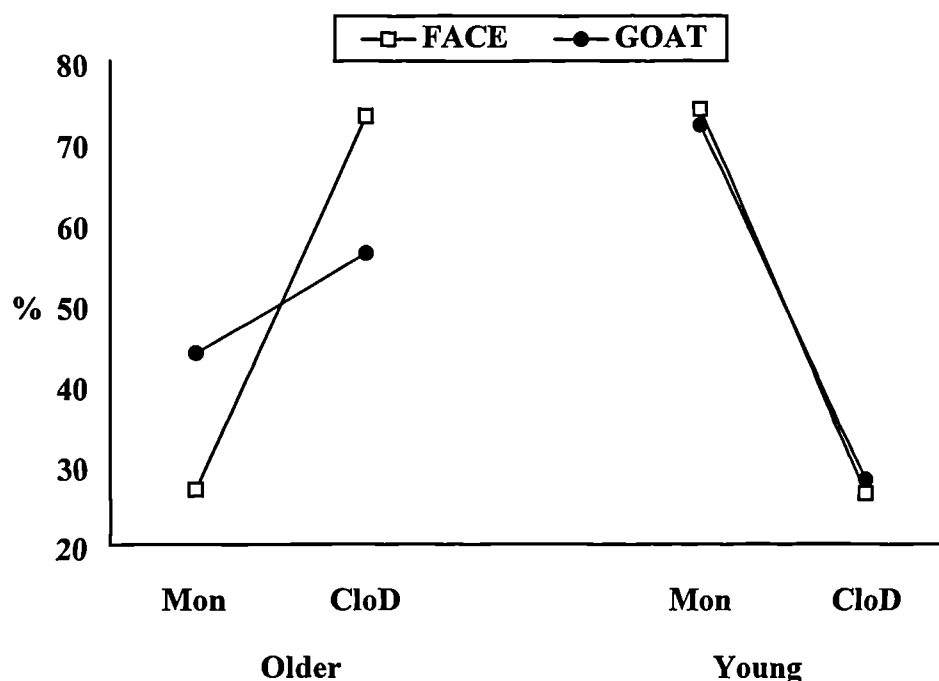
Table 7.22: Male speaker groups diverging by >10% in comparative use of paired variants of FACE and GOAT, WL style

	[e:]~[o:]	[Iə]~[uə]
YMC M	15.5	9.6
OWC M	23.3	
YWC M		55.0

The difference between the figures for [e:] and [o:] in the young MC male sample may be accounted for simply by the fact that this group uses [ɪə] but not [ʊə] in the word list material, and [ə:] as a variant of GOAT on a total of 10 occasions. Thus, like the young WC men, whose samples for centring diphthongal variants of the two vowels differ by a very large 55%, the overall sample for the young MC males is spread more thinly and irregularly with respect to the possible variants of FACE and GOAT. This 'instability' in the speech patterns of younger versus older speakers (though the older WC males can hardly be said to exhibit a 'balanced' system even in the more formal word-list style) is in many cases a sign of linguistic change, a correspondence which must be invoked again and again in this analysis of the patterning of linguistic forms in the Tyneside variety. It is speculated here, as elsewhere in this thesis, that [ʊə] is losing out to [ə:] as a variant of GOAT, as the former variant has become recessive through stigmatisation, and the latter simultaneously represents a 'fudged' form approaching the closing diphthong favoured by women *and* the traditional north-eastern front rounded vowel described in SED and elsewhere. It is probable that in the absence of figures for this variant, the proportions of each of the three variables that FACE and GOAT have in common would be approximately equal in the samples for each speaker group; in several senses, the presence of [ə:] in either guise disrupts the symmetrical pattern between the two close-mid vowels.

The older MC females are exceptional in the context of the broader trends towards symmetry we can discern in the FACE and GOAT word list data, as the proportions of the variants they use (the peripheral monophthongs [e:] and [o:] and the closing diphthongs [eɪ] and [ou]) suggest that these variant types are differently marked for the FACE and GOAT variables (that is, closing diphthongal variants of FACE may be more salient as markers of social status than those for GOAT, or [o:] may be judged by older MC females to be more acceptable in a formal speech style than is [e:]). It may be, alternatively, that the discrepancy is 'fossilised' evidence of past variation which has since resulted in a change. The figure below suggests the latter: it compares the distributions of the peripheral monophthongal and closing diphthongal variants of FACE and GOAT between the Young and Older groups in the MC female category.

Figure 7.21: Peripheral monophthongs and closing diphthongs as variants of FACE and GOAT: middle-class females, WL style (%)²⁵



Mon = peripheral monophthongs [e:] & [o:]; *CloD* = closing diphthongs [eɪ] & [ou]

Figure 7.21 demonstrates that in the word-list style, the strong preference of older middle-class women for closing diphthongal variants of FACE and GOAT (but more especially for FACE) is reversed among the young middle-class women. In the latter group, [eɪ] and [ou] are still used in around a quarter of cases, but the tendency is for these speakers to use peripheral monophthongal variants. Indeed, for the FACE variable the older women's pattern is reversed almost exactly in the sample for the young women.

Though the WL style samples are small, the trends are rather clear, and it would be very surprising even in the absence of formal statistical analysis on the word list data if these trends were not very closely correlated with the age, sex and social class factors. The fact that we may observe speech behaviour which is very similar across social groups for more than one variable, likewise, is good evidence of the processes of change we expect to operate on this variety, and, moreover, the correspondences with the data for the same variables in

²⁵ Figure 7.21 is based on the following data (all figures are actual scores rather than percentages):

	[e:]	[eɪ]	Total	[o:]	[ou]	Total
OMC F	14	38	52	14	18	32
YMC F	39	14	53	23	11	34

conversational style contribute a useful yardstick by which the reliability of the word-list material may be measured.

The final variable for which results are reported in this chapter is the central vowel NURSE, which has no obvious 'partner' in the vowel system and hence cannot be analysed in terms of symmetry. Also, the word list given to the informants included, unfortunately, just a single exemplar of this category (see §7.4(d), below). However, from the point of view of the discussion of the impossibility of the reversal of merger brought up in Chapter 2, the distribution of variants of this vowel is extremely interesting.

7.4 NURSE

(a) Variants of NURSE

Three variants of this vowel are analysed here. The first is a retracted vowel [ɔ:] which, as we saw in earlier chapters, is said to have been the product of a merger of NURSE with words of the NORTH~THOUGHT~FORCE set at some point during the late nineteenth or early twentieth century. The second variant is similar to the long central vowel found in many other non-rhotic varieties of British English, which is here symbolised [ɜ:]. This is the most frequent variant, and for this reason we can think of it as the 'unmarked' variant, since it appears to be fairly neutral from a sociolinguistic point of view and is used by all speakers to a greater or lesser extent. Lastly, a front rounded [ø:] can be discriminated as a variant of NURSE, as has been reported since the 1980s by Wells (1982:375) and Lass (1983:84).

The qualities transcribed are allotted to these three variant categories as shown in Table 7.23.

Table 7.23 Recorded qualities of NURSE variants

Ø:	ɜ:	ɔ:
ø(:)	ɜ(:)	ɔ(:)
ø:	ɜ(:)	ɔ:
œ(:)	ɜ:	ɒ:
œ:		ɔ:
ø:		ɒ(:)
e(:)		u(:)
ɛ:		
ɛ(:)		
ɛ:		
ɪ(:)		
ɛ(:)		
eə		
œə		

It is not claimed here that a retranscription of the material on which the range of qualities shown in Table 7.22 is based would yield the same number or types of vowel in the second pass. The phonetician's ear can be only so highly trained, and as so much of the perception of differences in vowel quality depends upon the normalisation faculty, exact reproducibility by another listener (or even the same listener) is actually not feasible. Hence, we may collapse fine-grained phonetic transcriptions such as these into a small number of variant categories with a clear conscience, because we are not interested in pinpointing exactly the same qualities time after time. What we *are* interested in is the sorts of variation which cannot easily be accounted for by the influence of the phonological context surrounding the vowel, or by the effects of speech rate. That is, it is difficult to think of ways in which the distinction between the fronted, central and retracted variants of NURSE could come about allophonically; the appearance of each of these variants is apparently determined by the social characteristics of the speaker using them. Additionally, the broad variant categories [ø:], [ɜ:] and [ɔ:] are well-motivated because of the comparatively clear separation of their phonetic exponents in the vowel space, and because other commentators have noticed such a division independently of one another (Wells 1982; Lass 1983).

(b) Conversational material

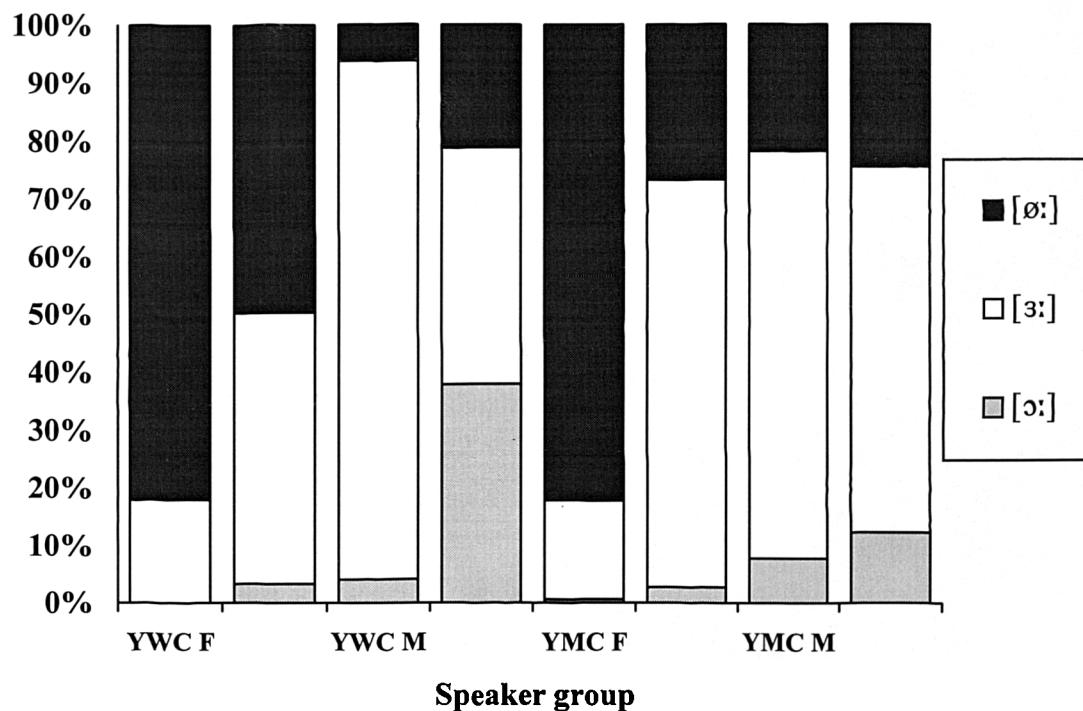
The results of a classification of the 1,156 NURSE tokens transcribed from the conversational material are shown in Table 7.24.

Table 7.24: Variants of NURSE, all speaker groups, FC style (N)

Group	[ø:]	[ɜ:]	[ɔ:]	Total
OMC M	38	98	19	155
YMC M	34	110	12	156
OMC F	40	105	4	149
YMC F	144	30	1	175
OWC M	20	39	36	95
YWC M	9	130	6	145
OWC F	76	72	5	153
YWC F	105	23	0	128

Figure 7.22 summarises the figures in Table 7.24 in such a way that one can appreciate the extent to which individual speaker groups appear to favour variants of NURSE articulated near the front, centre or back of the vowel space.

Figure 7.22: Variants of NURSE, all speaker groups, FC style (%)



In general, the preference for the central variant [ɜ:] is marginal - just 52.5% of the NURSE tokens are accounted for by it. It will be noticed that the use of the retracted [ɔ:] is recessive, it

being confined to male groups almost exclusively, and only the OWC males using it to any great extent.²⁶ A very highly significant effect for gender is recorded here ($p < .0001$), while age is also clearly influential on the distribution ($p = .0159$); in combination sex and age are significant ($p = .0028$) as is a sex~age interaction ($p = .0011$). These figures might be interpreted as follows: among the male speakers the use of [ɔ:] declines as a function of age in both class groups, though more markedly in the MC group. The OWC male group has the most evenly balanced spread of variants, followed by the OMC males, though the male groups on the whole tend to prefer the central [ɜ:] to either [ɔ:] or [ø:], the former accounting for almost 70% of the tokens collected for male groups.

Among some groups the use of [ɜ:] is recessive, however, most notably the YMC females and the YWC females, whose preference for the front rounded [ø:] is overwhelming. Both groups use this variant in some 82% of their tokens. This appears to be the direction in which change is heading for the NURSE vowel. That is, while the OWC males represent the 'tail-end' of the shift away from the 'merged' retracted variant [ɔ:], and the YWC males might be said to be approximately in the middle of the S-curve in terms of the diffusion of the new forms through their lexicon or style repertoire, the young female groups in both classes are forging ahead in the fronting and rounding of this vowel. This may well be what Labov (1992) means by 'overshooting' of a target (reported in Kerswill 1996b:201) whereby 'new cadres of youth don't copy the peers that influence them, but instead go beyond the targets'. Indeed, as mentioned earlier, the rounding on the fronted variant is inconsistent, such that some pronunciations of *work* or *first* among the younger women sound very like their *wake* or *faced* (Watt 1996; Watt & Milroy, forthcoming).

Thus, as the loss of [ɔ:] is compensated for among young males by increased use of [ɜ:], the use of [ɜ:] is overshadowed among female speakers by a rise in the use of [ø:]. The effect of class here does not achieve significance ($p = .6257$; class + sex, $p = .567$; class + age + sex, $p = .432$) probably because if one compares the figures for comparable groups by class (especially the female groups) the patterns are rather similar. As pointed out earlier, the figures for the young WC and MC females are practically identical: these groups have converged on a pattern which is heavily gender- and age-marked, but is apparently not marked for social class as might be the case for the older WC and MC female groups. This is a good example of accent levelling in action: young women, after all, are said to lead the vanguard of sound changes of this type, particularly where the fronting of back vowels is concerned, and given the social levelling that may be taking place between these social classes this is just the sort of linguistic evidence we might expect to see.

²⁶ The combined total for [ɔ:] as used by female speakers is just 10 tokens of 605, or approximately 1.7%.

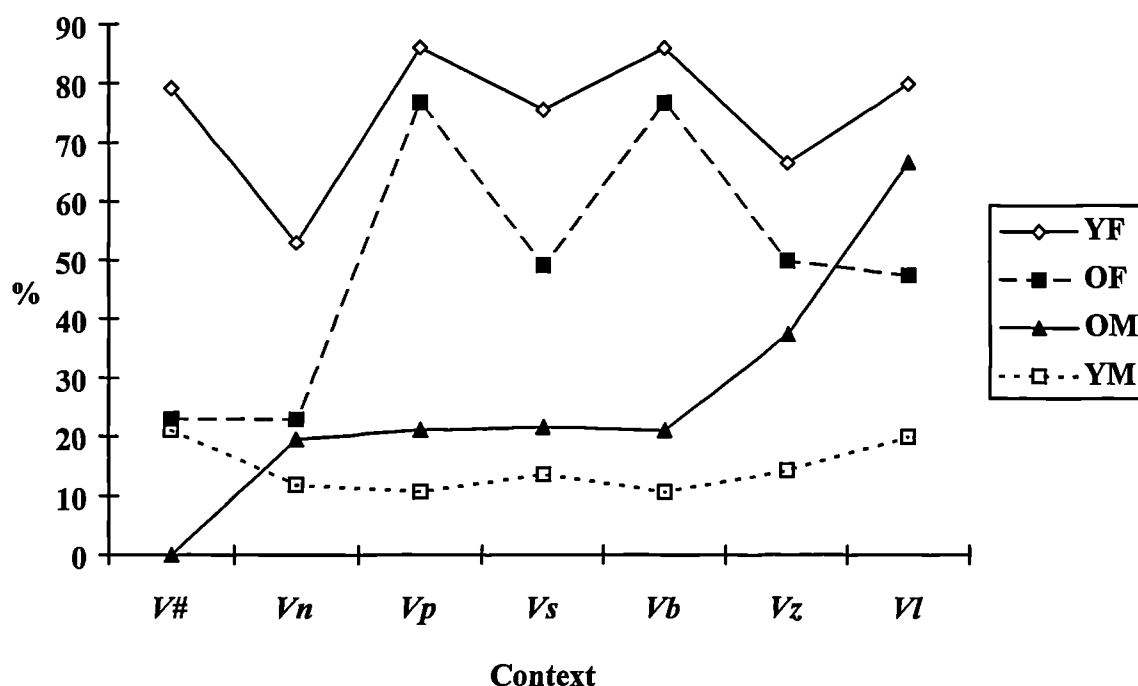
(c) *Context*

The effect of context is in the case of NURSE found to be rather weak ($p = .0637$, when sex and context are modelled together). The contexts used are exactly as per the analysis of GOAT above: viz., $V\#$, Vn , Vp , Vs , Vb , Vz , and VL .

No clear context-based pattern is discernible in the data for [ɔ:], and since the sample sizes are rather small in the first place (no more than 36 tokens for the OWC males) and the variant is more or less absent in the female speakers' data, to break down the overall sample for each speaker group context-by-context would result in very small and probably rather uninformative patterns. It is possible that voiced fricatives promote the appearance of [ɔ:] (as in *serve*, *service*, *stirs*, etc., but this effect is very slight indeed.

The distribution patterns in the [ɜ:] and [ø:] samples are likewise difficult to interpret in terms of contextual conditioning. A trend among female groups to produce a higher proportion of [ø:] than [ɜ:] is slightly more marked in contexts where the NURSE vowel precedes a plosive, and the progress of the spread of [ø:] among the young females (who use this variant surpassingly often) appears to be retarded most markedly in the Vn context. Figure 7.23 demonstrates, however, that female speakers pattern rather similarly when the class factor is excluded from the analysis, the preference for [ø:] in the Vp and Vb environments being the most conspicuous pattern. The young women extend the use of [ø:] to the $V\#$ and VL contexts where older women tend to avoid these.

Figure 7.23: Distribution of [ø:] in seven phonological contexts, age by sex, FC style (%)



Among the male speaker groups, the pattern is a good deal more uniform; the use of [ø:] is rather restricted at the best of times. It seems that older males disfavour the variant in open syllables but use it a good deal before /l/, while the young men's use of [ø:], which is infrequent by comparison with their strong preference for [ɜ:] (see Table 7.19 and Figure 7.22), is not in any obvious way conditioned by following phonological context.

Once again, we see that the effect of sociolinguistic conditioning is a good deal stronger than that of phonological conditioning: there are certain tendencies among the speaker groups to prefer or disprefer certain contexts when producing [ø:], but this nowhere approaches categoricity, except perhaps among the older males where pronunciations like [hø:] *her* or [stø:] *stir* are not recorded. What might be said of the patterns in Figure 7.23 is that the innovative variant [ø:] is diffusing throughout the lexicon, and that this diffusion is promoted somewhat in certain contexts as opposed to others. But context here seems a good deal less important as a determinant of the patterns we see than are the social factors used to divide up the speaker groups: that is, the alternations we observe are, even broadly speaking, not allophonic, although the OM pattern in Figure 7.23 suggests that the change might have come in originally as a fronting of [ɜ:] before /l/.

(d) *Effect of speaking style*

It was hoped that evidence of the NURSE~NORTH merger might be found in WL style, or that the use of the innovative front rounded form might be promoted by the heightened formality of reading aloud. There is, however, only one item on the word-list which indisputably contains the NURSE vowel: *occur*. The vowel of the derived form *occurrence* bearing primary stress is only variably realised by something recognisable as a variant of NURSE, being recorded rather often as [U] as in *recurrence* or *currency*. The list below indicates that while the quality of the vowel used in *occur* is to some extent what might have been predicted on the basis of each speaker's social characteristics, that of *occurrence* can only be related to this insofar as the speaker categorises the word as a member of the NURSE set.

Table 7.25: Variants of NURSE in word-list items *occur* and *occurrence*, by individual speaker

OMC M	<i>occur</i>	<i>occurrence</i>	OMC F	<i>occur</i>	<i>occurrence</i>
Neil	œ:	U	Brenda	ɜ:	ə
David	ɜ:	U	Jean B.	œ:	œ:
Harry	ɜ:	ə	Jean E.	ɜ	ʊ
Steve	ɜ:	U	Eileen	ɜ:	ə
YMC M			YMC F		
Will	œ:	œ:	Ruth	œ:	ə
Richard	ɜ:	ɜ:	Alison	ø:	ø:
Philip	ø:	U	Victoria	ɜ:	ɜ:
Nick	ɜ:	Λ	Katherine	œ:	œ:
OWC M			OWC F		
Fred	ɜ:	U	Sylvia	ɜ:	ə
Jack	ɜ:	U	Ada	œ:	U
Frank	ɜ:	ɜ:	Sheila	œ:	U
John	ɜ:	ɜ:	Ann	œ:	œ:
YWC M			YWC F		
Mark	ɜ:	ɜ:	Tracey	œ:	œ:
Craig	ø:	ø:	Helen ²⁷	① ɜ: ② œ:	œ:
Brian	œ:	U	Kelly	ɛ:	œ:
Ian	ɛ:	ɛ:	Lindsey	œ:	œ:
Lee	œ:	U			

Classifying these variants as 'fronted' (from the reference, or default, value [ɜ:]), central, and retracted, as in the previous section, we may see that retracted variants are absent altogether,

²⁷ Read first as *occurred*, then as *occur*.

and that on the whole the speakers in this sample prefer a somewhat fronted value of NURSE. Those *occurrence* tokens which were clearly members of the FOOT~STRUT set, or had reduced to [ə], are not included.

Table 7.26: Fronted, central and retracted variants of NURSE, WL style (N)

	<i>occur</i>			<i>occurrence</i>		
	Fr.	Cen.	Ret.	Fr.	Cen.	Ret.
OMC M	2	2	-	-	-	-
YMC M	3	1	-	2	-	-
OMC F	2	2	-	1	-	-
YMC F	3	1	-	2	2	-
OWC M	1	3	-	-	2	-
YWC M	4	1	-	2	1	-
OWC F	4	-	-	1	-	-
YWC F	5	-	-	4	-	-

This style shift away from the traditional localised [ɔ:] and toward a fronter value is just what we would expect in the circumstances: as Labov has pointed out, incipient sound change may be implemented in a more extreme way as one moves up the register scale, such that the effects of a regional or national standard are more conspicuous when the informant's speech is being self-monitored. Here we see some evidence of the acknowledgment among TE speakers that use [ɔ:] that the form is 'unsuitable' in the elevated WL style, and a strong preference among female speakers for the 'innovative' form [ø:]; of course, one would need a great deal more data in order to be sure that these effects apply to a large number of NURSE items.

The patterns above, then, may be taken as evidence of change in progress in this variable. This reflects a general trend revealed by results described for other variables in previous sections: localised, traditional TE forms are losing out to levelled supra-local forms. In the case of NURSE fronting, [ø:] might be seen as a form which has gone beyond the levelled form; NURSE fronting is of course a common feature of varieties of English, but is more typical of those spoken in the southern hemisphere (Lass 1989; Watson, Maclagan & Harrington 1998). In both cases, however, the change appears to be led by young women, and in Tyneside this is true irrespective of social class considerations. Changes carried out most energetically by young women are fairly typical of modern urban varieties of English: young women appear to have fewer problems rejecting the traditional values which tend to be retained most conservatively by men, and the linguistic behaviour associated with this conservatism. The social networks of urban British males are generally somewhat more tightly-knit than those of

women, and thus while new forms are usually eventually adopted by male speakers, the process of adoption is by and large a good deal slower. We might expect that over time the retracted variant will disappear from the variety altogether, to be superseded by a standard-like [ɜ:] and the innovative form [ø:], which appears to be fairly localised at present.

