Ethnicity, social practice and phonetic variation in a Sheffield secondary school

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Abstract

This dissertation is an ethnographic study of phonetic variation and social practice in a multiethnic secondary school in Sheffield, UK. I analyse the use of phonetic variation by adolescents in this school with the aim of advancing recent debates surrounding indexicality, social meaning, and language and ethnicity (Silverstein 2003; Eckert 2008a,b; Campbell-Kibler 2011b). I report quantitative and interactional analyses of two phonetic variables: word-final /i/, which has both a regionally enregistered variant and a supralocal sound change variant, and word-initial /t/, which has no known social associations or correlations within Sheffield. This allows me to examine how the degree of enregisterment attributed to a linguistic feature affects how it can be used for making ethnographically-specific social meanings.

The quantitative acoustic phonetic analysis demonstrates a number of differences between female communities of practice in the school, suggesting that these variables mark identity distinctions. The male communities of practice are not significantly different from each other in the statistical analysis, but there are some differences between clusters of male ethnic groups. I explain these differences with reference to gender differences in the social organisation of adolescent peer groups. In order to uncover the more local social meanings of this variation, I also examine how acoustically extreme tokens of each variable are used in discourse, alongside other interactional resources, for the purposes of identity construction (Podesva 2011a). The results suggest that enregistered features may have well-defined but limited social meanings (Kiesling 2009), whereas features without established social associations show extensive flexibility with respect to social meaning. This analysis also suggests that social meaning is sometimes co-constitutive, in the sense that meaning depends upon specific constellations of interactional resources, with phonetic variation playing a complex role in this enterprise (Eckert 2012). This

problematises a straightforward interpretation of particular phonetic realisations as indexing pre-determined social meanings.

In summary, this dissertation (i) contributes to the growing literature on the relationship between ethnicity, social practice and phonetic variation; (ii) examines the local meanings of enregistered, supralocal and highly indeterminate phonetic variation within Sheffield; and (iii) advances an account of sociolinguistic variation that is sensitive to the co-constitutive, multi-layered and ideological nature of sociolinguistic meaning.

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Chapter 1

Introduction

This dissertation is a sociophonetic ethnography of phonetic variation and social practice in a multiethnic secondary school in Sheffield, UK. I report on a fifteen-month ethnographic study that tracked the social dynamics of an adolescent peer group aged between thirteen and fifteen, and I consider the ways in which phonetic variation indexes social meanings within the school. In doing so, I attend to the local construction of social categories, such as ethnicity, and examine the ways in which social categories influence and constrain social practices. I then advance an account of sociolinguistic meaning within the school, with social meaning defined as 'the stances, personal characteristics, and personas indexed through the deployment of linguistic forms in interaction' (Podesva 2011a: 234). I examine how the degree of enregisterment affects the ways in which linguistic features are used to index social meaning, as well as how social meaning is constructed in and beyond discourse.

This dissertation aims to address three issues that are relevant to the study of language variation and social meaning. The first issue is the role that phonetic variation plays in constructing social distinctions and affiliations, particularly in an ethnically diverse community (Eckert 2008b; Mendoza-Denton 2008). The second issue is the role of enregisterment in the construction of social meaning and how differing degrees of enregisterment may constrain the range of social meanings that can be attributed to a variant (Agha 2003; Kiesling 2009). The third issue is the extent to which the social meaning of variation is dependent upon the other linguistic and interactional resources alongside which it is used. This perspective represents viewing social meanings in terms of styles or distinctive ways of doing things

(Eckert 2000; Campbell-Kibler et al. 2006; Moore and Podesva 2009). I particularly address whether the social meaning of variation in discourse depends on the specific interactional resources that are used alongside phonetic variants at that moment in time. I call this a 'co-constitutive' view of meaning, and this study aims to explore some instances in which this co-constitutive dimension may be relevant. With these three areas in mind, the primary research questions I address in this dissertation are:

1. Is phonetic variation used as a resource for constructing identities and, if so, how is this variation used to index different levels of identity, such as ethnicity and community of practice membership?

2. How does the degree of indeterminacy or enregisterment attributed to phonetic features affect the ways in which they can be used for social meaning?

3. To what extent is social meaning in discourse co-constitutive?

Chapter 2 synthesises a range of background literature that informs the direction of this dissertation. This review focuses on sociophonetic variation in multiethnic communities, the nature of indexicality, enregisterment and social meaning, and some of the potential origins behind socially meaningful variation.

Chapter 3 reports on the processes and outcomes of the ethnographic fieldwork. I discuss the demographic and social situation of the school and outline the ways in which adolescents construct distinctive communities of practice. This chapter demonstrates the complexity of social categorisation in Ashton Valley School and addresses some of the relationships between social categories and social practice.

Chapter 4 details the methodology used for the quantitative analyses in Chapters 5 and 6. I discuss data collection protocols, as well as the coding of social and linguistic factors that were entered into the statistical models. I also outline some of the phonetic and statistical methodology, as well as the ethical procedures and issues that are relevant to this study.

Chapters 5 and 6 report quantitative acoustic phonetic analyses of two phonetic variables: word-initial /t/ and word-final /i/. I explore statistical patterns in the data and assess the extent to which different forms of social categorisation, such as communities of practice and ethnicity, predict variation in the data. These chapters directly address research question (1) by attending to the different 'levels' of social identification that pattern with phonetic variation. The results show that community of practice consistently predicts phonetic variation amongst the girls, with clear differences between different groups. However, community of practice is not a significant predictor amongst the boys, with ethnicity forming the primary

axis of differentiation. I suggest that these results can be interpreted in terms of how ethnicity interacts with gender and social practice, which problematises straightforward correlations between language and ethnicity.

Chapter 7 places an explicit focus on the social meanings of word-initial /t/ and word-final /i/ by examining their interactional use in discourse. In order to answer research question (2), I compare the two phonetic variables from Chapters 5 and 6, which have differing levels of enregisterment in the school: word-initial /t/ has no known social associations, and word-final /i/ has a lax variant that is enregistered as indexing classed and regional associations within the school. I report a discourse analysis that focuses on how acoustically extreme tokens of /t/ and /i/ are used by particular individuals in certain stances and, in doing so, explore how phonetic variation contributes towards the construction of a persona in discourse. This provides a rich insight into how variation is imbued with social meaning in concrete discourse moments. I find that the enregisterment of lax realisations of word-final /i/ places some constraints on the sorts of identity work that this variant can be used for. On the other hand, word-initial /t/ is not enregistered in this community and therefore shows much greater flexibility in the social meanings that are attributed to it. The social meaning of variation is highly context dependent and there is often a complex relationship between phonetic values and social meanings. These results are brought to bear upon research question (3) regarding the co-constitutive nature of meaning and I suggest that some instances of social meaning may be more co-constitutive in nature than others.

