Sociophonetic Variation, Orientation and Topic in County Durham

Thomas Patrick Devlin

PhD

University of York

Language and Linguistic Science

September 2014

Abstract

This thesis presents a sociophonetic study of four villages in County Durham which have not previously been explored in sociolinguistic literature. As well as examining socially-conditioned phonological variation across the villages, the study analyses the linguistic relationship between the research site and two larger localities with their own urban varieties of English, which are situated at either side of the research area: the city of Sunderland to the north and the Teesside conurbation to the south. The study examines phonological variability in the linguistic production of a socially-homogeneous group of thirty-two speakers, split equally across the four villages and stratified by emically-defined age groups. More than 6500 tokens of the MOUTH, FACE, GOAT and START variables (following Wells' 1982 method of classifying sets of vowels) are analysed from recorded sociolinguistic interviews with informants. The findings are compared to previous sociolinguistic investigations of other varieties of North East English in terms of the levelling of variants local to the area. The established methodological comparison of read speech and conversational styles is complemented by detailed investigation of the conversational topic in which the production occurs, and its effect on phonological variation.

An Identity Questionnaire (pioneered by Llamas 2001) explores identity construction in County Durham and how this is shaped by local speech patterns. This is achieved by surveying speakers' individual attitudes and perceptions about their local area and accents. The correlation of this language ideology data and speakers' actual linguistic performance allows the study to assess the role orientation plays in variant usage.

While some variables (GOAT and MOUTH) demonstrate change in the direction of levelled variants, highly local forms are favoured in individual villages in terms of the FACE and START vowels which only pattern with geographical areas below the regional level (younger speakers close to Teesside overwhelmingly use the local START form found in Teesside; younger speakers further north retain the local FACE variant found in Tyneside and Sunderland). However, speakers across all locations produce a higher proportion of local variants in the highly local conversational topic of coal mining.

Contents

List of figures

List of tables

Acknowledgements

Author's Declaration

I declare that the content of this thesis is my own work and has not been submitted for examination at this or any other institution for another award. I have acknowledged any content drawn from other sources through the use of quotations (where appropriate) and bibliographic referencing.

Parts of the thesis have been presented elsewhere during the course of the period of study:

Devlin, T. 2013. 'Identity vs. exposure in topic shift: Variation and topic in East Durham', paper presented at *Postgraduate Research Panel with Labov & Sankoff,* University of York

Devlin, T. 2012. 'The effect of topic on variation in Co Durham', paper presented at *Manchester and Salford New Researchers Forum in Linguistics*, University of Manchester

Devlin, T. 2012. 'Topic and frequency effects in the Co Durham MOUTH vowel', paper presented at *Regional Varieties, Language Shift and Linguistic Identities*, Aston University

Devlin, T. 2012. 'Topic variation in the MOUTH vowel in County Durham mining language', poster presented at *Community Histories, Social Change and Dialect Variation*, University of Sheffield

Devlin, T. 2012. 'Variation and topic in County Durham English', poster presented at *Northern Englishes Workshop 5*, Nottingham Trent University

Devlin, T. 2011. 'Sociophonetic orientation across boundaries in the North East English', poster presented at *Breaking Boundaries in Postgraduate Frontiers and Borders Research*, University of Durham

Devlin, T., French, P. & Llamas, C. 2013. 'The effect of conversational topic on variation in Co Durham English', paper presented at *UK Language Variation and Change 9*, University of Sheffield

Llamas, C. 2014. 'Loss of tradition in the North East of England', invited talk presented at *The International Conference on Northern British English*, University of Rouen

1. Introduction

This thesis reports on an empirical study of male speech patterns in the eastern district of County Durham in North East England. The region is heavily represented in sociolinguistic literature, but a skew towards the major settlements of Durham City (Kerswill 1984, 1987, 2003), Middlesbrough (Llamas 2001, 2006, 2007, 2014, Snell 2010, 2013), Newcastle upon Tyne (Docherty, Foulkes, Milroy, Milroy & Walshaw 1997, Docherty & Foulkes 1999, Foulkes & Docherty 2000, Watt & Milroy 1999, Watt 2000, 2002) and Sunderland (Burbano Elizondo 2006, 2008), leaves smaller areas on the outskirts of the main conurbations under-researched. This trend for sampling large settlements is not uncommon and is mirrored across global sociolinguistic study (see Labov 1966 in New York, Sankoff & Cedergren 1971 in Montreal, Trudgill 1974a in Norwich, Milroy & Milroy 1978 in Belfast, Watson 2007 in Liverpool, Lawson 2011 in Glasgow). Despite this, in recent years there has been some renewed interest in smaller locations, with striking patterns of variation and change found in geographically isolated villages in The Fens in Eastern England (Britain 1991, 2005) and in communities which straddle the border between Scotland and England (Llamas et al 2009, Llamas 2010, Watt, Llamas & Johnson 2010, 2013, Docherty, Watt, Llamas, Hall & Nycz 2011, Docherty, Hall, Llamas, Nycz & Watt 2014). The area of inquiry in this study differs from both of these sites in that they represent villages which up until relatively recently maintained a relatively comfortable degree of self-sufficiency, but which, due to the decline of traditional industry and socio-political change, have suffered economic decline and a re-evaluation of their raison d'être in terms of their location on the outskirts of larger localities (including a shift in focus towards commuting to access economic and cultural opportunities – in line with many similar localities across the UK; Britain 2012: 19-20); unlike the communities sampled by Docherty, Llamas, Watt and their colleagues which lie either side of a linguistic and geographical boundary, the villages in this study offer the opportunity to explore the competing influence of two urban hubs, between which the research site of this study is situated.

The aim of this research is to describe and explain the distribution of regional realisations of four vowel variables – FACE, GOAT, MOUTH and START in Wells' (1982) lexical sets – which appear to be undergoing change in the local area. The study investigates variation across

geographic space in one of these hitherto ignored corners of the region, in order to ascertain the extent of diffusion of certain current vernacular changes in the North East and in British English more widely. Furthermore, while patterns of phonological variation and change in the main towns and cities of the North East are well-attested, research has uncovered an array of distinctive and traditional features particular to very highly localised areas in the region; while a diphthong with a raised nucleus [ɛʊ] has been described as a 'shibboleth' of Sunderland English for the MOUTH vowel (Beal 2000: 353), it is not noted in studies of Middlesbrough, just thirty miles (fifty kilometres) south (Beal, Burbano-Elizondo & Llamas 2012: 35). This study explores a coastal district made up of four villages which lie in the area between these two locations, and therefore examines two vocalic variables – MOUTH and START – where a local variant exists in one of the two conurbations which book-end these localities. It aims to examine the extent of the spread of highly local forms from their areas of highest concentration to areas where they are not part of the local vernacular. The use of four contiguous locations ensures that the frequency of use can be measured in terms of a gradient, step-by-step shift. Previous work on geographic variation will be explored in Chapter 2.

Given that the community was also a site of heavy industry for many years, it also provides an excellent opportunity to explore the influence of traditional lifestyles and occupations on variant usage and how this has changed during a time of great social change. Particularly as the localities are situated close to so many centres where highly local pronunciations have been found in previous literature, this study will explore the retention and maintenance of traditional or relic phonetic forms of two further vowel variables – FACE and GOAT – which have been subject to widespread erosion of marked features through processes like dialect levelling across British English varieties (Williams and Kerswill 1999, Kerswill 2003) including in the nearby region (Watt & Milroy 1999). In order to fulfil this objective, a specific methodology will be laid out to ensure that phonetic data collected will be categorised according to deliberately chosen topics of conversation which elicit highly local and non-local conversational matter. More details about the interview instrument designed and other methodological implications are provided in Chapter 3.

It is therefore possible to outline how the thesis aims to provide a novel contribution to the literature on linguistic variation and change, by addressing two theoretical issues:

1) To examine the role of small, sub-urban localities, which are situated roughly contiguously in between larger dialect areas, in terms of the spread of linguistic change and the orientations of speakers resident there to the larger urban centres of gravity.

2) To evaluate the role of conversational topic as an explanatory framework for linguistic variation, and specifically to explore the effect of traditional ways of life and industrial change on linguistic production through the discussion of locally resonant subject matter.

The study operates within the Labovian variationist paradigm, reinforced by two crucial tenets of sociolinguistic methodology. The first quantifies variant use with the social factors of speaker age and location and the second uses qualitative data formed of speakers' perceptions and attitudes to examine the role of identity in variation and change. The research follows an experimental model in which the researcher creates research questions about the project outcomes and then designs a study capable of addressing these hypotheses. The researcher oversees data collection and enlists native speakers of the variety examined to discuss their attitudes towards and perceptions of their local accent and dialect (Milroy 1987b: 5).

Older adult speech is compared and contrasted with younger adult speech in order to measure variation and change in speech patterns, according to social and linguistic factors, mechanisms and motivations. Over the past forty years or so, studies of varieties in the United Kingdom have uncovered significant patterns of phonological variation and change whereby variants with a particularly restricted distribution in terms of social groups or geographical areas are largely being eroded in favour of forms with a wider social or geographical catchment during a process of dialect levelling (Cheshire, Edwards & Whittle 1989, Williams & Kerswill 1999, Watt & Milroy 1999) through dialect contact (Britain 1997, Sudbury 2000, Britain & Simpson 2007). In light of changing patterns of social and

geographical mobility across the country (see Britain 2011 for a recent overview), these findings are frequently interpreted as evidence of increased broad scale homogenisation of the accents of British English (Trudgill 1999, 2002a: 179, Foulkes & Docherty 2001), but equally the establishment of 'regional standards' (see Wolfram 1991, Watt 2002) suggests instead that accents may be converging on a more restricted geographic scale (Watt & Milroy 1999, Torgersen & Kerswill 2001, Foulkes & Docherty 2007, Maguire 2007, Maguire, McMahon, Heggarty & Dediu 2010).

Vowel quality is analysed using an established sociophonetic methodology comprising auditory classification of discrete variables supported by acoustic measurements of vowel formants.

1.1 Research Objectives

As a hitherto unrepresented area in the sociolinguistic literature, this thesis is concerned with recording and explaining linguistic variation and change in East Durham. The location of this district between two different dialect areas provides an ideal opportunity to explore the competing influences of features associated with different linguistic centres of gravity in terms of preservation of local forms and geographical diffusion of innovative variants.

This study aims to address the following six research issues.

1. *Account for the change in East Durham English in apparent time, by contrasting the present-day speech patterns of younger adults with older adults*

Exploring the production trends of generationally-differentiated cohorts of speakers provide a tried-and-tested way of observing apparent time change in a variety. The MOUTH, FACE, GOAT and START vowel variables are particularly sensitive to change in this variety according to both the existing sociolinguistic literature on the local area and the researcher's impressionistic judgement, and are therefore deemed to be suitable pointers of sound change. Furthermore, the FACE and GOAT sets are particularly well-documented in the literature on sound change both in the area local to the study site (see for example Watt & Milroy 1999, Watt 2000, 2002) and also on a national scale (Wells 1982, Tollfree 1999, Kerswill 2003, Kerswill & Williams 2005), affording the present study relevance and comparability in terms of the state

of language change in the United Kingdom more widely. Both the MOUTH and START vowels are variables for which a highly localised variant exists which is associated with one of the different dialect areas either side of East Durham. These variables therefore permit a valuable opportunity to explore the level of variant retention or levelling in terms of speakers' orientations and attitudes to the two competing local urban centres of gravity. The processes by which variation and change are occurring can be explored in terms of existing literature on dialect levelling.

2. *The degree to which local forms of pronunciation are conserved and geographically expansive variants are embraced in East Durham speech*

As will be discussed in greater detail in the individual variable chapters (Sections 4-7), the literature shows that there are local variants of all four variables, each recorded in or associated with different areas of North East England. The FACE and GOAT vowels are traditionally produced as centring diphthongs in many areas of the North East (Watt & Milroy 1999, Beal 2008), the MOUTH diphthong in Sunderland English is associated with a more raised nucleus than elsewhere in the region (Beal 2000), and Teesside pronunciations of the START vowel are generally fronter than in areas further north (Beal, Burbano-Elizondo & Llamas 2012: 36). Despite the presence of these highly localised forms, levelling has been shown to occur in at least the MOUTH (Williams & Kerswill 1999; Kerswill 2002a, 2003) and FACE and GOAT sets (Watt 2002) in favour of regional or national standard variants in other varieties of English. The presence of local variants and more standard forms provides an interesting mix to examine in terms of variant distribution.

3. *Situate the findings of the East Durham study in the context of other varieties in the North East England region*

Dialectological accounts of nearby locations sampled by Ellis (1889) and the Survey of English Dialects (Orton & Dieth 1962-1971) provide historic points of reference against which the current findings can be compared. As well as folk-linguistic work on local and traditional dialects in the North East of England (Griffiths 2007; Pearce 2009), there is also a wealth of fairly recent variationist literature on the varieties spoken in Sunderland (Burbano-Elizondo 2003, 2006, 2008), Durham City (Kerswill 1984, 1987, 2002, 2003), Teesside (Llamas 2001,

2006, 2007, 2014, Snell 2010, 2013), and the south-west Durham towns of Darlington (Atkinson 2011) and Newton Aycliffe (West 2009) which may be compared to the findings of this research in order that the scale of diffusion and levelling in North Eastern Englishes may be explored.

4. *Examine the findings in relation to theories and processes of linguistic variation and change such as levelling*

The East Durham results may support or contradict contemporary accounts of British English varieties which suggest that the process of dialect levelling sits at the vanguard of change in progress (Kerswill 2003, Britain 2010). It has been shown that variants of different variables may be retained, levelled or diffused within the same speech community at the same time, though this was not demonstrated in terms of vowel variables (Richards 2008).

5. *Detect the linguistic and social factors which condition variant use in East Durham*

The focus of this study is on linguistic variation across space and linguistic change over time. Thus the geographical origins and age of a speaker are of great interest as social factors exerting an influence on the realisations produced for each of the four linguistic variables. The analysis will also examine the effect of linguistic internal constraints relative to the social factors.

6. *Investigate the framework of conversational topics highly local to East Durham as a constraint on the retention of variants highly local to East Durham*

Phonetic style shifts towards local forms have previously been shown to be caused by discussion of local topics (Blom & Gumperz 1972) including neighbourhoods (Becker 2009, 2010) and pastimes (Love & Walker 2012). However, no study has evaluated the effect of speech patterns associated with a particular occupation in terms of conversational topic. East Durham provides an excellent research site for the investigation of the influence of traditional industries on speech patterns as it developed as an urbanised, populated area due to the growth of the coal mining sector (Allan 2000: 105, Alexander 2009: 33-34, Fleming 2005, McNee & Angus 1985, Wilkinson & McCay 1998). The subsequent domination of this industry over the local population has been shown to manifest itself in terms of speech,

including the establishment of a Durham miners' language – 'pitmatic' (Wales 2006: 124-6, Griffiths 2007, and see also Pearce 2009: 176 on the influence of coal mining on County Durham dialects). Given the credentials of the geographical area surveyed and an interview methodology which is designed to split speakers' linguistic production into different conversational topic strands (outlined in more detail in Section 3.4), East Durham and its speakers can test whether locally-focused conversational topics like coal mining constrain localised phonetic variants.

With these objectives in mind, the thesis is structured as follows:

Chapter 2 provides a comprehensive review of the literature on phonological variation and change. It offers a history of approaches to studying linguistic variation over geographical space, and processes of sound change, both linguistic-internal and external factors including contact with other speakers. These strands are then tied together in exploring the role of variation and change in the levelling of linguistic features across age groups and geographic territory. The role of individual speaker identity in sound change is also evaluated in relation to groups, communities and place.

Chapter 3 explains the methodology of the study, including the reasons for investigating the speech communities of County Durham, how the data were collected, and the means for evaluating the results in terms of auditory, acoustic and statistical analyses.

Each of Chapters 4 to 7 is given over to analysis of one of the vowel variables examined by the research. These sections cover in detail previous sociolinguistic and dialectological accounts of the linguistic features in the geographical area surrounding the research site in terms of relevant theories and frameworks, before addressing variant usage in the present data according to significant social and linguistic factors. For brevity and convenience, Wells' (1982) lexical keywords are used to refer to each variable considered. The MOUTH vowel is presented in Chapter 4, with the FACE set analysed in Chapter 5. GOAT is discussed in Chapter 6, before finally START is investigated in Chapter 7.

Chapter 8 examines the collective results for all four variables in terms of shared trends and discusses the implications of the findings in terms of sociolinguistic theory. Lastly, Chapter 9

considers the fulfilment of the research aims outlined in Chapter 1, reviews the suitability of the study methodology and its further contribution to the field of sociolinguistics, and proposes potential further work to conclude the research.

2. Literature Review

2.1 Overview

Usage of particular variants may increase and decline, sometimes in the face of competition from other forms, leading linguistic variation to develop into linguistic change (Weinreich, Labov & Herzog 1968), though it is worth pointing out that 'it is not necessarily the case that all variation leads to change' (Guy 2003: 371). Variant usage may correlate with social factors or phonetic constraints (Foulkes 2006, Docherty 2007), permitting an examination of the intra- and extra-linguistic contexts in which variants are shown to be either stable or changing. In terms of phonetic variants, variationist approaches submit these phenomena to theoretical and analytical frameworks from both sociolinguistics and phonetics in order to explain the trends (Foulkes 2005, Thomas 2011).

Given the range of factors exerting influence on linguistic behaviour, judicious discrimination is required to establish the focus of investigation. A language varies with the passing of time and according to the geographical location of its speakers. Consequently, two of the main dimensions of variation are the temporal, historical dimension and the spatial, geographical dimension (Berruto 2010: 226-227). Time and space are extra-linguistic macrofactors, and their impact on linguistic structures has been at the cornerstone of even the earliest theories of language in society (see, for example, chapters 3.4-3.8 of Bloomfield 1933). As this study examines the effect of time and geographic space, this review makes reference to literature concerning these factors and their effect on linguistic production. The review begins in Section 2.2 with an examination of variation over geo-linguistic space, and the different approaches to measuring this historically. Time as a sociolinguistic variable is then outlined in terms of synchronic approaches to change and the role of certain age cohorts in furthering change in Section 2.3. Section 2.4 details various processes of change influencing speaker variant usage resulting from external factors caused principally by contact with other speakers. Section 2.5 explores what is already known about the role of conversational topic as an explanatory framework in conditioning phonetic variation, and Communities of Practice are evaluated in light of mining communities and customs, such as those found in East Durham, in Section 2.6. Finally, Section 2.7 describes the role speakers play in sound change

and evaluates the role of identity in language variation and change with reference to groups, communities and place.

2.2 Examining variation

Variation in English pronunciation occurs on many geographic and territorial levels and according to the geographic movements of speakers in these areas. This study aims to explore fine-grained geographic variation across an area which measures roughly fifteen miles. Previous research has shown differences between different countries, for example England and the United States of America (Wells 1982, Burridge & Kortmann 2008, Mesthrie 2008, Schneider 2008), between territories within political unions like the member states of the United Kingdom (Wells 1982, Foulkes & Docherty 2007, Upton 2008), within administrative and perceptual regions, such the North of England (Wells 1982, Beal 2008), among speakers from different districts or neighbourhoods of the same locality (Trudgill 1974b, chapters of Foulkes & Docherty 1999a), among speaker groups within a wider speech community (Milroy & Milroy 1985, 1992, Eckert 2000, Watts 2006) and even in the speech of (typically high profile) single speakers, like the Queen of England (Harrington, Palethorpe & Weston 2000, Harrington 2006) a Danish celebrity (Pharao 2007) and a Yiddish folk singer (Prince 1987), all of whom might experience contact with speakers from a variety of geographical origins in their day-to-day life and work. Each example is measured on a different scale of geographic space and, in any study of variation, it is necessary to establish the role which space plays in conditioning linguistic behaviour.

2.2.1 Variation across space

As Giddens (1984: 368) puts it, space is 'not an empty dimension along which social groupings become structured, but has to be considered in terms of its involvement in the construction of systems of interaction'. Geo-linguistic space is a relatively under-researched social category in the field of language variation and change (Britain 2013: 471). When discussed in studies of human geography or sociolinguistics, space generally refers to spatiality, which is the construction of place out of space by human society (Johnstone 2010: 8) and combines the physical, social and perceptual aspects of space:

- Euclidean (physical) space is objective and geometric, and not in itself social, but is made social through its appropriation by humans.
- Social space is shaped by humans and social organisation, but is not free of the physics of distance found in Euclidean space.
- Perceptual space is the perception of the environment by the society, as constructed by everyday practice. This is affected by both social and physical space

(Britain 2013: 472)

This combined focus of this study on linguistic variation across geographic territory as well as speakers' orientations and attitudes means that all three types of space will play a role in the investigation of variant usage. These concepts derive from human geography, and the inquiry of geographic space – and its effect on humans and their patterns of interaction – runs broadly in parallel across sociolinguistics and human geography, with differing levels of interdependence between the three types of space mentioned above at different times. As an example, in work in the East of England, which will be revisited throughout this chapter, Britain (2000) shows the city of Peterborough to be more greatly impacted by linguistic changes originating from London than the Fens, despite a similar Euclidean distance between both locations and London. This is due not only to geographical distance but also to limited contact between Fens and Peterborough residents caused by poor transport links and negative attitudes of each other. Britain uses this case to exemplify his point that both social space and perceived space impact upon linguistic behaviour and variant usage, as well as Euclidean space. As this study is exploring communities situated between two larger geographic areas, participants' ability to physically access these areas, the routinized behaviour in which they engage in relation to these areas and their attitudes towards each area may have an impact on their linguistic production. In examining how sociolinguistics arrived at this tri-pronged conception of space, the development of spatiality is charted in the following section.

2.2.2 The theoretical development of spatiality in sociolinguistics

In the period prior to the 1960s, the fields of both human geography and linguistics shared a focus on regions (however defined), but equally both disciplines failed to engage with the

social effects of space and viewed it as a purely cartographic entity which could not incorporate aspects of social theory (Britain 2013: 473). Human geography paid particular attention to describing distinctions across individual areas, as opposed to explanations based on spatial processes (Massey 1984: 2). This approach was mirrored in traditional dialectology, which was concerned with forming a response to the neogrammarian view of regular exceptionless sound change (that is, a totally phonetically conditioned process grounded in the mechanism of speech production; see, for example, Ostoff & Brugmann 1878), and did so by determining variation within clusters of locations which formed part of larger dialect regions, but without making any claims in terms of social or spatial theory (Britain 2013: 475).

The advent of the quantitative paradigm in the 1960s failed to reconcile the division in the field of human geography between spatiality and social theory, and a variety of spatial factors such as distance (see Massey 1984: 5 on the loss of the 'richness' of space in pursuit of purely quantifiable distance) were employed to explain spatial laws, processes and relationships. These included the 'gravity model' of interaction between two places (a calculation which evaluates and predicts patterns of human movement across space and spatial interaction which results from it; see Rodrigue, Comtois & Slack 2009). While sociolinguistics largely ignored spatiality, it concentrated instead on correlating social relations with social structures or linguistic variables (see Labov 1966). This search for linguistic heterogeneity coincided with the shift in focus away from rural communities and instead towards the social, cultural melting pots of large cities (e.g. Sankoff & Cedergren 1971 in Montreal, Trudgill 1974a in Norwich), a move which has been argued to misleadingly imply that rural communities are not capable of showing social embedding of linguistic change (Britain 2013: 476). Spatial contributions to language change therefore remained the preserve of dialect geographers, which Labov (1982: 42) considered to be separate from the social and temporal inquiry of heterogeneity employed by sociolinguists. This schism between spatial dialect geography and sociolinguistics suggests that the diversity found in society was not considered in studies exploring space. It also implies that spatial factors have had no effect on the communities studied or on their evolution over time (Britain 2013: 476).

In spite of the division of space and society, quantitative human geography models began to be applied to dialect geography studies (Trudgill 1974b, Hernández Campoy 1999, 2000a, 2000b); particularly influential was the work of Hagerstrand ([1953], 1967), a pioneer of Location Theory (which spawned, amongst other things, the aforementioned 'gravity model' employed by Trudgill (1974b) to explain spatial diffusion of innovations; see further Section 4.2.5, below). Location Theory explores the modelling and replication of processes of variation across space. It assumes that face-to-face interaction becomes less frequent with increasing physical distance, so that innovation adoption is more likely at a location geographically near a site which has already adopted the innovation (Yapa 1996: 238). Diffusion can thus be influenced by economic differences (which may prohibit or lessen the opportunity for face-to-face communication), or network strength and population density (more tightly-knit, dense populations might amplify diffusion) (Johnstone 2010: 6). However, it has been noted that Location Theory – and specifically the gravity model – depends too much on geometric space and ignores social structure at the individual level, in terms of the uniqueness of human conditioning, behaviour and culture (Johnston 2003: 62). It wrongly presumes that in each society which has contact with an innovation, individual members of that society are all as likely as each other to adopt it (Gregory 1985), which social network theory has since emphatically shown not to be the case in terms of both geographic and socioeconomic mobility (Milroy & Milroy 1985, L Milroy 1987a, J Milroy 1992 and see further Section 2.6.1, below). In order to more accurately measure the effect of distance on innovation diffusion, gravity models need to relate the distance between two geometric points to other physical and social factors. For example, the presence or absence of mountains, rivers, transport networks, or employment and leisure opportunities in the space between two locations can affect speakers' and hearers' perceptions of distance and condition or restrict face-to-face interaction and the ability for linguistic forms to travel and be transmitted through face-to-face communication (Britain 2013: 478).

Such criticisms of quantitative frameworks have fed in to a wider questioning of quantitative analyses from the late 1960s onwards (Johnstone 2010: 7). Prominent in the UK from the late 1970s onwards, Marxist cultural studies have interested human geographers as a way to redress the asocial approach to spatiality hitherto offered by quantitative techniques

(Jackson 1980, Cosgrove 1983). The focus of the approach is on how the social process through which human spaces are created and maintained is shaped by economic relations. As this study explores the effect of the coal mining industry on linguistic production and identity, it is useful to consider how Urry (1985) links social structure and spatial relations through the local economic and political system of Nineteenth Century English capitalism. Contemporary interest in natural resources created numerous mining towns in areas of England near to coal. Labourers moving to the towns in search of work were soon in need of cheap accommodation close to the pits, leading to row houses which engendered new social relations between working class people, including potentially denser, more multiplex social networks than the workers had previously experienced. However, critics have noted that this approach relies on a static social structure where economic relations between classes remain unchanged (Johnstone 2010: 7). Furthermore, experience of participation in these social structures is subjective (Chouinard 1996: 389-390) and the processes that create socio-spatial relations are instigated by individuals, giving the individual agency to perpetuate the social structure through routinization (see Giddens 1984 on Structuration Theory).

Giddens (1984: 376) explains routinization as 'the habitual taken-for-granted character of the vast bulk of activities of day-to-day social life, the prevalence of familiar styles and forms of conduct'. Further, Giddens (1984: 64) claims that 'the routinized character of…daily life does not just 'happen'. It is made to happen by the reflexive monitoring of action which individuals sustain in circumstances of co-presence'. In this way, routinization preserves social systems and enforces norms, and the geographical aspect of routines can help to demonstrate the role spatiality plays in constructing functional zones and Communities of Practice (see Meyerhoff 2002, and Section 2.6). For example, Britain (1991) shows that a linguistic boundary ([ɛː ~ ɛʊ] variation in /au/ realisations) has emerged between two physical places, Wisbech and King's Lynn, in the Fens in Eastern England. This is partly due to distance between the two locations, both Euclidean (14 miles) and physical-perceptual (as a number of obstacles such as the presence of Fenland marshes and rivers in the space between the two locations augment speakers' sense of separation). Due to these spatial conditions, the residents in areas in between Wisbech and King's Lynn have formulated their own routinized geographies of everyday interactions and behaviours; those to the west of

26

the linguistic boundary orient to Wisbech and those to east go to King's Lynn, and this orientation is recreated in public transport provision to the two towns from these smaller intermediate areas (Britain 1991: 134). It can thus be seen that a combination of physical, social and perceptual spatial factors has reinforced the linguistic boundary for this variable. Where travel is much less restricted, mobility, as seen in the modern trend for migration, commuting and suburbanization among other processes, affects space and has consequences for language variation (Britain 2013: 484). Intra-regional mobility impinges on Giddens' (1984) model of social routines, rupturing local ties and forming new links on a wider geographical scale. The resultant opportunities for contact between dialects have the potential to reinforce supralocal functional zones, which Britain (2010: 152) argues are now more expansive than ever before. Due to social change and industrial and economic decline, the change over time in everyday routines and mobility of speakers in the community studied in this research will also have an impact on their ability to access face-to-face contact with speakers of different varieties and thus affect their linguistic production and perception. The topics of mobility and dialect contact will be further explored in Section 2.5.4, following a discussion of time as a sociolinguistic variable and its effect on linguistic change.

2.3 Time as a sociolinguistic variable

From the very start of variationist research (Labov 1963, 1966), the study of linguistic change has been at the core of sociolinguistics and historical linguistics. Such methods have managed to pinpoint and investigate active changes in progress (Labov 1994: 43-5), and shed light on the roles that many social factors play in making language change (Kerswill 2007: 51). One way of trying to determine whether a pattern of variation indicates change in progress is to observe speakers of different generations, which makes age a major factor in the mechanism of linguistic change (Chambers 2003: 349).

Given the stated aim of this study to explore the change in speech patterns in the community analysed in light of the demise of the local coal mining industry, time is another key sociolinguistic variable investigated in this study. The spread of a linguistic change through a community results in a regular increase or decrease of the form over time, with younger

people often favouring the innovation, and consequently reducing their usage of the older variant (Holmes 2001: 170-171).

2.3.1 Real time vs. apparent time

Two methodological approaches can be employed to investigate sound changes: real time and apparent time. Changes are captured in real time through observation of the same speech community at two or more separate points in time (Cukor-Avila & Bailey 2013). Real time studies may take the form of a panel study which tracks the same speakers and their language usage through the use of a repeated experiment over different points in time (Labov 1994: 76). Panel studies therefore record change over a life span (Mees & Collins 1999, Harrington 2006). An alternative real time method is the trend study which substitutes the same speakers for comparable speakers sharing the same social characteristics, thus allowing life stages to be analysed across successive age groups (Trudgill 1988). For a variety of practical reasons this diachronic method of study is often difficult to achieve, and therefore real time studies tend to be outweighed by research on change in apparent time.

2.3.1.1 Sound change in apparent time

The apparent time construct was part of Labov's (1963, 1966) synchronic approach to observing language change. Change in progress forms one of the cornerstones of research in language variation and change, and has had a major impact on awareness of the mechanisms and motivations of change (Chambers 2003). Like real time studies, research in apparent-time aims to observe sound changes in progress. However, rather than capturing snapshots of the speech community at different temporal points, the apparent time construct examines change in the use of a feature through the speech patterns of different generations at a single point in time, as a proxy for historical time. This assumes that, when social and stylistic factors are held constant, differences in speech patterns across different generations of speakers of a given population reflect actual diachronic change due to a degree of stability in speakers' linguistic behaviour during late adolescence or early adulthood (Sankoff & Blondeau 2007). The simultaneous observation of different age groups means findings across age groups can be interpreted as representing change over time (Chambers 2003: 212). This extrapolation relies on the assumption that speakers of different ages can be seen to

represent different times: a present-day pensioner had contact with speech from an earlier time than the present-day forty-year-old and the present-day teenager (Bailey, Wikle & Tillery 1991, Cukor-Avila & Bailey 2013, Llamas 2007b). This implies that age-stratified speakers retain variants that may have been new and innovative during their youth:

> Where change is involved, a certain variant will occur in the speech of children, though it is absent in the speech of their parents, or, more typically, a variant in the parents' speech will occur in the speech of their children with greater frequency, and in the speech of their grandchildren with even greater frequency. In the community at large, successive generations will show incremental frequencies in their use of the innovative variant. The logical conclusion, as time goes by, will be the categorical use of that new variant and the elimination of older variants (Chambers 1995: 185).

That is, change in progress can be signified by differences in form usage or frequency across successive generations, because as speakers age, and with the passing of time, these forms are subject to decline and innovation. This leads to differences between young speakers using new and innovative contemporary variants and older speakers demonstrating conservative usage of old forms adopted during their own adolescence (Holmes 2001: 206).

This framework is well-attested in variationist research, as it allows researchers to explore synchronically how speech patterns change, with many studies evaluating trends across age groups in the pursuit of ongoing language change (Labov 1963, 1972, J. Milroy 1996a, L. Milroy, J. Milroy & Docherty 1997, Llamas 2007a, Richards 2008, Flynn 2012). Cheshire, Gillett, Kerswill & Williams (1999: 2) consider that 'language change is most visible through the comparison of adolescents' language with that of adults'. However, it must also be remembered that the apparent time construct relies upon an assumption that, during late adolescence or the early adult years of a speaker's life, their speech patterns become relatively fixed, to the extent that there do not tend to be major systemic changes subsequently (Bowie 2005: 45). Although this is a relatively uncontroversial statement to make, the validity of this claim has in some cases had been contradicted (Blondeau 2001, Blondeau et al. 2002, Sankoff et al. 2001) and in others been supported only with major caveats (Nahkola & Saanilahti 2004). This need not be a major problem as long as

researchers accept that the construct functions best to examine general directions of change across time, rather than providing a precise picture of how speech patterned at a given point in the past. After all, real time studies which have resampled a speech community after several years frequently corroborate apparent time accounts of changes in progress, although they also sometimes underestimate the rate of change (Sankoff & Blondeau 2007).

Britain (1992) employed the apparent time construct in a comparison of high-rising intonation in three generations of New Zealanders aged 20-29, 40-49 and 70-79. There was a gradual increase in the use of the feature across all three generations in the results. Only 1.5% of the speech of the eldest cohort used high rising intonation, compared to 3.1% of the speech of the middle aged speakers, and 7.9% usage among the young speakers. Britain (1992) considered this to represent a change in progress, and referenced an earlier study of the intonation pattern from 1966 which suggested that then it was a feature associated with children only – and was not present in older generations. In this way, a real time reference point has been utilised to determine the time-depth of the rising contour pattern. Research in Martha's Vineyard was similarly interpreted in terms of linguistic atlas evidence from the 1930s (Labov 1963), and Labov went on to advocate an approach which combined apparent time research with a real time anchor point. Given the wealth of existing literature on varieties of North East English, it is possible to use previous studies to determine which linguistic forms are increasing and decreasing. Reference to 'at least one measurement at some contrasting point in real time' (Labov 1972b: 275) provides apparent time evidence with an earlier dialectological baseline from which the present findings can be understood, and helps to avert misinterpretation of apparent time results, like 'age-graded' findings.

2.3.1.2 Age grading

Members of a generation can demonstrate similar patterns of social habits, which are distinct from older or younger age groups. This behaviour manifests itself in dress sense, music taste, and also language use – and it is 'age-graded' (Hudson 2001: 15). In cases of linguistic age grading, a generation of speakers use particular linguistic variants at a certain age in their lives, but cease to use these variants as they grow older, or vice-versa (Milroy & Gordon 2003: 36). Therefore the patterns are stable, as successive generations repeat them

around a certain stage of life before forsaking them as they age. Linguistic age-grading is perhaps most noticeable in lexical usage, but it has also been shown to occur in terms of phonetic change, though the latter is much less common. A useful example is Macaulay's (1977) investigation of glottal /t/ usage in Glasgow. [?] is found among both working class and middle class 10-year-olds but, while it is retained across age in the working class sample, usage in older middle class speakers declines, with increases in more standard [t] usage in this social group explained due to the stigma of the feature outside of youth social circles. Macaulay's (1977) age-graded finding shows that apparent synchronic variation amongst different generations is not always sound change in progress.

Age-grading effects must be avoided in order to account for sound changes in progress. In order to provide evidence for the claim that the speech of a present-day 70-year-old represents the speech of a 20-year-old of fifty years ago, it must be assumed that an individual speaker does not change their linguistic usage over the span of their life (Milroy & Gordon 2003: 36). Changes brought about by age-grading challenge this assertion. However, age-grading results are rare in the sociolinguistic literature (Milroy & Gordon 2003: 36). Furthermore, such changes are regular and predictable, and normally pertain to developmental life stages like childhood (see also Chambers 1995: 188-193 on Canadian children's use of 'zee' for the twenty-sixth letter of the alphabet, rather than the usual Canadian variant 'zed', which the children then begin to adopt as they age). The features that seem to be subjected most readily to age-grading also appear to be highly socially marked, and as such are more likely to be consciously modified by speakers (Milroy & Gordon 2003: 36-37). Although these caveats narrow the scope of the apparent time hypothesis to preclude features that attract social awareness and those that relate specifically to language development, age grading does not invalidate the fundamental principle of the stability of an individual's speech over the course of their life (Milroy & Gordon 2003: 37). In a seminal paper on Montreal French, Sankoff and Blondeau (2007) show that systemic change may occur in early adulthood, but also continue to change substantially into middle age. Although in this study the phonological systems of a majority of speakers appeared to stabilise after the critical period of adolescence, there remained a significant minority for whom linguistic patterns changed during adulthood in the direction of a change in progress.

2.3.1.3 Validity of apparent time

An empirical examination of the apparent time construct was undertaken by Bailey et al. (1991) in order to confirm its reliability as an indicator of change in progress. They assessed their apparent time findings of Texas telephone speech in terms of comparable findings from a past study from the Linguistic Atlas of the Gulf States with the aim of evaluating the level of similarity between the trends found in each methodology. The apparent time findings demonstrated a good fit with the real time evidence; declining forms in the apparent time telephone data occurred more frequently in the earlier atlas study, whereas variants which appeared innovative in the later apparent time study were not frequently reported in the earlier data.

Furthermore, Trudgill (1988) confirmed his 1974 apparent time findings by lengthening the chronological range of his Norwich study. He collected comparable data from children aged 10 to 15, who had not been born at the time of his original study and found trends to be continuing alongside the emergence of previously absent patterns. Changes such as /ε/-centralization before /l/ (in bell, tell) remained in progress, as the frequency of use of this feature increased among the youngest speakers. However, a labio-dental approximant variant of /r/, which was not found in earlier work, also developed among this group of speakers, highlighting the speed with which linguistic changes emerge within a community.

Although the work of Trudgill (1988) and Bailey et al. (1991) is useful in confirming the worth of the apparent time construct as a surrogate for real time investigation, neither study compares age-stratified groups of speakers across the samples examined, and thus the fundamental assumption of the apparent-time hypothesis remains unchallenged. A more specific test of cohorts representing speakers of the same age at different stages of their lives is offered by Cedergren's (1973, 1987) study of 'ch-lenition' in Panamanian Spanish. The variable appears to be subject to a change in progress whereby an innovative fricative [ʃ] is replacing the standard affricate [tʃ]. Cedergren used comparable methodologies in selecting a broad range of speakers across her two data samples, fifteen years apart. The results demonstrated that whereas both studies pointed to a progressive trend of [ʃ] usage across age, there is equally some evidence to suggest that speakers' usage changes over time. While

the pattern of [ʃ] usage seems to support the apparent time hypothesis, the research notes a rise in innovative [ʃ] usage, not only among the young groups, but also in the older groups across the time span of the two studies. This finding conflicts with the apparent time hypothesis, by arguing against the claim that adult speakers do not change their usage and take part in changes in progress (see also Eckert 1997).

In work on glottalization in Cardiff, Mees and Collins (1999) tracked individual speech patterns at an even more specific level, by analysing a group of young people at three socially important life-stage intervals over a fourteen year period (at ages 10, 15 and 24). Within their working-class female group, half of the sample change only minimally over time, while the other half display a sharp rise in glottalisation usage. The feature is considered to be spreading throughout the UK (see Docherty, Foulkes, Milroy, Milroy & Walshaw 1997) and to be developing a growing association with middle class speech. Backed up with qualitative analysis, the study links the unexpected increase in glottalisation in the latter half of the cohort to the ascending social mobility of the speakers. In both Panama and Cardiff, therefore, speaker behaviour challenges the apparent time hypothesis by demonstrating that individual speakers' variant usage can alter over time. Although these studies note discrepancies in the apparent time approach, this does not necessarily mean that apparent-time approaches are unsound and unsuitable in studies of sound changes in progress. However, it is worth examining the assumptions which underpin the apparent time hypothesis to explore further the current interpretation of age-related differences. The field of language variation and change still has only a partial awareness of the interaction between age and sociolinguistic variation (Milroy & Gordon 2003: 38) which makes getting sampling techniques right all the more crucial.

2.3.2 The importance of adolescence

As it is sometimes difficult to judge whether variation related to age shown in apparent time is truly change in progress or is instead the result of age-grading, greater attention must be paid to the different life stages encountered by speakers and how the changes their language undergo over this period of time are entrenched in life events (Eckert 1997: 152). It must also

be recognised that 'age-grading is relatively rare and is realised in a distinctive, identifiable pattern' (Chambers 1995: 194).

Children and adolescents and their language acquisition have been the subject of speech studies since the earliest variationist research (Macaulay 1978, Reid 1978, Cheshire 1982, Romaine 1984, Kerswill & Williams 1994, Roberts & Labov 1995, Foulkes, Docherty & Watt 1999). Adolescents are the age group most frequently recorded as leading and influencing the introduction of new and innovative variants in cases of change in progress by demonstrating the greatest number of them in their speech (Kerswill 1996b, Eckert 1997; Chambers 2003; Guy 2003; Llamas 2007b). As Androutsopoulos (2005: 1496) puts it: 'adolescence is the life-stage in which language change is most clearly visible'. Adolescents are also cited as the age group most likely to adopt highly socially marked forms (Romaine 1984). This is generally explained as a linguistic reflex of the teenager's wider desire to express disapproval of and disconnection from the adult world while simultaneously seeking the solidarity of peers and their norms following a period of heavy parental influence during childhood (Eckert 1988, 1997; Kerswill 1996b; Chambers 2003, Guy 2003). Taking this point further, Downes (1984: 190) proposes that in western cultures this social pressure influences adolescent males to a greater extent than females: 'to observe the most extreme forms of vernacular speech, the place to look is among male adolescent peer groups'.

In a socioeconomic class-based study of adolescents in Cheshire, Watts (2006) found that middle class speakers modified their realisations of certain linguistic variables in the direction of their working class friends as an expression of solidarity due to their attendance at the same school. Such behaviour has been identified as a possible cause for the appearance in adolescent speech of variants which originate outside the local speech community: 'conformity to peer group norms and separation from adult norms lead to adoption of regional linguistic variables beyond the neighbourhood' (Chambers 2003: 189).

Another hypothesis for adolescents' central role at the vanguard of language change concerns their wish to project a social identity aligned to a peer group or distinct from other generations, manifested through an increased tendency to adopt innovative and particularly non-standard linguistic variants (Kerswill 1996b: 198). The rise in *th*-fronting, *t*-glottaling in

intervocalic environments, and labiodental-*r* in geographic areas across Britain is credited to the appeal of 'youth norms' to adolescent speakers (Foulkes & Docherty 1999b: 11, Williams & Kerswill 1999: 159). These forms appear to be increasing in uptake among successive youth cohorts, and the greater usage among these age groups found across the UK is beginning to index non-standard variant usage in these variables with 'young people's speech' in the perceptions of other speaker groups.

Besides signifying youthfulness, variant usage by adolescents also serves to reinforce certain speaker identities and group memberships. Although this is relevant to all speakers, it is particularly noticeable in adolescents who seek to distinguish themselves from other adolescents who do not share the same set of values or tastes. These differences in orientation are often demonstrated linguistically, as is seen in the Detroit high school studies (Eckert 1989a, 1989b, 2000) where teenage gangs of academically- and athletically-oriented 'Jocks' and educationally- and socially-disengaged 'Burnouts' reinforce their positions as polar opposites in the college hierarchy through distinctive variant usage. As an example, the Burnouts used STRUT-backing, among other innovative features involved in the Northern Cities Chain Shift (Labov 1994), in order to distance themselves from the Jocks clique (Eckert 1989b, 2000).

Looking slightly beyond the adolescent age group, Llamas (2007a) found that young adults aged between 19 and 22 accelerate linguistic change in Middlesbrough, northern England to a greater extent than 16 to 17 year olds by increasing their usage of local North East voiceless stop variants [ʔ͡p] and [ʔ͡k] over fully released [p] and [k] forms preferred by older speakers. Though young adulthood has previously been considered a time of linguistic 'retrenchment following the adolescent years', where the distinctive linguistic patterns associated with teenage speech begin to succumb to societal pressures to conform to the conservatism, prestige and standardisation of the linguistic marketplace (Chambers 2003: 195), this finding suggests that the adolescents are not leading change as much as those who have already advanced to adulthood, albeit those who have only just reached this life stage. Regardless, it can be agreed that irrespective of age cohort boundaries, younger speakers stand at the forefront of language change.

Having explored the relationship between age and time in the sociolinguistic literature, the next section considers how these concepts relate to the motivations and factors underlying sound change.

2.4 Exploring language change

The study of sociolinguistics is underpinned by the maxim that language is variable at any particular time, though the cause of this variability has been the subject of some debate. Early research operated on the basis that linguistic change occurred too slowly to be examined synchronically (Bloomfield 1933), though this notion was successfully challenged by variationists led by Labov (1966), who observed change in progress through the orderly heterogeneity of language.

2.4.1 Combining variation and change: Dialect contact

Language modification is frequently argued to occur due to face-to-face contact between speakers of different dialects, even when they are mutually intelligible (Trudgill 1986, Kerswill 2002a, 2002b, 2003, Torgersen & Kerswill 2004). This accommodation is often due to speakers moving across geographic space and altering their native linguistic production of a given form to harmonise with speakers in a dialect contact situation in the new location (Trudgill 1986, Auer 2007), which implies that mobility can be a major factor in contact (Foulkes & Docherty 1999b, Williams & Kerswill 1999, Kerswill 2003).

Linguistic accommodation is well-established in occasions of dialect contact, where it is generally motivated by social psychological factors. The erosion of production differences over sustained face-to-face interaction between speakers rarely amounts to an imitation of the interlocutors, so a degree of accommodation imperfection can be expected (Trudgill 1986).

Two outcomes of dialect contact situations of importance to this study are levelling and diffusion, which both promote homogenisation, something which has been shown to be a key trend across recent research in British English. In both cases, the homogenisation mainly results from face-to-face contact between speakers.

2.4.2 Convergence and Divergence

Increased linguistic homogenisation within a region may be achieved through processes of linguistic convergence and divergence (Auer & Hinskens 1996, Auer 1998). On an individual speaker level, convergence can be viewed as shift in accent or style to adapt to the speech of a co-interlocutor, as part of the wider process of linguistic accommodation (see Giles, Coupland & Coupland 1991: 5).

However, more generally, convergence is understood to apply to larger groups or whole dialects, and has been described as a 'structural assimilation of the low to the high variety' (Auer 1998: 1) in a state of diglossia. This suggests an increase in linguistic homogenisation between two varieties of differing prestige, and directly implicates the standard as a driving force in varietal homogenisation.

Although new dialect formation is not a recent thing (Kerswill & Trudgill 2005: 196), Auer & Hinskens (1996: 1) argue that dialect convergence broadly results from three relatively new social changes, pointing to the fairly recent development of standard languages, advances in mass education and increased national and international mobility over the twentieth century. Auer & Hinskens (1996: 7-11) also differentiate between the vertical dimension of language change, on which the social value of different dialects may be plotted, and the horizontal dimension, which measures linguistic heterogeneity. Therefore, this framework is able to model change in progress amongst local, regional and standard varieties, and especially trends of cross-dialectal levelling, in which varieties of the same level of prestige converge, and vertical convergence, where homogeneity increases between low status dialects and high status standards.

Convergence along the vertical continuum is bi-directional. Thus it is possible for standard varieties to increase homogeneity and variability in a shift towards local dialects, including through language planning. Horizontal convergence has often been explained in terms of linguistic idealism, but may also be due to frequent contact between non-standard varieties (Britain 2010: 195). Dialect divergence occurs where varieties demonstrate a decrease in homogeneity across both the vertical and horizontal dimensions.

The social value of dialect convergence is manifested in the marked difference in linguistic attitudes to borders, both political and national. In work on Europe, Auer & Hinskens (1996) use variation on the Dutch/German border to show that varieties which form part of the same national border demonstrate convergence through increased homogeneity with the regional or national standards of their own country. Conversely, there is increased heterogeneity between the varieties which run either side of the political border, resulting in divergence.

In terms of the present research, convergence and divergence are possible outcomes of dialect contact in areas like East Durham, which is situated close to two or more varieties competing for influence. The location of the community under analysis between two dialect zones with different variant forms for the same linguistic items has the potential to lead to increased homogenisation between the varieties or the development of a hybrid, focused koine (Le Page & Tabouret-Keller 1985, Kerswill 2010).

2.4.3 Levelling and Dialect Levelling

Labov's (1994) chain shift model seeks to explain universal constraints on change in vowel systems. The model predicts that, in whole or in part, vowel systems are subject to a co-ordinated shift where one vowel moves into the position of another, and displaces it so that it triggers a change in an adjacent vowel, which in turn displaces its neighbour, and so on. While this model has been applied to change in a number of varieties of North American English, it does not appear to account for a series of vowel changes in British English that have been apparent since at least the 1990s.

First noted in European dialectological research (Wrede 1919, Haag 1929/30), variants with a wide geographical area have been shown to erode highly local forms following dialect contact (Trudgill 1986, Kerswill 1996b, Britain 1997). This process has become known as dialect levelling, and has been found in a number of geographically and socioeconomically different and disparate locations across Great Britain over the last thirty years (Watt & Milroy 1999, Williams & Kerswill 1999). It has been shown to result from increases in social or geographical mobility and changes in social and economic structure due to urbanisation

and industrialisation which have opened up new avenues for communication on a broader scale, leading to more opportunities for dialect contact (Auer & Hinskens 1996: 4). The opposite effects of de-industrialisation and counter-urbanisation, where larger cities and towns depopulate to smaller suburban settlements in the hinterland (Cross 1990, Dorling 1995), are perhaps the two factors driving changes in dialect contact in East Durham. In this way, levelling can be viewed in terms of social network theory, due to the disruption of close-knit, localised networks which can be shown to maintain highly systematic and complex sets of socially structure linguistic norms (L Milroy 1987a) and their subsequent replacement with weak, uniplex ties conditioning change (Milroy & Milroy 1985, J Milroy 1992).

The dialectological focus on contact and innovation diffusion often results in greater emphasis paid to the innovating feature above the declining variant. In work in the 1990s, Kerswill & Williams (1999) investigated change in varieties in different areas of England. They found that the three British English accents of Hull in northern England and Reading and Milton Keynes in the South East were converging to some degree. Although some distinctive variants remained, this process of dialect levelling led to a decrease in differences between the vernaculars of the three locations, to be replaced by new forms which are taken up across a broad geographical space (Kerswill & Williams 1999: 149). Unlike geographic diffusion, where a form spreads from one geographic area to other places (Torgersen, Kerswill & Fox 2006), levelling changes occur 'simultaneously throughout a given region' (Kerswill 2003: 224) which has implications for this study as the geographical region to which the research site belongs has already been identified as witnessing a case of levelling (Watt & Milroy 1999, Kerswill 2003).

Changes in variant usage in the Newcastle upon Tyne FACE and GOAT vowels have been analysed as levelling. The diminishing number of local and traditional centring diphthongal variants across two generations is exacerbated by increasing adoption of unmarked variants 'characteristic of a larger area than...Tyneside' by younger speakers (Watt & Milroy 1999: 25). However, [ɪə] and [ʊə] are still used to a reasonable extent by older males and appeared to have been retained by younger speakers as an emblem of authentic local identity (Watt & Milroy 1999: 37).

Dialect levelling has been shown to best explain patterns of linguistic change in an increasing number of studies of varieties of British English (Cheshire, Gillett, Williams & Kerswill 1999, Watt 2002, Dyer 2000, 2002). A definition of the process of levelling generally involves a discussion of minority or marked variants undergoing reduction or attrition (Trudgill 1986, Farrar & Jones 2002, Kerswill 2002b, 2003, Britain 2010). Expanding on this description, much recent research on levelling has argued in favour of a wider appreciation of the outcome of levelling – that of an overall decrease in variant choice – rather than the process (Britain 2002b: 16, Torgersen & Kerswill 2004: 26). As Kerswill & Williams (2002: 88) suggest, a consequence of the definition of levelling as erosion of marked variants is 'reduction in the amount of variability in a speech community'. They demonstrate this to be the case in a series of papers exploring the southern English town of Reading, where the MOUTH vowel is produced with a range of variants by older speakers, but which has levelled to a majority form ([aʊ]) used overwhelmingly in the speech of younger speakers to the detriment of other variants found to be disappearing or already absent among this age group (Williams & Kerswill 1999; Kerswill & Williams 2000, 2002; Kerswill 2002a, 2002b).

In dialect levelling, the definition of levelling is expanded to cover 'the eradication of socially or locally marked variants which follows social or geographical mobility and resultant dialect contact' (Watt & Milroy 1999: 26), suggesting that increased contact due to the extent of geographic movement and economic advancement in modern life is rupturing local networks which protect highly marked and regionally restricted linguistic variants. This places the causes of dialect levelling squarely in the realm of geo-linguistic variation and change, and a tacit acknowledgement remains of the prevalence of acts of linguistic accommodation between individual speakers and their role in generating sound change by eliminating highly localised forms in favour of variants covering broader geographic areas and social spheres.

Some salient linguistic features – such as /θ/-fronting – have spread across England, with variants they come into contact with being replaced without regard to their social or geographic markedness, rather than levelled. For example, [θ] has been replaced by [f] through a process of diffusion in the Fens (Britain 2005). However, in Dorset, one of the few places in England to have a local variant for /ð/, the number of variants in the accent has been reduced and the traditional [d] form has been levelled (Piercy 2010: 232).

Dialects do not necessarily level towards national standards such as Received Pronunciation (Foulkes & Docherty 1999b: 13) as, in contrast with convergence, dialect levelling makes no claim on the level of prestige of the two varieties coming into contact with each other (Auer 1998). As Watt & Milroy (1999) show in Newcastle upon Tyne, highly local [ɪə] and [ʊə] in the FACE and GOAT sets are not eroded in favour of [eɪ] and [oʊ], but rather monophthongal variants [eː], [oː] and [ɵː], characteristic of a northern English which avoids indexing the apparently narrow geographical or social classification of the centring diphthongs whilst also averting the abandonment of local roots signalled by usage of the closing diphthongs (Watt & Milroy 1999; Watt 2000, 2002).

Newly settled speech communities are shown as ideal sites to study dialect levelling. Research in new town such as Milton Keynes in South East England (Kerswill 1996a, 2002a, Williams & Kerswill 1999), Redditch in the West Midlands (Ryfa 2008) and Newton Aycliffe in County Durham (West 2009) demonstrate the mix of speakers from different geographical communities who have settled these areas and participated in dialect contact with each another in the process. For example, a wide range of MOUTH and PRICE vowel forms in older Milton Keynes speakers has given way to majority variants of [aʊ] and [ɑɪ] in younger speakers, suggesting dialect levelling (Kerswill 2002b, 2003, Kerswill & Williams 2000, Williams & Kerswill 1999).

'Conditions of social or geographical mobility and resultant contact' are conducive to dialect levelling (L. Milroy 2003: 158) and can provide a trigger for the process (Chambers 2003: 117). Contact may be found between two or more neighbouring or geographically close locations, and this may lead to particular forms levelling to the same majority variant in the dialects of both areas. In order to investigate this, Kerswill and Williams followed up their study of Milton Keynes by extending their field of inquiry to the nearby southern English town of Reading, and found that in both Reading and Milton Keynes [aʊ] had eroded various MOUTH vowel variants local to both locations to become established as the most frequently used form in both locations within that set (Kerswill 2002a, 2002b, 2003, Kerswill & Williams 2000, Williams & Kerswill 1999). Further research suggested that this particular change was also operating on a much broader scale across the whole of the South East of England (Altendorf & Watt 2008). A result of this change is that the two dialects of Reading and

Milton Keynes, and other locations across the south east region, can be said to be increasing in similarity, at least in terms of this particular variable.

2.4.4 Regional Dialect Levelling

A link can be drawn between dialect levelling and dialect convergence (Torgersen & Kerswill 2004). Expanding on the definition of the process of dialect levelling, Kerswill (2003: 223) introduced a new concept – regional dialect levelling – which is the outcome of both the geographical diffusion of linguistic forms and reduction of marked variants following mutual convergence between speakers of different varieties. Also called dialect supralocalisation (Britain 2002a, 2010), this covers the homogenisation of dialects across a region to produce a fairly uniform single variety with a wide geographic reach, reduced levels of highly localised forms and increased usage of externally-originating supralocal variants (Foulkes & Docherty 1999b, Williams & Kerswill 1999, Watt 2000, Kerswill 2002a, 2002b, Kerswill 2003). As the name suggests, regional dialect levelling often arises in a geographical area larger than a borough but not on a national scale. A number of empirical studies have recorded regional dialect levelling or supralocalisation across Europe (Røyneland 2009 in Norway, Hernández Campoy & Villena-Ponsoda 2009 in Spain) and particularly in England (Altendorf 2003, Watts 2006) where the complete system of short vowels in two previously distinctive varieties converged in the South East of England region (Torgersen & Kerswill 2004). Regional dialect levelling is considered to be rapidly increasing across many locations (Foulkes & Docherty 2007) particularly in the United Kingdom (Kerswill 2002b, 2003).

The resulting regional dialect is variously termed the 'supralocal variety' (Watt & Milroy 1999), 'regional variety' (Foulkes & Docherty 2007) or the 'regional standard' (Wolfram 1991, Watt 2002), the latter of which perhaps unfairly implies a promotion of standardisation as a motivation for regional dialect levelling. Most of the core cities of England, as well as the capital cities of Wales and Ireland have been listed as focal points of British dialect regions (Trudgill 2002a: 180), with the implicit suggestion that the varieties spoken in regional capitals are directing the change towards homogenisation of a geographically wider area (Trudgill 1999a, L. Milroy 2002, 2003). However, evidence from the North East of England region contradicts this claim, as the supra-local [eː] form in words of the FACE lexical set is

found to be outstripping the North Eastern local [ɪə] diphthong in the smaller location of Durham a decade before this process is noted in the nearby larger city of Newcastle upon Tyne, in a process of contra-hierarchical diffusion (Kerswill 1984, Watt 2002, Kerswill 2003; and see further Section 4.2.5, below). Regardless, these findings do point to the shaping of a North Eastern supralocal variety following regional dialect levelling (Watt & Milroy 1999, Kerswill 2002a, 2002b).

Within the process of regional dialect levelling, geographical diffusion of forms does not always target local variants and may also directly affect standard form usage. For example, speakers in the northern English city of Leeds demonstrated increased usage of supralocal glottal [ʔ] in place of standard [t] in intervocalic environments, with local t-to-r production unaffected (Richards 2008). This case shows that diffusion may also target standard forms, while the retention of local forms suggests that the Leeds variety is maintaining its linguistic distinctiveness from other regional patterns.

Despite this evidence, it has been claimed that dialect levelling only leads to closer alignment of regional varieties with Standard English: levelled dialects are considered to be 'much less different from RP and Standard English than the traditional dialects were' (Trudgill 2002a: 179), suggesting that the process of dialect levelling moves dialects further away from regional distinctiveness with the implication that standardisation is a prime motivation for dialect levelling (cf. Kerswill 2002b).

Although 'much regional variation is being lost' within the homogenisation of specific features, it is important to point out that the consonant and vowel inventories of regional varieties are argued to be diverging rather than converging (Trudgill 2002a: 179). In support of this claim, it has been shown that varieties which are said to have undergone dialect levelling are not demonstrating increased similarity to each other over time when all features of a variety are taken into account (Maguire et al 2010), though the study also proposes that the concept is oversimplified by suggestions that any adoption of an externally-originating feature by exogenous change equals dialect levelling. Furthermore, forms resulting from regional dialect levelling are often not well-established majority forms, but rising emergent forms. Many studies show that local variants remain competitive or even increase when

faced with the supralocal forms, implying that regional dialect levelling is in progress, or even that counter-supralocal tendencies are at work (Britain 2011: 44), where supralocal forms fail to supplant dominant local variants.

In work in Ashford and Reading, Torgersen & Kerswill (2004) offer rare evidence of a convergence of two vowel systems towards features with wider geographical currency than the forms they are replacing. An apparent time comparison showed a systematic anti-clockwise shift of vowels in Ashford:

- /ʊ/ and /ɪ/ are fronted;
- /ɛ/ and /æ/ are lowered;
- /ʌ/ is backed.

Reading demonstrated a reduced shift:

- older speakers lowered /ɛ/ and /æ/ already;
- /ʊ/ is fronted;
- /ʌ/ is slightly lowered and backed.

The substantial change in Ashford and minor change in Reading resulted in very similar short vowel systems between the two varieties, which form part of the same dialect region: Ashford and Reading are situated on opposite sides of London in South East England. However, Przedlacka's (2002) study of South East England shows substantial diversity in terms of the extent of adoption of convergent forms in other locations within the region; four of the counties bordering London which are converging are doing so at different rates, to different degrees, and in different variables. Furthermore, regional distinctions are surviving, as there were statistically significant differences in most cases of the different counties' use of the different supralocal variants. The results in the few cases of similarity showed either a low usage of the supralocal variant in all locations (diphthongised /i:/), or a balanced co-occurrence with more standard-like forms (back nuclei of /ai/). In some cases, there was no evidence of change across real time, with both contemporary teenagers and Survey of English Dialects participants born in the nineteenth century using similar rates of glottal stops. This evidence supports the claim that levelling may be ongoing for considerable

time. In Tyneside, levelling appears to have begun no later than the late 1950s (Viereck 1966, 1968, Watt & Milroy 1999) and presumably has been ongoing since the expansion of the city in the mid nineteenth century (Watt 2002: 50). Similarly, Ellis was making claims in 1889 that he was unable to 'find dialect' in the area surrounding London (Ellis 1889: 225). With the highest levels of supralocal forms found in counties at opposite sides of London, Przedlacka (2002: 97) argues that 'the extent of geographical variation alone allows us to conclude that we are dealing with a number of distinct accents, not a single and definable variety'.

2.4.5 The social differentiation of mobility

Many studies which point to regional dialect levelling in progress are based on research in just one location and, although individual studies may explore similar trends in other work, analysing just one area cannot account for convergence on forms resulting from regional dialect levelling. The few studies examining more than one location show ongoing heterogeneity at the regional level (Britain 2011: 45). Until recently, there was little work on the social differentiation in the mobilities that cause regional dialect levelling: it had previously been unclear which tiers of society it is affecting, in which places and in what historical context. Adey (2010: 92) asserts that 'while mobility has brought time-space compression to those who can afford it, many people cannot experience its benefits so acutely because they simply do not have access to it'. The consequences of the mobilities may therefore be variable and unevenly distributed both socially and geographically. Different types of mobility – commuting, going to university, use of a car – occur with greater frequency, vigour and (geographic and social) diversity than others, and apply to certain members of society more than others (Britain 2011: 45).

Dialect levelling has been considered as a linguistic result of the disruption of close-knit, local social networks (see Section 2.6.1, below) and their systematic and highly socially structured linguistic norms by modern patterns of mobility (L Milroy 1987a, 2002, 2003, L Milroy & Llamas 2013). Better opportunities for mobility are permitting speakers to extend their network of contacts socially and geographically and in doing so forge new links with speakers from other dialect areas, which is conducive to the spread of linguistic forms (L. Milroy 2002, 2003, L. Milroy & Llamas 2013). The recent trend of urban migration to surrounding

suburban areas (Britain 2011: 54-55), sometimes termed 'counterurbanisation' (Watt & Milroy 1999), is one such pattern of mobility which may have contact consequences in the present study. Others include the rise in commuting and short-distance travel, which seem largely unexceptional, but which have considerable impact on dialect contact due to their scale and intensity. The statistics support a profile of those with access to mobilities as disproportionately middle-class and non-urban-dwelling:

- British residents travelled 817bn passenger kilometres in 2007, an increase of 275% on 1952 (Hughes 2009: 175), but this figure is highly socially differentiated, with middle class people travelling most, and the poorest 20% of the population travelling almost three times less on average than the richest 20% (Hughes 2009: 177).
- Commuting is also the preserve of the middle class non-urban dweller; more than half of all workers travel less than 5km to work each day (Champion 2009: 171), but over 12% commute more than 20km (Champion, Coombes & Brown 2009: 1249), and they are generally non-urban dwellers (Champion 2009: 171), 'aged 30-44 years, males, the only or main breadwinner…households with two or more cars, recent migrants, those with a degree, professionals and managers, full-time employees and those working outside the primary sector' (Champion 2009: 173).
- Between 1970 and 2007, there was a rise of over 300% in the number of people commencing a higher education course (Hughes 2009: 34), and the move to university often involves migration and/or urbanisation.
- Consumption processes have become more mobile, with non-urban areas witnessing massive population growth coupled with considerable decline in the provision of 'rural' services such as grocery stores, post offices, banks and pubs. Migrants to non-urban areas are more likely to shop in an urban centre than in a local non-urban site, forcing non-urban people to travel further to consume (Findlay, Stockdale, Findlay & Short 2001).

These changes have profound implications for dialect contact, in that the mobilities bring the urban middle class, with potentially standard-influenced accents, into contact with the potentially traditional, non-standard accents of the non-urban population, resulting in a diverse mix of varieties outside of large urban centres – an area largely unexplored by urban sociolinguistics (see Britain 2009).

2.5 Conversational topic

This study also aims to investigate the influence of traditional industries and lifestyles on speech patterns, with specific reference to discussion of coal mining conversational topics. Conversational topic is an under-researched constraint on intra-speaker variation. Topic shift can be considered a branch of style shift, and has been defined as 'shifts in speech that pattern with changes in the topic of conversation' (Love & Walker 2013: 443).

Research into the effect of conversational topic on speech production traditionally concentrated on code-switching between different varieties (e.g. Ervin-Tripp 1964). Context-dependent shifts in speech began to be investigated in roughly the same period, and were first framed in terms of attention paid to speech during different speech acts, with a greater frequency of standard productions in line with increasing formality (Labov 1966, 1972).

In his theory of Audience Design, Bell (1984) claims that while certain topics can cause style shift in a speaker, audience is a greater influence:

> Topics such as occupation or education...cause shifts to a style suitable to address an employer or teacher. Similarly, intimate topics...elicit speech appropriate for intimate addressees – family or friends. (Bell 1984: 181)

However, in topic shifting, the effect of audience is mitigated by holding the interviewer constant, meaning any speech accommodation/divergence effects are minimised (Giles & Powesland 1975).

Rickford & McNair-Knox (1994) found their speaker's morpho-syntax usage was more standard when discussing school, and more vernacular when discussing 'intimate' topics such as social life. Strikingly, the topic of conversation was more significant than the effect of audience (which was not held constant, with interlocutors of different ethnicities conducting different interviews).

Studies have since investigated the effect of conversational topic in conditioning phonetic style shifts within the same dialect variety. This has principally been explored in terms of an

increase in the production of local forms occurring during discussions of local topics (Blom & Gumperz 1972, Becker 2009).

This modern approach to topic shifting is couched in a more agentive framework where language is employed by speakers to create and enact linguistic identity (see, for example, Eckert 2000 and Schilling-Estes 2013) through the production of regional dialect features with inherent indexicality of local place. This represents a specific strand of the relationship between linguistic form and social meaning (Bucholtz & Hall 2004) and authentication (Bucholtz 2003). Community of Practice participation may also interact with topic shift: the Burnouts at the Detroit high school surveyed by Eckert (2000) used backed /a/ more frequently than the Jocks, and even more so when discussing aspects of Burnout culture, such as drugs and apathy towards school. Discussion of social variables such as ethnicity has been shown to condition variant usage, whereby the topic of ethnicity primes parts of speakers' own ethnic identity, meaning previously experienced exemplars relevant to ethnicity are activated during the formation of production targets (Mendoza-Denton, Hay & Jannedy 2003). However, it has been argued that topic-shifted production could also be explained without reference to speaker identity at all. For example, an exemplar-based link between African American people and the African American English variety is not only available to those who belong to that identity group, but can be accessed by anyone who has ever been exposed to that accent (Love & Walker 2013). Drager, Hay & Walker (2010) found that both exposure to the variety and speaker identity played a role in topic shift: speakers from New Zealand shifted to more Australian-like productions when discussing Australia. However, the speakers who were sports fans more frequently shifted to an Australian-like production when talking negatively about Australia than when the discussion was favourable to Australia. The authors interpreted this result with reference to the speakers' New Zealand identity and the strength of sporting rivalry between the two countries. Moreover, the New Zealand speakers who did not identify as sports fans demonstrated the opposite effect of producing a more Australian pronunciation when saying positive things about Australia, instead of in the discussion of Australia's bad points. These non-sport fans were not engaged in the international rivalry and thus did not prime their New Zealand identity in their response.

Recent work has explored often fine-grained acoustic phonetic variation, showing that speakers shift towards accent features associated with local geographical territories when discussing topics relevant to these areas. Glasgow teenagers have been shown to produce a retracted /æ/ form associated locally with the speech of violent gangs when discussing violent conversation topics, but not in other topics (Lawson 2009). The appearance of a traditional non-rhotic variant in a local conversational topic in a New York neighbourhood has been interpreted as a response to the perceived loss of the neighbourhood's 'authentic' local accent over time (Becker 2009: 653). This local variant is shown to be produced significantly more in topics about the local neighbourhood than non-local topics, which is explained by the creation of a place identity by speakers (Becker 2010: 234).

Although New York City English has been subject to a change in progress in the direction of increased rhoticity for many years (Labov 1966), the slow pace of this change means non-rhoticity is still part of the variant mix for New Yorkers and is a feature which carries a highly local social meaning. Speakers in Lower East Side neighbourhoods of New York therefore use the traditional feature of non-rhoticity in the syllable coda in order to create a place identity centred on localness and authenticity. They do this through micro-variation in their /r/ usage in highly local topics, specifically during discussions about the local neighbourhood during sociolinguistic interviews, where they increasing their use of the local feature of non-rhoticity. Becker (2009) interprets this in light of the specific characteristics of the community, where particular social tensions over place exist, leading different groups of residents to often be in conflict with each other. She invokes agentive, social practice approaches to style shifting and sociolinguistic variation to suggest that the set of speakers who increase their use of non-rhoticity are indexing a social meaning which asserts their status as authentic neighbourhood residents (Coupland 2003). The presence or absence of rhoticity – a feature which distinguishes British and American Englishes – has also been shown to shift significantly in the speech of sports fans depending on whether they were talking about English Premier League football clubs or American football teams (Love & Walker 2013).

2.5.1 Preservation of traditional pronunciations in nostalgic topics

Studies exploring traditional accent features tend to focus on effects at the word level. Evidence from Montreal French shows that certain topic-specific groups of words which are overwhelmingly used in a particular social circle or type of situation can be the last to change in a historical phoneme shift (Yaeger-Dror & Kemp 1992, Yaeger-Dror 1996). These studies showed words which carry an association with a bygone time (e.g. glacière 'ice-box') to exhibit idiosyncratic vowel quality in being produced with the most conservative speech forms. Recent work in New Zealand, which has similarly found a topic effect based on time depth (with older variants of /t/ used to a greater extent in conversational topics about old things), shows topic to be independent of lexicon with younger people's production featuring more innovative variants even if the words in which the forms appear are used by older speakers (Hay & Foulkes 2015, forthcoming).

In research on the derhoticization of New Zealand English, lexical items were coded in terms of the conversational topics in which they occurred. It was hypothesised that words with an 'old-time' association or those which strongly connote the New Zealand 'settler lifestyle' would have a greater tendency to retain the traditional feature of non-prevocalic /r/ (Gordon, Campbell, Hay, Maclagan, Sudbury & Trudgill 2004: 182).

The six sets were labelled as 'Mining' (e.g. quartz, miner, ore), 'Farming' (e.g. turnip, tractor, rooster), 'Army' (e.g. sword, spear, soldier), 'Proper Names' (e.g. Parker, Martin, Sutherland), 'Home/School/Church' (e.g. servant, teacher, church) and 'Other' (all other words). The study found that more words in the Mining and Farming categories were rhotically realised than words in other categories, a finding which is considered 'quite unexpected from the perspective of traditional outlooks on sound change' (Gordon et al. 2004: 278).

Across all topics, the two speakers who produce the most non-prevocalic /r/ are 56% and 42% rhotic. When the data is narrowed to the semantic domain of farming only, these speakers' usage levels rise to 75% and 66% rhoticity (Gordon et al. 2004: 279). It can be argued that this is the result of a kind of topic-based style shifting, whereby speakers shift in the direction of increased rhoticity when discussing topics such as farming and mining. Coupland (2001: 198) claims that style unfolds as 'persona-management' where 'individuals,

within and across speaking situations, manipulate the conventionalized social meanings of dialect varieties – the individual through the social'. Therefore, a discussion of farming could trigger a shift to a more rhotic style associated with 'the old days', which is generally deactivated when the conversational topic is not rooted in the past due to a change-in-progress away from rhoticity.

Were the increased rhoticity to be caused by topic-based style shift, an analysis of the parts of the recording where the speakers discuss farming topics would be expected to yield an increase in rhoticity across all words produced in these topics which contain /r/, not just those with a farming association. However, the rates for farming words were found to demonstrate high levels of rhoticity regardless of conversational topic, and thus point to a lexical result: 87.5% of /r/ in farming-related words are rhotic realisations, while only 8.3% of non-farming words demonstrate rhoticity (Gordon et al 2004: 281). This shows that only topic-specific vocabulary – and not other parts of the same traditional conversational topic – demonstrates a significant increase in usage of the traditional rhotic form.

Although neither of these studies make claims about the effect of the conversational topic in which the phonetic token occurred, this point is addressed in more recent work in New Zealand which shows that more traditional variants are found in conversational topics about older things irrespective of lexical item (Hay & Foulkes 2015, forthcoming). With this recent finding in mind, the present study can investigate whether the conversational topic of coal mining, an industry which was lost from the local area over twenty years ago, conditions the production of similarly traditional variants.

2.6 Communities of Practice

The Community of Practice model is borrowed from cognitive anthropology (Lave & Wenger 1991), but has become an influential and enduring framework in language change due to its ability to determine social stratification, through its incorporation of 'in-group' relations that are otherwise hard to define (Eckert 2000: 33-34). Communities of Practice (henceforth CofP) may be defined as a gathering of people who regularly meet and engage in the same shared purpose (Eckert & McConnell-Ginet 1992). Members of the CofP define and delimit the

community which may override any categories determined by those outside the community (such as geographical, administrative or political boundaries).

In a CofP framework, speakers are therefore categorised according to their participation in groups or activities centred on a shared enterprise. Eckert argues that this approach 'recognizes the fluidity and complexity of identity and social participation' (2000: 39). Interaction between community members – or mutual engagement – is required in all CofPs, and this almost always involves language (Tusting 2005: 41). In a sociolinguistic framework, mutual engagement generally tends to be expressed through face-to-face communication, though in some sociolinguistic studies of geographically unrestricted, technologically-supported communities this interaction may be computer-mediated (Schott & Hodgetts 2006, Gee 2008, Witten 2012). The interaction is purposefully developed during engagement in the shared practice (Meyerhoff 2002: 527), which is a socially-defined common approach discussed, enacted, and given social meaning and purpose by CofP members to 'create the basis for action, communication, problem solving, performance and accountability' (Wenger, McDermott & Snyder 2002: 38).

2.6.1 A shared repertoire: Pitmatic

If, to a southern eye, northern English mining landscapes have long been considered far removed (Moir 1964: 91-3) and even 'frightening' in their other-worldliness (Holderness 1983: 21), a major component of that detachment is linguistic. As Wales (2006: 124) puts it: 'the distinctive dialect of the mining communities, almost unintelligible to outsiders, merely reinforce[s] the image of the barbarousness'. As illustration, Samuel (1998: 54) recounts an 1869 Parliamentary Select Committee hearing on working conditions in the collieries in which miners from Northumberland giving evidence were provided with an interpreter, with anecdotal evidence from East Durham respondents in this study suggesting that little had changed in this regard over a century later.

In the dialectological tradition, industrialisation was an unwelcome development which ensured that speech from large geographic areas of Britain was overlooked (Wales 2006: 126). Manufacturing populations were characterised as 'adulterating' rural varieties (cf. Addy 1888: viii on the Sheffield dialect), which represented the only 'real' dialect (Ellis 1889, cited

in Petyt 1980: 151), and meant that urban Englishes were therefore viewed as unworthy of academic attention (Crowley 1989: 156).

Despite the mixed Irish, Scottish and Welsh origins of the miners who settled the Durham coalfield (Orton 1933), pit villages have developed a reputation for 'clannishness' (Beal 1993: 188). The dangerous nature of the work highlighted the need for consistency in the way miners communicated with each other, making it the perfect setting for an 'anti-language' (Wales 2006: 125). This requirement is consistent with the mutual engagement stipulated in all CofPs. The mining language forms part of the 'social learning' developed in CofPs, whereby new or unestablished members of a community gain knowledge and awareness of everyday social practices relevant to community membership – in the case of mining, this might include specifically the different tools and machinery required to carry out the work or more generally the customs associated with pit life. East Durham miners discussed, for example, that the miners showered together, provided financially for families of miners killed in accidents, and were expected to defer to older and more established miners. This social learning is achieved through exposure to and increased participation with more established members who are accepted by the community as having already achieved a level of fluency and competence in those social practices (including the language they use) (Lave & Wenger 1991).

The term 'pitmatic' was coined by Heslop (1892) and although it originally referred to the specific vernacular of the Durham or Northumberland coalfields (Wales 2006: 124), the term continues to represent to the local accent of these north eastern mining communities even since the collieries closed. This development from an industrial vocabulary to a full variety encompassing a wide geographic area serves to reinforce the importance of mining to North Easterners and the way they speak (Pearce 2009: 176-77). Among the earliest salient features of pitmatic were the 'singsong and musical' intonation patterns (Ellis 1889: 641) which have remained a marked feature of more recent North Eastern English varieties (Pellowe & Jones 1978, Wells 1982: 376). Although pitmatic is relatively under-researched, it is known to have its own vocabulary, which is documented in mining glossaries from the 19th century onwards (see Greenwell 1849 to Griffiths 2007), and demonstrates conservative phonological patterns (for example, *yem* 'home'; *byuts* 'boots' – Wales 2006: 124), with

occupational terms bearing witness to a distinctive Scandinavian influence (Priestley 1934). For example *chum*, which refers to an empty coal tub, is a cognate of the present Norwegian word *tøm*, meaning 'empty' (Wales 2006: 125).