7.5 Summary

The results presented in this chapter are illustrative of several general points. The phonetic variation in the five variables selected has been shown systematically to correlate with the social characteristics of the 32 speakers in the sample, as well as with the stylistic variable. Each of the variables paired by height (FLEECE ~ GOOSE, FACE ~ GOAT) are demonstrated to vary in much the same fashion as its partner; this is especially true of FACE and GOAT, in which the symmetry of the variants [e: ~ o:], [ɪə ~ uə] and [eɪ ~ ou] is extremely consistent even where localised variants are becoming more scarce and the 'prestige' forms are found increasingly frequently. That is, TE speakers seem to be losing and gaining parallel variants of either vowel at very similar rates. This is all the more remarkable given the presence of a fourth variant of GOAT - [ə:] - which has no counterpart in FACE. The fifth variable examined in this chapter, NURSE, is of interest because of the apparent unmerging of a 'burr-retracted' variant which is reported to have merged with the vowel of the NORTH-THOUGHT-FORCE set. The unmerger, if it can be given such a title, has restored a stressed central vowel to the phonology of Tyneside English; moreover, the target appears to have been 'overshot' in some sense, as a new variant [ø:], which is unattested in the literature before the 1980s, seems to be increasingly common in the variety. The latter variant is especially popular with female speakers. The overall trend, then, is toward the integration of a more uniform set of phonetic variants across the Tyneside speech community, in a process of levelling that is increasingly typical of varieties of English spoken in British cities, and, indeed, urban populations around the world.

The following chapter will bring together these results with some of the themes discussed in the first part of this thesis; an attempt is made to interpret the patterns from the point of view of both internal and external factors, and it is hoped that the evidence presented here will go some way to resolving the conflict between these factors as they apply to this variety.

CHAPTER EIGHT: DISCUSSION

CHAPTER EIGHT: DISCUSSION

8.0 Introduction

The findings of the previous chapter confirm many of the hypotheses which were outlined at the beginning of Chapter 1. The variation in the vowel system observed in the PVC corpus material is without doubt related to the social characteristics of the speakers sampled, most particularly gender, but also class to some extent. Variation as a function of speaking style is also marked for the variables for which both styles were represented. From the point of view of change, we have seen that the choice of variants among younger speakers is quite different from that of the older speaker groups; it seems that the traditional variants of FACE, GOAT and NURSE which survive in the speech of the older males, particularly those of the WC group, are now very recessive among young speakers of both classes and sexes. In other words, the findings of this study confirm that we are seeing a levelling of the Tyneside vowel system toward a variety that can be interpreted as a supra-local regional standard.

A particularly interesting finding that emerges from this analysis is the way in which the distributions of two independent vowel variables, FACE and GOAT, appear to be in 'lockstep' with one another: while both appear to be changing over time (in terms of the levelling process mentioned in the previous paragraph), they do so at almost exactly the same rate within each speaker group. This symmetrical pattern can be taken as evidence of the coherence of such changes with regard to the phonology of the TE vowel system, and lends weight to the idea of the front and back vowel series as acting in parallel when qualitative changes occur. Labov's principles can potentially explain aspects of the variation in FACE and GOAT, while the apparent similarity of the FLEECE and GOOSE variables can be linked in a similar way to Labov's *Upper Exit Principle* (1994:281-284).

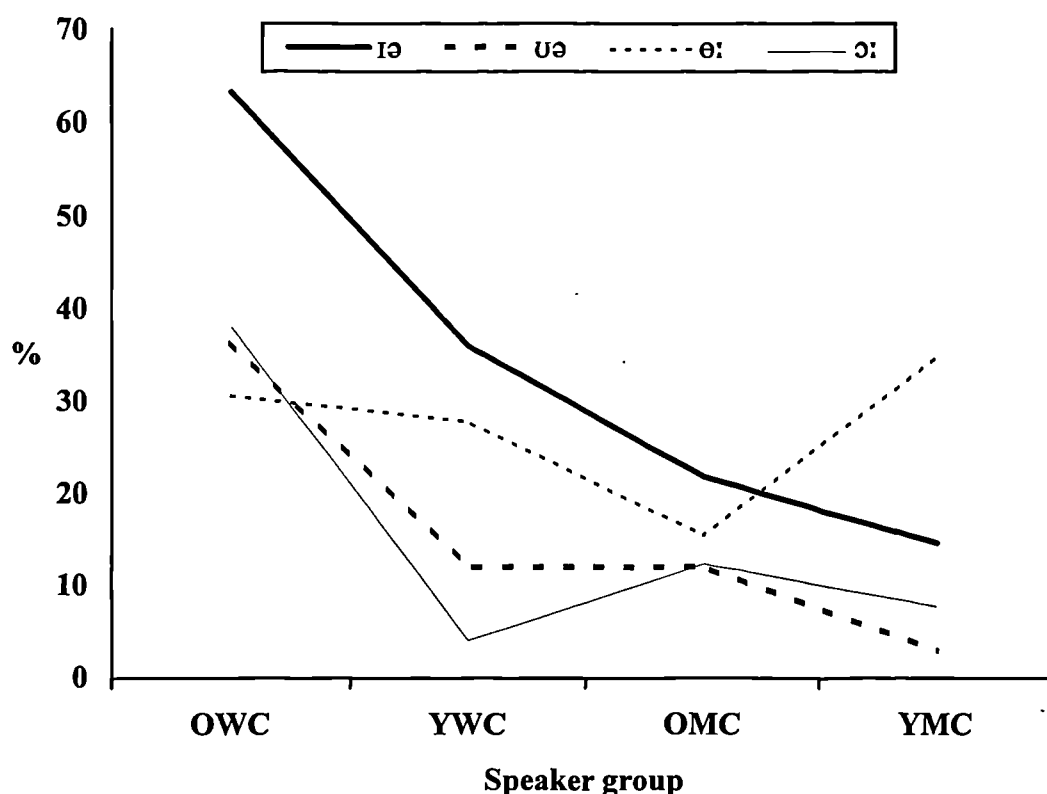
NURSE is of special interest from the point of view of the merger issue: not only must an apparent 'unmerger' (restoration of contrast, or split) be accounted for, with all the attendant problems this poses for structural models of vowel systems, but we see evidence of a fronting process which takes the typical pronunciation of this vowel beyond the 'expected' central target to a front, rounded or unrounded vowel in the region of [ø]~[e]. This can be accounted for in various ways: it might be viewed as a variable which has become subject to Labov's third principle (back vowels move to the front), as a case of 'overshoot' (Labov 1992), or simply as an approximation to a vowel quality heard in other varieties of English in northern England (e.g. Knowles 1978).

These three main themes (levelling, symmetry and merger) are discussed in more detail in the following sections.

8.1 Accent levelling

The distributional patterns discussed in Chapter 7 demonstrate that the process of levelling discussed in connection with other varieties of British English is replicated here in TE: the traditional localised variants of the FACE ([Iə]), GOAT ([Uə, ɐ:]) and NURSE ([ɔ:]) vowels in particular appear to be losing ground to the generalised northern English koine towards which TE is converging. This is really only apparent among the male speaker groups, since the use of the localised forms of these vowels is so recessive among the female TE speakers in the sample that we can state with confidence that these forms have become the preserve of Tyneside men. As such they appear to be used as a symbol of masculinity. The significance of this marking is presumably in decline, as the young Tyneside men in the PVC sample use the above forms far less frequently than do their older counterparts, as indicated by Figure 8.1. There is a class effect here too, as the stepped pattern we have seen elsewhere among the male speaker groups (see for example Figure 7.4), can be seen again for all the localised variants.

Figure 8.1: Distribution of localised variants of FACE, GOAT and NURSE, male speaker groups only, FC style (%)



The symmetry of [ɪə] and [ʊə], as already discussed (§5.4.8, §7.3.3), is suggested by the similarity of their distributions across the speaker groups.¹ It appears that these variants are being lost from TE at approximately equal rates; the comparative scarcity of [ʊə] for all four groups is accounted for by the presence of the additional variant [ə:]. The retracted variant of NURSE is used only infrequently by the YWC and middle class male groups. The low score for this variant among the YWC speakers reflects their preference for the fronted variant, [ɜ:] (see §7.4).

The significant exception to the general pattern in Figure 8.1 is the line representing the figures for the [ɜ:] variant of GOAT. Among the YMC males this variant is strongly favoured - indeed, this group uses [ɜ:] more often than any other in the sample, and twice as much as the OMC males do.² There are two possible reasons for this. On the one hand, it may simply be because the YMC males wish to assert their local identity through the use of a localised form of the vowel, but without using [ʊə], which as suggested in §7.3.2 is one of the most stereotyped features of TE; clearly, the latter variant will be associated by listeners more readily with working-class speech more than with middle class speech. It will be noticed from Figure 8.1 that the YMC M figures for [ʊə] are extremely low, even by comparison with the already low figures for the other male groups. As [ʊə] and [ɜ:] are almost exclusively the preserve of male speakers, both would seem equally good as markers of maleness. But within the male group, [ʊə] may serve more as a marker of working class status than does [ɜ:], the latter less obviously fulfilling a class function. Alternatively, [ɜ:] may be thought of as the form favoured by younger speakers. Assuming that it descends from the pre-existing Northumbrian variant [ø:] described throughout the literature (Lass 1989, Rydland 1998, etc.) it may be that [ɜ:] has been reinterpreted as a higher-status form, such that its resemblance to an incoming, more prestigious variant means that its use among young middle class speakers is acceptable. This resembles what Britain terms 'reallocation' of variants in the koineisation process (1997a:141, 1997b), by which input variants are 'refunctionalised'. It is not difficult to find similar forms in other varieties of northern British English: Cheshire *et al.* (1998) and

¹ $r = 0.963$; $p < .5$. The correlation coefficients for the other paired series are as follows:

	ɪə	ʊə	ə:
ɜ:	0.180	0.038	
ɔ:	0.834	0.935	0.125

Given only four observations per variable, however, the high r values for [ɪə ~ ɔ:] and [ʊə ~ ɔ:], though suggestive of close correlation, fail to achieve significance at the 5% level (the former only marginally so ($p < .1$), the latter more widely ($p > .1$)).

² If the YMC group's 'atypical' figure for [ɜ:] is omitted (or, rather, rendered transparent by making it conform to this group's scores for the other vowels by taking the mean of the differences between the scores for the YMC and OMC groups for [ɪə], [ʊə] and [ɔ:] - 6.97 - and subtracting this from the OMC [ɜ:] figure of 15.4%) the degree of fit between the scores for [ɜ:] and the other three variables is significantly improved: [ɪə ~ ɜ:] $r = 0.901$; [ʊə ~ ɜ:] $r = 0.791$; [ɔ: ~ ɜ:] $r = 0.529$.

Williams & Kerswill (forthcoming) report [ɜ] as an innovative 'posh' variant of GOAT in the English of Hull, a form which is found most frequently in the speech of middle class girls, while modern Bradford English, and perhaps generally that of West Yorkshire, features a central, rounded vowel in GOAT items.³

The Tyneside case seems a little more complicated than the fronting of GOAT in other varieties, since at least in the case of Hull and Bradford we can be fairly sure that the appearance of central variants is a relatively new phenomenon. The existence of [ə:] in TE, as mentioned in the above paragraph, could plausibly be interpreted both as fronting of [o:] or as retraction of [ɔ:]. However, since current changes to the vowel systems of other varieties of English indicate that fronting of back vowels is very common - and according to Lass (1989) natural, even inevitable - we will assume [ə:] to be the end product of two opposing processes: (a) a fossilisation of a retraction of the traditional [ɔ:] and (b) a fronting from the levelled value [o:] among the YMC males, in line with parallel changes going on elsewhere in northern British English. Indeed, we may link TE GOAT fronting with the general fronting of this vowel in southern British English (Eustace 1970; Kerswill 1994a, 1996a) and further afield (e.g. Luthin 1987). Indeed, fronting of back vowels in English - particularly GOOSE, FOOT and STRUT - appears to be taking place at a rapid pace in very widely dispersed varieties: Cruttenden (1994), Kerswill (1994a, 1996a), Torgersen (1997), Kerswill & Williams (1994), Williams & Kerswill (forthcoming) report on such change in south-eastern British English; Labov (1991) claims GOOSE fronting to be a new development in Glasgow and London English; Eckert (1991, 1997b), Labov (1994), Fought (1997), Gordon (1997) and many others discuss fronting of back vowels in North American English; Watson, MacLagan & Harrington (1998) present instrumental evidence of the GOOSE fronting in New Zealand English reported earlier by Wells (1982), while Lass (1989, 1990) describes the fronting of GOAT and GOOSE in (white) South African English. In this way, it is a little easier to make sense of a vowel that is traditional *and* innovative: the status of [ə:] in TE has been reinterpreted by younger male speakers as a variant which can simultaneously signal youthfulness as well as local allegiance.⁴ Females prefer the less localisable [ou], so [ə:] is also clearly marked for gender.

³ Paul Foulkes (personal communication). Khattab (1998) records [ə:] as a variant of GOAT in the speech of two Arabic-English bilingual boys living in Leeds. The description of Bradford English in Hughes & Trudgill (1979:88-92) makes no mention of such a variant, so the fronted vowel may be entirely innovative.

⁴ Compare this finding with those of Llamas (1998) for Teesside English: the young males in her sample appear to 'cherry-pick' from a range of local and non-local (southern, lower-status) variants on the basis of the social marking associated with each. That is, they seem less interested in sounding local than they do in sounding 'tough', rebellious, etc., even if this involves the adoption of forms more characteristic of the south of England ((TH)-fronting, use of labial [ʋ], etc.).

While describing the patterns of variation and change in the TE vowel variables studied here in terms of the social characteristics of TE speakers is comparatively straightforward, there are a number of problems with the way in which phonology-internal accounts of the observed patterns would handle the large amount of variability of which the PVC speakers make use. The 'principles of linguistic change' proposed by Labov (1991, 1994, 1998) represent the most popular current theoretical treatment of change to vowel systems, as outlined in Chapter 2; the following section deals with some of the problems that are encountered in attempting to apply these principles to findings of the present study.

8.2 Internal factors: Labov's principles

For convenience, the six principles of chain shift outlined in Labov (1991:35) are reproduced here.

In chain shifts

- I Peripheral vowels rise.
- II Nonperipheral nuclei fall.
- III Back vowels move to the front.
- IV Low vowels become nonperipheral.
- V High nuclei become nonperipheral before upglides.
- VI Peripherality is defined relative to the vowel system.

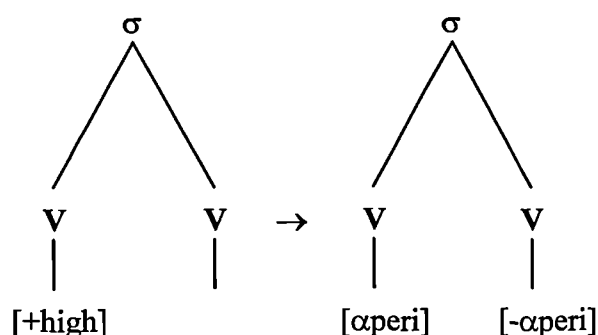
Some of the features of the variation in the Tyneside vowel system investigated in this thesis are discussed with reference to these principles below. It should be noted that, problematically, the wording and order of these principles differs between Labov, Yaeger & Steiner (1972), Labov (1991), and Labov (1994).

8.2.1 Raising and breaking: close and close-mid vowels

The FLEECE and GOOSE vowels, it will be remembered from Chapter 7, were found to pattern very similarly to one another with respect to the degree to which the allophonic alternation between monophthongal and diphthongal variants was observed by the various speaker groups. This would appear to be entirely in line with what Labov terms the *Upper Exit Principle* (Principle V, deriving from Principle I; see also Labov 1994: 281-284), whereby high vowels under pressure from rising mid vowels are forced to diphthongise. The Upper Exit Principle (henceforth *UEP*) represents an 'exit valve that removes units from the subsystems of long and of front or back upgliding diphthongs... constrained by the special

condition that an upglide be present after the nucleus... [a condition which] is automatically realized when the nucleus of a peripheral monophthong is laxed' (1991:10). This principle 'describes the change that initiated the Great Vowel Shift, and many similar chain shifts in Germanic, Baltic, and Slavic languages. In this process, long peripheral [i:] develops a lax or slightly centralized, non-peripheral nucleus [ɪ¹], and [u:] shifts in parallel to [ʊ¹]. This sets up the conditions for the application of principle I to the remaining long monophthongs, and of principle II to the diphthongs just produced' (ibid.). Figure 8.2 formalises this principle.

Figure 8.2: Principle V: the Upper Exit Principle (from Labov 1994:282)



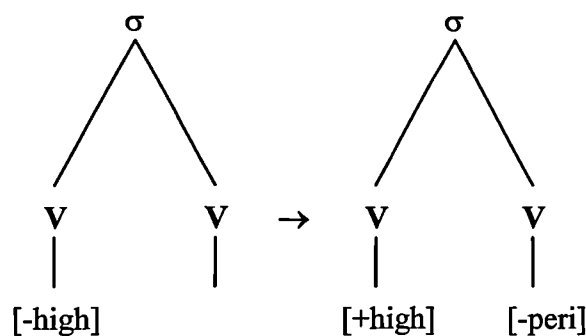
In this way, we might explain the appearance of diphthongal variants of FLEECE and GOOSE in open syllables in Tyneside English by appeal to the UEP: in open syllables, vowels tend to be longer,⁵ and in such cases, Labov informs us, 'the longer the vowel and the more emphatic the pronunciation, the further the nucleus shifts toward the center [of the vowel space]' (1991:23). This, indeed, is one justification for Labov's use of elicited (word list, reading passage, minimal pair) material, since evidence for sound change is often easiest to collect in the style where its effects are most exaggerated (Labov 1986:415; but see Veatch 1991:127-128). Thus we might expect to find that FLEECE and GOOSE would diphthongise first in open syllables, since this is the context in which they are most vulnerable to the operation of the UEP. Over time, we might anticipate diphthongisation of FLEECE and GOOSE in all environments, as the chain shift affects more and more words containing these vowels; the allophonic distinction would subsequently be lost.

Labov, however, appears to be unaware of the existence of diphthongal variants of FLEECE and GOOSE in northern British English dialects, and of the allophonic alternation that diphthongises these vowels in open syllables in TE; he states that in 'a broad group of dialects

⁵ Jimmy Harnsberger (personal communication) states that an instrumental analysis of the PVC word list material shows FLEECE to be lengthened by all eight speaker groups word-finally and before voiced stops. He gives durational measurements in milliseconds for the latter category only, however.

from northern England to Scotland and Ireland, [the high and mid tense vowels] have not been diphthongized at all. Their monophthongal character is as evident in free position as in checked, and they are best represented as /i:, e:, u:, o:/ (1991:20). This comment is at odds with Labov, Yaeger & Steiner's (1972:97) description of centring diphthongal variants of FACE and GOAT in TE, a feature which exemplifies well Labov's *Mid Exit Principle* (reformulated as Principle VI 'peripheral vowels rising from mid to high position develop inglides' in Labov 1994:284), which is summarised by Figure 8.3.

Figure 8.3: Principle VI: the Mid Exit Principle (from Labov 1994:284)



Evidence for the Mid Exit Principle (*MEP*) may be found in varieties of American English in locations such as New York City or Fond du Lac, Wisconsin (Labov, Yaeger & Steiner 1972:97).⁶ In New York City, [æ] in words like *man* or *bad* may be raised and broken to [i'ə]; Labov (1991:19; 1994:197) reports frequent misunderstandings on this basis - confusion between the names *Ann* and *Ian*, for instance. Among younger speakers in Fond du Lac, traditional [o] is broken to [o'ə] or [u'ə], such that the inglide, which is 'quite general' (i.e. independent of context), is heard in forms such as [muətə' buət] *motor boat*. Such breaking of /e:/ and /o:/ is what appears to have happened a good deal earlier in Tyneside English, such that an old-fashioned TE pronunciation of *motor boat* is virtually the same as that heard in the Wisconsin variety. Indeed, Labov, Yaeger & Steiner cite Tyneside English as a good example of the application of the MEP.

⁶ Veatch (1991) reports an analogous breaking of FACE and GOAT in Jamaican English.

We have... gathered data on the ingliding [i'ə] and [u'ə] for long ē and long ō in the speech of Newcastle (Gateshead), England. Among young males in lower working-class areas, this tendency is most pronounced, so that there is a direct contrast between monophthongal [i'] and ingliding [i'ə], for beet vs. bait, and monophthongal [u'] and ingliding [u'ə], for boot vs. boat. This is a long-standing tendency in the surrounding area, and it would be wrong to think of it as the advancing edge of a new sound change, as in New York City or Fond du Lac. Nevertheless, the mechanism of this rising and ingliding pattern is definitely strongest among the lower working-class males, and a detailed investigation of this pattern should throw light on the broader questions concerning the raising of tense ingliding vowels (Labov, Yaeger & Steiner 1972:97).

The problem here is that it is not clear why breaking of this sort would take place. The raising and breaking of FACE and GOAT might plausibly be invoked as the factor prompting the breaking of FLEECE and GOOSE, as the chain shift model would suggest. But the reasons for FACE and GOAT raising in the first place are far from clear: the open or open-mid vowels of TE do not appear to be raising, so a push-chain explanation is probably invalid.⁷ Alternatively, the raising of FACE and GOAT may simply have happened spontaneously, triggering a push-chain, but if so, this is hardly an 'explanation' of the sort we might wish for. Referring to varieties of English in which FACE and GOAT have raised and broken, Veatch (1991) cites Gallo-Romance breaking, in which such diphthongisation took place where the vowels were under a high degree of stress: he claims that the nucleus of /e:/, o:/ is raised and diphthongised when stressed because /e:/, o:/ are affected most strongly by stress; the process of raising and breaking under stress, he argues, is restricted to the long, underlyingly mid vowels /e:/, o:/ and does not apply to /i:/, a:/, u:/ (Veatch 1991:187). This is again a *post hoc* generalisation rather than an explanation, however. Also, since the raising and breaking of FACE and GOAT appears to be independent of context, an account based on assimilatory or coarticulatory effects is difficult to support, particularly as both vowels appear to have undergone the same set of changes in parallel with one another.

The diphthongisation of both pairs of vowels does not appear to be new in TE (see Chapter 6). That in FLEECE and GOOSE seems to be fossilised, in some sense, as there is little in the way of socially-conditioned variation apparent in the distribution of [ei] and [əu] (see Figure

⁷ Pronunciations of some TRAP-BATH items such as [beg] for *bag* may sometimes be heard, though this is very rare, and is mentioned nowhere in the technical literature. [weʃ] *wash* is similarly sporadic. Front realisations ([e:] and [ɛ:]) of the vowels of *master*, *guard*, *quart*, etc. are also reported as a feature of Northumberland English by Heslop (1892:xviii, cited in Beal 1985:38) but in general have been retracted to [ɑ:], [ɒ:] or [ɔ:] in modern TE.

7.2), the scores for all speaker groups being close to categorical. It appears, then, that this feature is not highly marked socially and is well below the level of conscious awareness, and can be thought of as an *indicator* rather than a *marker* (Labov 1994:78).

Raising and breaking of FACE and GOAT, on the other hand, is a particularly salient feature of TE (see Chapter 6, and informal sources such as Todd (1987), Jennings (1995, Ch. 7), etc.), and is much more variable as a function of the various social factors than is the case with FLEECE and GOOSE, as can be seen in Figure 7.18. But as we have seen, the effect of speaker age among the male speaker groups on the distribution of [ɪə] and [ʊə] indicates that these variants are being levelled out of TE; for the female speakers this appears already to have happened. So there is no need to attempt to answer the question posed by Labov, Yaeger & Steiner with reference to Tyneside English and the other varieties they cite in which the MEP has raised and broken /e:/ (the development of Middle English /a:/),⁸ because the levelling process means that we no longer have reason to ask it.

One problem which immediately confronts us is that of the 'next step'. Given the raising of (æh) to [i·ə], it is unlikely that the mechanism which produced the change from [æ] to [i·ə] would have no further consequences. There is of course social correction in New York City, which has restored low vowels in the speech of many upper middle-class youth. But if the vernacular does not disappear, where would the ongoing course of sound change move [i·ə]? (Labov, Yaeger & Steiner 1972:97).

Here, then, we have an example of a situation in which the chain shift model provides a means of interpreting the similarity of the patterns for pairs of front and back vowels, but where the principles organising the vowel system are overridden as Tyneside English has come under the influence of other varieties of the language. Labov's principles also go part of the way to explaining the distribution of the variant that disrupts the FACE~GOAT symmetry, the central vowel [ə:].

⁸ Viereck (1968:69) provides a historical account of the development of ME /a:/, which gave rise to the 'normal' development [je] in Gateshead English (as in *bake, cake, made, name, spade, gate*). Levelling of this variant was apparently taking place during the 1960s, as Viereck reports that 'owing to Standard English influence /je/ seems to be dying out gradually' such that 'in the following words belonging to the same group Standard English influence has completely replaced the genuine dialectal development: blade, ape, hate, flake, lake, late, grave, date, gable. They are pronounced only with /e:/ in the dialect today' (ibid.). He attributes this levelling to demographic factors: 'Gateshead, which forms part of Tyneside, has been subject to a change of population lately, since a great number of people have poured into this area from other parts of the country' (1968:65). See also Kerswill (1984).