Chapter 8 synthesises the major findings of this dissertation and their implications. I focus on three main areas: (i) the relationship between ethnicity, social practice and phonetic variation; (ii) the interactional and supra-interactional meanings of enregistered, supralocal and highly indeterminate phonetic variation within Sheffield; (iii) the co-constitutive nature of social meaning in the study of linguistic variation. I also address the methodological and theoretical implications of this work, identify areas for future research, and provide some concluding comments.

In summary, this dissertation provides an account of sociophonetic variation and sociolinguistic meaning in a British multiethnic adolescent community. I demonstrate that there is a relationship between phonetic variation, ethnicity and social practice, but find that this is complex, non-uniform and likely to be community-specific. Correlations between social groups and phonetic variants point towards potential social meanings, but an analysis of how variation is used in discourse provides a more detailed account of how social meaning is created in, and beyond, specific interactional moments. I find that the social meanings of phonetic features

are influenced by whether they have enregistered indexical potentials or whether their meanings are highly indeterminate across interactions. In the latter case, social meaning is more likely to be highly co-constitutive, in the sense that similar phonetic variants may work in different ways depending upon the interactional and linguistic resources with which they are combined. This dissertation demonstrates the utility of analysing the social meanings of linguistic variation from a variety of perspectives and emphasises the importance of situating social meanings in terms of statistical distributions, discourse-level usage, and ideological contexts.

Chapter 2

Background

2.1 Overview

2.1.1 Summary

The goals of this dissertation are (i) to advance an account of the relationship between ethnicity, social practice and language variation; (ii) to examine how the degree of enregisterment attributed to a phonetic variant affects the social meanings that can be attributed it; and (iii) to explore the extent to which social meaning is co-constitutive in nature. This chapter synthesises the major areas of research that inform the direction and analysis reported in this dissertation. I begin by reviewing prior research on the nature of linguistic variation in multiethnic communities, before evaluating concepts such as social meaning, indexicality and enregisterment. The third section focuses on some of the origins of socially meaningful variation. While this is not one of my primary research questions, it is necessary to unpack the relationship between social, linguistic and phonetic factors in order to convincingly account for the ways in which variation is used to signal identities. As such, this section reviews how the types of variation analysed in this dissertation can acquire social meaning and the relationships between social, linguistic and physiological factors. This chapter aims to situate my research within the broader theoretical context outlined above, with more specific concerns and issues being addressed in the individual analysis chapters that follow.

2.2 Sociophonetic variation in multiethnic communities

Ethnicity has featured prominently as a social variable in variationist sociolinguistics since the inception of the field. Labov (1963) investigated the speech patterns of English settlers, Portuguese settlers and Wampanoag Indians in Martha's Vineyard, while Labov (1966b) examined variation between European (Italian, Irish, Jewish), Latino and African American speakers in New York City. In both instances, language variation demonstrated ethnic stratification. The past few decades have seen an increased focus on ethnicity across a range of European cities, particularly in adolescent communities, which are increasingly multiethnic and multicultural. Adolescence is a particularly significant life-stage for observing the development of social and ethnic identities as it represents a transitional stage across a number of social, psychological and biological dimensions (Kirkham and Moore 2013). Many ethnic minority adolescents are also the first in their family to have grown up in the host country from birth (often referred to as 'second-generation'), whereas their parents may have arrived in the host country at some stage during their adult life (often referred to as 'first-generation'). For this reason, and possibly many others, there is robust evidence of generational differences in language use within ethnic minority communities, especially with respect to 'ethnically-marked' variants (Sharma and Sankaran 2011).

In the discussion below I do not provide a comprehensive review of how ethnicity has been operationalised in sociolinguistics, but instead focus my discussion around a number of major theoretical issues. Much of this research draws upon variation and change in European contexts because multiethnic speech varieties have been widely studied amongst adolescent youth communities in these contexts, but I also draw upon research from other countries where relevant.

2.2.1 Defining ethnicity

Ethnicity is widely operationalised as an explanatory variable across the social sciences and, accordingly, there have been extensive attempts to theorise the nature of ethnicity. One of the major debates is the distinction between *race* and *ethnicity*. *Race* is often conceptualised in terms of 'physical differences' that have been inscribed as socially significant, usually by a dominant or colonising culture (Banton 1988). These differences commonly involve phenotype or skin colour, but it is important to stress that these are not objective differences; there is an immense range of physical

differences between people, but only a small number of these are used in racial categorisation. On the other hand, *ethnicity* often describes notions of a shared culture, of which race may be one component (Barth 1969). Barth explains that 'ethnic groups only persist as significant units if they imply marked difference in behaviour' and that 'socially relevant factors alone become diagnostic for membership, not the overt 'objective' differences which are generated by other factors' (Barth 1969: 15). Brubaker et al. (2004) suggest that much research on ethnicity is informed by what they call 'groupism', defined as 'the tendency to take discrete, sharply differentiated, internally homogeneous, and externally bounded groups as basic constituents of social life, chief protagonists of social conflicts, and fundamental units of social analysis.' (Brubaker et al. 2004: 45). They instead advocate a cognitive conception of ethnicity, where ethnicity is viewed as a *perspective* on the world through which actions and events are experienced and made relevant. These 'sociomental' phenomena are socially-constructed representational bundles that are distributed across a community or culture (Zerubavel 1997).

The above suggests that ethnicity is a social construct based upon reifying particular characteristics of a group in order to project the image of stability and coherence. To this end, Jenkins (1997: 75) suggests that race is commonly used as a mechanism of social categorisation, whereas ethnicity is more concerned with group identification. He proposes that hierarchical differentiation is a defining characteristic of race and suggests that, while this can also be true of ethnicity, it is not definitive of relations between ethnic groups (see also Banton 1983: 106). However, the distinction between race and ethnicity is not straightforward. Anthias (1992) suggests that race can be one element of ethnicity, explaining that it is frequently drawn upon in order to signal belonging and construct ethnic boundaries. Furthermore, conceptions of race are social constructs, given that their biological basis is inherently selective (Jenkins 1997).