2.6.2 Other ways to model 'community'

The literature suggests that 'common memories of past struggle' between pit employees and owners has forged a strong working class identity, which has come to be seen as characteristic of mining communities generally (Dennis, Henriques & Slaughter 1957; cited in Warwick & Littlejohn 1992: 19), though a tendency to identify as working class in spite of differences in certain objective class measures such as income or occupation has been observed generally across Britain (Maley 2006) and specifically – but without reference to coal mining, despite a shared industrial heritage – in nearby Sunderland (see Burbano Elizondo 2008: 76-77). In this latter sociolinguistic study, the 'working class' label in Sunderland was 'discarded [as a] social variable and … [instead] regarded as a component of the local identity'. Regardless, the notion of East Durham forming a 'one-class community' (Bulmer 1975) matched the intuition of the researcher, who is from the local area.

In spite of this consensus view of mining villages functioning as cohesive and self-regulating speech communities, often the behaviour of individual speakers cannot be explained by prior modelling of theoretical economic, social and political frameworks such as social class, power and dominance (Bott 1958, revised 1971, Milroy & Milroy 1992). Social network models (Milroy & Milroy 1978, 1985, Milroy & Llamas 2013), in exploring social organisation at the level of the individual in relation to the community, offer an alternative methodology for studying subgroups of a population where a consensus social class model does not seem suitable, for example, due to social homogeneity in the community (Milroy & Milroy 1992; and see also Milroy 1982, Kerswill 1994 and Bucholtz 1999 for critiques of the Labovian concept of 'consensus' in the speech community model). The highest and lowest status tiers of society – often minimally exposed to social or geographical mobility (see Young & Wilmott 1962, Cohen 1982) – generally form close-knit network structures (Milroy & Llamas 2013: 421), that is, networks of high density and multiplexity (ibid 2013: 413). Some close-knit communities support their strong local identity by conserving and enforcing localised

linguistic (and cultural) norms, often in sharp opposition to non-local, mainstream and institutional values. For example, in their Belfast research, Milroy & Milroy (Milroy & Milroy 1978, J Milroy 1981, L Milroy 1987a) invoked social network theory to analyse whether a close-knit network structure serves to resist linguistic change initiated outside the network. As network analysis attempts to understand the mechanisms and motivations for language maintenance at the community level, elements of a social network approach concerning level of integration in the neighbourhood were employed in this study to address the lack of socioeconomic differentiation of the participants.

With regard to CofPs, concerns have been raised about the vague definitions of key components of the model such as 'mutual engagement' and 'practice' leading to 'situations where the closest we can get to defining a shared enterprise is to say that speakers are engaged in "constituting a social category"' (Meyerhoff 2002: 530; see also Davies 2005: 576). However, even where this proves to be the case, it ought to be remembered that it is locally-important categories which drive the social identity reified in CofPs, and these may match pre-imposed social categories (Lawson 2011: 92).

Whereas all participants in this study are members of geographically and politically defined speech communities – in that they represent one of the four villages surveyed – a subsection of the sample also belongs to a CofP in their status as former coal miners. The classic speech community model (e.g. Labov 1966) fails to explain how meaning is negotiated and interpreted within the community, with its primary analytic aim of evaluating linguistic practice assuming that the central focus of the CofP will also be linguistic, when often this is not the case (Bucholtz 1999: 907). In contrast, the CofP model includes language alongside other elements involved in the negotiation and learning of meaning and explores how it develops social identity construction. In terms of this study, the grounding of the CofP model in shared practice may be useful in demonstrating how language can be used to construct and maintain a mining identity based on the joint enterprise of the community. The model may therefore account for former coal miners' shift towards a local form in the local topic of coalmining.

2.7 Identity and patterns of linguistic variation and change

Speakers are individuals who also operate within groups which influence the way they speak, such as socioeconomic class and sex, though these groups 'do not *determine* how people sound' (Johnstone & Bean 1997: 236, emphasis added).

2.7.1 Indexing identity, orientation and affiliation in linguistic practice

Speakers' drive to construct and maintain social identity is partly manifested through linguistic behaviour (Chambers 2003). An entire sub-field of sociolinguistic enquiry has emerged with an emphasis on the relationship between language and identity. Variant usage has been shown to index speakers' inclination to demonstrate certain social attributes, while rejecting others, and to signal allegiance to certain social groups (e.g. Eckert 2000, Moore 2003, Lawson 2009) or geographic places over others (Watt 2002, Llamas 2007a, Watt, Llamas & Johnson 2010, 2013) in much recent work.

Variants gain associations with repeated use in the same environments. Once this usage becomes linked to a particular speaker group or social attribute, it represents what Silverstein (2003) labels an nth-order indexical. When the correlation between language and identity acquires individual connotations and meaning, this becomes an $(n+1)^{th}$-order indexical. A further level – $((n+1)+1)^{th}$-order indexical – occurs with extra meaning so that the association between usage and speaker group gains more precision.

The three-point approach of this framework has drawn comparison to Labov's (1972a) definitions of Indicators, Markers and Stereotypes (Johnstone & Kiesling 2008). Variants labelled indicators neither exhibit variation across style nor demonstrate affiliation with any particular socio-demographic group below speakers' level of awareness. However, when indicators obtain social meaning and start to vary stylistically, at any level of awareness, they become markers, and when this meaning is explicitly linked to certain social characteristics by both speakers and listeners, stereotypes are formed. Conscious or subconscious use of markers and stereotypes is part of the formation of linguistic identity, and the presence or absence of them in speakers' production can be made with reference to social macro-factors like gender, ethnicity or socioeconomic class, and also more locally important groups and

attributes such as adolescent Jocks and Burnouts at a high school, in order to project this affiliation (Eckert 1989a, 1989b, 2000).

2.7.2 Place, community and identity

Traditional geography treated place as physical and indexed by geographical co-ordinates on a map, though economic and historical factors may also be brought to bear on the demarcation of larger areas such as regions. This physical framework was widely adopted in sociolinguistic studies for many years (Entrikin 1991: 10), until place was re-evaluated in terms of social influences on its construction (see, for example, the discussion of Eckert 2000, in Section 2.3.2, above). Now, subjective human agency is recognised as a crucial factor in the creation of regions, as 'speakers are seen as constructing place as they experience physical and social space, and different speakers may orient to place, linguistically, in very different ways for very different purposes' (Johnstone 2004: 66).

Labov's (1963, 1966) ground-breaking studies of social variation shifted the methodological interest away from the original aims of the traditional dialectological paradigm, such as the Survey of English Dialects (1962-71), which explored linguistic variation in terms of geographical places at the expense of social variation (Chambers & Trudgill 1980: 35). A further focus of this approach was to examine the dividing lines of local and traditional features before they were lost (Schilling 2013: 36). Non-mobile older rural males (NORMs, Chambers & Trudgill 1998: 29) are a group of speakers who are considered to resist change more than others (Schilling 2013: 36). Sampling primarily these types of speakers in small rural locations reflected a stated objective to capture authentically non-standard and conservative vernacular (Orton 1962: 15), though this was not always achieved (Coates 1993, Johnston 1985, Stoddart, Upton & Widdowson 1999). Subsequent work in the Labovian mould accepts that dialects are social as well as geographical (Chambers & Trudgill 1980: 54), and following a period in which geography was marginalised in variationist research, the area has been revitalised in recent years (see Britain 1991, 2005 variation across small urban locations, Llamas 2001, 2007a, Llamas, Watt & Johnson 2009, Llamas 2010, Watt, Llamas & Johnson 2010, 2013, Docherty, Watt, Llamas, Hall & Nycz 2011, Docherty, Hall, Llamas, Nycz

& Watt 2014 on the role of geo-linguistic borderland, and Lawson 2009 and Becker 2010 on correlating geographical location to linguistic identity).

Discussions of place in sociolinguistics inevitably involve the notion of the speech community. Since Gumperz (1968: 381) first defined the speech community as a 'human aggregate characterized by regular and frequent interaction by means of a shared body of verbal signs and set off from similar aggregates by significant differences in language usage' there has been much debate about how to delimit them. Gumperz's focus on language has been supplanted by the importance of member-determined community definition and identification, and 'participation in a set of shared norms' (Labov 1972a: 120). More recent interpretations are concerned with the relative nature of identity in terms of multiple memberships of separate communities; as Brown and Levinson (1979: 298-9) put it:

> Each group [is] a unit that is relevant only in relation to units of like size that for immediate purposes are contrasted with it. Thus for a man who lives in Cambridge, his territorial identification will be with Cambridge when contrasted with Newmarket, with Cambridgeshire when contrasted with Lancashire, with England when contrasted with Scotland, with the United Kingdom when contrasted with Germany, and so on.

The speech community concept has been criticised for failing to recognise delimitations based on cultural forces, groups and practices with which speakers may identify (Irvine and Gal 2000: 75). This inability to account for group allegiance stands in opposition to Acts of Identity theory, in which speakers' linguistic practice is said to refer to both personal identity and the identity of groups aligned with the speaker, with the explicit suggestion also that any linguistic patterns might demonstrate a desire to 'be unlike those from whom [the speaker] wishes to be distinguished' (Le Page & Tabouret-Keller 1985: 181). Furthermore, although groups must be identifiable and accessible to speakers, with the motivation to join desirable to speakers, and speakers having the ability to adapt their behaviour to that of the group's members, all of this is not always available to researchers aiming to observe group participation, yet all of these are factors bearing upon how a speaker's variant usage denotes an act of identity in relation to groups with which they identify.

Llamas' (2001, 2007c) study of Middlesbrough English shows how speakers' identity can be influenced by shifts in geographic groups and the impact this has on speakers' sense of place. As variant usage may index speaker orientation towards a place, it follows that the location of towns or wider geographic areas close to the boundary of linguistic or political and administrative borders can have complex ramifications for speaker identity within the community. Middlesbrough, a large town in northern England, has been subject to shifting civic identity due to changes to administrative boundaries imposed on it in the second half of the twentieth century. At different points in its existence, the town has formed part of two highly recognisable and distinct dialect regions: the North East of England and Yorkshire. Using an innovative methodology, Llamas (2007a) was able to index Middlesbrough speakers' variant distribution with their level of allegiance to each of the competing regional identities. The correlation of phonological analysis and participants' perceptual responses argued for a broadly parallel shift in orientation from Yorkshire towards the North East in terms of increased usage of local North East voiceless stop variants [ʔ͡p] and [ʔ͡k]. However, the proportion of usage of the similar [ʔ͡t] variant for the alveolar stop was much smaller and was disfavoured compared to the dominant non-local glottal [ʔ] form. These differing trends reflect the conflicted nature of Middlesbrough identity, suggesting that its identity simultaneously lies within the regional category of 'North Eastern' while retaining distinctions from other North Eastern towns and cities.

2.7.3 Language ideology and evaluation

Language ideology is a key part of anthropological and cultural studies (Woolard 1992), and its definition in sociolinguistics broadly reflects speakers' perception of and attitudes towards language use and structure (Silverstein 1979). Sociolinguistic studies which associate variant distribution with social variation have been argued to show a correlation 'mediated by an ideological interpretation of the meaning of language use' (Woolard 1992: 242). Although Labov (1979: 329) does not correlate language with ideology, his Martha's Vineyard study (1963) described the development of the most socially recognisable linguistic differentiation from the differences between the many ethnic groups within the island to between islanders and mainlanders within thirty years, leaving critics to suggest that a language ideology approach is well suited to account for the sound change analysed (Irvine & Gal 2000: 47).

Despite sharing the English language, the stigmatisation of dialects in the UK and US has been shown to differ in terms of different social factors, with British varieties focusing on social class divisions and American dialects reflecting distinctions in race and ethnicity (L. Milroy 2000). This shows different cultural and national language ideologies influencing a common language. The embedding of perceptual data in a language ideology methodology provides opportunities for speakers to offer overt evaluation of linguistic features and their salience. This framework has been used to successfully index speaker identity in terms of linguistic variants embodying opposing social or geographical groups and the resulting motivations for variant usage on the part of speakers (Dyer 2000, Llamas 2007a). Further perceptual studies working in the folk dialectological tradition (Preston 1989) have employed mapping tasks to evaluate speakers' and listeners' notions of what regions mean, what they stand for (e.g. in terms of the characteristics associated with different dialect areas; for example, a Michigan speaker describes US Midwest speech as 'boring' in Preston 1999: 362), and how they are delimited (Hartley & Preston 1999, Montgomery 2012a, 2012b). Using this methodology, Preston (1996) found that the most commonly elicited evaluations of American varieties varied on two dimensions comprising how 'standard' and how 'friendly' the dialect was assumed to be. Speech community focussing and the misidentification of other speech communities based on reduced levels of exposure and familiarity to different accents have also similarly been examined (Kerswill & Williams 2000).

Overt prestige refers to the positive assessment of a linguistic feature by socially elevated groups on behalf of the wider community (Hudson 1980: 201). Traditionally measured on a scale from vernacular to standard, the degree of localness of a speech features has become a more dominant marker of prestige recently. In contrast to overt prestige, covert prestige results from the value attached to apparently highly stigmatised non-standard or marked forms which manage to sustain or extend their usage in the face of mainstream negative evaluation (Trudgill 1974a: 96). The social awareness of different variants Is keenly observed in style shifting (Labov 2001: 196), with change from above appearing more frequently in formal speech due to the large degree of social awareness involved. In contrast changes from below start off as indicators of social group affiliation but operate below speakers' levels of consciousness, only becoming markers as social stigma begins to attach to them until they

eventually undergo style shift and are stereotyped overtly (Labov 2001: 196-7). This pattern of increasing stigmatisation leads to salience: 'a linguistic item or feature that is in some way perceptually and cognitively prominent' (Kerswill & Williams 2002: 81).

It is often the opposition of the stigmatised form to a high status variant which leads to salience, and salient features are said to be targeted by speakers adjusting their production during speech accommodation (Trudgill 1986: 37), though this claim has since been challenged by a greater appreciation of language-external factors related to cognition and social psychology which suggest that salience differs among different speech communities and social groups (Kerswill & Williams 2002).

Having established the theoretical background of this study, the next section looks specifically at how the present study was designed and carried out.

3. Methodology

3.1 Overview

As detailed in Chapter 1, this study has a dual objective to account for the patterns of linguistic production in the speech of males in East Durham according to their age and hometown, while equally tapping into the language ideology of respondents to reveal their orientations, opinions and attitudes about their geographic area. Based on the literature review, this chapter explains how this study aims to answer the research issues set out in Chapter 1, developing in greater detail what the research attempts to achieve.

The following pages describe and evaluate the methodology used in this study. Section 3.2 describes the community in which the research takes place. Section 3.3 introduces the participants who provided data for the study and explores the social attributes of the sample. Section 3.4 critically evaluates the interview protocol compared with established sociolinguistic methodologies, outlining in detail the fieldwork stage, including methods for recruiting participants and collecting data – and how successful this stage was at achieving its goals. Section 3.5 gives details of the recording process and the technologies used to store the data and prepare it for analysis. Section 3.6 describes the methods for analysing the data, namely the auditory analysis and the acoustic analysis and finally the statistical models employed to ensure the findings provided are robustly tested.

3.2 The community

In order to address the research aims of examining the degree to which local forms of pronunciation are conserved and geographically expansive variants are embraced in East Durham speech and situating these findings in the context of other varieties in the North East England region, it is necessary to explain the reasons for choosing this location as a site of sociolinguistic enquiry. This section will therefore describe the area in which the research is conducted in detail, providing social and historical information on the area covered by this research, and delimiting the geographic and administrative boundaries of the community.

3.2.1 The North East of England

This study is situated in the North East England region. Human geographers define a region as a 'more or less bounded area possessing some sort of unity or organizing principle(s) that distinguish it from other regions' (Gregory 2000: 687). In this study, the land encompassing the 'bounded area' of North East England refers to 'The North East', one of the nine official Government Office Regions of England. This area is situated east of The Pennines and runs from the Scottish border to North Yorkshire, containing the full counties of Northumberland and County Durham, alongside the metropolitan borough of Tyne and Wear, and the former North Yorkshire districts of Middlesbrough, Stockton-on-Tees and Redcar and Cleveland. Figure 1 shows the location of the North East region in relation to other regions of England.
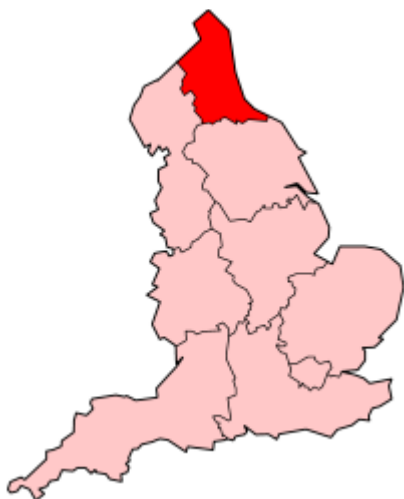
Figure 1: The North East (in red) compared to the nine other Government Office regions of England

The North East is the smallest region in England in terms of population (approximately 2.6 million in the 2011 national census) though it covers a large area (850,000 hectares), some of which is made up of wild moorland and agricultural lowlands (Aalen 2006; Vigar 2006). The three most populous settlements – the cities of Newcastle upon Tyne and Sunderland and the large town of Middlesbrough – lie on the banks of three rivers: the Tyne, Wear and Tees, respectively. The three conurbations are widely referred to as Tyneside, Wearside and Teesside both popularly and also within studies of social dialectology (Wells 1982, Pearce 2009, Beal, Burbano-Elizondo & Llamas 2012).

In the past, the North East of England has played an important role in shaping social and industrial change. It became one of the first areas in Europe to industrialize (Benneworth & Charles 2007), by exploiting its numerous coal reserves in the eighteenth century, and a need to transport the coal from inland collieries to coastal ports led to the development of the world's first public railway between Stockton-on-Tees and Darlington in the early nineteenth century (MacRaild & Purdue 2006, Muir 2006). The prosperous industrial heritage of coal mining in Northumberland and County Durham was later supplemented by shipbuilding on Tyneside and Wearside, and iron and steel engineering in Teesside. The decline of this industrial sector in the second half of the twentieth century led to mass unemployment, which has only been partially addressed by the introduction of new branches of industry based on textiles and a large automotive plant at Sunderland, as well as the growth of the service sector (Bradley 1995).

3.2.1.1 East Durham, Sunderland and Hartlepool
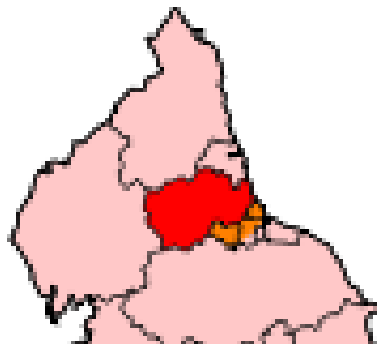
Figure 2: The location of County Durham within the North East (the administrative region is highlighted in red with three separate unitary authorities which remain part of the ceremonial county shown in orange)

Within the North East region, this research is situated more specifically in County Durham, a ceremonial county and the largest unitary authority district in the North East region (Office for National Statistics 2012), shown in Figure 2. Although the largest settlement and administrative headquarters of County Durham is the county town of Durham (population: 87,600, Office for National Statistics 2003), henceforth referred to as Durham City to avoid confusion, the focus of this study is the eastern coastal strip of the county, situated between two more populous urban conurbations either side of the county boundaries. To the

immediate north of the territory under investigation lies Sunderland, a medium-sized city with a population of 177,000 in the bordering Tyne and Wear metropolitan borough (Office for National Statistics 2003). Prior to the Local Government Act 1972, which reorganised county boundaries across England and Wales and came into effect on 1 April 1974, Sunderland was a part of County Durham. Recent dialect studies note that a perceived kinship between towns and villages in the east of County Durham and the city of Sunderland remains (Pearce 2009). Around twelve miles north-west of Sunderland lies Newcastle upon Tyne, a similar-sized city but one which has witnessed heavier investment in public facilities, to the extent that the majority of the economic affairs of the North East region are centred upon it. Consequently, Newcastle upon Tyne contributes 36.9% of the area's economic development (Organisation for Economic Cooperation and Development 2006). Sunderland is often considered Newcastle upon Tyne's great rival both socially and culturally (Kerswill 2003, Beal 2004, Pearce 2009), though this comparison sometimes leads to claims of Sunderland being Tyneside's 'poor relation' (Burbano-Elizondo 2006: 113). Due to this inter-city rivalry between Tyneside and Wearside, the Sunderland identity – both cultural and linguistic – is often characterised by distinctiveness from Newcastle upon Tyne (Burbano-Elizondo 2006).

To the south of the current administrative county boundaries lies the medium-sized town of Hartlepool. With a population of 92,000, Hartlepool is the principal settlement in its own unitary authority, the Borough of Hartlepool (Office for National Statistics 2003). Like Sunderland, the town was part of County Durham prior to the local government boundary changes of the 1970s and retains ceremonial ties to the county (Moorsom 1996: 22). However it is now more commonly linked to the Teesside urban conurbation which also includes Middlesbrough (Pearce 2009: 177-8). No previous sociolinguistic studies of Hartlepool exist, though the town is investigated in the ongoing 'Stability and Shift in Accents from Tyne to Tees' project at The University of York (see Llamas, Watt, French & Roberts 2011).

Although dialect summaries tend to group together the entire North East area from the borders of North Yorkshire to Scotland as one dialect region (Wells 1982, Trudgill 1990), recent studies at a more local level suggest that differing distributions of phonetic variables

are indexing distinct linguistic identities in the three main conurbations of the region (see, for example, Beal (2000) on shibboleths local to Newcastle upon Tyne and Sunderland in the MOUTH vowel, and Llamas (2000) on glottal stop realisations reflecting a Middlesbrough identity distinct from other North East locations). In particular, the areas either side of the territory examined in this study – both Wearside, including Sunderland, and Teesside, containing Hartlepool – can be viewed as different dialect sectors of the North East of England region (Pearce 2009, Beal, Burbano-Elizondo & Llamas 2012).

The east of County Durham – which is the focus of this study – is coterminous with the former Easington local government district also popularly referred to as East Durham (Pearce 2009: 176). As Easington is also the name of a village within the wider district, the district will henceforth be referred to as East Durham to avoid confusion. Although the district was subsumed into a larger local authority area encompassing the whole of County Durham in 2009, East Durham remains a stand-alone entity politically, with the parliamentary constituency, also named Easington, covering roughly the same area as the former council district.

Figure 3: The location of East Durham (in red) within County Durham

The location of East Durham within the wider county is shown in Figure 3. In a spatial analysis of economic flows across North East England, Mooney & Carling (2006: 17) found East Durham to show 'quite a high level of self-containment, although there are noticeable flows to the neighbouring districts of Sunderland, Hartlepool and Durham (City)'. In terms of perceptual dialect boundaries – where non-linguists express their knowledge, thoughts and feelings about language (Preston 1999: xxv) – residents of East Durham perceive only people from other towns and villages in this district to speak 'the same' as them, meaning East Durham constitutes a stand-alone perceptual area within the North East region (Pearce

2009: 171-2). This is important as speakers' perceptions about variation and change may influence their own behaviour, therefore affecting how language is used in a given geographic area (Preston 2003: 123). The largest settlements in East Durham are Seaham and Peterlee; in both towns residents consider speakers in the other location to speak in a 'very similar' way to them (*n* = 64, Pearce 2009: 171-2). Seaham (population: 21,700, Office for National Statistics 2003) is a small town and harbour bordering the southern outskirts of Sunderland. It contains the historic settlement of Old Seaham, which remains in the form of the seventh century church of St. Mary the Virgin – one of only twenty pre-Viking churches in England (Visit County Durham 2014). However, significant development did not arrive until the early nineteenth century when the Old Seaham estate was bought by the 3rd Marquess of Londonderry in order to build a railway and harbour to rival the nearby ports at Sunderland and Hartlepool in shipping out coal from the network of pits across inland County Durham (Fleming 2005).

The Durham coalfield was a large part of Britain's once extensive mining industry. Coal extraction in the area is recorded as early as the thirteenth century, with significant development from the 1830s onwards (Wilkinson & McCay 1998). In line with the growth of the local coal industry, traffic in and out of Seaham harbour grew steadily in the 1830s, from 1504 vessels in 1835 to 1782 two years later. This rise led to the sinking of pits in the coastal area for the first time with the opening of Seaham Colliery in 1852 (McNee & Angus 1985). The increased shipments of coal coming from new collieries led to expansion of the harbour dock in 1905, and the need to accommodate the colliers working at the pit precipitated a population increase from 10,000 in 1901 to 15,000 in 1911. It was around this time that the village of Dawdon, previously a farmstead and 'township' of 35 people at the time of Londonderry's acquisition of the Seaham estate, was chosen to be the site for Seaham's second pit. Coal was worked at Dawdon from 1907, and by 1920 output was at one million tons a year with 3300 men working at Dawdon Colliery alone (McNee & Angus 1985).

Year	1811	1831	1851	1871	1891	1911	1931	1951	1971	1991
Pop.	2,386	3,893	21,335	33,591	44,351	74,036	105,582	108,050	108,749	99,098

Table 1: Table of population change of East Durham district 1811-1991
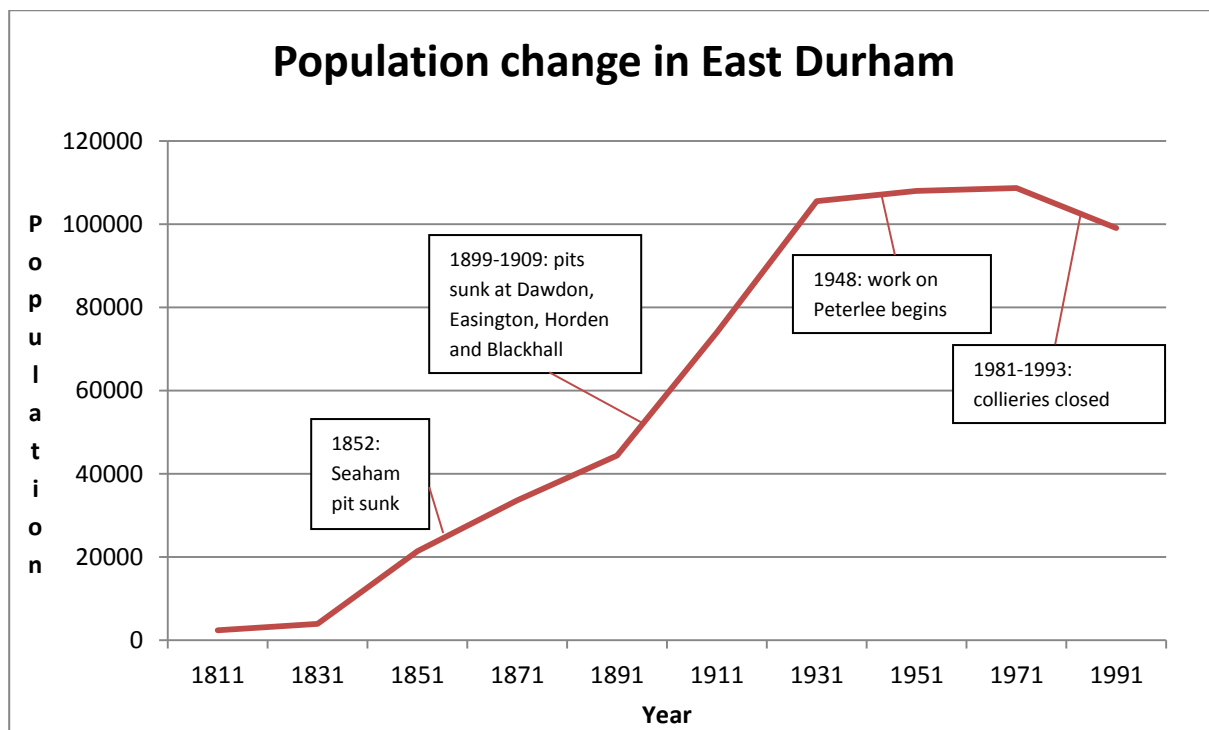
Figure 4: Graph of population of East Durham district 1811-1991

The area south of Seaham was mainly rural and lay under the control of the Prince Bishops of Durham who had occupied an archdeaconry in the small settlement of Easington since the thirteenth century (Durham County Council 2014). As in Dawdon, the expansion of the Durham coalfield down the coast at the turn of the twentieth century brought the first major development to the area. Pits were sunk at Easington in 1899, Horden in 1904 and Blackhall in 1909 (Durham Records Office 2012) and the villages grew around the collieries. Table 1 and Figure 4 show that during the twenty year census period when Dawdon, Easington, Horden and Blackhall collieries opened, the population of the entire district increased 67% from 44,351 to 74,036 (census data provided by Historical Geographical Information Survey 2014).

As the coal mines continued to boost the population of East Durham in the early twentieth century, attention began to turn to the housing in which the miners and their families lived.

House building had been entirely the domain of private enterprise, with scant consideration for wider social consequences, meaning housing conditions in East Durham had barely changed from the nineteenth century (Alexander 2009: 33). As a solution, Clement Attlee's Labour Government sanctioned the designation of the new town of Peterlee at the request of the local council in 1947. Situated roughly equidistant from the cities of Sunderland to the north, Durham City to the west, and the town of Hartlepool to the south, Peterlee was Britain's seventh new town and hoped to offer an 'opportunity for breaking with the unhappy tradition that miners and their families should be obliged to live in ugly, overcrowded villages clustered around pitheads' (Draft Easington New Town (Designation) Order 1947, cited in Osborn & Whittick 1977: 272). Thus, in contrast to other new towns which encouraged social dispersal from larger urban hubs, Peterlee was intended to provide a concentrated urban centre for all the smaller East Durham mining communities (Allan 2000: 105). In line with many contemporary new towns there were grand designs to create showpiece public art structures in Peterlee. However a planned central plaza conceived by modernist architect Berthold Lubetkin could not be implemented due to the risk of subsidence in an area where coal was being mined (Alexander 2009: 34). Although this new town utopian vision was never fully realised in Peterlee, it has remained the largest settlement in East Durham since its inception (population: 30100, Office for National Statistics 2003).

As the twentieth century wore on, a process of deindustrialisation swept across Britain, and the Durham coalfield was gradually closed from the 1960s onwards, despite being highly mechanized, with thick seams and significant output (Bulmer 1978: 237). However, it was the Tory governments of Margaret Thatcher and John Major who oversaw the decline of the mining industry in East Durham, as part of a nationwide pit closure programme across the country in the 1980s and early 1990s (Schmidt 1992, Black 2009); Blackhall Colliery was the first coastal colliery to close in 1981 (Beynon, Hudson & Sadler 1985: 45), and Easington Colliery was the last pit in the entire coalfield when it was shut in 1993 (Englebrecht 2014). The mining tradition of the area in this era has become familiar to a wider audience thanks to the popularity of the 2000 motion picture and subsequent stage show *Billy Elliot*, cast against the backdrop of the Miners' Strike of 1984-85, and set and filmed in the village of Easington

(Pidd 2014). Since the closure of the mines, East Durham has suffered from economic deprivation and unemployment remains high despite the introduction of several business parks on former colliery land and concerted efforts to regenerate the area (Wilkinson & McCay 1998: 210). East Durham is shown to suffer from high deprivation by several objective measures: it is the eighth most deprived district in England (Department for Communities and Local Government 2006), it has the second-lowest index of average household income in England (CACI Information Solutions 1999), and it is the area with 'the lowest level of business activity' in England (Troni & Kornblatt 2006: 29).

3.2.1.1.1 The four villages

Four equally-sized and socially similar villages in East Durham were selected for investigation in this study. The villages are, from north to south: Dawdon, Easington, Horden and Blackhall, shown in Figure 5. Except for the larger town of Seaham, the four villages are the only populated settlements on the County Durham coast, and the three southern-most villages cover a geographically contiguous north-to-south span of coastline stretching 5 miles (8 kilometres). By the quickest route, the northern-most village of Dawdon lies around 5 miles (8 kilometres) further north, though the coastal area between Dawdon and Easington is unpopulated. All four villages have very similar population sizes: Dawdon is the smallest village with 7,220 residents, and Horden the largest with 8,087 residents (Office for National Statistics 2012). However, there are population density differences, with Easington (2,284 hectares, 3.4 people per hectare) and Blackhall (2,986 hectares, 2.5 people per hectare) covering considerably larger areas than Dawdon (399 hectares, 18.1 people per hectare), which adjoins to the larger locality of Seaham, and Horden (475 hectares, 17.0 people per hectare), bordering the larger settlement of Peterlee. Regardless, the population density of the four villages is small when compared to the overall figure for the United Kingdom of 256 people per square kilometre (Office for National Statistics 2012).

Figure 5: **Location of the four villages sampled in this study within East Durham**

Village (contrasted with England overall)	% of homes owned	% of economically-active residents unemployed	% of residents born outside the United Kingdom	% of residents from a non-white ethnic background	% of residents in 'bad' or 'very bad' health	% of residents with no qualifications
Dawdon	60.2	6.8	5.0	2.0	9.1	33.0
Easington	64.6	5.2	1.9	0.8	10.8	35.0
Horden	57.7	6.8	1.9	1.5	14.5	40.2
Blackhall	67.5	5.3	1.3	1.0	11.0	35.3
England	*63.3*	*4.4*	*13.8*	*14.6*	*5.5*	*22.5*

Table 2: Key social and economic statistics of the four villages (2011 census)

The four villages are socially and economically homogeneous, as demonstrated in Table 2. According to figures from the 2011 census, between half and just over two-thirds of homes are owned outright or through a loan or mortgage across the four locations, which is consistent with the figure across England. However, all four villages show an increased proportion of unemployment when compared to the figure across England. The northern-most village of Dawdon is the most culturally and ethnically diverse village, but all four locations are populated predominantly by white British people, and are considerably less diverse than the national demographic. All four villages also demonstrate a considerably higher rate of residents with poor health and with no qualifications than the figure across England.

The villages form an almost continuous north-south line between Sunderland and Hartlepool. Administrative ties exist to both Sunderland and Hartlepool, with Dawdon, Easington and Horden taking Sunderland's SR postcode and Wearside's 01915 telephone code. In contrast, much of the rest of the county takes the Durham equivalents of DH and 01913. Despite having the same telephone code as the other towns, Blackhall is subsumed under Hartlepool TS27, an administrative boundary on the border between Horden and Blackhall. The area's

peripheral status is augmented by its relatively poor transport links. Although the north-south A19 trunk road links the villages to Sunderland and Hartlepool, there is only one intermediate station – at Seaham – between these two larger areas on the passenger rail line, despite the fact that the tracks run directly through all four villages; the stations at Blackhall, Easington and Horden all closed in 1964. Easy east-to-west transportation is also disrupted by the lack of a dual carriageway link to Durham City.

3.2.2 Reasons for exploring the language of East Durham

There are several reasons for choosing the four villages as the setting for this study. Firstly, they form part of an area which has largely been ignored in linguistic studies in the past, including in traditional dialect studies such as the Survey of English Dialects (Orton & Dieth 1962-71). Although recent sociolinguistic research has examined nearby areas such as Sunderland (Burbano Elizondo 2006, 2008), Durham City (Kerswill 1984, 1987, 2003), Teesside (though chiefly Middlesbrough rather than Hartlepool) (Llamas 2001, 2006, 2007, 2014, Snell 2010, 2013), and the south-west Durham towns of Darlington (Atkinson 2011) and Newton Aycliffe (West 2009), no study of East Durham speech or dialect exists apart from the perceptual work of Pearce (2009) and input from speakers of the variety to Griffiths' (2007) glossary of mining terms which developed from the local coalmining industry. Furthermore, larger-scale nationwide studies set in the traditional dialectology framework, such as the Survey of English Dialects, henceforth S.E.D. (Orton & Dieth 1962-71), disregard the area altogether with the nearest location some 13 miles (20 kilometres) inland. The omission of East Durham villages may have something to do with the S.E.D.'s stated preference for 'agricultural communities that had a fairly stable population of about five hundred inhabitants for about a century or so' (Orton & Dieth 1962: 15). The rise in coalmining in East Durham in the first decade of the twentieth century brought population increases and a (small) degree of urbanization incompatible with the aims of the S.E.D.

This study makes use of small urban locations rather than rural areas or large heterogeneous cities. Since the advent of the quantitative paradigm and the shift away from traditional rural dialectology studies represented by the S.E.D., many sociolinguistic studies have focused on large cities (Labov 1966 in New York, Sankoff & Cedergren 1971 in Montreal, Trudgill 1974a

in Norwich, Milroy & Milroy 1978 in Belfast, Watson 2007 in Liverpool, Lawson 2011 in Glasgow), perhaps in light of Fischer's (1984) view that small towns do not reflect cultural diversity in the way that larger cities do. However, the change towards sampling the cultural melting pots provided by large cities has occurred almost simultaneously with a period of increased counter-urbanisation (Britain 2012: 19-20) and dramatic demographic decline in the large cities of many economies in the second half of the twentieth century (Oswalt & Rieniets 2006: 6). Furthermore, smaller urban locations have shown striking patterns of variation and change too (see Britain 1991, 2005 on Fenland villages, and Llamas et al 2009, Llamas 2010, Watt, Llamas & Johnson 2010, 2013, Docherty, Watt, Llamas, Hall & Nycz 2011, Docherty, Hall, Llamas, Nycz & Watt 2014 on Scottish-English border towns), and are particularly noted for a perceived conservativeness in linguistic production:

> 'One of the most informative constructs which can shed light on the origins and development of languages is the relic area. Such areas, because of their peripheral geographic location and/or isolated social/political circumstances, tend to preserve older features' (Tagliamonte, Smith & Lawrence 2007: 90-91)

Isolated or depopulating speech communities have been shown to exhibit processes of complexification and conservatism (Trudgill 2002a). Section 3.2 detailed the population decline in East Durham since the mine closures, and other research has shown that despite links to Sunderland, Hartlepool and Durham City, residents of the East Durham communities are relatively 'inward-looking' (Mooney & Carling 2006: 18) in terms of where they go to work, shop, spend their leisure time, and carry out their other 'spatial practices' (see Britain 2010: 197-99 for a fuller definition). Speakers who remain in such areas have been shown to maintain or increase dialect distinctiveness and diverge from other nearby areas (Schilling-Estes & Wolfram 1999).

The East Durham villages are also contiguous locations bordering two dialect zones: Sunderland (Wearside) to the north and Hartlepool (Teesside) to the south. Recent work has examined the effect of geographic and administrative borders on linguistic production (Cramer 2010 on the Southern-Midland border in the U.S.A.; Llamas et al 2009, Llamas 2010, Watt et al 2010, 2013, Docherty, Watt et al 2011, Docherty, Hall et al 2014 on the Scottish-

English border) and the linguistic identity of locations situated between two dialect regions (Llamas 2000, 2001, 2006, 2007 on the relationship of Middlesbrough to both North East England and Yorkshire). The individual character of small towns and villages has been particularly highlighted in North East England – as Pearce (2009: 165) emphasises, it is striking 'how big the differences in accents can be even with neighbouring towns' – though no studies of linguistic production have attempted to test this claim.

Exploring the speech patterns of East Durham can also contribute to the current understanding of varieties of English in the North East region. Sitting between Sunderland and Hartlepool, the East Durham villages are suitably positioned to examine the extent of diffusion of certain current vernacular changes in British English both in terms of the degree of shift across closely-situated, small, urban localities and also in terms of the geographical proximity of the villages – and orientations of speakers within the villages – to larger urban centres in different dialect zones. It also provides an opportunity to add further evidence to claims of supra-local or regional standards in North East English (Watt and Milroy 1999, Watt 2002).

Finally, it is worth pointing out that the researcher is a native of East Durham and lived there to the age of eighteen. Studying one's home town is not uncommon in sociolinguistic studies (see Trudgill 1974a, Llamas 2001, Flynn 2012) and researchers who do so can use their own local knowledge to work out where variation will be found in the variety. Native fieldworkers also appear 'less obviously foreign' (Trudgill 1983: 43) to participants, which may facilitate access to speakers' unmonitored speech style. By way of an example, in the study of her Northern Ireland home town, Douglas-Cowie (1978: 39) found participants 'more likely to switch to a more standard linguistic code in the presence of a stranger, particularly if he was a well-educated Englishman with an RP or modified regional accent'.

3.3 Sample

The study aims to observe language variation across the geographic span of East Durham, evaluate generational changes in speech patterns in speakers in the area, and detect the linguistic and social factors which condition variant use in East Durham. In order to address the research aim of accounting for change in East Durham English, it is therefore necessary to

explore methodological issues around apparent time change, contrasting the present-day speech patterns of younger adults with older adults.

Both younger and older speakers in all four villages were recorded within the same period (between 2011 and 2013), meaning language variation may be mapped across area and language change can be measured across apparent time (Chambers 1995: 193, and see Literature Review Section 3 for a discussion of real and apparent time approaches to language change).

3.3.1 Social variables analysed in this study

As discussed in Section 3.2, the East Durham geographic area is socially homogeneous. In order to investigate the two independent social variables of participant age and participant hometown, this study uses judgement sampling stratified by the selection criteria of these two variables. In contrast to random samples where participants are selected by chance in order to give each member of the community an equal probability to take part, in stratified judgement samples, 'the researcher identifies in advance the types of speakers to be studied and then seeks out a quota of speakers who fit the specified categories' (Milroy 1987b: 26).

3.3.1.1 Age

In terms of age, speakers were divided into two emically-defined cohorts (Friedman & Schustack 2003: 448), whereby speakers are arranged into groups which encompass a shared life stage with a fairly objectively agreed definition. In practice, this means emically-defined cohorts might therefore comprise adolescents, students, or retirees, for example. In this study, emically-defined cohorts have been adopted over an alternative approach which promotes consistency in the age ranges of different speaker groups. Such etically-defined cohorts might thus organise speakers by decades, such as speakers of 30-39 years of age, or speakers of 35-44 years of age, but this method trades equality of age span for an apparently arbitrary approach to age division. In this study, two emically-defined groups were assembled which roughly represented the life stages of young adulthood and retirement. Choosing two rather extreme age ranges was deliberately planned to coincide with the changing identity of East Durham in terms of the local coal industry – with the older

generation growing up when mining was a major local employer, and the younger generation raised since the closure of all of the local collieries – as the remainder of this section will detail.

Sixteen speakers comprise the young adult group (henceforth 'younger'). The age span is 18 to 32 years of age (mean = 23.5 years) at the time of recording, meaning speakers in this age group were born between 1979 and 1993. This is almost a direct match with the timeline of pit closures in East Durham (from 1981 to 1993), as mentioned in Section 3.2, above. It confirms that none of the younger cohort had the opportunity to work in a coalmine and suggests that even the oldest participants in the younger group grew up with the coal industry in the throes of terminal decline in their local area.

There are also sixteen speakers in the retirement group (henceforth 'older'). The age span of this cohort is wider in scope than the younger group, ranging from 61 to 86 years of age (mean = 71.2 years). Speakers in this group were thus born between 1925 and 1950, growing up among a thriving mining industry in East Durham and having the opportunity to work at one of the many pits in the region for up to an almost entire working life (with many of the participants in this study working in collieries until at least their early 50s, though some elected to leave mining work at an earlier age before the pits closed). From the two age groups, apparent time variation and its connection with the demise of the local coal industry and the changing attitudes of the speakers towards the coal industry and other aspects of local geography was examined.

Analysing generational differences may show changes in variant distribution across age groups, such as a pattern of variant innovation where the incoming variant in the sound change occurs more often in younger speakers than older speakers, or a pattern of variant decline where the outgoing variant in the sound change occurs more frequently in older speakers than younger speakers (McMahon 1994: 241). Missing from this analysis is an investigation of the U-curve effect in terms of prestige variants. Typically, a U-curve pattern shows the linguistic variable unaffected by change, with a preference for low prestige forms characteristically found among the speakers at either extreme of the lifespan, compared to more high prestige forms being produced by middle aged speakers. The preference for

higher prestige forms in this age group is often related to greater pressure to conform to societal norms during working life (Holmes 2001: 186), a pressure which is not so apparent in life stages which occur after leaving the world of work or before entering it (Eckert 1997: 164). The absence of speakers aged 33 to 60 in this study means that such an analysis will not be pursued.

3.3.1.2 Location

Location differences are sought in this research due to the highly fine-grained variation noted in other studies of small, closely-situated locations (Britain 1991, 2005, Llamas, Watt & Johnson 2009, Watt, Llamas & Johnson 2010, Llamas 2010, Docherty, Watt, Llamas, Hall & Nycz 2011, Watt, Llamas & Johnson 2013). As each village had its own pit for most of the twentieth century, it is possible that separate civic identities emerged for each village, potentially leading to individual speech communities with distinctive dialectal features. Alongside that, the relationship of the villages to the slightly larger nearby settlement of Seaham, the creation of the new town of Peterlee in the 1940s (see Kerswill & Williams 2000, 2005 for discussion of koineization development in new towns), and the considerably larger urban hubs of Hartlepool and Sunderland, brings into play attitudes and orientations of residents to these other areas. Furthermore, given the dialect differences between Hartlepool (and the wider Teesside area) and the Wearside conurbation centred on Sunderland (highlighted, for example, in Beal, Burbano-Elizondo & Llamas 2012), exploring the speech patterns of residents from the populated settlements between these two larger dialect areas offers the opportunity to pinpoint exactly where one form stops being used and another begins, or, alternatively, the degree of shift in realisations across the intermediate area.

	Dawdon	Easington	Horden	Blackhall
Young (18-32)	4	4	4	4
Old (61-86)	4	4	4	4

Table 3: Design of fieldwork sample

In the sample stratified by age and location there are four speakers per cell, which is a small but sufficient figure consistent with other sociophonetic studies (e.g. L. Milroy, J. Milroy & Docherty 1997, Llamas 2001, Flynn 2012). Table 3 displays the sample divided by the social variables examined.

3.3.2 Social variables excluded from analysis

Section 2.6, above, outlined the necessary ingredients for Community of Practice membership. Members of a CofP must share a mutual engagement other than something deriving from 'pre-existing commonality' (Eckert & McConnell-Ginet 1999: 186) and it may not always be co-operative, but is based around a jointly negotiated enterprise pursued by its members (Meyerhoff 2002: 528). Social factors such as age, sex, ethnicity, and socioeconomic class often impinge on an individual's exposure to and ability to participate in such a joint enterprise (Eckert and McConnell-Ginet 1992: 472), though the framework has been criticised as unable to account for the power structure driving CofP membership (Davies 2005: 576). More recently, potential barriers to CofP membership have been broadened to include speaker-specific traits such as personality or ability (Lawson 2011: 90).

In this study, eleven of the sixteen older speakers were members of a widely-networked CofP who carried out and assisted in the action of mining coal in the same geographic division of a national industry. All of these speakers were drawn from the older cohort, with the remaining five older speakers working in similar manual occupations as hauliers and dockworkers. As the literature suggests, social factors bear strongly on membership of this CofP. For example, no women worked as coal miners in Durham, with 'sharp division between men's world and women's world' noted in coal mining communities historically (Bulmer 1975; cited in Warwick & Littlejohn 1992: 30). For this reason, all of the data analysed was from male speakers, with the focus on the effect of membership, as opposed to non-membership, of a coal miner CofP. As women did not work as miners in Durham, and therefore cannot claim membership of a coal miner CofP, it was decided to analyse only male speakers outside of the coal miner CofP, to control for gender effects across this comparison. The decision to sample men exclusively was not taken lightly, as the effect of sex and gender-influenced identities as a social factor has been shown time and again to be an influential

factor in constraining variation in new and novel ways (Labov 1972a, Cheshire 1987, Eckert 2000). Furthermore, gender as an independent variable has been shown to be one of the most significant factors of variation and change in sociophonetic and dialectological studies across the geographic span of North East England (see Kerswill 1984 on Durham, Watt 2002 on Newcastle upon Tyne, Llamas 2007a on Middlesbrough). Despite this, the CofP model was first introduced into linguistics in a paper conceptualising gender as a practice-based activity (Eckert & McConnell-Ginet 1992) and has since been widely adopted to analyse same-sex groups of speakers (Moore 2003, Alam 2007, Mendoza-Denton 2008, Lawson 2011). Furthermore, Labov, Cohen, Robins & Lewis's influential New York street gangs study (1968) explored only teenage male speech, and the N.O.R.M. selection criteria considered non-mobile older rural males to be the 'ideal' participants (Chambers & Trudgill 1998) for the Survey of English Dialects as they were the group considered to most frequently use the vernacular (Orton 1962: 15) – with the aim of capturing the vernacular consistent with the objectives of this study.

For these reasons, gender and socioeconomic class are not explored in this study. Despite some differences in terms of home ownership versus rented property for the older cohort, all speakers identified as working class, and assignation of speakers to a given class based on the ward or district which they live, so that 'working class' speakers are recruited from areas considered to match the definition of a working class neighbourhood with reference to a number of objective measures of social and economic provision (see L. Milroy et al. 1997; Watt 2002 also employs this method in nearby Newcastle upon Tyne), did not seem to misrepresent or in any way offend any of the participants in this study. As discussed in Section 3.2, the four locations were selected for their similar (predominantly working class) social make-up and no participant noted that any location is in any way more prestigious than the others. Furthermore, there did not appear to be marked variation in income across the sample: most of the older cohort had retired from manual labour employment and most of the younger cohort were in full-time education or worked in the service sector.

However, despite this there were differences in terms of the highest level of education attained, which has been shown to function as a proxy of social class in several sociological (Duncan 1961, Michael 1962) and sociolinguistic studies (Trudgill 1974a, Labov 2001). In the

East Durham sample, seven of the younger cohort had not attended university, though two of these were about to begin undergraduate courses within a few months of the interview. Of the remaining nine, four studied locally at the Universities of Sunderland or Northumbria, with two attending the University of York, and the remaining three at the Universities of York St John, Leeds Beckett, and Edinburgh. In contrast, only two of the older cohort had attended university and both had studied at the University of Durham after leaving the coal industry as mature students. A link has been drawn between level of education and pronunciation differences, with some researchers claiming that linguistic production which shows 'little or no dialectal influence... might be an index of higher education' (Jessen 2007: 188).

Another social variable omitted from the study is ethnicity. Despite many recent studies (Fox 2007, Torgersen, Kerswill & Fox 2007, Kerswill, Torgersen & Fox 2008) demonstrating its significance in conditioning linguistic changes, East Durham has been consistently dubbed 'the whitest place in Britain' (Frean 2003, Manzoor 2006, Casciani 2008). While there is anecdotal evidence to suggest that East Durham has begun to welcome a Polish expatriate community over the past decade or so (Casciani 2008), the reality is that such inward migration represents only a 'trickle' in an area that contained 'the absolute least number of people born abroad' in England (Casciani 2008) at just 1.2% of the total population of the district, according to data from the 2001 census (Office for National Statistics 2003). Preliminary figures from the 2011 census show little change, with the proportion of non-British-born residents at 3.2% and the proportion of non-white residents at 1.8% *across the whole county of Durham*, not just in the coastal district which forms the focus for this research (Office for National Statistics 2012).

3.4 Data elicitation

The research aimed to gather enough data to analyse around sixty tokens per variable, as sociolinguistic conventions hold that no fewer than thirty tokens of each variable studied should be examined per speaker in order to provide meaningful results and robust statistical analysis (Guy 1993, Milroy & Gordon 2003, Gordon 2007: 21). To ensure that an adequate number of tokens were collected and to elicit data from different styles, an interview

protocol based on methods discussed in Labov (1972: 70-109), Llamas (2001: 66-94) and Chambers (2003: 18-19) was established.

3.4.1 The sociolinguistic interview

In order to collect conversation data and to compare variation across style, sociolinguistic interviews (developed by Labov 1966, 1972a, and discussed in Labov 1984) were conducted by the fieldworker in addition to the read speech tasks. The read speech tasks required reading a list of words and a passage of continuous narrative text aloud. The word list task consisted of two hundred and fifty lexical items divided onto individual frames (one per word) of a Microsoft PowerPoint slide show. The list of words was composed for a study of vocalic variation in nearby Tyneside (Llamas, Watt, French & Roberts 2011) with minor amendments made by Llamas, Watt and the researcher of this study to suit the different speech sample. The final list can be found in Appendix I and contains an array of phonetic variables in differing phonological environments (e.g. 'sure' vs. 'cure') and potentially homophonous items with differing orthographic representations (e.g. 'soot' vs. 'suit'). All of the keywords adopted by Wells (1982) to represent the standard lexical sets appear.

The reading passage was a fictitious narrative named 'Fern's Star Turn', containing six hundred and thirty six words in eight paragraphs. It was designed for a large-scale research project, 'Accent and Identity on the Scottish-English Border' carried out at The University of York (see Llamas, Watt & Johnson 2009, Watt, Llamas & Johnson 2010, Llamas 2010, Docherty, Watt, Llamas, Hall & Nycz 2011, Watt, Llamas & Johnson 2013, Docherty, Hall, Llamas, Nycz & Watt 2014) and contains many of the items that appeared in the word list. A copy of 'Fern's Star Turn' can be found in Appendix II.

3.4.1.1 The Survey of Regional English methodology

Alongside these read speech elicitation tasks, the study employs two further tools designed for the Survey of Regional English methodology (henceforth SuRE) established by Llamas (1999, 2001). The method was designed to explore social variation in any location in order to provide uniformity and consistency in the collection of data in studies of language variation and change across the United Kingdom (Llamas 2001: 66). The two data elicitation tools will

be considered in the following subsections, beginning with the Sense Relation Network and followed by the Identity Questionnaire.

3.4.1.1.1 Sense Relation Network

Instead of following the format of a list of questions, the Sense Relation Network is a dialect exercise involving a visual representation of a 'web of words' (see Aitchison 1997: 61). In the web, standard notion words are linked to subdivisions, which in turn form part of a particular semantic field (Lehrer 1974), allowing fieldworker questions to interviewees to be grouped by subject matter, similar to the Survey of English Dialects. Subject-led organisation of the notion word prompts (rather than, for example, a random or alphabetical ordering) leads to more spontaneous responses from participants (Johnston 1985: 83), and the request for dialectal synonyms skews the data collected towards more informal speech styles.

In completing the task, respondents were encouraged to consider whether they use and have knowledge of any dialect-specific synonyms for each standard notion word and to evaluate their usage, distribution and social meaning within their own local area (Llamas 1999: 98).

The Sense Relation Networks follow a visual format akin to word trees, and are designed to have a positive and non-threatening visual impact as this is considered important in generating participant enthusiasm for completing the task, as evidence from language teaching has shown (Gairns and Redman 1986: 96, Ur 1988: 20). Two of the three source networks devised by Llamas (1999) were used in the present study, with the remaining template reworked to elicit the topic of coalmining. A copy of all three Sense Relation Networks used in this study can be found in Appendix II.

The original semantic fields, sub-divisions and notion words were chosen with reference to similar items used in previous questionnaires such as the S.E.D. and the Linguistic Atlas of the Middle and South Atlantic States (Kretzschmar, McDavid, Lerud and Johnson 1994), as well as guidebooks to local dialect forms, such as 'Geordie words and phrases' (Todd 1987). Similarly, terms in the coalmining Sense Relation Network were drawn from 'Pitmatic: The Talk of the North East Coalfield' (Griffiths 2007) – which, despite purporting to cover the

entire Northumberland and Durham coalfields, heavily utilises data from East Durham miners – as well as researcher introspection, and all terms were verified for accuracy by members of the East Durham Heritage Group before being used in the study.

3.4.1.2 Conversational data

As well as the Sense Relation Networks, speakers participated in an extended conversation with the researcher. The sociolinguistic interview followed a recognised format as detailed by Labov (1984: 32-45) and reviewed by Milroy & Gordon (2003) and Tagliamonte (2006) among others. In practice this meant drawing up a list of interview questions, though these were not asked rigidly in the same sequence in every interview, but were rather used as a reference point by the interviewer to ensure that all necessary content was covered. The interviewer tried wherever possible to let the conversation flow organically and allowed the participant(s) to take the discussion in a direction of their choosing so long as all interview questions were addressed.

As discussed in Section 3.3.1.3, above, a key objective of the interviews was to elicit speech about certain topics so a structure was established in order to obtain topic-demarcated data. Although other studies have investigated topic-shifts from sociolinguistic interview data (Lawson 2011), few have built into the interview structure explicitly demarcated topic areas to which participants are deliberately steered by fieldworkers. An exception is Becker (2010: 35-6), who blended sociolinguistic interview conventions with the oral history tradition, dispensing with read speech tasks and meta-linguistic commentary questioning, but retaining a focus on narrative responses. While this approach permitted broad exploration of conversational differences in topic, a major drawback is the preclusion of a discussion of stylistic differences. This research follows Becker's modular framework for conversational topic, but reinstates the comparison with read speech, as demonstrated in Figure 6.

A strong correlation has been observed between coal mining in the villages of Durham and perceptions of dialect, leading perceptual dialectologists to claim that 'the influence of coal mining on both the physical and internal mental landscapes of County Durham has been enormous' (Pearce 2009: 176). Given the economic void and cultural imprint left by the coal mining industry on East Durham, 'with nearly 90% of the local working population absorbed

in the mining industry' in the 1940s (Allan 2000: 105), the four villages of this study provide the ideal site for testing whether highly locally-focused conversational topics such as coal mining in East Durham condition the realisation of localised phonetic variants, and additionally whether those local forms are retained over time, in the speech of a generation of participants who have lived in East Durham only since the closure of the collieries in the 1980s and 1990s. Two further discussion strands will investigate other local topics unrelated to coalmining and non-local topics in order to provide benchmarks for comparison of the effect of conversational topic as an explanatory framework in conditioning phonetic variation.
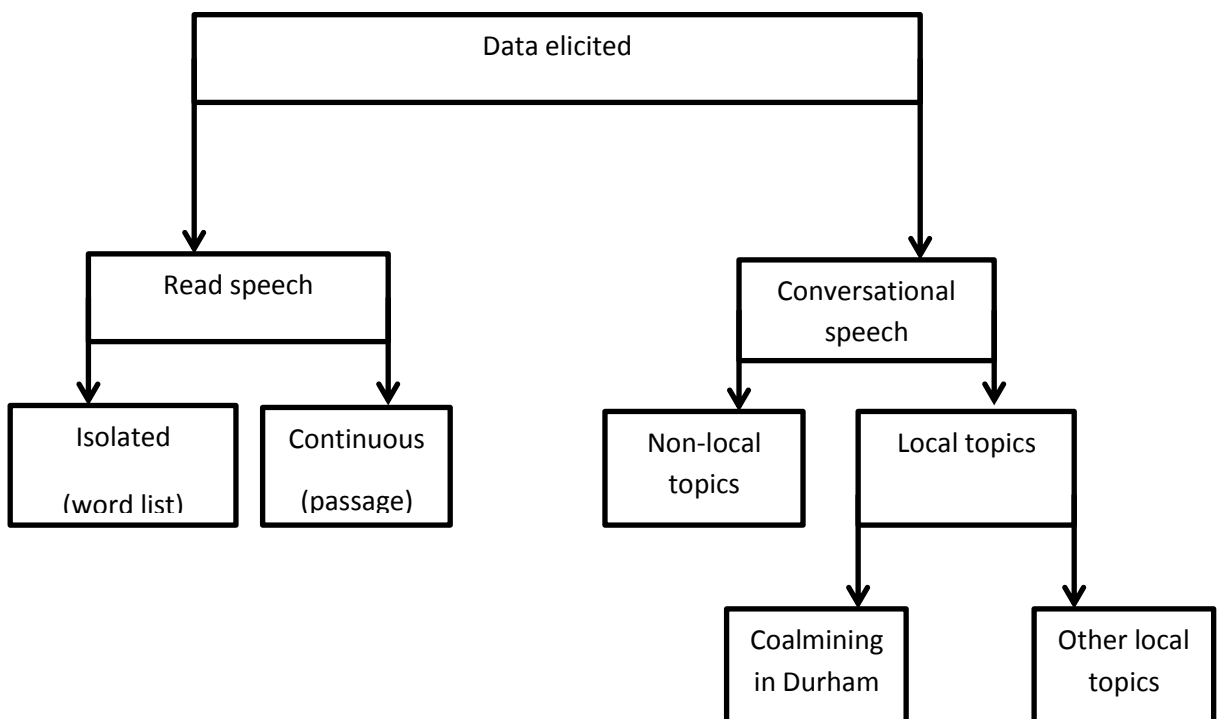
Figure 6: Levels of data elicited in the sociolinguistic interview

The interview questions were therefore divided into three conversation topic areas which were crucial to the analysis:

- a discussion of the local coal mining industry;
- a discussion of other local topics excluding coal mining;
- a discussion of non-local or general conversation topics.

The non-local or general topics typically included discussions of current affairs, holidays abroad or outside the North East of England, and hobbies such as favourite films, television programmes and music tastes. The local topics other than coal mining focused on participants' attitudes towards their hometowns and the local area now and in the past and included discussion of local sport, things to do, nightlife, and accents (see Section 3.4.1.2.1 for more discussion of this). Mining topics generally covered the participants' relationship to the industry (if any), their thoughts on the nature of the work, their knowledge of mining vocabulary or 'pitmatic' (Griffiths 2007: 10, Pearce 2009: 176) phrases, the importance of the industry to the local area and how the local area has changed since the closure of the collieries. The line of questioning was open-ended and participants were asked to provide their experience of or opinion on a variety of subjects. Many questions elicited extended answers containing anecdotal or narrative accounts. Due to their age relative to the period of pit closures locally, many of the younger speakers had very little or no familiarity with the mining heritage of the area. As the mining strand is diminished in this cohort, this means that among younger speakers there is around half the tokens collected in this topic compared to the others, causing an imbalance across conversational topic areas, and which could therefore skew results.

Inevitably, some overlap between the topic areas occurred. For example, questions about the altered state of the region since the pits closed were often entirely given over to general criticisms of the British Tory party and government policy towards British industry as a whole in the 1980s and early 1990s. Particular ire was reserved for the former Prime Minister Margaret Thatcher and her character was dissected at length by many participants – including by those who had not yet been born at the time she left office. The link is unsurprising given that the Thatcher ministry provoked the year-long Miners' Strike of 1984-85 and proceeded to oversee an extensive pit closure programme which ended coal mining in all four villages studied here. As Bennett (2009: 189) puts it, 'Thatcher struck a death knell to the coal mining industry in the 1980s...leaving the former coalfield bereft of adequate employment opportunities'. However, despite the conversational trigger of pit closures being classified as the mining topic, in these cases the philosophical, political and personal content

of the conversations which followed was most certainly non-local and the data was therefore not included in any analyses of mining topic speech.

To ignore this data is unfortunate, as the outcome of impassioned participant responses helps to mitigate the potential effects of the Observer's Paradox (Labov 1970: 32) where the quest to observe participants' natural speech is undermined by the very act of observation. Even when the Observer's Paradox is overcome, and the sociolinguistic interview succeeds in eliciting casual speech from speakers, it is also worth pointing out that the interview set-up means that this rarely corresponds to speakers' authentic vernacular speech (Coupland 2003, 2007, Eckert 2003). However, this study employed Labovian (1966: 143-9) methods of directing participants to discuss times where they felt intensely happy or experienced a sad event. For example, some older speakers recounted where they were when they heard about Easington Colliery Mining Disaster – a locally-infamous explosion in the mine in this village which killed eighty-one miners and two rescue workers in May 1951 – and how they felt when Sunderland Association Football Club won the F.A. Cup in 1973.

3.4.1.2.1 Identity Questionnaire

The local topic strand of the conversational speech in the interview was gathered using an Identity Questionnaire, a copy of which can be found in Appendix III. The questionnaire was originally devised by Llamas (1999, 2001) and alongside the Sense Relation Network forms part of the SuRE methodology. The original questionnaire contained fifteen questions, which were applicable to all varieties of British English. Although the questions were adapted and augmented in this study to elicit data specifically pertaining to the local area, the design of the questionnaire for use in the East Durham study was consistent with Llamas' (2001: 88) original objective to 'obtain an insight into informants' attitudes towards their language and their area … [which] can be correlated with linguistic variation found'. This situates the linguistic data analysis within a language ideology framework, allowing participants to define and delineate their own speech community (following Cohen 1985: 21), rather than having the boundaries of the community imposed on them by geographic or administrative definitions. The nature and scope of communities are often symbolic and subjective to

participants, sometimes resulting in wholly different conceptions of what the community represents or what area the community covers.

The Identity Questionnaire also provides the means through which participants' attitudes and perceptions can be incorporated into the study, in terms of their local area and the language used therein. Questions attempt to gather participants' thoughts about language and identity (Le Page & Tabouret-Keller 1985, Bucholtz 1999), perceptual dialect boundaries (Preston 1989, Montgomery & Beal 2011, Montgomery 2012a, 2012b), linguistic variation across sex and age groups (Trudgill 1974, Nordberg & Sundgren 1998, Watt 2002, Tagliamonte, D'Arcy & Jankowski 2010), speech accommodation (Giles & Powesland 1975), and speakers' social network density and multiplexity (Milroy 1987a).

3.5 Fieldwork

With the study design completed, this section describes the phase of the study in which steps were taken to collect the data, in the form of recorded interviews with participants.

3.5.1 Ethics

The University of York's Humanities and Social Sciences Ethics Committee approved the research in March 2011 after being satisfied that appropriate steps had been taken to anonymise participants and to protect the collected data in secure storage. Following guidelines discussed in Johnstone (2000: 39-55) and Tagliamonte (2006: 33) among others, an information sheet was produced explaining the nature of the experiment, which can be found in Appendix IV. All participants who saw the information sheet were invited to give informed consent to take part by signing a consent form, a copy of which can be found in Appendix V. Participants were told to give consent only if they matched the criteria for eligibility in the study. The opportunity to fully withdraw from the study was also offered at this stage if the participant was not happy with the nature of the study, though this offer was never taken up. Participants were assigned a codename based on the initial letter of the village they came from and their age at the time of recording. Where these criteria threw up identical codenames for two participants, an additional number is added representing the final digit of the year in which the interview took place. For example there are two 21-year-

old speakers from the village of Dawdon. One was interviewed in July 2011 and one in January 2013, making the former D211 and the latter D213. These pseudonyms have been employed throughout the course of this study (for example, in terms of labelling of recordings and transcriptions) and are used throughout this report.

3.5.2 Recruitment of participants

Finding willing participants who fitted the criteria of the study took time and, as a result, fieldwork was spread out over a period of almost two years (cf. Feagin 2013: 24-25 on the difficulties of conducting fieldwork). All participants volunteered to take part and no payment was made for participation. The researcher relied initially on a small number of family friends as contacts. This yielded the four Dawdon older participants, one of the older Horden participants, and two younger participants (one from Dawdon and one from Horden), all of whom previously knew the researcher. From this pool, the 'friend of a friend' technique was employed to find new fieldwork contacts from existing participants (Milroy 1987a, Milroy & Milroy 1985). Assuming the role of a 'friend of a friend' to fieldwork contacts, the fieldworker presented himself as a second-order network contact (indirectly linked) to participants, permitting a distinction to be drawn between the roles of fieldworker and researcher (see Milroy 1987a for further discussion). The technique was successful in boosting participation among the older speakers, particularly through a former mining union official who was part of a social network with other trade union members at pits throughout the coalfield. This particular participant was responsible for four other participants joining the study, all of whom knew each other. Among the remaining speakers of both age cohorts, there were few connections with each other, with most knowing one other participant at best, and the participation of these speakers came about through direct contact by the researcher. There was no pre-existing relationship at all between any of the older participants and their younger counterparts.

Participants were chosen from pre-existing social groups, though no one group yielded more than five participants, and it was therefore necessary to contact several different kinds of groups in order to obtain a sufficient number of informants. These groups included local football teams and Scouts clubs for younger participants and National Union of Mineworkers

officials and parish councillors for older informants. This meant that some speakers were already part of small-scale social networks with each other, as well as being contacted by the researcher using a social network method. Using social networks avoids random sampling, leading Milroy (1987b: 36) to claim that a network approach is 'capable of describing language variation in greater depth, tapping dimensions of variation which are not obtainable by a survey which samples isolated individuals'.

All participants were raised and lived at the time of recording in the village that they were taken to represent, with the exception of four younger participants who were living as university students in Newcastle upon Tyne and York at the time of interview (though in each case their family residence outside of term time remained in the respective villages). A strict selection procedure was not followed regarding geographical mobility between adolescence and the time of interview. This meant that three of the sixteen older speakers had left North East England for a small period of time during their lives, principally to find work. Among some of the older speakers there had also been movement around the North East England region for varying lengths of time. All of the younger speakers had spent their entire childhood (to age 18) in the village in which they now lived, apart from two speakers from Dawdon who had also lived for a short time in Seaham. This pattern was repeated for three Horden participants living in Peterlee. Younger speakers did not consider this situation to be unusual and considered these two villages to be districts or wards of the larger towns, in contrast to their older counterparts. Younger speakers across all villages were schooled in various locations in the area between Sunderland, Durham City and Hartlepool.

The set-up of the interview was participant-centred in order to make participants feel comfortable with what is generally acknowledged to be a very artificial speech event (Wolfson 1976, Singler 2007). When making appointments, participants were therefore given the choice of being interviewed alone or with another person: either someone already known to them who fitted the criteria to be included in the analysis (i.e. another man, within the specified age range and from one of the four villages), and/or a person already known to them who would take part in the interview tasks but would not be included in the analysis (for example, their wife, who would be excluded from the study on the grounds of her sex,

but who might otherwise have had to inconvenience herself by leaving the house – or even the room – for the duration of the interview).

While it is generally accepted that interviewing self-selected dyads produces more relaxed speech (L. Milroy et al. 1997), practically and logistically this is not always possible. Furthermore there are benefits and drawbacks to both individual and group interviews. Whereas the presence of familiar co-interviewees mitigates the impact of the observer's paradox in group interviews (Labov 1984: 48), it has also been shown that particular participants do not talk very much in a group setting even when they do so at great length in a one-on-one situation with the interviewer (Labov 1984: 49). Steps were taken to neutralise the formality of the situation by allowing the participants to choose the time and venue of the recording, by bringing drinks and snacks to share during the interview and by the researcher taking a conscious decision to adopt an informal and friendly tone both in his speech and dress (Feagin 2013: 24).

3.5.3 Interview procedure

The fieldwork was conducted in three stages of four months each between July 2011 and April 2013. Twenty nine recordings of sociolinguistic interviews were obtained containing the speech of thirty two participants. The interviews lasted between thirty and one hundred and twenty minutes length, with the range in interview length varying due to differing demands on participants' time. Twenty two interviews took place one-to-one with the researcher. Two interviews were recorded with two participants present with the researcher at the same time, with a further four taking place with a single participant and a non-participating other speaker present (three of the non-participating other speakers were wives of the participants; the other was a participant's male flatmate who was in the house at the time of recording). The remaining recording featured two participants alongside the non-participating wife of one of the speakers.

The methodology for all recordings was the same, though four participants had incomplete read speech tasks: two participants could not read the passage of text and a further two completed neither the passage nor the word list. In terms of the sequence of the interviews, some particularly loquacious speakers began to talk unprompted about subjects relevant to

the interview from the moment the researcher sat down (speaker B69 began 'so [D72] told me you wanted to know about coalmining...' and proceeded to address the topic at length from the moment the researcher sat down in his house). When this occurred, the researcher installed the recording equipment as quickly as possible and allowed this discourse to flow unimpeded. Where this was the case, read speech and data elicitation tasks were fitted in later. However, most interviews began with the participant performing the read speech tasks, and this sequence was not unintended as the increased formality of this highly-monitored speech style often mirrored participants' heightened attention to the presence of a recording device used to tape the interview. This provided an extra layer of contrast to the less formal conversation which came later in the interview by which point it was hoped that participants would begin to 'forget' the presence of the recorder and feel more comfortable (Feagin 2013).

In the main, the interviews were successful and the tasks demanded of participants were not considered daunting or unenjoyable. The Sense Relation Network proved particularly useful in eliciting from the older speakers words and pronunciations of a bygone time, with many participants commenting that the standard notion words featured on the SRNs conjured up several local forms that they had not thought about for many years and had seemingly slipped out of use.

Although this study used the same interviewer in every recording to ensure that any variation found was not due to convergence to or divergence from particular interlocutors (Giles & Powesland 1975), there remains the possibility of speech accommodation to the interviewer's own variety (see e.g. Llamas, Watt & Johnson 2009) and skewed results (Bailey and Tillery 1999). In a real time follow up to his 1968 study of Norwich, Trudgill's (1988) response to minimising the effect of the interviewer was to retain the same instrument (despite this requiring him to forego many theoretical and methodological advances since his first survey). As the interviewer had changed since the original set of interviews he set about recruiting a fieldworker with as many similar characteristics to the original set of conditions in order to ensure direct comparison between studies was possible. As previously stated, the researcher who conducted all the interviews is local to the area, having lived to the age of eighteen in the town of Seaham which adjoins Dawdon, the northern-most village in the

study. However, it should be pointed out that the interviewer's local roots were not always apparent to all of the participants, with one older speaker from Easington asking the researcher, perhaps half-jokingly, 'which public school did you go to?' Moreover, coming from a part of the area examined by the study had the negative effect of confusing one younger Horden speaker during attitudinal data elicitation when he answered the question 'where on a map do you think people stop sounding the same as speakers from Horden?' with 'well, up until I met you, I would have said Seaham was the same as us but now I'm not so sure…'. In divulging his local connections, the researcher unwittingly presented himself as the authentic representation of Seaham speech and thus managed to muddy the interviewee's previously clear judgement. At least this response suggests that the researcher managed to avoid accommodating his own speech towards that of his interviewees – and thus to minimise the potential for feature modification due to accommodation – as Trudgill (1986: 7-10) famously found of himself in his work in Norwich.

How the participants approached the interview varied. In order to persuade people to take part, younger speakers were told the research was about 'what [e.g. Dawdon] is really like' and focused on what the area offered them culturally (for example, in terms of nightlife), how they rated the area as somewhere to make a living (for example, in terms of the range of employment available), and how people speak in the area (for example, pronunciation differences between age groups). This ensured that participants provided attitudinal information about the area and its accent. Potential older participants were told that the study would explore life in East Durham and the local coal mining industry, with a specific focus on how people speak. Early requests to the older speakers for 'an interview about coalmining' seemed to overly burden some potential participants, and one even spent time in advance preparing a short speech containing facts about the industry which he proceeded to read aloud at the commencement of the recording. The use of the word 'interview' was henceforth substituted for 'chat' and this seemed to put people more at ease.

Occasionally, interviews were interrupted by telephone calls and other external noise. While this sort of intrusion can at best be considered a necessary evil in the quest for data, it did not impede the progression of the interview and, where this affected the recording quality, these portions were simply skipped during analysis.

3.5.4 Equipment

Interviews were captured on a Zoom H4 mobile digital solid state recorder with up to two DPA 4066 headset microphones and adapters. Where two participants were interviewed together, both wore headset microphones. In order to ensure that the conditions were the same for each participant, it was necessary to establish the microphone at the same distance relative to the speaker's mouth for the duration of the recording – whilst positioned as unobtrusively as possible. Although this meant interviewees had to carry the microphone on their person throughout the interview, none of the participants stated that this was an imposition. In fact, wearing it over the ears obscured the microphone from view allowing participants to avoid facing a constant visual reminder of being recorded. The length of the microphone wire also permitted the recorder itself to be positioned out of sight. In at least some cases the participant seemed to forget about being recorded, as evidenced when one interviewee stood up to fetch a miner's lamp with gusto and inadvertently pulled the microphone from its socket. All in all, the presence of a headset microphone did not seem to impede the desired relaxed conditions which are conducive to the production of informal speech.

3.6 Analysis of Recordings

The completed 16-bit stereo recordings, sampled at 44,100Hz, were transferred, unedited and uncut, from the Zoom H4 recorder's memory card to the researcher's laptop computer, where they were saved as .wav files. From there, recordings were also copied to a portable storage drive, to help to minimise loss of data through computer failure. Praat software, version 5.3.12 (Boersma & Weenink 2012), was then used to cut each recording into separate sound files divided by data elicitation task, and typically by conversation topic too, though occasionally conversations meandered between topics so frequently that the creation of separate files would not have been worthwhile.

The Sense Relation Network and conversation data for each participant was transcribed in Microsoft Word. No more than five tokens of the same word were analysed for each individual speaker. Pauses and overlapping speech were identified using conventional notation. For example </' – >/' indicates an untimed gap between utterances and </' [>/'

indicates overlapping speech (Atkinson & Heritage 1986). The presence of laughter, coughing and other non-semantic utterances were also indicated. To locate specific tokens easily, time stamps were marked every thirty seconds. The transcriptions formed the basis of identifying tokens for analysis, and the tokens were coded in a Microsoft Excel spreadsheet.

3.6.1 Auditory Analysis

It is necessary to define and explain the reasons for choosing the different variants of each linguistic variable examined. In line with Milroy & Gordon (2003), Gordon (2007) and Thomas (2011) among others, the auditory analysis split each variable into two or more suitable variants. This differed from variable to variable, so details of this process will be described in the analysis section of each variable.

Auditory analysis was accomplished by listening to the interview sound files in Praat version 5.3.12. The software allows the user to listen to tokens repeatedly in both isolation and within the context of the whole recording, and provides spectrogram readings which aid visual identification of variables. Tokens were separated for analysis by holding the cursor at the start point of a variable and dragging it across to its endpoint. The highlighted portion can then be played recurrently in order for auditory judgements to be made to classify the tokens as variants. Every token was listened to at least five times using closed cup headphones before the individual auditory decision was made as to which variant was produced. The resulting judgement was noted in the Excel file, typically as a number for ease of data entry, which matched up to a specific variant in a pre-defined key. Alongside this information, a separate column was created to note the temporal point in the recording when the token occurred, in order to ensure tokens could be easily located within the recording.

Other columns were created in the Excel file to track the social factors of the speaker. These comprised location, age cohort, the speaker's relationship to the mining industry (i.e. whether they worked as a miner or on the surface at the pit), and the speech style (or, more accurately, which data elicitation task) the token appeared in. The conversation tokens were also subdivided into the three conversational topics analysed.

Tokens were also coded for the preceding and following segments, and then grouped by place and manner of articulation as the surrounding phonetic environment. As participants were encouraged to discuss any mining vocabulary they were aware of, an additional coding was made for whether the token appeared in a mining term. In some cases word position and word class were also coded, especially where a token has more than one function (such as the word 'like' which can be preposition, conjunction and verb and which has particular discursive functions locally). Such internal factors will be considered more closely in the analysis section of the relevant variables.