8.2.2 GOAT fronting

The fronting of GOAT would at first glance exemplify rather well Labov's Principle III ('In chain shifts, back vowels move to the front'; also Labov 1994:116). Labov comments, however, 'further reflection indicates that the fronting of /o/ has no connection with either chain shifting or the principles of chain shifting. It is never linked directly with the raising of a back vowel that would otherwise merge with the mid vowel, but instead represents a generalization of the fronting of the high back vowel... When /ow/ is fronted, it is always in parallel with /uw/ and considerably behind it' (1994:208). In Labov's scheme of things, GOAT cannot front except along a peripheral path. Centralisation of the nucleus of this vowel, in other words, is prohibited: 'The fronting of back vowels that is associated with chain shifting takes place either on the upper peripheral track, like /u/, or on the lower peripheral track, like /o/' (ibid.). There is, however, little evidence of GOOSE fronting in Tyneside English - it is heard in the YMC male samples, particularly those of Will and Nick, but sporadically at best - and thus it is difficult to argue for a parallel fronting of GOOSE and GOAT as Labov suggests.

Looked at the other way - whereby [ə:] is the product of an incomplete retraction of [ø:] - we run into problems with a chain shift model account, since little provision is made for the retraction of front vowels.⁹ The retraction is anyway unlikely to have resulted from the operation of internal forces. Instead, I argue, it can be ascribed to levelling as a result of dialect contact. In cases such as these it is often fruitless to search for a coherent, gradient pattern of change, since forms being introduced from outside are very often radically different from those for which they substitute. Labov (1991:21), for example, attempts to integrate the alternation between the GOOSE variants [u:], [ʊ:] and [ə:u] in Glaswegian English into a generalised chain shift model which groups this variety with those of the Northern Cities (Detroit, Buffalo, Syracuse, Rochester, Cleveland, Chicago). What Labov neglects to mention in this case is that [ə:u] is only a variant of GOOSE insofar as the traditional Scots pronunciation of MOUTH class items is [ʊ], as in *house*, *out*, *town*, etc., and that [ə:u] has appeared in Lowland Scottish varieties of English probably as an approximation of southern British English [au]. This is exactly parallel to the situation in TE, since as in Scottish English, [u:] is preserved in MOUTH class words, although in the PVC sample it was rather rare. In cases like this, then, it seems unwise to treat such variants as though they result from general internal principles coordinating vowel systems; it seems more realistic to treat alternations like this as the accidental results of the operation of external forces.

⁹ Backing of /e/ and /ʌ/ in the Northern Cities Shift (see §8.2.3) is accounted for by an amendment to Principle III, which states: 'In chain shifts, tense vowels move to the front along peripheral paths, and lax vowels move to the back along nonperipheral paths' (Labov 1994:200). GOAT in Tyneside English would presumably be tense rather than lax in this schema, however.

8.2.3 General incompatibilities

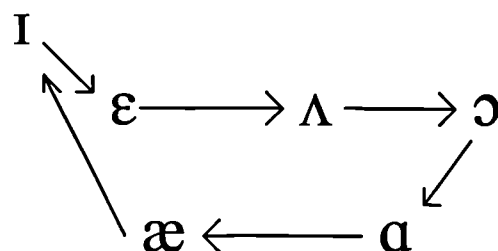
Indeed, part of the problem with Labov's principles of linguistic change lies in their inapplicability to varieties of English other than those spoken in North America. The principles do not allow for stressed central vowels such as /ɜ:/, for example, probably because most North American varieties of English preserve post-vocalic rhoticity.¹⁰ /ɜ:/ is not thought to participate in chain shifts in Labov's model, or at any rate is overlooked throughout Labov's work. In any case, how this vowel would interact with other elements in the system during chain shift is unclear; if the peripherality of a vowel's target is so crucial to the way in which the shift will proceed (see §2.6.3), it seems that /ɜ:/ would present the model with several intractable problems. Even presented with F1~F2 plots intended to demonstrate the reality of parallel peripheral and non-peripheral tracks (e.g. Labov 1994:169, 171),¹¹ it is difficult to discern where the targets, as opposed to individual tokens, might be relative to one another, since the degree of overlap is rather marked in every case because of contextual influence or incipient sound change. Presumably Labov would like peripherality to be more than just a theoretical convenience, since it is a useful and elegant explanation of a number of apparent paradoxes in the historical record. But it is difficult to illustrate its relevance convincingly using instrumental analyses of spontaneous conversational material, especially in the light of the problems with the formant frequency model discussed in Chapter 2. In some ways, then, the principles upon which Labov's view of change in vowel systems rests are distillations and idealisations: whether we can actually 'hear' peripherality, or even see it in F1~F2 plots, is open to question.

Gordon's (1997) investigation of the Northern Cities Shift (NCS) in two non-urban speech communities in Michigan also casts doubt on the patterns Labov and others have described: the directions available to shifted vowels are, he says, not limited to those mapped out by Labov (1994:191; reproduced in Figure 8.4 below). 'It is important to keep in mind... that the neat pattern presented [in Figure 8.4] provides a very simplified and abstracted picture of what are in actuality rather complex and murky phonetic details' (Gordon 1997:126).

¹⁰ Veatch (1991:66) treats post-vocalic (retroflex) /r/ as a vowel offglide, grouping it with /y/ and /w/, following Labov's notation; in this way a more parsimonious schematisation of the vowels of Veatch's Reference American English diasystem can be arrived at.

¹¹ Recall from §2.7 the figures (2.7 and 2.8) for London and Texas English. The clustering of individual vowel categories is perhaps somewhat easier to appreciate when plots are given in colour: see for example <http://www.ling.upenn.edu/~labov/BEinhorn.GIF>.

Figure 8.4: The Northern Cities Shift III (reproduced from Labov 1994:191)



Looking at three of the vowels that are reported to be participating in the NCS - (i), (ε) and (Λ) - Gordon finds that 'each appears to be participating in a broader range of variation than is commonly acknowledged by researchers. The nature of this variation raises questions about the forces driving the shift, specifically about whether chain shifting is an appropriate model to describe the NCS changes' (ibid.). This is a challenging remark to make, in view of Labov's assertion that the NCS represents 'the most complex case of systematic chain shifting among short vowels, and in fact, one of the most complex chain shifts ever recorded' (Labov 1991:19); indeed, Veatch believes it to be 'as dramatic as the Great Vowel Shift' (Veatch 1991:195).¹²

This is not to dispute that the set of changes in the English of the Northern Cities is taking place; rather, it is suggested that the strength of the internal principles which Labov proposes as a means of interpreting the changes is overestimated. Labov concedes that the principles 'are not stated as 'universals' in the sense of exceptionless rules that cannot be overridden by other factors. They are constraints on change, based on a sizable amount of data, which like all other general principles contribute to our estimates of the probability of certain events taking place. Though they are all based on induction from the database, they differ in their internal relations and their connections from other principles of the linguistic system' (1991:35). However, he can offer no convincing phonetic explanation of why the principles permit certain changes and not others: 'Principles I to III, concerning movements within subsystems, are isolated inductive principles as they now stand. We [have] a tentative explanation for only the third, the connection made by Martinet (1955) with the asymmetry of the vocal tract' (ibid.; see also §2.6 of this thesis).

In any case, it would seem that it is as easy to find examples of violations of these 'constraints' as it is to find evidence in support of them - Lennig (1978), for example, finds that the

¹² Eckert (1997b) reports that the wholesale fronting of back vowels in the 'Northern California Chain Shift' is more or less the reverse of the NCS (see also Luthin 1987).

ongoing chain shift reported in Parisian French is actively being *reversed* by certain social groups. In conclusion, then, there is still as yet no explanation of why recurring patterns from which Labov derives the six principles listed at the beginning of this section should be important from an articulatory, acoustic or perceptual point of view, nor why one should find evidence of vertical symmetry even down to the subtle levels described in Chapter 7. The question of symmetry is taken up further in the following section.

8.2.4 Symmetry: close and close-mid vowels

The similarities between each speaker group's figures for the diphthongal variants of FLEECE and GOOSE, and the three mirror-image variants of FACE and GOAT, were found to be statistically significant. This would be an interesting result in itself were there to be no socially-conditioned variation involved, but as seen in Figure 7.2, and more especially in Figures 7.17, 7.18 and 7.20, the paired variants [ei ~ əu] for FLEECE and GOOSE, and [e: ~ o:], [Iə ~ uə] and [eɪ ~ ou] for FACE and GOAT are matched well in terms of their distributions according to the age, sex and social class of the speakers in each of the eight groups. It appears, then, that the TE speakers sampled have a ready-made, more or less symmetrical close and close-mid vowel system to use, but that each social group will make greater or lesser use of paired variants. The appearance of variants is also determined to a certain extent by their perceived prestige, where a stylistic shift is being made. This fine-grained variation, I argue, can be thought of as exploitation of a natural resource: TE speakers use the possibilities for social marking afforded by the symmetry to place themselves on scales of, for example, 'local loyalty' versus 'identity with supra-local norms', 'masculinity' versus 'femininity', 'lower status' versus 'higher status'. One would expect to see similar behaviour elsewhere (especially in parallel cases where the MEP and UEP are thought to apply), and indeed Labov and his associates describe varieties of English in which pairs of front and back vowels change in the same way at virtually the same rate. This, after all, is the mechanism by which the Great Vowel Shift is supposed to have taken place, so we should not be surprised to find that front and back vowels are linked in such a way in modern English and many other languages and language varieties. To my knowledge, however, no explicit account has been made of a situation such as that described here, whereby symmetrical variation is exploited in this way.

Again, it is difficult to come up with any convincing phonetic explanation for the front-back symmetry. Labov's reliance upon peripherality as a category by which tense/lax subsystems can be distinguished, with peripherality being 'defined relative to the vowel system' (see above) rather than by predictable phonetic cues, bypasses the necessity of searching for any such cues in the signal. The UEP, which diphthongises the FLEECE and GOOSE vowels (which

are supposedly unable to rise any higher for articulatory reasons) and prevents merger between these 'cornered' close vowels and the close-mid vowels rising to meet them, is perhaps the nearest we have to the sort of explanation we might want, but it is not at clear from an articulatory perspective that the UEP is the sort of escape valve the vowel phonology would need, if one were needed at all.¹³ Although merger is in essence a destructive process, in terms of the irretrievable loss of information, it is not necessarily the worst thing that can befall a vowel system: apart from anything else, merger is extremely frequent cross-linguistically, suggesting that from the communicative point of view it does not present as many problems as structuralist models predict.

The following section discusses the reported merger of the NURSE vowel in TE with that of the NORTH~THOUGHT~FORCE sets, and some possible explanations of the apparent 'unmerging' of these classes is offered.

8.2.5 Merger: NURSE and NORTH

Labov's seventh and eighth principles (1991:35) concern merger, and its effect upon the behaviour of vowel phonemes undergoing change.

Mergers

- VII Expand at the expense of distinctions.
- VIII Initiate pull chains and inhibit push chains.

Principle VII (sometimes known as Herzog's Principle; see Herzog 1965; Labov 1994:602) is used to generalise over those situations in which a dialect A featuring some phonological contrast comes into contact with dialect B, where the contrast has been merged. In most cases, dialect A will merge the contrastive phonemes in line with dialect B. Herzog's Principle is the 'spatial correlate' of Garde's Principle ('mergers' are irreversible by linguistic means'; see Garde 1961; Labov 1994:602): in both cases, information serving to distinguish lexical items, and hence meanings, from one another is lost. This information cannot be restored, since once word classes are collapsed together, speakers cannot 'unpick' them again, except through contact with another variety in which the contrast is maintained. But if Herzog's Principle is valid, this is unlikely to happen. We will return to Garde's and Herzog's Principles presently.

¹³ The Upper Exit Principle may not in fact be of much relevance beyond the Germanic, Baltic and Slavic languages, as Labov admits. The frequently cited merger of Greek /u, u:, oi, a:, e:, ei, i, i:/ to /i/ (Labov 1991:41) demonstrates that in the Indic, Greek, Italic, Celtic and Albanian languages, /i/ shows a remarkable tendency to remain [i], even under heavy pressure of merger with other phonemes' (ibid., p10-11).

Principle VIII accounts for cases in which one phoneme merging with another leaves a gap in the system which can then be filled by a nearby third phoneme. Since the 'fields of dispersion' of individual tokens of vowel phonemes are liable to expand to fit the space available, a merger is thought to pull nearby vowel targets towards it (recall from Chapter 2 Keating, Huffman & Jackson's remark to the effect that 'even languages with few vowels will essentially fill the vowel space with vowel tokens in running speech' (1983:50); Liljencrants & Lindblom 1972; Veatch 1991:171). Mergers were referred to in Chapter 2 as information sinks; to extend the analogy, as per Liljencrants & Lindblom's magnetised corks model, a merger will attract other vowel phonemes toward it rather like corks, while still mutually repellent, would be drawn toward the plughole in an emptying basinful of water. Movement of one target toward the merger, according to chain shift theory, will set in train the motion of neighbouring phonemes; hence, 'pull chain'. Since the pressure on phonemes in the system is reduced by the loss of a distinction through merger, the 'push' that precipitates push chains is weakened. Principle VIII thus encapsulates the effects of merger upon the vowel system as a whole.

In the case of the putative merger of NURSE and NORTH in Tyneside English, we are faced with a number of problems. First of all, these lexical sets seem to have re-separated, in violation of Garde's Principle; we attribute this to dialect contact.¹⁴ Secondly, the generality of Herzog's Principle is compromised, since the NURSE~NORTH merger has not, apparently, expanded at the expense of the distinction between these sets that is found elsewhere in British English. Last, there is little firm evidence to show that the 'loss' of a central vowel phoneme which was, presumably, one of the input phonemes to the merger, had any effect upon the rest of the vowel system. Let us examine these problems one at a time.

The evidence of a merger of the NURSE and NORTH sets in twentieth century TE is as good as that used to demonstrate mergers elsewhere in English and other languages. Certainly, the evidence we have is substantial enough for Hughes & Trudgill (1979:113) to posit a categorical phonemic contrast between TE and RP, such that TE has no long central vowel at all. The antiquity of the merger is not known, though Beal (1985:42), following Orton (1930), suggests it is comparatively recent, as she ties it to the loss of post-vocalic rhoticity in TE. Jones makes reference to the merger in 1911, however, so we might assume that it is a feature that developed somewhat earlier than this, while rhoticity may still have been a feature of the variety (Jones, however, shows TE to be non-rhotic; see Pålsson 1972:27-28). There are clues from other sources too, such as the description of Cleveland (Teesside) English by the

¹⁴ Trudgill (1996:474-477) reports on the substitution of [ɜ:] for traditional East Anglian [ɐ] in words of the NURSE set: 'The vowel /ɜ:/ did not exist in the dialect until relatively recently. [...] In my study of the city dialect of Norwich (Trudgill 1974) carried out in 1968, the vowel [ɐ] was recorded a number of times, but the overwhelming majority of words from the relevant lexical set had the originally alien vowel /ɜ:/' (1996:477).

Reverend Atkinson (1868:xiii, cited in Llamas 1998:13), in which we are informed that the 'i before r as in ('bird') is realised with a quality 'nearly of o in 'Boz' as ho't = hurt, bo'd = bird.'¹⁵ Dialect dictionaries such as Todd (1987) or Graham (1987) render forms such as *germs* as *jorms*,¹⁶ *bird* as *bord*, and *murder* as *morder*. The expression *Gizashort* (lit. 'give us a short') is glossed in Dobson's *Larn Yersel' Geordie* as 'A small whisky, or May I have a shirt?' (1986:28). The local pronunciation of the place-name Kirkhouse Point (near Newbiggin, some 10 miles north of Tynemouth) is reported by Wakelin (1972:73) to be [koku:spœɪnt]; interestingly, he was informed - probably wrongly - by a local fisherman that this derived from the fact that cockfighting used to take place there. *Porcy* for *Percy* is an example of burr-retraction supplied by Geeson (1969:32), while Viereck (1966:95) reproduces the story of the Tynesider who visits his doctor with an injured knee: when asked, after having the knee bandaged up, if he can walk ([wɔ:k]), Geordie replies heatedly, 'Work?! [wɔ:k] I can hardly walk! [wa:k]').¹⁷

The sources referred to in Chapter 6 of this thesis until Wells (1982), as well as the others referred to above, do not indicate that the merger is anything but categorical. Yet the evidence presented in Chapter 7 shows this not to be the case: the central [ɜ:] and fronted [ø:] forms are a good deal more frequent than the more traditional retracted [ɔ:] form. It looks, then, as if the merger reported so widely in the literature has 'unmerged'. As Wells points out, 'In a less broad Newcastle accent, NURSE words have [ɜ:] or something similar, e.g. rounded centralized-front [ø:]. It appears that no hypercorrection of the type *short* *[ø:t] occurs: either the merger of NURSE and NORTH was never categorical, or speakers are unusually successful in sorting the two sets out again' (1982:375). Clearly, the first of these alternatives is the more plausible. It must be remembered that most previous analyses of the TE vowel system were based on material collected from older men, usually of the working-class (see Viereck 1966, 1968), and very often only one or two informants were used (Jones 1911; Hughes & Trudgill 1979). If the merger was a feature of working-class speech only, it might be that the merger never took place in the phonologies of all speakers of Tyneside English. Perhaps the burr-retraction described by Viereck (1968), Pålsson (1972), Lass (1983) and Beal (1985) came into effect in working-class speech after rhoticity was lost among higher-status speakers. Notable upper-class figures such as Lord Eldon (Lord Chancellor in 1800) is reported to have used the burr, and that 'still happily living, senior Member of Parliament,

¹⁵ Atkinson's apostrophes probably indicate /r/-lessness, a feature which was in all likelihood lost from Teesside English somewhat earlier than it was from Tyneside English.

¹⁶ *German*, *learn* and *jersey* are given by Todd (1987) as *Jarmin*, *larn* and *jarsie*, however - a split in the NURSE set between /ɔ:/ and /ɑ:/ is mentioned nowhere in the technical literature, however.

¹⁷ Gillian Dennis, an undergraduate student of linguistics at Durham University, reports that her grandfather, a Tynesider, used to talk of putting on his [wɔ:k]ɔ:t 'workshirt' and telling her that he was going [tə'wa:k]tə'wa:k] 'to walk to Wark (a Northumberland town) to work.' These vowel features are clearly among the most salient in the variety, and may potentially cause genuine misunderstanding.

who made [the burr] familiar to, and respected by the representatives of the nation at Westminster' (Rapp 1836-41: Bd II: 146, reported in Pålsson 1972:27) could apparently retain the burr without inviting scorn or ridicule, so we can be reasonably certain that the feature was retained among all levels of north-eastern society for at least part of the nineteenth century. But Pålsson suggests that the burr was being lost very early among more prestige-conscious groups in the north-east: '... during the first half of the last century a desire is reported to have made itself felt on the part of some to get rid of dialect peculiarities, amongst which was the Burr' (1972:27-28; see Springmann 1827). Heslop, in 1903, remarks, 'By the middle of the [nineteenth] century people of means had mostly acquired another accent... As far as the privileged classes are concerned, the burr is obsolete' (Heslop 1903; in Pålsson 1972:28). Therefore, it appears that if Beal is right in her suggestion that burr-retraction is a feature of twentieth century TE, the merged form would coexist with higher-status forms of English in Newcastle in which no such merger had taken place.

Regular contact with a higher-status variety in which NURSE and NORTH were still separate would then make an explanation of the apparent reversal of the merger comparatively straightforward. Presumably, any stigma attached to pronunciations like [ʃɔ:t] *shirt* or [fɔ:st] *first* would mean that lower-status speakers would be more inclined to adjust their pronunciation in line with that used by, for example, local schoolteachers, doctors or churchmen. This would probably take place first in more formal styles of speech (perhaps reinforced by correction) and later would pass into free conversational style. This diffusion of the higher-status form into working-class speech is what might account for the patterns we see in Table 7.24 and Figure 7.22.

The apparent reversal of merger in working-class speech violates Garde's Principle, so perhaps 'linguistic means' should be reworded 'phonologically internal processes'. It contradicts Herzog's Principle in addition, but we should remember that mergers will typically only expand at the expense of distinctions if the merged variety is more or equally statusful with the unmerged variety (see for example Dixon 1997:22-23). The unmerged variety of Tyneside English, which we can think of as a local contributor to the supra-local northern koine discussed elsewhere in this thesis, was, and continues to be, of higher status than the sociolect in which e.g. *shirt* and *short* are homophonous, and thus in this case the distinction expanded at the expense of the merger. We might add a rider to Herzog's Principle on this basis:

Principle VII: *All other things being equal*, mergers expand at the expense of distinctions.

Here again, speakers override apparently universal principles of linguistic change, not because they need to for functional, communicative reasons, but because they wish to be socially successful (recall Keller's hypermaxim from Chapter 3).¹⁸

The 'unmerger' of NURSE and NORTH in TE, to judge from the PVC sample, appears to be nearing completion. Reversals of reported mergers and near mergers are fairly frequent in the literature (see Trudgill & Foxcroft 1978; Milroy & Harris 1980; Labov 1975, 1994; Labov, Yaeger & Steiner 1972; Faber 1992). We notice, however, from the results in Chapter 7 among young speakers, particularly females, a marked preference for the fronted variant [ø:]. As Labov (1992, quoted in Kerswill 1996b:201) suggests, this fronting may be the result of 'overshoot', in which the symbolic target is systematically surpassed: he speculates that often it is not new forms which are transmitted, but the direction of the change that gave rise to them. 'New cadres of youth don't copy the peers who influence them,' Labov claims, 'but instead go beyond the targets' (ibid.).

It was commented in Chapter 7 that this variant may be produced with a quality somewhat closer to [e:] (viz., with spread rather than rounded lips), suggesting that for some speakers under some circumstances forms like *word* and *wade*, *pearl* and *pale*, or *curve* and *cave* may be near-homophonous. As such, it might be said that such pronunciations, which are rather similar to those heard in Liverpool English (Knowles 1978), risk the merger of the NURSE and FACE vowels. It is too early to speculate as to whether some the phonology might attempt some 'exit' strategy to prevent this merger; NURSE pronunciations with [e:] are still rather rare, and appear to be confined largely to a limited range of pre-consonantal contexts. Subsequent investigation may reveal otherwise, however (Watt 1996).

8.3 Summary

This chapter has discussed the evidence for the three main issues arising from the analysis of Tyneside vowels presented in Chapter 7. The evidence for accent levelling is compelling, as Figure 8.1 indicates: female speakers avoid localised variants very consistently, while among male TE speakers the use of these forms appears to be in decline. They are retained predominantly by older working class men, with young and middle class speakers using relatively small proportions of each. The exception to this pattern is the set of figures for [ø:],

¹⁸ Veatch uses Herzog's Principle as a diagnostic of the relative antiquity of related varieties: 'one can infer that if a basilectal variety has a merger that an acrolectal variety does not, then the acrolectal variety has existed as long as the basilectal variety' (1991:188). The situation in British English is further complicated by the fact that [ɜ:] in southern British English is itself the product of a merger of three distinct phonemes + /r/ (e.g. Giegerich 1992:§3.4).

for which young middle class men score surprisingly highly.¹⁹ It is suggested that this variant has been 'reallocated' in the speech of younger Tynesiders: because of its resemblance to a prestigious non-local form [əʊ], it no longer bears the degree of stigma attached to the form which probably gave rise to it (Northumbrian [ø:]).

The breaking of the FLEECE and GOOSE variables was assessed with reference to Labov's Upper Exit Principle. According to this principle, these close vowels diphthongise when under pressure from (close-)mid vowels rising toward them. The phonetic characteristics of the output of the UEP are claimed to be rather similar cross-linguistically: a centralised nucleus is followed by an offglide in the direction of [i] or [u]. In this way, merger of /i/ and /u/, which are 'cornered' by the approaching /e/ and /o/, is avoided. The operation of the UEP assumes of course that the close-mid vowels are indeed rising; evidence of this is provided by the existence of variants of FACE and GOAT which feature raised nuclei (viz., [Iə] and [ʊə]). The Mid Exit Principle is invoked to account for the appearance of the latter variants. The source of the pressure on FACE and GOAT to raise and break to [Iə] and [ʊə] is unclear, however: Labov's usual explanation for the operation of the MEP involves reference to rising open vowels, but there is little evidence of such chain shift in the Tyneside material. Hence, Labov's model contributes in part to our understanding of the dynamic behaviour of these four vowel variables, but falls short of explaining why such processes might have taken place, and why they appear to have stopped.