The diverse literature on defining ethnicity has only been variably taken up by sociolinguists, with early studies relying upon fairly basic demographic conceptions of ethnicity, such as Labov (1966b). *Etic* approaches to social categorisation rely upon demographic conceptions of ethnicity and remain popular in variationist sociolinguistics because they allow ethnic categories to be compared across studies (Hoffman and Walker 2010: 40). However, Hoffman and Walker stress that etic approaches to ethnic categorisation should be grounded in social theory and made explicit, rather than treated as an unproblematic manner of categorisation. For example, in their study of ethnic variation in Toronto, they examine the degree to which an individual participates in an ethnic group's social practices by using an

ethnic orientation questionnaire (Hoffman and Walker 2010). They admit that this does not necessarily allow them to understand the local or relational meaning of ethnicity within the community, but it does facilitate more fine-grained distinctions of different types of identities within an ethnic group.

In contrast to etic approaches, *emic* approaches attend to the local meaning of ethnicity within a community. For example, Mendoza-Denton (2008) carefully traces the local meanings of Latina youth identity in California by examining how this intersects with social practice and orientation to local gang cultures. This type of research often begins with demographic conceptions of identity, such as Latina or Pakistani, but then investigates the local meanings of these categories, as well as how more fine-grained social distinctions are made within these broader groups (Mendoza-Denton 2008; Alam and Stuart-Smith 2011; Sharma and Sankaran 2011). This research has gone a long way towards problematising simplistic correlations between ethnicity and language variation, demonstrating that large-scale 'ethnic groups' are not homogeneous entities. Individuals may conceptualise ethnicity in different ways, leading to a range of more local identifications that may reflect and constitute patterns of language use. As researchers have begun to attend to language variation in increasingly multiethnic and multicultural communities, it has been necessary to adapt and develop various theoretical approaches for conceptualising and charting the nature of this variation. To this end, considerable attention has focused on different ways of conceptualising the relationship between language and ethnicity. Some of these concepts include ethnolects, multiethnolects, ethnolinguistic repertoires, and stylistic repertoires. These different terms are often bound up with different levels of social group membership, such as ethnographically-specific positions versus demographic categories (Bucholtz and Hall 2005). These different terms, and their associated theoretical and methodological implications, are reviewed in the following sections.

2.2.2 Situating language variation in multiethnic contexts

Before addressing some of the theoretical constructs used to conceptualise the relationship between language and ethnicity, it is worth addressing how the social contexts of multiethnic communities have been conceptualised more broadly in sociolinguistics. While theorising the nature of contemporary urban communities is sometimes seen as the preserve of sociologists and cultural theorists, recent trends in sociolinguistics point towards increasingly sophisticated models of contemporary social life. For example, an increasingly prevalent perspective deploys the concept

of *superdiversity*, which has gained currency in recent sociolinguistic ethnographies of multiethnic youth communities (see Blommaert and Rampton 2011 and the other articles in this special issue). Superdiversity as a perspective represents a move away from conceptualisations such as 'ethnic minority' and 'multiculturalism', both of which are claimed to essentialise social groups and ignore diversity (Vertovec 2007). In this way, superdiversity not only refers to a more diverse range of immigration patterns, but also to increasing complexity in terms of how a wide range of variables intersect with each other, including ethnicity, age, residence, migration, the labour market, and so on (Vertovec 2007: 1025). These factors may be influenced by diversity in immigration, but also by a range of social and technological changes. Vertovec (2007) proposes that we need to attend to a variety of new forms of segregation, migration and cosmopolitanism, as well as acknowledge the range of diversity within groups. People who belong to the same ethnic group vary widely in terms of their immigration and/or residency status, religious practices and education. Grouping people in terms of labels such as country of origin cannot capture this sort of diversity (Vertovec 2007: 1039).

Understandably, sociolinguists have seized upon the concept of superdiversity in order to frame issues such as increased multilingualism, the blurring of boundaries between languages in urban spaces, and the indeterminate stylistic functions of language forms (Blommaert and Rampton 2011). This perspective problematises traditional conceptions of ethnicity and social groups, as well as other ideological constructs such as 'language', 'dialect' and 'variety'. Jørgensen et al. (2011) demonstrate through detailed interactional analysis that it can be difficult to associate linguistic features with a particular language or variety, which leads them to define varieties as ideological rather than empirical constructs (see also Heller 2007). They propose a focus on how linguistic features are used to index particular meanings in social contexts, which is a perspective adopted by some areas of variationist sociolinguistics outlined in Sections 2.2.3 and 2.3.

Superdiversity is sometimes implicitly framed as a descriptive or empirical observation, rather than a perspective on a state-of-affairs. This has the effect of rendering the contemporary situation as radically new and, potentially, ahistoricises a number of social processes. It is true that European cities are increasingly diverse and that understanding this diversity is increasingly complex, with intersectional conceptions of identity becoming increasingly prevalent (Crenshaw 1991). However, to some extent, rapid social change and the need for new ways of thinking is far from new across history. Indeed, it has always been the case that in order to fully understand the social dynamics of a community we need to consider social processes

in their full – that is, local, structural and ideological – contexts. This is a point that has parallels in discussions about regional dialect levelling. While some accounts imply that levelling is a twentieth and twenty-first century phenomenon, Beal (2011) suggests that this is far from true. She provides evidence for dialect levelling in the eighteenth- and nineteenth-centuries and suggests that the assumption that levelling is 'new' may simply be a consequence of analysts not attending to such phenomena in previous research.

Viewing superdiversity as a research perspective rather than an empirical description suggests that its use need not be restricted to contexts that can be described as demographically 'superdiverse'. If we conceptualise superdiversity as a perspective that foregrounds the intersection of multiple social variables, rapid social change, and the importance of locally-specific identities, then it is equally applicable to theorising other social categories, such as gender, social class, sexuality, and so on. I mention this in order to suggest that ethnicity is no more unique or complex than any other social variable. Indeed, the sorts of complex theorising that are often devoted to ethnicity and ethnically-linked variation ought to be extended to many other forms of social categorisation.

The following section addresses some of the dangers in specifying constructs that theorise ethnicity as a uniquely explanatory variable in variationist sociolinguistics. In particular, I suggest that concepts such as ethnic repertoires and ethnic varieties should be treated as ideological constructs rather than descriptive terms. I also advance an account of language, identity and ethnicity that ties in to recent work on the ideological basis of sociolinguistic variation (Silverstein 2003; Eckert 2008a).