Certain tokens were excluded from the analysis, typically where they appeared in inchoate words but also if words were obscured by the speaker laughing or yawning or if they overlapped with the speech of another speaker or background noise. However, properly-produced tokens were also not included if they occurred in neutralising contexts – that is, where the adjacent phonological environment is homophonous with one of the target variants (Tagliamonte 2006) – such as triphthongal MOUTH tokens like 'hour' and 'towel' (also excluded by Britain & Sudbury 2007).

Once coding was completed, the raw figures and totals for each variant were computed using Excel and converted into percentages to permit direct comparison. The finished Excel datasheet (following acoustic analysis – see Section 3.7, below) was imported into RStudio version 2.15.0 (The R Foundation for Statistical Computing 2012) in order to undergo statistical analyses.

3.6.2 Acoustic Analysis

Acoustic analysis was conducted through formant measurement using Praat software (Boersma & Weenink 2012) to provide support for the auditory codes. In order to protect the validity of the results 15% of the acoustic measurements and auditory judgements were checked by the research supervisors, a sociolinguist and a phonetician.

Formants are peaks of acoustic energy which cluster together in the frequency continuum when a resonance is produced in a speaker's vocal tract (Ladefoged 2001, Johnson 2003). They are presented on spectrograms as dark horizontal bars, an example of which can be

seen in Figure 7. The different formants of a vowel represent its quality, with the formant at the lowest frequency (F1) being inversely proportional to tongue height and the formant at the second-lowest frequency (F2) correlating with degree of frontness of the vowel (Gordon 2007, Thomas 2011). Thus a low F1 reading indicates a close vowel like [i] or [u], whereas a high F1 reading is exemplified by an open vowel such as [a] or [ɑ]. Likewise a low F2 reading equates to a high degree of backness of a vowel, as seen in [o] or [ɔ], with increasing F2 height suggesting fronting towards [i]. The systematic numbering of formants continues to rise in consecutive integers with the increasing height of the frequency bars, but this study only measured the lowest two frequency formants, F1 and F2, in line with similar studies of vowels (van Bejooijen & van Heuven 2010: 362).
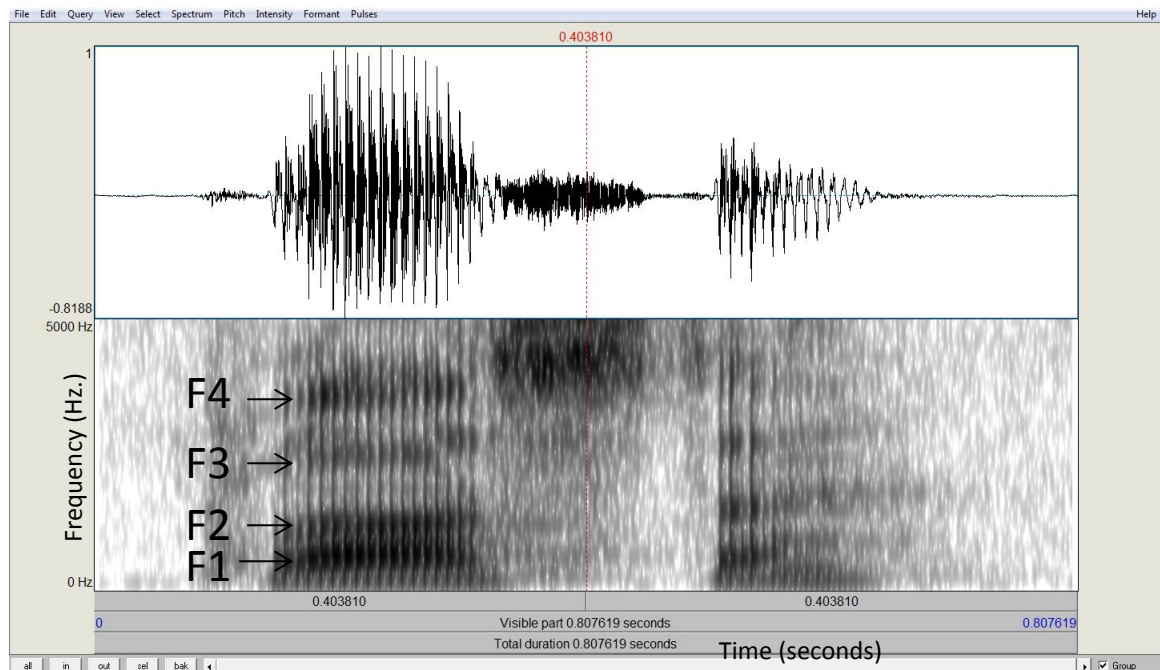
Figure 7: Formants denoted by arrows on spectrogram of speaker D70 producing 'plaster'

Recordings were played in Praat, with the first two formants of each token measured by eye by the researcher. On the advice of the research supervisor, the in-built measuring tool was not used due to its misreading of a number of token formants, providing inaccurate measurements. This tendency has been noted before (e.g. Harrison 2011) and is a miscalculation caused by the mistaking of the intended formant bar for another formant or a harmonic (Wright & Nichols 2009). The default settings of the spectrogram were altered to

display frequencies up to 5000Hz. Based on this figure and the assumption that adult males typically produce speech sounds containing one formant per 1000Hz (Ladefoged 2003), the 'number of formants' command which seeks and plots the formants on the spectrogram was set at 5.0, but occasionally found formants more effectively at a setting of 4.5 formants, depending on the speaker. Furthermore, it was occasionally necessary to alter formant settings on the basis of certain linguistic variables, with, for example, speakers who produced a lot of low back variants in the START lexical set generating indistinguishable F1 and F2 readings until the number of formants plotted was increased to 5.5. This problem among formants lying in close proximity to each other has been noted in previous work (Ladefoged 2001).
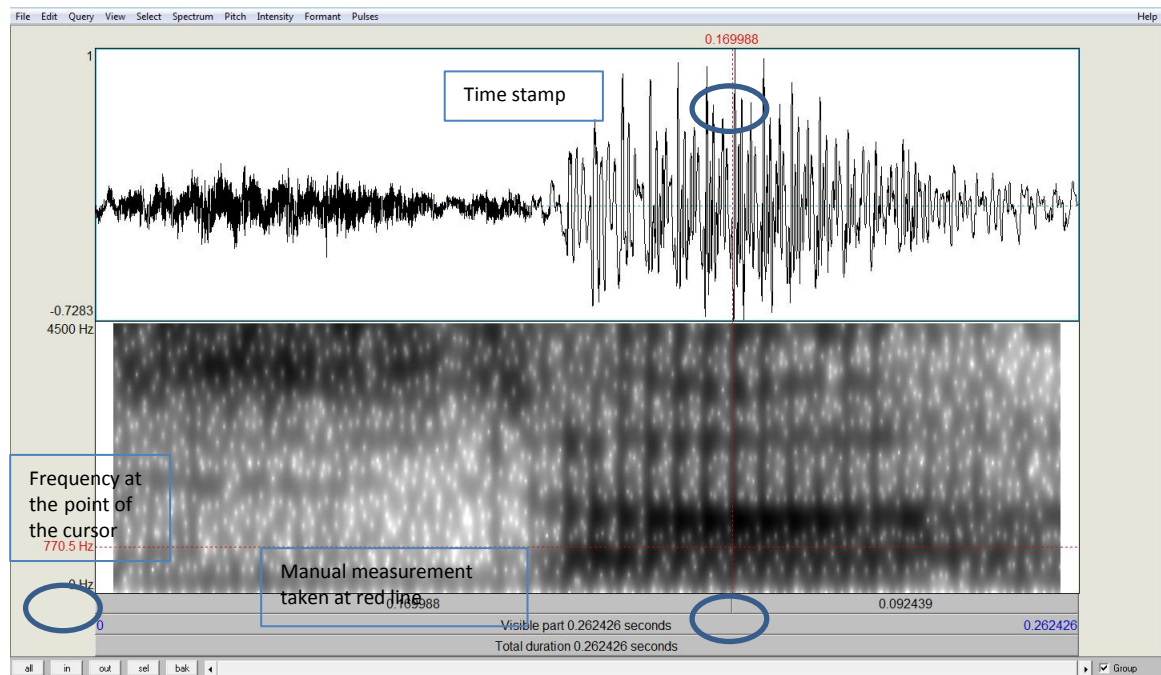
Figure 8: Measurement of F1 frequency of speaker D211 producing 'start' in Praat

For each token, measurements of F1 and F2 were taken at a stable point towards the middle of the spectrogram, following transition from the preceding segment and before transition into the succeeding segment (where applicable). The measurement was executed manually by moving the cursor to the desired point and clicking to display the reading. See Figure 8 for an example of the acoustic analysis of a token in Praat. The final readings for F1 and F2 were noted in the Microsoft Excel spreadsheet which also contained the auditory judgements for each token, explained in Section 3.6.1 above.

Where the token was a diphthongal variant, a measurement was taken for each segment of the diphthong: one near the beginning of the nucleus, and the other towards the end of the offglide. Again, measurements were taken at a point in the spectrogram following transition from the preceding segment and before transition into the succeeding segment (where applicable).

For a few tokens, one or more formant bars were not clearly plotted. Where this occurred, the decision was taken to excise these tokens from the analysis as it was not possible to confidently take a formant reading. As with the auditory data, the acoustic results were also included in the statistical analysis.

3.6.2.1 Normalisation

The formant data was not normalised. Normalisation 'reflects the general principle that phonological distinctiveness is a matter of relative contrast within a system, rather than a matter of absolute or universal phonetic values' (Clark & Yallop 1995: 273). That is to say that identical sounds produced by separate speakers may be perceived as different vowels, according to listeners' expectations of the regional variety of the speech (as demonstrated by Ladefoged & Broadbent 1957). This may be particularly helpful if comparing speakers on a national or global scale, where, for example, the word *catch* in New Zealand English might fail to demonstrate an audible contrast with a London speaker's realisation of the word *ketch*. However, despite the anticipated differences in speech patterns between the villages sampled in this study, all four locations form part of the same local area, and therefore speakers are not expected to demonstrate a contrast of vowel quality so as to render vowel categories indistinguishable. However, it should be noted that in qualitative responses to linguistic commentary questions, several older speakers noticed this phenomenon within the wider North East region, with the more northerly Northumberland accent considered to raise the TRAP vowel in words like the local place name *Ashington* to the extent that it is indistinguishable from the SQUARE set. To test this belief, five tokens of DRESS and five tokens of TRAP vowels from all thirty-two speakers were measured acoustically. Although the results showed averages across location differed between 50Hz and 100Hz in vowel height and between 100Hz and 200Hz in vowel advancement, the two lexical sets were shown to

maintain a distinct contrast in all thirty-two cases with grouped location average differences between DRESS and TRAP of between 200Hz and 300Hz in both vowel height and advancement.

Where no considerable variation in the length and muscular settings of speakers' vocal tracts is foreseen within each independent variable group, the decision not to normalise is regularly taken, as evidenced by other recent sociophonetic studies of vocalic variation and change (Eremeeva & Stuart-Smith 2003, Jacewicz, Fox & Salmons 2011, Jacewicz & Fox 2012). In this study, as the speakers are all adult males who have reached maturation, there is no expectation that the kind of physiological differences found between males and females and between adults and children (such as suggested by Peterson & Barney 1952) will be found in this data. The absence of normalised formant values is moreover reflected in the quantitative comparison of the data presented, with the findings analysed by age-related cohorts and within individual locations to ensure that social groupings demonstrate comparable physiological characteristics (following Eremeeva & Stuart-Smith 2003). Furthermore, the acoustic findings display formant values in Hz on vowel plots with inverted F1 and F2 axes and identical scaling to ensure findings are comparable across locations. This purpose suits data that has not been normalised (Jacewicz, Fox & Salmons 2011).

It is worth pointing out that while the aim of normalisation to minimise inter-speaker variation caused by inherent anatomical differences is commendable, the intention to retain differences in social factors and vowel categories is not always achieved (Thomas 2002, Thomas & Kendall 2007, Bigham 2008). In some cases a reduction in variation caused by vocal tract length has also diminished the sociolinguistic variation (Adank, Smits & van Hout 2004: 3100). Furthermore, Thomas (2002: 174) notes that 'choosing which normalisation technique to use is a matter of deciding which drawbacks are tolerable for the study at hand'; whereas the potential for distorted peripheral formant measurements can be offset by increased ease of comparability across social categories such as sex and ethnic background (Bigham 2008: 136), this study does not consider the effect of gender or ethnicity and therefore prioritises formant values which have not been skewed by normalisation.

3.6.3 Statistical Analysis

Mixed effects models were used to test results for statistical significance. Such models are becoming increasingly popular in sociolinguistic research (Bresnan, Cueni, Nikitina & Baayen 2007, Johnson 2009, 2014) due to their ability to account for variation beyond independent variables universal to all social analysis, such as age (Drager & Hay 2012). As such, a mixed model test integrates as predicting factors variables specific to this data sample (i.e. the effects of certain words and existing individual variability on the part of speakers) which may distort the overall results. In this study a mixed effects logistic regression model was run on the categorical auditory data, with speaker and word included as random effects, and location, age group, style, speaker occupation, phonetic environment and word class set as fixed effects. Where the dependent variable has more than two outcomes – as is the case in terms of auditorily-judged variants of linguistic variables in this data – the model selects one outcome as a baseline from which the other outcomes are measured. This discrepancy was overcome in this study by repeating the test with different outcomes 'relevelled' as the baseline data and comparing the outputs (Field, Miles & Field 2012: 346). The output is a series of results displaying the degree of significance of each factor tested after these sample-specific random effects have been considered. This is demonstrated in terms of a Z-score for each factor which is calculated by subtracting the mean of the sample from the given value and dividing the result by the standard deviation of the sample. From this figure, a p-value is also presented to assess statistical significance. Individual p-values can be compared directly to evaluate factor effect on variation, and it is this element which forms the basis of the analysis and discussion of results.

The literature review highlighted many linguistic and social effects (e.g. geographical space: Williams & Kerswill 1999, age: Kerswill 2002a) explored in previous studies on vocalic variants. Moreover the aims of the study, to evaluate variation and change across space and (apparent) time, with an additional focus on the role played by conversational topics, led the following factors to be coded in each of the analyses carried out for the four vowel variables:

- 'Location' is a categorical independent variable consisting of the four villages where speakers in this study reside (Dawdon, Easington, Horden and Blackhall)

- 'Age group' is a binary independent variable which indicates whether the speaker producing the variant is aged over 60 (older) or under 35 (younger)

- 'Context' is a categorical independent variable which represents from which section of the interview the speech is extracted (read word list, read passage, free mining conversation, free local conversation, free non-local conversation)

- 'Mining lexis' is a binary independent variable which indicates whether (yes) or not (no) the word in which the vowel appears is an item of mining-related vocabulary

- 'Level of education' is a binary independent variable which signifies whether (yes) or not (no) the speaker attended university

- 'Occupation' is a categorical independent variable describing the former status of the speaker in relation to the coal mining industry (worked as a miner, worked at the pit as something other than a miner, never worked at the pit)

- 'Preceding segment' is a categorical independent variable which relates to the manner of articulation of the segment immediately before the vowel token (approximant, fricative, nasal, plosive, sibilant or no preceding segment)

- 'Following segment' is a categorical independent variable which relates to the manner of articulation of the segment immediately after the vowel token (approximant, fricative, nasal, plosive, sibilant or no preceding segment)

- 'Preceding voicing' is a binary independent variable which explores whether the segment immediately before the vowel token appeared is voiced (yes) or voiceless (no)

- 'Following voicing' is a binary independent variable which explores whether the segment immediately after the vowel token appeared is voiced (yes) or voiceless (no)

Any other variables specific to certain vowels as well as different interactions run in the particular models is discussed in the chapters on individual variables, which begin after the next section.

3.7 Summary

The objective of this thesis is to investigate whether speakers in a speech community demonstrate quantifiable linguistic differences from those in geographically neighbouring

speech communities. Associated with intra-speaker variation, the study also aims to uncover whether speakers quantitatively differ in terms of local and non-local topics. Within that aim, the thesis explores whether speakers who have spent their lives engaged in the highly localised practice of mining in the Durham coalfields demonstrate speech patterns quantitatively distinct from those who did not engage in this enterprise, both young and old.

The methodology which was constructed to tackle these issues must therefore engage with locally constructed categories and obtain data appropriate to the research. Whereas ethnographic methodologies can draw out individual speakers' social identity and identify the formation of groups (Eckert 2000, Moore 2003, Lawson 2011), the main group identity explored in this study is already explicitly revealed in speakers' individual biographies – they either worked at a pit or they did not – and any qualitative distinctions such as attitudes to the job or wider industry can be revealed by structured questioning in a sociolinguistic interview.

In order to deliver a fine-grained examination of language usage in East Durham, a combined qualitative and quantitative approach is utilised. Traditional quantitative methods, comprising auditory and acoustic analyses and statistical modelling, are employed to present patterns of variation and change. These trends can then be accounted for and explained by reference to qualitatively-revealed social differences, providing a comprehensive and rigorous examination of linguistic phenomena (Milroy & Gordon 2003).

The next four chapters will present the results from the auditory and acoustic analyses of the linguistic variables investigated, beginning with the MOUTH vowel.

4. MOUTH

4.1 Overview

This chapter examines the distribution of variants of the MOUTH vowel in East Durham speech. Section 4.2 provides background information on the variable and explores the previous literature on it. Section 4.3 looks at the history of the variable in British English and describes the patterns of variation in the region surrounding the area studied. The methodology used to distinguish, categorise and measure the variants is presented in Section 4.4. Section 4.5 outlines the results. An interpretation of the findings, along with all other vowel variables, appears in Chapter 8.

4.2 Definition of MOUTH

The MOUTH vowel is one of Wells's (1982) lexical sets. It denotes words containing the stressed vowel phoneme generally transcribed as /aʊ/ in British Received Pronunciation and General American. It derives from words typically spelled *ou* or *ow* and can occur in open and closed syllables, though in RP and many other accents it generally does not precede velar or labial consonants (Wells 1982: 152 lists traditional dialect words like 'gowk' and proper nouns such as the name 'Cowper' as rare exceptions).

The variable has been shown to exhibit fine-grained variation on a region-to-region (Ellis 1889, Foulkes & Docherty 1999a) or even town-to-town basis (Britain 1991). It has received considerable attention in a number of other varieties of English: in particular, in New Zealand (Britain 2008, Woods 1997, 1999, 2000) and North America (Chambers 1973, Chambers 1981a, 1981b, Chambers and Hardwick 1986, Niedzielski 1999, Woods 1993). The MOUTH variable has been shown to be salient (see Trudgill 1986: 11) in terms of maintaining phonological contrasts (Chambers 1989: 76).

The standard form in present-day British (and United States) English is generally agreed to be formed of a front, open, unrounded nucleus approximating [a], with a glide towards [ʊ] (Wells 1982: 151). Despite this, many studies have revealed a variety of localised forms with the diphthong nucleus realised as fronter and closer [ɛʊ] in both the United States of

America (Dailey O'Cain 1997) and in the United Kingdom (Kerswill 2003 and the many contributors to Foulkes & Docherty 1999a and Kortmann & Upton 2008). In general, this nucleus distinction provides the main source of MOUTH variation in present-day Englishes across the world (Britain 2008: 189).

4.3 The development of the MOUTH vowel

During the Great Vowel Shift of the fifteenth and sixteenth centuries (see Jespersen 1909, and Wells 1982: 184-188 for overviews), the Middle English close long vowel /u:/ diphthongized to /ou/ across large swathes of Britain (Britain 2008: 205). However, along with other unshifted back vowels (Wright 1996: 272-3), the MOUTH set did not change in northern England and Scotland (Ellis 1889). The /u:/ monophthong was retained in areas roughly north of the Humber Estuary. Sometimes called the Ribble-Humber line (see Figure 9, and also Wales 2006: 48, Maguire 2012: 95) – as it spans the breadth of England from the mouth of the River Ribble at Morecambe Bay to the mouth of the River Humber at Hull – this isogloss marked the northern limit of the Great Vowel Shift and was described as being at one time 'the most important linguistic border in England' (Ihalainen 1994: 219). It is now claimed that this boundary has 'disappeared completely' (Trudgill 1990: 76) due to the erosion of traditional dialect features, with recent evidence confining monophthong MOUTH variants to only small pockets of North East England, specifically Northumberland and the urban conurbation of Tyneside (Beal 2004: 41-44), i.e. the area almost immediately north of East Durham.

In southern Britain, the /ou/ diphthong shifted further to establish the modern [aʊ] standard with its fully open nucleus. In some cases this nucleus is raised: a change which has been explained via two internal motivations. It has been suggested that the nucleus of [aʊ] innovated through raising in a clockwise direction due to 'Diphthong Shift' (Wells 1982: 256) and fronting due to 'PRICE-MOUTH crossover' (Wells 1982: 310), resulting in realisations more closely resembling [εʊ ~ εə ~ ε:]. These processes are found in some of the earliest dialectological work (such as Ellis 1889: 199-200 on south-east England), and are consistent with Labov's (1994) Principles of Vowel Change, where peripheral nuclei shift through raising.

Figure 9: Map of the Ribble-Humber Line (adapted from Wales 2006: 46)

However, apparent time research into the MOUTH vowel has shown younger speakers producing backer and more open nuclei than their older counterparts in the south-east England locations of Reading and Milton Keynes (Williams & Kerswill 1999) – a pattern contra diphthong shift. The older speakers demonstrate many forms varying from fronted nuclei ([ɛʊ ~ æʊ]), unrounded offglides ([ɛɪ]), and monophthongs ([ɛː]), whereas the younger cohort display very low levels of any form other than an [aʊ] realisation. The two groups were shown to produce considerably different variants, in terms of nucleus height and frontness. The difference in the quantity and diversity of variants between the two age groups led Williams & Kerswill (1999) to suggest that external factors are motivating the change, with younger speakers choosing variants with a broader geographical reach over locally-marked forms through a process of dialect levelling.

4.3.1 The MOUTH vowel and identity factors

Labov's (1963) formative study of Martha's Vineyard was one of the earliest examples of sociolinguistic research to both discuss the MOUTH vowel and to link a sound change to identity. Set on an American island, the speech community was made up of a small native

106

society, augmented markedly in summertime by a non-native holidaying population (Labov 1963, 1972). The study showed that the native islanders centralised the MOUTH nucleus to [ɐʊ] or [əʊ] to a high degree, whereas young speakers who intended to move away from the island in adulthood demonstrated much lower levels of the centralised variant (Labov 1963, 1972). This trend led Labov to link speech patterns to speaker identity, with a particular reference to island loyalty or affiliation: centralisation of the nucleus of the MOUTH dipththong was most frequently found in speakers who felt positively-oriented towards the island and had no desire to leave, compared to a low rate of centralisation representing disenchantment with the island and a wish to escape it (Labov 1963, 1972).

More recent work has explored MOUTH vowel variants in terms of authentic local speech features, with monophthongal forms, which are stereotypes of local speech in both Derby, UK (Foulkes & Docherty 1999) and Pittsburgh, USA (Johnstone, Bhasin & Wittkofski 2002). In Pittsburgh, these stereotype forms are championed by the media and tourism industries as an emblem of the local identity, and are consequently being used in non-standard spellings like 'dahntahn' for monophthongal production of 'downtown' (Johnstone & Kiesling 2008). This visibility of the stereotyping helps to maintain the presence of the monophthongal MOUTH variant in local speech, especially among young working class male speakers (Johnstone et al. 2002), a social group who have been shown to produce local features more often (Trudgill 1972: 194). Despite this trend, Pittsburgh speakers who use monophthongal MOUTH did not recognise the form as a feature of city speech, yet those who do not produce the variant identified it very strongly as a local identity marker (Johnstone & Kiesling 2008).

Having provided a brief overview of the considerable variation in the MOUTH vowel in varieties of English worldwide, the remainder of this section concentrates on the variable in the area surrounding the communities examined in this study.

4.3.2 The history of the MOUTH vowel in North East England

4.3.2.1 The Existing Phonology of English Dialects – Ellis (1889)

As already noted, south of the Ribble-Humber line, Middle English /uː/ diphthongised to [aʊ], occasionally with more raised [æ ~ ɛ ~ e] or centralised [ə ~ ɜ] onsets (Britain 2008: 33-34).

North of this line there was no or very little change in this vowel in the Great Vowel Shift until the twentieth century (Viereck 1968, Anderson 1987), and in Tyneside and Northumberland the change to non-northern [aʊ] is even more recent through dialect levelling (Watt & Milroy 1999). However in traditional Durham dialects (such as that studied in Orton 1933) [uː] was subject to diphthongisation to variants with high nuclei: [əʊ] or even [ɛʊ], meaning that levelling to non-local [aʊ] does not represent a drastic change phonetically. Regardless, these raised onset diphthongs are consistent with similar pre-levelled variants in other locations in the United Kingdom (see for example Williams & Kerswill 1999: 151-153).

The earliest source of MOUTH variation in the North East of England was captured by 'The Existing Phonology of English Dialects': Alexander Ellis's (1889) survey of the read speech of older speakers in the late Victorian period. Although the author uses the Palaeotype phonetic alphabet (Maguire 2012: 88), it is possible to translate this notation into modern IPA symbols (Eustace 1969). Both the unshifted monophthong (Palaeotype (uu), IPA [uː] Eustace 1969: 67) and a narrow diphthong (Palaeotype (óu), IPA [ɔ̝ʊ], Eustace 1969: 56) are found in the region, but strikingly there is no evidence of a wide diphthong with an open nucleus similar to the British standard [aʊ], which at this point is generally found further south (Maguire 2012: 95).

Despite the existence of many different variants across Britain, in the main it is these two pronunciations (monophthongal (uu) [uː] and narrow diphthongs of the type (əuu) [əuː], (uu) [ʊu] and (ou) [oʊ]) which predominate north of the Ribble-Humber Line (Maguire 2012: 94-97). Analysis of maps of S.E.D. data for ME /uː/ (especially Orton, Sanderson & Widdowson 1978: Maps Ph149–Ph152, and Anderson 1987: 50–55) show this geographical picture to be essentially unchanged nearly a century later.

Figure 10: Map of MOUTH pronunciations in read speech recorded in locations surveyed by Ellis (1889) (red dots) relative to the villages sampled in this study (blue dots) (Google Maps 2014)

In the region he labels North Northern – broadly covering the areas of Cumbria, Northumberland and Durham from the Scottish border to the River Tees – Ellis (1889) claims that, as a general rule, [uː] is 'universal before a consonant' but in open syllables (for example, 'now') the sound often approximates [ɔ̝ʊ]. A speaker from South Shields, a town at the southern tip of the River Tyne's mouth, demonstrates variation between [ɔ̝ʊ] usage for 'thou' and 'anyhow', and [uː] realisations for 'ground', 'however', 'house' and 'without' (Ellis 1889: 649). However, the passages read by speakers in the rest of the Durham dialect area record categorical usage of one form over the other, with Sunderland, Lanchester, Bishop Middleham and Kelloe producing [ɔ̝ʊ] for 'house', 'about' and 'down', compared to [uː] in Edmondbyers and Annfield Plain (Ellis 1889: 656-9). This appears to point to a boundary between the two forms which sweeps south-westwards inland from the mouth of the River Tyne, running through South Shields, north of Sunderland and Lanchester, but south of Annfield Plain and Edmondbyers. A representation of this boundary is presented in Figure 10,

109

and demonstrates that the four villages examined in this study place geographically with the categorically [ɔ̃ʊ]-producing group. It is interesting to note that Lanchester and Annfield Plain – which Ellis records as producing categorically different pronunciations – are barely 3 miles (5 kilometres) apart.

The presence of two variants in South Shields perhaps provides early evidence of competition to the dominant monophthongal form. It certainly shows that more than one form could be in use at the same time. Despite the uniformity of response in the passages used by Ellis, there is also evidence in conversational speech of another variant in Sunderland – the location nearest to the area examined in this study, Sunderland. The production of the word 'now' by the Sunderland speaker is heard by Ellis (1889: 663) as Palaeotype (ᴈ'u) (IPA [ɤʊ], Eustace 1969: 53, 67). The Sunderland-specific form heard by Ellis is unrounded and more raised than the [ɔ̃ʊ] form he describes elsewhere, but nevertheless this represents the earliest record of diphthongal competition between nuclei of different height – a distinction which is maintained in much of the variation in the vowel in the North East today (see Section 4.3.3, below). The absence of [uː] in Sunderland and much of County Durham separates this area from the monophthong /ū/ retention found further north in Northumberland at this early stage, despite more modern surveys describing it as characteristic of the whole North East England region (e.g. Wells 1982: 185). Indeed, the Sunderland [ɤʊ] pronunciation in the MOUTH vowel appears to be peculiar to the location and is not found anywhere nearby, providing early evidence of the unique speech patterns found in this location (see also Beal 2000 on MOUTH as a shibboleth of Sunderland English, in Section 4.3.2.1, below). Ellis attributes this to the apparently cosmopolitan make-up of Sunderland at that time, and suggests that [ɤʊ] is the result of contact with migrants from southern Scotland, due to Sunderland's status as 'a Scotch colony [where] most of the queer pronunciations are not native. The Irish are also numerous…and the sailor element' (Ellis 1889: 653).

4.3.2.2 The Survey of English Dialects – Orton & Dieth (1962-71)
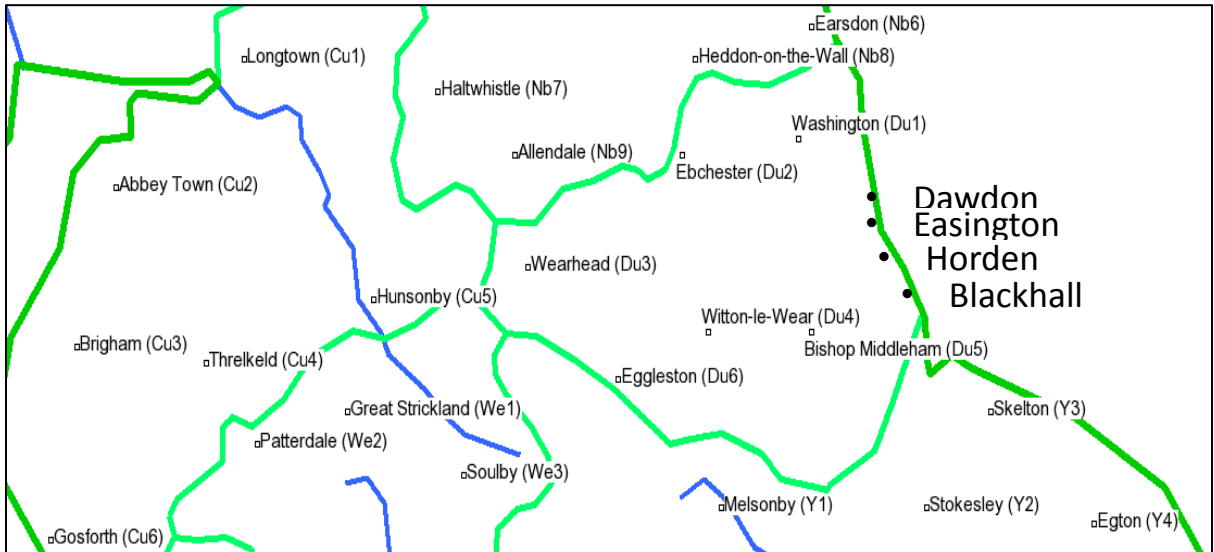
Figure 11: County Durham locations (Du1-Du6) examined in the Survey of English Dialects in relation to the four villages explored in this study

The Survey of English Dialects, recorded in the early 1950s (Orton & Dieth 1962-71), shows a generally similar picture to that described by Ellis (1889). Monophthongs and high diphthongs remain the only variants found north of the Ribble-Humber line, indicating that it appears to remain a strong boundary to MOUTH variation at this point (Maguire 2012: 95).

The S.E.D. did not cover the County Durham coast, with the nearest locations being Bishop Middleham (also surveyed by Ellis (1889), above) 13 miles (20 kilometres) to the south-west and Washington 14 miles (23 kilometres) to the north-west, as shown in Figure 11. Four more peripheral locations were also included in the survey of responses from Durham. There are zero instances of an [aʊ] variant or any form with a fully open nucleus reported in any of the six Durham locations. Instead, the Durham informants are shown to produce predominantly unshifted monophthongs, although these appear alongside some occurrences of [əu] in the southern part of the county – including in Bishop Middleham. This form is not recorded at all in either of the two Durham locations – Washington and Ebchester – to the north-west of Sunderland (nor is it found in Northumberland), suggesting that the geographical boundary between monophthong and diphthong realisations highlighted by Ellis (1889) remained intact at this point. This picture tallies with other accounts which suggest that patterns in northern Durham (i.e. using the boundaries of the former county

which stretched to the southern bank of the River Tyne) differ from those found in the south east of the county (Orton 1933, Anderson 1987: 41). In this south-easterly quarter of Durham, high diphthongs approximating [əuː] and similar to those found in Cumbria and Westmoreland are typical (Maguire 2012: 95).

4.3.3 Recent accounts of the MOUTH vowel in North East England

Since the beginning of the 20th century, dialects across the North East region have 'continued to move closer to Standard English' (Griffiths 1999: 43). However, writing in the 1980s, Wells (1982: 375-6) notes the retention of the traditional [uː] form in an area he labels 'Tyneside and Wearside'. More recently, [uː] has come to be viewed as the 'traditional Tyneside pronunciation' for MOUTH (Beal 2000: 348), and in research on the city of Newcastle upon Tyne, Beal (2004: 41-43) links the survival of the unshifted monophthong to items which carry highly localised denotations, e.g. /tuːn/ for the city – literally 'town' – of Newcastle (but not other towns or cities), and /bɹuːn/ for the local drink *Newcastle Brown Ale*. Despite the decline in spoken [uː], Beal also records that a semi-phonetic spelling of the [uː] variant is the most common and constant feature of regional literature from the past two centuries which focus on the Tyneside dialect. For example, Geordie Ridley's 1862 text *The Blaydon Races* spells the [uː] phonetic form as <doon, noo, hoo, toon, shootin'> for *down, now, how, town* and *shouting* (Beal 2000: 348).

In terms of other variants, Wells (1982: 375-6) records [ɛʊ] as interchangeable with [aʊ], but by the mid-1990s [ɛʊ] is noted as more characteristic of female speech in Newcastle upon Tyne (Watt & Milroy 1999: 29). Beal, Burbano-Elizondo & Llamas (2012) divide the region into three sectors according to the three most populous conurbations centring on the rivers Tyne, Wear and Tees. They argue that [aʊ] is presently the most common variant across the North East, and in Tyneside they claim that it is used more frequently than the [uː] monophthong. They note the presence of an [ɛʊ] variant in Tyneside but find it more frequently in Wearside, where it is shown to be used about as often as [aʊ] and is considered a 'shibboleth' of Sunderland English (Beal 2000: 353). A summary of Beal, Burbano-Elizondo & Llamas' (2012) impressions can be found in Table 4.

Drawing on work from Orton (1933), Kerswill (2002: 192) finds 'an almost total change, over two generations' from monophthong [uː] to [ɑʊ] in two central County Durham villages around 16 miles (26 kilometres) inland from the villages examined in this study. Kerswill claims that speakers in this area born in the 1940s alternate between the two variants, whereas speakers born in the 1980s use only the diphthong on the whole, and explains the shift as a case of lexical diffusion over phonetic gradualness. Furthermore, in a perceptual study of the North East of England, Pearce (2009: 184) finds monophthong [uː] only associated with some Tyneside locations, noting that 'elsewhere the diphthongs [əʊ], [aʊ] and [ɛʊ] are prevalent'.

Tyneside	aʊ > ɛʊ > uː
Wearside (including Sunderland)	aʊ ~ ɛʊ
Teesside (including Hartlepool)	aʊ

Key: Variants to the left of '>' are used more frequently than those to the right. '~' denotes a similar frequency of usage.

Table 4: Present-day variants of the MOUTH vowel in the three main conurbations of North East England (from Beal, Burbano-Elizondo & Llamas 2012: 35))

Although the literature presents many differing accounts of MOUTH vowel production in the local area, there seems to be agreement on the presence of diphthong variation between mid-open and fully-open nuclei, particularly in Sunderland, to the near north of the four locations examined in this study. Aside from Kerswill (2002), the most recent studies also seem to offer scant evidence of the unshifted monophthong outside Tyneside, in direct contrast to claims made by Wells (1982). The next section will explain the methodology used to conduct analysis of the MOUTH vowel in East Durham, in light of the literature reviewed above.

4.4 Analysis

4.4.1 Issues addressed

Based on the findings of the literature review, three main variant types appear to emerge in MOUTH vowels in the geographical areas surrounding East Durham. Older male Tyneside

speakers appear to conserve a lengthened monophthong in the face of increased adoption of a less regionally-marked diphthong with a lowered nucleus among other speaker groups. A further diphthong with a raised nucleus is noted in Sunderland English.

In addition to the overarching research questions of the thesis relating to distribution of variants across locations, age groups, style and topic (and specifically coal mining), this study aims to identify the distribution of the following MOUTH vowel variants in the East Durham data in terms of social and linguistic constraints:

1. [uː]: found more commonly in Tyneside
2. [ɛʊ]: found more commonly in Wearside
3. [aʊ]: non-localisable and found across the North East England region

The remainder of this section details the methods used to conduct the analysis of the MOUTH vowel in order to answer these research questions.

4.4.2 Coding

MOUTH vowel tokens were assigned one of four codes based on auditory judgements made by the researcher and were acoustically analysis through measuring of formants.

Six tokens of the word 'about' were realised as unshifted monophthongs, of the type labelled [uː] in Section 5.4.1 above. Although this provides support for Wells' (1982) impression that monophthongal /uː/ is found across the North East of England, the tokens only appeared in the speech of two older speakers. This suggests that the form is much reduced in East Durham, unlike older literature where the variant is widely found in the North East (Orton & Dieth 1962-71, Viereck 1966), but consistent with recent studies of Tyneside which suggest the form is being levelled out across the region (Watt & Milroy 1999). It was felt that six tokens of the same lexical item did not represent a sufficient proportion of the overall number of tokens to complete a thorough and robust analysis and thus the tokens were excised.

MOUTH production in the local area varies chiefly on a scale from [ɛʊ] to [aʊ] (as discussed in Beal 2004, Beal, Burbano-Elizondo & Llamas 2012, reviewed above) with the acoustic F1

correlate reflecting the degree of openness of the nucleus of the diphthong. It seems reasonable to suggest that the shift between MOUTH realizations may be gradient. That is to say that it may not pattern as discrete allophonic alternations between the cardinal vowel reference points of an [ɛ] or an [a] nucleus, but might instead allow for tokens which are intermediate between the two plots on the vowel space. Tokens were therefore assigned one of four codes based on auditory judgements made by the researcher and underwent acoustic analysis through measuring of formants. The possible codes assigned during auditory analysis were numbers from 1 to 4, which reflected the variation in nucleus height found in previous studies during the literature review:

- Category 1: [ɛʊ]
- Category 2: [ɛ̞ʊ]
- Category 3: [a̝ʊ]
- Category 4: [aʊ]

4.5 Results for MOUTH

4.5.1 Acoustic findings

Acoustic analysis was carried out to independently corroborate the impressionistic auditory analysis. All nuclei were measured in the centre of the segment with the assumption that F1 might vary across the auditory categories as it is inversely related to vowel height, and a fair degree of separation may be found between adjacent categories. Duration was not measured.

The mean acoustic measurements of the MOUTH vowel nuclei are plotted in Figure 13. It shows an ellipsis plot – inverted on both axes to closely model the vowel quadrilateral – with the mean position of the cluster of nuclei which form each auditory category, and an ellipsis to signify the range of tokens. This was measured by plotting all tokens on the F1-F2 plane and manually fitting an ellipse around the most extreme variables to characterise the entire distribution of each category. Nucleus height is not the only marker of difference, with /ɛ/ being fronter as well as more raised than /a/. Although fronting of MOUTH to the degree of 'crossover' with the PRICE lexical set is possible (Wells 1982: 308-10), and various recent

studies of UK varieties highlight fronting of the GOAT and GOOSE vowels (Trudgill 2002a, Watt & Tillotson 2001, Jansen 2010, Haddican, Foulkes, Hughes & Richards 2013), nucleus height is shown here to be most useful in distinguishing the four different auditory categories. It is acknowledged that there was a degree of overlap between categories though it should also be borne in mind that the auditory categories were perceptual judgements on the researcher's part. In addition, Table 5 provides mean, range and standard deviation values for F1 and F2 nucleus readings in each category.
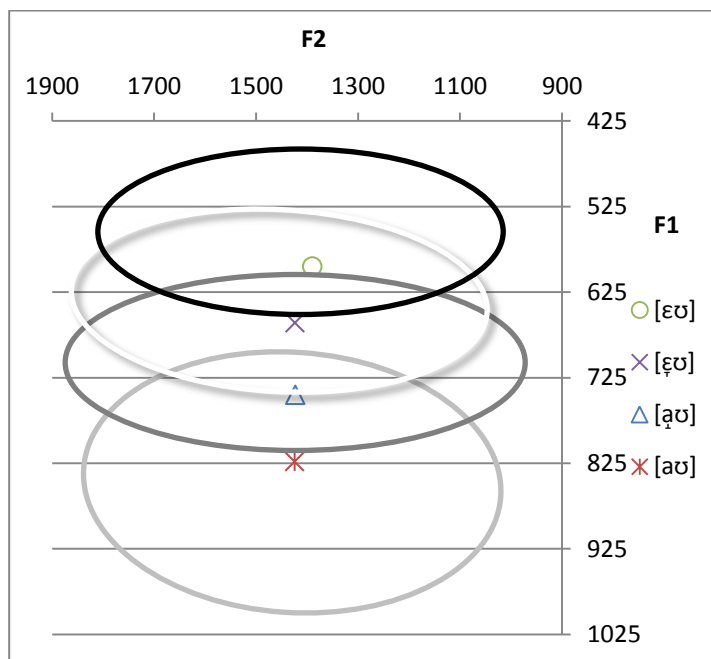
Figure 12: Formant plot of MOUTH nuclei (N = 2075)

	F1 mean (Hz.)	F1 range (Hz.)	F1 standard deviation (Hz.)	F2 mean (Hz.)	F2 range (Hz.)	F2 standard deviation (Hz.)
[ɛʊ]	595	195	38	1390	805	182
[ɛ̞ʊ]	661	330	102	1424	805	159
[a̞ʊ]	745	210	47	1423	920	168
[aʊ]	823	290	68	1424	830	150

Table 5: Acoustic analysis of MOUTH categories

4.5.1.1 Exclusions

Following Britain & Sudbury (2007), all tripthongs (e.g. 'power', 'towel'), which have been subject to 'smoothing' in other dialects (Wells 1982: 238-242), were excluded from the analysis. During the analysis, a cap of no more than five tokens of the same lexical item was enforced per speaker per conversational strand. Six tokens of the word 'about' were realised as unshifted monophthongs, of the kind described as the 'traditional Tyneside pronunciation' by Beal (2000: 348). Although this provides support for Wells' (1982) impression that monophthongal /uː/ is found across the North East of England, the tokens only appeared in the speech of two older speakers. It was felt that six tokens of the same lexical item did not represent a sufficient proportion of the overall number of tokens to complete a thorough and robust analysis and thus the tokens were excised. In total, 2075 tokens from the thirty two speakers were coded for vowel quality, style/conversational context, location, speaker occupation and level of education, with further details provided in Section 4.5.1.2 below.

The study intended to explore the effect of mining vocabulary on variant usage but only fourteen tokens of words featuring the MOUTH vowel were recorded across all speakers from the four villages, which represents less than 1% of the sample of 2075 words. This figure is deemed to be too small to conduct meaningful statistical analysis, and even with this factor included in statistical testing, the model demonstrated a better fit without it, so the classification of words as either mining or non-mining is not being recognised in this study as a reliably significant effect on the data.

4.5.1.2 Statistical model

Recent evidence has suggested that the fronting of offglides conditions sound change in both the MOUTH lexical set (Britain 2003, Kerswill 2003) and in other vowels (for example, GOAT (Kerswill & Williams 2005)), yet an initial examination of the East Durham data shows no significant difference between the four auditory categories and acoustic offglide measurements (ANOVA, $p < 0.61$). With the formant data providing an independent acoustic corroboration of the auditory judgements, an ordinal logistic mixed effects model was used in RStudio version 2.15.0 (The R Foundation for Statistical Computing 2012) to test significance based on the four auditory codings. This method is appropriate for multivariate

analysis of categorical variables with ordered levels (Klavan 2012) – such as phonetic variants of differing vowel height.

The ordinal logistic regression model demonstrates the independent variables that predict which variants are produced by the East Durham speakers. The four variant categories ([ɛʊ], [ɛ̞ʊ], [a̞ʊ] and [aʊ]) represent a dependent ordinal variable, which is ranked in descending order of vowel height. This ensures that the model understands that the category 1 [ɛʊ] variant is higher than the category 2 [ɛ̞ʊ] form, and the category 2 [ɛ̞ʊ] variant is higher than the category 3 [a̞ʊ] form (and so on), in terms of position in the vowel quadrilateral.

The 32 speakers were modelled as a random effect to allow for speaker-specific patterns of variation. Initially, a model including all ten factors was run. The model of best fit, according to lowest log-likelihood (-2021.86 compared to -2058.14 in the initial model which featured all ten factors), contains the following independent variables as fixed effects due to their ability to predict variant usage:

- Location
- Age group
- Context
- Mining lexis
- Occupation
- Education
- Preceding and following segment
- Location:age group
- Age group:context
- Context:occupation
- Context:education

The interactions were run in order to compare factors where correlation might be expected. For example, age group:context and context:occupation may bring out more detailed patterns in terms of the effect of the mining topic, given the different experiences of this subject between the two age cohorts and the occupation of speakers. Similarly, as the social class of a speaker (for which level of education is a proxy in this study) has been argued to

interact with style shifting (Bell 1984), it seems sensible to explore context:education. For each fixed effect, the following data is provided:

- A model estimate of the regression coefficients (column 1)
- The standard error, which measures the reliability of the estimate (column 2)
- The *z*-value (column 3), from which a *p*-value determining significance is calculated (column 4)

The purpose of the model is to demonstrate whether it is possible to reject the null hypothesis which suggests no correlation between variant usage and the predictors. Following relevelling and analysis of the model output, the following factors are shown to be significant predictors of speakers' variant usage, with the level of each fixed effect mentioned in brackets in the first column measured against the following baselines:

- Location: Dawdon – which geographically sits closest to the city of Sunderland where the [ɛʊ] form is highly locally associated
- Age group: older group
- Context: mining topic

In addition the following factor is significant in interaction:

- Interaction of age group and context

Education, occupation, phonological context and interactions of age group:location, context:occupation and context:education were shown to be not significant.

	Estimate	Std. Error	z value	Pr(>|z|)	Sig
Location(Easington)	0.631	0.859	0.734	0.463	
Location(Horden)	2.206	0.857	2.573	0.01	*
Location(Blackhall)	-1.57	0.85	-1.847	0.065	.
Age group(young)	3.482	1.195	2.914	0.004	**
Context(local)	0.172	0.209	0.824	0.41	
Context(general)	-0.872	0.218	-4.001	6.3	***
Context(passage)	1.437	0.279	5.158	2.49	***
Context(word list)	1.916	0.427	4.490	7.12	***
Age group(young):context(passage)	-1.55	0.725	-2.139	0.032	*
Age group(young):context(word list)	-2.027	0.929	-2.183	0.029	*

Significance codes:

< 0.001 ***

< 0.01 **

< 0.05 *

< 0.1 .

Table 6: Output from the mixed effects model for MOUTH data

4.5.2 Auditory results

In general, the model shows the trends to occur in the expected direction:

- Location: the northern-most village of Dawdon, closest to [ɛʊ]-retaining Sunderland produces a greater proportion of raised variants than the furthest village from Sunderland: Blackhall

- Age group: younger speakers produce fewer raised variants than older speakers

- Context: more raised variants are produced in local and mining conversation topics than in non-local ones

The remainder of this section will focus on each significant factor in turn, beginning with location.

4.5.2.1 Location

The detailed location findings show that in three of the four villages, there are incremental increases in [ɛʊ] production and decreases in [aʊ] production across the villages from south to north.
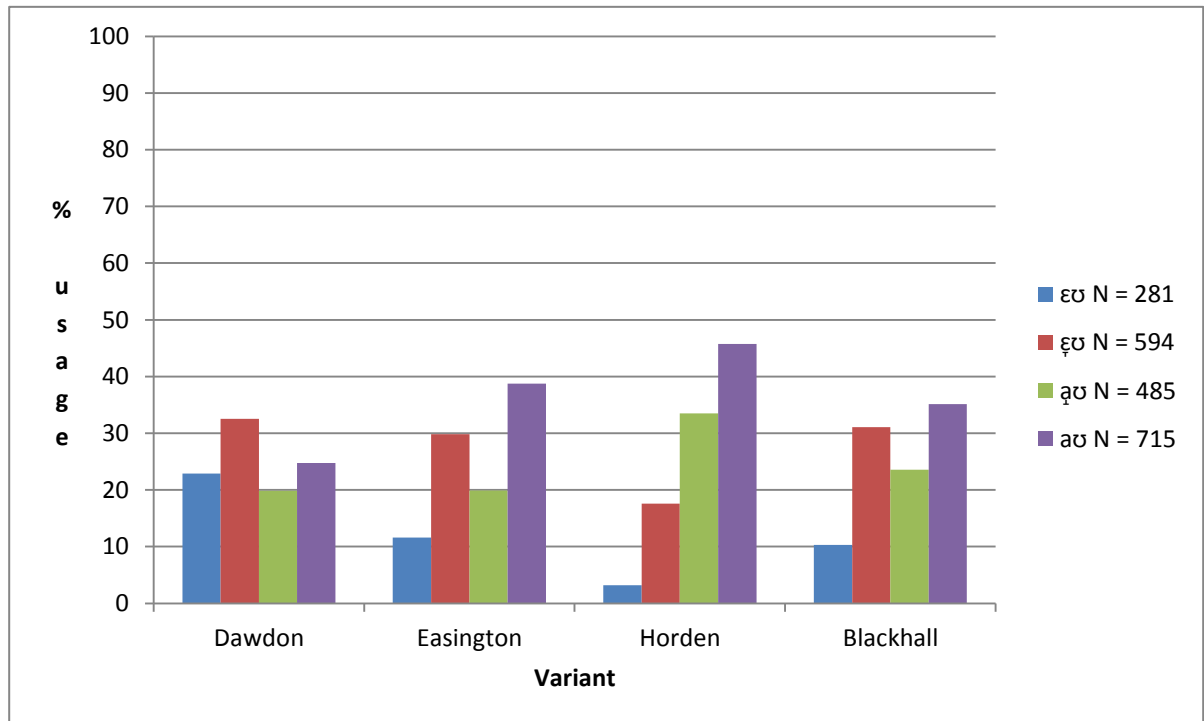
Figure 13: Overall distribution of MOUTH variants by location (N = 2075)

Figure 13 shows the distribution of MOUTH variants across the four locations studied. The villages are ordered in terms of their geographical situation, with north-to-south positions represented from left to right on the graph. It shows a fairly even spread of distribution across all four variants, with no one variant exceeding 50% usage in any of the four locations. Easington, Horden and Blackhall favour the most open form, with more than one in every three tokens in each of these three villages being realised as [aʊ]. In contrast, the most northern village of Dawdon shows a reduced rate of [aʊ] production, with the second-most raised variant, [ɛ̞ʊ], the preferred form in this location. The model shows that speakers in the northern-most village of Dawdon produce a greater frequency of raised variants at an F1 mean of 639Hz compared to all other more southerly villages: Easington (F1 mean: 704Hz), Horden (F1 mean: 749Hz, $p < 0.01$) and Blackhall (F1 mean: 738Hz).

Only one village (Horden, the third-most southern location) demonstrates a pattern of incremental increase across the four categories from [ɛʊ] to [aʊ]. The proportional use of the two most raised variants per village increases from Horden northwards: Horden produces only 3.2% [ɛʊ], compared with 11.6% [ɛʊ] in more northerly Easington, and 22.9% [ɛʊ] in the most northern location of Dawdon. This pattern is mirrored by increases in usage of the two more open variants across these three villages in the opposite geographical direction, with northern-most Dawdon producing 24.7% [aʊ] compared to 38.7% [aʊ] in the next village south of Easington, and 45.7% [aʊ] further south in Horden. These geographical trends contribute to a significant difference between the villages of Dawdon and Horden ($p < 0.02$), but this gradient pattern is disrupted between the two most southern locations of Horden and Blackhall with the latter, southern-most village demonstrating increased usage rates of the two more raised variants and reduced levels of the two more open forms than in Horden – a distribution more similar to the more northern village of Easington. For example, the mean F1 value in Blackhall is 738Hz, smaller than the Horden F1 mean of 749Hz. Furthermore, the difference in distribution across all four variants between Easington and Blackhall is never more than 4.5%.

In summary, the location findings show that the three most southern villages of Easington, Horden and Blackhall show a preference for [aʊ], which is considerably different to Dawdon, where [ɛ̨ʊ] is most frequently used. The location findings also show that between Horden, Easington and Dawdon, there are incremental increases in [ɛʊ] production and decreases in [aʊ] production across the villages from south to north.

4.5.2.2 Age group

The detailed age findings show that the preferred variant changes across the age groups from a variant with a fairly raised nucleus to a form with a fully open nucleus.
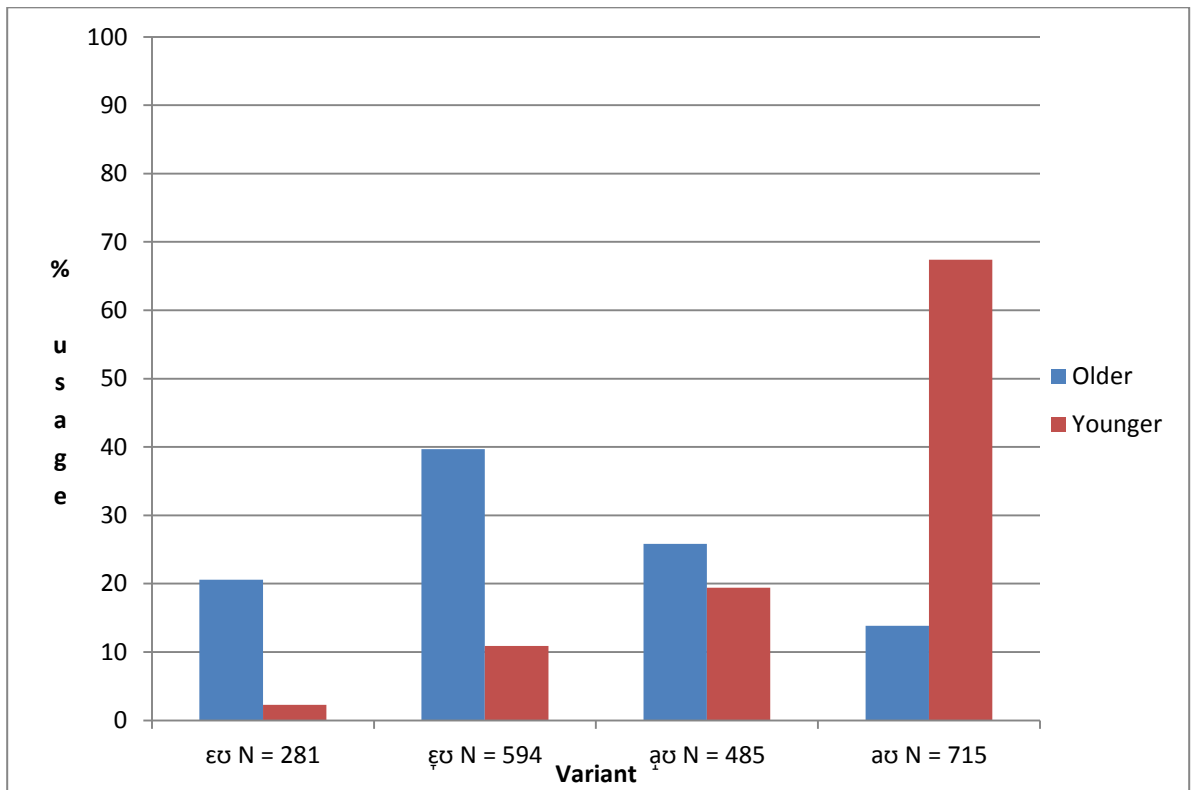
Figure 14: Overall distribution of MOUTH variants by age (N = 2075)

Figure 14 shows that overall older speakers have a much more even distribution across the four variants than their younger counterparts, with no one form being used more than 50% of the time. In contrast younger speakers more clearly favour the variant with the most open nucleus ([aʊ]), contributing to a mean F1 difference between age groups of 34Hz (older F1 mean: 685Hz, younger F1 mean: 719Hz), which demonstrates a statistically significant difference between the two cohorts ($p < 0.02$).

Younger speakers use the most open [aʊ] variant most often, whereas older speakers most frequently realise the MOUTH vowel with a fronter, closer nucleus. Younger speakers' usage follows a pattern of progressively more frequent usage as the variant nucleus becomes more open, with a range of more than 65% between usage rates of the closest ([ɛʊ]) and most open ([aʊ]) variants. Older speakers have a much more even distribution across the four variants, with a roughly 25% range between the most and least popular variants ([ɛ̞ʊ] and [aʊ]) – and less than 7% difference between the variants at either extreme of the spectrum ([ɛʊ] and [aʊ]).

123

In terms of variant differences between the age groups, the older speakers use considerably more of the two closest variants. They use [ɛʊ] 18% more and [ɛ̞ʊ] 29% more than the younger speakers. There is less than 7% difference in usage of [a̞ʊ] between the age groups, but the most open form ([aʊ]) is used nearly five times as much by the younger speakers as the older generation (13.9% usage among older speakers vs. 67.4% usage by younger speakers).

In summary, the age findings show that there are statistically significant differences in the speech of younger speakers, who use [aʊ] overwhelmingly, and older speakers, for whom more raised [ɛ̞ʊ] is the preferred variant.

4.5.2.3 Interview style
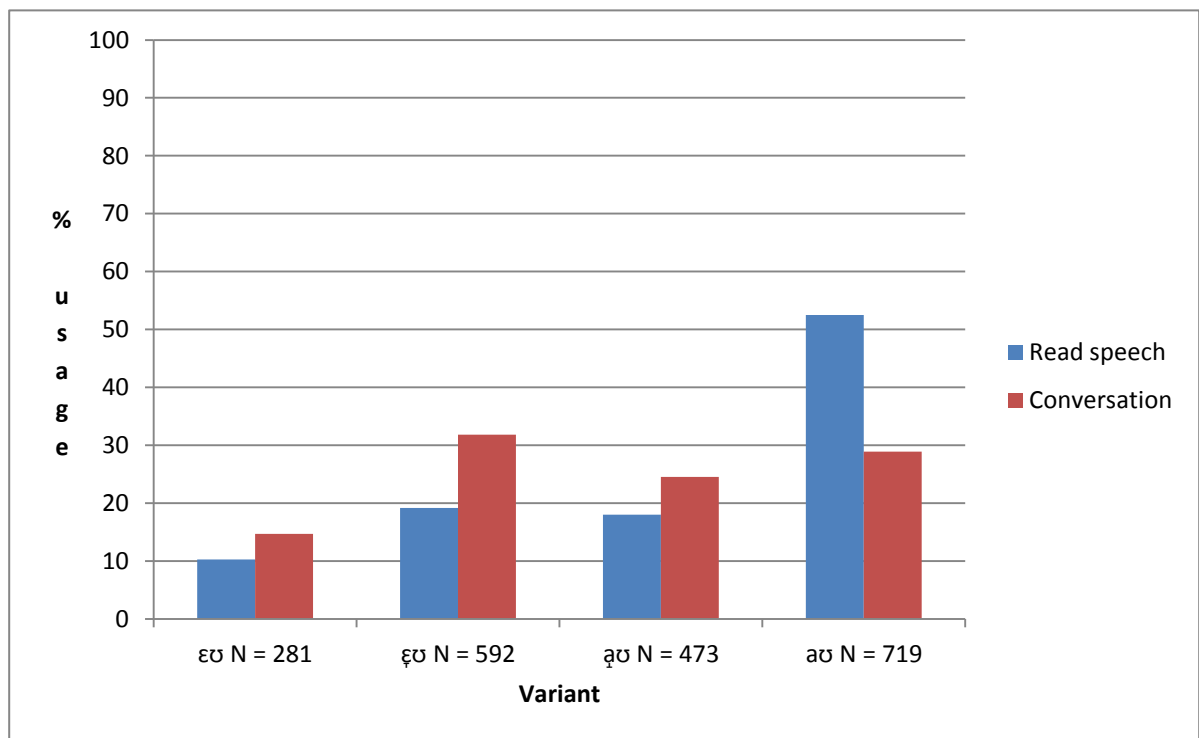
Figure 15: Overall distribution of MOUTH variants by interview style (N = 2075)

Figure 15 presents MOUTH vowel usage in terms of read speech and conversational speech. It demonstrates that in the read speech style speakers most frequently produce the most open [aʊ] variant, with more than half of all tokens recorded in this speech style being realised as

this form. In contrast, the most raised form, [εʊ], is scarce in read speech, with only around one in every ten tokens being realised as this category.

In terms of the conversation, there is less of a clear majority variant. The second-most raised [ɛ̞ʊ] variant is the form used most frequently in this speech style, but the most open [aʊ] form is found only 3% less, and less than 8% separates the usage rates of all three of the lowered forms ([ɛ̞ʊ], [a̞ʊ] and [aʊ]). In terms of differences across the styles, all three of the most raised forms ([εʊ], [ɛ̞ʊ] and [a̞ʊ]) demonstrate increases in usage of between 4% and 13% from the read speech to the conversational data, whereas usage of the most lowered [aʊ] variant almost halves from 52.5% rate of use in read speech to 28.9% in the conversation data.

In summary, the style findings show that in read speech speakers produce [aʊ] more than 50% of the time with [εʊ] usage scarce. In contrast, in the conversation data speakers show a much more balanced distribution of variants, with [ɛ̞ʊ] marginally preferred over [aʊ]. The rate of [aʊ] usage drops by more than 23% from read speech to the conversation data, while [ɛ̞ʊ] increases by 13%.

4.5.2.3.1 Conversational topic
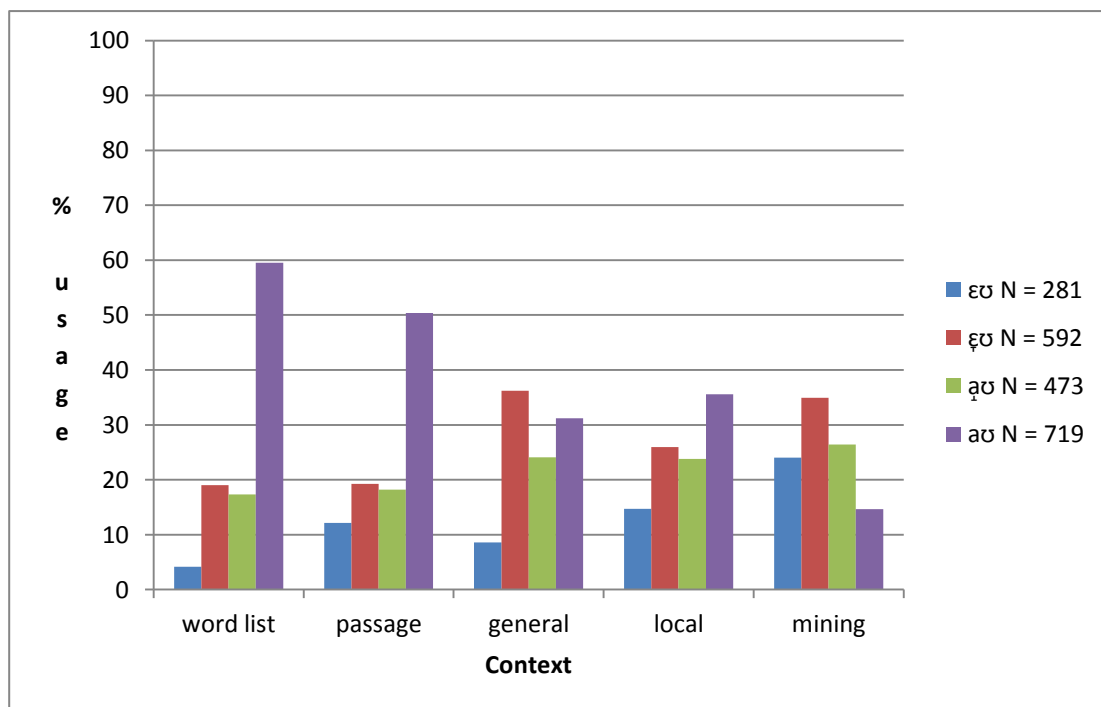
Figure 16: Distribution of MOUTH variants by context (N = 2075)

The interview methodology allowed for style to be further demarcated into five categories. This resulted in two read speech styles encompassing the word list and the reading passage, and three conversational contexts covering mining, other local and non-local/general topics.

Figure 16 shows the distribution of variants for each of the five style categories, with [aʊ] found to a considerably lesser extent in the mining topic than in both the non-local, general and the local conversational topics, with the rate of this variant declining by more than half. This reduction is mirrored by considerable increases in the use of the form with the most raised nucleus, [ɛʊ], from both the non-local, general context to the local topic, and from the local topic to the mining conversation. Both the mining ($p < 0.004$) and the local ($p < 0.0009$) topics feature significantly more raised variants than the non-local, general topic.

Following on from Figure 15, which showed that the most open [aʊ] variant is preferred in more than one out of every two tokens recorded in the read speech style, Figure 16 shows the extent of the preference for this variant in both the word list and the narrative text passage tasks. In both of these contexts, the proportion of the two intermediate categories ([ɛ̞ʊ] and [a̝ʊ]) remains similar, but there are differences in the two extreme categories with a 9% decrease in the usage rate of the [aʊ] form from word list to the passage of text and an 8% increase in the use of the [ɛʊ] form, the latter of which does not appear at all in word list data in the two most southern villages of Horden and Blackhall.

In terms of the three conversational contexts, [ɛ̞ʊ] is found to a much greater extent, and is the most frequently used variant in both the mining conversation and the non-local, general conversation, in contrast to the read speech categories where this form is not as favoured as [aʊ].

4.5.2.3.2 Interaction of topic and age group
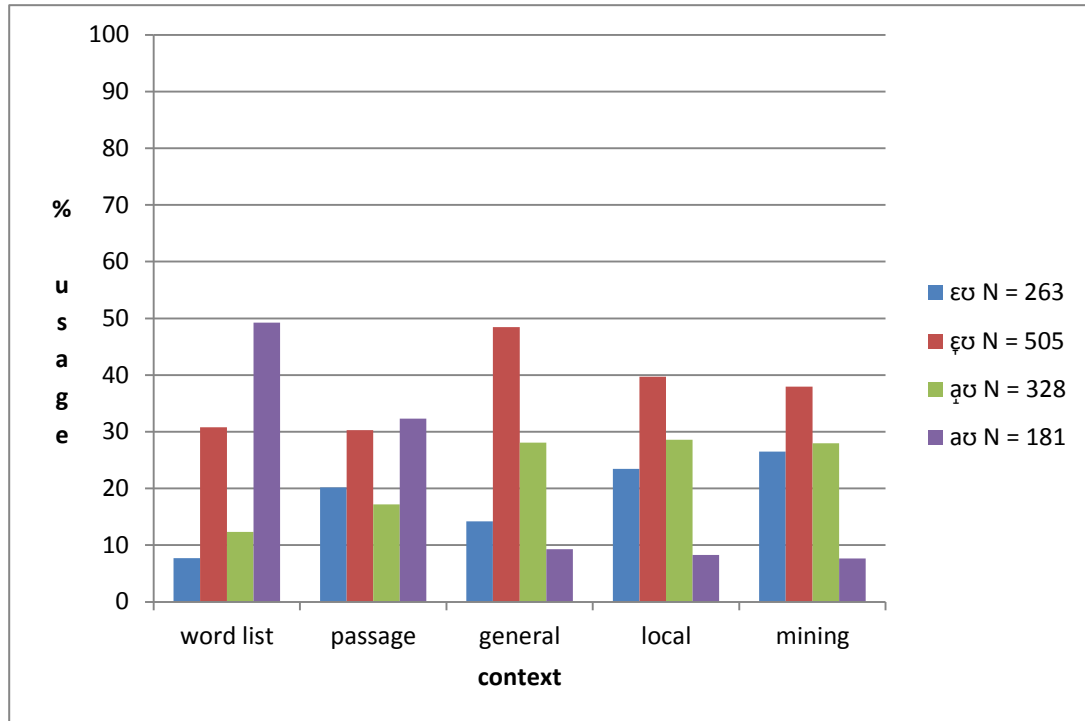
Figure 17: Distribution of older speakers' MOUTH variants by context (N = 1277)
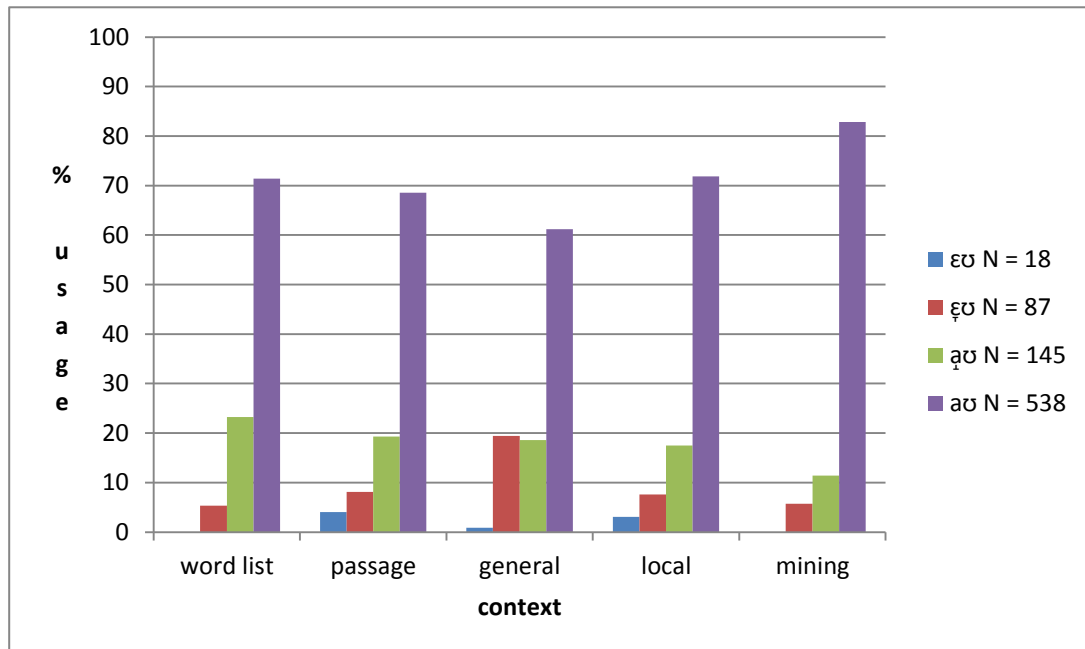
Figure 18: Distribution of younger speakers' MOUTH variants by context (N = 788)

Figures 17 and 18 show the distribution of MOUTH vowel usage by age group across the five contexts. Whereas in the older age cohort, the proportion of [aʊ] usage decreases

incrementally from the most formal word list style to the most familiar mining topic, in the younger cohort this variant is the majority variant in all five contexts, with more than 60% of all tokens realised by younger speakers as [aʊ]. The younger speakers provide the most raised forms in the general topic where they record almost 20% usage of [ɛ̝ʊ] and around 7% less [aʊ] than in any other context. This represents a statistically significant difference from every other context, both more local in nature (local: $p < 0.0008$, mining: $p < 6.3e\text{-}05$) and more formal (word list: $p < 0.04$, passage: $p < 0.01$).

Meanwhile, the decrease in [aʊ] usage from word list and narrative passage to mining combined with increases in [ɛʊ] mean that variants with a significantly more raised nucleus are found in the speech of older speakers in the mining topic compared to both of the read speech styles (word list: $p < 0.02$, passage: $p < 0.03$). This is also reflected in the acoustic data which shows that mean F1 scores are more than 15Hz lower in the mining topic (mean F1 score: 698Hz) compared to the non-local, general topic (mean F1 score: 715Hz), suggesting that only the older speakers associate diphthongs with a raised nucleus ([ɛʊ]) with more local topics of conversation. Although rates of the most local variant are low across all contexts in the younger group, these speakers produce zero tokens of the [ɛʊ] form in the mining topic, and also a smaller frequency of [ɛ̝ʊ] than in both of the other conversational topics. This is reflected in their acoustic data where, in contrast to the older speakers, the mean F1 figure in the mining topic is more than 45Hz higher than in the non-local general topic (mining mean F1 score: 748Hz, general mean F1 score: 702Hz).

In summary, the detailed topic findings show that [ɛʊ] demonstrates incremental increases in usage across the three conversational topics from the non-local to the most highly local contexts, while [aʊ] usage decreases from the non-local, general topic to the mining topic and from local to mining topics across all four villages. Furthermore, all three conversational topics have lower usage rates of [aʊ] than both read speech contexts.

4.5.3 Overall summary of results

The results show that each of the four locations studied in this research show distinctive patterns of MOUTH vowel usage. Speakers in the most northern village of Dawdon behave differently from their counterparts in the three locations further south by most frequently

using [ɛ̝ʊ] over the [aʊ] variant favoured in Easington, Horden and Blackhall. Furthermore, the incremental increases in [ɛʊ] production and decreases in [aʊ] production from Horden to Easington to Dawdon provide significant evidence of gradient shifts in these variants between three contiguous locations in a south-to-north direction.

The age findings reveal considerable differences in the speech of younger and older speakers in all four villages, with younger speakers' overwhelming and uniform preference for [aʊ] across all locations sitting in contrast with the older group's inclination to produce a significantly more varied pattern of raised forms such as [ɛ̝ʊ] and [a̝ʊ], depending on which village they belong to.

The style results show that speakers from all locations most frequently produce [aʊ] in read speech, but that equally this form is considerably less likely to be used in conversation data. In all four locations [aʊ] usage decreases significantly in all three conversational topics when compared with read speech contexts, with incremental decreases patterning with increasing localness of topic.

Mining as a conversational topic is frequently shown to significantly condition variant distribution. Individual speakers' occupational relationship to the mining industry is also a significant effect on variant production. The effects of level of education and occupation are not significant. Mining-specific lexical items and linguistic-internal factors are also not shown to have a significant effect on patterns of variant distribution.

The next section will continue to investigate the effect of social and linguistic factors on another vocalic variable: FACE.

5. FACE

5.1 Overview

This chapter explores the distribution of variants of the FACE vowel in East Durham English. Section 5.2 gives an overview of the phonetic properties of the variable and details the previous literature on it. Section 5.3 investigates the history of the FACE vowel in British English and describes the patterns of variation found local to the area sampled. The methodology used to distinguish, categorise and measure the variants is presented in Section 5.4. Section 5.5 details the findings for FACE. An interpretation of the findings appears in Chapter 8.

5.2 Definition of FACE

FACE is the headword for the lexical set containing words which include the stressed vowel phoneme /eɪ/ in Received Pronunciation and General American. The phonetic realisation in these standard forms is generally the same: [eɪ]. This unrounded, front, narrow closing diphthong can occur in both open and closed syllables and is traditionally referred to as 'long A' (Wells 1982: 141). This name is explained by one of the two main derivations of the vowel, which shifted from Middle English /aː/ following the Great Vowel Shift, as in words such as *late* and *age*. The other principal origin is from Middle English /ai/, as seen in the words *raid*, *they* and *day*, and less commonly, a subset of words which took /ɛː/ before the Great Vowel Shift and did not undergo a merger with FLEECE along with the rest of this set, such as *great* and *steak*. Finally the distinct EIGHT subset, which can have a different distribution in varieties of the North East (Beal 2008, Beal, Burbano-Elizondo & Llamas 2012: 30), derives from Middle English /ex/.

5.2.1 Coincidence of FACE and GOAT

The FACE keyword was presented by Wells (1982) as part of his group of lexical sets which have been widely used as categories for groups of vowels in subsequent dialect studies (e.g. Watt 2000, Kerswill 2003, West 2009 – to be discussed below) and such overviews of accent variation in English often review the FACE set alongside the backer set of vowel variants with

the British RP citation /əʊ/ which form the GOAT category (Wells 1982: 146). The FACE and GOAT vowels have been shown to exhibit fine-grained variation both regionally and socially (Wells 1982: 146, Foulkes & Docherty 1999a). Both vowels have (a range of) monophthongal as well as diphthongal variants, such as [eː], [ʌɪ], [ɛɪ], [æɪ] and [eə] for FACE (Wells 1982: 142), which indicates a lack of Long Mid Diphthonging, a realisational change whereby a closing glide is added to the long mid vowel: [eː] to [eɪ] for FACE (Wells 1982: 210).

The process appears to have begun in the nineteenth century in free monosyllables such as *day*, following raising of [ɛː] to [eː] in the 1600s (Dobson 1968: 102). Both FACE and GOAT have developed from Long Mid Mergers, so called as both vowels have historically lost variant competition between a diphthong and a long mid vowel (Wells 1982: 192-194). However the merger is not yet complete in all local accents, resulting in the maintenance of a distinction in East Anglia between words like *mane* and *main*, where *mane* is produced as monophthong [eː ~ ẹː] and is thus not homophonous with the [eɪ] diphthong found in *main* (Trudgill & Foxcroft 1978). Both Hughes and Trudgill (1996: 89) and Petyt (1985: 119-124) report a similar trend in West Yorkshire, where [ɛɪ] is produced in words from the distinct EIGHT subset (such as *weight*), compared to a realisation of [ɛː] in *ate, wait*. Beal (2008: 133-134) records maintenance of the phonemic distinction in other northern dialects in terms of the FACE vowel, including nearby Teesside English – to the southern edge of the area covered by this research – though in this variety the distinction holds only with the lexical items *eight* and *ate*, with the *weight/wait* and *straight/strait* pairs being homophonous (Beal, Burbano-Elizondo & Llamas 2012: 30). Beal (2008) furthermore notes that the distinctions are not being sustained, a conclusion which Petyt (1985) attributes in the 1980s to the influence of Received Pronunciation, but which now may indicate dialect levelling.