Last, it was found that the merger of the NURSE and NORTH sets, which has been reported extensively in the literature, has apparently 'reversed'. This is impossible, according to the *principle of irreversibility* attributed to Garde (1961), as speakers who acquire a dialect in which the merger has already been completed have no access to the original word classes, and are thus unable to assign individual lexical items their original phonemes. It was suggested above that the 'unmerging' of NURSE and NORTH may be an artefact of the non-completeness of the merger among the TE-speaking population. It may be that the classes only appeared to be merged because (a) they were qualitatively very close, and phoneticians reporting on TE could not tell them apart or (b) merger only affected a subset of the TE-speaking population (these being the subset upon which earlier descriptions of the variety were based - that is, older working class men). An alternative explanation suggests that an increased amount of contact between the 'merged' dialect and 'unmerged' ones allowed the distinction between

¹⁹ Lesley Milroy's parallel study of the GOAT vowel found exactly the same pattern: the figures shown below summarise the proportions of [ə:] in her transcriptions for the male speaker groups.

	N	%
OWC	55/139	(39.5)
YWC	30/133	(22.6)
OMC	10/139	(7.2)
YMC	55/146	(37.7)

NURSE and NORTH to be restored. This might violate Herzog's Principle, according to which mergers expand at the expense of distinctions, but seems realistic given the disparity in status between TE and incoming standard or semi-standard forms. This disparity, as I have argued, is the driving force behind the process of levelling that is affecting TE just as it is in other urban Englishes of the British Isles.

The final chapter outlines some of the conclusions that can be drawn from this study, and suggests a number of further investigations into variation and change in the Tyneside vowel system that might be carried out at a future point.

CHAPTER NINE: CONCLUSIONS

CHAPTER NINE: CONCLUSIONS

9.0 Overview

The overall picture, then, is one of a reduction in the use of localised pronunciations of the three vowels FACE, GOAT and NURSE, and an increase in the use of less specifically Tyneside forms in each case. The levelling process recorded here is typical of the loss of traditional urban varieties of English in the United Kingdom and elsewhere, and is attributed to the fragmentation of close-knit speech communities whose tight social networks ensured the maintenance of local norms. Rehousing, increased access to education, changes in employment patterns, and other forms of social and geographical mobility (Chapter 4) led to the dispersion of speakers of traditional TE, with a resultant weakening of network ties and a reduction of the strength of the linguistic norm enforcement mechanism. Among younger speakers, speech patterns appear to be converging rather rapidly on a generalised northern English lect with many features of a regional koine (Siegel 1985:363, 376).

It will be interesting to track these patterns as they continue (assuming of course that they will) and also to compare the findings more fully with those of other similar studies. Instrumental analysis of certain features will be worthwhile - say, of the fronted variant of NURSE - while an assessment of socially- or contextually-conditioned variation in nucleus height in the close and close-mid vowels, and perhaps also the open-mid vowels /ɛ/ and /ɔ:/, might shed light on the possible participation of these phonemes in chain shift, since, as we saw in §8.2.4, the 'spontaneous' raising and breaking of FACE and GOAT is difficult to account for. The figures for height variation are easy to extract from the database used for this thesis, though a good deal of thought would have to go into devising a suitable way of quantifying height variation separately from factors such as diphthongisation, since the height of the nuclei of diphthongal variants of FACE and GOAT vary a good deal. One possible approach would be that offered by Kerswill (1984) in which the start- and end-points of monophthongal and diphthongal tokens of vowels are assigned numerical values on a grid overlaid on a plane corresponding (approximately) to the tongue body height/backness space of the IPA vowel quadrilateral. In this way, phonetic detail does not have to be lost in the way entailed by collapsing the qualities of individual tokens into a small number of categories, as per the methodology used here, and, at least in principle, the categories being used by speakers themselves ought to emerge from the data without a set of discrete variants being superimposed by the researcher. Much of the data used for this study has already been coded

in such a way, but suitable statistical techniques for the treatment of such large quantities of data have yet to be found.¹

This thesis has attempted to describe some aspects of variation and change in the Tyneside vowel system, bringing together a number of possible explanations of these phenomena by paying attention to two sometimes conflicting, sometimes complementary sets of pressures, which have been labelled here *internal* and *external*. I have shown that the data can be assessed in both ways, but that taking a middle ground is probably the most informative way of interpreting the patterns. Specifically, a reliance on internal factors (such as Labov's principles of vowel change) as explanations of variation is useful in the sense that one can relate broad patterns in the data to principles based on evidence collected from a geographically and temporally wide range of languages and language varieties. But even in the ideal case, these are at best quasi-universal tendencies, since there are as many exceptions to these principles as there are cases which confirm them, they may be overridden at virtually any time, and they lack predictive power. Labov admits that the strength of his principles as explanations of language change is somewhat inadequate:

... it is not likely that explanation of language change can be drawn from linguistic structure alone, since the fact of language change itself is not consistent with our fundamental conception of what language is. We might try to explain change by pointing to certain weaknesses of linguistic structure, but such limitations can only provide an opening for the effect of forces that operate upon language from some other source. To explain a finding about linguistic change will mean to find its causes in a domain outside of linguistics: in physiology, acoustic phonetics, social relations, perceptual or cognitive capacities' (Labov 1994:5).

An entirely external description, on the other hand, which focusses only on the historical and social processes by which certain forms have arisen and are maintained or lost, falls equally short of providing a balanced account. The way forward, it seems to me, is to try to integrate a phonetically descriptive analysis of a language variety with an understanding of the backgrounds and attitudes of the speakers who use it, a general history of the language and a specific history of the variety itself. The findings of such a study can then be placed in a context which allows them to be compared with other varieties of the same language or other languages in other speech communities, and perhaps in the broader field of social and cultural

¹ Even if the analysis were restricted to just the FACE and GOAT variables, this technique would produce a vast amount of data. If each individual vowel token is coded by four coordinate values (start-point *x*, *y*; end-point *x*, *y*) where 40 tokens for 32 speakers for both vowels are collected, over 10,000 individual values are generated. Given that statistics programs such as *Minitab* and *GLIM* also require each individual token to be flagged according to the social characteristics of the speaker, one would need to fill another five cells *per token* in a worksheet, at least one more per token if one wished to include information about the phonological context in which the vowel appears, and yet another if style were to be taken into account.

behaviour in general. It is evident from the historical record and current sociopolitical situations worldwide that no discussion of ethnic, cultural or racial identity is complete without reference to the language used by social groups.

9.1 Fulfilment of the aims of the study

Let us in the concluding part of this chapter return to the five aims outlined in Chapter 1, and to the extent to which they have been fulfilled. The first - that the thesis provide an overview of variation in the vowel system of Tyneside English - is fulfilled to the extent that diachronic and synchronic evidence has been presented in the form of a review of previous literature on the subject, and that general observations have been made about the ways in which the vowels of contemporary TE are organised by the phonology and used by speakers of the dialect. Chapter 5 helped to narrow down the range of potential variables through use of a pilot study, and concluded by arriving at a set of five vowel variables FLEECE, GOOSE, FACE, GOAT and NURSE, vowels which either seemed of particular interest in terms of the social functions to which they appeared to be put, or were thought to be taking part in a coordinated set of shifts with respect to one another. A more focussed review of earlier treatments of the characteristic phonetic variants of the five vowel variables was presented in Chapter 6. In this chapter it was found that variation is very much a feature of these vowels, but that the nature of the variation was changing. In particular, the convergence of TE on a less markedly localised supralocal accent became apparent through comparison of older texts with newer ones and the findings of the pilot study in Chapter 5.

The second aim, which was to provide an analysis of the variables with a view to tracking changes taking place in the variety, and relating these changes to the social characteristics of the speakers implementing them, is likewise fulfilled. The results of the main study, presented in Chapter 7, confirms that the phonetic variants of the FACE, GOOSE and NURSE vowels are appropriated or avoided by TE speakers according to their social affiliations: like Labov's New York City study or that of Trudgill in Norwich, the stratification of TE speakers by sex, age group and social class is reflected, and probably reinforced, by their linguistic habits. The speech of older speakers preserves traditional features of the Tyneside dialect, some of which are good indicators of the historically close relationship between Northumberland and Scottish English, and others of which suggest the comparative isolation of the Tyneside conurbation from other large centres of population. The speech of younger speakers is in many ways much less localisable: it bears traces of a process of levelling that is reported to be taking place elsewhere in British cities (e.g. Williams & Kerswill, forthcoming), and indeed

all over Europe.² Male speakers tend to be more conservative than female speakers in terms of their use of traditional and/or localised variants, and in general the middle class speakers sampled are more inclined toward the use of supra-local and innovative forms. Middle class female speakers also appear to style-shift more than do other groups: they do this in the direction of a higher status, supra-local variety. The relationship between the social factors sex, age and social class and the perceived prestige of individual phonetic forms is thus rather complex, as is the way in which interactions between these factors give rise to change.

Chapter 8 was intended to address the third aim, since no study of change in the vowel system of a variety of English is properly contextualised without reference to the most influential current theoretical model: in this case, Labov's principles of chain shift. A discussion of the relevance of Labov's *Upper* and *Mid Exit Principles* was presented, as the first appears to account rather well for the 'breaking' (diphthongisation) of the FLEECE and GOOSE vowels, and the second for the raising and breaking of FACE and GOAT to [ɪə] and [ʊə]. Though these variants may be relics of earlier sound changes that took place in Northumbrian English, subsequent changes are much less easy to integrate into a chain shift model: the model is in fact contradicted by the appearance of closing diphthongs [eɪ] and [oʊ], forms more characteristic of southern British English, and does not appear to provide for the 'extra' variant of GOAT, [əɪ]. The unmerging of NURSE and NORTH-THOUGHT-FORCE is actually impossible according to a principle underlying the chain shift model (Garde's); contact between dialects here allows an explanation, although this itself is an exception to 'the spatial correlate' of Garde's Principle, known as Herzog's Principle (Labov 1994:602). According to Herzog's Principle, mergers expand at the expense of distinctions. But the status of Tyneside English is such that the NURSE-NORTH merger was never likely to affect the distinction between these vowels in varieties with which it came into contact, least of all the higher-status accent(s) towards which TE seems to have been converging for some time. As such, Labov's structural principles are rather too generalised to be of much application in the present case, as there appear to be too many other factors - 'external', non-linguistic ones, chiefly, such as those associated with the differential status of varieties of English - which may override the operation of the principles.

The findings of this study, and those of other authors, suggest that Tyneside English is not unique in terms of the changes that appear to be taking place in the dialect: accent levelling, fronting of back vowels, innovation of new forms or reappropriation of old ones are all reported in current literature on British English and varieties of the language around the world. The comparisons with the urban dialects of northern England drawn throughout the

² See the European Science Foundation *Convergence and divergence of dialects in a changing Europe* network website at <http://www.esf.org/dial.htm>.

thesis go toward fulfilling the fourth of the aims in Chapter 1: the study can be contextualised in terms of the trends observed in other British cities like Middlesbrough, Derby, Hull, Glasgow, Milton Keynes, Reading, Leeds and Liverpool (see Docherty & Foulkes, forthcoming). There are also similarities between the patterns of variation and change in TE and those reported in varieties of Southern Hemisphere English (Lass 1989, 1990; Wells 1982; Watson, Maclagan & Harrington 1998, etc.), as well as varieties spoken in North America (Labov, Yaeger & Steiner 1972; Labov 1991, 1994, 1998; Luthin 1987; Chambers 1995). The convergence of contemporary Tyneside English upon a regional standard - a pan-northern variety bearing many of the features of a regional koine - is signalled by a decline in the use of localised variants of the FACE, GOAT and NURSE vowels when the figures for older and younger speakers are compared. There are aspects of the move away from traditional speech forms which create an additional level of complexity, however: young middle class males are using the comparatively old-fashioned [e:] variant of GOAT more often even than do older working class men, while young women of both social classes are leading the way in a fronting of the NURSE vowel as far as an advanced, rounded value [ø:]. Neither of these trends, however, is unique to Tyneside English, in that similar processes are observed in other urban English-speaking communities elsewhere (see above).

The fifth and final aim was to attempt to integrate 'internal' and 'external' factors in terms of the ways in which they can be used to account for the patterns of variation and change observed in Tyneside accents. While in certain areas it appears that the vowels are obeying the quasi-universal principles of vowel variation and change described by Martinet (1955), Samuels (1971), Labov, Yaeger & Steiner (1972), Liljencrants & Lindblom (1972), Anderson (1973) and Labov (1991, 1994, 1998 *et passim*), it is difficult in other areas to give plausible internalist reasons for why a certain vowel surfaces with such-and-such a variant. In the latter case, it becomes more realistic to assume that social forces may sideline or overrule the demands put upon linguistic behaviour by the self-referential pressures at work within the phonology. To borrow from George Eliot's *Middlemarch*, 'there is no creature whose inward being is so strong that it is not greatly determined by what lies outside it'; in the present case, it is easy to imagine that where one group of speakers feels a need to conform more closely to behavioural norms set by another (or, conversely, to dissociate themselves from such norms), the internal principles will lose some of their sway. Put another way, internal factors probably play a large role in the course of language change where a speech community achieves relative stability, but external ones will take over where that stability is disturbed (see Dixon 1997 for a discussion of the 'punctured equilibrium' model of language change). I argued in Chapter 3 that one can find numerous examples in nature of functional pressures yielding to non-functional (or, strictly speaking, indirectly functional) ones, and that language bears some similarities to this process. Accentual and dialectal variation may hinder the rapidity of the

transmission of information by slowing processing time, as Nusbaum & Morin (1992) suggest, but as many others have pointed out, the benefits accruing to speakers through the use of socially-marked phonetic variation outweigh this relatively minor disadvantage. Were this not so, dialect variation would disappear fairly rapidly as language varieties converged on an optimally efficient communication system. Perhaps this could explain why dialect and accent levelling is taking place in Tyneside English and other nonstandard varieties of the language around the world. But it does not explain why the varieties towards which the levelling takes place (usually regional or institutional standards) are themselves in a constant state of change. Nor do these standard and semi-standard forms - which are claimed by some to be more 'efficient' varieties of the language than others for communication (see e.g. Honey 1989) - appear to be conspicuously alike with respect to one another. Rather, it seems that we need to approach variation and change phenomena from both directions: we must attempt to balance purely linguistic factors, if such things exist, against relationships between individuals and groups of human beings, by cross-referencing our knowledge of linguistic structures with our understanding of social structures. Some researchers may feel uncomfortable with having to try to make sense of linguistic patterns which can only plausibly be interpreted by reference to arbitrary or accidental social factors to do with prestige, power, status or other forms of perceived attractiveness or unattractiveness. In my opinion, however, such complementarity is inescapable if we are to come closer to knowing why certain speakers choose to use certain linguistic forms at certain times when speaking to certain people. It seems self-evident that this is an important part of what linguistics should concern itself with.

9.2 Conclusion

In response to some of the thoughts on vowel variation presented in this thesis, Bob Ladd commented during a discussion session at LabPhon6³ that English vowels are 'notoriously variable'; the vowel phoneme system of English does indeed seem fairly large by comparison with the five vowel system which Maddieson (1984, 1986), Crothers (1978) and Liljencrants & Lindblom (1972) state to be the commonest inventory cross-linguistically. Other languages are shown by historical reconstruction to have stable vowel systems that persist unchanged for centuries or millennia (again, see Dixon 1997). But clearly, this perception must have a good deal to do with the fact that English has a long written tradition, and has been more comprehensively described than any other language, in more detail, with more focus on non-standard varieties; the number of researchers engaged in studies specifically of variation in the phonology of English must run into hundreds, if not thousands. English is also more widely dispersed across the world than most languages are, and comes into contact with

³ Held at the University of York in July 1998. I am grateful to Gerry Docherty for having included some of the findings of this study in his talk.

hundreds of others every day. A huge amount of variation is inevitable; any other language would in all probability vary in just the same way. There is nothing particularly special about English to make its vowel system more variable than that of other languages - the variability is in part due to the circumstances in which it has been used. It is not suggested that vowel variation is the most natural thing for languages to do when they change, as Labov implies (his 'three dialects of English' being based on this supposition), but I suspect that any language put under the microscope in the way which English has been for the last century or two would demonstrate that socially-conditioned variability in vowel quality is as rich as variability in any other area of the phonology.

Tyneside English, as mentioned above, is not unique as far as varieties of English go. A detailed look at virtually any vowel system of urban English will reveal the interaction of social change and linguistic principles in the sound systems used by its speakers. While the identity of Newcastle people is fairly well-defined and is perhaps enjoying something of a renaissance, it should be clear from the discussion above and that in Chapter 4 that Newcastle is a prime candidate for social levelling and the linguistic levelling that results from it. But it is probably true to say that the levelling will only go so far: the north-south divide is still very much a reality (Smith 1994), so allegiances are unlikely at present to be forged in the direction of prestige southern norms; while Tynesiders may resent the caricature of the 'canny Geordie' which has entered, or perhaps re-entered, the British mindset as a recognisable stereotype, they are unlikely to forgo the well-deserved reputation for warmth, friendliness, hospitality, straightforwardness, honesty and unpretentiousness on which they pride themselves. As was suggested in Chapter 3, the regional standard towards which young Tynesiders appear to be converging provides a measure of urban sophistication while retaining a means of signalling an identification with the ideal of 'northernness'. In adopting these incoming norms, they assert their loyalty to this ideal while simultaneously proclaiming their modernity. A new linguistic balance, it appears, is being struck along the banks of the Tyne.

APPENDICES

APPENDIX ONE: WORD LIST USED IN PVC FIELDWORK

sheet	title	hunter
beetle	mitre	bunker
metre	pint	appear
I beat it	bite it	attend
gate	out	occur
paint	fount	appearance
fatal	outer	attendance
later	pit	occurrence
I hate it	bitter	alpine
eighty eight	brittle	alter
bet	print	polka
bent	I hit it	staircase
felt	hilt	half-past
fettle	beak	half-cut
better	wreck	automatic
I met him	back	Jupiter
hat	I seek it	epileptic
ant	I wreck it	sheet
battle	I back it	read
batter	bank	breeze
drat it	lamp	key
cart	leap	gate
can't	cap	made
carter	steep it	may
pot	lap it	boat
totter	apron	load
bottle	matron	go
font	micro	boot
salt	metro	brood
I got it	leprosy	booze
caught	petrol	brew
daughter	acid	out
chortle	atlas	loud
haunt	hopper	cow
I bought it	butter	sight
boat	hacker	side
total	topple	size
motor	bottle	sigh
I wrote it	hackle	sighed
put	whisper	knife
footer	custard	five
put it in	after	knives
boot	whisker	dive
Bootle	doctor	dial
hooter	chapter	Friday
bite	jumper	diary

(continued over)

I've got to do it tomorrow
I had to put it off
He meant what he said
He's booking separate tables for supper
A simple sentence
Pick up a packet of firelighters
Pack it in or beat it
He's putting it off
He put in a bid
Jump up on the tractor
He won't do that in a hurry
Put a comma in it

APPENDIX TWO: LEXICAL SETS FROM WELLS (1982)

Standard lexical sets for RP and Tyneside English

	RP	Tyneside English
KIT	ɪ	ɪ
DRESS	ɛ	ɛ
TRAP	æ	a
LOT	ɒ	ɒ
STRUT	ʌ	ʊ
FOOT	ʊ	ʊ
BATH	ɑ:	a
CLOTH	ɒ	ɒ
NURSE	ɜ:	ɜ:
FLEECE	i:	i:
FACE	eɪ	e:
PALM	ɑ:	ɑ:
THOUGHT	ɔ:	ɔ:
GOAT	o:	o:
GOOSE	u:	u:
PRICE	aɪ	aɪ
CHOICE	ɔɪ	ɔɪ
MOUTH	aʊ	aʊ
NEAR	ɪə	ɪə
SQUARE	ɛə	ɛ:
START	ɑ:	ɑ:
NORTH	ɔ:	ɔ:
FORCE	ɔ:	ɔ:

In Tyneside English these collapse to:

KIT	NORTH~THOUGHT~FORCE
DRESS	GOAT
TRAP~BATH	GOOSE
LOT~CLOTH	PRICE
STRUT~FOOT	CHOICE
NURSE	MOUTH
FLEECE	NEAR
FACE	SQUARE
PALM~START	CURE

Lexical set membership: the nine vowel variables investigated in this study

TRAP

*tap cat back batch gaff math(s) mass dash cab mad rag badge have jazz ham man hang shall scalp lamp ant
hand thank lapse tax arrow carriage banner abbey tassel cancel panda plaid*

BATH

(a) *staff giraffe path lath brass class glass grass pass raft craft graft daft shaft aft haft draft clasp grasp rasp
gasp blast cast fast mast aghast last past contrast vast avast ask bask mask flask cask task after rafter
Shaftesbury master plaster disaster castor pastor nasty disastrous basket casket rascal fasten raspberry ghastly
castle laugh laughter draught*

(b) occasionally with TRAP vowel in accents which otherwise have broad BATH (Australian, W. Indian)

*dance advance chance France lance glance enhance prance trance entrance (vb) grant slant aunt chant plant
advantage vantage chantry supplant enchant branch blanch ranch stanch stanchion demand command remand
slander chandler commando Alexander Sandra Flanders example sample chancel chancellor Frances Francis
lancet answer*

(c) typically have PALM vowel in otherwise flat-BATH accents of northern England

calf half calve halve rather Slav shan't can't Iraq corral morale Iran Sudan banana

(59') have /æ/ in General American English, but in RP fluctuate between /æ/ and /ɑ:/, hovering therefore between our standard lexical sets TRAP and BATH

*chaff graph alas hasp Basque masque plastic drastic elastic gymnastic (Cornish) pasty enthusiastic bastard
paschal pastoral masculine masquerade exasperate blasphemy masturbate Glasgow lather stance askance
circumstantial intransigent substantial transit transport transfer transform transitory transient transept (& other
words in trans-) contralto alto plaque Cleopatra*

LOT

*stop pot sock notch Goth rob odd cog dodge Tom con doll solve romp font copse box profit possible proverb
bother rosin honest ponder swan quality yacht wasp watch squabble waffle knowledge acknowledge*

CLOTH

(a) conservative RP may have /ɔ:/

*off cough trough broth froth cross across loss floss toss fosse doss soft croft lost oft cost frost lost often soften
lofty Australia Austria Austen Austin gone*

(b) never had /ɔ:/ in RP or its forerunner

*moth boss gloss joss moss Ross long strong wrong gong song thong tongs throng accost coffee coffer coffin offer
office officer glossy foster Boston Gloucester sausage wash*

(c) intersyllabic /ɾ/

*origin Oregon oratory orator orange authority borrow categorical correlate coroner coral florid Florida florist
florin historic(al) horrid horrible majority horrify horror metaphoric(al) morrow Morris moral Norwich
porridge rhetorical sorrel moribund sorrow tomorrow sorry Laurence/Lawrence laurel laureate quarrel quarry
warrant warren warrior Warwick*

START

(a) *far star bar bazaar Saar*

(b) *sharp part bark arch scarf farce harsh garb card large carve parse farm barn snarl Charles party market
marvellous sergeant aardvark*

(c) *sari Bari safari cascara curare Mata Hari aria scenario Sahara tiara*

PALM

(a) thoroughly native PALM words

calm balm psalm alms father bra ma pa mamma pappa aha ah ha(h) blah hurrah

(b) relatively recent borrowings from other languages

*baht Bach façade couvade roulade raj taj salaam Brahms Kahn Afrikaans kraal Transvaal Taj Mahal spa Shah
Pooh-Bah Armagh schwa cantata inamorato legato sonata staccato pizzicato Lusaka Karachi mafia Dada
bravado incommunicado Mahdi Mikado laager lager Zhivago (maha)raja kava guava Java Swazi Dali Mali
Guatemala Somali(a) lama llama Yokohama swami Brahmin guano piano ('softly') marijuana iguana Botswana
(maha)rani ha-ha Malawi Bahai Sumatra candelabra*

(64') have /ɑ:/ in RP but fluctuate in General American English between /ɑ/ and /æ/, hovering therefore between our standard lexical sets BATH and PALM