2.2.3 Ethnically-linked variation and stylistic practice

This section discusses what it means to talk about variation that is often considered to be 'ethnically-marked' or 'ethnically-linked'. In doing so, I critically evaluate a number of concepts, including ethnolect, multiethnolect, ethnolinguistic repertoire, and stylistic practice.

Ethnolects are 'varieties of a language that mark speakers as members of ethnic groups who originally used another language or distinctive variety' (Clyne 2000: 86). An example of an ethnolect could be British Asian English, which might be defined as a dialect spoken by individuals who have family or ancestral ties with a South Asian county, potentially grew up with a South Asian language as a home or heritage language, and have grown up and acquired English in Britain. However, this conception of a linguistic variety is often seen as overly deterministic, because

it posits that members of an ethnic group will closely resemble each other in terms of speech, irrespective of age, gender, social practices or other sociocultural orientations. Alternatively, ethnolects can be viewed less deterministically as varieties that index association with, or a desire to belong to, a particular ethnic group (Wölck 2002: 158; see Hoffman and Walker 2010). In this definition, 'ethnic group' could have a slightly more local meaning, in that ethnicity may be conceptualised differently across generations or geographic contexts (Hoffman and Walker 2010: 42).

In terms of the terminology discussed in Section 2.2.1, ethnolects are often oriented around 'groupism', whereby social groups are seen as internally homogeneous and sharply differentiated (Brubaker et al. 2004: 45). To this end, one criticism of the ethnolect terminology is that it sometimes fails to reflect the likelihood that 'the linguistic resources that ethnolectal speakers deploy in their day-to-day lives are not all specific to the ethnic category, and those that appear to be specifically ethnic can index far more than ethnicity' (Eckert 2008b: 26). Eckert also criticises definitions of ethnolects as only including varieties spoken by ethnic minorities, instead suggesting that the relational nature of varieties within a community also makes the ethnic majority variety an ethnolect. This has also been problematised by European research on *multiethnolects*, which are varieties that are used by 'several minority groups […] collectively to express their minority status and/or as a reaction to that status to upgrade it' (Clyne 2000: 87). Clyne's conception of multiethnolect appears to only include ethnic minority speakers, but multiethnolect is most frequently operationalised to describe varieties that are shared across ethnic groups, which can also include the ethnic majority group (Quist 2008; Wiese et al. 2009; Cheshire et al. 2011).

Multiethnolects have been identified across a wide range of European contexts and are generally found in urban areas with a large immigrant population. These multiethnolects are variably named across different cities, such as *Multicultural London English* in London (Cheshire et al. 2011); *Kiezdeutch* ('hood German') in Berlin and other German cities (Wiese 2012); *københavnsk multietnolekt* ('Copenhagen multiethnolect') in Copenhagen, Denmark (Quist 2008); *rinkebysvenska* ('Rinkeby-Swedish'), named after a suburb in Stockholm, Sweden (Kotsinas 1992); and *straattaal* ('street language') in The Netherlands (Nortier 2001). Multiethnolects emerge out of language and dialect contact and often represent a very broad linguistic repertoire because they encompass a wide range of influences from a number of heritage languages and dialects.

One debate is whether multiethnolects represents distinct varieties or stylistic repertoires, or both. In practice, this distinction can be problematic, given that

any notion of variety, dialect or accent is inherently an essentialist construct that foregrounds patterns of similarity and ignores diversity. Quist (2008) demonstrates the utility of theorising multiethnolects as varieties *and* stylistic repertoires. A variety approach allows us to identify the features that are commonly associated with particular groups of speakers and how these create social distinctions within a community. However, she suggests that a variety approach alone does not do justice to the complexity of social practices in which speakers are engaged. A social practice approach, such as that popularised by Eckert (2000), would view multiethnolect as a stylistic resource that speakers can deploy, rather than a uniform variety that they always speak.

The recognition that multiethnolects represent a repertoire towards which speakers can orient had led to the formulation of other constructs that better reflect this view of language. Cheshire et al. (2011: 190) borrow Mufwene's (2001) concept of the *feature pool*, which refers to a number of linguistic forms serving as an input to a pool of features, from which a new output can be derived by selecting different features from the pool. Cheshire et al. (2011) argue for the feature pool metaphor on the grounds that 'features are only loosely associated with specific ethnicities or language backgrounds'. Wiese (2013: 3) extends the feature pool metaphor with the *feature pond*, 'a pool that supports a network of interdependent features, a rich ecology that brings forth interconnected linguistic patterns at different levels'. Wiese emphasises the interconnected and systematic dimension of this metaphor, stressing that varieties are not collections of isolated features that pattern in unrelated ways. While there are some differences between these different conceptions of multiethnolects, they generally involve the identification of a collection of resources that draw influence from a broad array of language sources, which are used by individuals from different ethnic groups in urban environments.

While research on multiethnolects problematises some of the deterministic aspects of ethnolects, there have also been advances in our thinking about varieties that may still be ideologically associated with a single ethnic group. One such advance is the concept of *ethnolinguistic repertoire*, which describes 'a fluid set of linguistic resources that members of an ethnic group may use variably as they index their ethnic identities' (Benor 2010: 160). A focus on repertoires allows us to begin with clusters of variables that may have stronger associations with particular ethnic groups, as opposed to starting with an ethnic group and then defining their speech patterns as a variety. It also foregrounds the fact that different speakers may use different resources in order to signal ethnic identities, which avoids the problem of defining who is and who is not a speaker of a particular ethnolect (Benor 2010: 164).

Sharma's (2011) study of British Asian individuals style-shifting across interactional contexts is a striking example of what could be called ethnolinguistic repertoire. Grounded in analysis of how individuals use different variants in different contexts, Sharma identifies two broad repertoires: (1) flexible and highly differentiated, in which people use distinct parts of their repertoire in different contexts; (2) fused and invariant. She shows that the first repertoire is characterised by older men and younger women, while the second is used by older women and younger men. This suggests that ethnolinguistic variants do not necessarily share the same meanings across the community.