Systemic, internalist approaches to vowel change have implied that the FACE and GOAT vowels 'behave as "mirror images" of one another' (Watt & Milroy 1999: 32). Many studies have shown symmetry across both the front and back planes of vowel systems to be a universal trend (Liljencrants & Lindblom 1972, Crothers 1978, Schwartz, Boë, Vallée & Abry 1997), including studies of systemic vocalic variation and change (Labov's 1994). In the Tyneside vowel system, the correlation between FACE and GOAT was such that they were undergoing sound change 'in lockstep with one another', with regularity in terms of both patterns of

variation and directions of change (Watt 2000: 87). For example, in Tyneside, long peripheral monophthongs [eː] and [oː] are described as 'symmetrical partner vowels' and, along with the slightly different [ɵː] form, and less commonly closing diphthongs [eɪ] and [oʊ], they are increasingly replacing centring diphthongs [ɪə] and [ʊə] for both FACE and GOAT, which the author attributes to an underlying relationship between the two variables (Watt 2000: 91). The usage rates of the three different types of variants in each of the FACE and GOAT sets correlated to a statistically significant degree, suggesting that the distributional similarity may be due to an 'underlying orderliness' or symmetry between the two lexical sets (Watt 2000: 87). Under a Labovian account of vowel change (Labov, Yaeger & Steiner 1972: 104), the presence of each of the three variant types in both sets would represent a stage of the same vowel shift: the closing diphthongs develop from the centring diphthongs, which in turn develop from the monophthongs. Yet the presence of all three types of variant suggests that the shift from monophthong to centring diphthongs had not been fully accomplished prior to the next shift to closing diphthongs. As Section 5.3.2.1 further details, this explanation is not borne out in the results. Rather, it seems that respective variant types in each set (closing diphthongs, centring diphthongs and monophthongs) demonstrate a similar pattern because they are 'equivalently socially marked' (Watt 2000: 96).

5.3 FACE in the North East of England

5.3.1 Historical trends

Data from the Survey of English Dialects (Orton & Dieth 1962–1971) and from Rydland (1998) suggests that both FACE and GOAT have been subject to considerable reorganization from the traditional dialects to a variety closer to Standard English (Maguire 2009) through a process of 'lexical redistribution' (Trudgill 1999:136–137), as shown in Figure 19.

The most common pronunciations recorded for FACE in County Durham in the Survey of English Dialects (Orton & Dieth 1962-71) are centring diphthongs [iə] and [eə], which developed from Middle English /ai/ along with [eː]. Exogenous lexical redistribution (Trudgill 1999: 136–137) in twentieth century traditional dialects meant this vowel was being generalised to all FACE lexical items, including the oldest traditional FACE form – Middle

English /aː/ – which was typically realised as [jɛ ~ ĭɛ] in Northumberland and [ja ~ ĭa] in Durham, but was already dying out at the time of the SED.
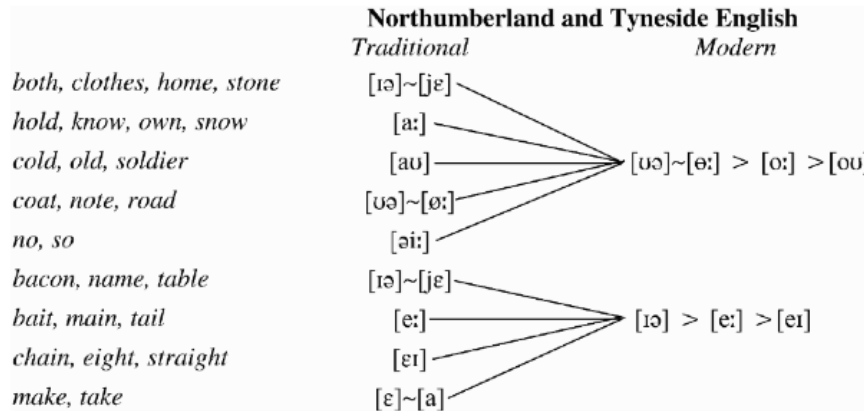
Figure 19: The development of the FACE and GOAT vowels in North East England (source: Maguire et al 2010: 74)

The preferred variant depends on the geographical location of the villages, with the three northern Durham villages favouring [iə] and the three southern villages overwhelmingly preferring [eə]. The more raised [iə] form accounts for more than half of all tokens recorded in Washington and Wearhead and around one-third of all tokens in the other northern Durham village of Ebchester, whereas in more southerly Bishop Middleham, more than 70% of all tokens are produced as [eə] irrespective of spelling (West 2009: 33). In the south of Durham the monophthong [eː] is found to small degrees and mainly in words followed orthographically by a consonant plus the vowel 'e', deriving from Middle English 'long A' (/aː/), though it is much more common in the north with around one in every five tokens in Ebchester and Wearhead being realised as [eː].

In the three most southern Durham locations covered by the S.E.D., it is useful to make a distinction between words in the FACE set and those which are covered by the EIGHT set. Diphthongs with very open onsets also feature highly in the southern Durham locations, such as [æɪ] in Witton le Wear and [aɪ] in Eggleston. [ɑɪ ~ æi~ ai], which are found in the PRICE set in nearby Tyneside, are also found across the board in words with a spelling of <-ai-> and <–ay>, but belong in the EIGHT set with *weight* and s*traight.* In the three south Durham locations, two other prominent variants in the EIGHT set are the closing diphthongs [ɛɪ] and

[aɪ], found to only small frequencies in the other FACE words but representing the many realisations for EIGHT. [ɛɪ] is also found overwhelmingly in the North Yorkshire locations which now form part of Teesside.

It is worth pointing out that [ɛɪ] here originated separately from the raised and more widespread present-day FACE [eɪ] form found in Received Pronunciation (cf. Wells 1982):

'To the South [of Durham] ei is a rare sound, occurring only in words like eight, neighbour, straight, weigh,…Between Northern Middle English e and /x/ a palatal glide seems to have developed before the fricative was deleted, which led to forms like [wɛɪ] "weigh" and [nɛɪ] "neigh"' (Glauser 1988: 622, original underlining).

5.3.2 Contemporary patterns

Tyneside	eː ~ ɪə
Wearside (including Sunderland)	eː ~ eᵊ > ɪə
Teesside (including Hartlepool)	ɛ̝ː > ɪə ~ ɛ̈ː

Key: Variants to the left of '>' are used more frequently than those to the right. '~' denotes a similar frequency of usage.

Table 7: Present-day variants of the FACE vowel in the three main urban conurbations of North East England (from Beal, Burbano-Elizondo & Llamas (2012: 30))

The distribution of FACE in present-day northern England follows two distinct routes. In an area she terms 'the lower North', Beal (2008: 133) lists Lancashire and Humberside as two of the counties with a traditionally monophthongal [eː] realisation. In contrast, the traditional pronunciation in Merseyside and the Midlands is recorded as an RP-like closing diphthong ([eɪ]) which are seen to be diffusing from urban hubs like Liverpool (Beal 2008: 133). The centring diphthong [ɪə] is the traditional pronunciation of FACE for speakers in the North East of England region (Wells 1982, Watt 2000, Beal 2008, Beal, Burbano-Elizondo & Llamas 2012). Further work shows the FACE vowel to exhibit substantial social and geographical variation in this area. A summary of FACE distributions across the region is seen in Table 7.

Table 7 shows that, although the centring diphthong [ɪə] – which is described as being 'characteristic of the region' (Beal, Burbano Elizondo & Llamas 2012: 30) – is found across the geographic span of North East England, it is notably less frequent outside of Tyneside. All speaker groups other than older working class males have been shown to favour a monophthongal pronunciation in both Tyneside and Teesside (Watt 2000, 2002, Watt and Llamas 2004). There is a difference in monophthong height across the region, with the vowel being typically closer to [eː] in Tyneside, compared to Teesside [ɛ̝ː]. Younger Teesside females have been shown to centralise to [ë:] (Watt and Llamas 2004) and even in Tyneside [æi] can sometimes be heard in words such as *eight*, *game* (Watt & Milroy 1999: 28). In line with patterns across the United Kingdom, a closing diphthong similar to [eɪ] is becoming more frequent across the region in middle class speech, though it remains a minority variant and is usually confined to the most formal styles (Watt & Milroy 1999: 28).

5.3.2.1 FACE in Newcastle upon Tyne

In 1990s Tyneside, Watt and Milroy (1999: 35-36) found that older working class men most frequently use a traditional localised variant for FACE, with nearly twice as many [ɪə] realisations as the next most favoured variant, monophthongal [eː] which is less highly localised and therefore unmarked. All other speaker groups showed a clear preference for [eː] over the traditional centring diphthong.

This sound change, whereby the FACE variant with a greater geographical coverage ([eː]) is replacing the highly local, traditional [ɪə] form, is explained as a case of dialect levelling (Watt & Milroy 1999). However, in contrast to standardisation, in which the centring diphthongs ([ɪə]) would lose ground to the closing diphthong ([eɪ]) associated with RP, it is the more pan-northern, monophthongal [eː] variant which is more highly favoured by younger speakers (Watt & Milroy 1999; Watt 2000, 2002). The closing diphthong is present in the data, but mainly among female and middle class speakers, perhaps due to its high status connotations. The preference for monophthongs is said to represent a wider geographic area of 'the north', without recourse to further localisation (Watt & Milroy 1999; Watt 2000, 2002; Beal 2008). This represents an appeal to socio-psychological extra-linguistic factors (Farrar & Jones 2002: 1, Torgersen & Kerswill 2004), in which the monophtongal [eː] variant remains identifiable as

'northern' without sounding overly marked or 'old-fashioned' like the [ɪə] centring diphthong (Wells 1982, Lass 1989: 188, Watt 2000: 95). [eː] in particular is shown to have a wide geographical distribution across the North of England (Wells 1982, Beal 2008), meaning that usage of this form may index 'northerner' speech but without the highly localised stigma associated with the [ɪə] centring diphthong (Watt 1998, 2000).

In Watt's (2000, 2002) Tyneside study, social effects such as sex and class were shown to be stronger constraints on variant distribution than phonological environment (Watt 2000). In particular, usage of the [eɪ] closing diphthong, a standard-like form characteristic of southern England, occurred to high degrees in the speech of certain individual speakers, who were almost exclusively women and middle class, in line with the prestige attached to more standard pronunciations by these speaker groups (Trudgill 1972, 1974a). In contrast, there are increased proportions of the [ɪə] centring diphthong in older working class male speech relative to other speaker groups, a finding also mirrored in Middlesbrough English (Watt & Llamas 2004), leading Watt (2000) again to explain this in terms of the identity-marking functions of variants. [ɪə] usage indicates older working class men's preference for variants which connote the most local and traditional forms of Tyneside speech over less locally-symbolic pronunciations which are deemed undesirable due to their lack of local affiliation (Watt 2000). Overall, it seems that social factors offer a more persuasive account of changes in the FACE set in Tyneside than systemic factors.

5.3.2.2 FACE in Durham City

	Durham, 1983		Newcastle upon Tyne, 1994			
	Men	Women	Men		Women	
	26-59	26-52	45-67	15-27	45-67	15-27
% [ɪə]	45	8	63	36	8	5
% [eː]	55	92	37	64	92	95

Table 8: Distribution of two FACE variants in two North East England cities (data from Kerswill 1984, Watt 2002)

Drawing upon Watt's (2000, 2002) research on Tyneside, Kerswill (2003) revisited FACE variation in his own earlier data collected in Durham and found production in Durham City

and Newcastle upon Tyne to be very much alike in terms of the social distribution of variant usage and the direction of change, as shown in Table 8. The emerging pattern showed that the traditional [ɪə] form was almost exclusively used by men, with the difference in age groups in the Newcastle upon Tyne study suggesting that the diphthong was in decline against the emerging lengthened monophthong [e:]. This finding has been characterised as an example of levelling, whereby the highly localised and traditional [ɪə] form, associated with the speech of older working class males, appears to be in recession compared to the [e:] form which is found in other varieties of northern England and seems to be increasing in use in Tyneside and Durham to become the dominant form for FACE vowels (Kerswill 2003: 223-224).

Observing the similarity in sex-based results across the two cities shown in Table 8, above, Kerswill (2003) suggests that the shift towards the [e:] monophthong started in women's speech, in keeping with the growing body of evidence indicating that females avoid highly localised variants (Milroy, Milroy, Hartley & Walshaw 1994, Watt & Milroy 1999, cf. Cheshire 2002: 430). Although [e:] does not represent a change towards the standardised RP form ([eɪ]), it remains somewhat neutral in lacking a particular association to a local area (Kerswill 2003: 227).

Although Table 8 does not provide results for younger speakers in Durham City, unpublished observations signal that the [e:] monophthong continues to replace the [ɪə] diphthong in this age group (Kerswill 2003: 227). The older Durham City data demonstrates reduced diphthong usage when compared to the older cohort of speakers in the Newcastle upon Tyne study carried out eleven years later, though even in light of this decade-long interval, the lower age bound (aged 26 in the year 1983) of the Durham City informants means that the youngest speakers in that study were eight years the junior of their Newcastle upon Tyne counterparts (aged 45 in the year 1994). Although the age cohorts do not correspond, and the methodologies of the studies of the two locations are presumably different, Kerswill interprets this finding as an occurrence of regional dialect levelling through contra-hierarchical diffusion (Britain 2002c: 626, Trudgill 1986: 50), in which the smaller settlement and population of Durham City advances the shift towards the more pan-northern feature of

monophthongisation before the larger settlement and population of nearby Newcastle upon Tyne.

In terms of the motivations for the change, Kerswill (2003: 230-231) endorses Watt's (2000, 2002) account of mutual accommodation, in which speakers avoid using highly local forms associated with particular areas in favour of variants with a broader geographical circulation. This trend is discussed in terms of speakers' desire to avoid sounding old-fashioned or 'linguistically backward' (Watt 2002: 53) whilst retaining some sense of regional loyalty, thus resulting in a movement away from highly localised forms, not in the direction of the standard, but to regional or 'general northern' patterns (Holmes 2000; cited in Watt 2002: 56). Alongside this, Kerswill (2003: 230-231) suggests that [e:] may also be diffusing from Yorkshire, the county to the immediate south of County Durham, where the monophthongal variant is shown to be the traditional form in historical data from the S.E.D. (see West 2009: 34).

5.3.2.3 FACE in Newton Aycliffe, south-west County Durham

Alongside the traditional North East [ɪə] form and the supra-local [e:] monophthong, West (2009) highlights the presence of the mid-open [ɛ:] monophthong – almost exclusively among younger speakers – in the County Durham new town of Newton Aycliffe, around 21 miles (33.5 kilometres) south-west of the most southerly village in this study. [ɛ:] is found in low frequencies in S.E.D. data in North Yorkshire locations now more commonly considered part of Teesside, and in the most south-westerly Durham village surveyed in the SED, Eggleston, which lies on the outskirts of the Pennines mountain range. Lowered monophthongs also feature prominently in modern descriptions of Teesside English (see Beal, Burbano Elizondo and Llamas 2012: 30, and Table 1 in Section 1.3.2 above) and studies across the Yorkshire region (see Hull, East Riding of Yorkshire, in Williams and Kerswill 1999, and Sheffield, South Yorkshire, in Stoddart et al. 1999). However, the variant is also found minimally in Newcastle upon Tyne (Watt and Milroy 1999: 28), leading West (2009) to interpret the discovery of [ɛ:] in Newton Aycliffe as the result of diffusion from Yorkshire to areas of the North East, as is also the case with [e:] (Kerswill 2003).

5.4 Analysis

5.4.1 Issues addressed

Based on the findings of the literature review, four main variant types emerge in the FACE vowel in the geographical areas surrounding East Durham. Older North East speakers appear to conserve centring diphthongs in the face of increased adoption of less regionally-marked monophthongs among other speaker groups. A lowered monophthongal realisation noted widely in the speech of Yorkshire English speakers is also found in Teesside and southern Durham, while a standard-like non-local closing diphthong is noted in middle class speech.

In addition to the overarching research questions of the thesis relating to distribution of variants across locations, age groups, style and topic (and specifically coal mining), this study aims to identify the distribution of the following FACE vowel variants in the East Durham data in terms of social and linguistic constraints:

1. [ɪə]: associated with older working class speakers from North East England
2. [eː]: considered to represent a wide geographical area of northern England
3. [ɛː]: found in studies of Teesside and Yorkshire
4. [eɪ]: similar to the British standard and typically found among middle class speakers

The remainder of this section details the methods used to conduct the analysis of the FACE vowel in order to answer these research questions.

5.4.2 Coding

As described in Section 3.6, FACE vowel tokens were subjected to auditory judgements made by the researcher and were acoustically analysed through measuring of formants. The auditory analysis assigned codes numbered 1 to 4 to each token, based on the four variant categories identified in Section 5.4.1, above. Both monophthongal and diphthongal realisations have been highlighted in the literature review of FACE production in the North East of England, and the categories are split equally along these lines. Codes 1 and 4 are diphthongal realisations based on social differentiation highlighted in the literature, with category 1 ([ɪə]) representing a 'traditional' North East pronunciation of the FACE vowel (Watt 2000, 2002, Watt & Llamas 2004, Beal 2008) and category 4 ([eɪ]) signifying more 'middle

class' forms (Watt 2000, Beal, Burbano Elizondo & Llamas 2012). Codes 2 and 3 are monophthongal variants with category 3 ([ɛː]) representing a form often attested in the Teesside area and more generally in Yorkshire, both to the south of the locations studied here. The category 2 variant ([eː]) is considered to represent a supra-local form across the North East England region (Watt 2002) or northern England more generally (Beal 2008). Tokens which belonged to the EIGHT subset were not included in analysis. A small proportion of the centring diphthongs appeared to be realised closer to [eə] but they were included with the other category 1 tokens with a more raised nucleus. The possible codes assigned during auditory analysis were numbers from 1 to 4, which reflected the variation found in previous studies during the literature review:

- Category 1: [ɪə]
- Category 2: [eː]
- Category 3: [ɛː]
- Category 4: [eɪ]

5.5 Results for FACE

5.5.1 Acoustic findings

Acoustic analysis was carried out to independently corroborate the impressionistic auditory analysis. The overall acoustic measurements are plotted in Figure 20. This takes the form of a scatterplot inverted on both axes to closely model the vowel quadrilateral, showing the positions of the tokens, divided into the four auditory categories. Tables 9 to 11 also provide mean, range and standard deviation values for F1 and F2 in each category and each location.
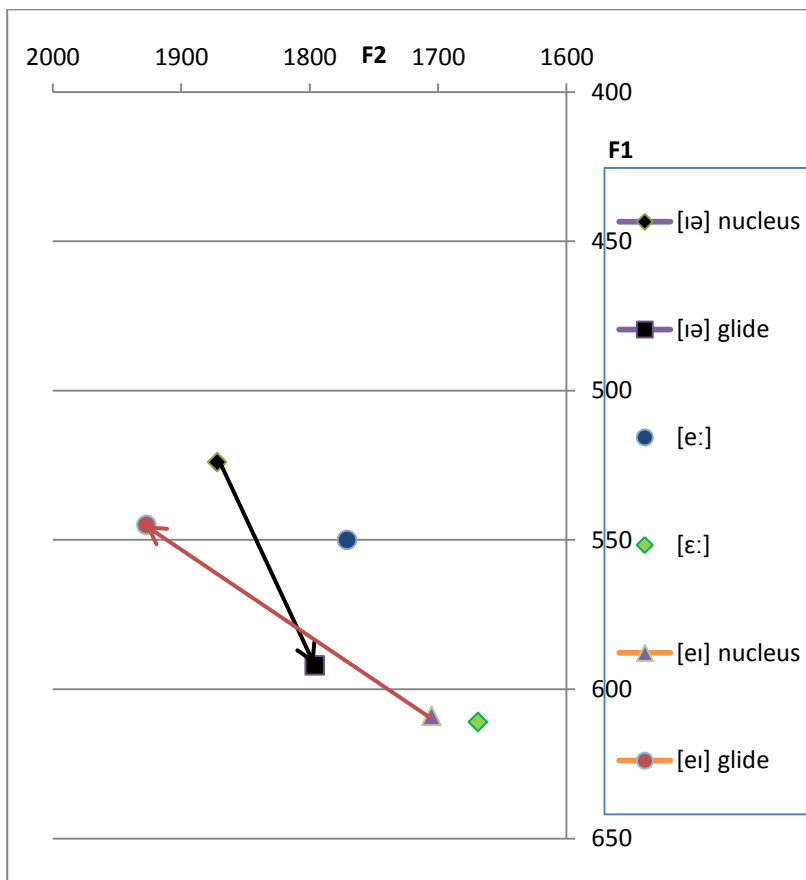
Figure 20: Formant plot for averages of the four FACE auditory categories

		F1 mean (Hz.)	F1 range (Hz.)	F1 standard deviation (Hz.)	F2 mean (Hz.)	F2 range (Hz.)	F2 standard deviation (Hz.)
All locations	[eː]	550	285	51	1771	1360	200
	[ɛː]	611	470	77	1669	1140	202

Table 9: Acoustic analysis of monophthongal FACE categories

		F1 nucleus (Hz.)			F2 nucleus (Hz.)		
		mean	range	standard deviation	mean	range	standard deviation
All locations	[ɪə]	524	320	49	1872	1365	223
	[eɪ]	609	360	65	1705	1010	251

Table 10: Acoustic analysis of diphthongal categories: FACE nucleus

		F1 offglide (Hz.)			F2 offglide (Hz.)		
		mean	range	standard deviation	mean	range	standard deviation
All locations	[ɪə]	592	635	64	1796	1045	187
	[eɪ]	545	380	80	1927	1250	255

Table 11: Acoustic analysis of diphthongal categories: FACE offglide

With the formant data providing an independent acoustic corroboration of the auditory judgements, a logistic mixed effects model was used to test significance based on the four auditory codings. In total, 1451 FACE tokens from the thirty two speakers were coded for vowel quality, conversational context, location and occupation. The dependent variable was the variant produced for each token of the FACE vowel, as represented by the numerical coding described in Section 5.4.2, above. The 32 speakers and 396 words were modelled as random effects to allow for speaker- and word-specific patterns of variation. Several fixed effects incorporated into the model resulted in statistically significant factors in FACE variant production.

5.5.1.1 Statistical model

Having provided an independent acoustic corroboration of the auditory judgements through formant data, a multinomial logistic regression was performed on the auditory data using R Studio version 2.15.0 (The R Foundation for Statistical Computing 2012). This method was chosen due to its ability to predict more than two outcome categories (Field, Miles & Field 2012: 346). The model divides the dependent variable into a series of comparisons between two categories allowing a baseline variant to be compared to all others, and unlike the

ordinal model used for the MOUTH data in Chapter 4 this method does not rank the categories of the dependent variable in a particular order. Given that the literature suggests that there is one form which appears to be declining in North East Englishes more than the others (Watt & Milroy 1999, Watt 2000, 2002, Beal, Burbano-Elizondo & Llamas 2012), it was decided to use category 1 ([ɪə]) as the baseline and measure each of the other three variables against it. This makes it possible to compare whether [eː], [ɛː] and [eɪ] are used to a greater or lesser extent than [ɪə] according to each of the social and linguistic factors. Although the model contained the tokens from all four variants together, the data is presented in separate runs in Tables 12 to 14 below, as is customary in the reporting of multinomial logistic regression (Field, Miles & Field 2012: 355).

The multinomial logistic regression demonstrates the independent variables that predict which variants are produced by the East Durham speakers. The model of best fit has a log likelihood of -1022.2, from the initial model which included all ten factors which had a log likelihood of -1117.3.

For each fixed effect, the following data is provided:

- A model estimate of the regression coefficients (column 1)
- A *p*-value determining significance (column 2)
- Confidence intervals showing the lower parameter estimate (column 3), the coefficient (column 4) and the higher parameter estimate (column 5)

The purpose of the model is to demonstrate whether it is possible to reject the null hypothesis which suggests no correlation between variant usage and the predictors. Following relevelling and analysis of the model output, the following factors are shown to be significant predictors of speakers' variant usage, with the level of each fixed effect mentioned in brackets in the first column measured against the following baselines:

- Age group: older group
- Context: general conversation topic
- Education: did not go to university

In addition the following factors are significant in interaction:

- Age group:location – baseline: Blackhall
- Context:occupation – baseline: miner
- Context:education

Phonological context and an interaction of age group:context were shown to be not significant.

[eː] vs. [ɪə]	Estimate	p value	Sig	95% confidence intervals		
				2.5%	Odds ratio	97.5%
Intercept	6.724	0.87		0.451	1.07	2.539
Location (Dawdon)	5.334	0.81		0.67	1.055	1.661
Location (Easington)	-2.565	0.32		0.467	7.737	1.283
Location (Horden)	-3.782	0.14		0.41	6.851	1.146
Age group (younger)	2.165	2.321	***	3.2	8.713	23.748
Context (local)	-1.843	0.51		0.476	8.317	1.453
Context (mining)	-8.333	0.008	**	0.234	4.346	0.809
Context (passage)	-2.507	0.99		0.00	1.294	Inf
Context (word list)	-1.755	0.001	**	0.07	1.728	0.428
Education (yes)	4.799	0.01	**	0.911	1.616	2.867
Occupation (did not work at pit)	-1.153	0.72		0.465	8.911	1.709
Location (Dawdon): Age group (younger)	-2.275	3.553	***	0.043	1.028	0.247
Location	-2.214	2.534	***	0.043	1.093	0.275

(Easington): Age group (younger)						
Location (Horden): Age group (younger)	-2.08	3.366	***	0.047	1.25	0.334
Context (mining): Occupation (did not work at pit)	1.059	0.03	*	1.087	2.883	7.65
Context (passage): Education (yes)	-2.783	0.02	*	0.005	6.183	0.764

Table 12: Output from the logistic regression model for FACE data: [eː] vs. [ɪə]

[ɛː] vs. [ɪə]	Estimate	*p* value	Sig	95% confidence intervals		
				2.5%	Odds ratio	97.5%
Intercept	-2.088	0.99		0.00	8.536	Inf
Context (passage)	-2.015	0.99		0.00	1.779	Inf
Education (yes)	3.209	0.59		0.419	1.378	4.54
Context (passage): Education (yes)	-3.304	0.02	*	0.002	3.672	0.641

Table 13: Output from the logistic regression model for FACE data: [ɛː] vs. [ɪə]

[eɪ] vs. [ɪə]	Estimate	*p* value	Sig	95% confidence intervals		
				2.5%	Odds ratio	97.5%
Intercept	-4.434	0.99		0.00	5.559	Inf
Context (passage)	-8.686	0.99		0.00	4.195	Inf
Education (yes)	1.872	0.008	**	1.618	6.502	26.134
Context (passage): Education (yes)	-3.192	0.02	*	0.003	4.11	0.606

Significance codes:

< 0.001 ***

< 0.01 **

< 0.05 *

< 0.1 .

Table 14: Output from the logistic regression model for FACE data: [eɪ] vs. [ɪə]

5.5.2 Auditory results

This section will focus on the factors in greater detail, beginning with location.

5.5.2.1 Location

Figure 21 graphically displays the use of all four variants of the FACE vowel across each of the four locations examined in this study.
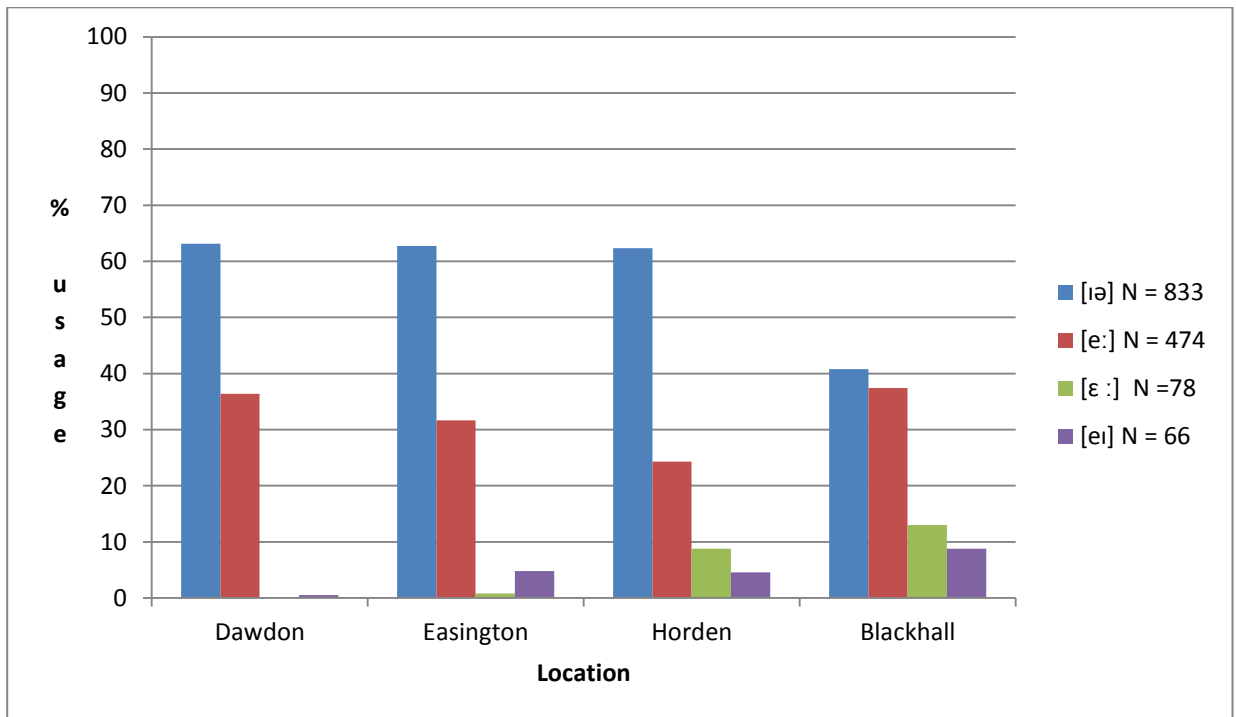
Figure 21: Distribution of FACE variants by location (N = 1451)

- The most southern village of Blackhall demonstrates a significantly different distribution of FACE vowel variants to the three more northern locations

Figure 21 shows the distribution of FACE variants across the four locations studied. The villages are ordered in terms of their geographical situation, with north-to-south positions represented from left to right on the graph. It shows a marked preference for the most traditional, North East variant ([ɪə]) over the pan-northern monophthong ([eː]) in each of the three most northerly locations (Dawdon: +26.7%, Easington: +31.1%, Horden: +38.0% in favour of [ɪə]). In contrast, there is a much more slender difference between the [ɪə] diphthong and the [eː] monophthong in the most southern village of Blackhall (+3.8% in favour of [ɪə]).

The figure also indicates that there are incremental differences in the distribution of the [eː] monophthong across the three most northern villages, with the rise in line with increasing northerliness of location (Dawdon, 36.4% > Easington, 31.6% > Horden, 24.3%). This pattern is repeated in the distribution of the [ɪə] form, though the difference in proportional usage of this variant across these three locations is minimal (Dawdon, 63.1% > Easington, 62.7% >

147

Horden, 62.3%). In contrast, the usage rate of [ɪə] in the remaining village of Blackhall is more than 20% lower than the three more northern locations.

Both the lowered monophthong ([ɛː]) and the standard-like closing diphthong ([eɪ]) are rarely produced overall. [ɛː] is completely absent in Dawdon and is very rare (less than 1% usage) in Easington, with more substantial usage in the two most southern locations closer to Teesside, where the form has been shown to be more typically used (West 2009, Beal, Burbano Elizondo & Llamas 2012: 30). [eɪ] is used even less overall, with no one location managing more than 10% usage.

In summary, the location findings show that:

- All locations show a preference for [ɪə], with considerable usage rates for this variant in the three most northern villages of Dawdon, Easington and Horden

- In the most southern village of Blackhall [ɪə] is favoured only slightly more than [eː]

- Both [ɛː] and [eɪ] are rarely produced, especially in the two most northern villages of Dawdon and Easington

5.5.2.2 Age

Figure 22 shows that overall older speakers show a clearer preference for the traditional centring diphthongal variant than their younger counterparts.
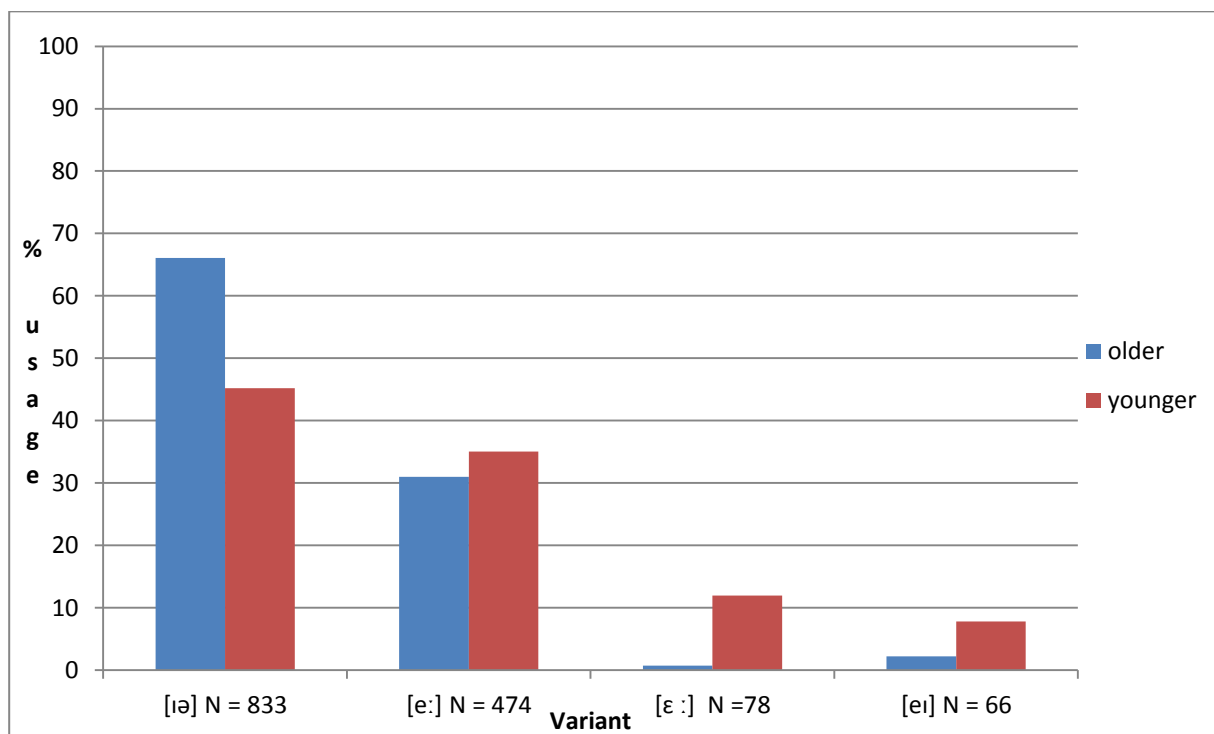
Figure 22: Overall distribution of FACE variants by age (N = 1451)

Figure 22 demonstrates that both older and younger speakers use the traditional [ɪə] diphthong most frequently. While older speakers clearly prefer this variant, with over twice as many centring diphthong tokens (66.1%) as the pan-northern [eː] monophthong (31.0%), younger speakers' usage is split more evenly between these two variants, with only 10.2% difference between usage rates of the two forms in this cohort.

Though in both age groups these two variants are much preferred to both the [ɛː] monophthong found more commonly in Teesside and the non-local [eɪ] form, there are more substantial differences between age groups with more than twelve times as many [ɛː] variants and more than three times as many [eɪ] forms in younger participants' speech. However, this large difference is mainly due to such vanishingly small proportions of these two variants (just 0.7% [ɛː] and 2.2% [eɪ]) in older participants' speech.

5.5.2.2.1 Interaction of age group and location

Figures 23 and 24 graphically display the use of all four variants of the FACE vowel among the older and younger cohorts by location. They show that younger speakers display more considerable variation in their distribution of the FACE vowel than their elder counterparts,

particularly in terms of their usage of the [ɛː] monophthong found more commonly in Teesside and the non-local [eɪ] form. Younger speakers in Horden and Blackhall – the two villages closest to Teesside – show considerably larger increases in usage of [ɛː] than both the older speakers and their younger counterparts in the two more northern villages of Dawdon and Easington. The increase in use of [eɪ] among younger speakers in Blackhall forms part of a completely distinctive pattern of variant preference to all other speaker groups, making their distribution considerably different from their younger counterparts in all other locations. The statistical model shows that younger Blackhall speakers are more likely to produce [eː] compared to [ɪə] than their counterparts in Dawdon ($p < 3.553e-07$) Easington ($p < 2.534e-06$) or Horden ($p < 3.366e-05$).

In terms of differences across age groups, the figures demonstrate that [ɪə] is retained as the preferred variant across both older and younger speakers except in Blackhall, where although older speakers use this variant most frequently, it is the least popular form among younger Blackhall speakers. The percentage difference between use of the most favoured form ([ɪə]) and the second most frequently used form ([eː]) is substantial (with [ɪə] used at least 20% more than [eː]) in all speaker groups except younger Blackhall speakers.
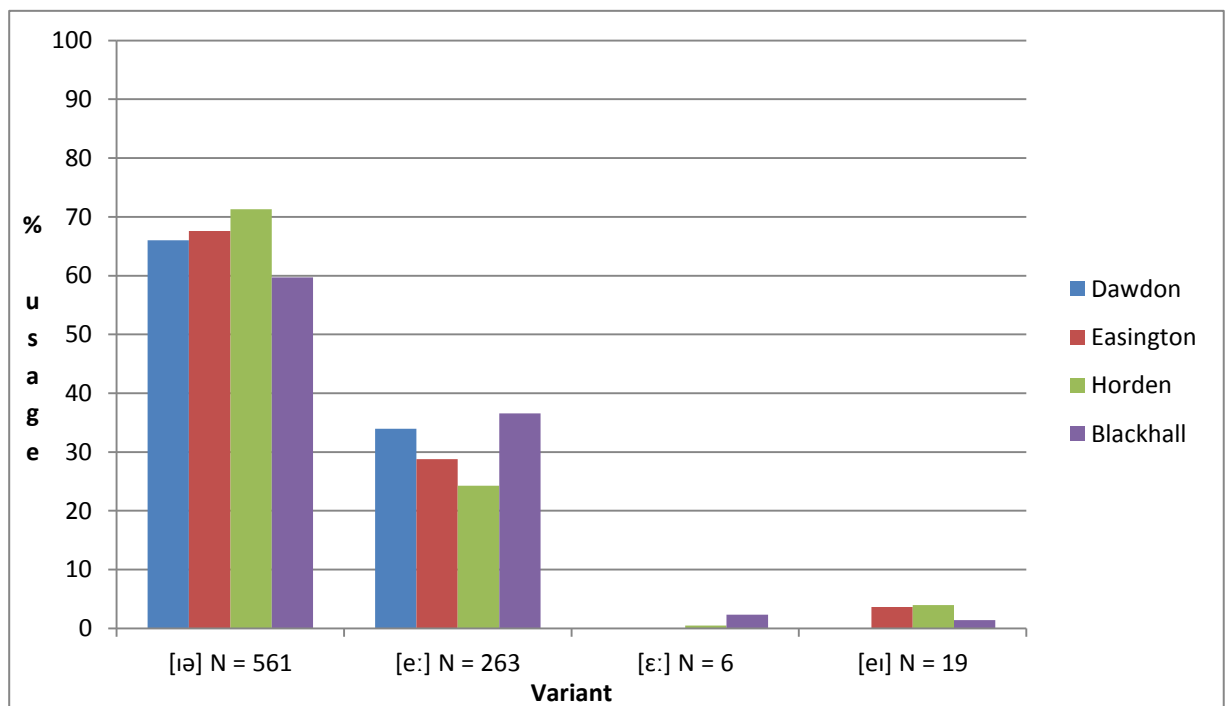
Figure 23: Distribution of FACE variants among older speakers by location (N = 849)
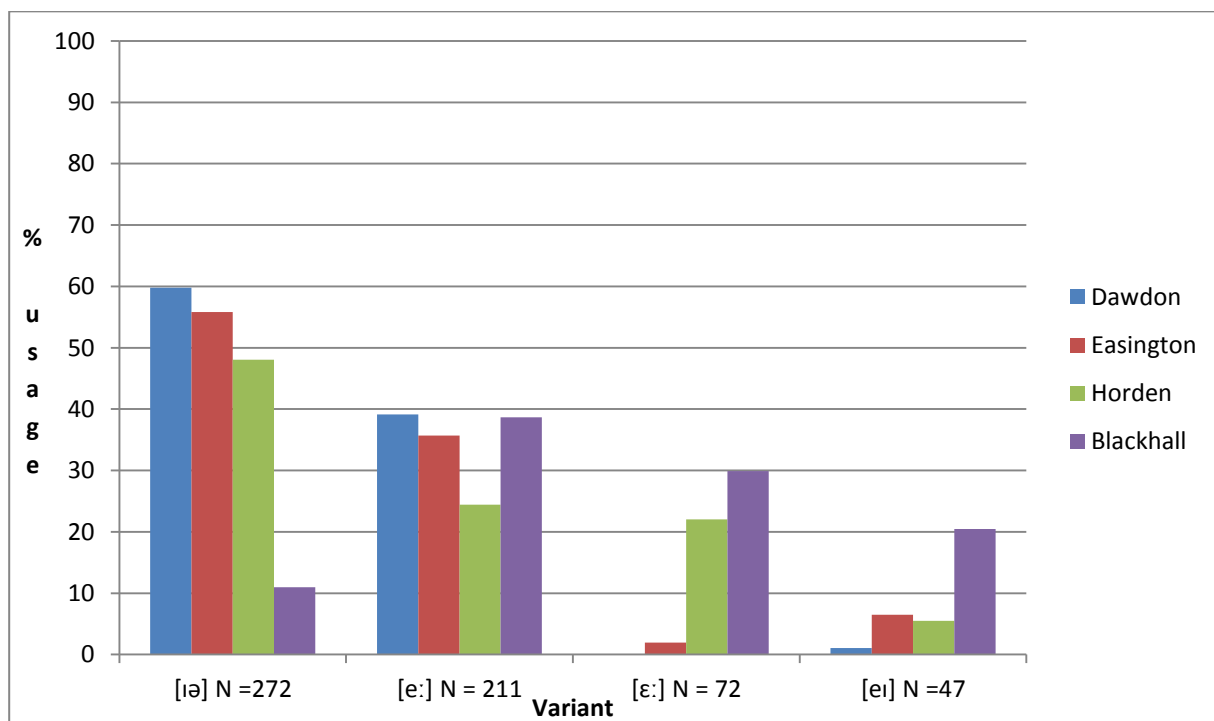
Figure 24: Distribution of FACE variants among younger speakers by location (N = 602)

Older speakers show a vanishingly small number of FACE realisations as a Teesside-like monophthong ([ɛː]) (0.5% in Horden and 2.3% in Blackhall). The data shows that these tokens are produced by just three of the sixteen older speakers; one from the second-most southern village of Horden, and two from the most southerly village of Blackhall, which borders the northern edge of Teesside. No tokens at all were realised with this variant among this age group in the two most northern villages of Dawdon and Easington. In fact, no speaker from either age group produced any [ɛː] pronunciations in Dawdon. Non-local [eɪ] is found to similarly small frequencies (never more than 4% in any village) in the speech of older speakers across the board. The relatively low number of [ɛː] and [eɪ] forms shows that, in the main, all older speakers tend to alternate between the overwhelmingly preferred local [ɪə] form and [eː].

Figure 25 shows that in both Dawdon and Easington the pattern of variation is very similar between age groups. In both locations both older and younger speakers most frequently use [ɪə] followed by the pan-northern monophthong [eː], with very few instances of other variants. The age-related difference is considerably more marked in the two more southern villages of Horden and Blackhall, which both demonstrate substantial variation in usage rates

between the [ɪə] and [ɛ:] forms. The statistical model shows that that the change in usage of [ɪə] compared to [e:] differs significantly across age groups in Blackhall with older speakers using considerably more [ɪə] than [e:] compared to younger speakers' much reduced usage of [ɪə] compared to [e:] (p = 2.321e05).

In Horden, in particular, it seems that the decrease in [ɪə] usage from older to younger speakers (of 23.3%) is explained by an increase (of 22.0%) in [ɛ:] forms in the opposite direction. However, in this village, as in Dawdon and Easington, [ɪə] remains the variant of preference for both older and younger speakers, unlike in Blackhall where younger speakers favour monophthongal [e:] followed by all other variants before the centring diphthong [ɪə]. This means the 48.9% difference in [ɪə] usage in Blackhall is the most marked age-related variation across the whole sample. As in Horden, this decrease in young Blackhall speakers' [ɪə] usage is partly addressed by a large increase (of 28.6%) in [ɛ:] usage, though younger speakers also demonstrate an increase (of 19.0%) in the standard-like closing diphthong ([eɪ]) over their older counterparts. The statistical model shows this speaker group to demonstrate highly significant differences in variant distribution to both other younger speaker groups, and the older speakers in their own village (Blackhall older p = 2.321e-05, Dawdon younger p < 2.288e-12, Easington younger p < 7.940e-15, and Horden younger p < 1.451e-12).

In all locations [e:] usage rates are very similar between older and younger speakers, with never more than a 7% range across the age groups. However, older speakers have absolutely no [ɛ:] usage apart from a handful of tokens in the most southern location of Blackhall.

In summary, the age findings show that:

- While there is little difference in the speech of older and younger people in Dawdon and Easington, there is a statistically significant difference between age groups in Blackhall

- Younger speakers show a greater degree of variation in their distribution of forms than older speakers, with younger Blackhall speakers demonstrating considerably different speech patterns to every other speaker group, both young and old

- Older speakers overwhelmingly favour [ɪə] in all locations, and the only other variant they use to any meaningful degree is [e:]

- Younger speakers in the three most northern villages of Dawdon, Easington and Horden favour [ɪə] over [e:] but the difference in usage between these two forms is less stark than in the older speakers' data
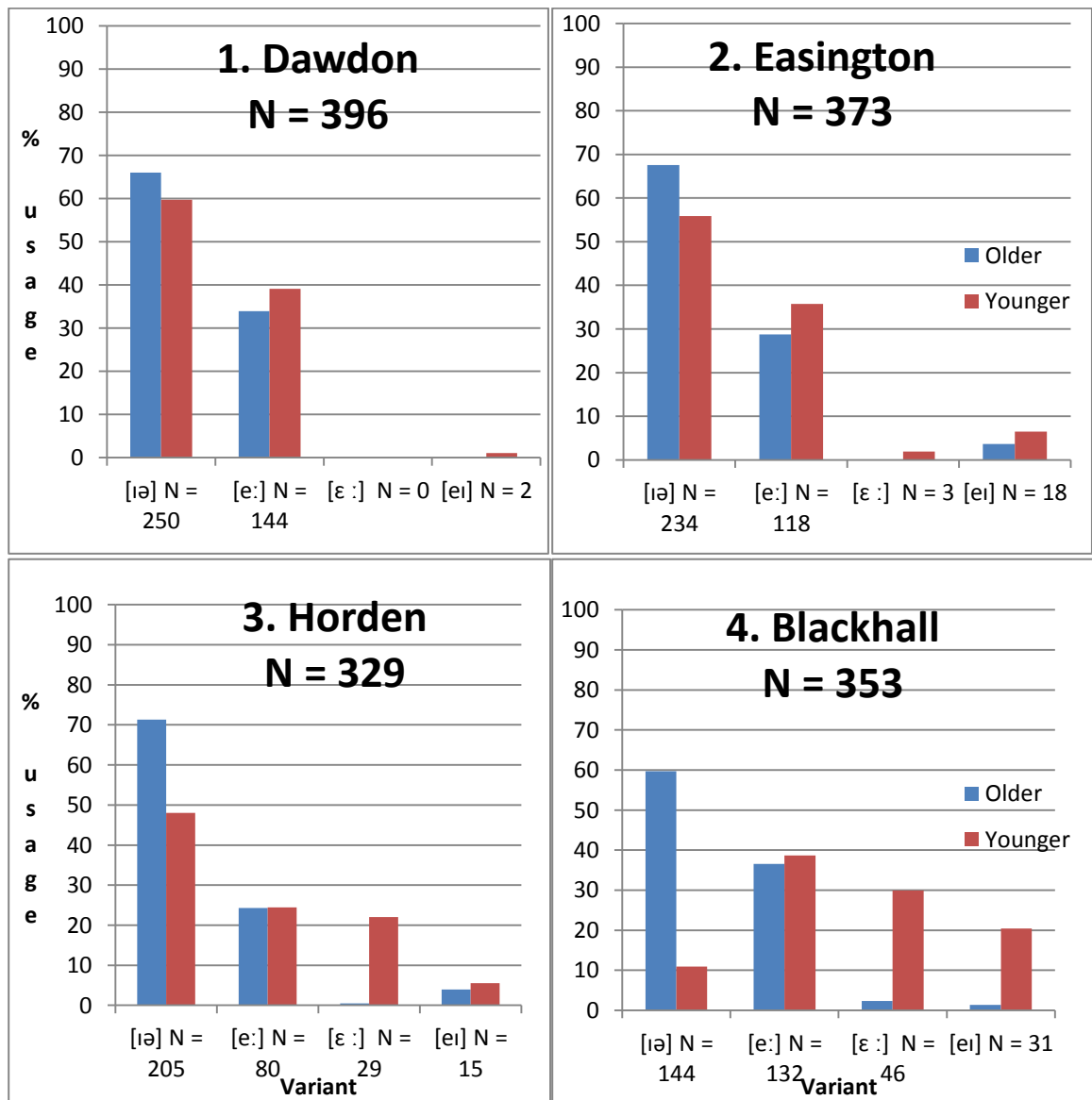
Figure 25: Distribution of FACE variants by age in each location (in numerical order from north to south)

5.5.2.3 Read speech and conversational context

Figure 26 graphically displays the usage of all four variants of the FACE vowel in terms of read speech as compared to conversational speech. It demonstrates that speakers most frequently produce the most traditional [ɪə] variant in both the read speech and conversation styles, with more than half of all tokens in both styles being realised as the centring diphthong. This preference for [ɪə] is overwhelming in the read speech data, a finding which might seem surprising, but is nevertheless not unprecedented in the North East (see Kerswill 1984 in Durham and Watt 2002 in Newcastle upon Tyne where this phenomenon is also found). While [ɪə] is still the most favoured form in conversational speech, the difference compared to [eː] is smaller than in read speech, with the monophthong variant accounting for more than one-third of all FACE realisations in this strand.
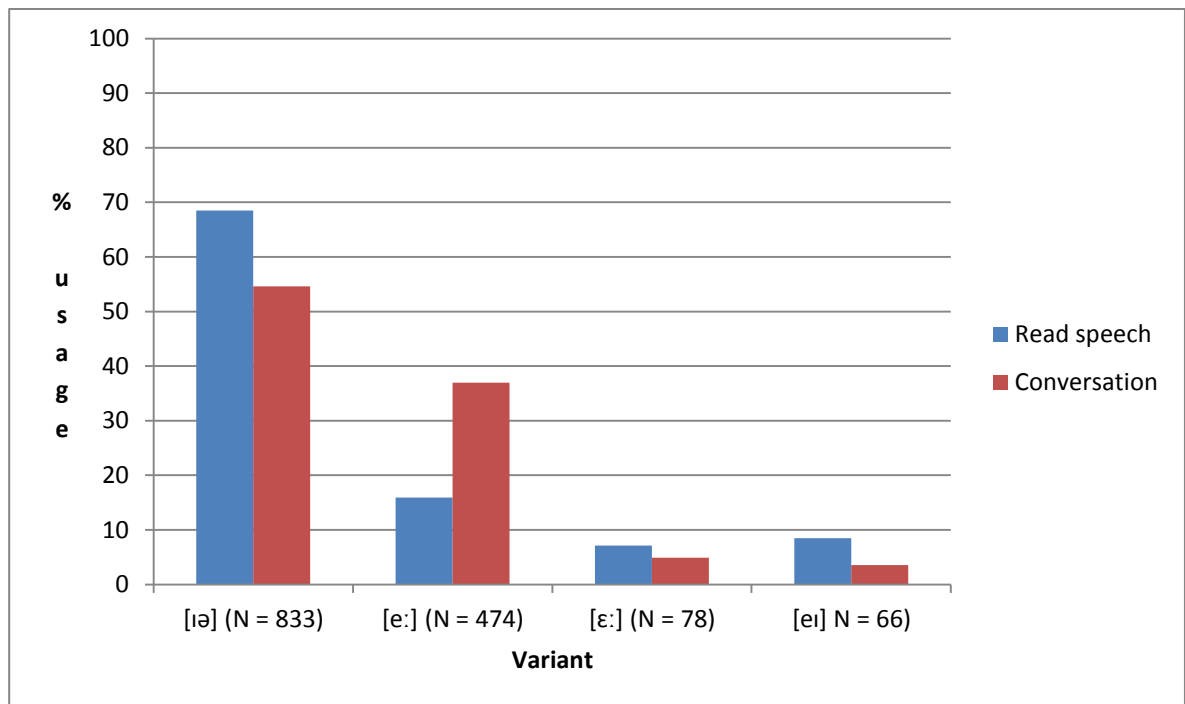
Figure 26: Distribution of FACE variants by interview style (N = 1451)

The figure shows differences in the direction of change across the contexts, with the [eː] variant demonstrating a clear increase of more than 21% from the read speech to the less formal conversation data compared to usage of the [ɪə] variant which is reduced from read speech to conversational contexts by nearly 14%.

While there is little difference in speakers' distribution of the [ɛː] variant, the non-local [eɪ] form behaves generally as a standard-like variant might be expected to, with decreased [eɪ] usage in the less formal conversation styles by more than half, although usage levels of this variant are low in both styles.

As discussed in the Age findings in Section 5.5.2.2, the data shows that [ɛː] variants are produced by just three of the sixteen older speakers, all from the two villages nearest to Teesside. Further analysis of the style findings shows that, of the sixteen tokens of [eɪ] produced by the older cohort, only one was not produced in the word list context.

In summary, the style findings show that:

- [ɪə] is most commonly produced in both read speech and conversation – accounting for more than half of the tokens produced in both contexts
- [ɪə] usage decreases while [eː] usage increases in all four locations from read speech to conversation
- There is no more than 5% difference in [ɛː] usage across styles in any location
- [eɪ] usage decreases from read speech to less formal conversational speech in the three most southern villages of Easington, Horden and Blackhall

The interview methodology allowed for style to be further demarcated into more categories, by splitting the read speech into tokens which occurred in the word list from those which were found in the passage of text and by dividing the conversation data into three contexts covering mining, other local and non-local/general topics. Figure 27 displays the distribution of the four variants in terms of these contexts.
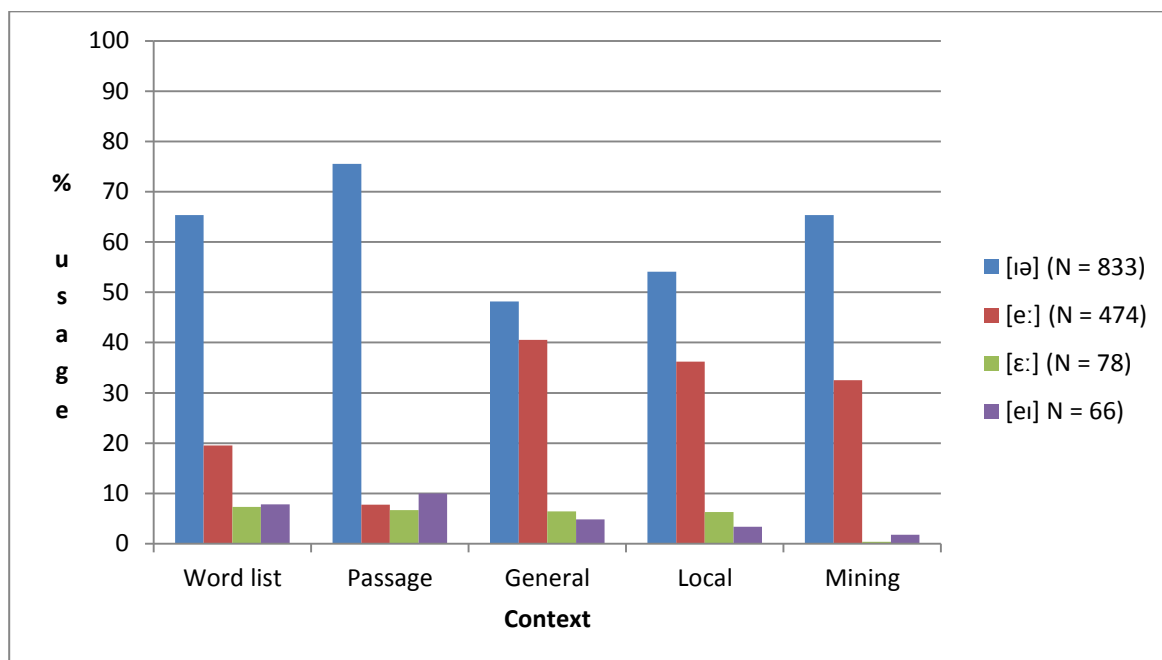
Figure 27: Distribution of FACE variants according to context (N = 1451)

Figure 27 shows the distribution of the four variants in terms of the two read speech styles and the three conversational contexts. The graphs demonstrate that the traditional [ɪə] variant is the most used form across all five contexts, with at least a 17% lead over the next most favoured variant in all but the non-local, general conversation topic, where there is less than 8% difference between [ɪə] and [eː]. This small difference between the two most favoured variants in the general topic significantly contrasts with the figures in read speech (word list $p < 0.0001$), where the usage rate of [ɪə] is higher in both read speech styles than in any of the three conversational contexts, although there is less than 0.02% difference between the proportions of [ɪə] in both the word list and the mining topic, which makes the distribution of [ɪə] and [eː] significantly different in this context compared to general conversation too (mining $p < 0.008$).

Regardless, to find that the most local variant is used more frequently in read speech than in even the least formal conversational styles is remarkable. In terms of the three conversational topics, the most highly local [ɪə] form demonstrates increases across contexts from the least local general topic, to the local topic and then to the mining conversation, while the opposite pattern occurs with the less local [eː] form, which declines in usage across the same three contexts. Nevertheless, the [eː] variant remains the second-most preferred

156

variant after [ɪə] in all but the passage of text reading task, where the non-local [eɪ] form is found more frequently.

In summary, the detailed style findings show that:

- Usage of the [ɪə] form is higher in both read speech styles than in any of the conversational contexts
- Usage of the [ɪə] form increases across the three conversational contexts in order of decreasing formality from general to local to mining topics. The [eː] form declines incrementally in the same direction
- [ɛː] and [eɪ] appear rarely in the mining topic

5.5.2.4 Occupation
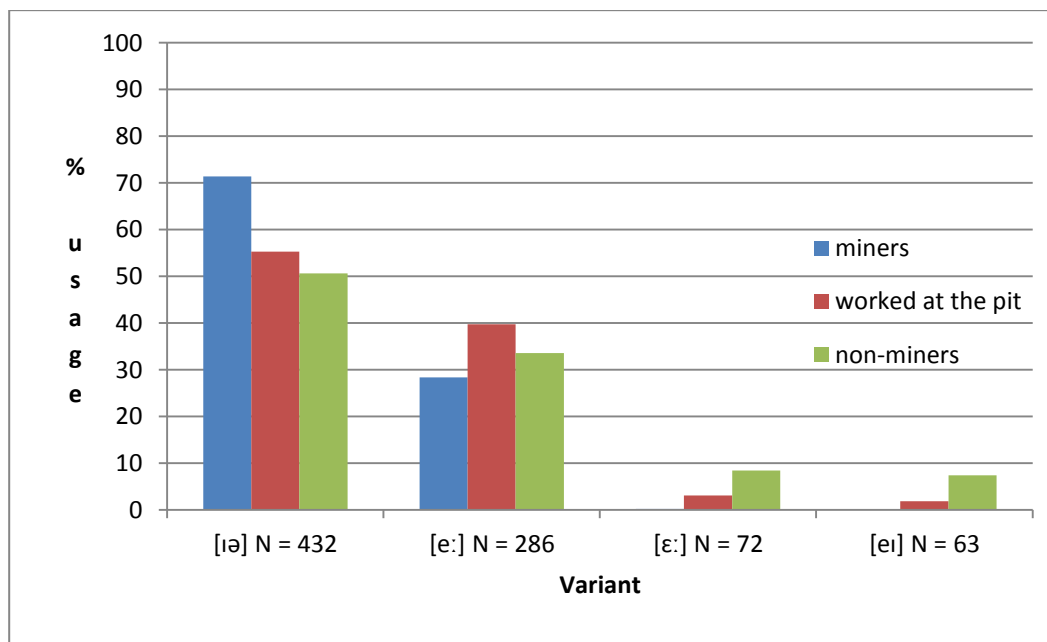
Figure 28: Distribution of FACE variants by speaker occupation (N = 1451)

Figure 28 shows that speakers who were previously employed as miners use the [ɪə] form at least 16% more than both other occupation groups. While this group's usage of the pan-northern [eː] variant is slightly reduced compared to other speakers, they produce zero tokens of the closing diphthong [eɪ]. In both other groups this form is found more frequently (though only slightly) than the lowered [ɛː] monophthong.

5.5.2.4.1 Interaction of occupation with context

Figures 29 to 31 show the breakdown of FACE variants by context according to occupation groups. They show that while all groups post high numbers of the [ɪə] centring diphthong in the narrative passage task, former miners produce significantly more of the [ɪə] variant than the lengthened monophthong [eː] in the mining conversation (an difference of more than 20% across both variants compared to non-miners). Across contexts, the former miners also use significantly more [ɪə] than [eː] in the mining task compared to the non-miners in the general ($p < 0.03$) topic.

Whereas Figure 28 demonstrated that former miners produce zero tokens of the closing diphthong [eɪ], this form appears to a notable degree in read speech among those who worked in non-mining jobs at the pit and the non-miners. More than one in five of all tokens produced in the narrative passage by those who worked in non-mining jobs at the pit were produced as [eɪ].
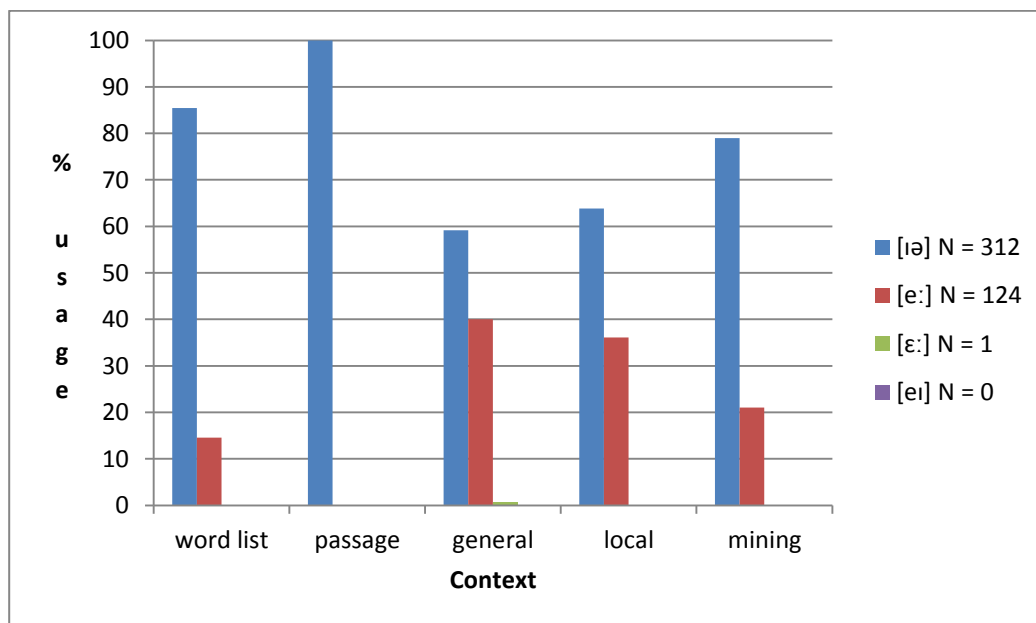
Figure 29: Distribution of FACE variants among former miners by context (N = 437)
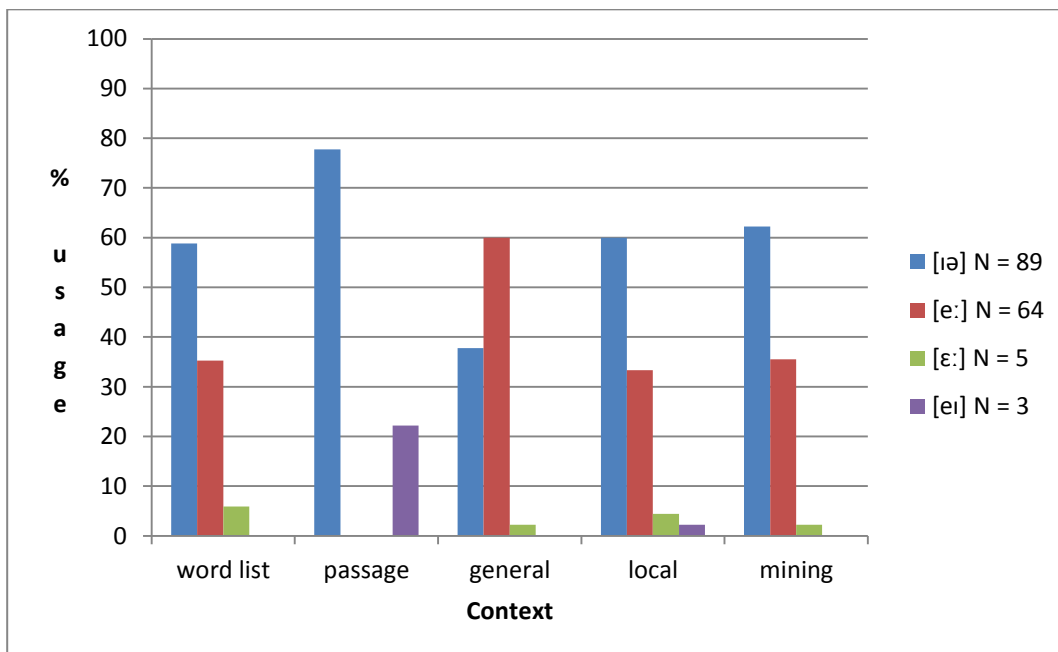
Figure 30: Distribution of FACE variants among speakers who worked at the pit by context (N = 161)
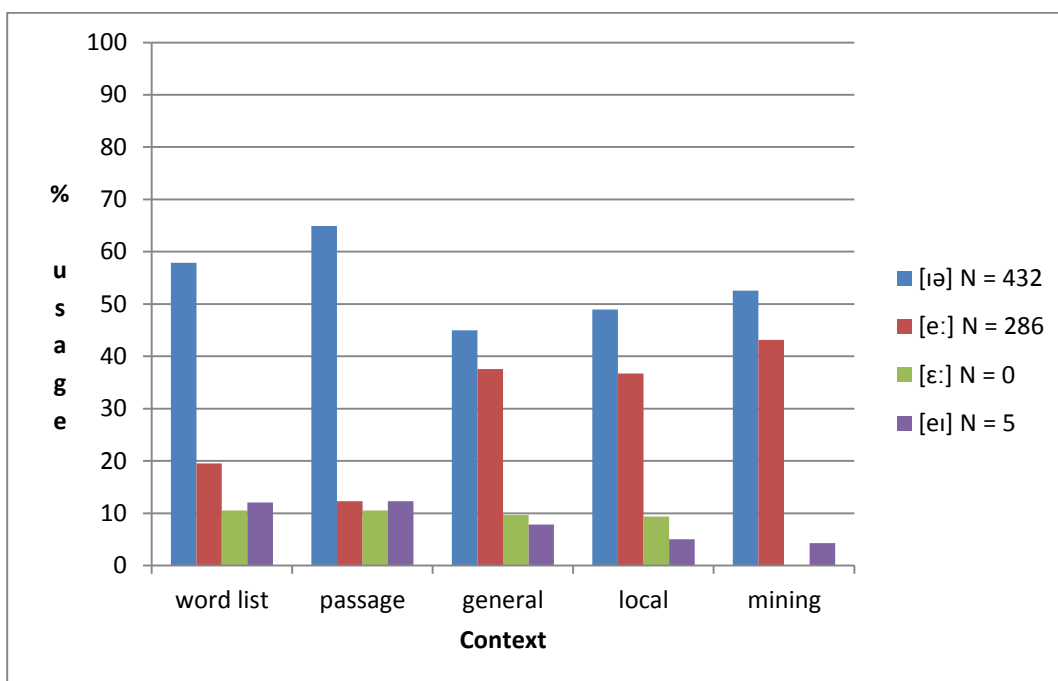
Figure 31: Distribution of FACE variants among non-miners by context (N = 853)

5.5.2.5 Education
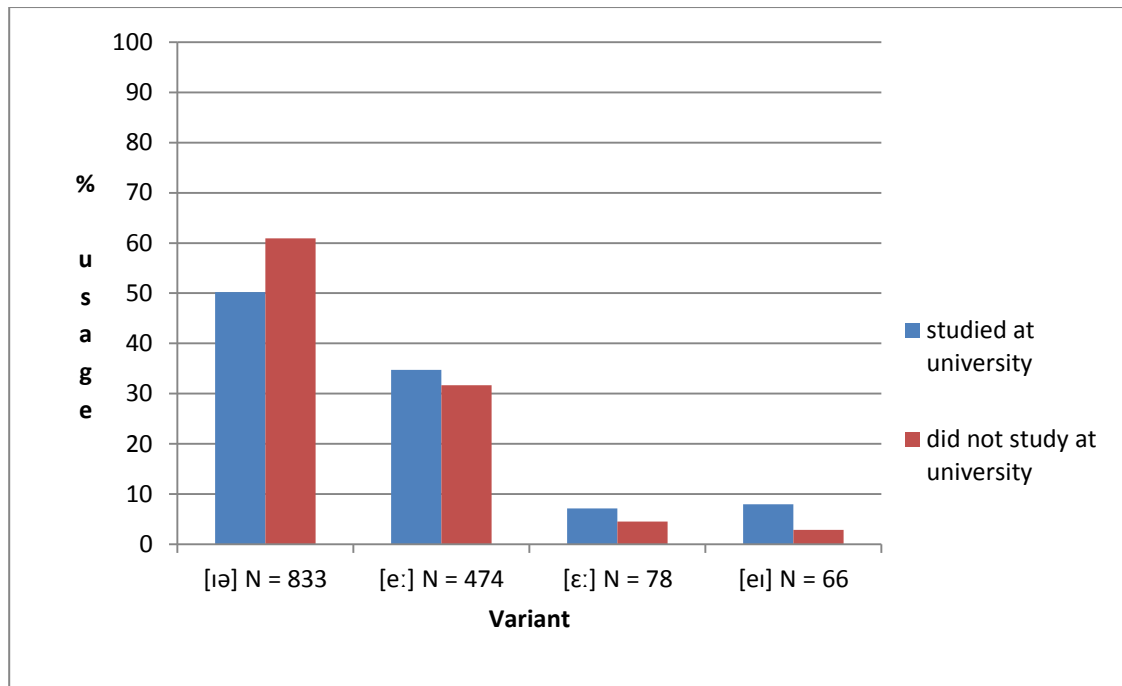
Figure 32: Distribution of FACE variants by speaker's level of education (N = 1451)

Figure 32 shows that the traditional [ɪə] variant is the most used form among both speakers who have a university education and those who do not. In both cases, at least 50% of all tokens are realised as [ɪə] but this centring diphthong is used more than 10% more by speakers who did not study compared to those that did. [ɪə] is used 15.5% more than [eː] by those who went to university, but this difference increases to 29.7% among those who have not studied in higher education, which is statistically significant ($p < 0.01$). Usage of the prestige variant [eɪ] does not exhibit marked variation across the sample; although the proportion of the closing diphthong usage among university-educated speakers is double the rate of those who have not studied at university, the usage rates among both speaker groups is low. Interactions between education and age and context did not yield any further significance.

5.5.3 Overall summary of results

The results show that each of the four locations studied in this research show distinctive patterns of FACE vowel usage. Although speakers in all four localities use the local centring diphthong [ɪə] most frequently, the most southern village of Blackhall favours this form only

slightly more than the pan-northern monophthong [eː]. This is in contrast to the three sites further north where speakers' preference for the [ɪə] variant is considerable. The two other variants, a lowered monopthong ([ɛː]) associated with Teesside and territories further south, and the closing diphthong [eɪ] which has middle class connotations, are rarely used at all, particularly in the two most northern villages of Dawdon and Easington.

Comparing results across age groups reveals significant differences in the speech of younger and older speakers in the two most southern villages of Horden and Blackhall, but conversely very little change over time in the two more northern villages. Whereas older speakers overwhelmingly favour [ɪə] in all locations, with the only other variant they use to any meaningful degree being [eː], younger speakers demonstrate a more modest preference for [ɪə], with [eː] used nearly as much in each of the three most northern villages of Dawdon, Easington and Horden. In contrast, the FACE variant distribution of Blackhall's younger speakers is highly different to almost every other age group in all locations, with reduced levels of [ɪə] production and a greater proportion of [ɛː] and [eɪ] usage.

In terms of differences in the data elicitation method, [ɪə] accounts for more than half of the tokens produced in both read speech and conversation data. Furthermore, [eː] usage increases from read speech to conversation. There are a greater proportion of [ɪə] variants in the mining context than in the local context, and this pattern repeats in the local context compared to the non-local general context, with the opposite pattern of incremental decline across these contexts in terms of the [eː] variant. [ɛː] and [eɪ] appear rarely in the mining topic, with little stylistic variation in the [ɛː] variant.

Former miners produce significantly more of the [ɪə] variant than the lengthened monophthong [eː] in the mining conversation and [ɪə] is used significantly more than [eː] by those who did not go to university than those who did.

 The next section will continue to investigate the effect of social and linguistic factors on a variable often considered to operate in parallel with the FACE vowel: GOAT.

6. GOAT

6.1 Overview

This chapter explores the distribution of the GOAT vowel in East Durham English. Section 6.2 provides background information on the variable and explores the previous literature on it. Section 6.3 looks at the history of the GOAT vowel in British English and describes the patterns of variation in the region surrounding the area studied. The methodology used to distinguish, categorise and measure the variants is presented in Section 6.4. Section 6.5 outlines the results for GOAT. An interpretation of the findings appears in the Discussion chapter.

6.2 Definition of GOAT

GOAT is the keyword which refers to words featuring the stressed diphthong with a mid-central unrounded nucleus and a closer, backer and slightly more rounded off-glide /əʊ/ in Received Pronunciation (Wells 1982: 146). In General American the nucleus is backer: [oʊ]. The GOAT vowel can occur in both open and closed syllables and is traditionally referred to as 'long O' (Wells 1982: 146). This name accounts for one of the two derivations of the vowel, which shifted from Middle English /ɔː/ following the Great Vowel Shift. This origin is most clearly reflected in present day words in which *o* is the final segment, such as *also*, or in words spelled *oa* or *oCe*, such as *oath* and *home*. The other principal origin is the GOAT merger from /ɔ/, as seen in present day words spelled *ow* or *ol* like *know* and *old*. A subset of relevance to a study of the North East of England is words which pattern with the lexical item *stone* which differ from other vowels in this set (Watt & Allen 2003: 69). Descending from Old English /ɑː/, which traditionally developed differently in northern England (Anderson 1987), variants like [jɛ] are noted in this set. [jɛ] is found in the word *both* in Jones (1911) while [ie] in *stone* is considered 'the characteristic 'broad' Northumbrian form' by Watt (1998: 191), but even in traditional North Eastern dialects this form appears to have been receding for many years (Orton 1933) due to dialect levelling (Watt 1998: 176).

As discussed in Section 5.2, the GOAT vowel is often reviewed alongside the FACE set in accent studies in English (Petyt 1985, Watt 2000, Beal 2008 – to be discussed below) and both vowels display an array of social and regional variation (Wells 1982: 146, Foulkes & Docherty

1999a). As in the FACE vowel, the incidence of (a range of) monophthongal as well as diphthongal variants in the GOAT vowel – [oː], [ɛɤ], [ɐʊ] and [ʊɔ] (Wells 1982: 146) – suggests that Long Mid Diphthonging did not occur. This process represents a realisational change whereby a closing glide is added to the long mid vowels: [oː] to [oʊ] (Wells 1982: 210).

6.3 GOAT in the North East of England

6.3.1 Historical trends

In the GOAT merger, Middle English monophthong [ɔː] and diphthongal [ɔʊ] shifted to [oː] in the sixteenth and seventeenth centuries, before diphthonging at the turn of the nineteenth century to produce the [oʊ] form retained in the present-day General American pronunciation. Both FACE and GOAT may have developed from Long Mid Mergers, so called as both vowels have historically lost variant competition between a diphthong and a long mid vowel (Wells 1982: 192-194). However, neither the GOAT merger nor the parallel FACE merger is yet complete in some local accents of the north of England (Beal 2008: 133-134) and also East Anglia (Trudgill & Foxcroft 1978), resulting in a distinction retained between words like *nose* (where the vowel is realised as [oː]) and *knows* (where [ɔʊ] is found) in West Yorkshire (Petyt 1985: 120-132). Wells (1982: 194) notes the morpheme of *nose* compared to the morpheme boundary separating the stem *know* and the ending *–s* to suggest a morphological explanation. *know* is also frequently found with [a] (such as [aːnaː], 'I know') in the North East of England (Watt 1998: 192) and this also extends to *knows* /naːz/ (Hughes & Trudgill 1979: 67), though this variant is not a possible alternation for *nose* (Viereck 1966:69, 96)*.

A variety of GOAT vowels of many origins have been replaced by the general GOAT vowel (/ɔː/) through levelling. / ɔː/ developed from open syllable lengthening of older short /o/ and is now the phoneme of all the GOAT words in the East Durham data as no other lexical subsets survive except for very rare retentions of Old English long /ɑː/ which survives in a local pronunciation of the word *home*.

The greatly varying distribution patterns emphasise the danger of relying on spelling to indicate historical word patterns. For example, Wells (1982: 194) shows that 'The spelling of

roe (fish eggs)…suggests Middle English /ɔː/, though in fact it had /ɔʊ/, just like *row* (with oars).' In the same vein, the [ja ~ ɪa ~ ɪə] found to some extent in Bishop Middleham derive not from Middle English /ɔː/ but from Old English /ā/ (cf. Orton (1933: 204)).