*baa bah Koran khan Pakistan Shan chorale rationale locale khaki pasha Nazi Colorado enchilada Nevada
aubade lava palaver plaza almond drama pajama/pyjama panorama Ghana nirvana sultana soprano piranha
Bali finale*

NORTH

(a) *or for nor Thor war*

(b) *Thorpe assort cavort consort distort exhort resort retort short snort tort cork fork stork torque York scorch
torch morph gorse horse remorse orb absorb accord chord cord lord re'cord George gorge corm form reform
storm adorn born corn horn morn porn scorn shorn thorn corpse porpoise torpid torpor fortify fortunate fortune
important corporal importunate mortal mortar shorten tortoise orchestra orchid Dorking torture forfeit
morpheme morphia morphine orthodox torso orbit order border ordinary organ organism organize Morgan
dormer Mormon normal ornament corner forward fortress quart quarter quartz sward swarm swarthy warble
ward warden wardrobe warlock warm warmth warn warp Warsaw wart*

(c) *aura aural Laura Taurus*

THOUGHT

(a) *taught caught Maugham Vaughan Waugh naughty haughty slaughter daughter ought bought wrought
brought fought nought sought taut auk debauch sauce applaud cause faun haul Paul autumn author taunt*

*laundry gauntlet gawp hawk crawl shawm awn yawn jaw law saw draw awe chalk talk walk stalk caulk all fall
small wall appal instal Raleigh bald water broad*

(b) variants with /ɒ/ in RP and also in the north of England

halt salt malt false alter also alderman walrus fault vault

FORCE

(a) *ore adore afore before bore chore core crore deplore explore fore galore gore ignore implore more ore pore
restore score shore snore sore spore store swore tore whore wore yore boar hoar oar roar soar floor door four
pour*

(bi) *deport export fort import port report sport support pork porch forth divorce afford ford horde sword forge
borne shorn sworn torn worn portent porter portrait proportion Borneo*

(bii) *coarse hoarse board hoard boarder court fourth course resource source mourn courtier mourning*

(c) *oral adorable angora aurora borax boron choral Dora fedora flora floral glory gory moron Nora(h) porous
story thorax torus Tory censorious euphoria gloria glorious Gregorian historian laborious memorial
meritorious moratorium notorious pictorial pretorian stentorian thorium uxorious Victoria(n), other words in -
orial, hoary, uproarious*

FLEECE

(a) Middle English /e:/

*creep meet seek beech reef teeth seed sleeve seethe cheese seem green feel see tree agree needle feeder sweeten
grebe these Peter even shriek brief piece believe field ceiling Keith Sheila be me key people*

(b) Middle English /ɛ:/

*reap meat speak teach leaf beneath peace leash bead league leave breathe please team mean deal sea tea feast
reason weasel easy Easter metre equal decent legal penal complete scene deceive receive seize Caesar
an(a)emic Aesop phoenix subpoena f(o)etus quay*

(c) recent loans (i.e. post-Great Vowel Shift)

police unique machine prestige elite mosquito casino visa trio ski chic

GOOSE

(a) Historically no preceding yod

*loop shoot spook smooch proof tooth loose tarboosh boob mood Moog groove smooth choose boom spoon fool
too boost schooner booty move prove lose whose tomb do who two group youth ghoul you Vancouver through*

(b) words with or formerly having yod

*dupe mute duke truth obtuse cube rude fugue huge amuse plume tune mule blue funeral lucre prudent flu duty
pupil mucus lucid crucial confusion ludicrous music human lunatic sleuth deuce feud neutral feudal eunuch
newt lewd few knew pewter sewage fruit juice cruise nuisance view review beauty beautiful*

FACE

(a) Middle English /a:/

*tape late cake safe case babe fade vague age wave bathe craze name mane vale change waste taper bacon
nature station lady raven invasion April bass (in music) gauge gaol/jail crêpe fête bouquet*

(b) Middle English /ei æi/

*wait faith plaice aitch raid nail main faint day play way grey/gray rein veil beige feint they whey obey weigh
weight eight straight reign campaign deign*

(c) Middle English /ɛ:/

great steak break yea

GOAT

(a) Middle English /ɔ:/

*soap boat oak roach loaf oath road loathe coal roam loan boast coax note rope joke both gross robe code rogue
grove clothe rose hole home tone so no toe foe don't host noble ocean explosion holy brooch beau gauche
mauve*

(b) Middle English /ou/

*bowl own tow know grow owe Owen soul poultry mould/mold shoulder colt holster old bold soldier roll scroll
control sew dough though although*

NURSE

*usurp hurt lurk church turf purse curb curd urge curve furze turn curl spur occurred burnt burst murder further
shirt irk birch birth dirge firm girl fir stirred first circus virtue myrrh myrtle Byrne twerp assert jerk perch serf
berth terse verb erg emerge nerve term stern deter err preferred certain person immersion emergency kernel
Earp earth dearth hearse rehearse search heard earn yearn earl pearl rehearsal early earnest wort work worth
worse word worm whorl worst Worthing worthy whortleberry scourge adjourn courteous journal journalist
journey attorney colonel liqueur masseur connoisseur*

XII. Northumberland

The speech of Northumberland is represented here by a traditional dialect speaker from Tyneside, the urban area which dominates this region. Northumbrian speech is similar in some respects to that of Scotland.

- 1 (a) As in other northern English accents, pairs of words like *put* and *putt* are not distinguished, /u/ occurring in both (see p. 54). But:
 - (b) The final vowel in words like *city* and *seedy* is /i:/ see p. 57).
 - (c) As has been seen, /ei/ and /ou/ are wide diphthongs in the south of England, narrow diphthongs further north, and monophthongs in northern Lancashire and Yorkshire. On Tyneside they may be either monophthongs, [e:] and [o:] or opening diphthongs, [ie] and [uo]. But notice that *roll* (l. 62) has [ou].
- 2 (a) Again as in other northern accents, words like *dance* and *daft* have /æ/ (WL 22, 23).

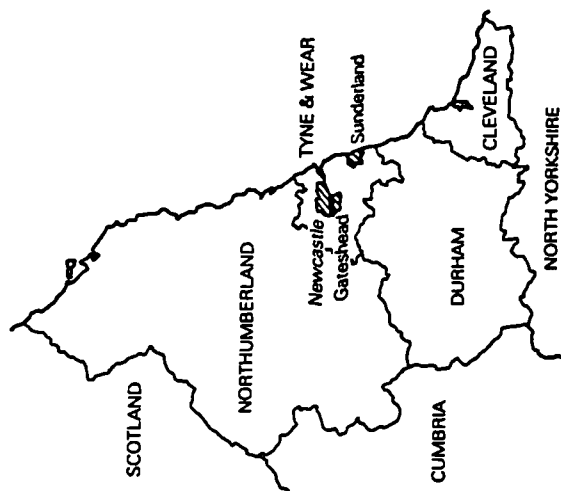
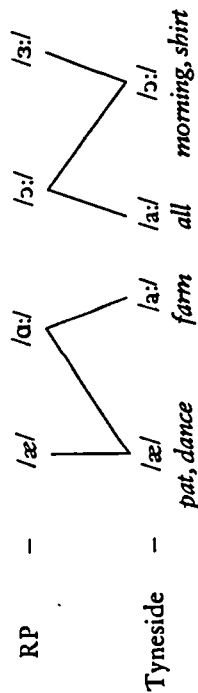


Figure 5.20

APPENDIX THREE: SECTIONS ON TYNESIDE ENGLISH FROM HUGHES & TRUDGILL (1996) AND WELLS (1982)

(a) Hughes & Trudgill (1996:112-116)

- (b) Words like *farm* and *car* have /ɑ:/.
 - (c) Words which have /ɔ:/ in RP are divided into two sets in Tyneside speech.
 - (i) Those which have *al* in the spelling have /ɑ:/ e.g. *talking* (l. 59), *called* (l. 12), *all* (l. 56).
 - (ii) Those which do not have *al* in the spelling have /ɔ:/, as in RP (WL 18, 33, 44, 45; *morning* (l. 18).
 - (d) Words which have /ɜ:/ in RP have /ɔ:/ in a broad Tyneside accent. So, *first* (l. 10) and *shirt* (l. 34) are /fɔ:st/ and šɔ:t/, homonyms of *forced* and *short*.
- By comparison with RP, the accent of Tyneside lacks one vowel, /ɜ:/, but has one extra, /ɑ:/. Correspondences between the pure vowels we have mentioned can be represented as follows:



- 3 (a) Word final *-er(s)* or *-or(s)* is [ɐ(z)] (*tanner*, l. 4).
- (b) /ə/ is [ɪə] (WL 14; *here* (l. 3)).
- (c) /uə/ is [ue] (WL 42).
- 4 /ai/ is [ei] (*right* (l. 48)).
- 5 /l/ is clear in all environments (WL 27-31).
- 6 /h/ is generally present.
- 7 *-ing* is /ɪn/ (*shilling*, l. 2).
- 8 Between vowels, /p, t, k/ are accompanied by a glottal stop. *city* is [sitʔi:]; *happy* (l. 30) is [hapʔi:] (see p. 62).
- 9 (a) Words which in RP have /au/ may have /u:/ e.g. *about* (l. 4), *out* (l. 6).
- (b) (i) *knows* is /na:z/ (see l. 33 for contrast with *nose*); *though* is /ðə:/ (l. 40).
- (ii) *was*, when stressed, is /wæz/; *what* is /wæt/; *who* (l. 67) is /wel/.
- (iii) *no*, *do* (l. 29), *nobody* (l. 67) have /e/.
- (iv) *long* (l. 61) is /læp/.
- (v) *father* (l. 68) is [fæbe].

10 In parts of Northumberland and Durham /r/ may be uvular (the production of the sound involving tongue and uvula, rather than tongue and alveolar ridge). The recorded speaker's /r/ is variable. An example of uvular /r/ is found in *remember* (l. 11) (see p. 61).

The recording

The speaker is a man of about fifty who has lived almost all of his life in and around Newcastle. His accent is quite strong. He talks about the old days.

I'll tell you what, I often tell it at work. You know, they'd say to you, 'Hey, Jimmy, lend us a shilling, man'. What? Lend us a shilling . . . me and I'd say to them come here a minute I'll tell you. I says, I can remember when I used to shove a bairn about in a pram for a tanner a week. Lot of money a tanner then a week. And I says, I've been pushed for money ever since, so they didn't come back. Put them out the road. Wey lad, get away, go on. Aye, he says, for a tanner. By, you can do a lot with a tanner. You can gan to the pictures, get yourself a penny fish and a haipeth of chips, by God, yeh, and maybes a packet of Woodbines for tuppence, and a match in, for to get your first smoke . . . bah . . . I once ge . . . remember getting some Cock Robins, called them Cock Robins, bah . . . they cock-robbined me, I'll tell you. I was at Newburn Bridge . . . that's it . . . you can see Newburn, it's across there and I was smoking away, faking, you know, instead of just going ph ph . . . swallowing down, you know, I was sick and turned dizzy. I didn't know what hit us with these Cock Robins . . . bah, but they were good ones . . .

This old woman says to me one morning . . . Sonny . . . Sonny, why you never said sonny them days you know. She says, would you like to run a message for Mr Penn and for me. I says, yes I will do. She says, go up to the shop and get him an ounce of tobacco. Oh, I says, thank you very much, so I gans twaddling up the shop. When I gans back she give us thruppence, mind thruppence, you know, that's about forty, forty-two year ago, you know, Reg. Thruppence then was a lot of money. I was there every day knocking at the door to see if she wanted any more messages. Aye thruppence. Wey lad, ay, I'm getting thruppence off that woman. What for? Wey, getting some baccy. Well, lad . . . Thruppence? What a lot of money that was. Oh dear me, oh, we used to do such things then, y . . .

30 We used to do some queer things then, but we were happy, man, aye, we were happy. Once a rag man says to me . . . Hey sonny . . . What? . . . He says, your hanky's hanging out . . . hanky . . . wey, you never had a hanky then. You used to wipe your nose like that, you know. It was my shirt tail hanging out of a hole in my pants . . . aye he says . . . your hanky's hanging out. Well you never had a hanky then. Bah . . . you used to gan to school. They used to line you up at school there. You want a pair of shoes, I think. You want a pair of shoes. Wey, you never seen them, you know, it was just a day out from Durham County for somebody from Durham down the road. Them were the days, though . . .

35 Then I went from there . . . and there's a house up there just beside those two wireless poles. I went from there to there, and then I went and got married and went and lived in with Florrie, and er I was like a bit gypsy, I was in Blaydon first and Greenside I was, in Blaydon and Greenside. That's what the doctor says. He says, Jimmy, you've a little bit gypsy in you. He says we divn't know where you live. Then I shifted from there to Crawcrook and from Crawcrook to Blaydon, aye, that's right, aye . . . we sold the house at Crawcrook and I went to Coventry, and when I come back I stopped with Florrie, and then I got a council house into here. I've been in here about twelve year in. Oh, if I gan out here I gan out with a stick, George, a stick in a big box, that'd not be very long would it the box, about five foot ten, that the measurement of us. When I get stiff, when I gan stiff about five foot ten . . .

55 But you used to get summers, didn't you. Wey, you used to get the winters and all, pet. Oh, dear me, ow the winters. You couldn't stand the winters now . . . yous lot couldn't stand it, could they? Course we used to get the grub, you know. There was a fellow . . . there was a fellow at er . . . when I'm talking about grub . . . he used to make leek puddings, you've heard of leek puddings, you know . . . but he used to make them about a yard lang, see, and put the leek in, and roll the leek up, see, just like er a sausage, see . . . and this fellow was sitting, Japer Newton they called him, he had about four sons and a lass, like, and he was sitting at the end of the table, like . . . all sitting with our tongues hanging out, you know, George. He was sitting at the end with a . . . a big leek pudding. He says, er, who wants the end? So nobody spoke, see, so he says again, who wants the end, you buggers; Ted says I'll have the end, father, so he cut the bugger in

two. Aye, he cut it in two, a great big leek pudding about a yard lang,
70 cut it in two . . .

Notes

- l. 2 *us* = me (also l. 16).
- l. 3 *I says* see p. 24.
- l. 4 *bairn* = child (in Scotland too).
- l. 4 *tanner* = six (old) pence (not limited to Tyneside).
- l. 5 *I've been pushed for money*: I've been short of money.
- l. 6 *divn't* = didn't, don't, or doesn't.
- l. 7 *Wey*: exclamation common on Tyneside.
- l. 8 *gan* = go (also l. 36).
- l. 9 *a haipeth*: a half pennyworth (not limited to Tyneside).
- l. 9 *maybes*: maybe.
Woodbines: once a common and inexpensive brand of cigarettes.
- l. 10 *for to* = to (also found in Scottish and Irish English.)
Bah!: exclamation not limited to Tyneside.
- l. 18 Note the two pronunciations of *sonny*, the first being an imitation of the woman's accent, which he clearly thinks was 'posh', RP or something approaching it.
- l. 19 *Them* is used as demonstrative adjective.
- l. 23 *give* as past tense of GIVE (see p. 24).
- l. 23 *thruppence* = three pence (not limited to Tyneside).
- l. 27 *baccy*: colloquial form for tobacco.
- l. 32 *hanky*: colloquial form for handkerchief.
- l. 38 *seen* as past tense of SEE (see p. 24).
- l. 39 *Durham County* = Durham County Council.
- l. 39 *Them* as demonstrative pronoun (see p. 29).
- l. 49 *come* as past tense of COME (see p. 24).
- l. 50 *twelve year* (see p. 30).
- l. 56 *pet*: term of endearment much used on Tyneside.
- l. 57 *yous* = you (cf. Liverpool, p. 96).
- l. 58 *grub* (colloquial) = food.
- l. 64 *lass* (northern and Scottish): girl.
- l. 68 *bugger*: term of (often friendly) abuse, common in most parts of Britain. But also a 'taboo' word.
- l. 68 *bugger* here refers to the pudding.

influence of the /r/ [ɹ] which once followed. (SED records [ɹ*:] in such words in neighbouring parts of Northumberland: it is perhaps difficult to fix the moment at which uvular colouring in a vowel is attenuated to the point where it is no longer detectable.) In a less broad Newcastle accent, NURSE words have [ɜ:] or something similar, e.g. rounded centralized-front [ɔ:]. It appears that no hyper-correction of the type *short* * [ʃɔ:t] occurs: either the merger of NURSE and NORTH was never categorical, or speakers are unusually successful in sorting the two sets out again.

Certain THOUGHT words (roughly, those spelt with *a*) have broad Geordie pronunciations with [a:] (phonetically just front of central) rather than [ɔ:]. Examples are *all*, *talk*, *walk*, *war*; so also *know*, *cold*. Thus [wɔ:k], which in most accents of English can only be *walk*, is *work* in broad Geordie, while *walk* has the unambiguous form [wɔ:k]. This forms the basis of a well-known Geordie joke (transcribed phonetically in Viereck 1966: 95), in which a local man goes to see the doctor about his hurt knee; the doctor bandages it up and asks him, 'Do you think you can walk [wɔ:k] now?', to which Geordie replies, 'What do you mean, can I work? I can hardly walk [wɔ:k]!'

Long [a:] also regularly occurs in words of the lexical sets TRAP and BATH where there is a following final voiced consonant or final voiced consonant cluster, thus *lad* [la:d], *band* [ba:nd] (but *slant*, *laugh* with [a]). Hence there is an opposition between [a] and [a:] only before voiceless consonants, and only if traditional-dialect forms are considered: *tack* [tak] vs. *talk* [ta:k]. Those who do not use the traditional-dialect forms have [a] and [a:] in complementary distribution, as far as I can see. There is also a long back [ɑ:], used in START words: *dark* [dɔ:k], *starts* [sta:ʔs]; also *half* [ha:f].

The FACE and GOAT vowels are either monophthongs or opening/centring diphthongs. Thus FACE may be [e:] or [eə ~ ɪə], GOAT [o:] ~ e[:] or [ʊə ~ əə]. The diphthongs are nowadays perhaps rather old-fashioned; but the central rounded monophthong [ə:] remains a very characteristic GOAT quality both for Tyneside itself and for all Northumberland: [a 'dent sə'pe:z ə 'netʔst də ke:lɪd] *I don't suppose I noticed the cold*.

The FLEECE vowel, /i/, has a strikingly diphthongal variant in final position: [neɪ] *knee*; [freɪz] *frees* (≠ [fi:z] *freeze*). Similarly, /u/ has an allophone [əu]. The MOUTH vowel may be of the [au] or [əu]

4.4.11 Tyneside

The largest conurbation in what I have called the far north is conveniently referred to as Tyneside: more strictly Tyneside and Wearside, it comprises Newcastle-upon-Tyne itself together with the surrounding urban areas, formerly straddling the border between County Durham and Northumberland but now constituting the metropolitan county of Tyne and Wear. Its accent is known as *Geordie* ['dʒɔ:di] – a name applied also to its traditional dialect, and also of course to anyone who comes from Tyneside. Geordie differs in several striking ways from other urban speech varieties of the north of England.

One of the most striking is a particular kind of glottalization of /p, t, k/, both in syllable-final position and also, sometimes, syllable-initially before a weak vowel. This may consist either in a purely glottal realization, [ʔ], or of a combined glottal and oral plosive. O'Connor (1947) writes the latter type [ʔp, ʔt, ʔk], commenting that the p, t, k symbols here stand for 'very weak [p, t, k]'. The auditory impression I receive is [pʔ, tʔ, kʔ], with glottal masking of the oral plosive burst. Examples: *paper* ['pepʔə], *couple* ['kʊpʔəl]; *pity* ['pɪʔɪ], *auntie* ['aɪʔɪ]; *local* ['ləkʔəl]; *represented* [ɹepʔɪzə'zentəd], *documents* ['dɒkʔəməntʔs].

Uniquely among urban accents of England, Geordie has phonemic /h/ and no H Dropping. The cluster /hw/, however, is not used (except by one or two speech-conscious people): *when* [wen].

Of the liquids, /l/ is noticeably clear in all positions. (This does not necessarily apply throughout the social scale. I once succeeded in identifying a Near-RP hitchhiker as a Geordie by seizing on the fact that his /l/ was – hypercorrectly – dark in all environments.) Uvular /r/ is no longer usual on Tyneside (though also not quite extinct): /r/ is mostly [ɹ] or [ɹ]. These phonetic types can also arise through the T-to-R rule (4.4.9 above): *Has he got a job?*

Although uvular [ɹ] has virtually disappeared from Tyneside, it has left its influence on certain vowel qualities, notably those of the lexical sets NURSE and *letter*; also in the [ɪə], [ʊə]-type qualities of NEAR, *cure* (though SQUARE is monophthongal [ɛ:]).

In the broadest Geordie the lexical set NURSE is merged with NORTH, /ɔ:/: *work* [wɔ:k], *first* [fɔ:st], *shirt* [ʃɔ:t] (= *short*). What is elsewhere a central vowel has undergone backing through the

type, though traditional-dialect [u(:)] is still very prevalent, as is a compromise [əu]: *down* [dun ~ dəun ~ daun]. There is variation in PRICE between an [ɛi] type and an [aɪ] type (the latter with an open central starting-point). I am not altogether clear what the conditions governing the choice between them are; Viereck (1966: 69–70) says that they are in free variation, and that there is also an [aɪ] type used after [ɹ] only; O'Connor writes [ɛi] everywhere. I suspect that some speakers, at least, have a Scottish-type distribution, with [aɪ] before a voiced fricative and finally, [ɛi] elsewhere. Examples: *Tyneside* ['tɛɪnsɛɪd], *like* [lɛɪk], *twice* [tweɪs], *mind* [maɪnd]; *five* [faɪv]; *in my time* [ɪn maɪ ,tɛɪm].

The weak vowel of *letter* is particularly open in Geordie. Often it is very back: I write it [ɑ], although it is slightly less open than cardinal [ɑ]. This quality is presumed to be due historically to the influence of the [ɹ] which once followed it. Examples: *clever* ['klɛvɑ], *under* ['ʊndɑ]. The vowel is not necessarily as back as this; some speakers use a more or less front [ɛ]: ['klɛvɛ], ['ʊndɛ]. Words of the *comma* set also have this [ɑ ~ ɛ]: *china* ['tʃɛɪnɑ]; according to McNeany (1971), though, they can also have final [ɪ].

Tyneside has /ə/, not the more usual /ɪ/, as the weak vowel in words such as *voices*, *ended*; on the other hand some Geordies have /ɪ/, not /ə/, in words such as *seven*, *almond*, *impression* [-ʃɪn]. There are unexpected vowel qualities in certain weak forms: McNeany (1971) mentions *at*, *of*, *as*, *can*, *us* with [ɪ]: ['lʊk ɪr 'ɪz] *look at us* (with restressed weak form of *us* 'me'). The items *from*, *but*, *could*, *that*, are among those with no distinct weak forms in Tyneside speech: *from* is always [frɒm].

The weak vowel in *happy* is close, [ɪ]. The local form of address *hinny* is phonetically ['hɪni].

Tyneside has its characteristic local intonation patterns; Pellowe & Jones (1978) have made a start at describing them, though their treatment unfortunately excludes consideration of the meaning attached to particular patterns. They do, however, demonstrate the greater prevalence (compared with RP usage) of rise-fall and level nuclear tones. Impressionistically, I am struck by the tendency to use a low-to-high rise, with high level tail, in certain contexts where RP would have a high fall.