Ethnolinguistic repertoires are sometimes viewed as a type of stylistic repertoire. Styles refer to a collection of semiotic resources that form a distinctive and identifiable way of doing things (Eckert 2000; Campbell-Kibler et al. 2006; Irvine 2001). A stylistic repertoire, then, would simply refer to the collection of resources that make up a particular style. In order to differentiate *ethnolinguistic repertoire* from what she sees as the more general *stylistic repertoire*, Benor places a focus on 'distinctive linguistic features' that are markedly different from those used by other groups. Benor is uncomfortable about judging distinctiveness relative to an unmarked norm, but claims that it is 'impossible to discuss ethnic language variation without incorporating the notion of markedness' (Benor 2010: 172). While she states that moving away from the analysis of ethnic language variation would be undesirable, others have called for such a move away from analysing ethnic variation towards focusing on the specific styles in which individuals are engaged (Madsen 2011: 276). In this view, an analyst may only invoke ethnicity when made relevant by the speakers themselves, or as an indexical entailment of the meaning that emerges from variation in interaction. Markedness, then, emerges as a property of how specific interactional moments are ideologically associated with emergent social meanings. In this way, ethnolinguistic repertoire can be conceived as a set of (ethnic) ideological associations between particular variants, a social category, and a particular set of styles that members of such groups can draw upon.

While the ethnolinguistic repertoire eschews essentialist correlations between social groups and linguistic features, the whole concept of socially meaningful variation is necessarily ideological, with social groups being subject to essentialisation in order to make them more interpretable. Irvine and Gal (2000: 38) call this process *erasure*, which refers to the ways in which particular individuals or social characteristics are erased in the definition of a particular (often dominant) group. In doing so, the sociolinguistic field is simplified by positing a particular set of individuals as representative of an entire group, town, or even nation. For this reason, concepts

such as multiethnolect and ethnolinguistic repertoires are perhaps best seen as ideological constructs rather than empirical descriptions. One way of foregrounding their ideological nature is to trace the indexical links through which particularly iconic individuals from particular groups come to represent that group more broadly (Silverstein 2003). Indexicality refers to the link between a linguistic form and a social meaning, which is always mediated by ideology (see Section 2.3.2 for a more detailed discussion). Tracing these indexical links can be achieved within a broader framework of stylistic practice, which does not pre-specify which social categories are relevant, but makes explicit how ideological associations are made between variables and social groups in particular contexts (Eckert 2008a).

Research on variation as stylistic practice often situates social meaning in the *community of practice* (CoP) – 'an aggregate of people who come together around mutual engagement in an endeavour' (Eckert and McConnell-Ginet 1992: 464). In this approach, variation is part of the stylistic practices of the community and distinctive types of variation emerge as the group negotiate ways of doing mutual engagement in a particular activity (Lave and Wenger 1991). Outside of this context, variation is viewed as inherently indeterminate with respect to meaning and associations between variables and meanings are constantly subject to renegotiation and reconstrual.

The utility of viewing variation as social practice is evident across a range of literature that finds that the indexicality of ethnically-linked variation is often highly context-specific (Eckert 2008b; Mendoza-Denton 2008; Alam and Stuart-Smith 2011). For example, a postalveolar or retroflex realisation of /t/ has been widely reported in the speech of British Asian speakers of English, which suggests that 'British Asian' ethnicity could be one indexical value of this feature (Heselwood and McChrystal 2000; Kirkham 2011b; Sharma and Sankaran 2011). However, Alam and Stuart-Smith (2011) find that retracted realisations of /t/ are generally associated with more local identities amongst Pakistani girls in a Glaswegian secondary school, such as community of practice membership and orientation towards local cultural values. They imply that ethnicity may not always be the primary indexical value of retracted /t/ in this community. It is likely that ethnically-linked variation intersects with gender, social class and other local variables in complex ways, which problematises the extent to which we can say something is simply 'ethnically marked'.

Theoretical constructs that posit links between ethnic groups and linguistic variables have proven useful in mapping the field of language variation and charting broad correlations in a range of speech communities. However, the ideological nature of these constructs is not always explicit, with concepts such as accent, dialect,

variety and repertoire involving processes of erasure and essentialism. Theories of sociolinguistic meaning facilitate an analysis of how variables are associated with social groups, but, in doing so, they must also foreground the ideological power struggles involved in negotiating meaning (Silverstein 2003; Eckert 2008a; Johnstone and Kiesling 2008). In the sections that follow, I advance a theory of sociolinguistic meaning that attends to the ideological nature of social meaning, with the aim of elucidating the ways in which language variation is used to index social meanings.

2.3 Indexicality, enregisterment and social meaning

The previous sections highlight the ways in which recent sociolinguistic research has advanced our conception of the relationship between language, identity and ethnicity. This section outlines approaches to modelling how linguistic variation is imbued with social meaning. I begin by briefly outlining conceptions of language and identity, before reviewing a number of frameworks that aim to theorise the relationship between variation and meaning. In particular, I focus on the notion of *indexicality* and how different levels of *enregisterment* may influence processes of meaning-making.

2.3.1 Language variation and social meaning

Sociolinguistic variation is typically conceived as different ways of 'doing or saying the same thing' (Chambers and Trudgill 1980: 50) or, put more formally, as involving the study of the sociolinguistic variable, defined as 'a class of variants which are ordered along a continuous dimension and whose position is determined by an independent linguistic or extra-linguistic variable' (Labov 1966a: 15). Subsequent research has examined the *social meanings* of linguistic variation, with social meaning referring to 'the stances, personal characteristics, and personas indexed through the deployment of linguistic forms in interaction' (Podesva 2011a: 234). I advance a more critical evaluation of the sociolinguistic variable in Section 2.3.5, but this section aims to review previous studies on language variation and social meaning.

Eckert (2012) identifies Labov's (1963) research on Martha's Vineyard as one of the first studies to address the social meanings of variation within a speech community. Labov found that the English fishing community were reversing a trend for the lowering of the /ay/ diphthong, instead returning to the more traditional variant with a centralised nucleus. Labov's study shows how the 'traditional' community revive

an older pronunciation as their industry comes under threat from increased tourism. Labov suggests that this variation can be used to index a particular localised identity within Martha's Vineyard. Eckert (2012) identifies Labov's study as pioneering the study of social meaning, but claims that concerns with meaning soon fell into the background in variationist research, only more recently re-emerging on a large scale. In charting the development of approaches to sociolinguistic meaning, Eckert (2012) outlines a model detailing three 'waves' of variation study. The first wave focuses on correlations between variation and macro-sociological categories, such as age, gender and social class (Labov 1972a). The second wave investigates the local meaning of social categories, using methods such as ethnography or social network analysis (Milroy 1980; Eckert 2000). The third wave focuses more explicitly on the social meaning of variation and conceptualises this in terms of styles or distinctive ways of doing things (Podesva 2007; Campbell-Kibler 2011b). The following sections address a number of issues and frameworks that sociolinguists in the 'third wave' of variation study have operationalised in order to chart how variation is used for making social meaning.