6.3.2 Contemporary patterns

As discussed in Section 5.2, linguistic-internal studies of vowel change have suggested that the FACE and GOAT vowels 'behave as 'mirror images' of one another' (Watt & Milroy 1999: 32) and undergo sound change 'in lockstep with one another', as was found in Tyneside, a conurbation local to the area of study in this research (Watt 2000: 87).

Petyt (1985: 128-129) found that the word *know* exhibited considerable variation in pronunciation, including [ɔʊ], [oː] and less commonly [ɔː] in West Yorkshire, which he attributes to its high frequency in conversation especially as a weak form in phrases like 'you know' and 'I don't know'. It should also be pointed out that this phonemic difference in GOAT is not noted in many other northern England areas including in Teesside, which shares a FACE distinction with West Yorkshire in terms of the words *eight* ([ɛɪ]) and *ate* ([ɛː]) (Petyt 1985: 123) but does not provide evidence of a parallel pattern with GOAT. Beal (2008) asserts that the distinctions in both *nose/knows* and *ate/eight* are not being sustained, a conclusion which Petyt (1985) attributes to the influence of Received Pronunciation.

In further contrast to the FACE vowel, a considerable number of GOAT items where /o/ is followed by /l/ – such as *old*, *cold* - take [a] and are generally considered to sit phonemically within the /ɑ/ set (Viereck 1966, Watt 1998). As an imperative, *hold* is found as [haːd], though the simple past form *held* retains its etymological /l/: [held] (Jones 1911). Hughes & Trudgill note that both *no* and *nobody* can take /e/ (1979: 67) and the vowel has also been found to appear with diphthong [o(ː)u], characteristic of Received Pronunciation, in the lexical items *so*, *though*, and strikingly the highly locally resonant *coals* (Jones 1911).

As with the FACE vowel, the distribution of GOAT in present-day northern England follows two distinct routes. In an area she terms 'the lower North', Beal (2008: 133) lists Lancashire and Humberside as two of the counties with a traditionally monophthongal [oː] realisation. Conversely, the traditional pronunciation in Merseyside and the Midlands is recorded as an

RP-like closing diphthong, [ou], which is seen to be diffusing from urban hubs like Liverpool (Beal 2008: 133). A centring diphthong [uə] is the traditional pronunciations of GOAT for speakers in the North East of England region (Watt 2000, 2002, Beal 2008). Further work shows the vowel to exhibit substantial social and geographical variation in North East England. A summary of GOAT distributions across the region is seen in Table 15.

Tyneside	oː > ʊə ˜ ɵː
Wearside (including Sunderland)	oː > ʊᵊ ˜ ʊə
Teesside (including Hartlepool)	ɔ̝ː > ɔ̈ː ˜ ɒː > ʊə

Key: Variants to the left of '>' are used more frequently than those to the right. '˜' denotes a similar frequency of usage.

Table 15: Present-day variants of the GOAT vowel in the three main urban conurbations of North East England (adapted from Beal, Burbano-Elizondo & Llamas 2012: 31))

Table 15 shows that, as with the FACE vowel, the most frequently used GOAT form across the North East England region is monophthongal, and again, as with the FACE vowel, there is a quality distinction in this monophthong between Tyneside and Wearside [oː] on one hand and more open Teesside [ɔ̝ː] on the other. The centring diphthongal GOAT variant, [ʊə], is found in all three zones and, as with its parallel FACE form, it appears to be in decline except among older and working class male speakers.

As with the case of FACE [ɛ̈ː], female Teesside speakers are shown to produce highly idiosyncratic forms, such as the very open [ɒː] GOAT variant (Watt and Llamas 2004). Both Tyneside and Teesside produce fronted forms, though the degree of fronting found in centralised [ɔ̈ː] found in Teesside is less extreme than the highly localised Tyneside [ɵː] variant, which again is highly constrained by social class and gender (Watt & Milroy 1999: 28). Archaic forms [aː] (in words such as *snow* and *know*, and stemming from the categorical [a:] usage found in these words in Durham S.E.D. responses, as shown in Section 6.3.1 above) and [aʊ] (in words like *soldier* and *shoulder*) are retained by some working class males (Watt & Allen 2003: 269) and, as with the FACE vowel, middle class speakers across the region may

produce a closing diphthongal form, akin to [oʊ] and found throughout British English (Beal, Burbano-Elizondo & Llamas 2012).

6.3.2.1 GOAT in present-day Newcastle upon Tyne

In 1990s Tyneside, Watt and Milroy (1999: 35-36) found that older working class men most frequently use traditional localised variants for GOAT. Among all speakers except working class males, their results showed a clear preference for the unmarked [o:] variant over the traditional centring diphthong [ʊə]. Older working class men used localised variants [ʊə] and [ɵ:] in roughly equal proportion to unmarked [o:].

Through a process of dialect levelling, this sound change in GOAT was shown to occur in parallel to a similar change in the FACE class, whereby variants with a greater geographical coverage ([e:] and [o:]) are replacing the highly local, traditional forms ([ɪə] and [ʊə]) (Watt & Milroy 1999). However, rather than a shift towards Standard English, in which the centring GOAT diphthong ([ʊə]) would lose ground to the closing diphthongs ([oʊ]), it is the more pan-northern, monophthongal variant, [o:], as well as a fronted [ɵ:] form, which are more highly favoured by younger speakers (Watt & Milroy 1999; Watt 2000, 2002). The closing diphthong is present in the data, but predominantly among female and middle class speakers. The preference for monophthongal [o:] is said to represent a wider geographic area of 'the north', avoiding a greater degree of localisation to a particular city or town (Watt & Milroy 1999; Watt 2000, 2002; Beal 2008) and it has been suggested of [e:] and [o:] that they 'seem to be the more prestigious realisations of these vowels' (Hughes & Trudgill 1979:65).

The presence of a fronted GOAT form, [ɵ:], in Watt's Tyneside data (Watt & Milroy 1999; Watt 2000) represents a noticeable break in FACE-GOAT symmetry as this variant does not have a parallel case in the FACE class. [ɵ:] has an extremely small geographical distribution, being restricted to the area east of The Pennines between the Scottish border and the River Tyne, encompassing rural Northumberland and the city of Newcastle upon Tyne (Orton, Sanderson & Widdowson 1978). It has thus become a highly stereotyped feature of Tyneside English (Watt & Milroy 1999: 33) despite a lack of literature defining its articulatory and acoustic properties: Viereck (1966, 1968), Wells (1982) and Lass (1989: 190) all characterise it as [ɵ:],

and this is adopted by Watt & Milroy as representing a variant which is different from [oː],
[ʊə] and [oʊ].

All three monophthongal variants remain identifiable as 'northern' without sounding overly
marked or 'old-fashioned' like the [ɪə] and [ʊə] centring diphthongs (Wells 1982, Lass 1989:
188, Watt 2000: 95). [eː] and [oː] in particular are shown to have a wide geographical
distribution across the North of England (Wells 1982, Beal 2008). This means usage of these
forms may index 'northerner' speech but without the highly localised stigma associated with
the centring diphthongs (Watt 1998, 2000). Younger males, while participating in the wider
negative evaluation and abandonment of highly localised [ʊə], use [əː] variants to retain a
more local loyalty to the North East region in place of the less-regionally-restricted pan-
northern [oː] produced more by females (Watt & Milroy 1999; Watt 2000). This preference
for a regional variant among men provides more support for male predilection for local
forms over supra-local realisations representative of a wider geographical area (Trudgill
1974a, Macaulay 1977, Newbrook 1982), and a similarly fronted realisation recorded in
Humberside has developed into a stereotype of Hull dialect, with semi-phonetic spellings in
orthography representing 'phone calls' as 'fern curls' (Beal 2008: 134).

In Watt's (2000, 2002) Tyneside study, social effects such as sex and class were shown to be
stronger constraints on variant distribution than phonological environment or lexical effects
(Watt 2000). In particular, the closing diphthongs ([oʊ]) – a standard-like form characteristic
of southern England – was produced to high degrees by certain individual speakers, who
were almost exclusively women and middle class, in line with the prestige attached to more
standard pronunciations by these speaker groups (Trudgill 1972, 1974a). In contrast, there
are increased proportions of the [ʊə] centring diphthong in older working class male speech
relative to other speaker groups, a finding also mirrored in Middlesbrough English (Watt &
Llamas 2004), leading Watt (2000) again to explain this in terms of the identity-marking
functions of variants. [ʊə] usage indicates older working class men's preference for variants
which connote the most local and traditional forms of Tyneside speech over less locally-
symbolic pronunciations which are deemed undesirable due to their lack of local affiliation
(Watt 2000). Overall, it seems that social factors offer a more persuasive account of changes
in the GOAT set in Tyneside than systemic factors.

6.3.2.2 The mid-open monophthong variant in northern Englishes

Alongside the traditional North East [ʊə] form and the more geographically expansive [oː] monophthong, West (2009) highlights the presence of the mid-open [ɔː] or [ɔ̝ː] monophthong – almost exclusively among younger speakers – in the County Durham new town of Newton Aycliffe, around 21 miles (33.5 kilometres) south-west of the most southerly village in this study. [ɔː] is also found in Yorkshire Englishes in locations such as Sheffield (Stoddart et al. 1999), as well as Teesside (see Beal, Burbano Elizondo and Llamas 2012 and Table 13 in Section 7.3.2 above). In Sheffield, this variant is particularly associated with male speech (Stoddart et al. 1999).

6.4 Analysis

6.4.1 Issues addressed

Based on the findings of the literature review, four main variant types appear to emerge in the GOAT vowel in the geographical areas surrounding East Durham. Older North East speakers appear to conserve the centring diphthong in the face of increased adoption of a less regionally-marked monophthong among other speaker groups. A further lowered monophthongal realisation noted widely in the speech of Yorkshire English speakers is also found in Teesside and southern Durham, while a standard-like, non-local closing diphthong is noted in middle class speech.

In addition to the overarching research questions of the thesis relating to distribution of variants across locations, age groups, style and topic (and specifically coal mining), this study aims to identify the distribution of the following GOAT vowel variants in the East Durham data in terms of social and linguistic constraints:

- [ʊə]: associated with older working class speakers from North East England
- [oː]: considered to represent a wide geographical area of northern England
- [ɔ̝ː]: found in studies of Teesside and Yorkshire
- [oʊ]: similar to the British standard and typically found among middle class speakers

The remainder of this section details the methods used to conduct the analysis of the GOAT vowel in order to answer these research questions.

6.4.2 Coding

As described in Section 3.6, GOAT vowel tokens were subjected to auditory judgements made by the researcher and were analysed acoustically. Acoustic analysis was carried out to independently corroborate the impressionistic auditory analysis.

The auditory analysis assigned codes numbered 1 to 4 to each token, based on the four variant categories identified in Section 6.4.1, above. Both monophthongal and diphthongal realisations have been highlighted in the literature review of GOAT production in the North East of England, and the categories are split equally along these lines. Codes 1 and 4 are diphthongal realisations based on social differentiation highlighted in the literature, with category 1 ([ʊə]) representing a 'traditional' North East pronunciation of the GOAT vowels (Watt 2000, 2002, Watt & Llamas 2004, Beal 2008) and category 4 ([oʊ]) signifying a more 'middle class' form (Watt 2000, Beal, Burbano Elizondo & Llamas 2012). Codes 2 and 3 are monophthongal variants with category 3 ([ɔ̝ː]) representing a form attested in the Teesside area and more generally in Yorkshire, both to the south of the locations studied here. The category 2 variant ([oː]) is considered to be a supra-local form across the North East England region (Watt 2002) or northern England more generally (Beal 2008).

6.5 Results for GOAT

6.5.1 Acoustic findings

The overall acoustic measurements are plotted in Figure 33, which illustrates a scatterplot inverted on both axes to closely model the vowel quadrilateral, showing the positions of the tokens, divided into the four auditory categories. Tables 16 to 18 also provide mean, range and standard deviation values for F1 and F2 in each category.
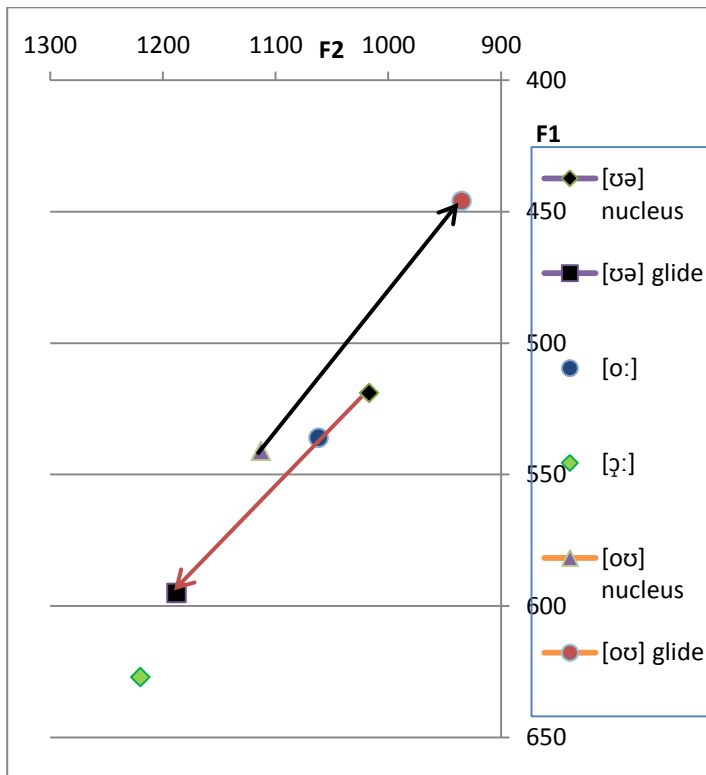
Figure 33: Formant plot for averages of the four GOAT auditory categories

		F1 mean (Hz.)	F1 range (Hz.)	F1 standard deviation (Hz.)	F2 mean (Hz.)	F2 range (Hz.)	F2 standard deviation (Hz.)
All locations	[oː]	536	255	50	1062	680	119
	[ɔ�ː]	627	250	45	1220	635	106

Table 16: Acoustic analysis of monophthongal GOAT categories

		F1 nucleus (Hz.)			F2 nucleus (Hz.)		
		mean	range	standard deviation	mean	range	standard deviation
All locations	[ʊə]	519	310	42	1017	705	109
	[oʊ]	541	215	43	1113	635	137

Table 17: Acoustic analysis of diphthongal categories: GOAT nucleus

170

		F1 offglide (Hz.)			F2 offglide (Hz.)		
		mean	range	standard deviation	mean	range	standard deviation
All locations	[ʊə]	595	525	55	1188	760	127
	[oʊ]	446	90	20	935	560	110

Table 18: Acoustic analysis of diphthongal categories: GOAT offglide

With the formant data providing an independent acoustic corroboration of the auditory judgements, a logistic mixed effects model was used to test significance based on the four auditory codings. In total, 1547 GOAT tokens from the thirty two speakers were coded for vowel quality, conversational context, location and occupation. The dependent variable was the variant produced for each token of the GOAT vowel, as represented by the numerical coding described in Section 7.4.2, above. The 32 speakers and 265 words were modelled as random effects to allow for speaker- and word-specific patterns of variation. Several fixed effects incorporated into the model resulted in statistically significant factors in GOAT variant production.

6.5.1.1 Statistical model

Having provided an independent acoustic corroboration of the auditory judgements through formant data, a multinomial logistic regression was performed on the auditory data using R Studio version 2.15.0 (The R Foundation for Statistical Computing 2012). This method was chosen due to its ability to predict more than two outcome categories (Field, Miles & Field 2012: 346). The model divides the dependent variable into a series of comparisons between two categories allowing a baseline variant to be compared to all others. Given that the literature suggests that there is one form which appears to be declining in North East Englishes more than the others (Watt & Milroy 1999, Watt 2000, 2002, Beal, Burbano-Elizondo & Llamas 2012), it was decided to use category 1 ([ʊə]) as the baseline.

The multinomial logistic regression demonstrates the independent variables that predict which variants are produced by the East Durham speakers. The model of best fit has a log

likelihood of -1291.2, from the initial model which included all ten factors which had a log likelihood of -1436.9.

For each fixed effect, the following data is provided:

- A model estimate of the regression coefficients (column 1)
- A *p*-value determining significance (column 2)
- Confidence intervals showing the lower parameter estimate (column 3), the coefficient (column 4) and the higher parameter estimate (column 5)

The purpose of the model is to demonstrate whether it is possible to reject the null hypothesis which suggests no correlation between variant usage and the predictors. Following relevelling and analysis of the model output, the following factors are shown to be significant predictors of speakers' variant usage, with the level of each fixed effect mentioned in brackets in the first column measured against the following baselines:

- Location: Blackhall
- Context: general conversation topic
- Education: did not go to university
- Occupation: miner

In addition the following factors are significant in interaction:

- Location:age group – baseline: older speakers
- Age group:context
- Context:occupation
- Context:education

Phonological context was shown to be not significant.

[oː] vs. [ʊə]	Estimate	p value	Sig	95% confidence intervals		
				2.5%	Odds ratio	97.5%
Intercept	9.718	0.007	**	1.295	2.643	5.392
Location (Easington)	4.086	0.09	.	0.927	1.505	2.442
Location (Horden)	-2.655	0.28		0.472	7.668	1.247
Age group (younger)	3.547	0.47		0.539	1.426	3.77
Context (mining)	-4.486	0.17		0.332	6.385	1.228
Context (passage)	-4.422	0.27		0.291	6.426	1.419
Context (word list)	8.886	0.03	*	1.086	2.432	5.444
Education (yes)	1.243	0.0003	***	1.759	3.464	6.822
Occupation (did not work at pit)	8.199	0.03	*	1.073	2.270	4.805
Occupation (worked at pit)	-1.041	0.02	*	0.139	3.533	0.896
Location (Easington): Age group (younger)	-1.25	0.003	**	0.124	2.866	0.663
Location (Horden): Age group (younger)	-1.19	0.006	**	0.130	3.043	0.712
Age group (younger): Context (mining)	1.741	0.01	*	1.371	5.704	23.734
Context (mining): Occupation (worked at pit)	1.733	0.004	**	1.72	5.659	18.623
Context (mining): Education (yes)	-1.539	0.006	**	0.071	2.147	0.653

Context (passage): Education (yes)	-1.058	0.04	*	0.124	3.471	0.969
Context (word list): Education (yes)	-1.206	0.04	*	0.091	2.993	0.979

Table 19: Output from the logistic regression model for GOAT data: [oː] vs. [ʊə]

[ɔ̝ː] vs. [ʊə]	Estimate	*p* value	Sig	95% confidence intervals		
				2.5%	Odds ratio	97.5%
Intercept	-1.19	0.10		0.073	3.042	1.261
Location (Dawdon)	1.291	0.006	**	1.441	3.637	9.183
Location (Easington)	5.282	0.38		0.520	1.696	5.525
Location (Horden)	4.768	0.94		0.302	1.049	3.637
Age group (younger)	2.337	0.002	**	2.234	1.035	47.964
Context (local)	-2.089	0.01	*	0.024	1.238	0.645
Context (word list)	-1.158	0.35		0.027	3.142	3.621
Education (yes)	1.078	0.84		0.368	1.114	3.372
Occupation (worked at pit)	-7.905	0.91		0.222	9.24	3.847
Location (Dawdon): Age group (younger)	-2.422	0.001	***	0.022	8.877	0.353
Location (Easington): Age group (younger)	-2.564	0.001	**	0.015	7.703	0.389
Location (Horden): Age group (younger)	-4.115	0.001	***	0.002	1.633	0.135
Context (local):	2.201	0.04	*	1.021	9.033	79.888

Occupation (worked at pit)						
Context (word list): Education (yes)	2.522	0.02	*	1.335	1.245	116.132

Table 20: Output from the logistic regression model for GOAT data: [ɔ̝ː] vs. [ʊə]

[oʊ] vs. [ʊə]	Estimate	*p* value	Sig	95% confidence intervals		
				2.5%	Odds ratio	97.5%
Intercept	-3.664	2.625	***	0.006	2.564	0.118
Location (Easington)	1.358	0.002	**	1.617	3.89	9.359
Education (yes)	1. 459	0.02	*	1.242	4.302	14.899

Significance codes:

< 0.001 ***

< 0.01 **

< 0.05 *

< 0.1 .

Table 21: Output from the logistic regression model for GOAT data: [oʊ] vs. [ʊə]

6.5.2 Auditory results

This section will focus on each significant factor in turn, beginning with location.

6.5.2.1 Location

Figure 34 shows the distribution of GOAT variants across the four locations studied. The villages are ordered in terms of their geographical situation, with north-to-south positions represented from left to right on the graph. In contrast to the FACE vowel, which showed the most local centring diphthong to be the dominant variant across three of the four villages (see Figure 28 in Section 6.5.2.1, above), Figure 38 shows a marked preference for the pan-northern monophthong ([oː]) over the most traditional, North East variant ([ʊə]) for all four locations (Dawdon: +29.7%, Easington: +36.6%, Horden: +18.9%, Blackhall: +28.8% in favour of [ʊə]).

175
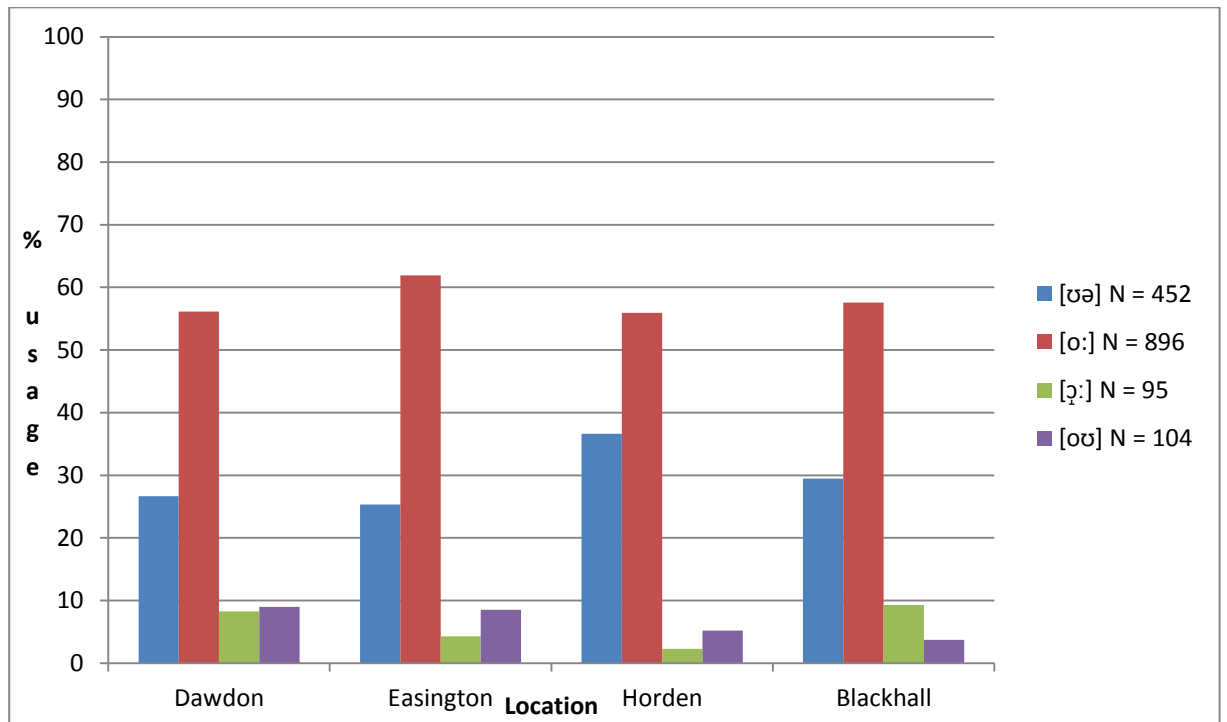
Figure 34: Distribution of GOAT variants by location (N = 1547)

The figure indicates few inter-village differences, with a less than 10% range between usage rates in all four villages in each case of the monophthongal variants ([oː] and [ɔ̞ː]) and also the [oʊ] diphthong. Perhaps surprisingly given their closeness to the local northern sector of Tyneside, the two most northern villages demonstrate a lower frequency of the local [ʊə] variant also found in Tyneside than the two villages nearest Teesside (and thus geographically further away from Tyneside). Equally, no clear geographical patterns emerge in terms of north-to-south increases or decreases of variants except that the standard-like [oʊ] form associated with middle class speakers rises marginally in each village from south to north.

In common with the FACE vowel, neither the lowered monophthong ([ɔ̞ː]) nor the standard-like closing diphthong ([oʊ]) feature very prominently, and neither of these GOAT variants achieve more than 10% usage in any village, though, in contrast to the FACE results, both variants are present to some degree in all four locations. Although the [ɔ̞ː] monophthong associated with Teesside is found most often in Blackhall, the location geographically closest to this conurbation, it is almost as likely to be produced in Dawdon, the village furthest from Teesside.

176

In summary, the location findings show that:

- In contrast to FACE, the GOAT data shows a considerable preference for the pan-northern [oː] variant over the traditional and highly localised [ʊə] form across all locations

- There are few geographical trends with all four villages demonstrating similar variant usage rates, particularly for the two monophthongs ([oː] and [ɔ̝ː]) and the [oʊ] closing diphthong

- Both [ɔ̝ː] and [oʊ] are rarely produced, but feature in all four villages to some degree

6.5.2.2 Age
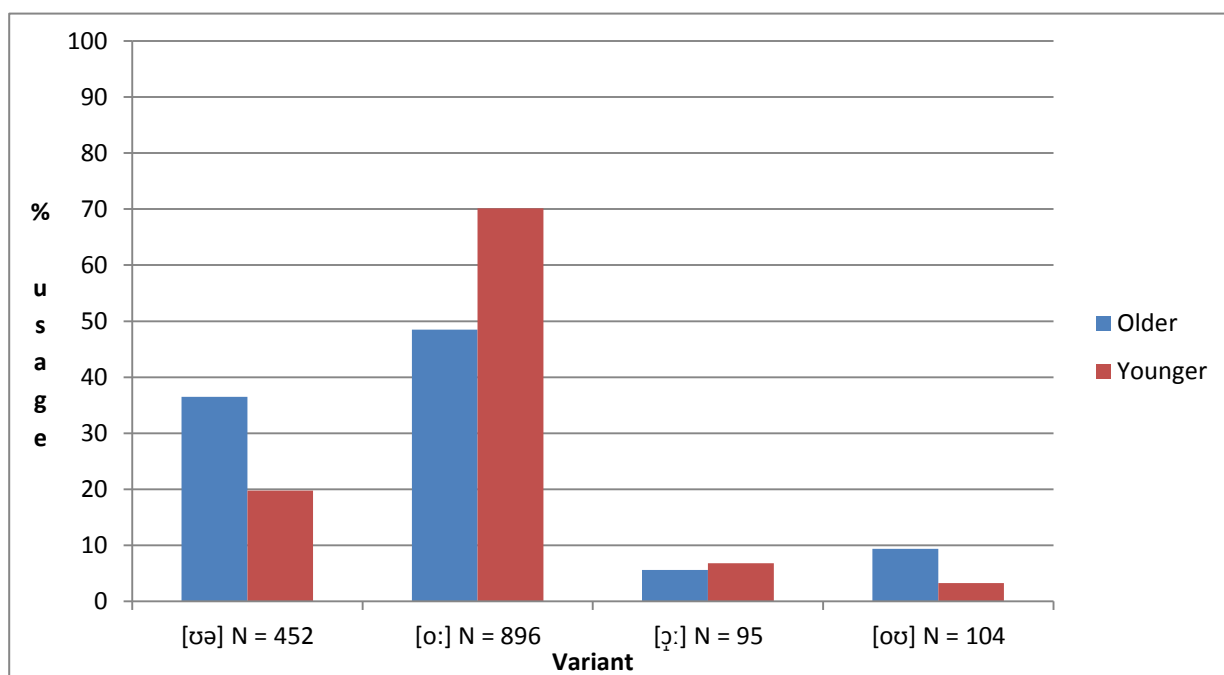
Figure 35: Overall distribution of GOAT variants by age (N = 1547)

Figure 35 shows that older speakers demonstrate a more equal balance between usage rates for [ʊə] and [oː] variants than their younger counterparts, although both older and younger speakers most frequently use the pan-northern [oː] monophthong. While younger speakers clearly prefer this variant, with over three times as many monophthong tokens (70.1%) as

centring diphthongs (19.8%), older speakers' usage is split more evenly between these two variants, with only 12% difference between usage rates of the two forms in this cohort.

In contrast to the FACE vowel, where the older speakers displayed the starkest difference between usage rates of the centring diphthong and the pan-northern monophthong, in the GOAT vowel it is the younger speakers who show a decreased rate of [ʊə] in favour of [oː].

In both age groups these two variants are much preferred to both the [ɔ̝ː] monophthong found more commonly in Teesside and the non-local [oʊ] form. However, although there is very little difference between usage rates of [ɔ̝ː] between the age groups (1.2%), there is a larger difference between age groups in terms of the [oʊ] variant with almost three times as many [oʊ] realisations in older participants' speech when compared to their younger counterparts. Although this large difference is mainly due to such small proportions of these two variants in the speech of both age groups, this finding does not match the finding for the non-local closing diphthong in the FACE vowel variable where it was the younger speakers who used considerably more of this form than their older counterparts (see Figure 22 in Section 5.5.2.2 above).

6.5.2.2.1 Interaction of age with location

Figures 36 and 37 graphically display the use of all four variants of the GOAT vowel among the older and younger cohorts by location. As in the FACE results (though to a lesser extent), the GOAT vowel results show that younger speakers demonstrate more variation according to location than their older counterparts. Older speakers in Easington demonstrate a reduced rate of [ʊə] and increased [oː] and [oʊ] compared to all older speakers in all other locations (Dawdon $p < 0.04$, Horden $p < 0.008$, Blackhall $p < 0.002$). In Horden and Blackhall, older speakers show very similar distributions, with less than 3% difference in usage rates for all four variants.
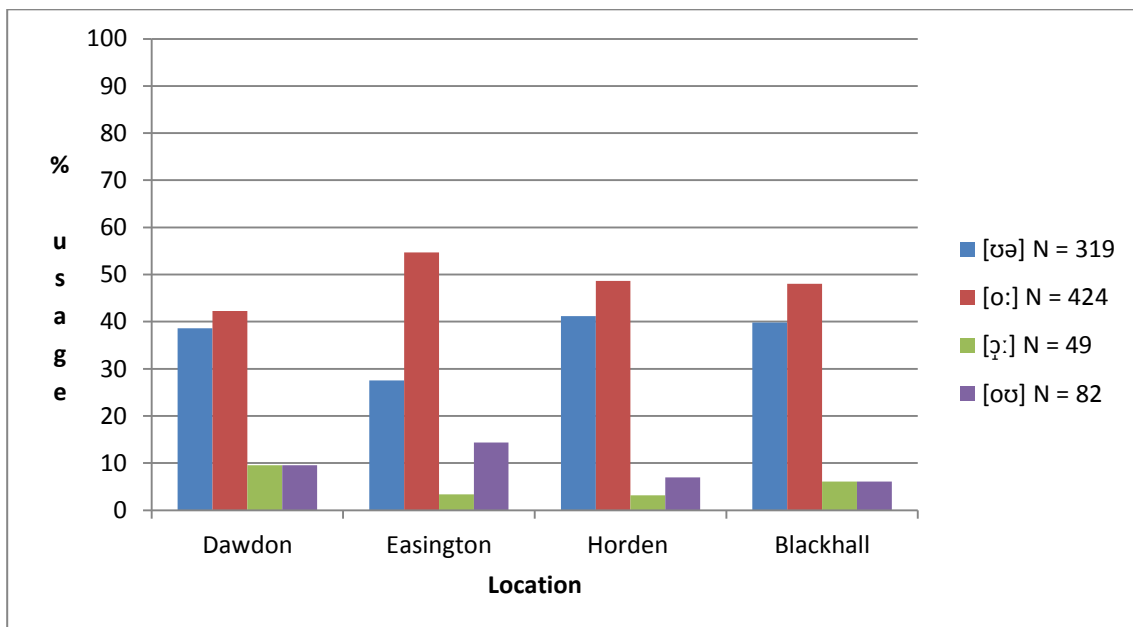
Figure 36: Distribution of GOAT variants among older speakers by location (N = 874)
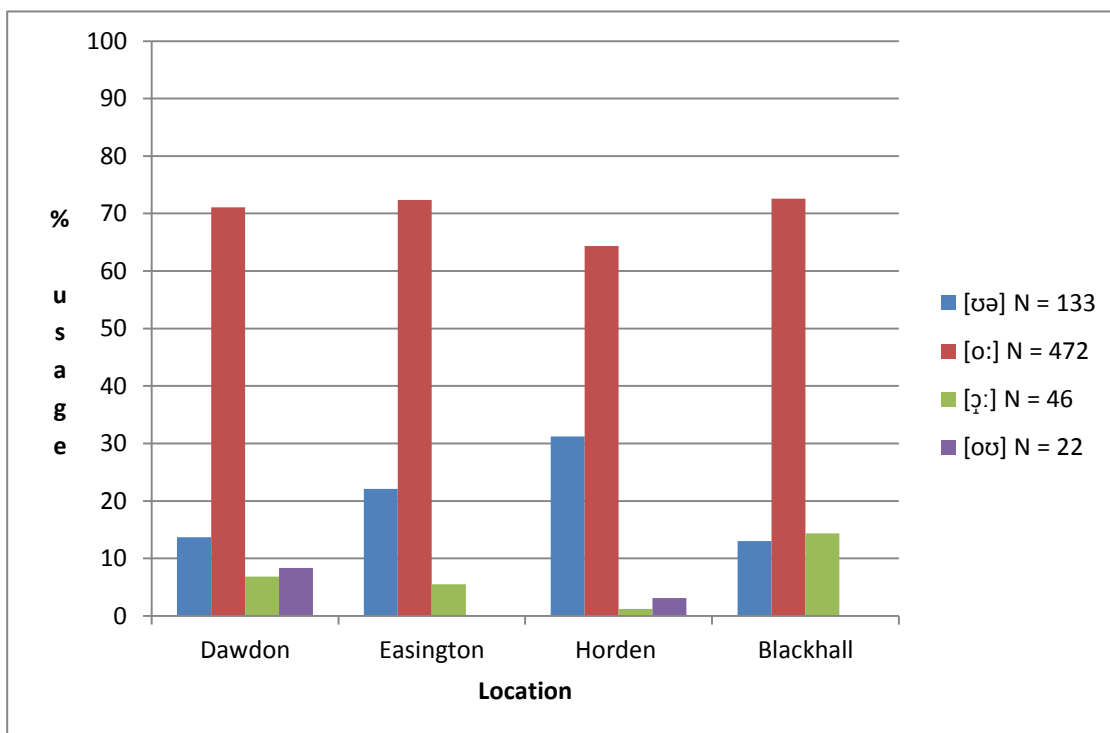
Figure 37: Distribution of GOAT variants among younger speakers by location (N = 673)

Figures 36 and 37 confirm that all speaker groups use the pan-northern [oː] monophthong most frequently. Despite this, the graphs show that younger speakers have very different distributions of the GOAT vowel than their elder counterparts, particularly in terms of their

[oː] usage relative to that of the traditional and highly localised [ʊə]. In general younger speakers show a much greater preference for the monophthong over the diphthong with increases across these two variants ranging from 33.1% more usage of [oː] in Horden to 59.6% more usage of [oː] in younger Blackhall speakers – the only speaker group where [ʊə] is outpaced (by [ɔ̞ː]) as the second most favoured variant. In contrast, older speakers in these two villages are only around 10% more likely to produce [oː] than [ʊə] and in Dawdon the difference is only 3.7%.

Younger speakers in Blackhall – the village closest to Teesside – show considerable increases in usage of [ɔ̞ː] to the extent that this variant is marginally more favoured than [ʊə] as the second most common variable among this speaker group (14.4% [ɔ̞ː] vs. 13.0% [ʊə]). This particular trend, combined with low rates of [ʊə] and zero tokens of [oʊ], contributes to younger Blackhall speakers demonstrating significantly different speech patterns to older speakers in their own village (*p* < 0.002), as well as younger speakers in all three other villages (Dawdon, *p* < 0.02, Easington *p* < 0.01, and Horden *p* < 1.935e-06). [ɔ̞ː] usage among young Blackhall speakers is 8.3% higher than the figure for the older speakers in that village, and between 7.5% and 13.1% higher when compared to their peers in the three more northern villages.

Younger speakers in Easington and Blackhall show a complete absence of GOAT realisations as [oʊ], although their peers in Dawdon and Horden prefer this variant marginally more than the Teesside-associated lowered monophthong ([ɔ̞ː]). The relatively low number of [ɔ̞ː] and [oʊ] forms shows that, in the main, all speakers tend to alternate between the overwhelmingly preferred pan-northern form [oː] and the traditional local [ʊə] variant.
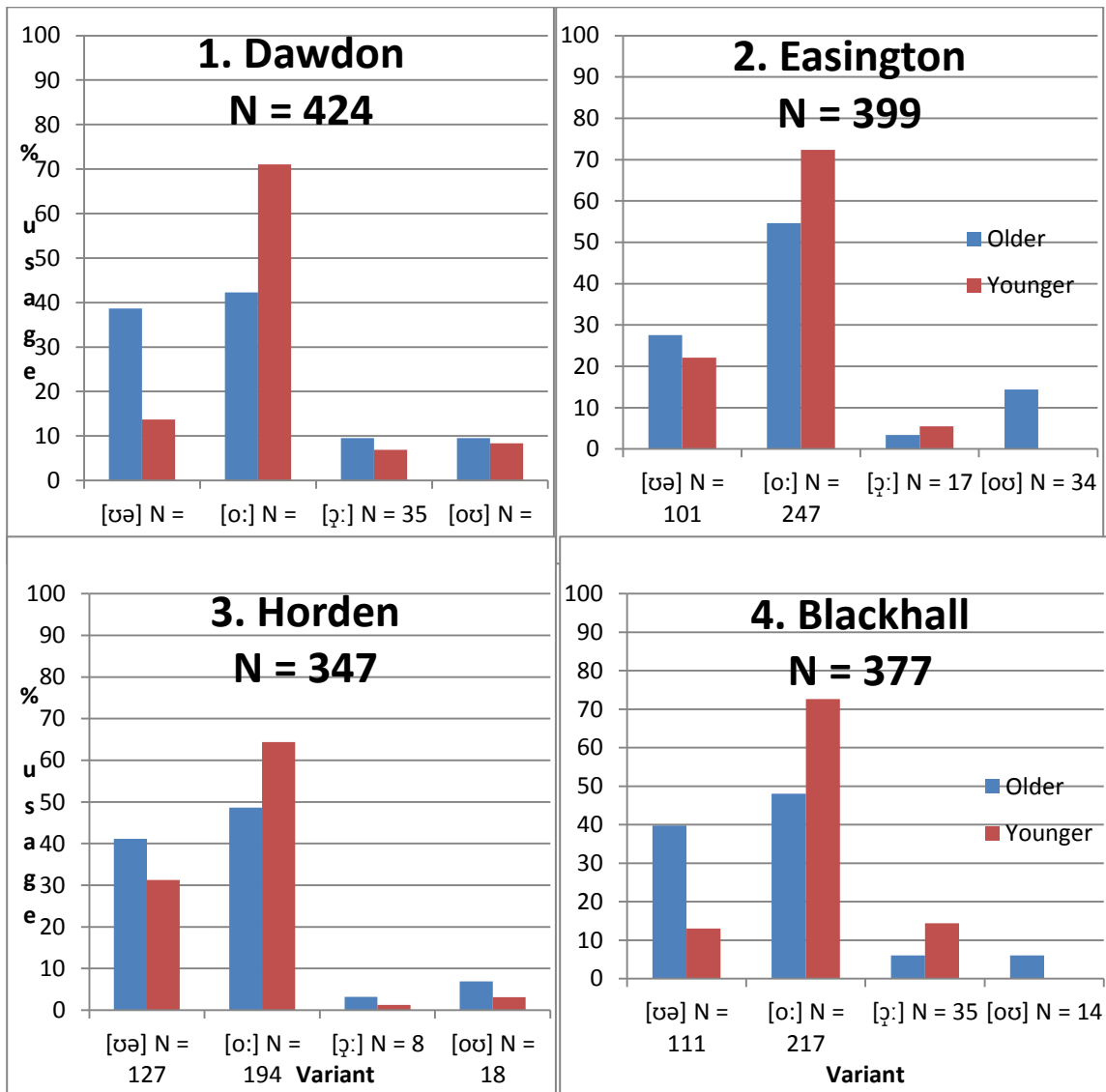
Figure 38: Distribution of GOAT variants by age in each location (in numerical order from north to south)

In contrast to the FACE results, Figure 38 shows marked variation between age groups in all four locations. In each of the three most northern locations, both older and younger speakers most frequently use the pan-northern monophthong [o:] followed by the traditional centring diphthong [ʊə], though in all four villages the percentage difference in usage of these two leading variants increases dramatically in the younger cohort compared to older speakers. In all locations except Easington there is a less than 10% difference between older speakers' usage of [o:] and [ʊə], yet younger speakers use [o:] between two (Horden) and five times (both Dawdon and Blackhall) more than [ʊə] across East Durham,

resulting in age-related variation to be confirmed as significant in Blackhall ($p < 0.002$) according to the statistical model.

As discussed earlier, younger speakers in Blackhall are the only speaker group to demonstrate a usage rate for [ɔː] of greater than 10%, but apart from that there are few age-differences between [ɔː] and [oʊ] usage. The exception is in Easington where younger speakers avoid [oʊ] altogether, compared to 14.4% usage by their elders in that village. This is also the case in Blackhall , though the [oʊ] effect is smaller as the proportion of usage of this variant by older speakers in this village is around half that recorded in Easington.

In summary, the age findings show that:

- While [oː] is overwhelmingly used by young speakers of all locations, it is favoured less among older speakers who use [ʊə] almost as much

- There are statistically significant differences between speech patterns of younger and older speakers in Blackhall

- Older people in the two most southern locations of Horden and Blackhall show similar speech patterns, unlike younger speakers in these two locations who demonstrate significantly different distributions

- Easington and Blackhall younger speakers avoid [oʊ] altogether, and younger speakers from the latter village are the only group to produce [ɔː] more than [ʊə]

6.5.2.3 Read speech and conversational context

Figure 39 graphically displays the overall use of all four variants of the GOAT vowel in terms of read speech as compared to conversational speech.
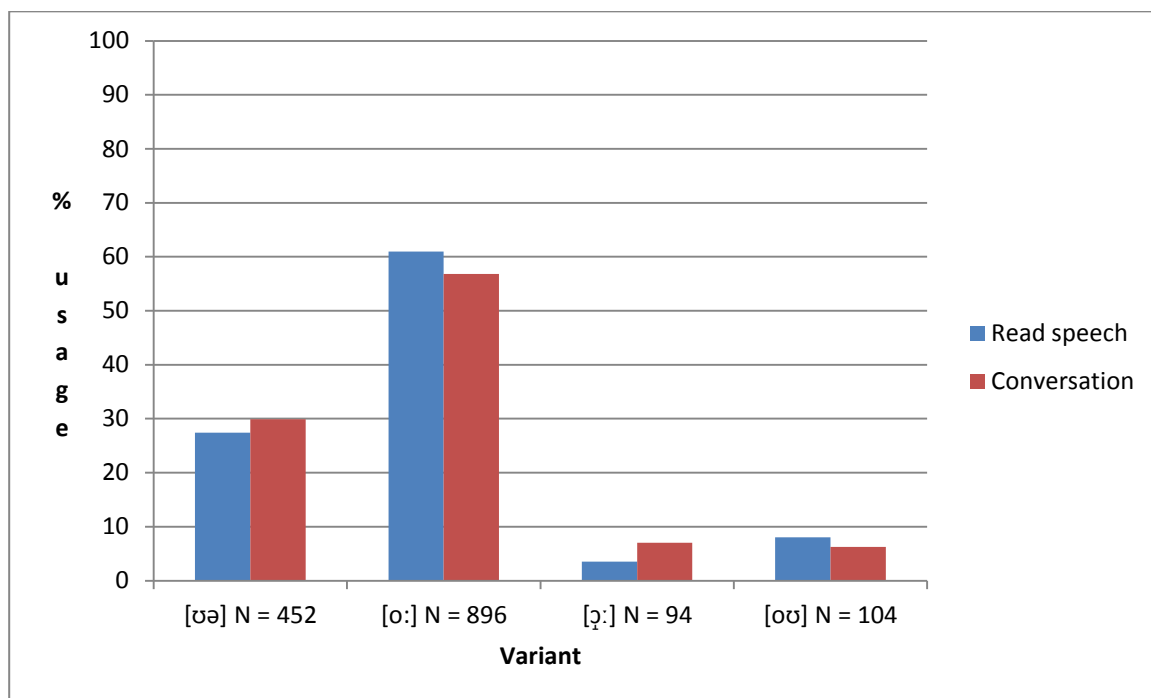
Figure 39: Distribution of GOAT variants by interview style (N = 1547)

In contrast to the FACE data, style shift does not appear to occur in terms of any variant in Figure 39. It demonstrates that in both the read speech and conversation styles speakers most frequently produce the pan-northern [oː] variant. This preference is overwhelming in the both the read speech and conversational data. The graph shows that there is little stylistic difference between the use any of the variants apart from the [ɔ̝ː] form, which due to such small numbers of tokens in this category doubles from 3.5% to 7% from read speech to conversation. Regardless, there is less than 5% difference across styles for any variant, which suggests that no GOAT variants are subject to style shifting, in contrast to the FACE data shown in Section 5.5.2.3, above, in which the less local monophthong increased from read speech to conversational data in line with a decrease in the same direction in terms of the centring diphthong variant.

The interview methodology allowed for style to be further demarcated into five categories. This resulted in two read speech styles encompassing the word list and the passage of text, and three conversational contexts covering mining, other local and non-local/general topics.
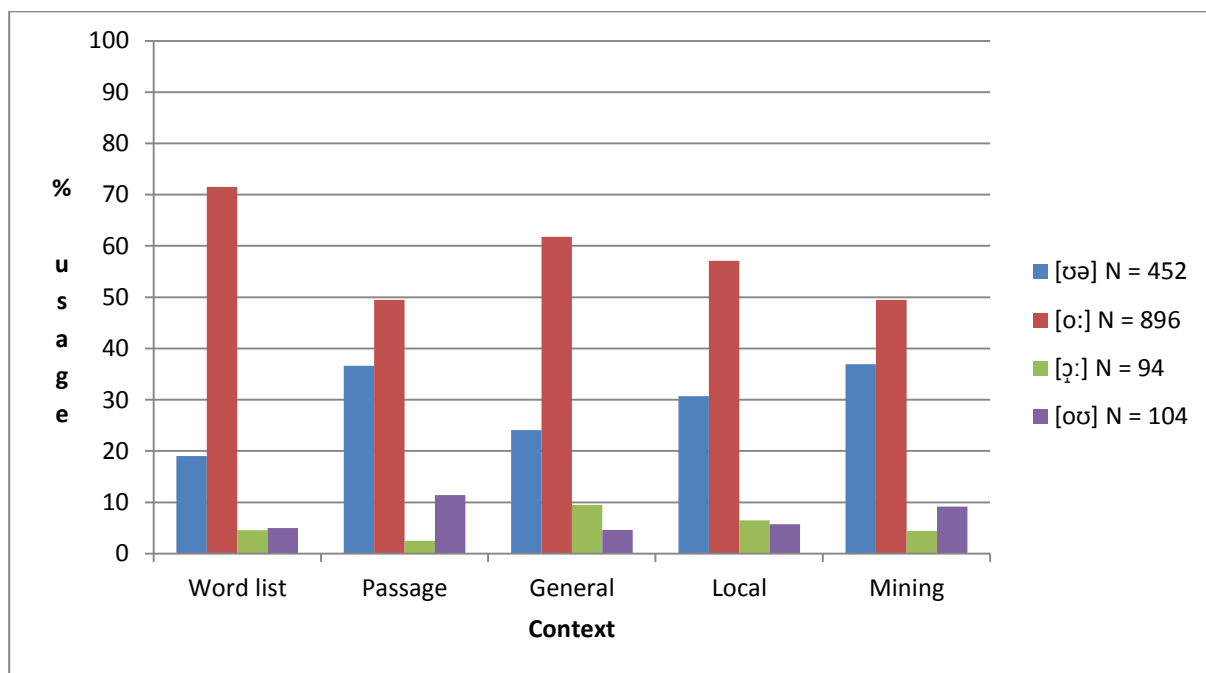
Figure 40: Distribution of GOAT variants by context (N = 1547)

Figure 40 shows that the [oː] monophthong is the favoured variant – and the [ʊə] diphthong is the second-most preferred form – across all five contexts of read and conversational speech, though the extent of the difference between the two variants depends on the context. The most formal conversation style and the word list both demonstrate considerable differences between the two variants of more than 37%, whereas the mining topic demonstrates less than 13% difference between [oː] and [ʊə] usage rates, making the difference between these two variants in the word list and the mining topic statistically significant ($p < 0.001$).

As in the FACE data, the rate of use of the most local [ʊə] form increases across the three conversational styles in order of decreasing formality, so that [ʊə] is produced more frequently in the mining topic than in the local conversation, and more frequently in the local conversation than in the non-local, general context. Again, as in the FACE data, the opposite pattern occurs with the less local [oː] form, which declines in usage across the same three contexts. The difference between FACE and GOAT here is the order of preference of the two variant types, with the centring diphthong the preferred FACE variant but only the second-favoured GOAT variant.

In summary, the detailed style findings show that:

- [oː] is overwhelmingly used in both read and conversation speech
- There is little stylistic difference between the use of the dominant [oː] form and also the second-most favoured [ʊə] form
- Horden and Easington demonstrate significantly more of the [ʊə] form and significantly less of the [oː] variant in mining speech compared to the non-localised general conversation topic

6.5.2.4 Occupation
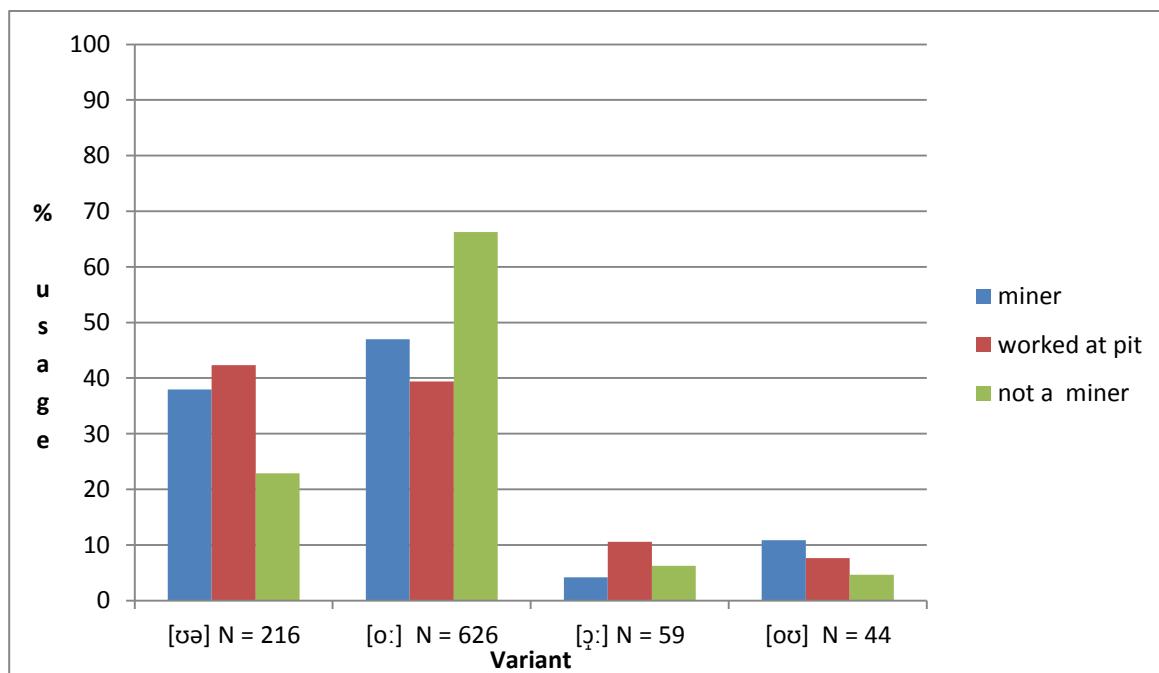
Figure 41: Distribution of GOAT variants by occupation (N = 1547)

Figure 41 shows that speakers who never worked at a pit (not a miner) produce significantly fewer [ʊə] tokens and significantly more [oː] tokens by more than 19% in both directions, when compared to both other occupation groups (miners *p* < 0.03, worked at pit *p* < 0.02). The former miners produce proportionately fewer tokens of the traditional centring diphthong than those who worked on the surface of the pit.

6.5.2.5 Education
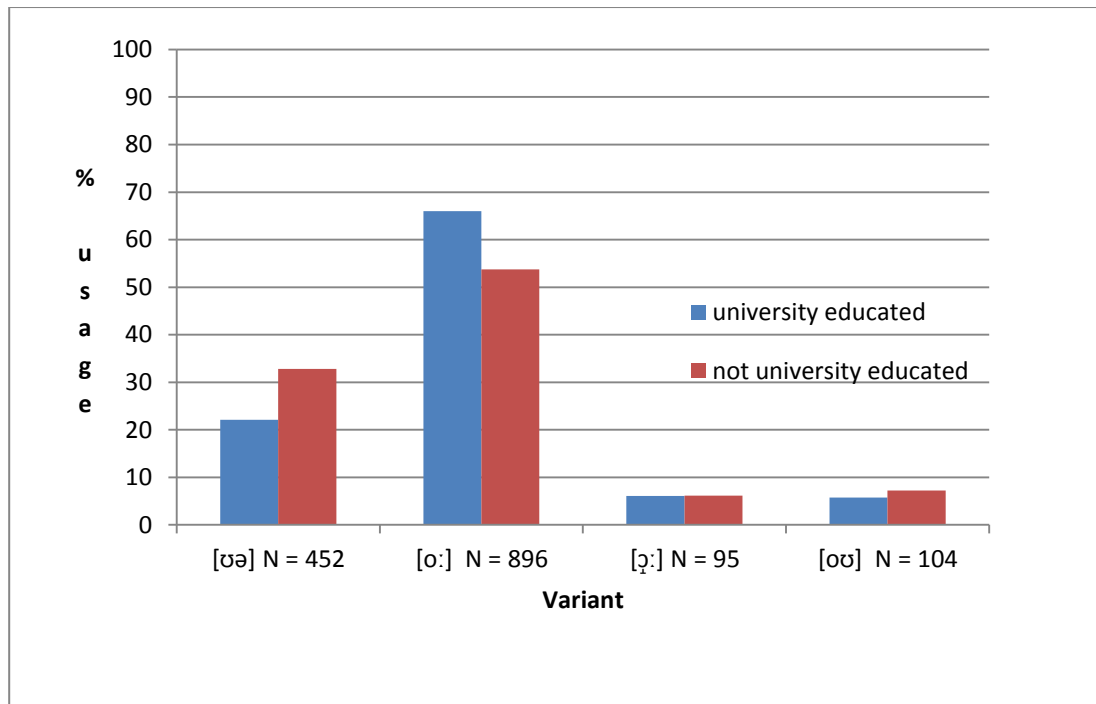
Figure 42: Distribution of GOAT variants by level of education (N = 1547)

Figure 42 shows that speakers who did not attend university produce significantly more [ʊə] tokens and significantly fewer [oː] tokens by more than 10% in both directions, when compared to those speakers who did go to university (*p* < 0.0003). There is little variation in the usage of the non-local closing diphthong.

6.5.3 Overall summary of results

The analysis shows that all four locations demonstrate similarly overwhelming levels of preference for the pan-northern [oː] variant over the traditional and highly localised [ʊə] form. This meant few geographical trends could be noted, not only between usage rates of the two most popular forms of the centring diphthong and the close-mid monophthong, but also between the minority [ɔ̝ː] monophthong and [oʊ] closing diphthong, which feature in all four villages but to very low frequencies. This is in contrast to the results for FACE, which suggest that the local centring diphthong variant is preferred to the less local monophthong in that data, and which also show a geographical break between Blackhall and the three more northern locations in terms of distribution patterns.

186

The age group data provided more striking results, with statistically significant differences recorded between younger and older speakers in three of the four villages: Dawdon, Easington and Blackhall. While speakers of both generations in all locations demonstrate a preference for the close-mid monophthong, younger speakers favour it to a markedly larger degree than the older cohort, the latter of who use the centring diphthong nearly as much. Again, this is in contrast to the findings for the FACE vowel, which showed the centring diphthongal variant type being largely retained among younger speakers.

Speakers in the younger age group demonstrate a greater range of variation than the older cohort: no younger speakers from Easington and Blackhall produce the high status [oʊ] closing diphthong variant, and the younger Blackhall cohort in particular represent the only group to produce a larger proportion of the [ɔ:] variant associated with Teesside than the [ʊə] centring diphthong considered the traditional regional pronunciation. This pattern contributes to younger speakers in Blackhall demonstrating a statistically significant distribution from their peers in neighbouring Horden, in contrast to the older speakers in these villages who show similar speech patterns across both locations.

Although [o:] is overwhelmingly used in both read and conversation speech and little stylistic difference is noted between the use of either of the close-mid monophthong or the [ʊə] centring diphthong, conversational topic is shown to be a significant factor in conditioning variation in the GOAT vowel. The similar results across styles sits in contrast to the findings of the FACE vowel which showed possible style shifting between the centring diphthong and raised lengthened monophthong variants. Horden and Easington demonstrate significantly more of the [ʊə] form and significantly less of the [o:] variant in mining speech compared to the non-localised general conversation topic. As with the FACE vowel, other factors related to mining such as speaker occupation and the use of field-specific (mining) lexis are also shown to be not significant.

Occupation and level of education were also a highly significant factor on GOAT production in East Durham with significant differences between men who had never worked at the pit and those who had, and those who had gone to university compared to those who had not. As in the FACE vowel results, the most highly local formis found to a statistically higher degree in

the speech of those who did not go to university, and in the speech miners (though in the GOAT data this is not further constrained by topic and is also found to a high degree in those who worked at the pit in other jobs).

The next section will continue to investigate the effect of social and linguistic factors on the final variable under analysis in this study: START.

7. START

7.1 Overview

This chapter considers the realisation of the START vowel in East Durham English. Section 7.2 offers a definition of the variable and provides some background information on its development in English. Section 7.3 examines the previous literature on the START vowel in British English and describes the patterns of variation in the region surrounding the area studied. The methodology used to distinguish, categorise and measure the variants is presented in Section 7.4. Section 7.5 outlines the results for START. An interpretation of the findings appears in Chapter 8.

7.2 Definitions of START and PALM

In Received Pronunciation, words in the START and PALM sets are produced with a stressed fully open unrounded vowel /ɑː/. In some varieties START /ɑː/ vowels are followed by an intersyllabic /r/ (Wells 1982: 157-8). The sets are treated separately by Wells (1982: 143) due to a phonetic distinction in General American pronunciation, where PALM vowels are produced as /ɑ/ and thus belong phonetically with the LOT set in American English.

Stage	START output
Middle English	ar
Pre-R Lengthening	aːr
START Backing	ɑːr
R Deletion (in non-rhotic varieties)	ɑː

Table 22: The stages of START vowel development

This development from Middle English /a/ to present-day RP [ɑ:] is shown in Table 18 (Wells 1982: 201-203). However, Middle English /a/ was also subject to lengthening when followed by voiceless fricatives /f, θ, s/ (Wells 1982: 203-4), but not /ʃ/ (Lass 2000: 104). Despite some

inconsistencies lexically, such as an absence of lengthening in present day RP *maths* and *gas*, varieties across the south of England underwent this process of Pre-Fricative Lengthening, in contrast to the north, which has remained unaffected and therefore has many varieties with present-day [aː] in START and PALM vowels (Trudgill 2004: 59).

START and PALM occur in both open and closed syllables, with an RP /ɑː/ quality frequently found in all environments unless when followed by /r/. An /ɑː/ is still found where a morpheme boundary exists between the /r/ and a following vowel, such as *starry* /ˈstɑːrɪ/ and *starring* /ˈstɑːrɪŋ/ (Wells 1982: 158). Most tokens of PALM appear in foreign borrowings which are generally produced with short /a/ vowels in their original language, and vary between PALM and TRAP realisations in varieties of English. For example, *pasta* has stressed /æ/ in the United Kingdom, but /ɑ/ in America, compared to *morale* which is /ɑː/ in Britain and /æ/ in the U.S.A.

START and PALM realisations tend to vary in terms of position on the front-back plane of the vowel quadrilateral, with the central to back pronunciations of RP contrasted with fronting towards [aː] typically found in areas of northern England (Wells 1982: 158). BATH pronunciation in British English accents has been described as one of the 'most salient markers of northern English' (Beal 2008: 132) with so-called 'flat- BATH' accents retaining front [aː] in the PALM and START sets, compared to 'broad-BATH' accents, where [ɑː] is also found in BATH, in addition to PALM and START (Wells 1982: 234).

7.3 START and PALM in the North East of England

In North East English, it is possible and appropriate to propose a merger of the START and PALM sets, as there is no phonological distinction between the two categories such as can be seen in, for example, General American pronunciation (Watt 1998: 143). This study will only consider START vowels, for brevity's sake.

However, it is worth pointing out that individuals often exhibit intra-speaker variation which permits the same lexical item to be pronounced with considerably different realisations. For instance, the vowel appearing in the word *father* may vary from token to token, carrying at once [a], but on other occasions [ɑː] (see further in Section 7.3.2).

7.3.1 Historical trends

The most common START variant produced by County Durham respondents to the S.E.D. is [aː], with more than three out of every four pronunciations of this vowel found in the three most northern locations of Washington, Ebchester and Wearhead, and also the south-west Durham village of Eggleston. (A map of these locations is provided in Figure 12, in Section 4.3.2, above.) In Bishop Middleham, the distribution is split fairly evenly between [aː] and [æː], and the latter is the preferred variant in the remaining village of Witton-le-Wear, where it is used more than twice as often as [aː]. However, in all cases in both locations every [æː] token precedes an orthographic and intersyllabic /r/. Open front vowels are found overwhelmingly in START environments in S.E.D. responses in North Yorkshire, the territory to the immediate south of County Durham (West 2009), though outside of Bishop Middleham and Witton-le-Wear there are no instances of [æː] in any START words except for one unlengthened [æ] realisation of the word *calf* in Ebchester, alongside the dominant [aː] form. Unlengthened [æ] is a Northumberland feature which has spread south into Durham.

A handful of centring diphthongal variants with a range of front open starting points from [e] to [æ] are found across northern Durham in words where the vowel is followed by /t/ or /m/: principally [eə ~ ɛə] for *cart* in Washington and Wearhead and [ɛə ~ æə] for p*alm* and *art* in Ebchester. A back rounded [ɔː] form is also a substantial minority variant in the four most southern villages, with around 10% to 15% usage, but this variant only precedes labiodental fricatives. The word *master*, which is shown to have undergone lengthening in present-day North Eastern English as a lexical exception to otherwise short vowels which belong in RP to the BATH lexical set (Beal 2004: 123), also elicits a range of realisations from the S.E.D. informants from [a: ~ e: ~ ɛə].

7.3.2 Contemporary patterns

The distribution of START in present-day North East England appears to vary in two main ways. Firstly, in common with many areas of British English (Stoddart et al 1999 on Sheffield, Williams & Kerswill 1999 on Milton Keynes, Reading and Hull), variation occurs in terms of the degree of advancement of the vowel, with a relatively front [aː] vowel noted in Teesside compared to backer [ɑː]-like vowels found in further north in the region (Beal, Burbano-

Elizondo & Llamas 2012: 36). Furthermore, the relatively back [ɑː] vowel can also be produced with rounding [ɒː] in Tyneside and Northumberland (Beal 2008: 132). Beal (1985: 32) claims that while long front [aː] exists in Tyneside and Northumberland accents, this is phonemically distinct from START vowel words, which typically take the long back vowel, either with rounding ([ɒː]) or without ([ɑː]). It is argued that the front realisation is found in environments where ME /a/ has undergone rounding and developed into RP [ɔː], meaning RP *all* [ɔːl], *walk* [wɔːk], and *ball* [bɔːl] are pronounced as [aːl], [waːk], [baːl] in Tyneside and Northumberland.

Besides these two main differences, certain words containing open monophthong vowels exhibit lexis-specific variation in terms of lengthening in North East English. One of the most salient markers of geographical variation in British English is vowel length in words of the BATH lexical set. In general northern English speakers have short [a] vowels before voiceless fricatives in words like *faster*, *graph* and *path* (Beal 1985) and also before particular consonant clusters beginning with /m/ or /n/, such as *dance* (Beal, Burbano-Elizondo & Llamas 2012: 36). However, a long [aː] vowel has also been noted in TRAP vowels preceding voiced consonant individual segments and clusters in North East England, resulting in [baːnd] for *band* but [baθ] for *bath* (Wells 1982: 375). Furthermore, Beal (1985: 32) notes that certain contexts where [a] might be expected in BATH in North East England yield a lengthened realisation:

'[A] small number of words pronounced with a short [a] elsewhere in the North [of England] are pronounced with a long vowel by speakers in Tyneside and Northumberland. These words are *master*, *plaster* and *plasticine*. These words thus belong in the same lexical set as words with ME /a/ before /r/, *palm*, *banana* etc.'   (Beal 1985: 32)

Despite anecdotal evidence alleging that this pattern is highly localised to Tyneside and Northumberland, and is not even found in nearby Sunderland (Beal 1985: 34), more recent work suggests that the trend regarding *master* and *plaster* is found across the rest of the North East England region (Beal, Burbano-Elizondo & Llamas 2012: 36), and Beal (2004: 123) notes furthermore that the vowel is lengthened in *master* but not the other words in other varieties such as Sheffield and areas of Lancashire.

This vowel length alternation in the open monophthongs also works the other way in North East England, with *father*, part of Wells' PALM lexical set (1982), varying from the typical North East PALM pronunciation of a long [aː] vowel and a short [a] realisation (West 2009: 48).

7.3.2.1 START in Newcastle upon Tyne

Like MOUTH, the START variable features less prominently than other lexical sets such as FACE and GOAT in sociolinguistic studies in the North East of England. This may be due to the suggestion that any variability is limited to allophony between rounded and unrounded back, open monophthongs (Watt 1998: 169). For example in Watt's (1998) thesis on vocalic variation and change in Tyneside, analysis of START is restricted to a small pilot study of open monophthongs also including TRAP, LOT and NORTH taken from the speech of just eight speakers. Despite the data sample being too small to attain the stated minimum of thirty tokens of the variable per speaker, the START vowel is shown to be the only one of these open monophthong variables to vary to any great extent (Watt 1998: 151). The vowel is shown to alternate between a highly local rounded variant, [ɒː] – which emerged from a process of vowel-backing before [ʁ] also found in the NURSE vowel called 'burr retraction' (Beal 1985: 42) – and an unrounded [ɑː] form 'very like that found elsewhere in the north of England and indeed all over Britain' (Watt 1998: 163).

The marked [ɒː] form patterns as expected in Newcastle upon Tyne, with this rounded variant the preferred choice of the male working class speakers of all ages, and the older female working class speaker too. In contrast, the non-local unrounded [ɑː] form is the favoured variant of both the younger and older middle class speakers, who are shown as a social group to diverge from highly localised forms of a wide range of vocalic variables in this geographical area (Watt 2000, 2002, Watt & Milroy 1999). It is also worth pointing out that younger speakers of both social classes and sexes make considerably greater use of the non-local unrounded [ɑː] form than the corresponding older groups.

There also appears to be a great deal of lexical variation in the START vowel in North East England, though Watt's (1998) Tyneside study cannot attribute the distribution of [ɑː] and [ɒː] to etymology or phonology because almost all of the vowels produced by his speakers

193

belong to a set of words followed orthographically by <r>. This conforms to Wells' (1982: 158-159) classification of START, as opposed to the PALM set, where the following segment is not <r> (Wells 1982: 143-144). Moreover, the exceptions to the <ar> words – *can't*, *half* and *rather* – are found to be pronounced using both variants across all speakers in the data, leading Watt (1998: 153) to discount linguistic-internal effects and conclude that variation in the Tyneside START vowel is best explained by social factors.

One middle class female speaker in the Tyneside study uses the short [a] of TRAP in the first syllable of the collocation *half-past*. This has been found to be the typical pronunciation of *half* in other northern English varieties (such as Yorkshire – Beal 1985). Watt (1998: 163) analyses the appearance of the short vowel as indicative of harmonisation with the vowel in the following syllable *past*, and notes that it is more likely for unstressed tokens of *half* to be short, as in *half-past two*. Also included in the long open monophthong data are THOUGHT and GOAT words in open syllables (*war*, *snow*) and followed by /l/ or /lC/ (*call*, *talk*) (Hughes & Trudgill 1979: 66), or specifically the /ld/ cluster in terms of GOAT items (*old*). These words are classified phonemically as /ɑː/ (Viereck 1966) and are said to be realised as [aː] but only among conservative Tyneside speakers (Watt 1998: 144).

7.3.2.2 START in North Yorkshire

One of the most northerly Yorkshire sites from the Survey of English Dialects (Orton & Dieth 1962-71) has been subject to follow-up sampling with more modern sociolinguistic methods. Tidholm (1979) revisited the civil parish of Egton, on the east coast of North Yorkshire, in the 1970s, exploring age-related differences in speech style in a range of variables including both the short and long open monophthongs.

Tidholm considered front [aː] to be the 'traditional' local pronunciation (1979: 27) and found that it was used by the vast majority of Egton speakers, with backer [ɑː] usage found mainly in the oldest speaker cohort aged 69 years and over – though even within this group [ɑː] occurs at a comparatively small frequency (19.6% of all tokens). Back [ɑː] also appears in middle-aged speakers, but to a lesser extent than the older cohort (9.5%), and is completely absent in the youngest age group, signalling attrition of this form which led the author to assert that '[aː] may be one of the few traditional vowels that will persist. It may be a

characteristic feature of future Egton speech' (Tidholm 1979: 27). Revisiting the variety again in 2006, an updated acoustic analysis supported Tidholm's prediction, with the auditory quality of START in Egton 'close to that of TRAP and BATH' for most speakers to the extent that all three variables are 'essentially the same' (Myrstad-Nilsen 2011: 93).

7.4 Analysis

7.4.1 Issues addressed

In addition to the overarching research questions of the thesis relating to distribution of variants across locations, age groups, style and topic (and specifically coal mining), this chapter aims to identify the distribution of the following START vowel variants in the East Durham data in terms of social and linguistic constraints:

1. [ɒ:]: found more commonly in Tyneside
2. [ɑ:]: non-localisable and found across the North East England region
3. [a:]: found more commonly in Teesside

The remainder of this section details the methods used to conduct the analysis of the START vowel in order to answer these research questions.

7.4.2 Coding

START vowel tokens were assigned one of three codes based on auditory judgements made by the researcher and were acoustically analysed through measuring of formants. Although variation has been shown to occur in terms of rounding of back vowels is found in other North East English dialects (as discussed in Beal 1985, Watt 1998, Beal 2004, and Beal, Burbano-Elizondo & Llamas 2012, reviewed in section 8.3.2 above), rounded forms approximating [ɒ:] are not found at all in the East Durham data. Instead START production in the local area varies chiefly on a scale from [ɑ:] to [a:] with the acoustic F2 correlate reflecting the degree of advancement of the vowel. It therefore seems reasonable to suggest that the shift between START realizations might be gradient. That is to say that it may not pattern as discrete allophonic alternations between [ɑ] or [a], but might instead allow for tokens which are intermediate between the two plots on the vowel space.

The possible codes assigned during auditory analysis were numbers from 1 to 3, which reflected the variation in nucleus height found in previous studies during the literature review:

- A category 1 coding denotes that the token is classified as a [ɑ:] realisation.
- A category 2 coding denotes that the token is more advanced than a category 1 [ɑ:] realisation and is therefore classified as [ɑ̈:].
- A category 3 coding denotes that the token is even more advanced than a category 2 [ɑ̈:] token and is therefore classified as a [a:] realisation.

In total, 1591 tokens from the thirty two speakers were coded for vowel quality, style/conversational context, location and occupation.

7.5 Results for START

7.5.1 Acoustic findings

The mean acoustic measurements of the START vowel nuclei for each location are plotted in Figure 43. It presents an ellipsis plot with the mean position of the cluster of vowels which form each auditory category, and an ellipse to signify the range of tokens. As in the MOUTH vowel analysis, this was measured by plotting all tokens on the F1-F2 plane and fitting an ellipse around the most extreme variables to characterise the distribution of each category. While it is acknowledged that there was a degree of overlap between categories it should also be borne in mind that the auditory categories were perceptual judgements on the researcher's part. Table 19 also provides unrounded mean, range and standard deviation values for F1 and F2 readings in each category.
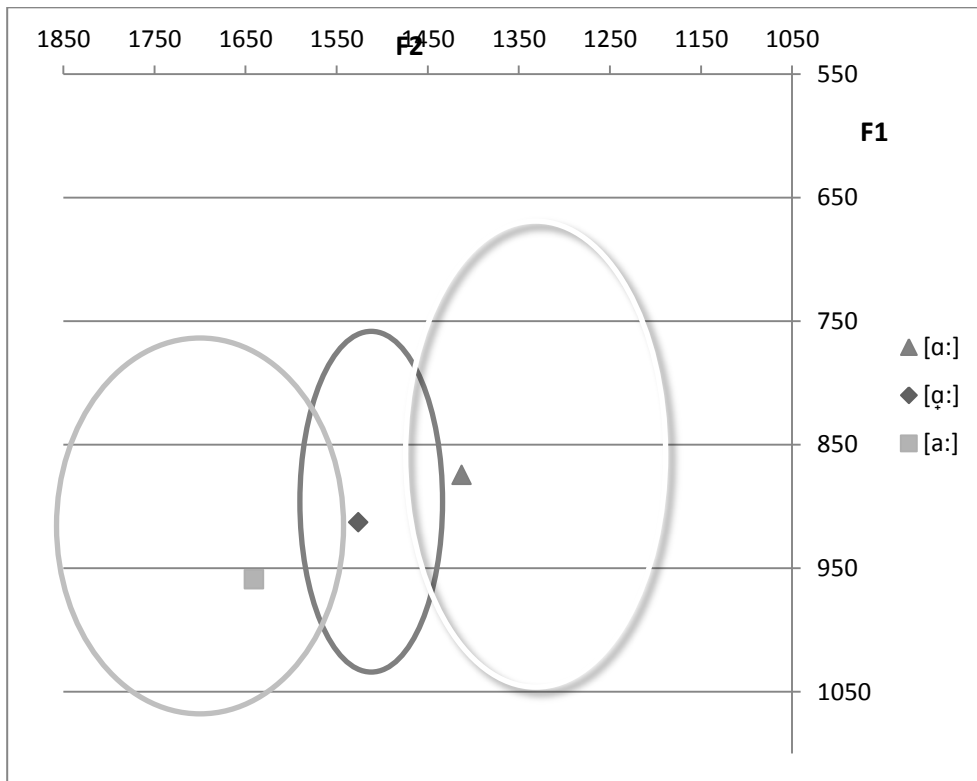
Figure 43: Formant plot of START vowel category means and ranges

		F1 mean (Hz.)	F1 range (Hz.)	F1 standard deviation (Hz.)	F2 mean (Hz.)	F2 range (Hz.)	F2 standard deviation (Hz.)
All four locations combined	[ɑ:]	875	505	68	1413	430	71
	[ą:]	913	290	50	1526	190	25
	[a:]	959	360	56	1641	340	56

Table 23: Acoustic analysis of START categories

With the formant data providing an independent acoustic corroboration of the auditory judgements, an ordinal logistic mixed effects model was used to test significance based on the three auditory codings. This method is appropriate for multivariate analysis of categorical variables with ordered levels (Klavan 2012) – such as phonetic variants of differing vowel advancement.

The dependent variable was the variant produced for each token of the START vowel, as represented by the numerical coding described in Section 8.4.1, above. Use of the ordinal

model allows the variants to be ranked in order of vowel frontness, ensuring that the model understands that the category 1 [ɑ:] variant is backer than the category 2 [ɒ̞:] form, and the category 2 [ɒ̞:] form is backer than the category 3 [a:] variant, in terms of position in the vowel quadrilateral. The 32 speakers were modelled as a random effect to allow for speaker-specific patterns of variation. Several fixed effects incorporated into the model resulted in statistically significant factors in START variant production.

7.5.1.1 Statistical model

With the formant data providing an independent acoustic corroboration of the auditory judgements, an ordinal logistic mixed effects model was used in R Studio version 2.15.0 (The R Foundation for Statistical Computing 2012) to test significance based on the three auditory codings. This method is appropriate for multivariate analysis of categorical variables with ordered levels (Klavan 2012) – such as phonetic variants of differing vowel frontness.

The ordinal logistic regression model demonstrates the independent variables that predict which variants are produced by the East Durham speakers. The three variant categories ([ɑ:], [ɒ̞:] and [a:]) represent a dependent ordinal variable, which is ranked in increasing order of vowel frontness. This ensures that the model understands that the category 1 [ɑ:] variant is further back than the category 2 [ɒ̞:] form, and the category 2 [ɒ̞:] variant is higher than the category 3 [a:] form, in terms of position in the vowel quadrilateral.

The 32 speakers were modelled as a random effect to allow for speaker-specific patterns of variation. Unlike the MOUTH data in Chapter 4, a considerable number of tokens in the START data (290) take archaic [ɑ: ~ a:] forms when other speakers may use variants more closely associated with the GOAT vowel. For example, words such as *snow* and *know* are categorically realised as [a:] in Durham S.E.D. responses, as shown in Section 6.3.1 above. While these words do not belong in the START set, they have been included in the dataset as the range of phonetic variation appears to be highly similar to the START set. This can be shown in the initial model, where the variable 'lexical set' reflects the different types of words which are realised with [ɑ: ~ a:] variants (THOUGHT: *call, talk, war* and GOAT: *snow, old*), and does not demonstrate significant differences between the types of words.