**APPENDIX FOUR: SAMPLE TRANSCRIPTION AND FIGURES FOR
FOR OLDER WORKING CLASS MALE (JOHN)**

	FLEECE	GOOSE	FACE	GOAT	NURSE
1	stait	'dʒukɛz	'pʰeəpʔe	blo:ks	tʰɔ:n
2	staits	'dʒukɛz	'lɪən (lane)	'dʒə:nziz	lɜ:nʔ
3	stait	'dʒukɛz	pʰlɪəs	ʒo:z	lɜ:nʔ
4	bə'twi:n	'bʊkʔiz	pʰle:	no: (no)	'θɜ:ʔɪ
5	si: (see)	tʰʊts	pʰle:	huolɜ	'θɜ:ʔɪaɪt
6	gui:n	'dʒɪuɪf	pʰle:	huolɜ	'θɜ:ʔɪnzɪn
7	tʊɪz	θʊv	pʰle:ə	uə:p	fɜ:st
8	staits	θʊv	əwɪə	gʊəlɜ	tʰɜ:n
9	gui:nz	θʊv	pʰle:	sə'pho:st	'dʒɪ:nz
10	staits	'bʊtʔɪfl	'pʰleən	blo:k	fɜ:st
11	sei (see)	dʒɪu	'pʰlɪən	blo:k	'θɜ:ʔɪnzɪn
12	θʊi'wi:lə	'dʒʊɪf	'pʰleən	səʊldʒɛz	fɜ:st
13	'uɪ:li	sku:lɜ	pʰle:	bʊk	'fɜ:st
14	ʔɪ,vakʔju'i:	tʰu: (too)	'pʰleə	bʊk	θɜ:d
15	nəzn'ɪ:n	sku:l	'pʰle:guəndz	ə'go:	'θɜ:ɪnzɪn
16	gui:n	sʊt	'pʰlɪən	q:ld	'θɜ:ɪnzɪn
17	stait	sʊt	pʰle:	mu:st	ɪmfɜ:məi
18	bi: (be)	əbso'lʊʔli	pʰlɪə	tɔ:ld	ɪmfɜ:məi
19	stait	ju:st (used)	mek(2)	'guə:ɪn	'wɜ:kʔɪndən
20	bɪtwi:n	dʒɪu:z	kʰɪ:əs	sʊəp	fɜ:n
21	'skʊ:ɪn	u:fs	'pʰɪəpʔe	sʊəp	'wɜ:
22	sti (see)	'bʊkʔiz	'pʰɪəpʔe	gəʊld	tʰɔ:n
23	pəɪst	dʒɪu:z	'pʰeəpʔɛz	nʊəd (note)	tʰɜ:ʔɪ
24	'bi:n (been)	dʒu:z	kʰɪ:əs	'guə:suɪz	'wɜ:kʔ
25	ə,vakʔju'i:	bʊ:k	gʊet	'guə:suɪz	
26	sei (see)	bʊ:k	kʰeəm	'gʊəsuɪz	
27	kʰm'pʰlɪʔli	bʊk	gʊet	də:l	
28	fəv'ɪ:n	nɜ:su:z	fendʒ	uəd (road)	
29	wi:d (weed)	'nɜ:kəs	gʊet	'goən	
30	tʊɪʔ(2)	sʊt	pʰlɪəs	ə:ld	
31	si:n (seen)	sʊt	nɪəm	'to:nɪ	
32	'uɪ:ləɪz	sʊt	fleəndʒd	'fəʊldɛz	
33	'uɪ:li	kʰɪu:z	'stɪəm	'mo:ʔɜ:bəɪk	
34	'uɪ:ləɪz	kʰɪu	'tʰeɪkʔɪn	blo:ks	
35	swits	kʰɪu:	pʔʔue:ʃh	smə:k	
36	swits	kʰɪu:	kɪ.əm	'əʊnli	
37	'bi:n (been)	'bʊkʔi:	ə,vakʔju'e:ʃh	no: (know)	
38	bɪt(2) (beat)	tʰɪu (two)	'ge:ʔɪ	lə:st (lowest)	
39	θʊi:	nɜ:u		'vəldə	
40	sɪts	bʊɪu			

FLEECE		[i:]	[ei]
Checked syllables	<i>street</i> <i>streets</i> <i>between</i> <i>green</i> <i>streets</i> <i>greens</i> <i>streets</i> <i>three-wheeler</i> <i>really</i> <i>nineteen</i> <i>green</i> <i>street</i> <i>street</i> <i>between</i> <i>screaming</i> <i>seen</i>	<i>priest</i> <i>been</i> <i>completely</i> <i>fourteen</i> <i>weed</i> <i>treat</i> <i>seen</i> <i>realise</i> <i>really</i> <i>realise</i> <i>sweets</i> <i>sweets</i> <i>been</i> <i>beat</i> <i>seats</i>	
	N = 31	N = 0	
Open syllables	<i>see</i> <i>evacuee</i> <i>be</i> <i>evacuee</i> <i>three</i> <i>fleas</i> <i>fleas</i>		<i>trees</i> <i>see</i> <i>see</i> <i>see</i>
	N = 7	N = 4	
Total = 42			

GOOSE		[u:]	[eu]
Checked syllables	<i>Deuchar's</i> <i>Deuchar's</i> <i>Deuchar's</i> <i>bookies</i> <i>toots</i> <i>beautiful</i> <i>schools</i> <i>school</i> <i>suit</i> <i>suit</i> <i>absolutely</i>	<i>book</i> <i>book</i> <i>suit</i> <i>suit</i> <i>suit</i> <i>bookie</i> <i>suit</i> <i>zoot-suit</i> <i>excuse (vb.)</i> <i>used (vb.)</i> <i>roofs</i>	
	N = 23	N = 0	
Open syllables	<i>too</i> <i>Jews</i> <i>Newcastle</i> <i>queue</i> <i>Newgate</i> <i>Newgate</i>		<i>Jewish</i> <i>through</i> <i>through</i> <i>through</i> <i>Jew</i> <i>Jewish</i> <i>Jews</i> <i>Jews</i> <i>news</i> <i>queues</i> <i>queue</i>
	N = 6	N = 16	
Total = 45			

FACE	V#	Vn	Vp	Vs	Total
[e]	<i>playing</i> (2)	<i>change</i>	<i>make</i> <i>great</i> (2)		6
[e:]	<i>play</i> (5) <i>playgrounds</i>		<i>Gaiety</i>	<i>operation</i> <i>evacuation</i>	9
[ɪə]	<i>away</i> <i>play</i> <i>playing</i> (2)	<i>lane</i> <i>name</i> <i>same</i> <i>came</i>	<i>paper</i> (2)	<i>place</i> (2) <i>case</i> (2)	14
[eə]	<i>play</i> (2)	<i>came</i> <i>changed</i>	<i>paper</i> <i>papers</i> <i>great</i>		7
[ɛ:]	<i>play</i>				1
[e ^l]			<i>taking</i>		1
Total	15	7	10	6	N = 38

[e], [e:], [ɛ:] collapsed together as [e:]; N = 16

[ɪə], [eə] collapsed to [ɪə]; N = 21

[e^l] as [eɪ]; N = 1

NB: Length distinctions ([ɪ:ə] ~ [ɪə], etc.) among diphthongal variants are not thought to be important here.

GOAT	<i>V#</i>	<i>Vn</i>	<i>Vp</i>	<i>Vs</i>	<i>Vb</i>	<i>Vz</i>	<i>VI</i>	Total
[o]	<i>going</i>		<i>bloke</i> <i>broke</i>		<i>road</i>			4
[o:]	<i>no</i> (2) <i>ago</i>	<i>Tony</i>	<i>blokes</i>	<i>supposed</i>				6
[e:]	<i>growing</i> <i>lowest</i>		<i>rope</i> <i>bloke</i> <i>blokes</i> <i>smoke</i>	<i>groceries</i> (2)			<i>old</i>	9
[ə:]		<i>Jonesie's</i>						1
[ɔ:]			<i>motorbike</i>			<i>those</i>	<i>told</i>	3
[ʊə]			<i>soap</i> (2) <i>note</i>	<i>groceries</i>			<i>goals</i> <i>oldest</i>	6
[uo]							<i>holes</i> (2)	2
[ɔ:]							<i>old</i>	1
[ɔ:]							<i>dole</i>	1
[u:]				<i>most</i>				1
[oʊ]			<i>broke</i>					1
[au]		<i>only</i>					<i>soldiers</i> <i>gold</i> <i>shoulders</i>	4
Total	6	3	12	5	1	1	11	N = 39

[o], [o:], [ɔ:], [ɔ:], [u:] collapsed together as [o:]; N = 15

[e:], [ə:], [ɔ:] collapsed to [e:]; N = 11

[ʊə], [uo] as [ʊə]; N = 8

[oʊ] as [ou]; N = 5

NB: [au] is omitted from the final sample (see Table below), as (a) it is not clear which variant it should be collapsed with, if any; (b) the creation of a fifth variant category to account for pronunciations like [ˈʃəʊldəz] *shoulders* does not seem justified, since these occur only in the speech of working class males, and then only sporadically. In this case it is decided to treat [au] as a rare, recessive variant of GOAT (see §7.3.2).

NURSE	V#	Vn	Vp	Vs	Vb	Vz	Vl	Total
[ɜ:]	were	learnt turn infirmary (2) churn	thirty thirty-eight thirty-nine (4) Workington church worked	first	third			17
[ɔ:]		turn						1
[ɔ:]		turn						1
[ɜ:]		learnt	first (2)					3
[ɜ:]			first					1
[ʌ:]		Germans						1
Total	1	9	12	1	1	0	0	N = 24

[ɜ:], [ɜ:] collapsed together as [ɜ:]; N = 18

[ɔ:], [ɔ:], [ɜ:], [ʌ:] collapsed to [ɔ:]; N = 6

No fronted variants were recorded for John.

John: total figures per variant (all variables)

Variable	Variant	Open	Checked	Total		
FLEECE	[i:]	7	31	38		
	[ei]	4	-	4		
Total		11	31	42		
GOOSE	[u:]	6	23	29		
	[eu]	16	-	16		
Total		22	23	45		
		V#	Vn	Vp		
FACE	[e:]	9	1	4		
	[iə]	6	6	5		
	[ei]	-	-	1		
Total		15	7	10		
		Vs	Vb	Vz	Vl	Total
GOAT	[o:]	2	1	1	2	15
	[uə]	1	-	-	4	8
	[ei]	2	-	-	2	11
	[ou]	-	-	-	-	1
Total		5	1	1	8	35
NURSE	[ɜ:]	1	1	1	-	18
	[ɔ:]	-	-	-	-	6
Total		1	1	1	0	24

REFERENCES

REFERENCES

- Adamska-Salaciak, A. (1989) *On explaining language change teleologically*. Studia Anglica Posnaniensia 22. Poznan: Adam Mickiewicz University Press, pp53-74.
- Alston, R.C. (1965) *A bibliography of the English language from the invention of printing to the year 1800*. Leeds: E.J. Arnold & Son.
- Andersen, H. (1989) Understanding linguistic innovations. In Breivik, L.E. & E.H. Jahr (eds.) *Language change: contributions to the study of its causes*. Berlin: Mouton de Gruyter, pp5-27.
- Anderson, J.M. (1973) *Structural aspects of language change*. London: Longman.
- Anderson, J.M. & C.J. Ewen (1987) *Principles of dependency phonology*. Cambridge: Cambridge University Press.
- Anderson, S.R. (1985) *Phonology in the twentieth century: theories of rules and theories of representations*. Chicago: University of Chicago Press.
- Andersson, S. (1994) *Costs of sexual advertising in the lekking Jackson widowbird*. Condor 96(1): 1-10.
- Annan, W.R.B. (1970) *A comparative study of the vowels of different accents of English*. Proceedings of the Sixth International Congress of Phonetic Sciences, Prague, September 1967: 115-116.
- Ascherson, N. (1994) *Britain's crumbling ruling class is losing the accent of authority*. Independent on Sunday, 7th August 1994.
- Atkinson, F. (1980) *North-east England: people at work 1860-1950*. Ashbourne, Derbyshire: Moorland Publishing Co. Ltd.
- Atkinson, J.C. (1868) *A glossary of the Cleveland dialect: explanatory, derivative and critical*. London: J.R. Smith.
- Aulanko, R. & T. Nevalainen (1995) *Acoustic phonetics in sociolinguistics and dialectology: the variation of English vowels in spontaneous speech*. Proceedings of the Thirteenth International Congress of Phonetic Sciences, Stockholm, August 1995, vol. III: 464-467.
- Austin, W.G.C. & R.J. Buswell (1992) Industry and employment, 1900-1975. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp 66-67.
- Barke, M. (1992a) Population in the mid 19th century: migration. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp34-35.
- Barke, M. (1992b) Population in the 20th century: migration. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp60-61.
- Barke, M. (1992c) Population and housing in the 1980s. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp80-81.

- Barke, M. & R.J. Buswell (1992, eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts.
- Bauer, L. (1985) *Tracing phonetic change in the received pronunciation of British English*. *Journal of Phonetics* 13: 61-81.
- Bauer, L. (1994) *Watching English change: an introduction to the study of linguistic change in standard Englishes in the twentieth century*. Harlow, Essex: Longman.
- Baugh, A.C. & T. Cable (1991) *A history of the English language*, 3rd edn. London: Routledge.
- Bayard, D. (1991) *A taste of Kiwi: perceived attitudes to accent, speaker gender, and perceived ethnicity across the Tasman*. *Australian Journal of Linguistics* 11: 1-38.
- Beal, J. (1985) Lengthening of *a* in Tyneside English. In Eaton, R., O. Fischer, W. Koopman & F. van der Leek (eds.) *Papers from the 4th International Conference on English Historical Linguistics, Amsterdam*. Amsterdam: John Benjamins.
- Beal, J. (1993a) Geordie accent and grammar. In Namba, T. (ed.) *The society and culture of England*. Tokyo: Seibundo.
- Beal, J. (1993b) The grammar of Tyneside and Northumbrian English. In Milroy, L. & J. Milroy (eds.) *Real English: the grammar of English dialects in the British Isles*. London: Longman, pp187-213.
- Beal, J. (1994) *The Jocks and the Geordies: modified standards in eighteenth-century pronouncing dictionaries*. Newcastle & Durham Working Papers in Linguistics 2: 1-19.
- Beal, J. (1998) *From Geordie Ridley to Viz: popular literature in Tyneside English*. Paper presented at the Harold Orton Centenary Conference, University of Leeds, March 1998.
- Bex, T. (1994) *Estuary English*. *Guardian Education*, 6th September 1994.
- Bhatt, R.M. (1997) *Optimality and the syntax of lectal variation*. University of Pennsylvania Working Papers in Linguistics 4(1): 271-297.
- Bing, J.M. & V.L. Bergvall (1996) The question of questions: beyond binary thinking. In Bergvall, V.L., J.M. Bing & A.L. Freed (eds.) *Rethinking language and gender research: theory and practice*. London: Longman, pp1-30.
- Bladon, A. (1982) Arguments against formants in the auditory representation of speech. In Carlson, R. & B. Granström (eds.) *The representation of speech in the peripheral auditory system*. Amsterdam: Elsevier Biomedical Press, pp95-102.
- Bladon, R.A.W. & B. Lindblom (1981) *Modeling the judgement of vowel quality differences*. *Journal of the Acoustical Society of America* 71, S104.
- Blishen, B.R. (1971) A socio-economic index for occupations in Canada. In Blishen, B.R., F.E. Jones, K.D. Naegle & J. Porter (eds.) *Canadian society: sociological perspectives*. Toronto: Macmillan, pp495-507.

- Britain, D. (1997a) *Dialect contact, focusing and phonological rule complexity: the koineisation of Fenland English*. University of Pennsylvania Working Papers in Linguistics 4(1): 141-169.
- Britain, D. (1997b) *Dialect contact and phonological reallocation: 'Canadian raising' in the English Fens*. *Language in Society* 26(1): 15-46.
- Broad, D.J. & H. Wakita (1977) *Piecewise-planar representation of vowel formant frequencies*. *Journal of the Acoustical Society of America* 62: 1467-1473.
- Browman, C.P. & L. Goldstein (1990) Tiers in articulatory phonology, with some implications for casual speech. In Kingston, J. & M.E. Beckman (eds.) *Papers in laboratory phonology I: between the grammar and physics of speech*. Cambridge: Cambridge University Press, pp341-376.
- Brown, G. (1982) The spoken language. In Carter, R. (ed.) *Linguistics and the teacher*. London: Routledge & Kegan Paul, pp75-87.
- Burchfield, R.W. (1981) *The spoken word: a BBC guide*. London: British Broadcasting Corporation.
- Buswell, R.J. (1992a) Origins of Newcastle and growth to 1600. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp15-16.
- Buswell, R.J. (1992b) Newcastle 1918-1980: city and region. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp56-57.
- Buswell, R.J. (1992c) Newcastle: the proximate future. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp87-88.
- Butcher, A. (1982) Cardinal vowels and other problems. In Crystal, D. (ed.) *Linguistic controversies*. London: Arnold, pp50-72.
- Cameron, D. (1990, ed.) *The feminist critique of language: a reader*. London: Routledge.
- Cameron, D. (1995) *Verbal hygiene*. London: Routledge.
- Catford, J.C. (1977) *Fundamental problems in phonetics*. Edinburgh: Edinburgh University Press.
- Catford, J.C. (ms) *A questionnaire of the Linguistic Survey of Scotland*. University of Edinburgh.
- Cedergren, H. (1984) *Panama revisited: sound change in real time*. Paper presented at NWAVE 14, Philadelphia.
- Cedergren, H. & D. Sankoff (1974) *Variable rules: performance as a statistical reflection of competence*. *Language* 50: 333-355.
- Chambers, J.K. (1995) *Sociolinguistic theory: linguistic variation and its social significance*. Oxford: Blackwell.

- Cheshire, J., A. Gillett, P.E. Kerswill & A. Williams (1998) *New dialects for old? Change and continuity in urban British English*. Paper presented at the Harold Orton Centenary Conference, Leeds, March 1998.
- Chirrey, D. (forthcoming) Edinburgh: phonetic variation and phonemic change. To appear in Foulkes, P. & G.J. Docherty (eds.) *Urban voices*. London: Arnold.
- Chomsky, N. (1992) On the nature, use, and acquisition of language. In Pütz, M. (ed.) *Thirty years of linguistic evolution: studies in honor of René Dirven*. Philadelphia: John Benjamins, pp3-29.
- Chomsky, N. & M. Halle (1968) *The sound pattern of English*. New York: Harper & Row.
- Christensen, R. (1990) *Log-linear models*. New York: Springer Verlag Inc.
- Clark, J. & C. Yallop (1995) *An introduction to phonetics and phonology, 2nd edn*. Oxford: Blackwell.
- Coates, J. (1986) *Women, men, and language*. London: Longman.
- Coggle, P. (1993) *Do you speak Estuary? The new Standard English*. London: Bloomsbury Press.
- Cooper, R.L. (1982) *Language spread: studies in diffusion and social change*. Bloomington: Indiana University Press.
- Coulmas, F. (1997, ed.) *The handbook of sociolinguistics*. Oxford: Blackwell.
- Coupland, N. & A. Jaworski (1997, eds.) *Sociolinguistics: a reader and coursebook*. New York: St. Martin's Press, Inc.
- Cross, D.F.W. (1990) *Counterurbanization in England and Wales*. Aldershot, Hampshire: Avebury.
- Crothers, J. (1978) *Typology and universals of vowel systems*. In Greenberg, J.H. (ed.) *Universals of human language, vol. II: phonology*. Stanford: Stanford University Press, pp93-152.
- Crowley, T. (1991) *Proper English? Readings in language, history and cultural identity*. London: Routledge.
- Cruttenden, A. (1994) *Gimson's pronunciation of English, 5th edn*. London: Arnold.
- Crystal, D. (1991) *A dictionary of linguistics and phonetics, 3rd edn*. Oxford: Blackwell.
- Cucchiaroni, C. (1996) *Assessing transcription agreement: methodological aspects*. *Clinical Linguistics & Phonetics* 10(2): 131-155.
- Cuervo, J.J., F. Delope & A.P. Moller (1996) *The function of long tails in female barn swallows (Hirundo rustica): an experimental study*. *Behavioral Ecology* 7(2): 132-136.
- Davenport, M. & S.J. Hannahs (1996) *Concerning constraints in Optimality Theory*. *Newcastle & Durham Working Papers in Linguistics* 4: 69-83.

- Dawkins, R. (1989) *The selfish gene*, 2nd edn. Oxford: Oxford University Press.
- Defoe, D. (1727) *The evident advantages to Great Britain and its allies from the approaching war*. La Haye: Jean van Duren.
- Diehl, R.L. & K.R. Kluender (1987) On the categorization of speech sounds. In Harnad, S. (ed.) *Categorical perception: the groundwork of cognition*. Cambridge: Cambridge University Press, pp226-253.
- Diehl, R.L., B. Lindblom, K.A. Hoemeke & R.A. Fahey (1996) *On explaining certain male-female differences in the phonetic realization of vowel categories*. *Journal of Phonetics* 24: 187-208.
- Dieth, E. & H. Orton (1952) *A questionnaire for a linguistic atlas of England*. Proceedings of the Leeds Philosophical and Historical Society Vol 6(9). Leeds: Leeds Philosophical and Literary Society.
- Dillard, J.L. (1972) *Black English: its history and usage in the United States*. New York: Random House.
- Disner, S.F. (1980) *Insights on vowel spacing: results of a language survey*. UCLA Working Papers in Phonetics 50: 70-92.
- Dixon, R.M.W. (1997) *The rise and fall of languages*. Cambridge: Cambridge University Press.
- Dobson, S. (1987) *Larn yersel' Geordie*. Rothbury, Northumberland: Butler Press.
- Docherty, G.J. & P. Foulkes (1995) *Acoustic profiling of glottal and glottalised variants of English stops*. Proceedings of the Thirteenth International Congress of Phonetic Sciences, Stockholm, August 1995, vol. I: 350-353.
- Docherty, G.J. & P. Foulkes (1996) *A corpus-based account of variation in the realisation of 'released' /t/ in English*. Proceedings of the Sixth Australian International Conference on Speech Science and Technology, Adelaide, pp157-162.
- Docherty, G.J., P. Foulkes, J. Milroy, L. Milroy & D. Walshaw (1997) *Descriptive adequacy in phonology: a variationist perspective*. *Journal of Linguistics* 33: 275-310.
- Dodd, B. (1995) *The differential diagnosis and treatment of children with speech disorder*. London: Whurr Publishers.
- DOEE (Department of Education & Employment) (1995) *Gillian Shephard launches Better English Campaign*. 11th October 1995.
URL: <http://www.coi.gov.uk/coi/depts/GDE/coi1326b.ok>
- Dressler, W.U. & S. Moosmüller (1991) *Phonetics and phonology: a sociopsycholinguistic framework*. *Phonetica* 48: 135-148.
- Eckert, P. (1989) *The whole woman: sex and gender differences in variation*. *Language Variation & Change* 1(1): 245-267.
- Eckert, P. (1991) Social polarization and the choice of linguistic variants. In Eckert, P. (ed.) *New ways of analyzing sound change*. Orlando, Fla.: Academic Press, Inc., pp213-232.

- Eckert, P. (1997a) Age as a sociolinguistic variable. In Coulmas, F. (ed.) *The handbook of sociolinguistics*. Oxford: Blackwell, pp151-167.
- Eckert, P. (1997b) *Variation and the preadolescent heterosexual market*. Paper presented at NWAWE 26, Quebec, October 1997.
- Edwards, J.R. (1979) *Social class differences and the identification of sex in children's speech*. *Journal of Child Language* 6: 121-127.
- Edwards, J.R. & M.A. Jacobsen (1987) *Standard and regional speech: distinctions and similarities*. *Language in Society* 16: 369-380.
- Ellis, A.J. (1874) *On early English pronunciation, vol. IV*. London: Early English Texts Society (Oxford University Press).
- Elman, J.L. & J.L. McClelland (1986) Exploiting lawful variability in the speech wave. In Perkell, J.S. & D.H. Klatt (eds.) *Invariance and variability in speech processes*. Hillsdale, N.J.: Lawrence Erlbaum Associates, pp360-385.
- Elyan, O., P. Smith, H. Giles & R. Bourhis (1978) RP-accented female speech: the voice of perceived androgyny? In Trudgill, P. (ed.) *Sociolinguistic patterns in British English*. London: Edward Arnold, pp122-131.
- Eustace, S. (1970) *Present changes in English pronunciation*. Proceedings of the Sixth International Congress of Phonetic Sciences, Prague, September 1967, pp303-306.
- Faber, A. (1992) Articulatory variability, categorical perception, and the inevitability of sound change. In Davis, G.W. & G.K. Iverson (eds.) *Explanation in historical linguistics*. Amsterdam: John Benjamins, pp59-75.
- Faber, A. & M. di Paolo (1995) *The discriminability of nearly merged sounds*. *Language Variation & Change* 7(1): 35-78.
- Fant, G. (1960) *Acoustic theory of speech production*. The Hague: Mouton.
- Fant, G. (1973) *Speech sounds and features*. Cambridge, Mass.: MIT Press.
- Fasold, R. (1991) Sociolinguistics in linguistics. In Bolton, K. & H. Kwok (eds.) *Sociolinguistics today: international perspectives*. London: Routledge, pp351-355.
- Figuroa, E. (1994) *Sociolinguistic metatheory*. Oxford: Pergamon Press.
- Flanagan, J.L. (1955) *A difference limen for vowel formant frequency*. *Journal of the Acoustical Society of America* 30: 613-617.
- Fought, C. (1997) *A majority sound change in a minority community*. *University of Pennsylvania Working Papers in Linguistics* 4(1): 39-56.
- Foulkes, P. (1997) *English [r]-sandhi: a sociolinguistic perspective*. *Histoire, Epistémologie, Langage* 19(1): 73-96.
- Foulkes, P. & G.J. Docherty (forthcoming) *Urban Voices*. London: Arnold.