Identity is a widely used term across sociolinguists and third wave sociolinguists have been active in developing more nuanced and precise models of identity. For instance, Bucholtz and Hall (2005: 592) propose that 'identities encompass (a) macro-level demographic categories; (b) local, ethnographically specific cultural positions; and (c) temporary and interactionally specific stances and participant roles'. Moore and Podesva (2009) extend this by positing a number of labels that can be operationalised at these different levels. These include *stance*, *persona* and *social type* (Moore and Podesva 2009: 450). I use the term *identity* in the broadest sense of signalling some kind of meaningful and distinctive social affiliation, whereas I use the terms *stance*, *persona* and *social type* to refer to the more specific levels of identity work that are outlined below.

Stance, as operationalised in much interactional sociolinguistic research, generally refers to specific positionings in episodes of interaction. Stances are frequently evaluative in that they can be used to index alignment and disalignment towards interlocutors and other social constructs (Du Bois 2007: 163). In doing so, stances may also reify or essentialise particular phenomena in order to evaluate them. Stances can be affective, allowing a speaker to formulate emotional states (Local and Walker 2008), and they can also be epistemic, reflecting a speaker's belief or commitment to an utterance (Kiesling 2009; Kirkham 2011a). Stances can also be use to evaluate or construct authority (Heritage and Raymond 2005). Some stances emerge over an interaction, with conversational phenomena such as repair, assessment, alignment

and interactional structure all potentially conveying stances relative to the previous utterance, the other interactants, and the structure and topic of the surrounding discourse (Schegloff 1995; Clift 2006).

The repetition of particular stances over and across interactions can become linked to a more enduring *persona*. For example, a female speaker who frequently constructs critically evaluative stances may adopt a 'bitchy' persona, which is facilitated by her using stances that could be interpreted in this way (Moore 2011). The consolidation of stances into a persona is often termed *stance accretion* (Rauniomaa 2003, cited in Bucholtz and Hall 2005). A *persona* describes a more enduring type of positioning than a stance. Stances may be fleeting and last only a few seconds, whereas personae may endure over a specific episode of discourse or, potentially, come to be seen as a more permanent quality of an individual or group. Personae are constructed through repeated stances and, as such, represent 'ethnographically-specific positions' (Bucholtz and Hall 2005). In this way, the relationship between stance and persona is dialectical, with particular personae, such as 'anti-school', being bound up with particular types of stances, such as 'oppositional'.

Another level at which social meaning can operate is *social type* (Moore and Podesva 2009). Social types represent demographic categories, such as female, working-class, Pakistani, and so on. Stances and personae may index associations at the level of social type; for example, a 'bitchy' interactional persona is often ideologically associated with particular female styles (Moore 2011: 230). Associations between personae and demographic categories represent 'macro-level demographic categories' (Bucholtz and Hall 2005), which can be indexed and made relevant by cueing ideological associations between personae and these categories.

Stance accretion describes one way in which personae may be constructed out of repeated stances and the stance/persona/social type model provides a clear framework for analysing different levels of social meaning. However, all of these levels of social meaning are also situated in terms of *styles*. For example, the literature discussed in Section 2.2.3 suggests that the social meaning of so-called 'ethnically-linked' variation may depend on the other linguistic, non-linguistic and ideological contexts in which that variation is situated. Style refers to a distinctive way of doing things or 'a socially meaningful clustering of features, within and across linguistic levels and modalities' (Campbell-Kibler et al. 2006). In a related but slightly more restricted definition, Kiesling (2009: 174–175) describes styles as 'repertoires of stances'. However, style goes beyond a collection of linguistic and discursive resources to include any symbolic processes, such as clothing, hairstyles, cultural tastes, and so on (Mendoza-Denton 2008). In this way, style is not simply a matter

of bringing together a variety of features in isolation from a social context, but instead represents a *bricolage* (Hebdige 1979). This view of style holds that it is co-constitutive, with a combination of semiotic resources coming together in order to create something that is more than the sum of its parts (Eckert 2000). Stances accrete into personae, but the 'same' stance can have a very different effect in the context of different styles.

Styles acquire meaning through distinction (Bourdieu 1984: 227). That is, they take on meaning by being different from other styles in the surrounding social matrix to the extent that 'styles in speaking involve the ways speakers, as agents in social (and sociolinguistic) space, negotiate their positions and goals within a system of distinctions and possibilities' (Irvine 2001: 23–24). The distinctive and relational dimension of style is a point made explicit by many sociologists of youth, who claim that 'it is not the content or nature of embodied styles that determine their 'value', but the relations within which they are enacted and embedded' (Archer et al. 2007: 232). On the local level, this means that individuals participate in a 'style economy' (Archer et al. 2007: 228), in which different ways of doing things are accorded varying degrees of social capital. In the university classroom, for example, a so-called 'geeky' or 'competent' style may be accorded greater prestige by the institution (usually represented by the teacher), whereas a 'cool' or 'relaxed' style may accrue greater capital amongst the students. The majority of sociolinguistic research focuses on oppositions within a local context, such as between communities of practice within a school (Eckert 2000; Moore 2004; Drager 2009; Lawson 2011). However, it is also possible for a group to construct oppositions to imagined outgroups or imaged communities (Anderson 1983). For example, Jones (2012) outlines the ways in which a group of lesbian women construct identities in relation to heteronormative ideologies and notions of a 'gay community'.

Theoretical constructs such as style and stance, allow us to consider how social meaning is produced in specific interactional moments and how the use of particular forms may mean different things when they occur in different styles. Implicit in this discussion is that the process of building a persona or style via stance accretion is an inherently ideological move, which relies upon people's sociocultural knowledge of associations between concepts (Silverstein 2003; Eckert 2008a). In order to more explicitly model the complex relationships between linguistic forms and social meanings, researchers have drawn upon insights from linguistic anthropology, such as theories of *indexicality*. These theories are outlined in more detail in the following section.

2.3.2 Indexicality and social meaning

Indexicality refers to the the process by which a meaningful link is made between a linguistic form and a social meaning. These links have a fundamentally ideological basis that is grounded in sociocultural beliefs and attitudes about who does what (Bucholtz and Hall 2005: 594). To this end, Ochs (1992) explains that linguistic forms very rarely directly index personae or social types, such as '*x* indexes *male*'. Instead, linguistic forms are associated with stances, such as 'toughness', which are associated with more enduring social categories, such as 'working-class urban male'. The link between toughness and working-class urban male is ideological, grounded in essentialising discourses of 'street life' that evaluates working-class men in terms of their ability to fight and act tough. Eckert (2008a: 465) suggests that this association between working-class men and toughness is related to stereotypes of working-class physicality versus middle-class mental ability, but that such essentialising associations serve to erase a number of other (often more positive) characteristics associated with working-class men, such as egalitarianism (Irvine and Gal 2000).