This model also includes all ten factors outlined in Section 3.6.3. The model of best fit, according to lowest log-likelihood (-1198.21 compared to -1216.99 in the initial model which featured all eleven factors), contains the following independent variables as fixed effects due to their ability to predict variant usage:

- Location
- Age group
- Context
- Mining lexis
- Occupation
- Location:Age group
- Context:Occupation

For each significant fixed effect, the following data is provided:

- A model estimate of the regression coefficients (column 1)
- The standard error, which measures the reliability of the estimate (column 2)
- The z-value (column 3), from which a p-value determining significance is calculated (column 4)

The purpose of the model is to demonstrate whether it is possible to reject the null hypothesis which suggests no correlation between variant usage and the predictors. Following relevelling and analysis of the model output, the following factors are shown to be significant predictors of speakers' variant usage, with the level of each fixed effect mentioned in brackets in the first column measured against the following baselines:

- Location: Blackhall
- Age group: older group
- Context: general conversation topic

In addition the following factors are significant in interaction:

- Interaction of age group and location
- Interaction of context and occupation

Phonological context and interactions of age group:location and context:occupation were shown to be not significant.

	Estimate	Std. Error	z value	Pr(>|z|)	Sig
locationDawdon	-0.719	0.742	-0.970	0.33	
locationEasington	-2.003	0.825	-2.428	0.02	*
locationHorden	0.488	0.81	0.603	0.55	
agegroupyoung	2.787	0.891	3.127	0.002	**
contextlocal	-0.61	0.303	2.011	0.04	*
contextmining	-0.819	0.307	-2.668	0.008	**
contextpassage	-1.106	0.518	-2.137	0.04	*
contextword list	-1.282	0.381	-3.361	0.001	***
occupationno miner	-0.679	0.641	-1.060	0.29	
occupationyes pit	-0.502	0.892	-0.562	0.58	
locationDawdon:agegroupyoung	-3.76	1.055	-3.565	0.001	***
locationEasington:agegroupyoung	-2.910	1.134	-2.566	0.02	*
locationHorden:agegroupyoung	-5.56	1.123	-4.952	7.34	***
contextlocal:occupationno miner	0.609	0.373	1.633	0.11	
contextmining:occupationno miner	0.928	0.467	1.985	0.05	*
contextpassage:occupationno miner	1.755	0.566	3.102	0.002	**
contextword list:occupationnominer	1.711	0.405	4.223	2.41	***
contextlocal:occupationyes pit	1.341	0.581	2.310	0.03	*
contextmining:occupationyespit	1.244	0.591	2.105	0.04	*
contextpassage:occupationyes pit	2.658	0.808	3.291	0.001	***
contextword list:occupationyes pit	1.060	0.615	1.723	0.09	.

Significance codes:

< 0.001 ***

< 0.01 **

< 0.05 *

< 0.1 .

Table 24: Output from the mixed effects model for START data

7.5.2 Auditory results

This section will focus on each significant factor in turn, beginning with location.

7.5.2.1 Location

Figure 44 graphically displays the use of all three variants of the START vowel across each of the four locations examined in this study.
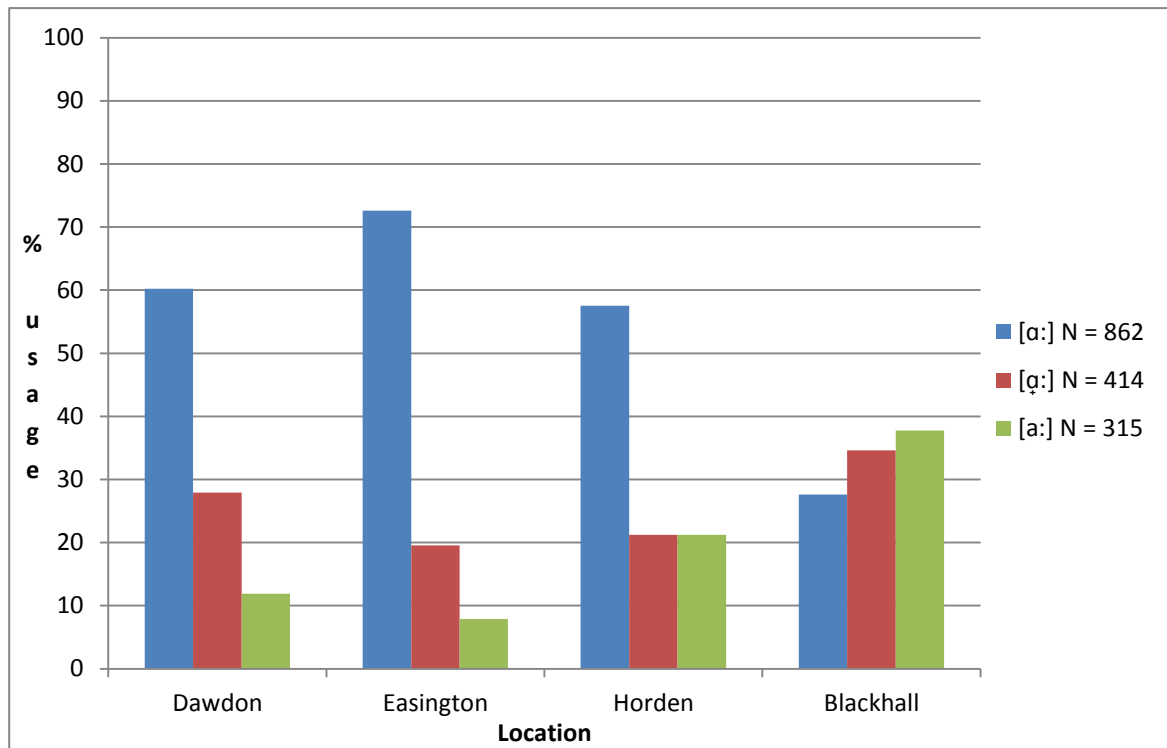
Figure 44: Distribution of START variants by location (N = 1591)

As with the FACE data, Blackhall demonstrates a markedly different distribution of variants to the other three villages in Figure 44. It shows the distribution of START variants across the four locations studied. The villages are ordered in terms of their geographical situation, with north-to-south positions represented from left to right on the graph. It shows that speakers in all villages predominantly use the back, unrounded [ɑː] form, except in the most southern location of Blackhall, where usage of the [ɑː] variant is more than halved in favour of the fronter variants [ạ̈ː] and [aː]. The frontest [aː] variant is also found to a relatively high degree in Horden (21%), compared to Easington where this variant accounts for less than 8% of the overall usage in this village, and the back [ɑː] form dominates (72%). The statistical model

shows that speakers in Easington therefore produce significantly backer realisations than those in Horden ($p < 0.0008$) and Blackhall ($p < 0.02$). It is worth reinforcing that Horden and Blackhall are the nearest villages to the Teesside conurbation where front [a:] has been recorded as a common feature of START vowels (Beal, Burbano-Elizondo & Llamas 2012: 36).

In summary, the location findings show that:

- All locations except southern-most Blackhall show a preference for [ɑ:], with more than half of all tokens realised as [ɑ:] in the three most northern villages of Dawdon, Easington and Horden

- In Blackhall [a:] is the favoured variant, slightly more than [ɑ̈:]

- Easington speakers produce significantly backer realisations than the two villages further south

7.5.2.2 Age
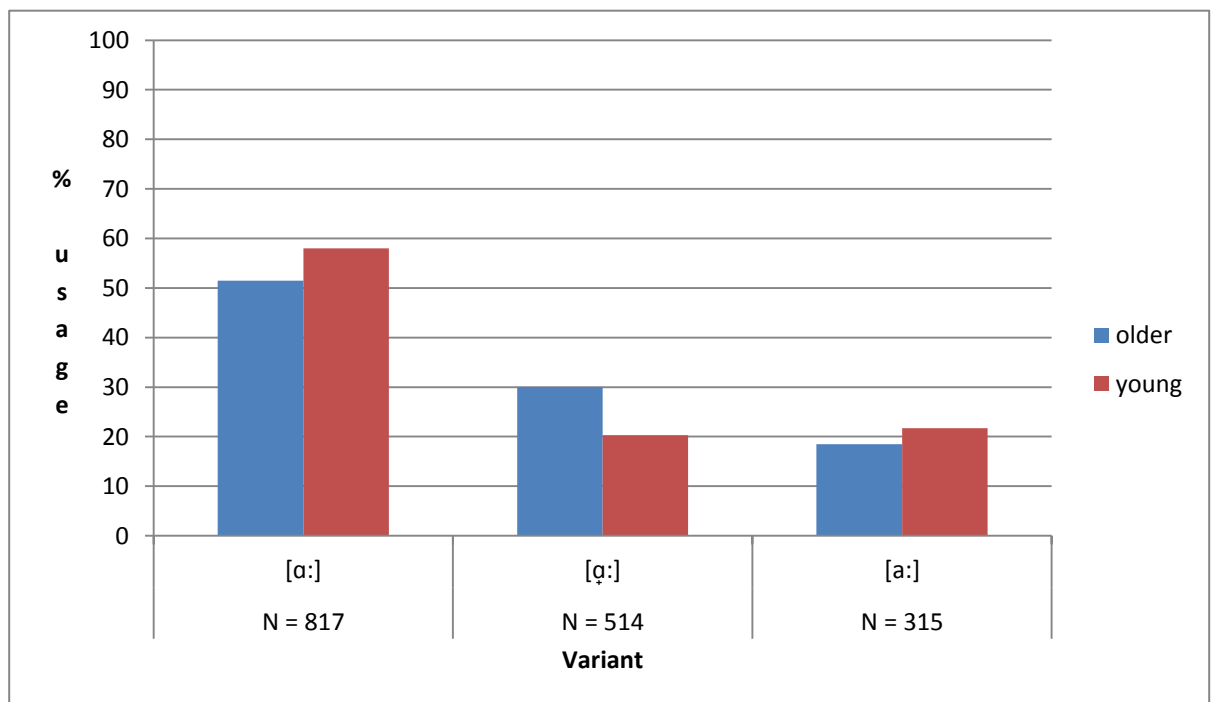
Figure 45: Overall distribution of START variants by age (N = 1591)

Figure 45 demonstrates that both older and younger speakers most frequently use the back [ɑ:] variant, with younger speakers demonstrating a slightly increased usage of this variant over their older counterparts. The START distributions of both age groups are similar, with less than 10% difference between usage rates of any variant.

The clearest shift across age groups appears to occur between usage of the back [ɑ:] and centralised [ɑ̈:] forms with older speakers using [ɑ:] 6.5% less than the younger participants, and the reverse pattern of the older cohort producing 9.7% more [ɑ̈:] than the younger group. The diminished rate of [ɑ̈:] among younger speakers makes this marginally less frequent than the frontest [a:], with a difference in usage of 1.4% between these two forms. In contrast, the older speakers demonstrate a more evenly-spaced distribution with usage decreasing in line with increasing frontness. These trends are also indicated in the acoustic data, with the mean F2 figure lower (and therefore backer, on average) among younger speakers (F2 mean = 1482Hz) than older speakers (F2 mean = 1494Hz), though the relatively minor difference reflects the degree of similarity between the age groups in terms of the distribution overall.

7.5.2.2.1 Age by location

Figures 46 and 47 display the distributions of variants of the START vowel by the older and younger cohorts across all four locations. The most noticeable pattern from the two graphs is the greater preference for the back [ɑ:] variant among younger speakers than their older counterparts in the three most northern villages, with around two thirds or more of all tokens being produced as [ɑ:] in these locations. In contrast, younger speakers in the southern-most village of Blackhall overwhelmingly favour the front [a:] form, again with more than two-thirds of all tokens by younger speakers in this village being realised as [a:] – a usage rate which stands 58% higher than [a:] production in any of the other three villages, and which pushes the mean F2 value among younger Blackhall speakers to 1624Hz, between 150 and 225Hz higher than the averages of younger speakers in any of the three more northern locations (Dawdon: mean = 1463Hz, Easington: mean = 1402Hz, Horden: mean = 1439Hz). In terms of the auditory categories, this shift appears to move directly from [ɑ:] to

[a:] with younger Blackhall speakers producing similar proportions of the intermediate [ɑ̟:]

form as Dawdon (+0.3% difference).
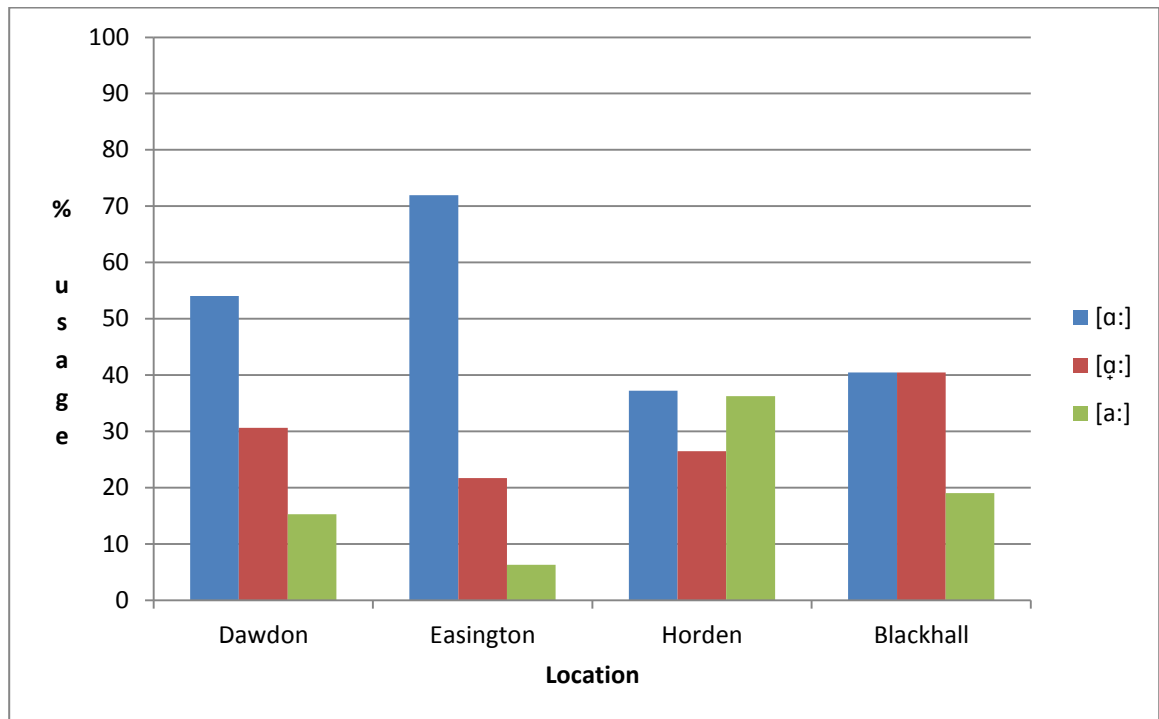
Figure 46: Distribution of START variants among older speakers by location (N = 936)
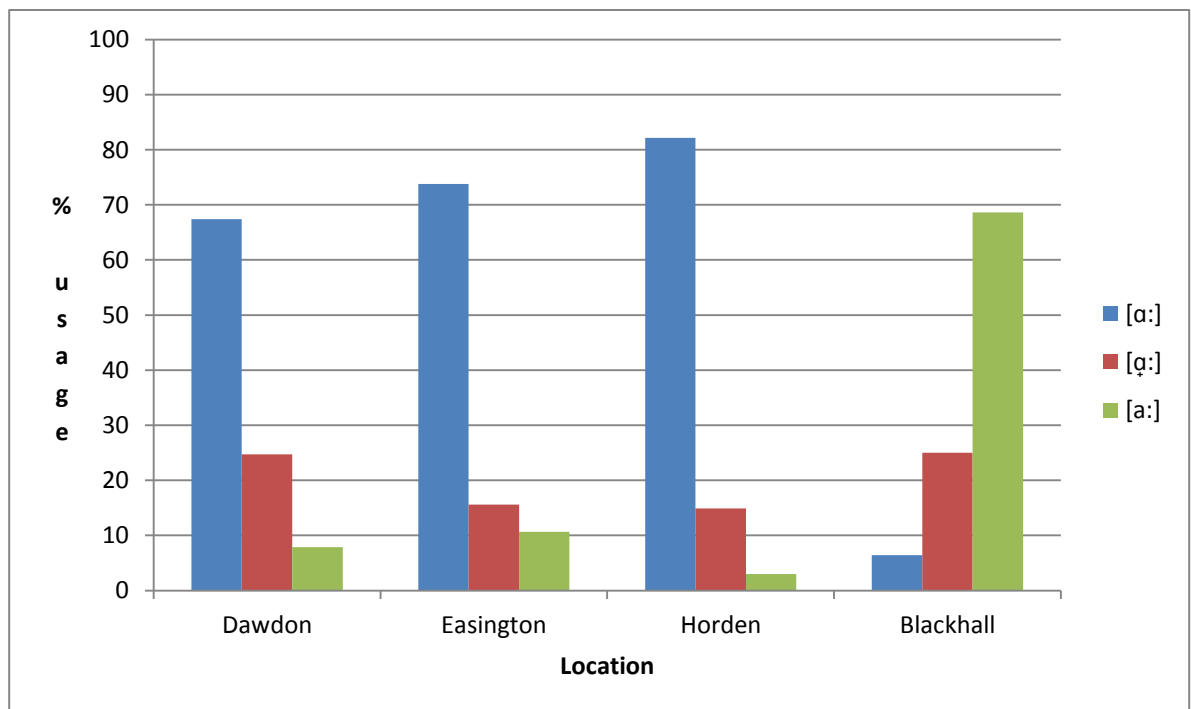
Figure 47: Distribution of START variants among younger speakers by location (N = 655)

Older speakers in Easington demonstrate the most marked preference for back [ɑ:], with the highest proportion of this variant (71.9%) and the lowest rates of the two fronter forms, [ɑ̈:] (21.7%) and [a:] (6.3%), across all villages. With a mean F2 score of 1454Hz, the distribution in Easington is considerably backer than the three other villages – which all show a more even spread of variants – by between 30 and 85Hz (Dawdon: mean = 1484Hz; Horden: mean = 1538Hz; Blackhall: mean = 1506Hz). This means that both older (1454Hz) and younger speakers (1402Hz) in the second-most northern village of Easington have the most back mean F2 values of all four locations, ruling out a gradient geographical shift in START fronting.
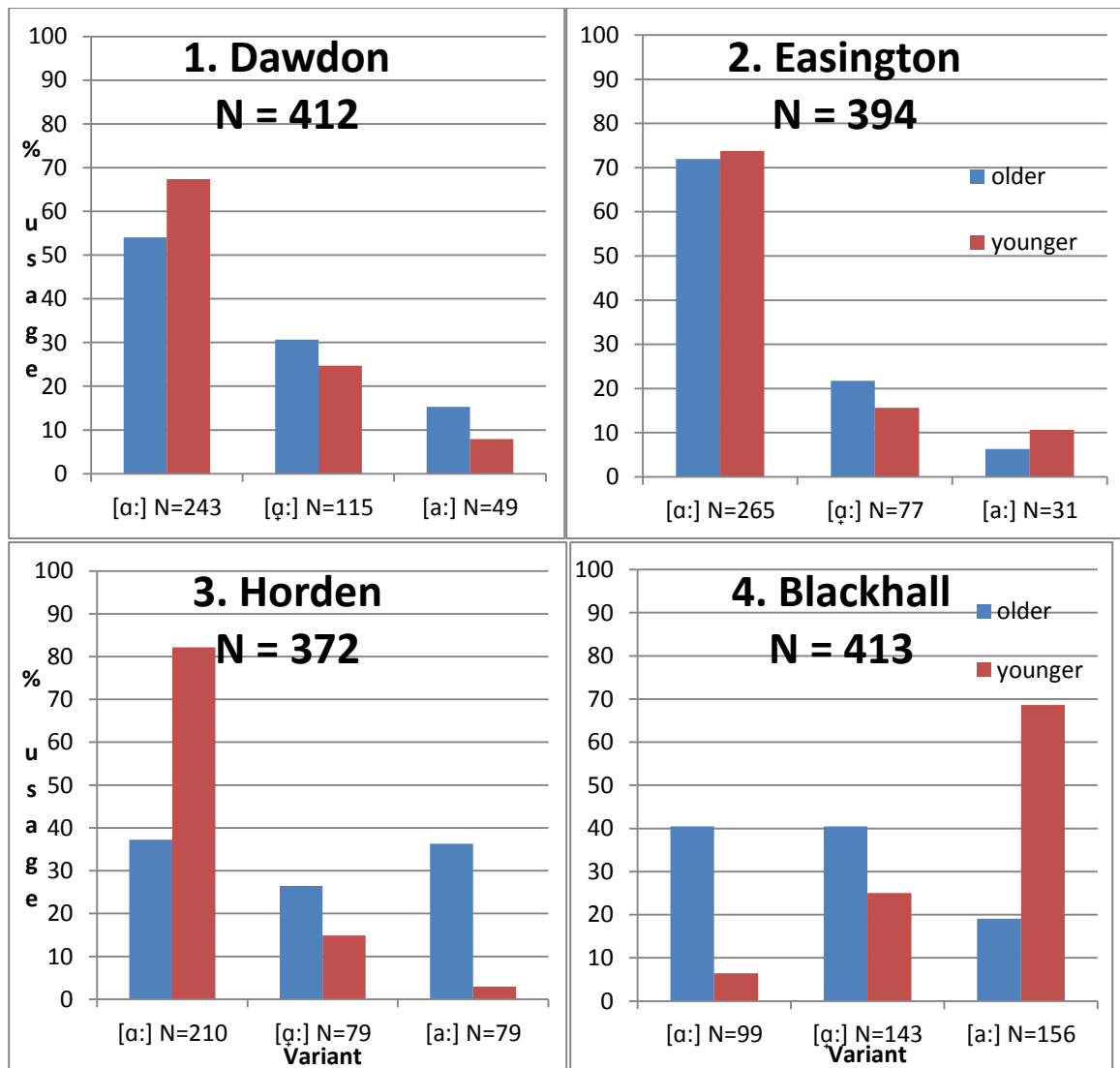
Figure 48: Distribution of START variants by age in each location (in numerical order from north to south)

As in the data for younger speakers, older speakers in Blackhall also behave differently from speakers in the other three locations, though to a smaller extent. Like their younger counterparts, Blackhall is the only village where back [ɑ:] is not the favoured variant, and though the preferred intermediate [ɑ̈:] form is used only 9.9% more than it is in any other village, in combination with reduced rates of back [ɑ:] among older Blackhall speakers. In contrast, the increased rate of the frontest [a:] variant in second-most southerly Horden – whose older speakers demonstrate around double the proportion of [a:] to Blackhall, and show a fairly balanced distribution between back [ɑ:] (37.3% usage) and front [a:] (36.3% usage) – means that older Blackhall speakers are on average 30Hz fronter than their peers in Horden.

Figure 48 shows the distribution of age-related variation by individual locations. In the older cohort, back [ɑ:] remains the preferred variant in the three most northern villages, though in Horden it is found only marginally more often than front [a:] (+1.0%). Furthermore in Dawdon and Easington the percentage decrease between [ɑ:] and the second-most favoured [ɑ̈:] form is smaller than in the distributions of younger speakers in those villages, particularly in Dawdon where the percentage difference between [ɑ:] and [ɑ̈:] almost doubles from older speakers (-23.5%) to younger speakers (-42.7%).

While speakers of all ages show similar distributions of variants in Easington, this is not the case in either of the two most southern villages. In Horden, the distribution of all variants is fairly even among older speakers, with less than 11% difference between usage rates of [ɑ:], [ɑ̈:] and [a:] yielding an average F2 score of 1538Hz. In contrast, younger Horden speakers show the strongest preference for back [ɑ:] of all eight speaker age groups at 82.1% usage, more than doubling the frequency of this form found in older Horden speech. This increase of 44.8% represents a 100Hz mean backing from older speakers (mean = 1538Hz) to younger speakers (mean = 1439Hz) in this location, resulting in a statistically significant difference in distribution across age groups in Horden ($p < 0.0007$).

The dominance of the [ɑ:] variant is also seen in younger speakers in Dawdon and Easington, though this is perhaps less striking than in Horden due to higher levels of [ɑ:] also found in older speakers in the two more northern locations. Blackhall is the only location where older

speakers do not prefer [ɑ:], most frequently using the intermediate [ɒ̈:] form instead, though the difference in usage between [ɒ̈:] and second-favoured [ɑ:] is small (+5.9%). In contrast, younger Blackhall speakers are the only majority users of [a:] (68.6% usage), with this variant favoured overwhelmingly among this speaker group in being used 43.6% more than the second most frequent [ɒ̈:] form. As in Horden, the difference in distribution between older and younger Blackhall speakers is statistically significant ($p < 0.002$).

In summary, the age findings show that:

- There is an overall shift from intermediate [ɒ̈:] to back [ɑ:] from older to younger speakers, though usage rate differences are slight in grouped location data

- [ɑ:] is the favoured variant in all villages except southern-most Blackhall, where younger speakers overwhelmingly favour the front [a:] form, in contrast to all other speaker groups

- Whereas the shape of the distribution is similar across age groups in the two most northern villages, fairly even proportions of forms among older speakers give way to dominant majority variants in younger speech in Horden and Blackhall

- The middle villages of Easington and Horden have the backer mean F2 values and higher proportions of [ɑ:] category tokens than the geographically extreme locations, ruling out a gradient geographical shift in START fronting

7.5.2.3 Read speech and conversational context

Figure 49 graphically displays the usage of all three variants of the START vowel in terms of read speech as compared to conversational speech. It demonstrates that speakers use the back [ɑ:] variant nearly 14% more in read speech than in conversation, and that the opposite pattern occurs in terms of the intermediate [ɒ̈:] form. This suggests that there is the potential for style shift of variants in the START vowel but that the shift is acoustically slight and does not reach as far as the most fronted [a:] variant which is similar across speech styles.
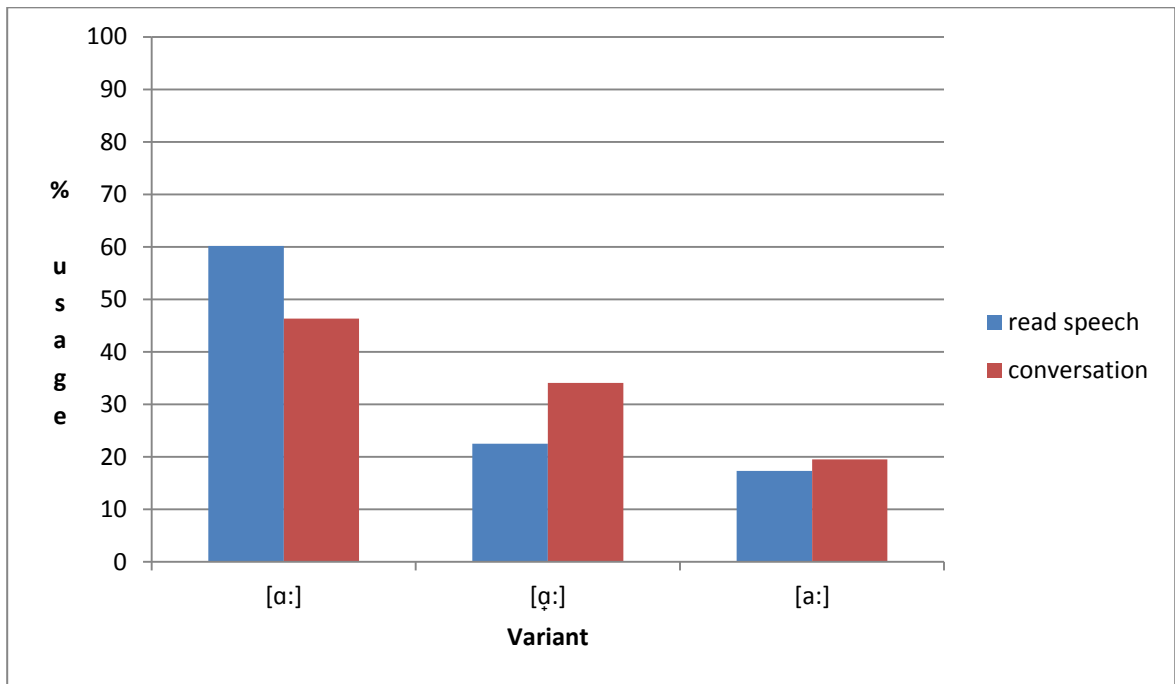
Figure 49: Distribution of START variants by interview style (N = 1591)

The interview methodology allowed for style to be further demarcated into more categories, by splitting the read speech into tokens which occurred in the word list from those which were found in the passage of text and by dividing the conversation data into three contexts covering mining, other local and non-local/general topics. The results of this division, shown in Figure 50, demonstrate that there is little difference (less than 4%) between the distributions of START variants across any of the three conversational topics. Similarly these three topic strands show only negligible difference from the word list read speech strand. It is only between the two read speech styles of word list and the narrative passage that the distribution differs to any great degree.
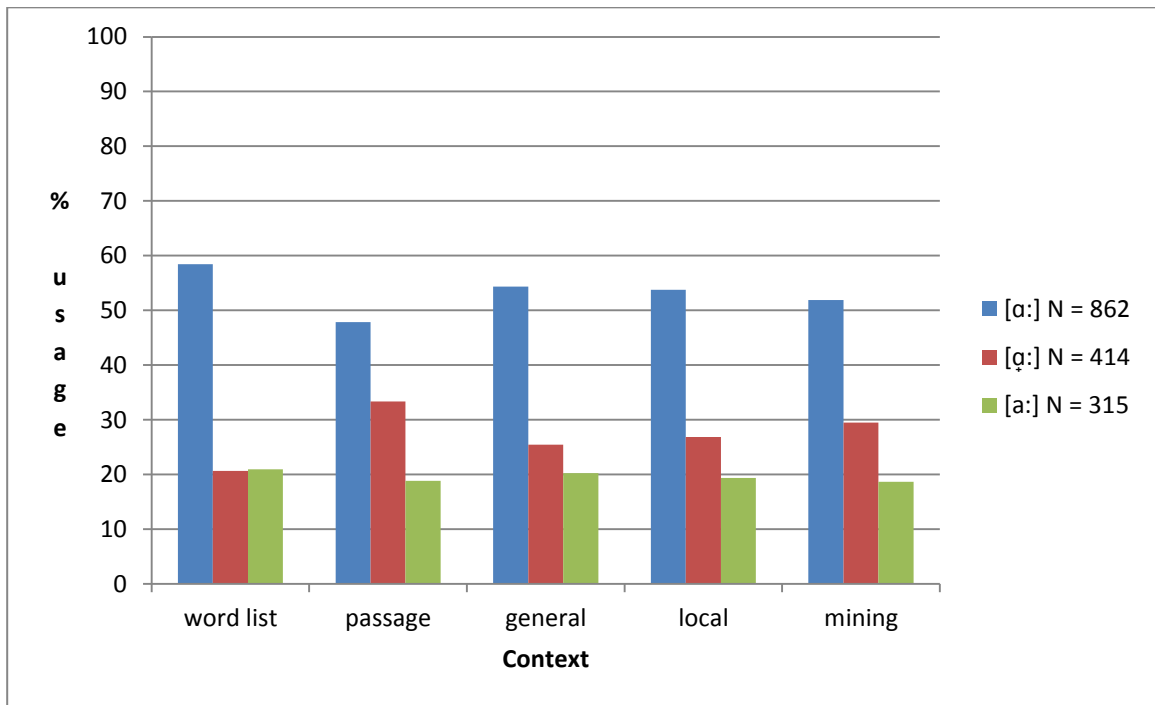
Figure 50: Distribution of START variants by context (N = 1591)

7.5.2.3.1 Read speech and conversational context by speaker occupation

Given that the statistical model suggested that an interaction between context and speaker occupation is significant, Figures 51 to 53 display the distribution of the three variants by occupation cohorts in terms of these contexts. The graphs confirm the findings of Figure 50 in that the back [ɑ:] form is favoured across every context, though the extent of its dominance depends on the context.
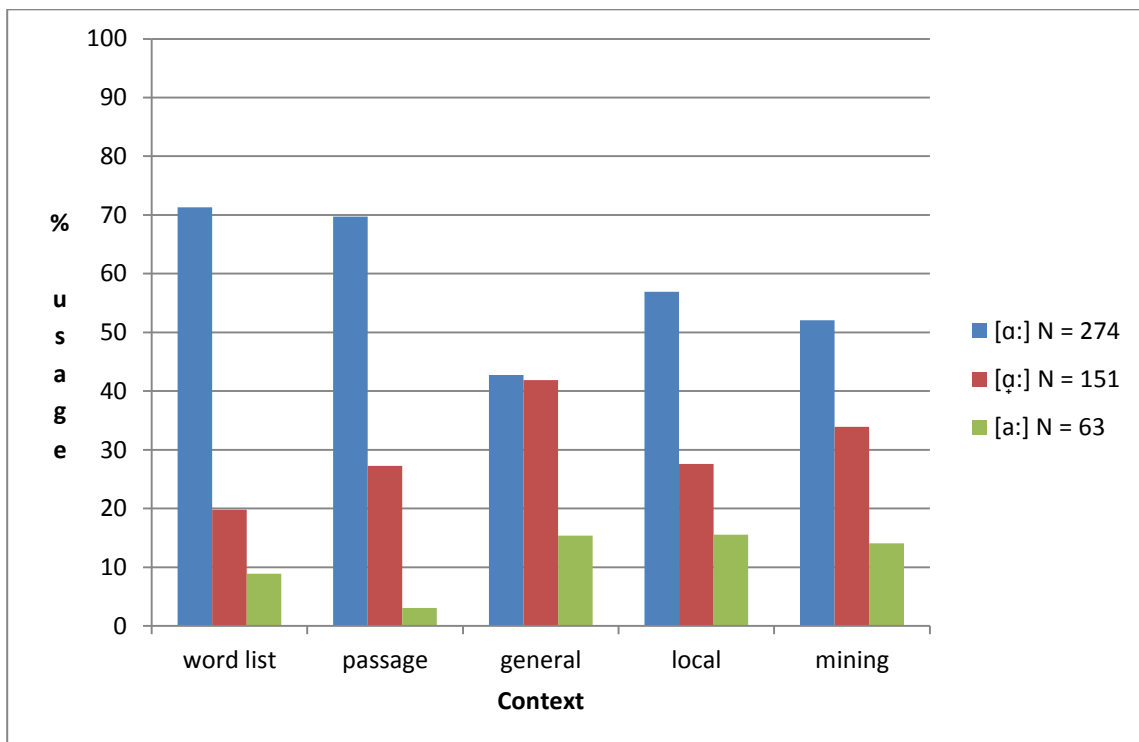
Figure 51: Distribution of START variants produced by former miners by context (N = 488)
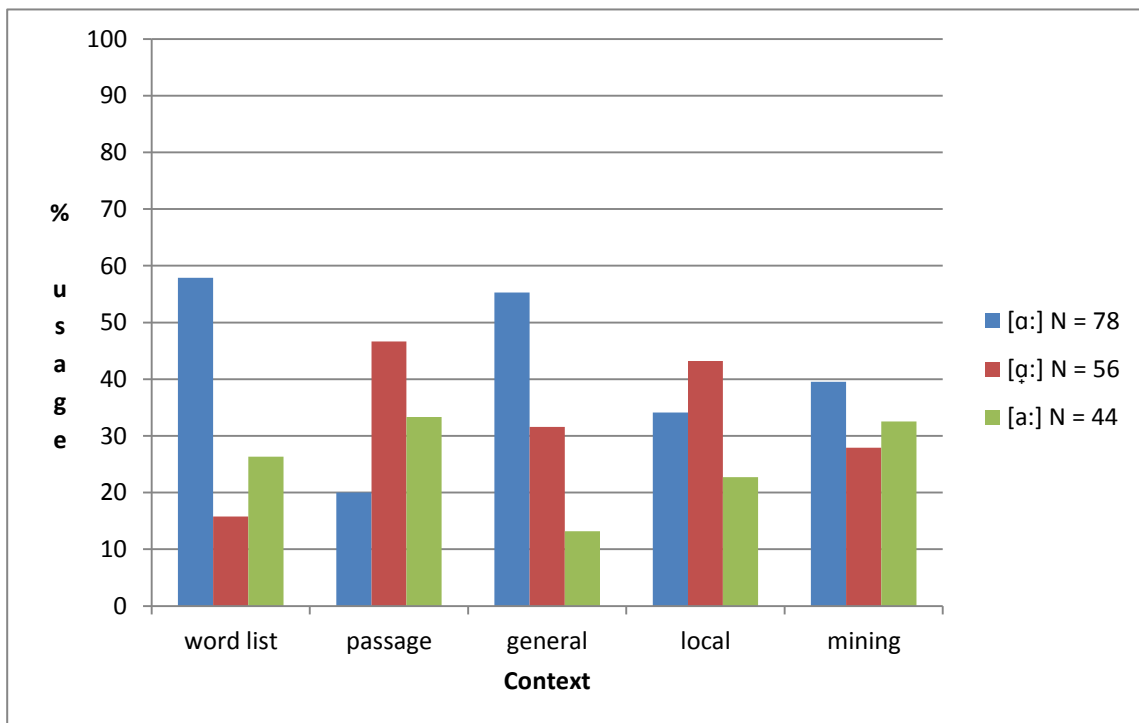
Figure 52: Distribution of START variants produced by speakers who worked at the pit in jobs other than mining by context (N = 178)
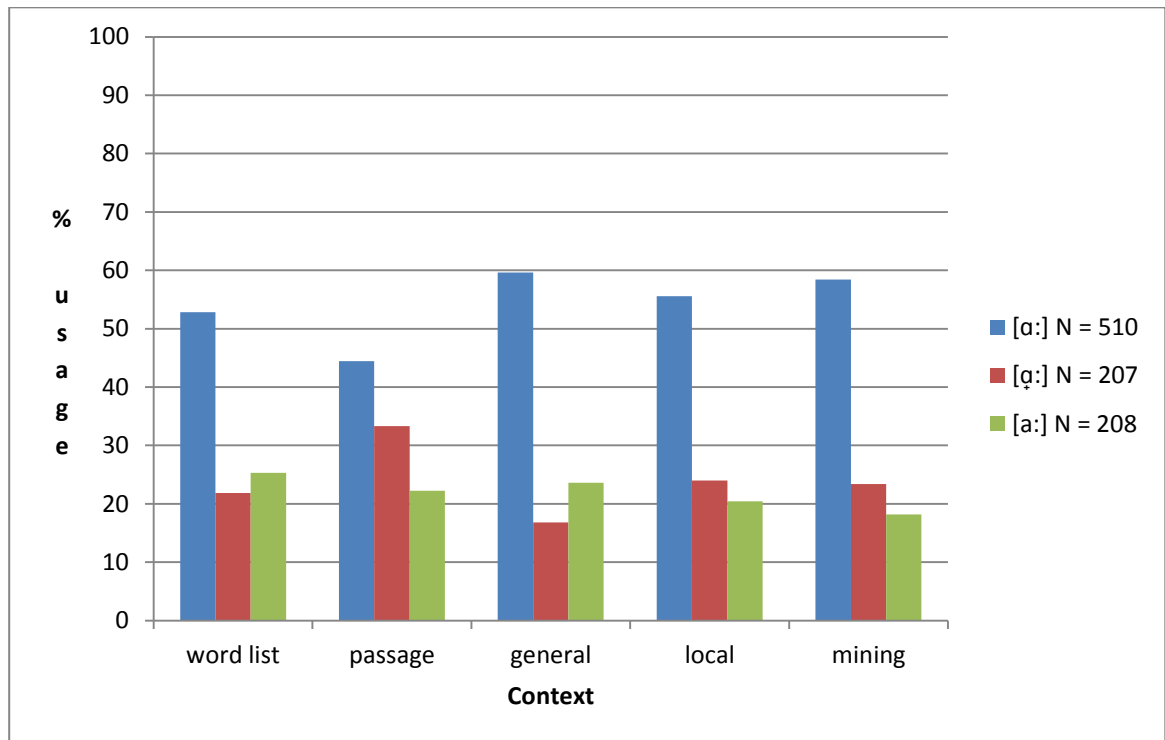
Figure 53: Distribution of START variants produced by non-miners by context (N = 925)

Figure 51 shows that former miners are the only speaker group to demonstrate a topic shift, in that they produce significantly fewer back variants in the non-local, general conversation topic to all other contexts, both read speech and conversation (p < 0.05). This reduction in [ɑ:] appears to be offset by an increase in the intermediate [ɑ̟:] form, rather than the highly fronted [a:] variant.

In contrast, Figures 52 and 53 demonstrate that the most noticeable difference between speakers who were not formerly employued as miners is between the two read speech styles. In both cases, those who never worked at the pit and those who worked there in non-mining employment demonstrate the smallest proportion of back [ɑ:] variants and highest proportion of intermediate [ɑ̟:] forms in the narrative passage.

In summary, the detailed style and data elicitation context findings show that:

- There is little difference between the distributions of START variants across any of the three conversational topics
- There is considerable difference in the distribution of variants between the two read speech styles except in the speech of former miners

- The former miners style shift according to topic, producing significantly less [ɑ:] in non-local, general speech than in the other two conversational topics

7.5.3 Overall summary of results

The results show that location is a significant constraint on START variant usage. More than half of all tokens produced in the three most northern villages of Dawdon, Easington and Horden are realised as the back [ɑ:] variant. Speakers in the southern-most location of Blackhall show a significantly different distribution by preferring the front [a:] form over the intermediate [a̠:] variant, and back [ɑ:] the least preferred variant in Blackhall. However, a gradient geographical shift is ruled out as the middle villages of first Easington and then Horden have backer mean F2 values and higher proportions of [ɑ:] category tokens than the geographically extreme locations, with Easington's usage of this variant significantly higher than both Horden and Blackhall.

The distinctiveness of distributions in Blackhall continues in the grouped age data, with younger Blackhall speakers overwhelmingly favouring the front [a:] form in contrast to all other speaker groups for whom [ɑ:] is the preferred variant. The younger Blackhall speakers also defy the overall trend for a slight shift from intermediate [a̠:] to back [ɑ:] over apparent time. In the two most northern villages of Dawdon and Easington, variant usage follows a similar pattern of declining with increasing frontness across both age groups in both villages. Conversely, older Horden and Blackhall speakers' distribution is much more even and does not follow a gradient pattern of change, and sits in stark contrast to their younger counterparts who show steep increases in usage in opposite directions.

The back [ɑ:] form is preferred across every context of read and conversation data, though there is little difference between the distributions of START variants across any of the three conversational topics. There is considerable difference in the distribution of variants between the two read speech styles except in the speech of former miners, who are the only occupation group who demonstrate a style shift according to topic, producing significantly less [ɑ:] in non-local, general speech than in the other two conversational topics.

With the analysis section concluded, the next section will discuss and evaluate the findings of all four vowel variables.

8. Discussion

8.1 Overview

The results provide evidence for three processes of linguistic change. The geographical data for the two variables with highly local variants – MOUTH and START – shows that the villages closest Sunderland and Teesside demonstrate a similar distribution to these larger urban areas, suggesting convergence between these speaker groups and these varieties. In contrast, the overall apparent time change from local realisations to more unmarked variants in all but the MOUTH and GOAT vowels suggests dialect levelling, in common with other areas of the North East (Watt & Milroy 1999, Kerswill 2002, Beal, Burbano-Elizondo & Llamas 2012). Finally, East Durham speakers appear to demonstrate topic shift in terms of discussing coal mining, with older speakers in particular – but in some cases only older miners – using significantly more of one variant in a mining topic than in non-local, general topics.

This chapter compares and contrasts the trends found in all four East Durham villages in terms of linguistic variation and change across all four vowel variables. The results are discussed in light of similar research in British variation and change involving diffusion and levelling. The chapter begins with a discussion of change in variant usage over time, including the origins and mechanisms of change, an examination of how identity is indexed by place and variant use, style shifting, and the contribution of traditional topics of conversation.

8.2 The accents of East Durham as varieties of North East England

The widespread presence of the [ɪə] variant for FACE across all four villages, and to a lesser extent the [ʊə] GOAT and [ɛʊ] MOUTH forms, demonstrates that highly localised features typical of the northern and central dialect sectors (to use the terminology of Pearce 2009 and Beal, Burbano-Elizondo & Llamas 2012) of North East England including Tyneside (Watt & Milroy 1999, Watt 2000, 2002) and Sunderland (Beal 2000) are apparent in the vowel inventories of speakers across East Durham. In contrast, features typical of the southern dialect sector of Teesside such as [ɛː] for FACE and [ɔː] for GOAT are less commonly used in East Durham but [aː] for START is present, especially in the speech of young speakers in

Blackhall – the East Durham village closest to Teesside – which suggests that this form may increase in uptake in the future.

The analysis of each vowel variable also included a feature akin to that spoken in Southern Standard British English, but only the unmarked variants of START ([ɑ:]) and MOUTH ([aʊ]) which are already shown to be established as majority variants in other areas of the North East (Watt & Milroy 1999, Kerswill 2002, Beal, Burbano-Elizondo & Llamas 2012) feature across the board in East Durham speech. The low usage rates for the more marked FACE and GOAT non-localised forms perhaps suggest that they are too closely associated with middle class speech (Watt & Milroy 1999, Watt 2002) or southern England (Llamas 2001: 237) and are consequently largely rejected by speakers in the resolutely working class East Durham villages. This claim may be further reinforced by the results based on speaker education for these vowels which demonstrated that speakers who had not been to university produced significantly higher proportions of the centring diphthongs over the lengthenend monophthongs than those who had accessed higher education. It is interesting that the other two vowel variables – MOUTH and START – did not yield significant results in terms of level of speaker education. Nevertheless, some older speakers produced a proportionally high number of [eɪ] tokens in read speech tasks suggesting that standard-like pronuncations exert some influence over variant usage in formal speech styles. However, on the whole, the relative absence of standard-like pronunciations of FACE and GOAT contradicts long-held predictions of change in North East English in the direction of the national standard due to various factors including migration, education, social and institutional stigma, and exposure to national and international media (Viereck 1968: 65, Griffiths 1999: 44-45). Whereas all of the speakers in the East Durham study testified to experiencing at least two of these social phenomena, their individual and collective distributions only partially support the hypothesis that North Eastern English has 'continued to move closer to standard English' (Griffiths 1999: 43): in terms of two out of the four variables analysed (FACE and START), there is a shift towards variants not traditionally associated with local North East English, but which nevertheless appear to have an established presence in various other North East settlements. These changes still appear to be in progress (recall the retention of a large proportion of localised raised nuclei in MOUTH production in the northern-most village of

215

Dawdon and similarly high usage rates of localised fronted START monophthongs across the area) after larger settlements nearby have broadly completed the shift (see e.g. Kerswill 2002a on the prevalence of backed, lowered diphthongs in Durham City MOUTH production).

The present-day shift towards a shared pronunciation across the North East area, or a supralocal variety, might be explained in terms of dialect levelling through intra-regional contact (Watt & Milroy 1999, Kerswill 2003). This view is supported by the qualitative responses of the East Durham respondents whose spatial and social practices spanned almost the entire area between (and including) Newcastle upon Tyne and Middlesbrough. It is not simply the case that residents of Dawdon shop in Sunderland because it is the nearest city; people in East Durham make use of the full range of leisure facilities on offer within the North East region, consistent with their phonetic distributions which display a range of different variants from across the region.

8.3 Patterns of Sound Change and Variation

Across all four variables studied, statistical modelling has shown significant differences between distributions of variants produced by older speakers and younger speakers. The older speakers demonstrate significantly greater usage of highly local variants [ɪə] for FACE, [ʊə] for GOAT, and [ɛʊ ~ ɛ̩ʊ] for MOUTH in at least two of the four villages, although START does not follow this pattern of localisation among older speakers, and is generally variable between [ɑː ~ aː]. In contrast, younger speakers across all locations show significant increases in less local [aʊ] for MOUTH and [oː] for GOAT over their older counterparts. Conversely, the results for the remaining two variants demonstrate more localised differences among younger speakers, with the two most northern villages of Dawdon and Easington preferring [ɑː] for START and retaining local [ɪə] alongside [eː] for FACE, compared to significant movement towards [ɛː] for FACE and [aː] for START – variants associated with a highly local Teesside pronunciation – in the village of Blackhall, situated closest to Hartlepool. This suggests that in terms of younger speakers, the southern-most village of Blackhall is converging on the southern features consistent with the Teesside conurbation, while the two most northerly villages of Dawdon and Easington are converging with areas of the northern and central North East sectors in retaining some traditional features like [ɪə] and adopting

pan-northern variants [eː] and [ɑː] at the expense of variants found to a greater extent in Teesside in terms of other variables ([ɛː] for FACE and [aː] for START). This means that (at least in terms of the FACE, GOAT and MOUTH variables) the East Durham locations appear to be diverging in terms of their speech patterns in the present day.

These significant differences across age groups suggest change in apparent time, meaning that the GOAT and MOUTH vowels at least are undergoing change across East Durham, while FACE also appears to be in the process of changing in the southerly village of Blackhall. Age-grading can probably be disregarded as an explanation for these findings by exploring other studies of similar communities which have evidenced the same changes in these vowels. For example, a change from [ɪə] and [eː] to [ɛː] was highlighted among younger speakers from the town of Newton Aycliffe, which lies 21 miles (33.5 kilometres) west-south-west of Blackhall and also straddles the Durham/Teesside border (West 2009). Similarly, the change from [ʊə] to [oː] in the GOAT vowel was in progress in nearby Tyneside in the 1990s (Watt & Milroy 1999), although research in that area also showed younger male speakers abandoning [ʊə] in favour of a fronted [øː] form (Watt 2000) which is not found at all in East Durham. Furthermore, in terms of the MOUTH vowel, the highly local [uː] form – completely absent from the speech of the younger East Durham speakers in this study, and barely found among older speakers either – has undergone 'an almost total change, over two generations' to the [ɑʊ] diphthong in western County Durham (Kerswill 2002a: 192); while the quality of the diphthong nucleus is shown to be fronter than this in the data from East Durham, the scarcity of monophthongal MOUTH variants is mirrored across the county. A lack of style-shifting in terms of the most local variants, taken alongside the East Durham patterns showing consistency with studies of these variables in other nearby communities (see Watt & Milroy 1999 for START; Watt 2000, 2002 for FACE and GOAT; and Kerswill 2002a for MOUTH) helps to mitigate any claims of age-graded results.

Exploring variation across space, there does not appear to be any pattern in terms of which location is leading these changes, though the results do suggest that change is spreading across a (sometimes differently defined and directed) north-south axis. Whereas the usage rates of [oː] among young people are very similar across all four locations, in terms of [aʊ] there appears to be some resistance to the change from younger speakers in the most

northern village of Dawdon, where [aʊ] is found 17% less than in any other location. This implies that the change to [aʊ] is being led by speakers to the south of Dawdon. However, this lower rate of [aʊ] among younger Dawdon speakers does not result in an increased proportion of [ɛʊ] usage, with the remainder of the distribution split between increases in the intermediate [ɛ̝ʊ] and [a̝ʊ] forms.

The results of both gradient variables – START and MOUTH – suggest that usage of the most highly localised variant decreases with increasing geographical distance from the centre in which it is typically associated. The most raised MOUTH variant and the most fronted START variant are found to the largest degrees in both age groups resident in the villages closest to the two dialect zones which bookend East Durham: Dawdon, nearest to Sunderland in the north, is retaining [ɛʊ] the most in the MOUTH vowel, and Blackhall, bordering Hartlepool to the south, demonstrates the highest rate of [aː] in the START vowel.

The establishment of [ɑː] as the majority variant outside of Blackhall appears to be led by young speakers in neighbouring Horden, with usage of this form among young people decreasing from this village in slight increments to the more northern villages of Easington and then Dawdon. This is in stark contrast to the distribution of variants among older speakers in Horden who demonstrate the highest proportion of [aː] and a low rate of [ɑː] comparable to older Blackhall speakers. Conversely, the maintenance of the highly local [ɪə] diphthong for FACE appears to be led by younger Dawdon speakers, who demonstrate only a 7% smaller distribution of this variant than their older counterparts. Usage of this variant diminishes slightly across the speech of young people in the more southerly villages of Easington and Horden, before tailing off rapidly in Blackhall. These findings suggest that in terms of the START, FACE and MOUTH variables there appears to be a geographic continuum between the villages of Dawdon, Easington and at least Horden through which change is spreading (in the case of START and MOUTH) or is not occurring due to stability (in FACE), though the direction of these movements is not the same across all variables. To find significant differences between such geographically proximate locations seems to support a picture of distinctive variation on a town-to-town basis in the North East of England:

'It's amazing how big the differences in accents can be even with neighbouring towns'

(a Tyneside respondent to the dialect perception survey of North East England
conducted by Pearce 2009: 165)

Such thoughts were echoed by the qualitative responses of the participants in this study. The
following was typical of the perception of variation within East Durham:

'Within ex-mining communities there is a noticeable variation in their accent and I
think that's peculiar to this area…I would say there's a noticeable difference between
Horden, Blackhall, Easington, Dawdon …I can't see that [degree of variation]
anywhere else in the country' – speaker E64

The lack of uniformity across the sound changes observed is not without precedence. Several
motivations for and mechanisms of change can coexist within a dialect area or speech
community (Richards 2008, Flynn 2012).

8.3.1 Origins and mechanisms of Change

As outlined in the last section, change can occur in many different ways and directions, with
certain speaker groups having been shown to advance or withstand change in previous
research.

The change in apparent time in MOUTH from highly local [ɛʊ ~ ɛ̝ʊ] forms to a non-local [aʊ]
variant is counterbalanced by a decline across the two age cohorts in the use of the standard
[oʊ] variant of GOAT in favour of a pan-northern [oː] form. It is worth pointing out that these
changes are not directly comparable, with [aʊ] found as an established variant in different
social groups across the UK including in one of the two local dialect areas of Teesside (Beal,
Burbano-Elizondo & Llamas 2012: 35), as opposed to [oʊ] which is not widely evidenced in
working class speech of any area of the North East. Furthermore [oʊ] is a majority variant in
neither the speech of older East Durham speakers nor that of their younger counterparts,
though a decrease in overall usage across these cohorts is observable, to the point of
complete absence in two of the four villages. Regardless, this finding suggests that the
erosion of one standard variant (like [oʊ]) does not entail the decline of the standard across
all variables.

The lowering and backing of the nucleus in the emerging MOUTH form results in a realisation which has a broader geographical and social span and reflects a direction of change found elsewhere in Britain. Varieties in London and southern England (Kerswill et al. 2008) as well as the East Midlands city of Nottingham (Flynn 2012) also demonstrate this pattern of nucleus lowering and backing in this variable, which suggests levelling over a broad geographical area.

 The precise origins of the [oː] monophthong in the GOAT vowel are similarly difficult to pinpoint. This variant is commonly described as 'pan-northern' (Beal 2008: 133, Haddican et al 2013) or 'northern mainstream' (Watt & Milroy 1999: 40), labels which only serve to confirm the scant information in the literature about where exactly in 'The North' the form emerged. Watt & Milroy (1999: 32), who first report its presence in North East English in the mid-1990s, suggest that [oː] for GOAT is 'heard frequently in a large area of England north of a line extending from Grimsby in the east to Liverpool in the west, dipping south of Sheffield'. This covers the vast majority of the most recognisable and distinguishable northern English accents, including varieties in Yorkshire, Lancashire and Merseyside. Tellingly, an identification task asking respondents to classify [oː] for GOAT (along with other forms of different variables) in terms of whether its production sounds characteristically north-eastern or more generally northern resulted in informants being unable to agree on a dialect location in which [oː] sounded typical (Holmes 2000). Whereas early sociolinguistic accounts of the North East forewarned of 'the pressure of the standard' (Viereck 1968: 76), this change to [oː] argues against standardisation in favour of regional dialect levelling, a finding which shows East Durham to be falling in line with nearby Tyneside in this regard (Watt & Milroy 1999, Watt 2000, 2002). Indeed in terms of the degree of change and the rate of usage, the GOAT results concerning the highly localised centring diphthong, the lengthened monophthong and the rarely used standard closing diphthong are almost identical with the pattern found in Watt & Milroy (1999); both the older East Durham speakers of this research and the working class older men in 1990s Tyneside recorded a collective 36% usage of [ʊə], though in East Durham that was less than the usage rate of [oː], which was boosted by low uptake of the alternative local monophthong measured – [ɔ̝ː] – which is found more commonly in Teesside speech (Beal, Burbano-Elizondo & Llamas 2012: 31). In contrast, the

alternative monophthong measured by Watt & Milroy (1999) – [ɵ] – is highly local to that particular conurbation (Orton, Sanderson & Widdowson 1978) and thus garnered a high usage rate among Tyneside speakers. Regardless, as suggested by the Tyneside studies (Watt 2000, Watt 2002), this change towards [oː] in East Durham may also be motivated by a desire to relinquish old-fashioned and apparently highly marked working class variants indicative of the North East such as [ʊə], and instead project a less highly local identity, though not to the extent of converging with emblematically southern features like the standard closing diphthong ([oʊ]). The desired intermediate between highly local and southern standard appears to be a variant which indexes a north-eastern regional identity.

The change from [ɛʊ ~ ɛ̞ʊ] to [aʊ] in the MOUTH vowel may also indicate levelling, though neither declining variable is lost completely except in Horden where [ɛʊ] is absent and [ɛ̞ʊ] makes up less than 7% of the entire distribution among younger speakers. A reduced variant pool is also not seen in the patterns of GOAT levelling except in the case of the standard-like [oʊ] form in Easington and Blackhall. In the case of GOAT this dimininshed variant is not local to the North East, but the declining MOUTH form is found in Tyneside (Wells 1982: 375) and especially in Sunderland where it is considered a stereotype of the local variety (Beal 2000: 352). It is, however, not noted at all in West Durham speech (Kerswill 2002a), suggesting an extremely local distribution confined to an area from the River Tyne south along the North Sea coast to Sunderland and East Durham. A brief comment from Watt & Milroy (1999: 29) implies that a similar variant with a centralised glide is constrained by sex, in that MOUTH realisations in Newcastle upon Tyne are 'frequently closer to [ɛʉ] among women', which suggests that the male-only data in this study might only project a conservative picture of usage rates of this local form, with a sample of female speakers from East Durham potentially producing a greater proportion of variants with raised and fronted nuclei.

8.3.2 Asymmetry in the FACE and GOAT vowels

In terms of directions of change, the FACE and GOAT vowels in the East Durham data did not display the kind of symmetry which has seen them 'behave as 'mirror images' of one another' (Watt & Milroy 1999: 32) in so many studies of vowel change (Liljencrants & Lindblom 1972, Crothers 1978, Labov 1994, Schwartz, Boë, Vallée & Abry 1997). This includes

the change in nearby Tyneside, where the change from centring diphthongal FACE and GOAT variants ([ɪə] and [ʊə]) to lengthened monophthongs ([eː] and [oː]) correlated in terms of both patterns of variation and directions of change (Watt 2000: 87). However, in the East Durham data, whereas the less highly localised [oː] form is replacing the traditional [ʊə] variant in every location, this pattern is not being replicated in the FACE results, where [ɪə] is being retained roughly as often as [eː] by younger speakers in all but the most southern village of Blackhall.

The retention of highly traditional variants like [ɪə] has been shown elsewhere. The finding that traditional Scots features of MOUTH vowel pronunciation in the lexical item *out* (Stuart-Smith 2003) and *l*-vocalisation (Stuart-Smith, Timmins & Tweedie 2006) are also being maintained led the authors of these studies to argue in favour of the construction of local linguistic identity, and the significant increases in [ɪə] among non-university educated speakers, as well as former miners engaged in a discussion about the industry, seems to back that up.

Furthermore this discrepancy in East Durham is perhaps even more unexpected given the presence of the [ɵː] form in Tyneside. Among older working class and younger middle class males, this fronted variant was shown to be roughly as popular as [oː] and is interpreted as a greater marker of 'dialect loyalty' than [oː] (Watt 2000: 82), suggesting that a more localised variant beyond the 'northern mainstream' (Watt & Milroy 1999: 40) remains desirable to young speakers in terms of the GOAT vowel inventory of Tyneside. The absence of this variant in this data and the dominance of the lengthened backer monophthong ([oː]) suggests that the opposite is true in East Durham, especially when compared to the much more favoured highly localised [ɪə] variant in the FACE vowel. As with [uː] in the MOUTH vowel, the status of [ɵː] as 'a characteristic GOAT quality for Tyneside itself and for all Northumberland' (Wells 1982: 375) is perhaps too emblematic of Geordie and Northumberland varieties to be adopted in East Durham. As the qualitative responses show, particularly for the older speakers Northumberland speech is highly unlike that found in East Durham, to the extent that it is rendered unintelligible to speakers from outside the region:

> 'We used to regularly go to Ashington – broad Geordie that was very broad. Some of them you can't understand' – speaker E78

(Ashington is a small mining town in south-east Northumberland, situated around 15 miles (24 kilometres) north-east of Newcastle upon Tyne)

'I once did a fortnight at the TUC in London and there were shop stewards from all over England, from Wales, from Scotland and the general consensus was that the only lad they couldn't understand was from the Tyne…there are subtle differences, you know, you go to Northumberland – they roll their Rs and that sort of thing' – speaker E71

'The general secretary of the Northumberland miners [was] at the conference. There was an old guy who was the notetaker and he's wonderful because he had accents and people from Scotland all over the country at the conference and he had to…write it down shorthand. There was only one person he could never understand. [It] was [him]. He had to…ask him afterwards what he said' – speaker E64

While the Northumbrian [ɵː] is not found in East Durham, lowered lengthened monophthongs found commonly in Teesside are reported, but unlike in the Tyneside studies (Watt & Milroy 1999, Watt 2000, Watt 2002), this other highly local variant type is found in the FACE set as well as the GOAT vowel. Again, the distribution of these variants does not correlate neatly, with [ɛː] for FACE used almost as frequently as [eː] by younger speakers in Horden and Blackhall – the two villages closest to Teesside – compared to [ɔ̝ː] which is never used more than 15% of the time in any village.

Coupled with the differing distributions of similar variant types in the MOUTH and START sets, the distinctive findings for the supposed 'partner vowels' (Watt 2000: 86) of FACE and GOAT suggest that levelling does not affect all variables in the same way. Rather than changing at the same pace and in the same direction, the distribution of variants is shifting in unequal rates: moving away from the traditional pronunciations in some vowels and demonstrating resistance to incoming forms in others.

8.4 Variant use and Identity

No one speaker in the East Durham cohort used only one variant of a variable across his entire speech sample. This suggests that variant usage is comprised of producing the right

proportion of different forms associated with the identity which speakers desire to project. The qualitative attitudinal data varied in terms of individual speakers' perceptions of their accent. For example the use of the 'Geordie' accent label to describe the varieties found in East Durham was variously accepted, contested, favoured and disliked depending on many factors. Trends which emerged more unanimously showed that features of Newcastle upon Tyne, Tyneside or 'Geordie' speech provide a scale against which the East Durham vernacular can be measured, with the perceived strength or 'broadness' of the North East accent appearing to increase with increasing proximity to Tyneside:

> 'Going north is very different. As soon as you start getting to Sunderland area and further north where you've got the Geordie coming in…and then when you get past that: North Shields, Whitley Bay…you've got a lot thicker accent' – speaker E61

> 'I don't think you could describe [the East Durham accent] as a Geordie accent or a Mackem accent…I'd just say it's quite a mix – not as strong as a Geordie accent or a Mackem accent' – speaker E21

> 'One of me mates from Waldridge[1] and another girl…from Pelaw[2]…they sound a lot more Geordie than me, but they're not really strong Geordie, like the word dad they would say 'daad', like elongate the 'a' sort of thing, but people always say they have a soft Geordie accent' – speaker E21

Speaker E21's comment about TRAP-lengthening in the word 'dad' demonstrates awareness of the presence of this feature in Tyneside varieties by East Durham speakers, corroborating previous production findings in this area (Wells 1982: 375, Watt 1998: 163). This response suggests that for speaker E21 this feature represents a shibboleth of Geordie speech which can also be found in at least two locations outside the restricted geographical area of 'strong Geordie' speech, but nevertheless the feature is not perceived as stretching as far as East Durham. This analysis is supported by the East Durham production data where there is found to be only one token of TRAP-lengthening in words other than the widely lengthened 'master' and 'plaster' (Beal 1985: 32, 2004: 123; Beal, Burbano-Elizondo & Llamas 2012: 36).

---

[1] Waldridge is a small West Durham colliery village around 14 miles (22.5 kilometres) from Newcastle upon Tyne.
[2] Pelaw is a district of Gateshead, Tyne and Wear around 4 miles (6.5 kilometres) from Newcastle upon Tyne.

The Hartlepool accent is similarly evaluated as different to that of East Durham, but unlike perceptions of Newcastle and Tyneside, the Hartlepool vernacular is ostracised as extremely negative by both older and younger speakers:

> 'Blackhall could be influenced by Hartlepool but not as bad as that…it's horrible, it is absolutely horrible' – speaker E64

> 'I think we might have a slight accent compared to Hartlepool. Have you heard them talk? Common as muck. They're only a few mile down the road and its horrendous… I just think to meself thank God I don't come from Hartlepool. They've got this horrible twang' – speaker E61

> 'Obviously once you get past Blackhall the next thing you hit is Hartlepool and Hartlepool's definitely got a different accent – like really bad' – speaker E23

> 'The lingo – total different, cultural change and everything from just two mile down the road to Hartlepool. People worked in different industries, they talked different – a different dialect altogether' – speaker B69

These divergent sentiments are expressed most strongly in the two middle villages of Easington and Horden – roughly equidistant between Sunderland and Hartlepool – as well as by older speakers in the southern-most village of Blackhall. This is despite some speakers in these villages (but not in northern-most Dawdon, where speakers oriented much more strongly towards Sunderland) indicating that they shopped in Hartlepool, had an affiliation to Hartlepool's football team (although this support was often shared with another local team of higher profile and standing like Sunderland or Newcastle United), and accessed Teesside-originating media sources over Tyneside or Wearside ones (i.e. BBC Tees local radio station over BBC Newcastle and the Hartlepool Mail newspaper over the Sunderland Echo or Newcastle Chronicle). This suggests a perceived distinction between south-eastern Durham and the town of Hartlepool despite many shared social and spatial practices.

> 'The only dialect [difference] is between us and Newcastle or if you went to Teesside…if you go to Hartlepool 'me m[aː]'s got a p[ɛ�]rse' – speaker H65

This comment on highly fronted START and NURSE vowels suggests that pronunciation of these variables is highly marked in the Hartlepool variety. Given the aversion to the Hartlepool accent exposed in the attitudinal data from Easington, Horden and (older speakers from) Blackhall, it is hardly surprising that these speaker groups largely diverge from the fronted [aː] form in the START vowel. However, it should be mentioned that this distinction was not noted among younger Blackhall speakers' attitudinal data, which may explain their convergence towards Teesside in terms of increased rates of [aː] for START as well as [ɛː] for FACE:

> 'Hartlepool's all right. I would say I'm quite proud to be from [near] Hartlepool' – speaker B30

> 'I like Hartlepool, yeah' – speaker B32

In terms of START, the preference for [aː] production among younger Blackhall speakers may also represent a local reflex of the widespread trend for (especially back) vowel fronting across varieties of the United Kingdom in recent years (see Bauer 1985, Hawkins & Midgley 2005, Henton 1983, Jansen 2010, Kerswill & Williams 2005, Trudgill 2002a, Watt & Tillotson 2001, all on GOOSE and GOAT fronting alone). Lass (1989) suggests that fronting of back vowels is inevitable, and the presence of fronted variants in all four East Durham villages makes it possible to view fronting to [aː] as an innovation resulting from the backer [ɑː] form. Set against this is the evidence of an established [aː]-like variant in the neighbouring Teesside conurbation (Beal, Burbano-Elizondo & Llamas 2012: 36), and slightly further afield in North Yorkshire too (Tidholm 1979, Myrstad-Nilsen 2011), suggesting that the form may be traditional to these areas, and that it is spreading from these areas into at least the speech of younger Blackhall speakers not only in terms of fronted START forms but in terms of other vowel variables as well (for example, [ɛː] for FACE).

However, the speaker group with the next largest (and only other substantial) usage rate of [aː] across the sample is the older Horden speakers, who are among the harshest critics of the form and the Hartlepool accent more widely. It is possible for forms such as [aː] to undergo reallocation (Britain 1997) in order to avoid signalling traditional Teesside or Yorkshire speech. However studies of reallocation such as Dyer (2002) showed the social

associations of a variant to be reallocated by younger rather than older speakers in order to reflect a different speaker identity from previous generations. The dominant local iron and steel industry in the Northamptonshire town of Corby brought mass migration from Scotland, leading a traditionally Scottish variant, the (not lengthened) monophthong [o] in the GOAT vowel, to index Scottish origin in older Corby speakers (which included many Scottish migrants). However, the study also found that younger males were also producing monophthongal [o] despite qualitative responses in interview recordings demonstrating no affiliation to 'Scottishness' in this speaker group. This led Dyer to propose that the adoption of the form among younger speakers was a case of linguistic reallocation, whereby the variant indexes a different social attribute depending on the speaker group. Whereas in the older group, monophthongal [o] signalled Scottish origin, in younger male speakers it is viewed as a symbol of Corby speech which indexes community membership and signifies affinity with Corby over the rival nearby town of Kettering (Dyer 2002). Thus, even within one geographic community, the same forms may refer to different social characteristics, such as participation in different social categories.

The fact that it is an older speaker group (older Horden speakers) who are producing a large amount of a variant apparently emblematic of an identity which they negatively perceive might counter any claims of reallocations such as that found in Corby (Dyer 2002). Instead it may simply be the case that variant usage and speaker orientation do not correlate neatly, as found by Llamas (2001, 2007a) who showed that increased rates of glottalised realisations of /p/ among young speakers in Middlesbrough demonstrate convergence with production patterns in Tyneside, yet are not supported by positive evaluations of Tyneside as a place or an accent. Alternatively, it could suggest that [aː] signifies a local feature for older speakers – as there is plenty of evidence of [aː] in northern and eastern Durham, but not in the south of the county (Orton 1933), in the S.E.D. (Orton & Dieth 1962-71) – and has been reinterpreted as representing Teesside by the younger speakers.

Atkinson (2011: 254-255) discusses the avoidance of forms associated with Teesside in Darlington in terms of diverging northern koines. He argues that Middlesbrough is linguistically diverging from the rest of the North East England region in terms of its more open FACE and GOAT monophthongs which – despite being found in Blackhall and to a lesser

extent among younger Horden speakers – are more typical of varieties of Yorkshire such as Bradford, Leeds and Hull (cf. Kerswill & Williams 1999, Watt & Tillotson 2001, Richards 2008). Despite this trend, the city of York, fifty miles (eighty kilometres) south of Middlesbrough, is shown to converge more with the North East than the rest of Yorkshire in its usage of [e:] and [o:] (Richards, Haddican & Foulkes 2009) suggesting that the dividing lines separating areas where different pronunciations are found may not pattern neatly in terms of geography. It may be that the northern boundary of the Yorkshire northern koine must intersect East Durham to include Horden and Blackhall as well as Teesside.

8.4.1 Place identity

Given that the Hartlepool accent is perceived as highly different by a considerable number of East Durham participants, it is worth evaluating the language ideologies of the participants in light of the broader convergent and divergent production trends. Interestingly given the relatively similar speech patterns among older speakers across East Durham, data from the Identity Questionnaire shows place identity to operate most keenly at the individual village level for all of the older speakers; all speakers saw themselves as being from their village first and foremost. Despite this all speakers felt the four villages naturally grouped together and were broadly similar (though the sample was more split in terms of whether all four villages spoke similarly), though the bond was frequently attributed to the shared mining heritage and speakers did not consider the notion of 'East Durham' to be a part of their identity.

Older speakers from Horden were particularly aggrieved at the perceived erosion of the village's identity by the development of the neighbouring new town of Peterlee:

'It used to be Horden, Peterlee [that] you would write on letters. Now it's Peterlee and Horden is completely missed off' – speaker H77

'All the money went to Peterlee and Horden was left' – speaker H70

Older speakers from Horden were alone in their bitterness in this regard, despite the similar relationship between the village of Dawdon and the larger adjoining town of Seaham, where residents young and old embraced the links between the two settlements and frequently considered the village to be in some way subsumed within the town (typically as a ward or

district, though the older speakers affirmed that they considered themselves to be from Dawdon primarily, and Seaham secondarily). Younger Horden participants also appear to embrace this latter attitude, and did not share the resentment of their older counterparts towards Peterlee: along with one of the four younger Easington speakers, all but one younger Horden participant considered their village and Peterlee to be interchangeable and felt as much a resident of Peterlee. This finding seems to be the opposite of Llamas' (2001) study, in which the speech of Middlesbrough speakers was investigated in terms of the shifting identity of the town compared to regions to the immediate north and south. The younger Middlesbrough speakers described feelings of antipathy towards Newcastle upon Tyne despite demonstrating increased usage of glottal-reinforced stops.

The uniqueness of the older Horden outlook in terms of place is perhaps reflected in the speakers' collective linguistic performance, which is markedly different from the other older speakers from all three other villages. Older speakers from Horden produce almost double the rate of fronted [aː] in the START vowel and considerably less of the [ɛʊ] MOUTH variant with the most raised nucleus than any other older speaker group. That Horden speakers are so different from their peers in terms of their distributions of the two geographically gradient variables might reflect their difference in attitudes to the local area compared to speakers from other villages. Given the stated negativity towards Peterlee and Hartlepool, it is possible that older Horden speakers are demonstrate divergence from both areas by developing a distinctive set of distributions from the same variant pool.

Speakers did not consider the two larger conurbations to the north and south of East Durham to have a great impact on their identity. Whereas two older speakers from Dawdon considered the village to be 'near Sunderland' and its residents to be 'near-mackems', in general Sunderland is considered to be a separate settlement which figures principally in the lives of East Durham residents only in terms of its football team and shopping and leisure facilities. In this regard, Sunderland is not shown to be any more of a centre of gravity for the people of East Durham than the more distant Newcastle upon Tyne and the wider Tyneside conurbation including Gateshead, despite the fact that many of the participants from northern East Durham are part of the catchment area for – and have made use of – education and medical facilities in Sunderland. Particularly outside Dawdon, the Sunderland

accent was considered to be different to that found in East Durham and was generally considered to be distinctive but neither the city nor the variety was negatively appraised by any speaker. This picture generally tallies with linguistic production of the East Durham speakers who largely do not use the Sunderland shibboleth of [ɛʊ] for MOUTH except in Dawdon.

In contrast, younger speakers from the village of Blackhall did not distinguish at all between their village and the neighbouring town of Hartlepool despite being separated by an administrative county boundary and the apparent perceptual boundary between Durham and Teesside proposed by many of the participants from Easington and Horden. This affiliation between younger Blackhall speakers and Hartlepool is clearly reflected in their linguistic production which is highly distinctive from all other speaker groups and features the highest proportions of variants most commonly found in Teesside across the sample.

In general, beyond individual village identity, participants' secondary level of attachment was to Durham. For the younger participants this generally meant Durham City, which was positively evaluated as a destination and was considered to have a similar accent to East Durham, whereas for older participants the label appeared to refer more to the broader county, but as a notional construct, rather than in terms of the sum of all of its settlements. For many of the older participants this was bound up with their miner identity and their pride in the Durham coalfield. Despite this, participants rarely visited either Durham City or any of the other towns within the county.

8.4.1.1 Shifting identities and orientations

In terms of the MOUTH vowel, previous research reports that [ɛʊ] occurs more in Sunderland English than in Hartlepool English (Beal 2000, Beal, Burbano-Elizondo & Llamas 2012: 35). The East Durham results suggest that usage of the most highly localised variant decreases with increasing geographical distance from the centre in which it is typically associated, a finding not mirrored in the other variable with a highly local variant – START. In each of the two age groups, the [ɛʊ] variant is found to the largest degree among speakers in the village of Dawdon, nearest to Sunderland in the north. The strength of the competition between both raised and lowered forms in Dawdon means that more than one in five of all tokens

being produced by younger speakers are realised as [ɛʊ ~ ɛ̞ʊ], while [aʊ] is found 17% less than in any other location. However, elsewhere in East Durham a change from [ɛʊ] to [aʊ] appears to be in progress and the low use of [ɛʊ] in younger speakers' speech in all locations but Dawdon makes East Durham speech patterns less like Sunderland English, representing a divergent linguistic trend.

It is possible to infer that the shifting identity of East Durham brought about by the demise of coal mining has disrupted residents' ability or desire to identify with their local area. The increase in usage of a supralocal feature like [aʊ] – or equally [oː] in the GOAT vowel – might be a reflex of the broadening of East Durham inhabitants' geographic horizons in terms of where they work and spend their leisure time. It has been suggested that speakers from small localities may come into contact with speakers from larger urban areas if they commute for work or study or perhaps if they choose make use of the greater potential for cultural and entertainment opportunities generally afforded by cities. These regular and repeated patterns of geographic movement from small towns and villages to larger cities and back again create conditions ripe for diffusion of linguistic features across the geographic span of the small towns and larger city (Labov 2003: 15). This depiction endorses accounts of the crucial role of face-to-face contact in diffusing linguistic features (Britain 2002, Kerswill 2002, 2003, Wolfram & Schilling-Estes 2003). The greater numbers of people accessing further and higher education, commuting and moving to suburban areas increases speakers' opportunities for contact with speakers of other varieties (Britain 2011), which might consequently lead to an increase in a less highly localisable feature.

Contact-based factors as well as attitudinal data from the sample can test the reliability of this account for the change from [ɛʊ] and [ʊə] to [aʊ] and [oː] in East Durham. The attitudinal data does not present any compelling evidence for a significant increase in short-term contact between people from East Durham and the rest of the North East region due to a variety of factors. In terms of public transport provision older speakers remarked that the opportunities to access the wider area had been reduced over their lifetime as local rail stations connecting three of the four villages to Newcastle upon Tyne, Sunderland, Hartlepool and Middlesbrough closed in the 1960s, and more recently the local government

cuts initiated by the 2010 Tory-led coalition government have led to several local bus services connecting the villages to other locations being scaled-back or axed.

However, there does appear to be a trend towards younger speakers spending more of their time outside of their hometowns on a longer-term scale. Nine of the sixteen younger speakers had attended university in either one of the three cities in the North East or further afield, while a further two were planning to do so when in the near future. In contrast, only four of the sixteen older speakers had worked outside of the four villages, with a further two having studied at university, compared with eleven of the older cohort who had spent almost their entire careers in a pit-related job in East Durham.

This proposed increase in contact with speakers of other local varieties of North Eastern English can also be viewed in light of the growth of local media. Local television stations which began transmitting in the North East in the late 1950s group the East Durham area with the rest of County Durham, as well as Tyne and Wear, Northumberland, the areas making up the former Cleveland conurbation, and in some cases Cumbria and North Yorkshire. This means that East Durham viewers to these networks are exposed to speakers of varieties within all of these areas on a daily basis.