- Fowler, C.A. (1990) *Calling a mirage a mirage: direct perception of speech produced without a tongue*. Journal of Phonetics 18: 529-541.
- Freed, A.F. & A. Greenwood (1996) *Women, men, and type of talk: what makes the difference?* Language in Society 25(1): 1-26.
- Fromkin, V. (1964) *Lip positions in American English vowels*. Language & Speech 7: 215-225.
- Ganong, W.F. (1980) *Phonetic categorization in auditory word perception*. Journal of Experimental Psychology 6: 110-125.
- Garde, P. (1961) *Réflexions sur les différences phonétiques entre les langues slaves*. Word 17: 34-62.
- Gauchat, L. (1905) L'unité phonétique dans le patois d'une commune. In *Aus romanischen Sprachen und Literaturen: Festschrift Heinrich Morf*, pp175-232.
- Gauchat, L., J. Jeanjaquet & E. Tappolet (1925) *Tableaux phonétiques des patois suisses romands*. Neuchâtel: Paul Attinger.
- Gay, T. (1978) *Effect of speaking rate on vowel formant movements*. Journal of the Acoustical Society of America 63: 223-230.
- Geeson, C. (1969) *A Northumberland and Durham word book*. Newcastle upon Tyne: H. Hill.
- Gerstman, L.J. (1968) *Classification of self-normalized vowels*. IEEE Transactions on Audio and Electroacoustics, AU-16, pp78-80.
- Giegerich, H.J. (1992) *English phonology: an introduction*. Cambridge: Cambridge University Press.
- Gimson, A.C. (1980) *An introduction to the pronunciation of English, 3rd edn*. London: Arnold.
- Goldsmith, J.A. (1995, ed.) *The handbook of phonological theory*. Oxford: Blackwell.
- Gordon, E. (1997) *Sex, speech and stereotypes*. Language in Society 26(1): 47-63.
- Gottfried, T.L. & W. Strange (1980) *Identification of coarticulated vowels*. Journal of the Acoustical Society of America 68(6): 1626-1635.
- Gottfried, T.L., J.L. Miller & P.E. Payton (1990) *Effect of speaking rate on the perception of vowels*. Phonetica 47: 155-172.
- Gould, S.J. (1977) The misnamed, mistreated, and misunderstood Irish elk. In Gould, S.J. (ed.) *Ever since Darwin: reflections in natural history*. New York: Norton, pp79-90.
- Gould, S.J. (1997) *The exaptive excellence of spandrels as a term and prototype*. Proceedings of the National Academy of Sciences of the United States of America 94(20): 10750-10755.

- Graham, F. (1987) *The new Geordie dictionary*. Rothbury, Northumberland: Butler Publishing.
- Guion, S.G. (1995) *Word frequency effects among homonyms*. Texas Linguistic Forum 35: 103-115.
- Guion, S.G. (1996) *Velar palatalization: coarticulation, perception, and sound change*. Unpublished doctoral thesis, University of Texas at Austin.
- Gumperz, J.J. (1997) Communicative competence. In Coupland, N. & A. Jaworski (eds.) *Sociolinguistics: a reader and coursebook*. New York: St. Martin's Press, Inc., pp39-48.
- Gumperz, J.J. & D. Hymes (1972, eds.) *Directions in sociolinguistics: the ethnography of communication*. New York: Holt, Rinehart & Winston, Inc.
- Guy, G. (1980) Variation in the group and the individual: the case of final stop deletion. In Labov, W. (ed.) *Locating language in time and space*. New York: Academic Press, pp1-36.
- Guy, G. (1996) Form and function in linguistic variation. In Guy, G., C. Feagin, D. Schiffrin & J. Baugh (eds.) *Towards a social science of language: papers in honor of William Labov, vol I: variation and change in language and society*. Current Issues in Linguistic Theory 127. Amsterdam: John Benjamins, pp221-252.
- Guy, G. (1997) *Violable is variable: optimality theory and linguistic variation*. Language Variation and Change 9: 333-347.
- Halle, M. (1983) *On distinctive features and their articulatory implementation*. Natural Language & Linguistic Theory 1: 91-105.
- Harnad, S. (1987) *Categorical perception: the groundwork of cognition*. Cambridge: Cambridge University Press.
- Harrington, J. & S. Cassidy (1994) *Dynamic and target theories of vowel classification: evidence from monophthongs and diphthongs in Australian English*. Language & Speech 37(4): 357-373.
- Harshman, R.A. & G. Papçun (1976) *Vowel normalization by linear transformation of each speaker's acoustic space*. Journal of the Acoustical Society of America 59: S71.
- Hartley, S. (1992) *A study of the effects of sex and age on glottalization patterns in the speech of Tyneside schoolchildren*. Unpublished BSc dissertation, University of Newcastle upon Tyne.
- Hatch, E.M. & H. Farhady (1982) *Research design and statistics for applied linguistics*. Rowley, Mass.: Newbury House Publishers, Inc.
- Henton, C.G. (1983) *Changes in the vowels of received pronunciation*. Journal of Phonetics 11: 353-371.
- Herzog, M. (1965) *The Yiddish language in northern Poland*. International Journal of Applied Linguistics 31(2), Part II.
- Heslop, R.O. (1892) *Northumberland words*. London: English Dialect Society.

- Heslop, R.O (1903) *Dialect notes from northernmost England*. Transactions of the Yorkshire Dialect Society 5: 7-31.
- Hill, T. (1958) *Institutional linguistics*. Orbis 7(2): 441-455.
- Hillenbrand, J. & R.T. Gayvert (1993) *Vowel classification based on fundamental frequency and formant frequencies*. Journal of Speech & Hearing Research 36(4): 694-700.
- Hinskens, F. (1996) *Dialect levelling: a two-dimensional process*. Paper presented at the first workshop of the ESF Network on Social Dialectology, Berg en Dal (Nijmegen), July 1996.
- Hoad, T.E. (1986) *The concise Oxford dictionary of English etymology*. Oxford: Oxford University Press.
- Holbrook, A. & G. Fairbanks (1962) *Diphthong formants and their movements*. Journal of Speech and Hearing Research 5: 38-58.
- Holmes, J.N. (1986) Normalization in vowel perception. In Perkell, J.S. & D.H. Klatt (eds.) *Invariance and variability in speech processes*. Hillsdale, NJ: Lawrence Erlbaum Associates, pp346-359.
- Honey, J. (1989) *Does accent matter?: the Pygmalion factor*. London: Faber.
- Horvath, B. (1985) *Variation in Australian English*. Cambridge: Cambridge University Press.
- Huang, C.B. (1992) Modeling human vowel identification using aspects of formant trajectory and context. In Tohkura, Y., E. Vatikiotis-Bateson & Y. Sagisaka (eds.) *Speech perception, production and linguistic structure*. Amsterdam: IOS Press, pp43-61.
- Hughes, A. & P. Trudgill (1979) *English accents and dialects: an introduction to social and regional varieties of British English, 1st edn*. London: Edward Arnold (also 3rd edn. 1996).
- Hymas, C. (1993) *Yer wot? 'Estuary English' sweeps Britain*. Sunday Times, 14th March 1993.
- Hymes, D. (1972) Models of the interaction of language and social life. In Gumperz, J.J. & D. Hymes (eds.) *Directions in sociolinguistics: the ethnography of communication*. New York: Holt, Rinehart & Winston, Inc., pp35-71.
- Hymes, D. (1992) The concept of communicative competence revisited. In Pütz, M. (ed.) *Thirty years of linguistic evolution: studies in honor of René Dirven*. Philadelphia: John Benjamins, pp31-57.
- Iivonen, A.K. (1995) *Number of possible basic vowel qualities and their psychoacoustical distance measure*. Proceedings of the Thirteenth International Congress of Phonetic Sciences, Stockholm, August 1995, vol. I: 404-407.
- Jakobson, R., G. Fant & M. Halle (1952) *Preliminaries to speech analysis: the distinctive features and their correlates*. Cambridge, Mass.: MIT Press. (MIT Acoustics Laboratory Technical Report 13).
- Jakobson, R. & M. Halle (1956) *Fundamentals of language*. The Hague: Mouton.

- James, N., J. Raine, M. Spayne & J. Welsh (1997) *People and jobs in Teesside: a guide to the local labour market*. Middlesbrough: Teesside Training and Enterprise Council.
- Jennings, C. (1995) *Up north: travels beyond the Watford Gap*. London: Abacus.
- Jespersen, O. (1949) *A modern English grammar on historical principles, part I: sounds and spellings*. London: George Allen & Unwin.
- Johnson, K. (1990) *Contrast and normalization in vowel perception*. *Journal of Phonetics* 18: 229-254.
- Johnson, K. (1997) *Acoustic and auditory phonetics*. Oxford: Blackwell.
- Johnson, K. & J.W. Mullennix (1997) *Talker variability in speech processing*. San Diego: Academic Press, Inc.
- Johnson, T.L. & W. Strange (1982) *Perceptual constancy of vowels in rapid speech*. *Journal of the Acoustical Society of America* 72: 1761-1770.
- Jones, D. (1911) *English: Tyneside dialect (Northumberland)*. *Le maître phonétique* 26: 184.
- Jones, D. (1960) *An outline of English phonetics, 9th edn*. Cambridge: W. Heffer & Sons.
- Jones, S. (1929) *Radiography and pronunciation*. *British Journal of Radiology (new series)* 3: 149-150.
- Joos, M. (1948) *Acoustic phonetics*. *Language* 24 (supplement): 1-136.
- Joos, M. (1950) *Description of language design*. *Journal of the Acoustical Society of America* 22: 701-708.
- Kaye, J.D., J. Lowenstamm & J.-R. Vergnaud (1985) *The internal structure of phonological elements: a theory of charm and government*. *Phonology Yearbook* 2: 305-328.
- Keating, P.A., M. Huffman & E. Jackson (1984) *Vowel allophones and the vowel-formant phonetic space*. *UCLA Working Papers in Phonetics* 59: 50-61.
- Keller, R. (1994) *On language change: the invisible hand in language, trans. B. Nerlich*. London: Routledge.
- Kerswill, P.E. (1984) *Social and linguistic aspects of Durham (e:)*. *Journal of the International Phonetic Association* 14: 13-34.
- Kerswill, P.E. (1987) *Levels of linguistic variation in Durham*. *Journal of Linguistics* 23: 25-49.
- Kerswill, P.E. (1994a) *Babel in Buckinghamshire? Pre-school children acquiring accent features in the New Town of Milton Keynes*. In Melchers, G. & N.-L. Johanneson (eds.) *Nonstandard varieties of language*. *Acta Universitatis Stockholmiensis*. Stockholm: Almqvist & Wiksell, pp64-84.
- Kerswill, P.E. (1994b) *Dialects converging: rural speech in urban Norway*. Oxford: Clarendon Press.

Kerswill, P.E. (1996a) Milton Keynes and dialect levelling in south-eastern British English. In Graddol, D., J. Swann & D. Leith (eds.) *English: history, diversity and change*. London: Routledge, pp292-300.

Kerswill, P.E. (1996b) *Children, adolescents and language change*. *Language Variation & Change* 8(2): 177-202.

Kerswill, P.E. (1996c) *Dialect levelling, koinéisation and the speech of the adult migrant*. *University of Pennsylvania Working Papers in Linguistics* 3(1): 237-246.

Kerswill, P.E. (1997) *Surface and underlying phonological differences in the study of dialect contact: evidence from citation forms*.

URL: <http://midwich.reading.ac.uk/research/papers/kerswill.html>

Kerswill, P.E. & A. Williams (1994) *A new dialect in a new city: children's and adults' speech in Milton Keynes*. Final report and summary of research submitted to the UK Economic & Social Research Council.

Kerswill, P.E. & A. Williams (1997) *Dialect levelling in two English towns*. Paper presented at the Language Variation Workshop, University of Reading, April 1997.

Kerswill, P.E. & S. Wright (1990) *The validity of phonetic transcription: limitations of a sociolinguistic research tool*. *Language Variation & Change* 2: 255-275.

Khattab, G. (1998) *A socio-phonetic study of Arabic-English bilingual children*. Unpublished MA dissertation, University of Leeds.

Kiparsky, P. (1995) The phonological basis of sound change. In Goldsmith, J.A. (ed.) *The handbook of phonological theory*. Oxford: Blackwell, pp640-670.

Knowles, G. (1978) The nature of phonological variables in Scouse. In Trudgill, P. (ed.) *Sociolinguistic patterns in British English*. London: Edward Arnold, pp80-90.

Krause, C. (1989) *A computerized analysis of the stressed vowel systems of Lowick/Northumberland*. Unpublished MA thesis, Ruprechts-Karls-Universität Heidelberg.

Kreiman, J. (1997) Listening to voices: theory and practice in voice perception research. In Johnson, K. & J.W. Mullennix (eds.) *Talker variability in speech processing*. San Diego: Academic Press, Inc., pp85-108.

Kuhl, P. (1991) *Human adults and human infants show a 'perceptual magnet' effect for the prototypes of speech categories, monkeys do not*. *Perception & Psychophysics* 50: 93-107.

Labov, W. (1963) *The social motivation of a sound change*. *Word* 19: 273-309.

Labov, W. (1966) *The social stratification of English in New York City*. Washington DC: Center for Applied Linguistics.

Labov, W. (1972) *Some principles of linguistic methodology*. *Language in Society* 1: 97-120.

Labov, W. (1975) *On the use of the present to explain the past*. *Proceedings of the Eleventh International Congress of Linguists*. Bologna: Il Mulino, pp825-851.

- Labov, W. (1986) Sources of inherent variation in the speech process. In Perkell, J.S. & D.H. Klatt (eds.) *Invariance and variability in speech processes*. Hillsdale, N.J.: Lawrence Erlbaum Associates, pp402-425.
- Labov, W. (1989) *The child as linguistic historian*. *Language Variation & Change* 1: 85-97.
- Labov, W. (1990) *The intersection of sex and social class in the course of linguistic change*. *Language Variation & Change* 2: 205-254.
- Labov, W. (1991) The three dialects of English. In Eckert, P. (ed.) *New ways of analyzing sound change*. Quantitative analyses of linguistic change 5. Orlando, Fla.: Academic Press.
- Labov, W. (1992) *Transmission*. Paper presented at Sociolinguistics Symposium 9, University of Reading.
- Labov, W. (1994) *Principles of linguistic change, vol I.: internal factors*. Oxford: Blackwell.
- Labov, W. (1997) *How I got into linguistics, and what I got out of it*.
URL: <http://www.ling.upenn.edu/~labov/HowIgot.html>
- Labov, W. (1998) *The organization of dialect diversity in North America*.
URL: http://babel.ling.upenn.edu/phono_atlas/ICSLP4/BW/ICSLP4BW.html
- Labov, W., M. Karen & C. Miller (1991) *Near-mergers and the suspension of phonemic contrast*. *Language Variation & Change* 3: 33-74.
- Labov, W., M. Yaeger & R. Steiner (ms) Research proposal submitted to US Regional Survey.
- Labov, W., M. Yaeger & R. Steiner (1972) *A quantitative study of sound change in progress*. Philadelphia: US Regional Survey.
- Ladefoged, P. (1967) *Three areas of experimental phonetics*. London: Oxford University Press.
- Ladefoged, P. (1971) *An alternative set of vowel shift rules*. *UCLA Working Papers in Phonetics* 17: 25-28.
- Ladefoged, P. (1982) *A course in phonetics, 2nd edn*. New York: Harcourt Brace Jovanovich, Inc.
- Ladefoged, P. & R. Harshman (1979) Formant frequencies and movements of the tongue. In Lindblom, B. & S. Öhman (eds.) *Frontiers of speech communication research*. New York: Academic Press, pp25-34.
- Ladefoged, P. & I. Maddieson (1996) *Sounds of the world's languages*. Oxford: Blackwell.
- Lakoff, R. (1975) *Language and woman's place*. New York: Harper & Row.
- Lass, R. (1980) *On explaining language change*. Cambridge: Cambridge University Press.
- Lass, R. (1983) *Velar /r/ and the history of English*. *Current Topics in English Historical Linguistics* 40. Odense: Odense University Press.

- Lass, R. (1989) *System-shape and the eternal return: front rounded vowels in English*. *Folia Historica Linguistica* 10: 163-198.
- Lass, R. (1990) A 'standard' South African vowel system. In Ramsaran, S. (ed.) *Studies in the pronunciation of English: a commemorative volume in honour of A.C. Gimson*. London: Routledge, pp272-285.
- Lass, R. (1992) What, if anything, was the Great Vowel Shift? In Rissanen, M., O. Ihalainen & T. Nevalainen (eds.) *History of Englishes: new methods and interpretations in historical linguistics*. Topics in English Linguistics 10. Berlin: Mouton de Gruyter, pp144-155.
- Laver, J. (1994) *Principles of phonetics*. Cambridge: Cambridge University Press.
- Leith, D. (1997) *A social history of English*. London: Routledge.
- Lennig, M. (1978) *Acoustic measurement of linguistic change: the modern Paris vowel system*. Unpublished doctoral thesis, University of Pennsylvania.
- Leonard, L.B. (1995) Phonological impairment. In Fletcher, P. & B. MacWhinney (eds.) *The handbook of child language*. Oxford: Blackwell, pp573-602.
- Li Wei (1995) *Variations in patterns of language choice and code-switching by three groups of Chinese/English speakers in Newcastle upon Tyne*. *Multilingua* 14(3): 297-323.
- Lieberman, P. & S.E. Blumstein (1988) *Speech physiology, speech perception, and acoustic phonetics*. Cambridge: Cambridge University Press.
- Liljencrants, J. & B. Lindblom (1972) *Numerical simulation of vowel quality systems: the role of perceptual contrast*. *Language* 48(4): 839-862.
- Lindau, M. (1978) *Vowel features*. *Language* 54: 541-563.
- Lindblom, B. (1983) Economy of speech gestures. In MacNeilage, P. (ed.) *The production of speech*. New York: Springer-Verlag, Inc., pp217-245.
- Lindblom, B. (1986) Phonetic universals in vowel systems. In Ohala, J.J. & J. J. Jaeger (eds.) *Experimental phonology*. Orlando, Fla.: Academic Press, pp13-44.
- Lindblom, B. (1988) Phonological units as adaptive emergents of lexical development. In Ferguson, C.A., L. Menn & C. Stoel-Gammon (eds.) *Phonological development: models, research, implications*. Timonium, Md.: York Press, pp131-163.
- Lindblom, B. (1990) Explaining phonetic variation: a sketch of the H&H theory. In Hardcastle, W.J. & A. Marchal (eds.) *Speech production and speech modelling*. Dordrecht: Kluwer Academic Publishers, pp403-439.
- Lindblom, B. (1992) Phonological units as adaptive emergents of lexical development. In Ferguson, C.A., L. Menn & C. Stoel-Gammon (eds.) *Phonological development: models, research, implications*. Timonium, Md.: York Press, pp131-163.
- Lindblom, B., S. Guion, S. Hura, S.-J. Moon & R. Willerman (1995) *Is sound change adaptive?* *Rivista di Linguistica* 7(1): 5-37.

- Lindblom, B., J.F. Lubker & T. Gay (1979) *Formant frequencies of some fixed-mandible vowels and a model of speech motor programming by predictive simulation*. Journal of Phonetics 7: 141-167.
- Lindblom, B., P. MacNeilage & M. Studdert-Kennedy (1984) Self-organizing processes and the explanation of phonological universals. In Butterworth, B., B. Comrie & Ö. Dahl (eds.) *Explanations for language universals*. Berlin: Mouton de Gruyter, pp182-203.
- Lindblom, B. & J. Sundberg (1971a) *Acoustical consequences of lip, tongue, jaw and larynx movement*. Journal of the Acoustical Society of America 50: 1166-1179.
- Lindblom, B. & J. Sundberg (1971b) A quantitative theory of cardinal vowels and the teaching of pronunciation. In Perren, G.E. & J.L.M. Trim (eds.) *Applications of linguistics*. Cambridge: Cambridge University Press, pp319-328.
- Linker, W. (1980) *A cross-linguistic study of lip position in vowels*. UCLA Working Papers in Phonetics 51: 1-35.
- Lippi-Green, R. (1997) *English with an accent: language, ideology and discrimination in the United States*. London: Routledge.
- Lisker, L. (1988) *Interpreting vowel 'quality': the dimension of rounding*. Journal of the Acoustical Society of America 83: S83.
- Llamas, C. (1998, in press) *Language variation and innovation in Middlesbrough: a pilot study*. To appear in Leeds Working Papers in Linguistics 6.
- Local, J. (1983) *How many vowels in a vowel?* Journal of Child Language 10: 449-453.
- Local, J. (1990) Some rhythm, resonance and quality variations in urban Tyneside speech. In Ramsaran, S. (ed.) *Studies in the pronunciation of English: a commemorative volume in honour of A.C. Gimson*. London: Routledge, pp286-292.
- Lotto, A.J., L.L. Holt & K.R. Kluender (1997) *Effect of voice quality on perceived height of English vowels*. *Phonetica* 54: 76-93.
- Lubker, J.F. (1979) *The reorganization times of bite-block vowels*. *Phonetica* 36: 273-293.
- Lüdtke, H. (1989) Invisible-hand processes and the universal laws of language change. In Breivik, L.E. & E.H. Jahr (eds.) *Language change: contributions to the study of its causes*. Berlin: Mouton de Gruyter, pp131-136.
- Luthin, H.W. (1987) The story of California (ow): the coming-of-age of English in California. In Denning, K.M., S. Inkelas, F.C. McNair-Knox & J.R. Rickford (eds.) *Variation in language: NWAV-XV at Stanford*. Proceedings of the Fifteenth Annual Conference in New Ways of Analyzing Variation. Stanford, Ca.: Stanford University Department of Linguistics, pp312-324.
- Macafee, C. (1994) How it feels to be thick as a brick. In Melchers, G. & N.-L. Johanneson (eds.) *Nonstandard varieties of language*. Acta Universitatis Stockholmiensis. Stockholm: Almqvist & Wiksell, pp111-117.

Macaulay, R.K.S. (1977) *Language, social class, and education: a Glasgow study*. Edinburgh: Edinburgh University Press.

Macchi, M.J. (1980) *Identification of vowels spoken in isolation versus vowels spoken in consonantal context*. *Journal of the Acoustical Society of America* 68(6): 1636-1642.

Maccoby, E.E. & C.N. Jacklin (1974) *The psychology of sex differences*. Stanford, Ca.: Stanford University Press.

MacNeilage, P.F. (1981) Feedback in speech production: an ecological perspective. In Myers, T., J. Laver & J. Anderson (eds.) *The cognitive representation of speech*. Amsterdam: North Holland.

Maddieson, I. (1984) *Patterns of sounds*. Cambridge: Cambridge University Press.

Maddieson, I. (1986) The size and structure of phonological inventories. In Ohala, J.J. & J.J. Jaeger (eds.) *Experimental phonology*. Orlando, Fla.: Academic Press, pp105-123.

Maltz, D. & R. Borker (1982) A cultural approach to male-female miscommunication. In Gumperz, J.J. (ed.) *Language and social identity*. Cambridge: Cambridge University Press, pp195-216.

Mandelbrot, B. (1954) *Structure formelle des langues et communication*. *Word* 10: 1-27.

Martinet, A. (1952) *Function, structure and sound change*. *Word* 8: 1-32.

Martinet, A. (1955) *Économie des changements phonétiques*. Bern: Franck.

Martinet, A. (1960) *Éléments de linguistique générale*. Paris: A. Colin.

Marwick, A. (1996) *British society since 1945, 3rd edn*. London: Penguin.

McMahon, A.M.S. (1994) *Understanding language change*. Cambridge: Cambridge University Press.

Mess, H.A. (1928) *Industrial Tyneside: a social survey*. London: Ernest Benn Ltd.

Milroy, J. (1992) *Linguistic variation and change: on the historical sociolinguistics of English*. Oxford: Blackwell.

Milroy, J. (1993) *Some new perspectives on sound change: sociolinguistics and the Neogrammarians*. *Newcastle & Durham Working Papers in Linguistics* 1: 181-205.