Indirect indexicality suggests that linguistic forms index social identities by making ideological associations between a particular stance and a social type. The ways in which linguistic forms take on different levels of social meanings in discourse is theorised by Silverstein (2003) in his model of the *indexical order*. The indexical order allows us to 'relate the micro-social to the macro-social frames of analysis of any sociolinguistic phenomenon' (Silverstein 2003: 193). In doing so, Silverstein schematises the indexical order in term of an *n*-th order value and a series of *n*+1st order values. *N*-th order indexicality refers to a basic correlation between a linguistic form and a semiotic meaning. This could be a correlation between the use of standard variants and higher social class (Labov 1972a) or a correlation between the use of tag questions and a 'conducive' stance (Moore and Podesva 2009). The link between micro-indexical forms and more enduring categories is conceptualised as an ideological relationship that essentialises particular social characteristics. In order to chart how this relationship is established, Silverstein proposes that further indexical orders are created via an ideological reinterpretation of the *n*-th order association, such that *n*+1st order indexicality is an additional layer of meaning that overlays the *n*-th order context. Silverstein describes the *n*+1st order as always latently present and in competition with the *n*-th order. For example, he explains Labov's (1972) results in terms of standard variants having an *n*-th order of high social class and an *n*+1st order meaning of prestige. This is based on an ideological association between the speech of high status individuals and prestige. However, it is possible that the

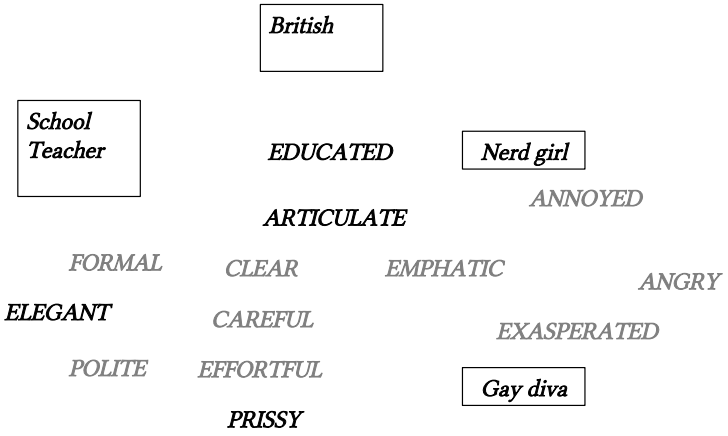

Figure 2.1: Indexical field for /t/ release in American English adapted from Eckert (2008a: 469). Boxes = social types; black = permanent qualities; grey = stances.

n+1st order meaning can supplant the *n*-th order meaning, such that the use of a standard variant can directly index prestige rather than high status. In this way, the *n*-th order meaning could be reconstrued as 'prestigious' rather than 'high social class', which may then make available further *n*+1st order meanings. This example demonstrates some of the ways in which indexical orders are in competition with each other and always available for ideological reinterpretation.

Eckert (2008a) builds on Silverstein's (2003) indexical order by exploring how variables can index a range of different meanings located in terms of an *indexical field*. An indexical field is a 'constellation of ideologically related meanings, any one of which can be activated in the situated use of the variable' (Eckert 2008a: 454). The indexical field is a useful perspective on the emergence of social meaning as it allows us to chart how meanings are ideologically linked and contextually determined.

Figure 2.1 reproduces Eckert's indexical field for released non-word-initial /t/ in American English (Eckert 2008a: 469), which Eckert draws from a range of previous studies (Bucholtz 1996; Benor 2001; Podesva et al. 2002; Podesva 2007). Released (or aspirated) variants can index stances that are specific to an interactional moment, such as clear or careful, and these are linked to more enduring qualities, such as educated and articulate. Eckert uses the term *permanent qualities* in order to describe these kinds of indexical associations, because they can become part of 'one's habitual persona' (Eckert 2012: 470). This may be the case with some indexical associations, but it is perhaps more appropriate to call them *enduring qualities* or *personae*, given that these qualities may not be relevant in every interaction, but are instead contextually primed in particular discourse moments. These more enduring qualities may be ideologically associated with social types; for example, nerd girls may draw

upon associations between released /t/ and educatedness in order to construct a 'superstandard' youth style that rejects hegemonic youth culture (Bucholtz 1996). At the same time, a gay man may use released /t/ in order to construct exasperated stances that are ideologically linked to prissiness. In turn, this may also be indexical of a certain kind of gayness, such as the 'gay diva' social type (Podesva 2007). The indexical field is a useful construct as it allows us to explore how the same variant can index a wide range of stances and acquire different meanings in the context of different styles. At the same time, it demonstrates how variants have indexical fields rather than fixed meanings and that different meanings may be activated depending on the style in which a variant occurs. This has considerable methodological implications for the study of social meaning as it implies that an account of meaning cannot be considered separately from a broader analysis of the stylistic practices in which individuals are engaged. Furthermore, it foregrounds the importance of taking seriously the interactional contexts in which variation takes place.

2.3.3 Enregisterment and levels of meaning

The previous examples on released /t/ in American English suggest that the released variant may not be strongly indexical of social groups, but is instead associated with stances and personae that are then interpretable in terms of social types. For example, Eckert (2008a) suggests that an ideological association between released /t/ (as opposed to deletion) and 'standard' speech in the USA may lead released /t/ to being conceptualised as hyper-articulate. In the context of a gay style, this hyper-articulateness can be interpreted in terms of an exaggerated 'prissy persona' (Podesva 2008). However, other variables may have stronger indexical associations with particular social groups that are more enduring across interactions. For example, in England, monophthongal realisations of the FACE and GOAT vowels are often stereotyped as a feature of many northern accents (Watt and Tillotson 2001; Watt 2002; Richards 2008; Finnegan 2011). These social associations are so strong that they may not need to be primed by the variant's co-occurence with a particular stance. This type of indexicality characterises what is often termed *enregisterment*. Enregisterment describes 'processes through which a linguistic repertoire becomes differentiable within a language as a socially recognized register of form' (Agha 2003: 231).