Many participants in this study noted the fairly recent increase in acceptance of regional accents on national media outlets. While there is evidence to suggest that North Eastern varieties remain stigmatised in certain serious-minded areas of the media (see Snell 2013's discussion of the television reporter whose use of Middlesbrough English on national news programmes was criticised by colleagues and viewers alike), North Eastern accents appear to have become socially influential (see Beal 2004: 37 on a national survey of accent appreciation which rates 'Geordie' as the fourth 'sexiest' accent in Britain), helped at least in part by an increased presence on (admittedly entertainment-oriented) British television and radio content. Despite this, across both national and local networks only one media personality from East Durham – the television presenter Matt Baker, born in Easington but raised from the age of 11 in Durham City – was identified by participants, compared to many more from other areas of the region.

Foulkes & Docherty (2001) have suggested that socially influential varieties appear to influence the speech patterns of speakers of similar varieties more than those whose native dialect is markedly different. This would suggest that speakers from East Durham might be inclined to use forms slightly different to their native variety from other more socially acceptable North Eastern accents, such as the levelled [aʊ] form found elsewhere in the region (Watt & Milroy 1999, Kerswill 2002).

These increases in opportunities for exposure to other varieties and in some cases contact with speakers of them can all be viewed in light of the erosion of traditional lifestyles in East Durham caused by industrial change. Due to the importance of coal mining in East Durham, its decline and subsequent social ramifications such as loss of employment and local economic malaise can have an effect on speaker identity in relation to their place of residence.

Speakers' discussions of their accent and identity provoked a variety of responses in terms of how they would label themselves. The majority of the older group felt that the pits had at least some effect on the accents of the four villages, and were able to describe mining words and pronunciations which had entered the wider dialect often at great length. It is worth pointing out that the only two participants to connect the East Durham accent with a mining label – 'pityacker' – belonged to the younger cohort, though they ascribed this tag to older members of their family who had worked in the collieries, and not to themselves. The centrality of mining to older speakers' identity is reflected in their MOUTH vowel distributions. The results show that older speakers' production of the most local [ɛʊ] variant increases significantly by more than 15% between the conversation about non-local, general topics and the mining context, which suggests that conversations dealing with highly local topics bring about a greater proportion of highly local variant use. This supports the findings of Love & Walker (2013) in suggesting that topics carrying a strongly local association can influence speakers' realizations of variables in conditioning them to produce variants local to the topic. It also expands work into traditional or 'old-time' topic areas which previously concentrated on effects at the word level (e.g. Yaeger-Dror & Kemp 1992, Yaeger-Dror 1994, Gordon et al 2004) by exploring instead the subject matter of the conversation in which the phonetic token occurs, and showing that topic shift can lead to increases in usage of a variant which is

otherwise in decline. This suggests that a discussion of traditional industries and lifestyles provokes in the speakers engaged in the conversation a shift to an old-fashioned form appropriate to the subject matter. Under an Exemplar Theory framework (Johnson 1997, Pierrehumbert 2001, 2002, Foulkes & Docherty 2006, Hay & Foulkes 2015, forthcoming), in which speakers appeal to the contextual information bound up in previously experienced speech utterances, this traditional pronunciation might be preserved or stored in speaker memories to be reactivated with the trigger of a traditional conversational topic.

Younger speakers' responses to the relationship between accent and identity were different from the older participants. The younger cohort almost unanimously viewed mining as something which had been lost from their local area and its identity and commented on the many negative effects the decline of the industry had on the local area. They did not draw a connection between features of their accent and mining, instead discussing the variety in relation to other more recognisable labels, with many considering the East Durham accent to share some of the features of Geordie (which was used to describe the North East generally as well as Tyneside more specifically), Mackem (the dialect of Sunderland) or Poolie (for Hartlepool), whilst remaining distinctive from all three. This distinction between young and old is telling not only because it draws a parallel between place and speaker identity, through conflating the history of the mining industry in East Durham with individuals' personal representations of self, but also because it seems to somewhat contradict the patterns shown in the production data, whereby older speakers showed distinctive differences in distributions across locations compared to a more uniform set of trends in each village among younger speakers. Nevertheless, it shows that a place's identity at any one moment in time is essentially the sum of individual residents' perceptions about language and community.

Exploring the younger participants' geographic reference points for their accent in greater detail provides a better understanding of the regional orientations of speakers in East Durham. Sunderland English was mentioned only about as often as Newcastle English as a barometer against which the East Durham accent could be measured, and in general, the attitudinal data does not show Sunderland to be any more of a centre of gravity for the people of East Durham than the more distant Newcastle upon Tyne and the wider Tyneside

conurbation including Gateshead, despite the fact that many of the participants from northern East Durham are part of the catchment area for – and said that they have made use of – education and medical facilities in Sunderland. However, in the entire sample Sunderland was only negatively evaluated by one younger speaker who affiliated much more strongly with Tyneside as this was where his family were originally from.

In contrast to the generally positive appraisal of Sunderland, respondents both young and old lamented the perceived over-dominance of Newcastle in the North East and many were plainly hostile to the city and its football team. Furthermore, many of the older participants commented that they felt that Durham and Northumberland, which were both mining areas, had little in common with Teesside – which did not have pits, and in fact instead has a nuclear power plant which was for many years in direct competition with the East Durham mines (Davenport 1984) – and did not consider Hartlepool or Teesside to inform their identity at all. This attitude expressed by the older participants provides an interesting mirror to the lack of affiliation shown by Middlesbrough speakers towards the Geordie label in Llamas' (2001) study of Teesside. Despite these apparent rivalries at a local level, the linguistic production results suggest that identity at the regional level is playing at least some part in shaping the present-day East Durham accent. In terms of the MOUTH and GOAT vowels in particular, East Durham speakers appear to be converging with a number of areas within the North East England region to form part of a northern koine (see Watt 1998).

These perceptions perhaps provide some explanations for the distribution of the MOUTH vowel in East Durham. While speakers do not feel any rivalry or opposition to Sunderland, the loss of the coal mining industry which connected Sunderland to East Durham in terms of a shared industrial identity leaves it only about as relevant to them linguistically in the present day as other similarly-sized locations in the North East such as Newcastle, regardless of how positively or negatively evaluated these places are. This might account for the decline over time in East Durham of highly local forms like the [ɛʊ] variant associated with Sunderland, compared with those speakers old enough to recall the heyday of the coal mining industry, who rank Sunderland as a much more akin to their East Durham identity than Hartlepool and Teesside, and as such use a greater proportion of local Sunderland forms like [ɛʊ] to express this.

8.5 Style

In terms of intra-speaker variation, there is little correspondence across the four vowel variables. GOAT and START show very little stylistic variation, with less than 2% difference across the distribution of all of the variants of these variables between read speech and conversation data. In both cases, a fairly back, lengthened monophthong representing the 'northern mainstream' (Watt & Milroy 1999: 40) variant accounts for at least half of the tokens in both read speech and conversation data.

This means that the fronted [a:] variant in the START vowel, a feature considered to be characteristic of the generally highly negatively evaluated Hartlepool accent in participants' qualitative responses (see Section 9.4 above), is not stigmatised in formal styles in the production data. Though actual usage rates vary depending on age group and location, there is little variation across the two stylistic contexts for any speaker group, suggesting that it functions as an indicator rather than as a marker in terms of formality or attention to speech.

Unlike the GOAT and START vowels, MOUTH and FACE forms show considerable stylistic variation stratified by age. The MOUTH findings show that the variant with the lowest nucleus, [aʊ], is significantly more frequently produced in read speech than conversational data among older speakers (by at least 16.5% in each location). This finding is not reproduced among younger speakers whose MOUTH vowel usage is dominated much more by variants with lowered nuclei regardless of style or conversational context, leaving little room for style shifts of the kind occurring in the speech of their older counterparts. The reduced figure in the conversation data for the older speakers allows the three variants with more raised nuclei to demonstrate increases in this less formal style. This distribution broadly fits with what might be expected of variant competitors comprising a standard-like form and more localised variants – with the less formal variants found more frequently in the less formal conversation style.

The FACE data is also highly stratified by age, with the younger speakers demonstrating significant increases in the most highly localised variant ([ɪə]) from conversation to the most formal read speech style. While this might initially seem surprising it is not without precedent, with the centring diphthong also demonstrating increases in reading style

compared to conversational data among Newcastle upon Tyne males in the 1990s (Watt 2002) and Durham City males in the 1980s (Kerswill 1984), the latter suggesting that this variant is an emphatic pronunciation for many speakers which is why it lends itself so readily to read speech (Kerswill 1984: 24-25). [ɪə] remains the most used variant in conversational data too, but with a reduced majority. In contrast, older speakers in two of the four villages shift considerably towards the socially marked closing diphthong from conversational data to read speech. Labov (1972a: 186-188) discussed how style shifting reflects an ideologically-motivated exhibition of 'linguistic insecurity'. Thus the shift by older speakers in the middle two villages to the closing diphthong in the FACE vowel from conversational speech to read speech signals that Easington and Horden speakers are overtly aware of [eɪ] and perhaps suggests that this variant is functioning as a Labovian (1972a) marker in these localities.

The tiny amount of [eɪ] in the conversational speech of older speakers in these two villages – just one token between eight speakers – sits in contrast to the comparably high rate in the reading tasks of more than one token in every six, making the closing diphthong the second most used variant in read speech tasks in the older Easington and Horden data. Whereas [eɪ] is completely absent in speakers of all ages in Dawdon and also among younger Easington speakers in the read speech context, older Easington and Horden speakers used the closing diphthong more than 17% in read speech across both villages, compared to less than 1% in conversation data. This style result demonstrates that despite recording the two highest proportions of the most traditional, highly local centring diphthong variant of the FACE vowel ([ɪə]) in the non-local and local conversation topics across all speaker groups, older speakers in Easington and Horden use standard-like variants more frequently in a formal speech style. As Watt (1998: 102) puts it, these speakers 'associate reading aloud with the ideas of 'correctness', 'clarity of enunciation' and 'propriety' that are instilled in them during childhood'. For the older Easington and Horden speakers, it appears that similar ideas to these are imbued in the performance of read speech, in contrast to the more informal, dynamic and freer conversation, which reflects more accurately speakers' everyday usage, such as the very high rate of [ɪə] among these same two speaker groups, also typical of older working class male speech in other local varieties such as Newcastle upon Tyne (Watt & Milroy 1999, Watt 2002).

Given the frequent correlation between FACE and GOAT variants in studies of vowel change (Liljencrants & Lindblom 1972, Crothers 1978, Labov 1994, Schwartz, Boë, Vallée & Abry 1997) including in varieties local to East Durham (Watt & Milroy 1999, Watt 2000, Watt 2002), it is surprising that the closing diphthongal equivalent to [eɪ] in the GOAT vowel – [oʊ] – is not similarly stylistically marked. For example, in Darlington, a medium-sized town to the south-west of East Durham, the GOAT vowel is shown to be more locally marked than FACE, especially in terms of stylistic differences (Atkinson 2011: 249). In fact, in East Durham, [oʊ] is stable across speech styles in almost all speaker groups, and demonstrates a considerably higher usage rate in conversational data among older speakers than [eɪ], reflecting the scarcity of [eɪ] in FACE vowel conversation data. Instead, the similar picture for [aʊ] in the MOUTH vowel suggests that this may also be a marker (Labov 1972a) among older speakers in East Durham, which is surprising given its establishment over at least the past twenty years as the most frequently used MOUTH vowel variant in other areas local to East Durham (see Watt & Milroy 1999 for Newcastle upon Tyne where the diphthong is replacing another highly local variant ([uː]), Kerswill 2002 for the prevalence of the backer [ɑʊ] in Durham, and Beal, Burbano-Elizondo & Llamas for Teesside) – in contrast to [eɪ] which appears to remain a minority variant outside middle class speech across the North East England region. It seems therefore that although the [aʊ] variant for MOUTH is widely accepted among a younger generation of speakers across the North East, the considerable differences between read and conversational speech in this study shows that it carries a non-local connotation for older speakers in East Durham in the face of the highly local [ɛʊ] form.

8.5.1 Mining

Exploring intra-speaker variation through the prism of different conversation topics permits not only an insight into fine-grained speaker shifts but also an opportunity to further explore the identity of participants in relation to their place of residence (see Pearce 2009: 176-7 and Methodology Sections 1.3-1.4 to recall the relationship between coal mining and East Durham).

Older speakers' production of the most local variants in the FACE and GOAT sets increases between 10% and 15% between the conversation about non-local topics and the mining

context suggesting that conversations dealing with highly local topics bring about a greater proportion of highly local variant use. This supports the findings of Love and Walker (2012) in suggesting that topics that carry a strongly local association can influence speakers' realizations of variables. Furthermore, both variants which see increases in the mining topic are the centring diphthongs [ɪə] and [ʊə], which are generally considered to be 'old-fashioned' variants (Wells 1982: 375) common among 'men engaged in manual work' (Kerswill 1984: 18) but otherwise in decline across the North East England region (Watt 2002: 56). This suggests that in terms of these vocalic variables a discussion of traditional industries and lifestyles provokes in the speakers engaged in the conversation speech patterns appropriate to the subject matter. Under an Exemplar Theory framework (Johnson 1997; Pierrehumbert 2001, 2002, Foulkes & Docherty 2006), in which speakers appeal to the contextual information bound up in previously experienced speech utterances, these traditional pronunciations might be preserved or stored in speaker memories to be reactivated with the trigger of a traditional conversational topic. Furthermore, the significant effect of topic on variant usage shifts the focus on phonetic-based topic shifts away from effects at the word level (e.g. Yaeger-Dror & Kemp 1992, Yaeger-Dror 1994, Gordon et al 2004) towards the subject matter of the conversation in which the phonetic token occurs.

Many of the older speakers were former coal miners employed in the industry, so it is worth pointing out the shared mining heritage between all four East Durham villages and Sunderland, which did not extend south of Blackhall to Hartlepool, where major industries included steelmaking, in common with the rest of Teesside (Cornelius 1987), but also nuclear power, pitting Hartlepool in direct competition with the East Durham mines (Davenport 1984). As well as explaining the animosity towards Hartlepool demonstrated in the attitudinal data, the industrial history of the wider area beyond East Durham might also account for convergent trends towards Sunderland in terms of the statistically significant increase in production of the Sunderland-associated (Beal 2000) [ɛʊ] variant during the discussion of coalmining in the MOUTH vowel. Given the importance of coalmining to the area, it is perhaps unsurprising that a discussion of such a locally significant topic elicits expressly local pronunciations, even when it is unclear from existing literature whether raised, closer MOUTH variants are in any way associated with mining speech (Beal 2000

suggests that [ɛʊ] is a shibboleth of Sunderland speech but does not give any information relating to the time-depth of the form in this area, and S.E.D. data in nearby Washington suggests that in the 1950s the [u:] monophthong characteristic of Tyneside was prevalent in this area).

Raised, fronter MOUTH vowel nuclei are significantly less common among the older speakers of the third-most northern village of Horden than in the speech of their peers in each of the other three villages, with around half the proportion of [ɛʊ] compared to villages either side – including more southerly Blackhall, which is further away from [ɛʊ]-producing Sunderland and closer to Hartlepool than Horden is. With only 5% of all MOUTH production realised as the [ɛʊ] category in Horden, it cannot be said that a high rate of raised, fronter MOUTH nuclei is present across the board among the older generation in the overall East Durham area. What sets Horden apart from the other three villages in terms of the sample is that two of the four older speakers from this village did not work in mining or pit-related jobs, compared to only one out of four of the older speakers in every other village. However, this was the only variable where speakers' working relationship to the local pit was a significant factor in explaining variant usage.

Discussion of social variables such as ethnicity has been shown to condition variant usage, whereby the topic primes parts of speakers' own ethnic identity, meaning previously experienced exemplars relevant to ethnicity are activated during the formation of production targets (Mendoza-Denton, Hay and Jannedy 2003). However, it has been argued that topic-shifted production could also be explained without reference to speaker identity at all. For example, an exemplar-based link between African American people and the African American English variety is not only available to those who belong to that identity group, but can be accessed by anyone who has ever been exposed to that accent (Love & Walker 2012). Drager, Hay and Walker (2010) found that both exposure to the variety and speaker identity played a role in topic shift: speakers from New Zealand shifted to more Australian-like productions when discussing Australia. However, the speakers who were sports fans more frequently shifted to an Australian-like production when talking negatively about Australia than when the discussion was favourable to Australia. The authors interpreted this result with reference to the speakers' New Zealand identity and the strength of sporting rivalry

240

between the two countries. Moreover, the New Zealand speakers who did not identify as sports fans demonstrated the opposite effect of producing a more Australian pronunciation when saying positive things about Australia, instead of in the discussion of Australia's bad points. These non-sport fans were not engaged in the international rivalry and thus did not prime their New Zealand identity in their response. In the East Durham data, the speaker community of practice of former miners demonstrates a topic shift in both the FACE and GOAT vowels, with significantly higher proportions of the traditional centring diphthong variants during a discussion of coal mining than those who are not members of that community of practice. This suggests that in terms of the variants with a long time-depth, speaker identity is a crucial factor in conditioning topic shift. However, in terms of the two geographical variables of START and MOUTH, the topic shit occurs in the mining conversation topic across speakers regardless of former occupation, suggesting that exposure to the mining dialect is more important than speaker identity in terms of these vowels. The East Durham data follows Drager, Hay and Walker (2010) in finding that a combination of speaker identity and exposure to the variety works to condition the topic shift.

8.6 Summary

This chapter has examined the effect of the three main social variables explored in this study on the patterns found and linked the findings to notions of identity with specific reference to place and orientation. The significantly different location results tally with the highly localised place identities revealed by speakers' attitudinal data, despite the overall shift towards linguistic trends found elsewhere in the North East of England region. The sound changes reported also partially follow the direction of previous research within the local area, pointing to a mixture of levelled supralocal forms in line with findings across the region alongside preserved highly local variants in certain speaker groups and contexts. Stylistic differences demonstrate the presence of marked variants both locally and socially and shine a light on the role of identity in variant use in terms of the preservation of local and traditional forms in the traditional, locally significant conversation topic of coal mining.

The next section will draw the study to a close with some concluding remarks and ideas for further research.

9. Conclusion

9.1 Sound change

Although none of the variants analysed was found to have been completely lost from one generation to the next across all four East Durham villages, all four vowels studied in East Durham exhibited statistically significant differences in the distribution patterns of younger and older speakers, suggesting change in progress. The nucleus realisation of the MOUTH vowel showed ongoing backing and lowering over apparent time with the two categories representing the most raised nuclei demonstrating considerable erosion between the older and younger speakers in all four villages, towards a majority variant found in other areas of the UK (see e.g. Kerswill 2002 in Durham City, Kerswill et al. 2008 in London, Flynn 2012 in Nottingham) and in a pattern which appears consistent with the process of levelling. The START vowel similarly demonstrates a clearer preference for a majority variant in the younger cohort than in the older speaker group, though the quality of this preferred form differs according to the village, with the Blackhall speakers converging towards a variant which appears to be diffusing north from Teesside (Beal, Burbano-Elizondo & Llamas 2012: 36) and North Yorkshire (Tidholm 1979, Myrstad Nilsen 2011), in contrast to speakers in the three more northern East Durham locations who use considerably more of the backer form found in levelled speech of the northern and central areas of North East England.

The GOAT and MOUTH vowels appear to be undergoing levelling to a supralocal form also found in nearby Tyneside (Watt & Milroy 1999, Watt 2002). Another contrast to the MOUTH findings is that the highly local [ʊə] GOAT variant is not found to be the favoured variant among any speaker group young or old – suggesting that the sound change to [oː] has a well-established time-depth – although the percentage difference between this traditional form ([ʊə]) and the preferred regional variant ([oː]) increases substantially between the age groups. In contrast to all other variables, realisations of the FACE vowel show the highest degree of retention of the most localised variant of all four variables studied, with the [ɪə] traditional form remaining a more favoured variant than the [eː] regional standard (which is shown to be the preferred variant in Tyneside and across much of the North East region: Watt & Milroy 1999, Beal, Burbano-Elizondo & Llamas 2012: 30) among younger speakers

from three out of the four villages, as well as in the speech of older speakers across East Durham.

9.2 Fulfilment of the research objectives

Chapter 1 outlined the six key research objectives of this study. How the work fulfils these aims is now described in turn.

1. *Account for the change in East Durham English in apparent time, by contrasting the present-day speech patterns of younger adults with older adults*

The examination of the four variables has shown that the speech patterns of East Durham speakers are changing over apparent time. Younger speakers are producing significantly different distributions of variants than their older counterparts in terms of all four vowels. The clearest patterns of change occur in the MOUTH vowel, which is lowering to [aʊ], and GOAT, which is undergoing monophthongisation from [ʊə] to [oː], in all four locations. A similar monophthongisation in the FACE vowel is found in only the most southern East Durham village, with speakers from other areas largely retaining the traditional centring diphthong form, and the outcome of change in the START also differs depending on location.

2. *The degree to which local forms of pronunciation are conserved and geographically expansive variants are embraced in East Durham speech*

In contrast to the trend in the GOAT vowel, in which younger speakers are using greater proportions of the regional [oː] variant, and the MOUTH vowel, in which younger speakers are adopting an increasing number of [aʊ] forms, the local FACE variant, [ɪə], remains more popular than the less local [eː] monophthong among the speech of younger speakers in all but the most southern village of East Durham, suggesting that the centring diphthong is demonstrating some resilience in the face of less-local variant competitors. Despite this, all villages show a reduction in [ɪə] usage from older to younger speakers, suggesting the potential for levelling in the future. Highly localised [uː] for MOUTH and [ɒː] for START were found to such small degrees that any analysis would be meaningless, which suggests that (if they were ever present in the East Durham area in the past) these features are essentially lost from East Durham speech now.

3. *Situate the findings of the East Durham study in the context of other varieties in the North East England region*

While detailed sociolinguistic data for FACE and GOAT exist in Newcastle upon Tyne (Watt & Milroy 1999, Watt 2000, Watt 2002), Newton Aycliffe (West 2009), Darlington (2011) and Middlesbrough (Watt & Llamas 2004), and FACE is also investigated in Durham City (Kerswill 2003), the START and MOUTH vowels receive much less interest in North Eastern Englishes. The East Durham GOAT data neatly corresponds with what is found in Tyneside in the 1990s (Watt & Milroy 1999, Watt 2000, Watt 2002), as does FACE with the exception of the sizeable presence of the lowered [ɛ:] variant in the two locations closest to Teesside, as also found in Newton Aycliffe (West 2009). Furthermore, the local [ɪə] form is retained to a higher level in East Durham younger speakers than among the corresponding speaker group in 1990s Tyneside, suggesting that this variant is being retained to a greater extent and more recently in East Durham than in Newcastle upon Tyne. Speakers in the village closest to Sunderland demonstrate the highest proportion of the MOUTH diphthong with the most raised nucleus associated with that area (Beal 2000), with the same pattern at the opposite end of East Durham in terms of convergence with Teesside patterns of the fronted START vowel variant. This demonstrates that speakers in at least the two most northern villages of Dawdon and Easington demonstrate trends broadly consistent with settlements to the north such as Tyneside and Sunderland, whereas (especially younger) speakers from Blackhall generally converge with speech patterns found in the Teesside urban area to the south of East Durham.

4. *Examine the findings in relation to theories and processes of linguistic variation and change such as levelling*

MOUTH diphthongs with lowered nuclei realisations, found commonly in large nearby conurbations including Tyneside and Teesside are the favoured variant among young speakers across East Durham, which suggests levelling of the local form with a more raised nucleus is taking place. While the traditional FACE vowel variant remains competitive with innovative forms, the GOAT vowel also appears to be undergoing levelling to a form found across the North East region. Thus, levelling is shown to both be operating in East Durham.

5. *Detect the linguistic and social factors which condition variant use in East Durham*

Both social and linguistic factors were found to condition variant use in terms of each of the four vowel variables. The only significant factor across all variables analysed was location, although age and stylistic factors related to read speech or conversational context were also highly significant when viewed as an interaction. Although there were a greater number of social factors found to be significant over all four variables, in some cases the constraint with the greatest significance was linguistic-internal including, in terms of the GOAT vowel, a factor of both preceding and following place of articulation which is unusual in phonological variation and change and could prove to be a chance finding.

6. *Investigate the framework of highly local conversational topics as a constraint on the retention of highly local variants*

Conversational topic was a major constraint on variant usage in the East Durham data, though the way in which it affected the most local variants varied depending on the vowel variable. In the GOAT and MOUTH data, the greatest proportions of the most local variants were found in the highly local mining topic, as was the case in terms of the older – but not the younger – speakers in the START vowel. In the FACE vowel, the most local variant was found to the greatest extent in both of the read speech contexts (this finding is explained by Kerswill (1984: 24-25) as the result of the variant lending itself well to emphatic pronunciation found in formal word lists, as discussed in Section 9.5), but in terms of the conversational data, this variable also followed suit with the other three vowels with the mining topic conditioning the highest proportion of local forms.

9.3 Methodological limitations and ideas for further research

All but nine of the participants were interviewed solo by the researcher and, despite attempts to minimise the formality of the situation, this method of data collection has been shown to produce marginally more formal production than when speakers are conversing with an interlocutor well-known to them. Similarly, the researcher had a prior relationship with only seven of the thirty-two participants which meant the majority of interviews began with no established familiarity between the interviewer and interviewee.

The care that was taken to ensure that the quality of recordings used in this study was high, some measures, such as the decision to use headset microphones, will most likely have increased the level of formality and lack of comfort for participants experiencing the interview, increasing the potential for triggering the Observer's Paradox (Labov 1972a).

The absence of analysis of female speech means that potentially interesting speech patterns arising from the social factor of gender cannot be evaluated; unfortunately such a comparison was simply beyond the scope of the present research and its aims. Similarly the social make-up of the research site precluded meaningful analysis of ethnicity or social class as extra-linguistic variables. Furthermore, the number of speakers surveyed both overall and when stratified by cell might be considered to sit towards the lower bound of adequacy for a study of this size and scale, though it is worth pointing out that the figures tally with those of similar sociolinguistic studies (L. Milroy et al. 1997, Llamas 2001, Flynn 2012). Despite this, there appeared to be little individual variability and the statistical model chosen for analysis did not highlight this as a significant effect.

East Durham as a site for sociolinguistic study provides many interesting areas for further research. Building a real-time component to the existing data would be extremely useful in terms of determining whether the changes observed in apparent time are supported, although it is acknowledged that a substantial time-lapse between data collections is required to fully implement this.

A natural next step would be to complement the present research by augmenting the male sample with data from female speakers, in order to evaluate the effect of gender on social motivations for sound change in this area. Gender as an independent variable has been shown to be one of the most significant social factors of variation and change in sociophonetic and dialectological studies across the geographic span of North East England (see Kerswill 1984 on Durham, Watt 2002 on Newcastle upon Tyne, Llamas 2007 on Middlesbrough) and it is worth investigating to what extent it has an effect on East Durham speech, if at all. Furthermore, a gender comparison would be useful to support or challenge the widely-evidenced claim that men often use non-standard and vernacular forms more than women (Labov 1972a, Trudgill 1974, Milroy 1987). Given that one focus of the

discussion of local topics was the male-dominated occupation of coal mining, it would also be worth exploring the extent of the female speakers' knowledge of this subject (for example, in terms of mining dialect terms) and analysing whether there are any significant distribution differences between local variants produced when discussing this highly local topic as compared to non-local subjects.

Given the emphasis on pan-North East variants in the literature (Watt & Milroy 1999, Watt 2002, Kerswill 2003, Atkinson 2011), this research focused more on examining whether regional trends are being adopted in East Durham. Changes occurring on a broader scale across Great Britain, such as the uptake of London-originating 'youth norm' features like *l*-vocalisation and *th*-fronting, are not explored. Furthermore this would also broaden the scope of the research into East Durham speech to include consonantal variables.

Based on impressionistic judgements made during transcription by the researcher, the present data also proposes several other linguistic variables which could provide interesting findings. Following the perceptual responses which grouped fronted NURSE realisations alongside fronted START realisations as emblematic of Teesside speech, analysis of the former variable might find further interesting gradient and geographical patterns. The PRICE vowel, which so often undergoes change in lockstep with the MOUTH vowel (Labov 1963 in Martha's Vineyard; Flynn 2012 in Nottingham), demonstrated very little variation in the East Durham corpus apart from in certain lexical items. Given the considerable variation found in the MOUTH vowel analysis in East Durham, the lack of variation in PRICE is surprising as MOUTH and PRICE are often considered together in dialect literature and are two of the most widely researched variables participating in 'Canadian raising' (Chambers 1973, Britain 1997, Amos 2011) and the Scottish Vowel Length Rule (J. Milroy 1996b, Scobbie, Hewlett & Turk 1999, Watt & Yurkova 2007). Further research could examine the extent of the lexical effect appearing to operate on PRICE tokens in East Durham, and explore the reasons for the lack of correlation between these two similar vowels.

Regardless of future directions of research, this work represents an addition to the sociophonetic literature in terms of investigating the socially-stratified speech patterns of a British English variety which had not previously been sampled. The examination of four

variables shown to be subject to change either within the North East region or more widely – or frequently both – in an area situated between two larger linguistic centres of gravity contributes to the field in terms of exploring the factors influencing variation and change in vowels generally and in scrutinising in which ways the speech patterns of speakers in smaller, less urban sites relate to those found in larger nearby conurbations where dialect contact is likely to take place.

Appendix I: Word list

kit	force	white	like
dress	cure	letter	ended
trap	mat	first	seven
lot	sure	comma	tight
strut	eight	heed	moor
foot	mass	ate	carry
bath	your	shirt	tide
cloth	book	drawing	cool
nurse	paper	talk	purse
fleece	bottle	work	he'd
face	high	knee	crude
palm	local	down	cook
thought	mats	freeze	hire
goat	pity	short	sighs
goose	take	time	boy
price	situation	twice	plaster
choice	butter	walk	bard
mouth	later	look	Norse
near	people	frees	film
square	mash	five	dune
start	house	under	crewed
north	happy	voices	horses

stupid	cut	father	I hit it	brews
soot	both	car	I pack it	tour
June	brewed	seethe	I tap it	wiry
higher	Tees	Newcastle	I back it	dare
wanted	mate	cannot	I beat it	dice
master	fire	gun	do	pool
food	bake	sighed	choose	towel
happen	poor	vibe	daughter	height
wicked	brood	though	tea	bruise
marry	bear	caught	wait	pry
cursing	bees	lies	swipe	loch
pint	that	brute	tar	moose
dark	lice	toll	Kerr	tickle
fall	curry	thistle	everything	strait
crews	straight	get off	two	automatic
ear	agreed	shut up	gale	boon
spa	bet	put on	tease	either
born	town	draw in	dunce	pa
breathe	put	clear off	care	tune
rule	girl	saw open	bury	piece
Kay	bat	dome	lock	Dirk
brew	disaster	hide	pour	mashed
pore	tied	guitar	gorse	day

motor	rid	collared
beat	fewer	
mine	suit	
bit	mast	
pear	hurry	
curtain	Tuesday	
side	sight	
garish	bother	
whole	prize	
key	tulip	
pace	lie	
seed	weight	
paw	haul	
year	worry	
bee	mothering	
pathetic	lad	
bit	interview	
bairn	Sophie	
deal	band	
gas	human	
seat	afterwards	
guard	sofa	
crank	bag	

Fern's Star Turn

Fern was a nurse from Harrogate who was always a happy-go-lucky person. One winter morning she was drawing a bath and washing her face with a cloth, when she saw a letter come through the door. She got a lot of letters, but when she went to look, this one caught her eye. It was from Paul, her father.

Paul was a keen dancer who had won many competitions in the past with his partner Pam. Their speciality was square dancing. In the letter, Paul explained that the International Square Dancing Championships were being held in New York City the following week, but unfortunately, Pam had just been admitted to hospital. She had managed to trap her foot in a bus door and had broken her leg and her nose when the bus moved off.

"Poor Pam", Fern thought, "what a daft thing to do! She won't be able to strut her stuff with Dad next week. They'll have no choice but to pull out, and it's too near to the competition to get the price of their tickets back."

Just then Fern had a fantastic idea and said, "I'm not half the dancer Pam is, but maybe I could stand in for her." Straight away she got on the phone to the travel agent and booked her flight, and then rang Paul to tell him what she had decided to do. She could tell her father was really happy. He suggested that they arrange to stay with friends on their farm outside the city, as the only hotels he could afford in New York looked rather seedy.

On Thursday the following week she got up at the crack of dawn to make a start on packing her kit for the trip. She knew that the north wind in New York could be very cold in winter, so she grabbed her fleece jacket and her fur hat. She also packed the beautiful gold dress that Pam had made for the competition, but it was quite bulky and she had to force her case closed by pressing down on the lid with the palm of each hand.

Paul and Fern drove south to the airport and shortly after checking in they boarded the plane. Their flight passed quickly and it seemed like no time before they were being greeted by Paul's friends Don and Sarah, who drove them to their pretty farmhouse surrounded by fir

trees. On their farm there were horses neighing, sheep baa-ing, pot-bellied pigs, a pet goose called Rhonda and eight breeds of goat. That evening they were treated to a great feast of cured pork, which Sarah served out on large white plates. "Boy", thought Fern, "I'll need to watch my weight if I'm going to fit into Pam's gold dress."

The day of the competition it was pouring with rain, but Paul and Fern were too excited to care. They got dressed and made their way downstairs to Don's car. But disaster struck when the car wouldn't start. "What's wrong with it?" shouted Sarah from the house. "Have you got a toolkit in the boot?" Paul suggested to Don. "It's no good," Don sighed. "We'll have to call a cab, but it'll take a while to get to the city. It's a lot farther than you might think."

Fern and Paul made it to the competition with only seconds to spare. They were out of breath and found it hard to remember the steps. However, they danced like champions and the judges were bowled over. They had no choice but to award them the first prize: a thousand dollars. Against the odds they had achieved their goal. Fern had made her pa a proud man. What a shame that half the prize money went on the taxi fare home!
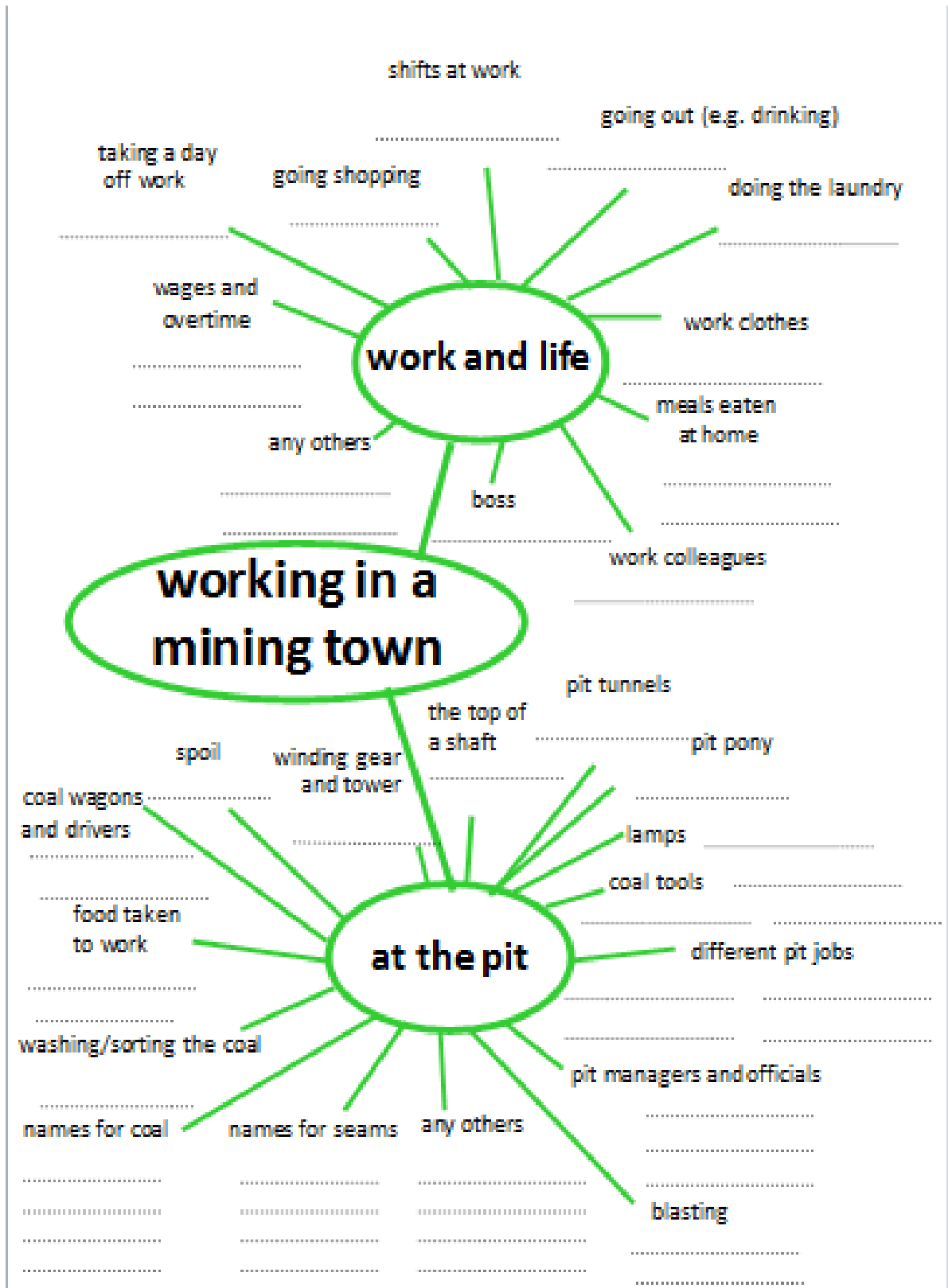
Figure 54: Mining Sense Relation Network
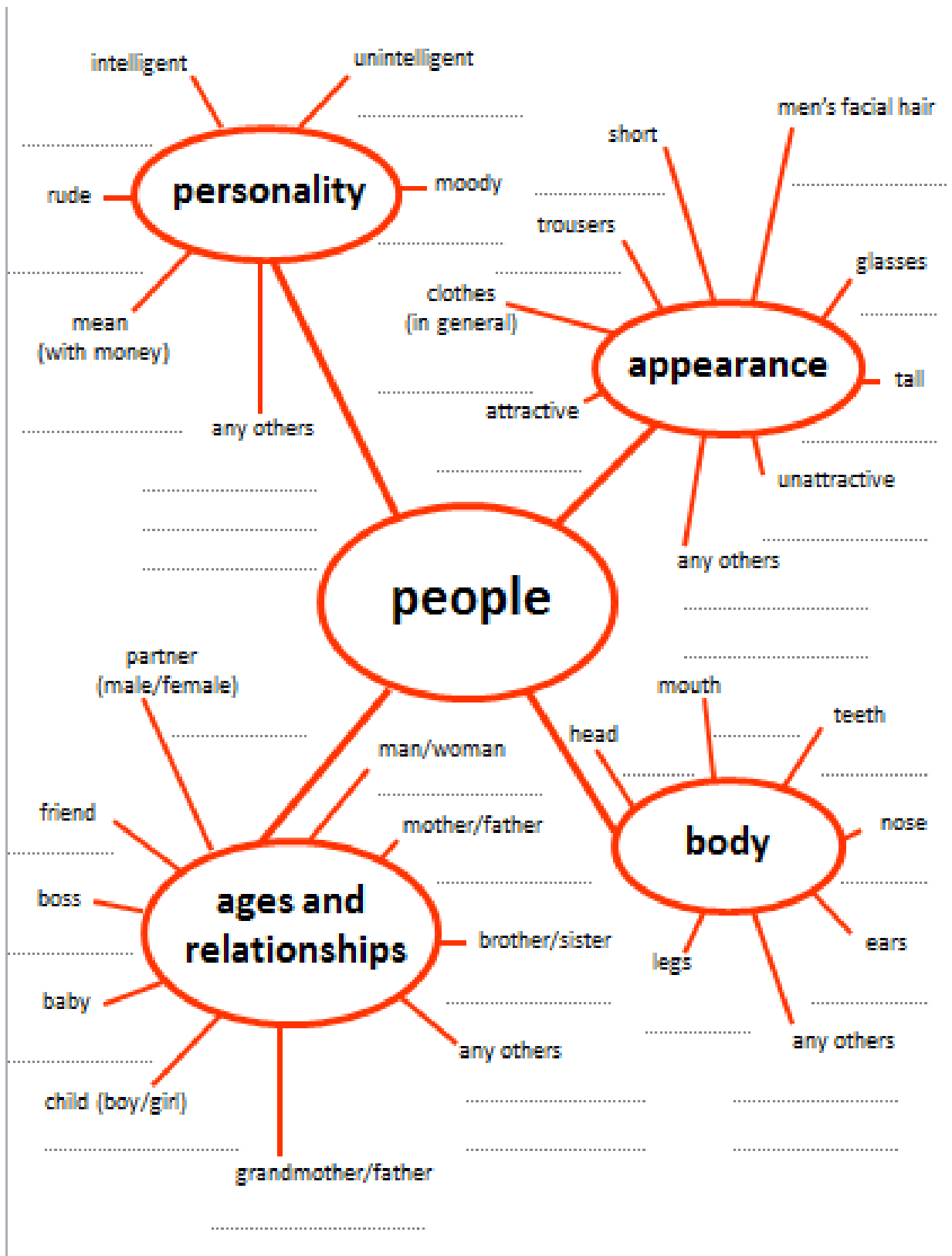
Figure 55: General People Sense Relation Network
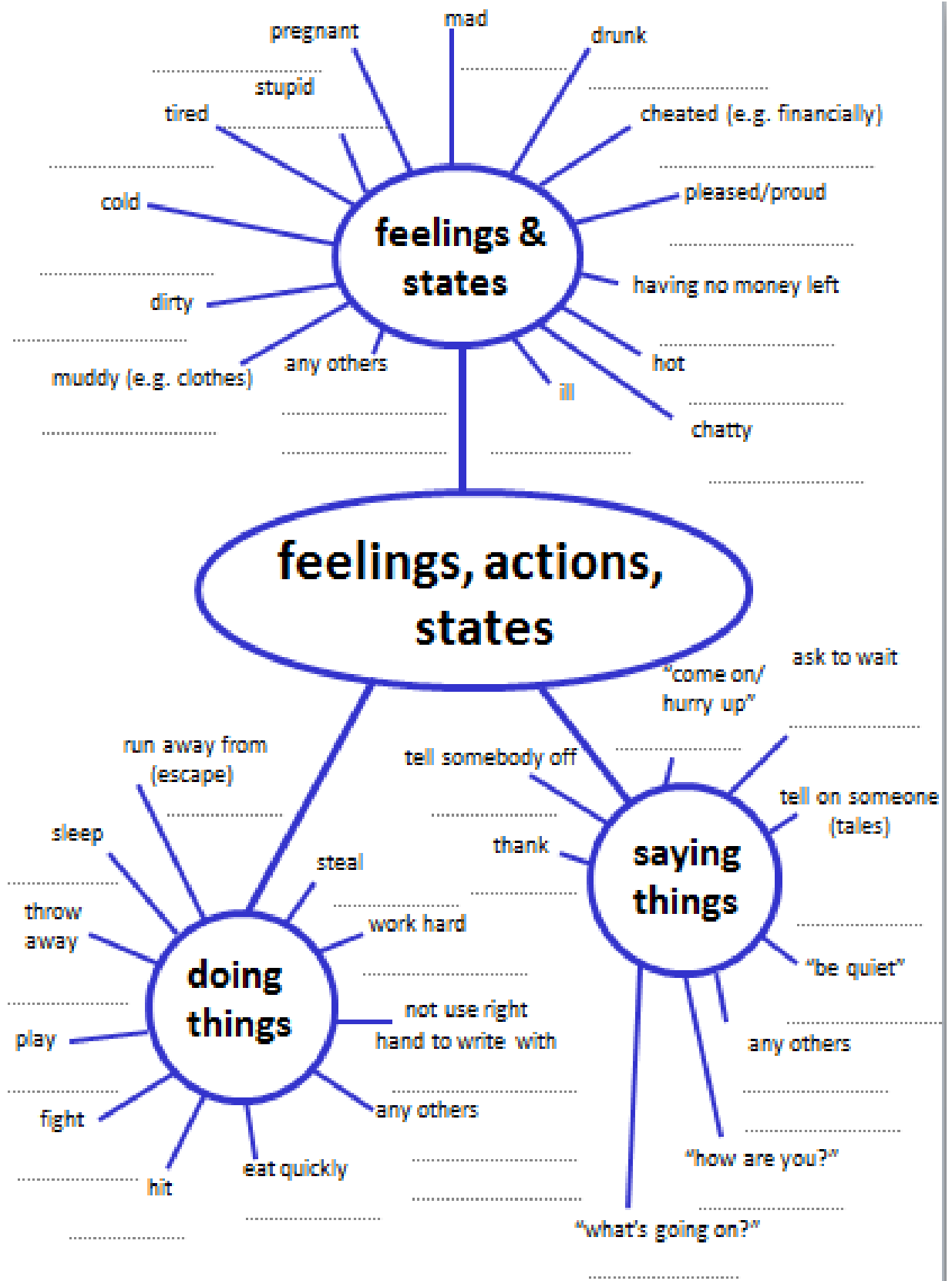
Figure 56: General Feelings, Actions and States Sense Relation Network

Appendix IV: Identity questionnaire

Sample interview questions: Easington

1. Let's talk about your personal experiences in your home town.

   - When you were younger, did you like growing up in Easington? Why?

   - Do you like living in Easington now? Why?

   - How did you two (you and your interview partner) meet?

   - Have your family always lived in Easington? Do most of your friends live in Easington? Have any of them moved away, and if so how often do you visit/see them?

   - Do/did you work in Easington? If not where do/did you work? Do you think there are good employment opportunities for you and your work skills in Easington?

   - Do you do your weekly shop in Easington? If not, where do you go?

   - If you were going shopping for the day (e.g. for new clothes/new furniture/a gift for a friend), would you look in Easington? If not, where would you go?

   - Do you socialise in Easington? Where would you go for a night out, or for a meal?

   - What are your hobbies? Are you a member of e.g. a cricket team/a bridge club/a brass band? Can you do this in Easington or do you have to go elsewhere?

   - Would you change anything about Easington, and if so, what?

   - Do you ever go to Sunderland or Hartlepool? What do you go for? How often would you say you go there?

   - Do you ever go to Newcastle or Middlesbrough or Durham? What do you go for? How often would you say you go there?

2. Let's turn to your identity in relation to your home town.

   - Do you feel a part of the local community of Easington?

   - How much do you identify with what it means to be from Easington?

   - Are you passionate or proud to be from Easington?

   - How would you react if you heard someone slight or criticise Easington?

   - What do you think of the other colliery towns in the local area around Easington?

   - Do you think Easington has strong ties or a rivalry with another town or city? Is there a sports team that most people in Easington support?

- Is there a label for 'someone from Easington' (like someone from Liverpool is a Scouser)? How would you react if someone called you a Geordie, a Mackem, a Monkey Hanger, a Smoggie, a Pityacker?
- What do you think of Sunderland, Hartlepool, Durham, Newcastle, Middlesbrough and the wider North East region?

3. Let's discuss local accents.
   - Would you say Easington has its own unique accent? What kind of things do people in Easington say that you would never hear anywhere else, even in Dawdon/Horden/Blackhall?
   - Do you think you have an Easington accent?
   - Do you like your accent (and, if different, the Easington accent)? Is there another accent you prefer?
   - Do you think other people in Easington speak the same as you?
   - Compared to other people in Easington, do you think your accent is strong or weak?
   - Do you think the younger people and older people in Easington speak differently?
   - Do you think men and women in Easington speak differently?
   - Where on a map would you say people start talking differently to you?
   - How easy to understand do you think your accent is outside the North East?
   - Do you alter your accent when speaking to people from other areas?
   - Could you recognise your accent if you heard it, say on the TV or radio, or if you were abroad and came across somebody else with that accent? If so, how?

4. Let's talk about the colliery in your town.
   - How well do you remember Easington pit?
   - When it was open, do you think Easington pit was important to the town?
   - How important do you think Easington pit was in relation to the other local pits?
   - Do you think Easington is still seen as a colliery town now?
   - Do you think Easington has changed since the closure of the colliery?
   - Would you say the pit embodies what it means to be from Easington today?
   - Do you think people in Easington speak a kind of pitmatic? Can you think of any pitmatic words or phrases?
   - Do you think it would be better or worse if the pits were still open today?

5. Let's discuss other people's attitudes towards your home town.

- How do you think people from other parts of East Durham view Easington?

- Do you think they are justified in this view?

- How do you think people from other parts of the North East view Easington?

- Do you think they are justified in this view?

- How do you think people from other parts of the country view Easington?

- Do you think they are justified in this view?

- Do you read a local paper, and if so, which one? How do you think they represent Easington? Do you think they are justified in this view?

- Do you listen to a local radio station, and if so, which one? How do you think they represent Easington? Do you think they are justified in this view?

- How do you think the regional media (e.g. BBC Newcastle, Tyne Tees) represent Easington? Do you think they are justified in this view?

- How do you think the national media cover Easington? Do you think they are justified in this view?

Appendix V: Information sheet

THE UNIVERSITY *of York*

Language change in Co Durham – information for participants

What is the study about?

In this study I will be carrying out interviews with people living in Dawdon, Easington, Horden and Blackhall to gain a better picture of the accents of County Durham. The goal of the project is to investigate changes in life and language in County Durham communities since the loss of the coal mining industry.

Who is carrying out the study?

The interviewer and lead researcher is Thomas Devlin, a Ph.D. student at the University of York. The study is supervised by Dr Carmen Llamas of the Department of Language and Linguistic Science at the University of York. Our contact details are listed below.

Why have I been asked to take part?

You have been invited to take part because you are a native speaker of English who is currently living and was brought up in one of the four towns examined in the study.

What is involved?

If you agree to take part in the study, I will ask you to participate in an interview lasting approximately 60 minutes which will be recorded on a digital tape recorder. This involves two things. Firstly, I would like you to read aloud a passage and a list of words which I will give to you. I would then like to ask you and a partner to have a conversation with me about your life in your hometown, and your experiences growing up there and living there.

Do I have to take part?

No. Participation in this study is entirely voluntary and you can withdraw at any time (even during interview) without consequence. If you do decide to take part, you will be asked to sign a consent form before the interview.

How will the information I provide be used?

The information you provide will be used to study how people speak in County Durham. I will analyse your interview along with many others of a similar nature as part of my Ph.D. study at the University

of York. As an outcome of the study a number of research papers will be published with the possibility of findings being discussed in public forums.

All recordings will be anonymised and your name and other personal information that might be used to identify you will be removed. At no point will your name be referred to or shown in any paper related to this study. Some of the content of the interview may be quoted but no personal names will be mentioned. All records will be securely stored. You can decide at any time to have your interview removed from the study or destroyed.

Are there any risks involved or benefits to taking part?

The only requirement of the study is talking to me who, with your consent, will visit you in your home. Alternative arrangements can be made if you would prefer to be interviewed elsewhere. The study has satisfied the University of York's ethical review committee.

If I ask a question you do not wish to answer, you do not have to, and you may stop the interview or take a break at any time. You may discuss the interview afterwards with your family and friends should you wish.

I hope that you enjoy participating in the study and find the experience interesting. I would be happy to keep you informed of my findings afterwards. Your participation will further the linguistic study of the region and this may have unforeseen positive benefits in the future. Thank you very much for taking an interest and making this study a reality.

Feel free to contact us

Do not hesitate to direct any questions to:

Principal researcher:

Thomas Devlin,

Dept. of Language and Linguistic Science,

University of York,

YO10 5DD

Telephone: 07940 238206

Email: tpd502@york.ac.uk

Research supervisor:

Dr Carmen Llamas,

Dept. of Language and Linguistic Science,

University of York,

YO10 5DD

Telephone: 01904 322618

Email: carmen.llamas@york.ac.uk

THE UNIVERSITY *of York*

Consent to participate in research

Title of research project: Language Change in County Durham.

Principal researcher: Thomas Devlin.

If you have read and fully understood the details on the 'Information for Participants' form and wish to participate in the study please complete the following:

1. I am a native speaker of English, born and raised in County Durham, and I agree to take part in this interview. **Yes** ☐

2. I confirm that I have read and understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. **Yes** ☐

3. I give my consent for data to be stored and used for analysis as part of a wider database of interviews. **Yes** ☐

4. I understand that my personal details will be protected at all times and that, under the Data Protection Act 1998, I can at any time ask for access to the information I provide and I can also request the destruction of that information. **Yes** ☐

5. I understand what the research is about and what the interview involves.

   Yes ☐

Participant name _____ Date _____

Signature   _____

Researcher name _____ Date _____

Signature   _____

Appendix VII: R Tables

```
Cumulative Link Mixed Model fitted with the Laplace approximation

formula: code ~ location + agegroup + context + mininglexis + occupation +
education + preceding + following + agegroup:location + agegroup:context +
context:education + context:mineroccupation + (1 | speaker) + (1 | word)
data:    eas
```

link	threshold	nobs	logLik	AIC	niter	max.grad	cond.H
logit	flexible	2075	-2021.86	4135.73	9366(37468)	3.08e-03	2.2e+03

```
Random effects:
```

Groups	Name	Variance	Std.Dev.
word	(Intercept)	0.1763	0.4199
speaker	(Intercept)	1.3284	1.1526

```
Number of groups:  word 123,   speaker 32
```

```
Coefficients:
```

	Estimate	Std. Error	z value	Pr(>|z|)	
locationEasington	0.63093	0.85932	0.734	0.46281	
locationHorden	2.20559	0.85721	2.573	0.01008	*
locationBlackhall	1.57031	0.85034	1.847	0.06479	.
agegroupyoung	3.48152	1.19457	2.914	0.00356	**
contextgeneral	0.87235	0.21803	4.001	6.31e-05	***
contextlocal	0.17240	0.20932	0.824	0.41015	
contextpassage	1.43743	0.27866	5.158	2.49e-07	***
contextword list	1.91641	0.42681	4.490	7.12e-06	***
mininglexisyes	1.28344	0.54202	2.368	0.01789	*
mineroccupationno miner	-0.03484	0.70256	-0.050	0.96045	
mineroccupationyes pit	-1.61764	0.68351	-2.367	0.11795	
educationyes	1.83514	0.71126	2.580	0.19878	
precedingapproximant	-0.38790	0.36152	-1.073	0.28328	
precedingfricative	0.67996	0.48808	1.393	0.16358	
precedingh	0.05653	0.41126	0.137	0.89068	
precedingnasal	-0.10297	0.42825	-0.240	0.80998	
precedingplosive	0.05747	0.36603	0.157	0.87524	
precedingsibilant	0.20561	0.42825	0.480	0.63114	
followingfricative	-0.39861	0.51866	-0.769	0.44217	
followingnasal	-0.30565	0.38054	-0.803	0.42187	
followingplosive	-0.68003	0.40092	-1.696	0.08986	.
followingsibilant	-0.24736	0.37467	-0.660	0.50913	
locationBlackhall:agegroupyoung	-0.34739	1.22379	-0.284	0.77651	
locationEasington:agegroupyoung	1.51289	1.21766	1.242	0.21407	
locationHorden:agegroupyoung	-0.33492	1.23199	-0.272	0.78574	
agegroupyoung:contextgeneral	-0.82441	0.67601	-1.220	0.22264	
agegroupyoung:contextlocal	-0.27710	0.67517	-0.410	0.68151	
agegroupyoung:contextpassage	-1.55031	0.72463	-2.139	0.03240	*
agegroupyoung:contextword list	-2.02726	0.92875	-2.183	0.02905	*
contextgeneral:educationyes	-1.03038	0.49278	-2.091	0.03653	*
contextlocal:educationyes	-0.61356	0.48789	-1.258	0.20855	
contextpassage:educationyes	-1.56071	0.55208	-1.827	0.44570	
contextword list:educationyes	-2.22983	0.70719	-2.153	0.16232	
contextgeneral:mineroccupationno miner	-0.55816	0.34278	-1.628	0.10346	

```
contextlocal:mineroccupationno miner      -0.05055    0.33909   -0.149   0.88149
contextpassage:mineroccupationno miner    -0.18735    0.42394   -0.442   0.65854
contextword list:mineroccupationno miner   0.37169    0.67994    0.547   0.58462
contextgeneral:mineroccupationyes pit     -0.78710    0.41013   -1.919   0.05497 .
contextlocal:mineroccupationyes pit       -0.01724    0.40745   -0.042   0.96624
contextpassage:mineroccupationyes pit     -0.80196    0.56425   -1.421   0.15523
contextword list:mineroccupationyes pit    0.06019    0.88012    0.068   0.94548
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


Threshold coefficients:
                          Estimate Std. Error z value
1_traditional|2_uppermid   -0.9247     0.7896  -1.171
2_uppermid|3_lowermid       1.4777     0.7933   1.863
3_lowermid|4_innovative     3.2862     0.7959   4.129
```

Table 25: MOUTH R table

```
Call:
mlogit(formula = code ~ 0 | location + agegroup + context + mininglexis +
    agegroup:location + context:agegroup, data = easml, method = "nr",
    print.level = 0)


Frequencies of alternatives:
        1               2               3               4
   0.574087        0.326671        0.053756        0.045486


nr method
20 iterations, 0h:0m:1s
g'(-H)^-1g = 9.66E-07
gradient close to zero


Coefficients :
                        Estimate   Std. Error t-value    Pr(>|t|)
2:(intercept)           2.1599e-02  1.8521e-01  0.1166 0.9071661
3:(intercept)          -2.8515e+00  7.4579e-01 -3.8234 0.0001316 ***
4:(intercept)          -5.3069e+00  1.1533e+00 -4.6016 4.193e-06 ***
2:locationDawdon       -1.8019e-01  2.1032e-01 -0.8568 0.3915759
3:locationDawdon       -1.8492e+01  4.3421e+03 -0.0043 0.9966020
4:locationDawdon       -1.7648e+01  3.4998e+03 -0.0050 0.9959766
2:locationEasington    -4.0724e-01  2.1341e-01 -1.9083 0.0563526 .
3:locationEasington    -1.8512e+01  4.2616e+03 -0.0043 0.9965340
4:locationEasington     9.1639e-01  7.1580e-01  1.2802 0.2004645
2:locationHorden       -6.5131e-01  2.2430e-01 -2.9037 0.0036881 **
3:locationHorden       -1.8012e+00  1.1034e+00 -1.6325 0.1025783
4:locationHorden        8.6806e-01  7.1486e-01  1.2143 0.2246353
2:agegroupyoung         1.8596e+00  3.9857e-01  4.6656 3.078e-06 ***
3:agegroupyoung         4.5208e+00  8.4605e-01  5.3434 9.121e-08 ***
4:agegroupyoung         6.8654e+00  1.2289e+00  5.5866 2.316e-08 ***
2:contextlocal         -4.3268e-01  1.9358e-01 -2.2352 0.0254045 *
3:contextlocal         -1.8744e-01  1.0158e+00 -0.1845 0.8536040
4:contextlocal         -1.5752e-01  1.4206e+00 -0.1109 0.9117058
2:contextmining        -4.4375e-01  2.0536e-01 -2.1608 0.0307106 *
```

```
3:contextmining          -6.9972e-01  1.2390e+00 -0.5648 0.5722336
4:contextmining          -1.6651e+01  4.1529e+03 -0.0040 0.9968009
2:contextpassage         -2.7817e+00  7.3745e-01 -3.7721 0.0001619 ***
3:contextpassage         -1.8235e+01  1.0568e+04 -0.0017 0.9986233
4:contextpassage          2.8918e+00  1.1180e+00  2.5865 0.0096954 **
2:contextword list       -1.1015e+00  2.9058e-01 -3.7906 0.0001503 ***
3:contextword list       -6.4496e-02  1.2468e+00 -0.0517 0.9587438
4:contextword list        3.1118e+00  1.0546e+00  2.9505 0.0031722 **
2:mininglexisyes         -1.4878e+00  5.5258e-01 -1.6925 0.3700916
3:mininglexisyes         -1.7695e+01  1.2865e+04 -0.0014 0.9989026
4:mininglexisyes         -1.6144e+01  1.1406e+04 -0.0014 0.9988707
2:locationDawdon:ageyoung   -1.8499e+00  4.1171e-01 -4.4932 7.016e-06 ***
3:locationDawdon:ageyoung   -4.0490e+00  6.0625e+03 -0.0007 0.9994671
4:locationDawdon:ageyoung    1.2507e+01  3.4998e+03  0.0036 0.9971486
2:locationEasington:ageyoung -1.7557e+00  4.2332e-01 -4.1474 3.363e-05 ***
3:locationEasington:ageyoung  1.3872e+01  4.2616e+03  0.0033 0.9974027
4:locationEasington:ageyoung -4.2917e+00  8.7466e-01 -4.9068 9.259e-07 ***
2:locationHorden:ageyoung   -1.5112e+00  4.4725e-01 -3.3789 0.0007277 ***
3:locationHorden:ageyoung    7.9473e-02  1.1705e+00  0.0679 0.9458661
4:locationHorden:ageyoung   -4.0950e+00  9.1074e-01 -4.4963 6.914e-06 ***
2:ageyoung:contextlocal     3.5994e-01  3.0195e-01  1.1921 0.2332396
3:ageyoung:contextlocal    -1.4188e-01  1.0805e+00 -0.1313 0.8955359
4:ageyoung:contextlocal    -5.2322e-01  1.4815e+00 -0.3532 0.7239653
2:ageyoung:contextmining    7.1577e-01  3.8660e-01  1.8514 0.0641056 .
3:ageyoung:contextmining   -1.8694e+01  5.8696e+03 -0.0032 0.9974588
4:ageyoung:contextmining    1.7228e+01  4.1529e+03  0.0041 0.9966901
2:ageyoung:contextpassage   7.8653e-01  9.1723e-01  0.8575 0.3911660
3:ageyoung:contextpassage   1.6922e+01  1.0568e+04  0.0016 0.9987224
4:ageyoung:contextpassage  -4.2284e+00  1.3164e+00 -3.2120 0.0013179 **
2:ageyoung:contextword list -2.5117e-01  4.3961e-01 -0.5714 0.5677615
3:ageyoung:contextword list -1.2045e+00  1.3216e+00 -0.9115 0.3620532
4:ageyoung:contextword list -5.2540e+00  1.2308e+00 -4.2687 1.966e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Log-Likelihood: -1153.2
McFadden R^2:  0.19053
Likelihood ratio test : chisq = 542.87 (p.value = < 2.22e-16)
```

Table 26: FACE R table

```
Call:
mlogit(formula = code ~ 0 | location + agegroup + context + mininglexis +
    education + precedingmanner + followingmanner + agegroup:location +
    agegroup:context, data = easml, method = "nr", print.level = 0)

Frequencies of alternatives:
       1        2        3        4
0.067227 0.292178 0.579186 0.061409

nr method
20 iterations, 0h:0m:4s
g'(-H)^-1g = 3.69E-07
```

```
gradient close to zero

Coefficients :
                                      Estimate   Std. Error  t-value   Pr(>|t|)
2:(intercept)                        2.9794e+00  7.8158e-01   3.8121  0.0001378 ***
3:(intercept)                        2.4433e+00  7.8617e-01   3.1079  0.0018843 **
4:(intercept)                        1.5322e+00  1.0025e+00   1.5284  0.1264050
2:locationDawdon                    -6.8635e-01  3.9525e-01  -1.7365  0.0824781 .
3:locationDawdon                    -7.7545e-01  3.9566e-01  -1.9599  0.0500084 .
4:locationDawdon                    -1.5239e-02  5.2544e-01  -0.0290  0.9768629
2:locationEasington                 -1.3450e+00  3.6298e-01  -3.7054  0.0002111 ***
3:locationEasington                 -7.2571e-01  3.5166e-01  -2.0637  0.0390495 *
4:locationEasington                 -1.4910e+00  5.6343e-01  -2.6463  0.0081366 **
2:locationHorden                    -3.1022e-01  4.3445e-01  -0.7141  0.4751899
3:locationHorden                    -3.5449e-01  4.3325e-01  -0.8182  0.4132381
4:locationHorden                    -8.9739e-01  6.5391e-01  -1.3723  0.1699570
2:agegroupyounger                    1.8189e+01  5.0932e+03   0.0036  0.9971506
3:agegroupyounger                    1.9998e+01  5.0932e+03   0.0039  0.9968672
4:agegroupyounger                    2.0649e+01  5.0932e+03   0.0041  0.9967652
2:contextlocal                      -2.0446e-02  3.8704e-01  -0.0528  0.9578700
3:contextlocal                      -3.1282e-01  3.7753e-01  -0.8286  0.4073242
4:contextlocal                      -5.4135e-01  5.1387e-01  -1.0535  0.2921161
2:contextmining                     -2.0445e-01  3.9440e-01  -0.5184  0.6041906
3:contextmining                     -6.7879e-01  3.8628e-01  -1.7573  0.0788697 .
4:contextmining                     -1.4224e+00  5.8561e-01  -2.4290  0.0151405 *
2:contextread passage               -4.7618e-01  4.3749e-01  -1.0885  0.2763952
3:contextread passage               -9.3265e-01  4.3137e-01  -2.1621  0.0306121 *
4:contextread passage               -3.4985e+00  1.1104e+00  -3.1505  0.0016298 **
2:contextword list                  -1.8916e-01  5.0130e-01  -0.3773  0.7059245
3:contextword list                   4.2063e-01  4.7130e-01   0.8925  0.3721241
4:contextword list                   2.9840e-01  6.2210e-01   0.4797  0.6314615
2:mininglexisyes                     5.1137e-01  5.4535e-01   0.9377  0.3484076
3:mininglexisyes                     2.0404e-01  5.4546e-01   0.3741  0.7083551
4:mininglexisyes                    -1.7579e+01  6.5947e+03  -0.0027  0.9978731
2:educationyes                      -7.2192e-01  3.1043e-01  -2.3256  0.0200409 *
3:educationyes                      -3.1048e-01  2.8998e-01  -1.0707  0.2843013
4:educationyes                       1.1736e-01  4.0790e-01   0.2877  0.7735582
2:precedingmannerobstruent           2.0682e-01  4.1130e-01   0.5029  0.6150642
3:precedingmannerobstruent          -5.2502e-01  3.8487e-01  -1.3641  0.1725251
4:precedingmannerobstruent          -8.4327e-01  5.7416e-01  -1.4687  0.1419131
2:precedingmannersonorant            6.8508e-01  4.5299e-01   1.5124  0.1304433
3:precedingmannersonorant           -5.0207e-03  4.2641e-01  -0.0118  0.9906057
4:precedingmannersonorant            9.5464e-01  5.8758e-01   1.6247  0.1042287
2:followingmannercoronal            -1.2777e+00  6.3397e-01  -1.0155  0.1438563
3:followingmannercoronal             4.8090e-01  6.5071e-01   0.7390  0.4598799
4:followingmannercoronal            -2.1366e+00  1.0238e+00  -1.0868  0.1369038
2:followingmannerobstruent          -1.1461e+00  5.6585e-01  -1.0256  0.1428106
3:followingmannerobstruent           9.5072e-02  5.9332e-01   0.1602  0.8726937
4:followingmannerobstruent          -1.1343e+00  7.0610e-01  -1.6064  0.1081760
2:followingmannersonorant           -1.0320e+00  5.8992e-01  -1.7494  0.0802299 .
3:followingmannersonorant            3.4381e-01  6.1505e-01   0.5590  0.5761691
4:followingmannersonorant           -2.9764e-01  7.3220e-01  -0.4065  0.6843699
2:locationDawdon:agegroupyounger    -1.8622e+01  5.0932e+03  -0.0037  0.9970828
3:locationDawdon:agegroupyounger    -1.8977e+01  5.0932e+03  -0.0037  0.9970271
```

```
4:locationDawdon:agegroupyounger      -2.0869e+01  5.0932e+03 -0.0041 0.9967308
2:locationEasington:agegroupyounger 2.2189e+00  7.0835e+03  0.0003 0.9997501
3:locationEasington:agegroupyounger 6.2954e-01  7.0835e+03  0.0001 0.9999291
4:locationEasington:agegroupyounger-1.6409e-01  7.0835e+03  0.0000 0.9999815
2:locationHorden:agegroupyounger      -1.7031e+01  5.0932e+03 -0.0033 0.9973320
3:locationHorden:agegroupyounger      -1.8463e+01  5.0932e+03 -0.0036 0.9971077
4:locationHorden:agegroupyounger      -2.0844e+01  5.0932e+03 -0.0041 0.9967347
2:agegroupyounger:contextlocal         4.0337e-01  8.5630e-01  0.4711 0.6376005
3:agegroupyounger:contextlocal         2.1888e-01  8.2706e-01  0.2646 0.7912816
4:agegroupyounger:contextlocal        -3.1253e-02  9.6613e-01 -0.0323 0.9741940
2:agegroupyounger:contextmining        4.3365e-01  1.0260e+00  0.4227 0.6725331
3:agegroupyounger:contextmining        8.4115e-01  9.7882e-01  0.8594 0.3901450
4:agegroupyounger:contextmining        1.8130e+00  1.1802e+00  1.5362 0.1244923
2:agegroupyounger:contextread pass -6.2739e-01  8.1151e-01 -0.7731 0.4394560
3:agegroupyounger:contextread pass -1.0416e+00  7.8037e-01 -1.3347 0.1819772
4:agegroupyounger:contextread pass  1.2535e-01  1.4005e+00  0.0895 0.9286817
2:agegroupyounger:contextword list -2.3384e-01  9.8355e-01 -0.2378 0.8120711
3:agegroupyounger:contextword list -3.5729e-01  9.2089e-01 -0.3880 0.6980292
4:agegroupyounger:contextword lis  -2.7036e+00  1.4410e+00 -1.8761 0.0606362 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


Log-Likelihood: -1322.7
McFadden R^2:  0.16882
Likelihood ratio test : chisq = 537.28 (p.value = < 2.22e-16)
```

Table 27: GOAT R table

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: code ~ location + agegroup + context + mininglexis + mineroccupation +
    agegroup:location + context:mineroccupation + (1 | speaker) +   (1 | word)
data: eas

link	threshold	nobs	logLik	AIC	niter	max.grad	cond.H
logit	flexible	1591	-1198.21	2448.42	2921(11688)	5.88e-04	1.0e+03

Random effects:

Groups	Name	Variance	Std.Dev.
word	(Intercept)	1.3672	1.1693
speaker	(Intercept)	0.9348	0.9669

Number of groups: word 244, speaker 32

Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)
locationDawdon	-0.7193	0.7415	-0.970	0.332047
locationEasington	-2.0031	0.8250	-2.428	0.015177 *
locationHorden	0.4880	0.8097	0.603	0.546670
agegroupyounger	2.7869	0.8912	3.127	0.001766 **
contextlocal	-0.6098	0.3032	-2.011	0.044287 *

contextmining	-0.8185	0.3068	-2.668	0.007625 **
contextpassage	-1.1056	0.5175	-2.137	0.032626 *
contextword list	-1.2816	0.3813	-3.361	0.000777 ***
mininglexisyes	-1.0379	0.5882	-1.764	0.077674 .
occupationnominer	-0.6791	0.6409	-1.060	0.289368
occupationyespit	-0.5017	0.8919	-0.562	0.573813
locationDawdon:agegroupyounger	-3.7598	1.0548	-3.565	0.000364 ***
locationEasington:agegroupyounger	-2.9100	1.1342	-2.566	0.010294 *
locationHorden:agegroupyounger	-5.5595	1.1226	-4.952	7.34e-07 ***
contextlocal:mineroccupationnominer	0.6091	0.3730	1.633	0.102443
contextmining:mineroccupationnominer	0.9279	0.4674	1.985	0.047105 *
contextpassage:mineroccupationnominer	1.7547	0.5656	3.102	0.001919 **
contextword list:mineroccupationnominer	1.7110	0.4052	4.223	2.41e-05 ***
contextlocal:mineroccupationyespit	1.3412	0.5805	2.310	0.020865 *
contextmining:mineroccupationyespit	1.2437	0.5909	2.105	0.035304 *
contextpassage:mineroccupationyespit	2.6578	0.8076	3.291	0.000999 ***
contextword list:mineroccupationyespit	1.0602	0.6154	1.723	0.084893 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Threshold coefficients:

	Estimate	Std. Error	z value
back|cmid	-0.9236	0.7186	-1.285
cmid|front	1.2389	0.7199	1.721

Table 28: START R table

Appendix VIII: Coding worksheets

Due to the number of variables analysed – and for reasons of formatting – the coding of all MOUTH, FACE, GOAT and START tokens may be found on a MS Excel file on the attached disk. The worksheet contains information relating to individual speakers, including their location, age group, education, and occupation, as well as the lexical item produced, its phonological environment (manner of articulation and voicing), the topic or read speech task in which it is uttered, and whether or not the word is mining vocabulary.

References

Aalen, F. 2006. 'North-eastern landscapes', in Aalen, F. & O'Brien, C. (eds.) *England's landscape: The North East*. London: Collins, 11-16.

Adank, P., Smits, R. & van Hout, R. 2004. 'A comparison of vowel normalisation procedures for language variation research', *Journal of the Acoustical Society of America* 116 (5): 3099-3107.

Addy, S. 1888. *A Glossary of words used in the neighbourhood of Sheffield*. London: Trubner & Co for the English Dialect Society.

Adey, P. 2010. *Mobility.* Abingdon, Routledge.

Aitchison, J. 1997. *The Language Web. The Power and Problem of Words.* Cambridge: Cambridge University Press.

Alam, F. 2007. *Language and Identity in 'Glaswasian' Adolescents*. Unpublished M.Phil dissertation. Glasgow: University of Glasgow.

Alexander, A. 2009. *Britain's new towns: garden cities to sustainable communities*. Oxford: Routledge.

Allan, J. 2000. 'Lubetkin and Peterlee', in Dekker, T. (ed.) *Modern City Revisited.* London: Spon Press, 103-124.

Altendorf, U. & Watt, D. 2008. 'The dialects in the south of England: Phonology' in Kortmann, B. & Upton, C. (eds.) *Varieties of English. Vol. 1: The British Isles*. Berlin: Mouton de Gruyter, 194-222.

Altendorf, U. 2003. *Estuary English*. Tübingen: Gunter Narr Verlag.

Amos, J. 2011. *A Sociophonological Analysis of Mersea Island English: An Investigation of the Diphthongs (aʊ), (aɪ) and (ɔɪ)*. Unpublished PhD thesis. Colchester: University of Essex.

Anderson, P. 1987. *A structural atlas of the English dialects*. North Ryde, New South Wales: Croom Helm.

Androutsopoulos, J. 2005. 'Research on youth language' in Ammon, U., Dittmar, N., Mattheier, K. & Trudgill, P. (eds.) *Sociolinguistics: An International Handbook of the Science of Language and Society.* Vol. 2. Second edition. Berlin: Walter de Gruyter, 1496-1505.

Ash, S. 2013. 'Social class', in Chambers, J. K. & Schilling, N. (eds.) *The Handbook of Language Variation and Change*. Second edition. Malden: Wiley-Blackwell, 350-367.

Atkinson, J. 2011. *Linguistic variation and change in a North-East border town: a sociolinguistic study of Darlington*. Unpublished PhD thesis. Newcastle upon Tyne: University of Newcastle upon Tyne.

Atkinson, J. M. & Heritage, J. 1984. 'Transcript Notation', *Structures of Social Action: Studies in Conversational Analysis*. Cambridge: Cambridge University Press, xi – xvi.

Auer, P. & Hinskens, F. 1996. 'The convergence and divergence of dialects in Europe. New and not so new developments in an old area' in Ammon, U., Mattheier, K. J. & Nelde, P. H. (eds.) *Sociolinguistica, International Yearbook of European Sociolinguistics* 10: 1-30.

Auer, P. 1998. 'Dialect Levelling and the Standard Varieties in Europe', *Folia Linguistica* 32: 1.

Auer, P. 2007. 'Mobility, contact and accommodation' in Llamas, C., Mullany, L. & Stockwell, P. (eds.) *The Routledge Companion to Sociolinguistics*. London: Routledge, 109-115.

Bailey, G. & Tillery, J. 1999. 'The Rutledge effect: the impact of interviewers on survey results in linguistics', *American Speech* 74: 389-402.

Bailey, G., Wikle, T., & Tillery, J. 1991. 'The apparent time construct', *Language Variation and Change* 3: 241-264.

Bailey, G., Wikle, T., Tillery, J. & Sand, L. 1993. 'Some patterns of linguistic diffusion', *Language Variation and Change* 5 (3): 359-390.

Bauer, L. 1985. 'Tracing phonetic change in the received pronunciation of British English', *Journal of Phonetics* 13: 61-81.

Beal, J, C. 1993. 'The grammar of Tyneside and Northumbrian English' in Milroy, J. & Milroy, L. (eds.) *Real English: the grammar of English dialects in the British Isles.* London: Longman, 187-213.

Beal, J. C. 1985. 'Lengthening of ɑ in Tyneside English' in Eaton, R., Fischer, O., Koopman, W. F. & van der Leek, F. (eds) *Papers from the Fourth International Conference on English Historical Linguistics*. Amsterdam: John Benjamins, 31-44.

Beal, J. C. 2000. 'From Geordie Ridley to Viz: Popular Literature in Tyneside English', *Language and Literature* 9 (4): 343-359.

Beal, J. C. 2004. 'Geordie Nation: Language and Identity in the North-east of England', *Lore and Language* 17: 33-48.

Beal, J. C. 2008. 'English dialects in the north of England: Phonology' in Kortmann, B. & Upton, C. (eds.) *Varieties of English. Vol. 1: The British Isles*. Berlin: Mouton de Gruyter, 122-144.

Beal, J. C., Burbano-Elizondo, L., & Llamas, C. 2012. *Urban North-Eastern English: Tyneside to Teesside*. 'Edinburgh Dialects of English' series, Edinburgh: Edinburgh University Press.

Becker, K. 2009. '/r/ and the construction of place identity on New York City's Lower East Side', *Journal of Sociolinguistics* 13 (5): 634–658.

Becker, K. 2010. *Regional dialect features on the Lower East Side of New York City: Sociophonetics, ethnicity, and identity.* Unpublished Ph.D. thesis. New York: New York University.

Bell, A. 1984. 'Language style as audience design', *Language in Society* 13: 145-204.