Milroy, J. (1994) Neogrammarian sound change from a social dialectological perspective. In Melchers, G. & N.-L. Johanneson (eds.) *Nonstandard varieties of language*. Acta Universitatis Stockholmiensis. Stockholm: Almqvist & Wiksell.

Milroy, J. (1995) *Investigating the Scottish Vowel Length Rule in a Northumbrian dialect*. *Newcastle & Durham Working Papers in Linguistics* 3: 187-196.

Milroy, J. (1996) Linguistic ideology and the Anglo-Saxon lineage of English. In Klemola, J., M. Kyto & M. Rissanen (eds.) *Speech past and present: studies in English dialectology in memory of Ossi Ihalainen*. Frankfurt: P. Lang, pp169-186.

Milroy, J. & J. Harris (1980) *When is a merger not a merger? The MEAT/MATE problem in a present-day English vernacular*. *English World-Wide* 1: 199-210.

Milroy, J. & L. Milroy (1978) Belfast: change and variation in an urban vernacular. In Trudgill, P. (ed.) *Sociolinguistic patterns in British English*. London: Edward Arnold, pp19-36.

Milroy, J. & L. Milroy (1993) *Mechanisms of change in urban dialects: the role of class, social network and gender*. *International Journal of Applied Linguistics* 3(1): 57-77.

Milroy, J., L. Milroy, S. Hartley & D. Walshaw (1994) *Glottal stops and Tyneside glottalization: competing patterns of variation and change in British English*. *Language Variation & Change* 6: 327-357.

Milroy, L. (1980) *Language and social networks*. Oxford: Blackwell.

Milroy, L. (1987) *Observing and analysing natural language: a critical account of sociolinguistic method*. Oxford: Blackwell.

Milroy, L. (1994) Interpreting the role of extralinguistic variables in linguistic variation and change. In Melchers, G. & N.-L. Johanneson (eds.) *Nonstandard varieties of language*. Acta Universitatis Stockholmiensis. Stockholm: Almqvist & Wiksell, pp131-145.

Milroy, L. (1996) *Dialect levelling on Tyneside: gender-related change in two vowel variables*. Paper presented at Department of Linguistics & Phonetics seminar, University of Leeds, March 1996.

Milroy, L. (1997) *Gender, social class and supralocal norms: dialect levelling as language change*. Paper presented at SALSA (Symposium about Language and Society) V, Austin, April 1997.

Milroy, L., Li Wei & S. Moffatt (1991) *Discourse patterns and fieldwork strategies in urban settings: some methodological problems for researchers in bilingual communities*. *Journal of Multilingual and Multicultural Development* 12(4): 297-300.

Morrison, B. (1994) *Brave new world on the Tyne*. *Independent on Sunday* (Review), 4th December 1994: 4-5 & 7-8.

Nagy, N. (1997) *Modeling contact-induced language change*. University of Pennsylvania Working Papers in Linguistics 4(1): 399-418.

Nagy, N. & W. Reynolds (1997) *Accounting for variable word-final deletion within Optimality Theory*. *Language Variation & Change* 9(1): 37-55.

Nairn, M.J. & J.R. Hurford (1995) The effect of context on the transcription of vowel quality. In Windsor Lewis, J. (ed.) *Studies in general and English phonetics in honour of Professor J.D. O'Connor*. London: Routledge, pp96-120.

National Opinion Polls (1972) *Bulletin No. 109*. London: NOP Market Research Ltd.

Neave, H.R. (1978) *Statistics tables for mathematicians, engineers, economists and the behavioural and management sciences*. London: George Allen & Unwin Ltd.

- Nicolaisen, W.F.H. (1997) *Periodization in the history of English*. *General Linguistics* 35(1-4): 157-176.
- Norberg, R.A. (1994) *Swallow tail streamer is a mechanical device for self-deflection of tail leading-edge, enhancing aerodynamic efficiency and flight maneuverability*. *Proceedings of the Royal Society of London series B: Biological Sciences* 257(1350): 227-233.
- North Regional Planning Committee (1967) *Mobility and the North: report on a population migration research project, vol. I: general summary*. Newcastle upon Tyne.
- Nusbaum, H.C. & J. Magnuson (1997) Talker normalization: phonetic constancy as a cognitive process. In Johnson, K. & J.W. Mullennix (eds.) *Talker variability in speech processing*. San Diego: Academic Press, Inc., pp109-132.
- Nusbaum, H.C. & T.M. Morin (1992) Paying attention to differences among talkers. In Tohkura, Y., Y. Sagisaka & E. Vatikiotis-Bateson (eds.) *Speech perception, production, and linguistic structure*. Tokyo: Ohmsha Publishing, pp113-134.
- Nygaard, L.C., M.S. Sommers & D.B. Pisoni (1994) *Speech perception as a talker-contingent process*. *Psychological Science* 5: 42-46.
- O'Connor, J.D. (1947) *The phonetic system of a dialect of Newcastle-upon-Tyne*. *Le maître phonétique* 87: 6.
- Ohala, J.J. (1981) The origin of sound patterns in vocal tract constraints. In MacNeilage, P.F. (ed.) *The production of speech*. New York: Springer Verlag, pp189-216.
- Ohala, J.J. (1986) Phonological evidence for top-down processing in speech perception. In Perkell, J.S. & D.H. Klatt (eds.) *Invariance and variability in speech processes*. Hillsdale, NJ: Lawrence Erlbaum Associates, pp386-401.
- Ohala, J.J. (1989) Sound change is drawn from a pool of synchronic variation. In Breivik, L.E. & E.H. Jahr (eds.) *Language change: contributions to the study of its causes*. Berlin: Mouton de Gruyter, pp173-198.
- Ohala, J.J. (1990) The phonetics and phonology of aspects of assimilation. In Kingston, J. & M. Beckman (eds.) *Papers in laboratory phonology I: Between the grammar and physics of speech*. Cambridge: Cambridge University Press, pp258-275.
- Ohala, J.J. (1992) The segment: primitive or derived? In Docherty, G.J. & D.R. Ladd (eds.) *Papers in laboratory phonology II: gesture, segment, prosody*. Cambridge: Cambridge University Press, pp166-189.
- Ohala, J.J. (1993a) The phonetics of sound change. In Jones, C. (ed.) *Historical linguistics: problems and perspectives*. London: Longman, pp237-278.
- Ohala, J.J. (1993b) *Sound change as nature's speech experiment*. *Speech Communication* 13(1-2): 155-161.
- Ohala, J.J. (1995a) *Phonetic explanations for sound patterns: implications for grammars of competence*. *Proceedings of the Thirteenth International Congress of Phonetic Sciences, Stockholm, August 1995, vol II*: 52-59.

- Ohala, J.J. (1995b) The perceptual basis of some sound patterns. In Connell, B. & A. Arvaniti (eds.) *Papers in laboratory phonology IV: phonology and phonetic evidence*. Cambridge: Cambridge University Press, pp87-92.
- Öhman, S.E.G. (1965) *Coarticulation in VCV utterances: spectrographic measurements*. Journal of the Acoustical Society of America 39(1): 151-168.
- Ordnance Survey (1992) *The Ordnance Survey gazetteer of Great Britain*. Southampton: Ordnance Survey.
- Orton, H. (1930) *The dialects of Northumberland*. Transactions of the Yorkshire Dialect Society 21(5): 14-25.
- Orton, H. (1933) *The phonology of a south Durham dialect*. London: Kegan, Paul, Trench, & Trübner.
- Orton, H. (1937) *Northumberland dialect research: first report*. Proceedings of the University of Durham Philosophical Society 8: 127-135.
- Orton, H. (1962) *Survey of English dialects (A): Introduction*. Published for the University of Leeds by E.J. Arnold.
- Oxley, P. (ms) *ESRC report on linguistic change: fieldwork report, Newcastle upon Tyne*. Department of Speech, University of Newcastle upon Tyne.
- Påhlsson, C. (1972) *The Northumbrian burr: a sociolinguistic study*. Lund: Gleerup.
- Pakulski, J. & M. Waters (1996) *The death of class*. London: Sage Publications Ltd.
- Pear, T.H. (1955) *English social differences*. London: George Allen & Unwin Ltd.
- Peck, F. & C.S. Morphet (1992) Industry and unemployment in the 1980s. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp 82-83.
- Pellowe, J. (1976) The Tyneside Linguistic Survey: aspects of a developing methodology. In Viereck, W. (ed.) *Sprachliches Handeln - soziales Verhalten: ein Reader zur Pragmatiklinguistik und Soziolinguistik*. Munich: Wilhelm Fink, pp203-217, 365-367.
- Pellowe, J., G. Nixon, B. Strang & V. McNeany (1972) *A dynamic modelling of linguistic variation: the urban (Tyneside) linguistic survey*. Lingua 30: 1-30.
- Perkell, J.S. (1969) *Physiology of speech production: results and implications of a quantitative radiographic study*. Cambridge, Mass.: MIT Press.
- Peterson, G.E. (1951) *The phonetic value of vowels*. Language 27: 541-553.
- Peterson, G.E. & H.L. Barney (1952) *Control methods used in a study of the vowels*. Journal of the Acoustical Society of America 32: 693-702.
- Pierrehumbert, J. (1994) *Knowledge of variation*. Chicago Linguistic Society 30: Papers from the parasession on variation and linguistic theory.

- Pike, K.L. (1943) *Phonetics*. Ann Arbor: University of Michigan Press.
- Pisoni, D.B. (1997) Some thoughts on 'normalization' in speech perception. In Johnson, K. & J.W. Mullennix (eds.) *Talker variability in speech processing*. San Diego: Academic Press, Inc., pp9-32.
- Pollock, K. & N. Keiser (1990) *An examination of vowel errors in phonologically disordered children*. *Clinical Linguistics & Phonetics* 4: 161-178.
- Popper, K.R. (1959) *The logic of scientific discovery*. London: Hutchinson.
- Potter, R.K. & J.C. Steinberg (1950) *Toward the specification of speech*. *Journal of the Acoustical Society of America* 22: 807-820.
- Pyles, T. & J. Algeo (1982) *The origins and development of the English language*, 3rd edn. New York: Harcourt Brace Jovanovich, Inc.
- Quirk, R. & C.L. Wrenn (1955) *An Old English grammar*. London: Methuen.
- Rakerd, B., R.R. Verbrugge & D.P. Shankweiler (1984) *Monitoring for vowels in isolation and in a consonantal context*. *Journal of the Acoustical Society of America* 76(1): 27-31.
- Rapp, M. (1836-41) *Versuch einer Physiologie der Sprache, I-II*. Stuttgart/Tübingen.
- Reid, I. (1978) *What you had to say about life in Britain today*. *Homes & Gardens* 9: 59.
- Reid, I. (1989) *Social class differences in Britain*, 3rd edn. London: Fontana Press.
- Rickford, J.R. (1986) *The need for new approaches to social class analysis in sociolinguistics*. *Language & Communication* 6(3): 215-221.
- Rietveld, T. & R. van Hout (1993) *Statistical techniques for the study of language and language behaviour*. Berlin: Mouton de Gruyter.
- Rigg, L.C. (1987) *A quantitative study of sociolinguistic patterns of variation in adult Tyneside speakers*. Unpublished BSc dissertation, University of Newcastle upon Tyne.
- Romaine, S. (1982) What is a speech community? In Romaine, S. (ed.) *Sociolinguistic variation in speech communities*. London: Edward Arnold, pp13-24.
- Romaine, S. (1989) The role of children in linguistic change. In Breivik, L.E. & E.H. Jahr (eds.) *Language change: contributions to the study of its causes*. Berlin: Mouton de Gruyter, pp199-226.
- Rosewarne, D. (1984) *Estuary English*. *Times Educational Supplement*, 19th October 1984.
- Rosner, B.S. & J.B. Pickering (1994) *Vowel perception and production*. Oxford: Oxford University Press.
- Rossi, M. (1996) *The evolution of phonetics: a fundamental and applied science*. *Speech Communication* 18(1): 96-102.
- Rydland, K. (1995) *The Orton corpus and Northumbrian phonology: the material from Bamburgh and Bellingham (Northumberland)*. *English Studies* 76(6): 547-586.

- Rydland, K. (1998) *Front rounded vowels in Northumbrian English*. Paper presented at the Harold Orton Centenary Conference, University of Leeds, March 1998.
- Samarin, W.J. (1971) Salient and substantive pidginization. In Hymes, D. (ed.) *Pidginization and creolization of languages*. Cambridge: Cambridge University Press, pp117-140.
- Samuels, M.L. (1972) *Linguistic evolution: with special reference to English*. Cambridge: Cambridge University Press.
- Sankoff, D. (1985) Statistics in linguistics. *Encyclopedia of statistical sciences*, vol. 5. New York: John Wiley & Sons.
- Sapir, E. (1929) *The status of linguistics as a science*. *Language* 5: 207-214.
- Schwartz, J.-L., L.-J. Boë, N. Vallée & C. Abry (1997) *Major trends in vowel system inventories*. *Journal of Phonetics* 25: 233-253.
- Sennett, R. & J. Cobb (1972) *The hidden injuries of class*. Cambridge: Cambridge University Press.
- Shaywitz, B.A., S.E. Shaywitz, K.R. Pugh, R.T. Constable, P. Skudlarski, R.K. Fulbright, R.A. Bronen, J.M. Fletcher, D.P. Shankweiler, L. Katz & J.C. Gore (1995) *Sex differences in the functional organization of the brain for language*. *Nature* 373: 607-609.
- Siegel, J. (1985) *Koines and koineization*. *Language in Society* 14: 357-378.
- Sievers, E. (1850) *Grundzüge der Phonetik: zur Einführung in das Studium der Lautlehre der indogermanischen Sprachen*. Leipzig: Breitkopf & Hartel.
- Sill, M. (1992) Irish population of Sandgate in the mid 19th century. In Barke, M. & R.J. Buswell (eds.) *Newcastle's changing map*. Newcastle upon Tyne: City Libraries & Arts, pp36-37.
- Small, M.F. (1994) *Ay up, a chimp wi' an accent*. *New Scientist* 142(1928): 33-37.
- Smith, D. (1994) *North and south: Britain's economic, social and political divide*, 2nd edn. London: Penguin.
- Spender, D. (1980) *Man made language*. London: Routledge & Kegan Paul.
- Springmann, C.F. (1827) *Six exercises on the letter R: arranged to obviate the difficulty of its articulation (peculiar to the natives of Newcastle and Northumberland)*. Newcastle upon Tyne.
- Stevens, K.N. (1983) Design features of speech sound systems. In MacNeilage, P.F. (ed.) *The production of speech*. New York: Springer-Verlag, Inc., pp247-261.
- Stevens, K.N. (1997) Articulatory-acoustic-auditory relationships. In Hardcastle, W.J. & J. Laver (eds.) *The handbook of phonetic sciences*. Oxford: Blackwell, pp462-506.
- Stevens, K.N., S.J. Keyser & H. Kawasaki (1986) Toward a phonetic and phonological theory of redundant features. In Perkell, J.S. & D.H. Klatt (eds.) *Invariance and variability in speech processes*. Hillsdale, NJ: Lawrence Erlbaum Associates, pp426-449.

- Stockwell, R.P. (1978) Perseverance in the English vowel shift. In Fisiak, J. (ed.) *Recent developments in historical phonology*. The Hague: Mouton, pp337-348.
- Stockwell, R.P. & D. Minkova (1988) The English vowel shift: problems of coherence and explanation. In Kastovsky, D. & G. Bauer (eds.) *Luick revisited*. Tübingen: Gunter Narr Verlag, pp355-394.
- Stockwell, R.P. & D. Minkova (1998) *Explanations of sound change: the intersection between dialect data and phonetic 'naturalness'*. Paper presented at the Harold Orton Centenary Conference, University of Leeds, March 1998.
- Strang, B. (1968) *The Tyneside Linguistic Survey*. Zeitschrift für Mundartforschung, 788-794.
- Strange, W., T.R. Edman & J.J. Jenkins (1979) *Acoustic and phonological factors in vowel identification*. Journal of Experimental Psychology: Human Perception & Performance 5(4): 643-656.
- Strange, W., J.J. Jenkins & T. Johnson (1983) *Dynamic specification of coarticulated vowels*. Journal of the Acoustical Society of America 74: 695-705.
- Strange, W., R.R. Verbrugge, D.P. Shankweiler & T.R. Edman (1976) *Consonantal environment specifies vowel identity*. Journal of the Acoustical Society of America 60: 213-224.
- Syrdal, A.K. & H.S. Gopal (1986) *A perceptual model of vowel recognition based on the auditory representation of American English vowels*. Journal of the Acoustical Society of America 79: 1086-1100.
- Thelander, M. (1980) *De-dialectalisation in Sweden*. Uppsala: Avdelningen för Forskning och Utbildning i Modern Svenska, University of Uppsala, Rapport 86.
- Thomason, S.G. & T. Kaufman (1988) *Language contact, creolization, and genetic linguistics*. Berkeley: University of California Press.
- Todd, G. (1987) *Todd's Geordie words and phrases: an aid to communication in Tyneside and thereabouts*. Rothbury, Northumberland: Butler Press.
- Torgersen, E.N. (1997) *Some phonological innovations in southeastern British English*. Unpublished CandPhilol thesis, University of Bergen.
- Tranel, B. (1994) *French liaison and elision revisited: a unified account within optimality theory*. University of California at Irvine: ms.
- Trudgill, P. (1972) *Sex, covert prestige and linguistic change in the urban British English of Norwich*. Language in Society 1: 179-196.
- Trudgill, P. (1974) *The social differentiation of English in Norwich*. Cambridge: Cambridge University Press.
- Trudgill, P. (1981) Linguistic accommodation: sociolinguistic observations on a sociopsychological theory. In Masek, C.S., R.A. Hendrick & M.F. Miller (eds.) *Papers from the parasession on language and behaviour*. Chicago: Chicago Linguistic Society, pp218-238.

Trudgill, P. (1986) *Dialects in contact*. Oxford: Blackwell.

Trudgill, P. (1988) On the role of dialect contact and interdialect in linguistic change. In Fisiak, J. (ed.) *Historical dialectology: regional and social*. Berlin: Mouton de Gruyter, pp547-563.

Trudgill, P. (1989) Contact and isolation in linguistic change. In Breivik, L.E. & E.H. Jahr (eds.) *Language change: contributions to the study of its causes*. Berlin: Mouton de Gruyter, pp227-237.

Trudgill, P. (1992) Norwich revisited: recent linguistic changes in an English urban dialect. In Pütz, M. (ed.) *Thirty years of linguistic evolution: studies in honor of René Dirven*. Philadelphia: John Benjamins, pp361-377.

Trudgill, P. (1996) Two hundred years of dedialectalisation: the East Anglian short vowel system. In Thelander, M., L. Elmevik, B.-L. Gunnarsson & B. Melander (eds.) *Samspel och variation: språkliga studier tillägnade Bengt Nordberg på 60-årsdagen*. Uppsala: Institutionen för nordiska språk, Uppsala Universitet, pp 469-478.

Trudgill, P. & T. Foxcroft (1978) On the sociolinguistics of vocalic mergers: transfer and approximation in East Anglia. In Trudgill, P. (ed.) *Sociolinguistic patterns in British English*. London: Edward Arnold, pp69-79.

Veatch, T.C. (1991) *English vowels: their surface phonology and phonetic implementation in vernacular dialects*. Unpublished doctoral thesis, University of Pennsylvania.

Viereck, W. (1965) *Specimen passages of the speech of Gateshead-on-Tyne*. *Le maître phonétique* 123: 6-7.

Viereck, W. (1966) *Phonematische Analyse des Dialekts von Gateshead-upon-Tyne/Co. Durham*. Hamburg: Cram, de Gruyter & Co.

Viereck, W. (1968) *A diachronic-structural analysis of a northern English urban dialect*. *Leeds Studies in English*, pp65-79.

Viergge, W.H. (1987) Basic aspects of phonetic segmental transcription. In Almeida, A. & A. Braun (eds.) *Probleme der phonetischen Transkription*. *Zeitschrift für Dialektologie und Linguistik Beihefte* 54. Stuttgart: Franz Steiner Verlag Wiesbaden GmbH, pp5-48.

Viz 88 (ed. Chris Donald). Newcastle upon Tyne: John Brown Publishing Ltd.

Wakelin, M.F. (1972) *English dialects: an introduction*. London: Athlone Press.

Walley, A.C. & T.D. Carrell (1983) *Onset spectra and formant transitions in the adult's and child's perception of place of articulation in stop consonants*. *Journal of the Acoustical Society of America* 73: 1011-1022.

Walsh, J. (1997) *New island in the sun*. *Time*, 27th October 1997.

Wang, W. S.-Y. (1968) *Vowel features, paired variables, and the English vowel shift*. *Language* 44(4): 695-708.

- Wang, W.S.-Y. & C.C. Cheng (1970) *Implementation of phonological change: the Shûang fêng case*. Chicago Linguistic Society 6: 552-557.
- Warren, R.M. (1970) *Perceptual restoration of missing speech sounds*. Science 167: 392-393.
- Warren, R.M. (1983) Multiple meanings of 'phoneme' (articulatory, acoustic, perceptual, graphemic) and their confusions. In Lass, N.J. (ed.) *Speech and language: advances in basic research and practice, vol. 9*. London: Academic Press, pp285-311.
- Watson, C.I., M. Maclagan & J. Harrington (1998) *Acoustic evidence for vowel change in New Zealand English*. Poster presented at LabPhon 6, University of York, July 1998.
- Watt, D.J.L. (1996) *Out of the frying pan into the fire: remerger of Tyneside (ɜ)?* Newcastle & Durham Working Papers in Linguistics 4: 299-314.
- Watt, D.J.L. & L. Milroy (forthcoming) Patterns of variation and change in three Tyneside vowels: is this dialect levelling? To appear in Foulkes, P. & G.J. Docherty (eds.) *Urban voices*. London: Arnold.
- Weinreich, U. (1954) *Is structural dialectology possible?* Word 10: 388-400.
- Weinreich, U., W. Labov & M. Herzog (1968) Empirical foundations for a theory of language change. In Lehmann, W. & Y. Malkiel (eds.) *Directions for historical linguistics*. Austin: University of Texas Press, pp95-189.
- Wells, J.C. (1962) *A study of the formants of the pure vowels of British English*. Unpublished MA thesis, University College London.
- Wells, J.C. (1982) *Accents of English (3 vols.)*. Cambridge: Cambridge University Press.
- Wells, J.C. (1994) The cockneyfication of RP? In Melchers, G. & N.-L. Johanneson (eds.) *Nonstandard varieties of language*. Acta Universitatis Stockholmiensis. Stockholm: Almqvist & Wiksell, pp198-205.
- Whalen, D.H. & S.M. Sheffert (1997) Normalization of vowels by breath sounds. In Johnson, K. & J.W. Mullennix (eds.) *Talker variability in speech processing*. San Diego: Academic Press, Inc., pp133-144.
- Williams, A. & P.E. Kerswill (forthcoming) Dialect levelling: continuity vs. change in Milton Keynes, Reading and Hull. To appear in Foulkes, P. & G.J. Docherty (eds.) *Urban voices*. London: Arnold.
- Wodak, R. & G. Benke (1997) Gender as a sociolinguistic variable: new perspectives on variation studies. In Coulmas, F. (ed.) *The handbook of sociolinguistics*. Oxford: Blackwell, pp127-150.
- Wolfe, P.M. (1972) *Linguistic change and the great vowel shift in English*. Berkeley: University of California Press.
- Wolfram, W. (1991) *Dialects and American English*. Washington DC: Center for Applied Linguistics.

Wright, J. (1898-1905) *The English dialect dictionary: being the complete vocabulary of all dialect words still in use, or known to have been in use during the last two hundred years*. London: Frowde.

Wynne-Jones, R. (1997) *Posh Prof tells young Tone to learn to speak proper*. Independent on Sunday, 19th October 1997.

Yaeger-Dror, M. (1996) Phonetic evidence for the evolution of lexical classes: the case of a Montreal French vowel shift. In Guy, G., C. Feagin, D. Schiffrin & J. Baugh (eds.) *Towards a social science of language: papers in honor of William Labov, vol I: Variation and change in language and society*. Amsterdam: John Benjamins, pp263-287.

Zimmerman, D. & C. West (1975) Sex roles, interruptions and silences in conversation. In Thorne, B. & N. Henley (eds.) *Language and sex: difference and dominance*. Rowley, Ma.: Newbury House, pp105-129.

Zuydam, A. (1987) *A quantitative analysis of phonological variables in the speech of Newcastle adults*. Unpublished BSc dissertation, University of Newcastle.