Bennett, K. 2009. 'Telling Tales: Nostalgia, Collective Identity and an Ex-Mining Village' in Smith, M., Davidson, J., Cameron, L. & Bondi, L. (eds.) *Emotion, Place and Culture*. Farnham: Ashgate, 187-206.

Bennett, T., Savage, M., Silva, E. B., Warde, A., Gayo-Cal, M. & Wright, D. 2008. *Culture, Class, Distinction*. London: Routledge.

Benneworth, P. & Charles, D. 2007. 'Bringing Cambridge to Consett? Understanding university spin-offs' impacts on less successful regions' in Groen, A., Oakey, R., van der Sijde, P. & Kauser, S. (eds.) *New Technology-based Firms in The New Millennium.* Vol. 5. Oxford: Elsevier, 69-88.

Berruto, G. 2010. 'Identifying dimensions of linguistic variation in a language space' in Auer P. & Schmidt J. E. (eds.) *Language and Space. An International Handbook of Linguistic Variation.* Vol. 1. Berlin-New York: de Gruyter, 226-241.

Beynon, H., Hudson, R. & Sadler, D. 1985. 'Horden Colliery, County Durham' in Samuel, R., Bloomfield, B. & Boanas, G. *The Enemies within: Pit Villages and the Miners Strike, 1984/5*. London: Routledge and Kegan Paul, 43-51.

Bezooijen, R. van & Heuven, V.J.J.P. van. 2010. 'Avant-garde Dutch: A perceptual, acoustic, and evaluational study' in Preston D.R., Niedzielski N. (eds.) *A reader in sociophonetics*. New York: De Gruyter Mouton, 357-378.

Bigham, D. S. 2008. *Dialect Contact and Accommodation among Emerging Adults in a University Setting.* Unpublished PhD Dissertation. Austin: University of Texas at Austin.

Black, D. 2009. 'Still unbowed, ex-miners to mark 25 years since the start of the strike', *The Journal* 21 February 2009: http://www.thejournal.co.uk/news/north-east-news/still-unbowed-ex-miners-mark-25-4488387

Blom, J-P., & Gumperz, J. 1972. 'Social meaning in linguistic structure: Code-switching in Norway' in Gumperz, J. & Hymes, D. (eds.) *Directions in Sociolinguistics: The Ethnography of Communication*. New York: Holt, Rinehart and Winston, 407–432.

Blondeau, H. 2001. 'Real-time changes in the paradigm of personal pronouns in Montreal French', *Journal of Sociolinguistics* 5: 453-474.

Blondeau, H., Sankoff, G. & Charity, A. 2002. 'Parcours individuels dans deux changements linguistiques en cours en français montrealais', *Revue quebecoise de linguistique* 31:13-38.

Bloomfield, L. 1933. *Language.* London: Allen & Unwin.

Boberg, C. 2000. 'Geolinguistic diffusion and the U.S.-Canadian border', *Language Variation and Change* 12: 1-24.

Boersma, P. & Weenink, D. 2012. *Praat: doing phonetics by computer [Computer program]. Version 5.3.35*. Retrieved: 8 December 2012: http://www.praat.org/

Bott, E. 1971. *Family and social network. 2nd Edition*. London: Tavistock.

Bourdieu, P. 1984. *Distinction*. London: Routledge.

Bowie, D. 2005. 'Language Change over the Lifespan: A Test of the Apparent Time Construct', *University of Pennsylvania Working Papers in Linguistics* 11 (2): 45-58.

Bradley, H. 1995. 'Gender relations and changing patterns of employment in the North-East region' in Erickson, M. & Williams, S. (eds.) *Social change in Tyne and Wear*. Proceedings of the Jobs, Training and Society (JETS) conference, held at the University of Sunderland Washington campus, 13 May 1994.

Bresnan, J., Cueni, A., Nikitina, T. & Baayen, R. H. 2007. 'Predicting the dative alternation' in Bouma, G., Kraemer, I. & Zwarts, J. (eds.) *Cognitive foundations of interpretation*. Amsterdam: Royal Netherlands Academy of Arts and Sciences, 69-94.

Britain, D. 1991. *Dialect and space: a geolinguistic study of speech variables in the Fens*. Unpublished Ph.D. dissertation. Colchester: University of Essex.

Britain, D. 1992. 'Linguistic change in intonation: The use of high-rising terminals in New Zealand English', *Language Variation and Change* 4: 77-103.

Britain, D. 1997. 'Dialect contact and phonological reallocation: 'Canadian Raising' in the English Fens', *Language in Society* 26: 15-46.

Britain, D. 2000. 'The difference that space makes: an evaluation of the application of human geographic thought in sociolinguistic dialectology', *Essex Research Reports in Linguistics*. Colchester: University of Essex.

Britain, D. 2002a. 'Phoenix from the ashes? : The death, contact and birth of dialects in England', *Essex Research Reports in Linguistics*. Colchester: University of Essex.

Britain, D. 2002b. 'Diffusion, levelling, simplification and reallocation in past tense BE in the English Fens', *Journal of Sociolinguistics* 6 (1): 16-43.

Britain, D. 2002c. 'Space and spatial diffusion' in Chambers, J.K., Trudgill, P. & Schilling-Estes, N. (eds.) *The Handbook of Language Variation and Change*. First edition. Oxford: Blackwell, 603-637.

Britain, D. 2003. 'Exploring the importance of the outlier in sociolinguistic dialectology' in Britain, D. & Cheshire, J. (eds.) *Social Dialectology: In Honour of Peter Trudgill*, Amsterdam; Philadelphia: John Benjamins, 191-208.

Britain, D. 2005. 'Innovation diffusion, 'Estuary English' and local dialect differentiation: the survival of Fenland Englishes', *Linguistics* 43 (5): 995-1022.

Britain, D. 2008. 'When is a change not a change?: a case study on the dialect origins of New Zealand English', *Language Variation and Change* 20: 187-223.

Britain, D. 2009. 'One foot in the grave? Dialect death, dialect contact, and dialect birth in England', *International Journal of the Sociology of Language* 196-197: 121–155

Britain, D. 2010. 'Supralocal regional dialect levelling' in Llamas, C. & Watt, D. (eds.) *Language and identities*. Edinburgh: Edinburgh University Press, 193-204.

Britain, D. 2011. 'The heterogenous homogenisation of dialects in England', *Taal & Tongval* 63: 43-60.

Britain, D. 2012. 'Countering the urbanist agenda in variationist sociolinguistics' in Hansen, S., Schwarz, C., Stoeckle, P. & Streck, T. (eds.) *Dialectological and Folk Dialectological Concepts of Space*. Berlin: de Gruyter: 12-30.

Britain, D. 2013. 'Space, diffusion and mobility' in Chambers, J. K. & Schilling, N. (eds.) *The Handbook of Language Variation and Change*. Second Edition. Oxford: Blackwell, 471-500.

Britain, D. & Simpson, S. 2007. 'Dialect levelling in Telford New Town', *Essex Research Reports in Linguistics*. Colchester: University of Essex.

Britain, D. & Sudbury, A. 2007. 'What can the Falkland Islands tell us about Diphthong Shift?', *Essex Research Reports in Linguistics.* Colchester: University of Essex.

Brown, P. & Levinson, S. 1979. 'Social Structure, Groups and Interaction' in Scherer, K. R. & Giles, H. (eds.) *Social Markers in Speech*. Cambridge: Cambridge University Press, 291-341.

Bucholtz, M. 1999. '"Why be normal?": Language and identity practices in a community of nerd girls', *Language in Society* 28: 203–223.

Bucholtz, M. 2003. 'Sociolinguistic nostalgia and the authentication of identity', *Journal of Sociolinguistics* 7: 398-416.

Bucholtz, M., & Hall, K. 2004. 'Theorizing identity in language and sexuality research', *Language in Society* 33: 469-515.

Bulmer, M. 1978. 'The Decline of Mining: a Case Study in Spennymoor', *Mining and social change: Durham County in the twentieth century*. London: Croom Helm, 235-264.

Burbano-Elizondo, L. 2003. 'First approaches to the unexplored dialect of Sunderland', *Miscelanea: A Journal of English and American Studies* 27: 51-68.

Burbano-Elizondo, L. 2006. 'Regional variation and identity in Sunderland' in Omoniyi, T. & White, G. (eds.) *The sociolinguistics of identity*. London: Continuum, 113-128.

Burbano-Elizondo, L. 2008. *Language variation and identity in Sunderland*. Unpublished Ph.D. dissertation. Sheffield: University of Sheffield.

Burridge, K. & Kortmann, B. 2008. *Varieties of English. Vol. 3: The Pacific and Australasia*. Berlin: Mouton de Gruyter.

Bybee, J. 2000. 'The Phonology of the Lexicon: Evidence from Lexical Diffusion' in Barlow, M. & Kemmer, S. (eds.) *Usage-Based Models of Language.* Stanford: CSLI Publications, 65–85.

Bybee, J. 2001. *Phonology and Language Use*. Cambridge: Cambridge University Press.

Bybee, J. 2002. 'Word frequency and context of use in the lexical diffusion of phonetically conditioned sound change', *Language Variation and Change* 14: 261–290.

Bybee, J. & Hopper, P. 2001. *Frequency and the emergence of linguistic structure*. Amsterdam: John Benjamins.

CACI Information Solutions. 1999. *The Geodemographic Pocket Book*. Henley-on-Thames: NTC Publications.

Casciani, D. 2008. 'The Whitest Place in England', BBC News Online, 6 March 2008: http://news.bbc.co.uk/1/hi/magazine/7281107.stm

Cedergren, H. 1973. 'The Interplay of Social and Linguistic Factors in Panama'. Unpublished Ph.D. dissertation. New York: Cornell University.

Cedergren, H. 1987. 'The spread of language change: Verifying inferences of linguistic diffusion' in Lowenberg, P. H. (ed.) *Language Spread and Language Policy: Issues, Implications and Case Studies, Georgetown University Round Table on Languages and Linguistics 1987*. Washington, DC: Georgetown University Press, 45-60.

Chambers, J. K. 1973. 'Canadian raising', *Canadian Journal of Linguistics* 18: 113-135.

Chambers, J. K. 1981a. 'Linguistic variation and Chomsky's "homogeneous speech community"' in Kinloch, A. M. (ed.) *Papers from the Fourth Annual Meeting of the Atlantic Provinces Linguistic Association.* New Brunswick, Nova Scotia: University of New Brunswick, 1-31.

Chambers, J. K. 1981b. 'The Americanization of Canadian raising' in Masek, C. S., Hendrick, R. A. & Miller, M. F. (eds.),*Papers from the parasession on language and behaviour: Chicago Linguistic Society.* Chicago: Chicago Linguistic Society, 20-35.

Chambers, J. K. 1989. 'Canadian raising, blocking, fronting, etc.', *American Speech* 64: 75-88.

Chambers, J. K. 1995. *Sociolinguistic Theory.* First edition. Oxford: Blackwell.

Chambers, J. K. 2003. *Sociolinguistic Theory*. Second edition. Oxford: Blackwell.

Chambers, J. K., & Hardwick, M. F. 1986. 'Comparative sociolinguistics of a sound change in Canadian English', *English World Wide* 7 (1): 23-46.

Chambers, J. K & Trudgill, P. 1980. *Dialectology*. First edition. Cambridge: Cambridge University Press.

Chambers, J. K. & Trudgill, P. 1998. *Dialectology.* Second edition. Cambridge: Cambridge University Press.

Champion, T. 2009. 'Urban-Rural differences in commuting in England: a challenge to the rural sustainability agenda?', *Planning, Practice and Research* 24: 161-183.

Champion, T., Coombes, M. & Brown, D. 2009. 'Migration and longer-distance commuting in England', *Regional Studies* 43: 1245-1259.

Cheshire, J. 1982. *Variation in an English dialect: a sociolinguistic study.* Cambridge: Cambridge University Press.

Cheshire, J. 1987. 'Syntactic variation, the linguistic variable, and sociolinguistic theory', *Linguistics* 25: 257-282.

Cheshire, J., Edwards, V. & Whittle, P. 1989. 'Urban British dialect grammar: the question of dialect levelling', *English World Wide* 10 (2): 185-225.

Cheshire, J., Fox, S., Kerswill P., & Torgersen, E. 2008. 'Ethnicity as the motor of dialect change: Innovation and levelling in London', *Sociolinguistica* 22: 1-23

Cheshire, J., Gillett, A., Kerswill, P., & Williams, A. 1999. *The Role of Adolescents in Dialect Levelling.* Final Report Submitted to the ESRC, June 1999. (ESRC Ref. R000236180).

Chouinard, V. 1996. 'Structure and Agency: contested concepts in Human Geography' in Earle, C., Mathewson, K., and Kenzer, M. (eds.) *Concepts in Human Geography.* Savage: Rowman and Littlefield, 383-410.

Christensen, R. 2013. 'Package 'Ordinal'', *R Package Version 2013,* 9-30: http://cran.r-project.org/web/packages/ordinal/ordinal.pdf

Clark, J. & Yallop, C. 1995. *An Introduction to Phonetics and Phonology.* Second edition. London: Blackwell.

Coates, J. 1993. *Women, Men and Language*. Second edition. London: Longman.

Cohen, A. P. 1982. *Belonging*. Manchester: Manchester University Press.

Cohen, A. P. 1985. *The Symbolic Construction of Community*. Chichester: Ellis Horwood.

Cosgrove, D. 1983. 'Towards a radical cultural geography', *Antipode* 15 (4): 1-11.

Coupland, N. 1992. *Dialect in Use*. Clevedon: Multilingual Matters.

Coupland, N. 2001. 'Language, situation and the relational self: theorising dialect style in sociolinguistics' in Rickford, J. & Eckert, P. (eds.) *Style and Sociolinguistic Variation*. Cambridge: Cambridge University Press, 185–210.

Coupland, N. 2003. 'Sociolinguistic authenticities', *Journal of Sociolinguistics* 7: 417-431.

Coupland, N. 2007. *Style: Language Variation and Identity*. Cambridge: Cambridge University Press.

Cramer, J. 2010. *The Effect of Borders on the Linguistic Production and Perception of Regional Identity in Louisville, Kentucky*. Unpublished PhD thesis. Champaign: University of Illinois at Urbana-Champaign.

Crompton, R. 2008. *Class and Stratification*. Third edition. Cambridge: Polity Press.

Cross, D. F. W. 1990. *Counterurbanisation in England and Wales.* Aldershot: Avebury.

Crothers, J. 1978. 'Typology and universals of vowel systems' in Greenberg, J. H. (ed.) *Universals of Human Language. Volume II: Phonology*. Stanford: Stanford University Press, 93-152.

Cukor-Avila & Bailey, G. 2013. 'Real and Apparent Time' in Chambers, J. K. & Schilling, N. (ed.) *The Handbook of Language Variation and Change*. Second Edition. Oxford: Blackwell, 239-262.

Dailey-O'Cain, J. 1997. 'Canadian raising in a mid-western U.S. city', *Language Variation and Change* 9: 107-120.

Davidson, S. 2012. *Going Grey: The Mediation of Politics in an Aging Society*. Farnham: Ashgate.

Davies, B. 2005. 'Communities of Practice: Legitimacy not Choice', in *Journal of Sociolinguistics* 9 (4): 557 – 581

Department for Communities and Local Government. 2006. 'Indices of Deprivation 2004': www.communities.gov.uk

Dobson, E.J. 1968. *English pronunciation, 1500–1700* 2. Oxford: Clarendon Press

Docherty, G. J. & Foulkes, P. 1999. 'Derby and Newcastle: Instrumental phonetics and variationist studies', *Urban Voices: Accent Studies in the British Isles*. London: Arnold, 47-71.

Docherty, G. J., Hall, D., Llamas, C., Nycz, J. & Watt, D. 2014, forthcoming. 'Language and identity on the Scottish/English border', to appear in Watt, D. & Llamas, C. (eds.) *Language, Borders and Identity*. Edinburgh: Edinburgh University Press.

Docherty, G. J., Watt, D., Llamas, C., Hall, D. & Nycz, J. 2011. 'Variation in Voice Onset Time along the Scottish-English border', *Proceedings of the 17th International Congress of Phonetic Sciences, Hong Kong, August 2011*, 591-594.

Docherty, G., Foulkes, P., Milroy, J., Milroy, L. & Walshaw, D. 1997. 'Descriptive adequacy in phonology: a variationist perspective', *Journal of Linguistics* 33: 275-310.

Dorling. D. 1995. *A New Social Atlas of Britain*. New York: Wiley.

Douglas-Cowie, E. 1978. 'Linguistic code-switching in a Northern Irish village: social interaction and social ambition' in Trudgill, P. (ed.) *Sociolinguistic Patterns in British English*. London: Edward Arnold, 37-51.

Downes, W. 1984. *Language and Society*. London: Fontana.

Drager, K. & Hay, J. 2012. 'Exploiting Random Intercepts: Two case studies in sociophonetics', *Language Variation & Change* 24 (1): 59-78.

Drager, K., Hay, J. & Walker, A. 2010. 'Pronounced rivalries: Attitudes and speech production', *Te Reo* 53: 27-53.

Duncan, O. D. 1961. 'A socioeconomic index for all occupations' in Reiss, A. with Duncan, O. D., Hatt, P. K. & North, C. C. (eds.) *Occupations and Social Status*. New York: Free Press, 109-138.

Durham County Council. 2014. 'Seaton Holme: An Ancient Manor': http://parishes.durham.gov.uk/SiteCollectionDocuments/easingtonvillage/SEATON%20H OLME%20AN%20ANCIENT%20MANOR.pdf

Durham Record Office. 2012. 'Coal Mining and Durham Collieries':
http://www.durhamrecordoffice.org.uk/Pages/CoalminingandDurhamcollieries.aspx

Dyer, J. 2000. *Language and identity in a Scottish-English community: a phonological and discoursal analysis*. Unpublished Ph.D dissertation. Ann Arbor: University of Michigan.

Dyer, J. 2002. '"We all speak the same round here": Dialect levelling in a Scottish-English community', *Journal of Sociolinguistics* 6 (1): 99-116.

Eckert, P. & McConnell-Ginet, S. 1992. 'Think practically and look locally: language and gender as community-based practice', *Annual Review of Anthropology* 21: 461-90.

Eckert, P. 1989a. *Jocks and Burnouts: Social Categories and Identity in the High School*. New York: Teachers College Press.

Eckert, P. 1989b. 'The whole woman: Sex and gender differences in variation', *Language Variation and Change* 1: 245-267.

Eckert, P. 1997. 'Age as a sociolinguistic variable' in Coulmas, F. (ed.) *The Handbook of Sociolinguistics*. Oxford: Blackwell, 151-167.

Eckert, P. 2000. *Linguistic Variation as Social Practice: The Linguistic Construction of Social Identity in Belsen High.* Oxford: Blackwell.

Eckert, P. 2003. 'Sociolinguistics and authenticity: An elephant in the room', *Journal of Sociolinguistics* 7: 392-431.

Eckert, P. 2005. 'Variation, convention, and social meaning', paper presented at the Annual Meeting of the Linguistic Society of America, 6–9 January, Oakland, California.

Eckert, P. 2008. 'Variation and the indexical field', *Journal of Sociolinguistics* 12 (4): 453-476.

Ellis, A. 1889. *On Early English Pronunciation*. London: Truebner & Co.

Englebrecht, G. 2014. 'Plans for nature reserve on site of former Easington pit', *The Northern Echo* 8 October 2014:
http://www.thenorthernecho.co.uk/news/11522746.Plans_for_nature_reserve_on_site_of_former_Easington_pit/

Entrikin, J. N. 1991. *The Betweenness of Place: Towards a Geography of Modernity*. Baltimore: Johns Hopkins University Press.

Eremeeva, V. & Stuart-Smith, J. 2003. 'A Sociophonetic Investigation of the Vowels OUT and BIT in Glaswegian' in Solé, M.J., Recasens, D. & Romero, J. (eds.) *Proceedings of the XVth International Congress of Phonetic Sciences,* 1205–1208.

Ervin-Tripp, S. 1964. 'An analysis of the interaction of language, topic and listener', *American Anthropologist* 66: 86-102.

Eustace, S. S. 1969. 'The meaning of the palaeotype in A. J. Ellis's *On Early English Pronunciation* 1869-89', *Transactions of the Philological Society* 68: 31–79.

Farrar, K. & Jones, M. C. 2002. 'Introduction' in Jones, M. C. & Esch, E. (eds.) *Language Change: The Interplay of Internal, External and Extra-Linguistic Factors*. Berlin: Mouton de Gruyter, 1-16.

Feagin, C. 1996. 'Peaks and glides in Southern States short-a' in Guy, G., Feagin, C., Schiffrin, D. & Baugh, J. (eds.) *Towards a Social Science of Language: Papers in honor of William Labov. Volume 1, Variation and Change in Language and Society.* Amsterdam: Benjamins, 135-160.

Feagin, C. 2013. 'Entering the Community: Fieldwork', in Chambers, J. K. & Schilling, N. (eds.) *The Handbook of Language Variation and Change*. Second edition. Malden: Wiley-Blackwell, 19-37.

Field, A., Miles, J., & Field, Z. 2012. *Discovering Statistics Using R*. London: Sage.

Findlay, A., Stockdale, A., Findlay A., & Short, D. 2001. 'Mobility as a driver of change in rural Britain: an analysis of the links between migration, commuting and travel to shop patterns', *International Journal of Population* Geography 7: 1-15.

Fischer, C. 1984. *The Urban Experience.* Second edition. New York: Harcourt Brace Jovanovich.

Fischer, J. 1958. 'Social Influences on the Choice of a Linguistic Variant', *Word* 14: 47-56.

Fisher, R. 1925. *Statistical Methods For Research Workers*. Edinburgh: Oliver & Boyd.

Fleming, N. C. 2005. *The Marquess of Londonderry: aristocracy, power and politics in Britain and Ireland*. London; New York: I.B. Tauris.

Flynn, N. 2012. *A Sociophonetic Study of Nottingham Speakers*. Unpublished Ph.D. dissertation. York: University of York.

Foulkes, P. 2005. 'Sociophonetics' in Brown, Keith (ed.) *Encyclopaedia of Language and Linguistics*. Second edition. Amsterdam: Elsevier Press, 495-500.

Foulkes, P. 2006. 'Phonological variation: A global perspective' in Aarts, B. & McMahon, A. (eds.) *The Handbook of English Linguistics*. Oxford: Blackwell, 625-669.

Foulkes, P. & Docherty, G. J. (eds.) 1999a. *Urban Voices: Accent Studies in the British Isles*. London: Arnold.

Foulkes, P. & Docherty, G. J. 1999b. 'Urban Voices – Overview', *Urban Voices: Accent Studies in the British Isles*. London: Arnold, 1-24.

Foulkes, P. & Docherty, G. J. 2001. 'Variation and change in British English (r)' in Velde, H. van de & Hout, R. van (eds.) *r-atics: Sociolinguistic, Phonetic and Phonological Characteristics of/r/.* Brussels: ILVP.

Foulkes, P. & Docherty, G. J. 2006. 'The social life of phonetics and phonology', *Journal of Phonetics* 34: 409–438.

Foulkes, P. & Docherty, G. J. 2007. 'Phonological variation in England' in Britain, D. (ed.) *Language in the British Isles*. Second edition. Cambridge: Cambridge University Press, 52-74.

Foulkes, P., Docherty, G. J. & Watt, D. 1999. 'Tracking the Emergence of Structured Variation - Realisations of (t) by Newcastle Children', *Leeds Working Papers in Linguistics and Phonetics* 7: 1-25.

Fox, S. 2007. *The Demise of 'Cockneys'?: Language Change in London's 'Traditional' East End*. Unpublished PhD dissertation. Colchester: University of Essex.

Frean, A. 2003. 'England's whitest town in bad health', *The Times* 14 February 2003: http://www.thetimes.co.uk/tto/news/uk/article1958016.ece

Friedman, H. & Schustack, M. 2003. *Personality: Classic Theories and Modern Research*. Boston: Pearson Allyn & Bacon.

Gairns, R. & Redman, S. 1986. *Working with words: A guide to teaching and learning vocabulary*. Cambridge: Cambridge University Press.

Gee, J. P. 2008. 'Learning and Games' in Salen, K. (ed.) *The Ecology of Games: Connecting Youth, Games, and Learning*. Cambridge, MA.: MIT Press, 21-40.

Gerritsen, M. 1987. 'Sociolinguistic developments as a diffusion process' in Ammon, U., Dittmar, N. & Mattheier, K. (eds.) *Sociolinguistics: an international handbook of the science of language and society*. Berlin: de Gruyter, 1574-1591.

Giddens, A. 1984. *The Constitution of Society: Outline of the Theory of Structuration*. Cambridge: Polity Press.

Giles, H., & Powesland, P. 1975. *Speech style and social evaluation*. London: Academic Press.

Giles, H., Coupland, J. & Coupland, N. 1991. *Contexts of Accommodation*. Cambridge: Cambridge University Press.

Glauser, B. 1988. 'Aitken's context in Northumberland, Cumberland and Durham: a computer-assisted analysis of material from the Survey of English Dialects (SED)' in Thomas, A.R. (ed.) *Methods in Dialectology*. Clevedon: Multilingual Matters, 611-624

Gordon, M. 2007. 'Techniques of analysis (I) Phonological variation' in Llamas, C., Mullany, L. & Stockwell, P. (eds.) *The Routledge Companion to Sociolinguistics*. London: Routledge, 19-27.

Gordon, E., Campbell, L., Hay, J., Maclagan, M., Sudbury, A., & Trudgill, P. 2004. *New Zealand English: Its Origins and Evolution*. 'Studies in English Language' series. Cambridge: Cambridge University Press.

Greenwell, G. C. 1849. *Northumberland. A glossary of terms used in the coal trade of Northumberland and Durham*. London: Bemrose.

Gregory, D. 1985. 'Suspended animation: The stasis of diffusion theory' in Gregory, D. & Urry, J. (eds.) *Social Relations and Spatial Structures.* London: Macmillan, 269-336.

Gregory, D. 2000. 'Regions and Regional Geography' in Johnston, R., Gregory, D., Pratt, G. & Watts, M. (eds.) *The Dictionary of Human Geography.* Fourth edition. Oxford: Blackwell, 687-690.

Griffiths, W. 1999. *North-eastern Dialect: Survey and Word-list*. Newcastle upon Tyne: Centre for Northern Studies, University of Northumbria.

Griffiths, W. 2007. *Pitmatic: The Talk of the North East Coalfields.* Newcastle upon Tyne: Northumbria University Press.

Gumperz, J. 1968. 'The speech community' in Sills, D. L. (ed.) *International Encyclopedia of the Social Sciences*. New York: Macmillan, 381-386.

Guy, G. 1993. 'The quantitative analysis of linguistic variation' in Preston, D. (ed.) *American Dialect Research*. Amsterdam: John Benjamins, 223-249.

Guy, G. 2003. 'Variationist approaches to phonological change' in Joseph, B. & Janda, R. (eds.) *The Handbook of Historical Linguistics*. Oxford: Blackwell, 369-400.

Haag, K. 1929/30. 'Sprachwandel in Lichte der Mundartgrendzen', *Teuthonista* 6 (1): 1-35.

Haddican, W., Foulkes, P., Hughes, V. & Richards, H. 2013. 'Interaction of social and linguistic constraints on two vowel changes in northern England', *Language Variation and Change* 25 (3): 371-403.

Hagerstrand, T. 1967 [1953]. *Innovation Diffusion as a Spatial Process.* Chicago: University of Chicago Press.

Harrington, J. 2006. 'An acoustic analysis of '*happ*Y-tensing' in the Queen's Christmas broadcasts', *Journal of Phonetics* 34 (4), 439-457

Harrington, J., Palethorpe, S. & Watson, C. 2000. 'Monophthongal vowel changes in Received Pronunciation: an acoustic analysis of the Queen's Christmas broadcasts', *Journal of the International Phonetic Association*, (30), 63-78.

Harrison, P. 2011. 'Formant Measurement Errors from Real Speech', IAFPA conference, Vienna, Austria.

Hartley, L. & Preston, D. 1999. 'The names of US English' in Bex, T. & Watts, R. J. (eds.) *Standard English*. London: Routledge, 207-38.

Hawkins, S. & Midgley, J. 2005. 'Formant frequencies of RP monophthongs in four age-groups of speakers', *Journal of the International Phonetic Association* 35 (2): 183-199.

Hay, J. & Foulkes, P. Forthcoming, 2015. 'The evolution of medial (-t-) in real and remembered time', to appear in *Language*.

Hay, J., & Maclagan, M. 2010. 'Social and phonetic conditioners on the frequency and degree of 'intrusive/r/' in New Zealand English' in Preston, D. & Niedzielski, N. (eds.) *A Reader in Sociophonetics*. Berlin; New York: de Gruyter, 41-70.

Henton, C. 1983. 'Changes in the vowels of received pronunciation', *Journal of Phonetics* 11 (4): 353-371.

Hernández Campoy, J. & Villena-Ponsoda, J. 2009. 'Standardness and Non-Standardness in Spain: Dialect attrition and revitalisation of regional dialects of Spanish', *International Journal of the Sociology of Language* 196-197: 181-214.

Hernández Campoy, J. 1999. *Geolinguistica: modelos de interpretacion geografica para linguistas*. Murcia: Universidad de Murcia.

Hernández Campoy, J. 2000a. 'Requisitos teorico-metodologicos para el studio geolinguistico del dialecto murciano' in Jimenez Cano, J. M. (ed.) *Estudios sociolinguisticos del dialect Murciano*. Murcia: Universidad de Murcia.

Hernández Campoy, J. 2000b. 'Geolinguistic patterns of diffusion in a Spanish region: the case of the dialect of Murcia, MS.

Heslop, R. O. 1892. *Northumberland Words*. London: English Dialect Society

Hickey, R. 1995. 'An assessment of language contact in the development of Irish English' in Fisiak, J. (ed.) *Language Change Under Contact Conditions*. Berlin: de Gruyter, 109–130.

Hickey, R. 2004. *A Sound Atlas of Irish English*. Berlin; New York: de Gruyter.

Hintzman, D. 1986. 'Schema abstraction' in a multiple-trace memory model', *Psychological Review* 93: 411–428.

Historical Geographical Information System Project. 2014. 'A Vision Of Britain Through Time': http://www.visionofbritain.org.uk/census/

Holderness, M. 1983. *The Changing Role of Women in South Yorkshire 1960-1980.* Barnsley: Holderness.

Holmes, H. 2000. *Phonetic variation and percepts of accentedness*. Unpublished BSc dissertation. Newcastle upon Tyne: University of Newcastle upon Tyne.

Holmes, J. 2001. *An Introduction to Sociolinguistics*. Harlow: Pearson.

Holmes, J. & Meyerhoff, M. 1999. 'The community of practice: theories and methodologies in language and gender research', *Language in Society* 28: 173-183.

Horvath, B. & Horvath, R. 1997. 'The geolinguistics of a sound change in progress: /l/ vocalisation in Australia' in Boberg, C., Meyerhoff, M., & Strassel, S. (eds.) *A Selection of Papers from NWAVE 25. Special Issue of Univeristy of Pennsylvania Working Papers in Linguistics* 4: 109-124.

Horvath, B. & Horvath, R. 2001. 'A multilocality study of a sound change in progress: the case of /l/ vocalisation in New Zealand and Australian English', *Language Variation and Change* 13: 37-57.

Hudson, R. 1980. *Sociolinguistics*. Cambridge: Cambridge University Press.

Hudson, R. 2001. *Sociolinguistics*. Third edition. Cambridge: Cambridge University Press.

Hughes, A. & Trudgill, P. 1979. *English Accents and Dialects: An Introduction to Social and Regional Varieties of English in the British Isles*. London: Arnold.

Hughes, A. & Trudgill, P. 1996. *English Accents and Dialects: An Introduction to Social and Regional Varieties of English in the British Isles*. Third edition. London: Arnold.

Hughes, M. 2009. *Social Trends 39*. Basingstoke: Palgrave Macmillan.

Irvine, J. T. & Gal, S. 2000. 'Language ideology and linguistic differentiation' in Kroskrity, P. (ed.) *Regimes of Language*. Santa Fe: School of American Research Press, 35-83.

Jacewicz, E. & Fox, R. A. 2012. 'The effects of cross-generational and cross-dialectal variation on vowel identification and classification', *Journal of the Acoustical Society of America* 131 (2): 1413-1433.

Jacewicz, E., Fox, R. A. & Salmons, J. 2011. 'Vowel change across three age groups of speakers in three regional varieties of American English', *Journal of Phonetics* 39: 683-693

Jackson, P. 1980. 'A plea for cultural geography', *Area* 12: 110-113.

Jansen, S. 2010. 'High back vowel fronting in the north-west of England' in Calamai , S., Celata , C. & Ciucci, L. (eds.), *Proceedings of "Sociophonetics, at the crossroads of speech variation, processing and communication"*. Pisa: Edizioni della Normale, 29–32.

Jespersen, O. 1909. *A Modern English Grammar*. Heidelberg: Carl Winter.

Jessen, M. 2007. 'Speaker Classification in Forensic Phonetics and Acoustics' in Müller, C. (ed.) *Speaker Classification I: Fundamentals, Features, and Methods*. Berlin: Springer-Verlag, 180-204.

Johnson, D. E. 2009. 'Getting off the GoldVarb standard: Introducing Rbrul for mixed-effects variable rule analysis', *Language & Linguistics Compass* 3: 359–83.

Johnson, D. E. 2014, forthcoming. 'Progress in regression: Why sociolinguistic data calls for mixed-effects models', to appear in *Language Variation and Change.*

Johnson, K. 1997a. 'The auditory/perceptual basis for speech segmentation', *Ohio State University Working Papers in Linguistics* 50: 101-113.

Johnson, K. 1997b. 'Speech perception without speaker normalization: an exemplar model' in Johnson, K. & Mullennix, J. (eds.) *Talker variability in speech processing*. San Diego: Academic Press, 145–165.

Johnson, K. 2003. *Acoustic and Auditory Phonetics*. Second edition. Oxford: Blackwell.

Johnson, W. & Britain, D. 2003. '/l/-Vocalisation as a natural phenomenon'. *Essex Research Reports in Linguistics* 44. Colchester: University of Essex, 1-37.

Johnston, P. A. 1985. 'Linguistic atlases and sociolinguistics' in Kirk, J. M., *A reader in sociophonetics* (Trends in Linguistics Studies and Monographs No. 219). New York: De Gruyter, 44-69.

Johnston, R. 2003. 'Geography and the social science tradition' in Holloway, S. L., Price, S. P., & Valentine, G. (eds.) *Key Concepts in Geography*. London: Sage, 51-71

Johnstone, B. & Bean, M. 1997. 'Self-Expression and linguistic variation', *Language in Society* 26: 221-246.

Johnstone, B. & Kiesling, S. 2008. 'Indexicality and experience: exploring the meanings of /aw/-monophthongisation in Pittsburgh', *Journal of Sociolinguistics* 12 (1): 5-33.

Johnstone, B. 1999. 'Place, Globalization, and Linguistic Variation'. Paper presented at *Methods in Sociolinguistics*, Pitzer College, Claremont, November 1999.

Johnstone, B. 2000. *Qualitative Methods in Sociolinguistics*. Oxford: Oxford University Press.

Johnstone, B. 2004. "Place, Globalization, and Linguistic Variation" in Fought, C. (ed.) *Sociolinguistic Variation: Critical Reflections*. Oxford: Oxford University Press, 65-83

Johnstone, B. 2010. 'Language and Geographical Space' in Auer, P. & Schmidt, J. E. (eds.) *Language and Space: An International Handbook of Linguistic Variation*. Berlin: de Gruyter, 1-17.

Johnstone, B. & Bean, M. 1997. 'Self-Expression and linguistic variation', *Language in Society* 26: 221-246.

Johnstone, B., Bhasin, N. & Wittkofski, D. 2002. '"Dahntahn" Pittsburgh: Monophthongal /aw/ and representations of localness in southwestern Pennsylvania', *American Speech* 77 (2): 148-166.

Johnstone, B. & Kiesling, S. 2008. 'Indexicality and experience: exploring the meanings of /aw/-monophthongisation in Pittsburgh', *Journal of Sociolinguistics* 12 (1): 5-33.

Jones, D. 1911. 'English: Tyneside dialect (Northumberland)', *Le maitre phonetique* 26: 184.

Kerswill, P. 1984. 'Social and linguistic aspects of Durham (eù)', *Journal of the International Phonetic Association* 14: 13-34.

Kerswill, P. 1987. 'Levels of linguistic variation in Durham', *Journal of Linguistics* 23: 25-49.

Kerswill, P. 1994. *Dialects converging: rural speech in urban Norway*. Oxford: Clarendon Press.

Kerswill, P. 1996a. 'Milton Keynes and dialect levelling in South-Eastern British English' in Graddol, D., Leith, D. & Swann, J. (eds.) *English: History, Diversity and Change.* London: Routledge, 292-300.

Kerswill, P. 1996b. 'Children, adolescents and language change', *Language Variation and Change* 8: 177-202.

Kerswill, P. 2002a. 'Koinéisation and accommodation' in Chambers, J.K., Trudgill, P. & Schilling-Estes, N. (eds.) *The Handbook of Language Variation and Change*. First edition. Oxford: Blackwell, 669-702.

Kerswill, P. 2002b. 'Models of linguistic change and diffusion: New evidence from dialect levelling in British English', *Reading Working Papers in Linguistics* 6: 187-216.

Kerswill, P. 2003. 'Dialect levelling and geographical diffusion in British English' in Britain, D. & Cheshire, J. (eds.) *Social Dialectology: In Honour of Peter Trudgill*. Amsterdam; Philadelphia: John Benjamins, 223-243.

Kerswill, P. 2007. 'Social Class' in Llamas, C. & Stockwell, P. (eds.) *The Routledge Companion to Sociolinguistics.* London: Routledge, 51-61.

Kerswill, P. 2010. 'Contact and new varieties' in Hickey, R. (ed.) *Handbook of Language Contact*. Oxford: Blackwell, 230-251.

Kerswill, P., Torgersen, E. & Fox, S. 2008. 'Reversing "Drift": Innovation and diffusion in the London diphthong system', *Language Variation and Change* 20 (3): 451-491.

Kerswill, P. & Trudgill, P. 2005. 'The birth of new dialects',in Auer, P., Hinskens, F. & Kerswill, P. (eds.) *Dialect Change: Convergence and Divergence in European Languages*. Cambridge: Cambridge University Press, 196–220.

Kerswill, P. & Williams, A. 1994. *A new dialect in a new city: children's and adult's speech in Milton Keynes*. Final report presented to the Economic and Social Research Council, July 1994.

Kerswill, P. & Williams, A. 2000. 'Creating a new town koine: children and language change in Milton Keynes', *Language in Society* 29: 65-115.

Kerswill, P. & Williams, A. 2002. ''Salience' as an explanatory factor in language change: evidence from dialect levelling in urban England' in Jones, M. C. & Esch, E. (eds.) *Language Change: The Interplay of Internal, External and Extra-Linguistic Factors*. Berlin: de Gruyter, 81-110.

Kerswill, P. & Williams, A. 2005. 'New towns and koineisation: linguistic and social correlates', *Linguistics* 43 (5): 1023-1048.

Klavan, J. 2012. *Evidence in Linguistics: Corpus-Linguistic and Experimental Methods for Studying Grammatical Synonymy*. Unpublished PhD dissertation. Tartu: University of Tartu.

Kortmann, B. & Upton, C. (eds.) 2008. *Varieties of English. Vol. 1: The British Isles*. Berlin: de Gruyter.

Kretzschmar, Jr., W. A., McDavid, V. G., Lerud, T. K. & Johnson, E. 1994. *Handbook of the Linguistic Atlas of the Middle and South Atlantic States*. Chicago: University of Chicago Press.

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. 1970. 'The study of language in its social context', *Studium Generale* 23: 30-87.

Labov, W. 1972a. *Sociolinguistic Patterns*. Philadelphia: University of Pennsylvania Press.

Labov, W. 1972b. *Language in the Inner City*. Philadelphia: University of Pennsylvania Press.

Labov, W. 1979. 'Locating the frontier between social and psychological factors in linguistic variation' in Fillmore, C. J., Kempler, D. & Wang, W. S-Y. (eds.) *Individual differences in language ability and language behavior*. New York: Academic Press, 327-339.

Labov, W. 1980. 'The social origins of sound change', *Locating Language in Time and Space*. New York: Academic Press, 251-266

Labov, W. 1982. 'Building on empirical foundations' in Lehmann, W. & Malkiel, Y. (eds.) *Perspectives in Historical Linguistics*. Amsterdam: John Benjamins, 17-92.

Labov, W. 1984. 'Field methods of the project on linguistic change and variation' in Baugh, J. & Sherzer, J. (eds.) *Language in Use*. Eaglewood Cliffs: Prentice-Hall, 28-53.

Labov, W. 1989. 'The Child as Linguistic Historian', *Language Variation and Change* 1 (1): 85-97.

Labov, W. 1994. *Principles of Linguistic Change. Volume 1: Internal Factors.* Oxford; Cambridge, Mass.: Blackwell.

Labov, W. 2001. *Principles of Linguistic Change. Volume 2: Social Factors*. Oxford: Blackwell.

Labov, W. 2003a. 'Pursuing the cascade model' in Britain, D. & Cheshire, J. (eds.) *Social Dialectology: In Honour of Peter Trudgill*. Amsterdam: John Benjamins, 9-22.

Labov, W. 2003b. 'Words floating on the surface of sound change'. Paper presented at NWAV 32, University of Pennsylvania.

Labov, W. 2007. 'Transmission and diffusion', *Language* 83: 344-387.

Labov, W., Cohen, P., Robins, C., & Lewis, J. 1968. 'A Study of the Non-Standard English of Negro and Puerto Rican speakers in New York City'. Cooperative Research Project No. 3288. Office of Education, US Department of Health, Education and Welfare.

Labov, W., Yaeger, M. & Steiner, R. 1972. *A Quantitative Survey of Sound Change in Progress.* Philadelphia: US Regional Survey.

Ladefoged P. & Broadbent D. E. 1957. 'Information conveyed by vowels', *Journal of the Acoustical Society of America* 29: 98–104.

Ladefoged, P. 2001. *A Course in Phonetics*. Fourth Edition. Orlando: Harcourt College.

Ladefoged, P. 2003. *Phonetic Data Analysis: An Introduction to Fieldwork and Instrumental Techniques*. Oxford: Blackwell.

Lakoff, R. 1973. 'Language and Woman's Place', *Language and Society* 2 (1): 45-80.

Lass, R. 1989. 'System-shape and the eternal return: Front rounded vowels in English', *Folia Historica Linguistica* 10: 163-198.

Lass, R. 1997. *Historical Linguistics and Language Change.* Cambridge: Cambridge University Press.

Lave, J. & Wegner, E. 1991. *Situated Learning: Legitimate Peripheral Participation.* Cambridge: Cambridge University Press.

Lawson, R. 2009. *Sociolinguistic constructions of identity among adolescent males in Glasgow.* Unpublished PhD thesis. Glasgow: University of Glasgow.

Lawson, R. 2011. 'Patterns of linguistic variation among Glaswegian adolescent males', *Journal of Sociolinguistics* 15: 226-255.

Le Page, R. B. & Tabouret-Keller, A. 1985. *Acts of Identity: creole-based approaches to language and ethnicity*. Cambridge: Cambridge University Press.

Lehrer, A. 1974. *Semantic Fields and Lexical Structure*. Amsterdam: North-Holland Linguistic Series.

Liljencrants, J. & Lindblom, B. 1972. 'Numerical simulation of vowel quality systems: The role of perceptual contrast', *Language* 48: 839-862.

Llamas, C. 1999. 'A New Methodology: Data Elicitation for Social and Regional Language Variation Studies', *Leeds Working Papers in Linguistics and Phonetics,* 95-119.

Llamas, C. 2000. 'Convergent and divergent trends in a part of England with no identity', *Leeds Working Papers in Linguistics* 8: 123-148.

Llamas, C. 2001. *Language Variation and Innovation in Teesside English*. Unpublished Ph. D. thesis. Leeds: University of Leeds.

Llamas, C. 2006. 'Shifting identities and orientations in a border town' in Omoniyi, T. & White, G., *The sociolinguistics of identity*. London: Continuum, 92-112.

Llamas, C. 2007a. ''A place between places': language and identities in a border town', *Language in Society* 36 (4): 579-604.

Llamas, C. 2007b. 'Age' in Llamas, C., Mullany, L. & Stockwell, P. (eds.) *The Routledge Companion to Sociolinguistics*. London: Routledge, 69-76.

Llamas, C. 2010. 'Convergence and divergence across a national border' in Llamas, C. & Watt, D. (eds.) *Language and Identities.* Edinburgh: Edinburgh University Press, 227-236.

Llamas, C., Watt, D. & Johnson, D. 2009. 'Linguistic accommodation and the salience of national identity markers in a border town', *Journal of Language and Social Psychology* 28 (4): 381-407.

Llamas, C., Watt, D., French, P. & Roberts, L. 2011. 'Effects of the Scottish Vowel Length Rule on vowel quantity in Tyneside English', *Proceedings of the 17th International Congress of Phonetic Sciences.* Hong Kong. 1282-1285.

Love, J, & Walker, A. 2010. 'Football vs. football: Topic-effects on phonetic realizations', presentation at the 51st Annual Meeting of the Psychonomic Society, St. Louis.

Macaulay, R. 1977. *Language, Social Class, and Education. A Glasgow Study*. Edinburgh: Edinburgh University Press.

Macaulay, R. 1978. 'Variation and consistency in Glaswegian English' in Trudgill, P. (ed.) *Sociolinguistic Patterns of British English*. London: Edward Arnold, 132-143.

MacRaild, D. M. & Purdue, A. W. 2006. 'The North East: Modern Period' in Aalen, F. & O'Brien, C. (eds.), *England's landscape: The North East*. London: Collins, 77-108.

Maguire, W., McMahon, A., Heggarty, P., & Dediu, D. 2010. 'The past, present and future of English dialects: Quantifying convergence, divergence and dynamic equilibrium', *Language Variation and Change* 22 (1): 1-36.

Maley, J. 2006. 'New twists to the great class conundrum', *The Guardian* 5 May 2006: http://www.theguardian.com/money/2006/may/05/britishidentityandsociety.uknews

Manzoor, S. 2006. 'My week in the whitest place in Britain', *The Guardian* 6 December 2006: http://www.theguardian.com/society/2006/dec/06/communities

Massey, D. 1984. 'Introduction: Georgraphy matters' in Massey, D. & Allen, J. (eds.) *Geography Matters!* Cambridge: Cambridge University Press, 1-11.

McMahon, A. 1994. *Understanding Language Change*. Cambridge: Cambridge University Press.

McNee, T. & Angus, D. 1985. *Seaham Harbour, the first 100 years: 1828-1928*. Seaham: Seaham Press.

Mees, I. & Collins, B. 1999. 'Cardiff: A real-time study of glottalisation' in Foulkes, P. & Docherty, G. (eds.) *Urban Voices: Accent Studies in the British Isles*. London: Arnold, 185-202.

Mendoza-Denton, N. 2008. *Homegirls: Language and Cultural Practices among Latina Youth Gangs*. London: Wiley-Blackwell.

Mendoza-Denton, N., Hay, J. & Jannedy, S. 2003. 'Probabilistic sociolinguistics' in Bod, R., Hay, J. & Jannedy, S. (eds.) *Probability Theory in Linguistics*. Cambridge, MA: MIT Press, 98–138.

Mesthrie, R. 2008. *Varieties of English. Vol. 4: Africa, South and Southeast Asia*. Berlin: de Gruyter.

Meyerhoff, M. 2002. 'Communities of Practice' in Chambers, J. K., Trudgill, P. & Schilling-Estes, N. (eds.) *The Handbook of Language Variation and Change*. First edition. Oxford: Blackwell, 526-548.

Michael, J. 1962. 'The construction of the social class index', *Codebook for the Mobilization of Youth*. Appendix A. Mimeo. New York: Mobilization of Youth.

Milroy, J. 1981. *Regional Accents of English: Belfast*. Belfast: Blackstaff.

Milroy, J. 1982. 'Probing under the tip of the iceberg: Phonological 'normalization' and the shape of speech communities' in Romaine, S. (ed.) *Sociolinguistic Variation in Speech Communities.* London: Arnold, 35-47.

Milroy, J. 1992. *Linguistic Variation and Change*. Oxford: Blackwell.

Milroy. J. 1996a. 'A current change in British English: variation in (th) in Derby', *Newcastle and Durham Working Papers in Linguistics* 4: 213-222.

Milroy, J. 1996b. 'Variation in /ai/ in northern British English, with comments on Canadian Raising', *University of Pennsylvania Working Papers in Linguistics* 3 (1): 213-222.

Milroy, J. 2003. 'When is a sound change?: On the role of external factors in language change' in Britain, D. & Cheshire, J. (eds.) *Social Dialectology: In Honour of Peter Trudgill*. Amsterdam; Philadelphia: John Benjamins, 209-221.

Milroy, J. & Milroy, L. 1978. 'Belfast: Change and variation in an urban vernacular' in Trudgill, P. (ed.) *Sociolinguistic Patterns in British English*. London: Arnold, 19-36.

Milroy, J. & Milroy, L. 1985. 'Linguistic change, social network and speaker innovation', *Journal of Linguistics* 21 (2): 339-384.

Milroy, J., Milroy, L., & Hartley, S. 1994. 'Local and supra-local change in British English: The case of glottalisation', *English World-Wide* 15: 1-33.

Milroy, J., Milroy, L., Hartley, S. & Walshaw, D. 1994. 'Glottal stops and Tyneside glottalisation: competing patterns of variation and change in British English', *Language Variation and Change* 6: 327-358.

Milroy, L. 1987a. *Language and Social Networks*. Oxford: Blackwell.

Milroy, L. 1987b. *Observing and Analysing Natural Language. A Critical Account of Sociolinguistic Method*. Oxford: Blackwell.

Milroy, L. 1999. 'Women as innovators and norm-creators: the sociolinguistics of dialect levelling in a northern English city' in Wertheim, S., Bailey, A. C., & Cortson-Oliver, M.

(eds.) *Engendering Communication: Proceedings of the 5th Berkeley Women and Language Conference*, 361-76.

Milroy, L. 2000. 'Britain and the United States: Two Nations Divided by the Same Language (and Different Language Ideologies)', *Journal of Linguistic Anthropology* 10 (1): 56-89.

Milroy, L. 2002. 'Introduction: Mobility, contact and language change – Working with contemporary speech communities'. *Journal of Sociolinguistics* 6 (1): 3-15.

Milroy, L. 2003. 'Social and linguistic dimensions of phonological change: fitting the pieces of the puzzle together' in Britain, D. & Cheshire, J. (eds.) *Social Dialectology: In Honour of Peter Trudgill*. Amsterdam: John Benjamins, 155-171.

Milroy, L. & Gordon, M. 2003. *Sociolinguistics: Method and Interpretation*. Oxford: Blackwell.

Milroy, L. & Llamas, C. 2013. 'Social networks' in Chambers, J. K. & Schilling, N. (eds.) *The Handbook of Language Variation and Change*. Second edition. Malden: Wiley-Blackwell, 409-427.

Milroy, L. & Milroy, J. 1992. 'Social network and social class: Toward an integrated sociolinguistic model', *Language in Society* 21 (1): 1-26.

Milroy, L. Milroy, J. & Docherty, G. J. 1997. *Phonological Variation and Change in Contemporary Spoken British English*. Final Report Submitted to the ESRC. (ESRC Ref. R000234892).

Moir, E. 1964. *The Discovery of Britain*. London: Routledge & Kegan Paul.

Montgomery, C. 2012a. 'Perceptions of Dialects: Changing Attitudes and Ideologies', in Nevalainen, T. & Traugott, E. (eds.) *The Oxford Handbook of the History of English*. Oxford: Oxford University Press, 457–469.

Montgomery, C. 2012b. 'Mapping the Perceptions of Non-Linguists in Northern England' in Hansen, S., Schwarz, C., Stoeckle, P. & Streck, T. (eds.) *Dialectological and Folk Dialectological Concepts of Space: Current methods and perspectives in sociolinguistic research on dialect change.* Berlin: de Gruyter, 164-178.

Montgomery, C. & Beal, J. C. 2011. 'Perceptual Dialectology' in Maguire, W. & McMahon, A. (eds.), *Analysing Variation in English.* Cambridge: Cambridge University Press, 121–148.

Mooney, J., & Carling, J. 2006. 'Spatial analysis of economic flows in North East England': http://www.nerip.com

Moore, E. 2003. *Learning style and identity: A sociolinguistic analysis of a Bolton high school*. Unpublished PhD thesis. Manchester: University of Manchester.

Moore, E. 2010. 'Communities of practice and peripherality' in Llamas, C. & Watt, D. (eds.) *Language and Identities*. Edinburgh: Edinburgh University Press, 123-133.

Moorsom, N. 1996. *Middlesbrough Re-Born: The Evolution of a Local Authority*. Middlesbrough: Moorsom.

Muir, R. 2006. 'Communications and Routeways' in Aalen, F. & O'Brien, C. (eds.) *England's landscape: The North East*. London: Collins, 183-200.

Mullany, L. 2007. 'Speech communities' in Llamas, C., Mullany, L. & Stockwell, P. (eds.) *The Routledge Companion to Sociolinguistics*. London: Routledge, 84-91

Myrstad-Nilsen, I. 2011. *The accent of Egton: Developments in a North Yorkshire accent*. Unpublished thesis. Oslo: University of Oslo.

Newbrook, M. 1982. 'Scot or Scouser? An anomalous informant in outer Merseyside', *English World-wide* 3: 77-86.

Niedzielski, N. 1999. 'The effect of social information on the perception of sociolinguistic variables', *Journal of Language and Social Psychology* 18: 62-85.

Nordberg, B. & Sundgren, E. 1998: *On Observing Real-Time Language Change: a Swedish Case Study*. FUMS report nr. 190. Institutionen för nordiska språk vid Uppsala Universitet.

Norušis, M. 2011. 'Ordinal Regression', *IBM SPSS Statistics 13 Advanced Statistical Procedures Companion*. Addison Wesley, 69-89.

Nosofsky, R. 1986. 'Attention, similarity, and the identification-categorization relationship', *Journal of Experimental Psychology: General*, 115 (1): 39-57.

Office for National Statistics. 2003. *Census 2001: Key Statistics for Local Authorities in England and Wales*. London: Stationary Office.

Office for National Statistics. 2012. *2011 Census Data for England and Wales on Nomis*: http://www.nomisweb.co.uk/census/2011/local_characteristics

Organisation for Economic Co-operation and Development. 2006. 'OECD territorial reviews: Newcastle in the North East, United Kingdom'. OECD Governance 2006 (20): i-244.

Orton, H. & Dieth, E. 1962-1971. *Survey of English Dialects*. Leeds: Arnold.

Orton, H. 1933. *The Phonology of a South Durham Dialect*. London: Kegan Paul, Trench & Co.

Orton, H. 1962. 'Introduction', *Survey of English Dialects*. Leeds: Arnold.

Orton, H., Sanderson, S., & Widdowson, J. (eds.) 1978. *The Linguistic Atlas of England*. New Jersey: Humanities Press.

Osborn, J. & Whittick, A. 1977. *New Towns: Their Origins, Achievements, and Progress.* Third edition. London: Leonard Hill.

Osthoff, H. & Brugmann, K. 1878 [1967]. *Preface to Morphological Investigations in the Sphere of the Indo-European Languages, Vol. I*. English translation in Lehmann (1967), 197-209.

Oswalt, P. & Rieniets, T. 2006. 'Introduction', *Atlas of Shrinking Cities*. Berlin: Kulturstiftung des Bundes, 6-7.

Payne, A. C. 1980. 'Factors controlling the acquisition of the Philadelphia dialect by out-of-state children' in Labov, W. (ed.) *Locating Language in Time and Space*. New York: Academic Press, 143-178.

Pearce, M. 2009. 'A perceptual dialect map of North East England', *Journal of English Linguistics* 37 (2): 162-192.

Pellowe, J. & Jones, V. 1978. 'On intonational variety in Tyneside speech' in Trudgill, P. (ed.) *Sociolinguistic Patterns of British English*. London: Arnold, 101-121.

Peterson, G. E. & Barney, H. I. 1952. 'Control methods used in the study of vowels', *Journal of the Acoustical Society of America* 24: 75-184.

Petyt, K. M. 1980. *The Study of Dialect: An introduction to dialectology*. London: Deutsch.

Petyt, K. M. 1985. *Dialect and Accent in Industrial West Yorkshire*. Amsterdam: John Benjamins Publishing.

Pharao, N. 2007. 'Intraindividual variation across the lifespan - a case study', paper presented at UKLVC 6, Lancaster University.

Pidd, H. 2014. 'Village shares its Billy Elliot stories at live screening of West End show', *The Guardian* 28 September 2014: http://www.theguardian.com/stage/2014/sep/28/billy-elliot-musical-easington-village-screening

Piercy, C. 2007. *Mixed with others it sounds different doesn't it': A quantitative analysis of rhoticity from four locations in Dorset*. Unpublished MA dissertation. Colchester: University of Essex.

Piercy, C. 2010. *One /a/ or two?: the phonetics, phonology and sociolinguistics of change in the TRAP and BATH vowels in the southwest of England*. Unpublished PhD dissertation. Colchester: University of Essex.

Pierrehumbert, J. 2001. 'Exemplar dynamics: Word frequency, lenition and contrast' in Bybee, J. & Hopper, P. (eds.) *Frequency and the Emergence of Linguistic Structure*. Philadelphia: John Benjamins, 137-158.

Pierrehumbert, J. 2002. 'Word-specific phonetics' in Gussenhoven, C. & Warner, N. (eds.) *Laboratory Phonology VII*. Berlin: de Gruyter, 101–139.

Preston, D. 1989. *Perceptual Dialectology*. Dordrecht: Foris.

Preston, D. 1996. 'Where the worst English is spoken' in Schneider, E. (ed.) *Focus on the USA*. Amsterdam: Benjamins, 297-360.

Preston, D. 1999. *Handbook of Perceptual Dialectology, Vol. I.* Amsterdam: John Benjamins.

Priestley, J. B. 1934. *English Journey*. London: Heinemann.

Prince, E. 1987. 'Sarah Gorby, Yiddish folk singer: A case study of dialect shift', *International Journal of the Sociology of Language* 67: 83-116.

Przedlacka, J. 2002. *Estuary English? A sociophonetic study of teenage speech in the Home Counties*. Frankfurt: Peter Lang.

R Development Core Team. 2012. *R: A language and environment for statistical computing.* Version 2.15.0. R Foundation for Statistical Computing. Vienna, Austria ISBN 3-900051-07-0: http://www.R-project.org

Reid, E. 1978. 'Social and stylistic variation in the speech of children: some evidence from Edinburgh' in Trudgill, P. (ed.) *Sociolinguistic Patterns in British English*. London: Edward Arnold, 158-173.

Richards, H. 2008. *Mechanisms, Motivations and Outcomes of Change in Morley (Leeds) English*. Unpublished Ph.D dissertation. York: University of York.

Richards, H., Haddican W. & Foulkes, P. 2009. 'Exhibiting Standards in the FACE of Dialect Levelling' paper presented at ICLaVE5, University of Copenhagen, Denmark, June 2009.

Rickford, J. & McNair-Knox, F. 1994. 'Addressee- and topic- influenced style shift: A quantitative sociolinguistic study' in Biber, D. & Finegan, E. (eds.) *Sociolinguistic Perspectives on Register*. New York: Oxford University Press, 235-276.

Roberts, J. & Labov, W. 1995. 'Learning to talk Philadelphian', *Language Variation and Change* 9: 249-266.

Robinson, F. (ed.) 1988. *Post-industrial Tyneside. An Economic and Social Survey of Tyneside in the 1980s*. Newcastle upon Tyne: Newcastle Libraries and Information Services.

Rodrigue, J.-P., Comtois, C., & Slack, B. 2009. *The Geography of Transport Systems*. London; New York: Routledge.

Romaine, S. 1984. *The Language of Children and Adolescents: The Acquisition of Communicative Competence*. Oxford: Blackwell.

Røyneland, U. 2009. 'Dialects in Norway – catching up with the rest of Europe?', *International Journal of the Sociology of Language* 196-197: 7-30.

Ryfa, J. 2008. 'The BATH Vowel in Redditch New Town: Has a New Dialect Emerged?', paper presented at *The 13th Methods in Dialectology Conference*, University of Leeds, August 2008.

Samarin, W. 1971. 'Evolution of glossatic private languages', *Anthropological Linguistics* 13: 55-67.

Samuel, R. 1998. *Island Stories: Unravelling Britain: Theatres of Memory, Volume II.* London: Verso.

Sankoff, G. & Blondeau, H. 2007. 'Language change across the lifespan: /r/ in Montreal French', *Language* 83 (3): 560-88.

Sankoff, G., Blondeau, H. & Charity, A. 2001. 'Individual Roles in a Real-Time Change: Montreal (r->R) 1947-1995', *Etudes & travaux* 4: 141-157.

Sankoff, G. & Cedergren, H. 1971. 'Some results of a sociolinguistic study of Montreal French' in Darnell, R. (ed.) *Linguistic Diversity in Canadian Society*. Edmonton: Linguistic Research Inc., 61-87.

Savage, M. 2010. *Identities and Social Change in Britain since 1940: The Politics of Method*. Oxford: Oxford University Press.

Savage, M., Warde, A. & Devine, F. 2005. 'Capitals, assets and resources: Some critical issues', *British Journal of Sociology* 56 (5): 31–48.

Schilling, N. 2013. 'Investigating stylistic variation' in Chambers, J. K. & Schilling, N. (eds.) *The Handbook of Language Variation and Change.* Second edition. Malden; Oxford: Wiley-Blackwell, 327-349.

Schilling-Estes, N. & Wolfram, W. 1999. 'Alternative models of dialect death: Dissipation vs. Concentration', *Language* 75: 486-521.

Schmidt, W. E. 1992. 'British Prime Minister Retreats on Mine Closings', *The New York Times* 20 October 1992: http://www.nytimes.com/1992/10/20/world/british-prime-minister-retreats-on-mine-closings.html

Schneider, E. W. 2008. *Varieties of Engdlish. Vol. 2: The Americas and the Caribbean*. Berlin: de Gruyter.

Schott, G. & Hodgetts, D. 2006. 'Health and Digital Gaming: The Benefits of a Community of Practice', *Journal of Health Psychology* 11: 309-316.

Schwartz, J-L., Boë, L-J., Vallée, N. & Abry, C. 1997. 'Major trends in vowel system inventories', *Journal of Phonetics* 25: 233-253.

Scobbie, J. M., Hewlett, N. & Turk, A. E. 1999. 'Morphemes, phonetics and lexical items: the case of the Scottish Vowel Length Rule', *Proceedings of the 14th ICPhS, San Francisco,* 1617-1620.

Siegel, J. 1985. 'Koines and koineization', *Language in Society* 14 (3): 357-378.

Silverstein, M. 1979. 'Language structure and linguistic ideology' in Clyne, R., Hanks, W. & Hofbauer, C. (eds.) *The Elements: A parasession on linguistic units and levels*. Chicago: Chicago Linguistic Society, 193-247.

Silverstein, M. 2003. 'Indexical order and the dialectics of sociolinguistic life', *Language and Communication* 23 (3-4): 193-229.

Singler, J. V. 2007. 'Samaná and Sinoe, part I: Stalking the vernacular', *Journal of Pidgin and Creole Languages* 22: 123-148.

Snell, J. 2010. 'From sociolinguistic variation to socially strategic stylisation*', Journal of Sociolinguistics* 14 (5): 618-644.

Snell, J. 2013. 'Dialect, Interaction and Class Positioning at School: From Deficit to Different to Repertoire', *Language and Education* 27 (2): 110-128.

Stampe, D. 1969. 'On the natural history of diphthongs', *Papers from the 5th Regional Meeting of the Chicago Linguistic Society*, 443-454.

Stockwell, R. & Minkova, D. 1999. 'Explanations of sound change: contradictions between dialect data and theories of chain shifting' in Upton, C. & Wales, K. (eds.) *Leeds Studies in English XXX: Dialect Variation in English: Proceedings of the Harold Orton Centenary Conference 1998*. Leeds: University of Leeds, 83-102.

Stoddart, J., Upton, C. & Widdowson J. D. A. 1999. 'Sheffield dialect in the 1990s: Revisiting the concept of NORMs' in Foulkes, P. & Docherty, G. J. (eds.) *Urban Voices: Accent Studies in the British Isles*. London: Arnold, 72-89.

Stuart-Smith, J. 2001. 'Should variationists worry about the influence of TV on speech?', keynote address delivered at *UK Language Variation and Change 3* Conference, University of York, July 2001.

Stuart-Smith, J., Timmins, C., & Tweedie, F. 2006. 'Conservation and innovation in a traditional dialect: L-vocalization in Glaswegian', *English World Wide*, 27 (1): 71-87.

Stuart-Smith, J., Timmins, C., & Tweedie, F. 2007. 'Talkin' Jockney'?: variation and change in Glaswegian accent', *Journal of Sociolinguistics* 11 (2): 221-260.

Sudbury, A. 2000. *Dialect contact and koineisation in the Falkland Islands: Development of a southern-hemisphere English?* Unpublished Ph.D. thesis. Colchester: University of Essex.

Tagliamonte, S. 2006. *Analysing Sociolinguistic Variation*. Cambridge: Cambridge University Press.

Tagliamonte, S., D'Arcy, A. & Jankowski, B. 2010. 'Social work and linguistic systems: Marking possession in Canadian English', *Language Variation and Change* 22 (1): 149-173.

Tagliamonte, S., Smith, J. & Lawrence, H. 2007. 'English dialects in the British Isles in cross-variety perspective: A baseline for future research' in Filppula, M., Klemola, J., Palander, M., Pentillä, E. (eds.) *Dialects Across Borders: Selected Papers From the 11th International Conference on Methods in Dialectology (Methods XI), Joensuu, August 2002*. Amsterdam: John Benjamins, 87-117.

Thomas, E & Kendall, T. 2007. *NORM: The Vowel Normalisation and Plotting Suite*: http://ncslaap.lib.ncsu.edu/tools/norm/

Thomas, E. 2002. 'Instrumental phonetics' in Chambers, J. K., Trudgill, P. & Schilling-Estes, N. (eds.) *The Handbook of Language Variation and Change*. First edition. Oxford: Blackwell, 168-200.

Thomas, E. 2011. *Sociophonetics: An Introduction*. Basingstoke: Palgrave Macmillan.

Tidholm, H. 1979. *The dialect of Egton in North Yorkshire*. Gøteborg: Bokmaskinen i Gøteborg

Tollfree, L. 1999. 'South East London English: Discrete versus continuous modelling of consonantal reduction' in Foulkes, P. & Docherty, G. J. (eds.) *Urban Voices: Accent Studies in the British Isles*. London: Arnold, 163-184.

Torgersen, E. & Kerswill, P. 2001. 'Acoustic measurements of some vowels in south-eastern British English - further evidence for chain shift and accent levelling', paper presented at UKLVC 3, University of York, July 2001.

Torgersen, E. & Kerswill, P. 2004. 'Internal and external motivation in phonetic change: Dialect levelling outcomes for an English vowel shift', *Journal of Sociolinguistics* 8 (1): 23–53.

Torgersen, E., Kerswill, P. & Fox, S. 2007. *Phonological Innovation in London Teenage Speech*. Paper presented at ICLaVE4, University of Cyprus, June 2007.

Troni, L. & latt, T. 2006. 'City Markets: Business Location in Deprived Areas', *Institute for Public Policy Research*. London: Centre for Cities: http://www.centreforcities.org/assets/files/City%20Markets.pdf

Trudgill, P. 1972. 'Sex, Covert Prestige and Linguistic Change in the Urban British English of Norwich', *Language in Society* 1 (2): 175–195.

Trudgill, P. 1974a. *The Social Differentiation of English in Norwich*. Cambridge: Cambridge University Press.

Trudgill, P. 1974b. 'Linguistic Change and Diffusion: Description and explanation in sociolinguistic dialect geography', *Language in Society* 3: 215-246.

Trudgill, P. 1983. *On Dialect: Social and Geographical Perspectives*. Oxford: Blackwell.

Trudgill, P. 1986. *Dialects in Contact*. Oxford: Blackwell.

Trudgill, P. 1988. 'Norwich Revisited: recent linguistic changes in an English Urban Dialect', *English World-Wide* 9: 33-49.

Trudgill, P. 1989. 'Contact and isolation in linguistic change' in Breivik, L. E. & Jahr, E. H. (eds.) *Language change: contributions to the study of its causes*. Trends in Linguistics: Studies and Monographs 43. Berlin: de Gruyter, 227-237.

Trudgill, P. 1990. *The Dialects of England*. Oxford: Blackwell.

Trudgill, P. 1991. 'Dialect contact, dialectology and sociolinguistics' in Bolton, K. & Kwok, H. (eds.) *Sociolinguistics Today: International Perspectives*. London: Routledge, 71-79.

Trudgill, P. 1999a. *Dialects of England*. Second edition. Oxford: Blackwell.

Trudgill, P. 1999b. 'Norwich: Endogenous and exogenous linguistic change' in Foulkes, P. & Docherty, G. J. (eds.) *Urban Voices: Accent Studies in the British Isles*. London: Arnold, 124-140.

Trudgill, P. 2002a. *Sociolinguistic Variation and Change*. Edinburgh: Edinburgh University Press.

Trudgill, P. 2002b. 'Linguistic and social typology' in Chambers, J. K., Trudgill, P. & Schilling-Estes, N. (eds.) *The Handbook of Language Variation and Change*. First edition. Oxford: Blackwell, 707-728.

Trudgill, P. 2004. *New Dialect Formation: The inevitability of colonial Englishes*. Oxford: Oxford University Press.

Trudgill, P., & Foxcroft, T. 1978. 'On the sociolinguistics of vocalic mergers: transfer and approximation in East Anglia' in Trudgill, P. (ed.) *Sociolinguistic Patterns in British English.* London: Arnold, 69–79

Tusting, K. 2005. 'Language and Power in Communities of Practice' in Barton, D. & Tusting, K. (eds.) *Beyond Communities of Practice: Language, Power, and Social Context.* Cambridge: Cambridge University Press, 36–54

Upton, C. 2008. 'Synopsis: Phonological variation in the British Isles' in Kortmann, B. & Upton, C. (eds.) *Varieties of English. Vol. 1: The British Isles*. Berlin: de Gruyter, 269-282.

Ur, P. 1988. *Grammar Practice Activities: A Practical Guide for Teachers*. Cambridge: Cambridge University Press.

Urry, J. 1985. 'Social relations, space and time' in Gregory, D. & Urry, J. (eds.) *Social Relations and Spatial Structures*. London: Macmillan, 20-48.

Viereck, W. 1966. 'Phonematische analuse des dialekts von Gateshead-upon-Tyne, Co. Durham', *Britannica et Americana* 14. Hamburg: Cram, de Gruyter.

Viereck, W. 1968. 'Englische dialektologie', *Zeitschrift fur Mundartforschung* 6: 542-564.

Vigar, G. 2006. 'Deliberation, participation and learning in the development of regional strategies: Transport policy making in North East England', *Planning Theory and Practice* 7 (3): 267-287.

Visit County Durham. 2014. 'St Mary the Virgin Church': http://www.thisisdurham.com/things-to-do/st-mary-the-virgin-church-p23201

Wainwright, M. 2011. 'Billy Elliot town campaigns for trains to get within reach of work', *The Guardian* 19 October 2011: http://www.guardian.co.uk/uk/the-northerner/2011/oct/19/easington-colliery-horden-rail-link?INTCMP=SRCH

Wales, K. 2006. *Northern English: A Social and Cultural History*. Cambridge: Cambridge University Press.

Walker, A. & Hay, J. 2011. 'Congruence between 'word age' and 'voice age' facilitates lexical access', *Journal of Laboratory Phonology* 2: 219-237.

Warwick, D. & Littlejohn, G. 1992. *Coal, capital and culture – A sociological analysis of mining communities in West Yorkshire.* London: Routledge.

Watson, K. 2007. 'Liverpool English', *Journal of the International Phonetics Association*, 37 (3): 351-360.

Watt, D. & Allen, W. 2003. 'Illustrations of the IPA: Tyneside English', *Journal of the International Phonetic Association* 33 (2): 267-327.

Watt, D. & Llamas, C. 2004. 'Acoustic analysis of variability in the Middlesbrough English vowel system', paper presented at *Sociolinguistics Symposium* 15, University of Newcastle upon Tyne.

Watt, D. & Milroy, L. 1999. 'Patterns of variation and change in three Newcastle vowels: is this dialect levelling?' in Foulkes, P. & Docherty, G. (eds.) *Urban Voices: Accent Studies in the British Isles*. London: Arnold, 25-46.

Watt, D. & Yurkova, J. 2007. 'Voice onset time and the Scottish Vowel Length Rule in Aberdeen English', *Proceedings of the 16th ICPhS, Saarbrücken,* 1521-1524.

Watt, D. 1998. *Variation and change in the vowel system of Tyneside English*. Unpublished Ph.D. thesis. Newcastle upon Tyne: University of Newcastle upon Tyne

Watt, D. 2000. 'Phonetic parallels between the close-mid vowels of Tyneside English: are they internally or externally motivated?', *Language Variation and Change* 12 (1): 69-101.

Watt, D. 2002. ''I don't speak with a Geordie accent. I speak, like, the northern accent': contact-induced levelling in the Tyneside vowel system', *Journal of Sociolinguistics* 6 (1): 44-63.

Watt, D., Llamas, C. & Johnson, D. E. 2010. 'Levels of linguistic accommodation across a national border', *Journal of English Linguistics* 38 (3): 270-289.

Watt, D., Llamas, C. & Johnson, D. E. 2013. 'Sociolinguistic variation on the Scottish-English border' in Lawson, R. (ed.) *Sociolinguistics in Scotland*. Basingstoke: Palgrave Macmillan, 79-102.

Watt, D. & Tillotson, J. 2001. 'A spectrographic analysis of vowel fronting in Bradford English', *English World-Wide* 22: 69–302.

Watts, E. 2006. *Mobility-induced dialect contact: a sociolinguistic investigation of speech variation in Wilmslow, Cheshire*. Unpublished PhD dissertation. Colchester: University of Essex.

Weinreich, U., Labov, W. & Herzog, M. 1968. 'A Theory of Language Change' in Lehmann, W. P. & Malkiel, Y. (eds.) *Directions for Historical Linguistics: A Symposium*. Austin: University of Texas Press, 95-189.

Wells, J. 1982. *The Accents of English*. *Vol. 1.* Cambridge: Cambridge University Press.

Wenger, L., McDermott, R. & Snyder, W. 2002. *Cultivating Communities of Practice: A Guide to Managing Knowledge*. Boston: Harvard Business School Press

West, H. F. 2009. *'I'm not Geordie! I'm not actually anything!' Convergent and divergent trends: Dialect levelling and the struggle for identity in a South Durham New-Town*. Unpublished MSc dissertation. Edinburgh: University of Edinburgh.

Wilkinson, D. L. & McCay, N. A. J. 1998. 'Reclamation of the Durham coast' in Fox, H. R., Moore, H. M., & McIntosh, A. D. (eds.) *Land Reclamation: achieving sustainable benefits.* Rotterdam: A. A. Balkema, 209-218.

Williams, A. & Kerswill, P. 1999. 'Dialect levelling: change and continuity in Milton Keynes, Reading and Hull' in Foulkes, P. & Docherty, G. (eds.) *Urban Voices: Accent Studies in the British Isles*. London: Arnold, 141-162.

Witten, K. 2012. *'*Sociophonetic Variation in an Internet Place Name*', Journal of Onomastics* 60 (4): 220-230.

Wolfram, W. & Fasold, R. 1974. *The Study of Social Dialects in American English*. Eaglewood Cliffs: Prentice Hall.

Wolfram, W. & Schilling-Estes, N. 1998. *American English: dialects and variation*. First edition. Oxford: Blackwell.

Wolfram, W. & Schilling-Estes, N. 2003. 'Dialectology and linguistic diffusion' in Joseph, B. D. & Janda, R. D. (eds.) *The Handbook of Historical Linguistics*. Oxford: Blackwell, 713-735.

Wolfram, W. 1969. *A Sociolinguistic Description of Detroit Negro Speech*. Washington, DC: Center for Applied Linguistics.

Wolfram, W. 1991. *Dialects and American English*. Englewood Cliffs: Prentice Hall.

Wolfson, N. 1976. 'Speech Events and Natural Speech', *Language in Society* 5: 189-209.

Woods, H. B. 1993. 'A synchronic study of English spoken in Ottawa: Is Canadian English becoming more American?' in S. Clarke (ed.), *Focus on Canada.* Philadelphia: Benjamins, 151-178.

Woods, N. 1997. 'The formation and development of New Zealand English: Interaction of gender related variation and linguistic change', *Journal of Sociolinguistics* 1: 95–126.

Woods, N. 1999. 'New Zealand English across the generations: An analysis of selected vowel and consonant variables' in Bell, A. & Kuiper, K. (eds.), *New Zealand English*. Amsterdam: Benjamins, 84–110.

Woods, N. 2000. 'Archaism and innovation in New Zealand English', *English World-Wide* 21: 109–150.

Woolard, K. A. 1992. 'Language ideology: Issues and approaches', *Pragmatics* 2 (3): 235-249.

Wrede, F. 1919. 'Zur Entwicklungsgeschichte der deutschen Mundartforschung', *Zeitschrift für deutsche Mundarten* 3-18.

Wright, R. & Nichols D. 2009. *How to Measure Vowel Formants Using Praat*. Information for course on Lab Phonetics. University of Washington.

Yaeger-Dror, M. & Kemp, W. 1992. 'Lexical classes in Montreal French', *Language and Speech* 35 (3): 251-293.

Yaeger-Dror, M. 1996. 'Phonetic evidence for the evolution of lexical classes: The case of a Montreal French vowel shift' in Guy, G., Feagin, C., Baugh, J., and Schiffrin, D. (eds.), *Towards a Social Science of Language.* Benjamins: Philadelphia, 263-287.

Yapa, L. 1996. 'Innovation diffusion and paradigms of development' in Earle, C., Mathewson, K., & Kenzer, M. S. (eds.) *Concepts in Human Geography*. Lanham: Rowman & Littlefield, 231-270.

Young, M. & Wilmott, P. 1962. *Family and Kinship in East London*. Harmondsworth: Penguin.