Johnstone et al. (2006) describe enregisterment in terms of Silverstein's (2003) indexical orders. Their conceptualisation of indexicality is subtly different from that

advanced by Eckert (2008a) and Moore and Podesva (2009) as they implicitly posit orders of indexicality to be linear and hierarchical – such that a variable acquires an *n*-th order value, followed by an *n*+1st order value, and so on – whereas Eckert, Moore and Podesva do not. However, this may be a consequence of their focus on enregisterment, which is often conceptualised as a more gradual and linear process. Johnstone et al. (2006) explain that an *n*-th order correlation between a variant and its use by a particular group of people (e.g. working class Sheffielders) can become available as a *n*+1st order association with place (e.g. Sheffield). This is an important point as it shows how a single group of people can stand for an entire city and, by extension, how a feature used by that group can become enregistered as indexing that place.

Indexical associations are not fixed and are constantly available for reconstrual and reevaluation. For instance, an *n*+1st order association can be exploited in various creative ways in order to create new meanings at the level of stance. For instance, previous literature describes an association between lax word-final /i/ and a working-class Sheffield accent (Beal 2004; Finnegan 2005). This association could be ideologically reconstrued by exploiting social associations between Sheffield and working-class toughness, meanings that exist as a consequence of Sheffield's historical status as an industrial, largely working-class city. In this way, lax /i/ could take on more enduring indexical associations (e.g. toughness), which may make available further *n*+1st order associations with other social categories or qualities. This represents one way in which the social meaning of variation is fluid and fundamentally ideological in nature, but also points towards a possible mechanism behind language change (Silverstein 2003: 194). If social meaning is taken seriously as a potential motivation behind linguistic changes, then it stands to reason that a shift in indexical meaning, alongside its gradual accretion into styles, could lead to new sociolinguistic patterns in a community.

While indexical associations can be reconstrued in order to posit new *n*-th order meanings, another possibility is that the association between a variable and a social characteristic can be further reified, creating an *n*+2nd order meaning, which Johnstone et al. (2006) term 'third-order indexicality'. A variable acquires third-order indexicality 'when it gets "swept up" into explicit lists of local words and their meanings and reflexive performances of local identities, in the context of widely circulating discourse about the connection between local identity and local speech' (Johnstone et al. 2006: 84). This resembles the sociolinguistic 'stereotype' of Labov (1972b: 180) in that it becomes the subject of explicit metalinguistic commentary and can be used in parody or performance of a dialect style (Johnstone 2009).

To this end, Johnstone et al. (2006) define 'third-order indexicality' as a variable undergoing enregisterment, in that it is subject to metalinguistic commentary and stereotyping. However, as noted above, their use of the first/second/third-order terminology implies hierarchicality, in that third-order indexicality can only occur after first- and second-order indexicality have taken place.[1] This is somewhat at odds with Silverstein's (2003) claim that *n*+1st (second-order) associations often supplant *n*-th order (first-order) associations. This implies a strong dialectic between different indexical orders in the sense that two meanings at different levels affect and transform each other in both directions. For instance, a more local indexical association (e.g. toughness) gives rise to an *n*+1st association (e.g. working-class). As Silverstein suggests, these *n*+1st associations may supplant *n*-th order associations, suggest that 'toughness' is erased as an indexical association and becomes subsumed under a new *n*-th order association of 'working-class'. This problematises a linear or hierarchical conception of indexical orders as meaning, by its nature, is constantly in a state of flux and always available for ideological reinterpretation.

2.3.4 The co-constitutive nature of social meaning

Section 2.3.1 reviewed previous work on style, which suggests that the variation is a stylistic resource, alongside other resources such as clothing, hairstyles, lexis, music, and so on (Eckert 2000; Campbell-Kibler et al. 2006; Moore 2012). In this view, the meaning of linguistic features is dependent upon the other semiotic resources that comprise the style in which those features are located. The 'same' feature could mean very different things in different styles, because style is a context in which meaning is embedded and interpreted. This view is sometimes called a *bricolage* or *co-constitutive* view of style, in the sense that social meaning represents a collection of various resources that produce something greater than the sum of its parts (Eckert 2008a).

Research on the interactional uses of variation shows that social meanings may subtly shift between different interactional moments, potentially as a function of the other stylistic resources that are used in that particular moment (Bucholtz and Hall 2004, 2005; Podesva 2007, 2008, 2011a; Bucholtz 2011). This suggests that the issue becomes not only one of individual or group style, but of the specific resources that variants are used alongside in episodes of discourse (Coupland 2007: 51). This raises

[1] While I acknowledge that Silverstein (2003) also occasionally uses the first/second/third terminology in his writing, I would suggest that this is easily misinterpreted as implying that indexical orders are progressive and temporally ordered. For this reason, I use the terms *n*-th, *n*+1st, and so on, because they are more consistent with Silverstein's overall usage and his theoretical argument.

the issue of whether the discourse-level social meaning is co-constitutive with respect to the immediate discourse context. For example, does variation always have to be socially meaningful or are there instances in which the same social work is done by different linguistic features? Can similar phonetic realisations index different meanings within the speech of the same speaker? And can completely different phonetic realisations index similar meanings within the speech of the same speaker? These questions present serious challenges to any account that claims '*x* means *y*', even in the context of a single speaker in a single interactional context (Coupland 2007: 24).

A co-constitutive view of social meaning in discourse would hold that variation is one resource that aids in the construction of social meaning. There may be instances in which variation plays a substantial role in this enterprise, whereas in other cases its role may be relatively minor. I investigate these possibilities in Chapter 7, where I examine how phonetic variation and other linguistic and interactional resources are used in discourse in order to index stances, personae and social types.

2.3.5 Implications for the sociolinguistic variable

In his original conception of the sociolinguistic variable, Labov (1966a: 15) defines the variable as 'a class of variants which are ordered along a continuous dimension and whose position is determined by an independent linguistic or extra-linguistic variable'. Lavandera (1978) raises a number of issues surrounding the nature and the status of the sociolinguistic variable, which lead to Labov (1978: 1) positing the variable as a 'heuristic device'. Subsequent work has debated this further (Dines 1980; Terkourafi 2011), but Labov's formulation of the variable as heuristic suggests that it may be an analytical convenience that does not necessarily reflect a social or cognitive reality. However, as Campbell-Kibler (2011b) points out, third-wave variationist work explicitly treats variables as components of styles that can be used for identity work. In this line of inquiry, the variable is treated as socially and cognitively real, whether implicitly or explicitly, and there is often an implication that the different social meanings of a particular variable are indexically related, at least within a given community. For example, 'released /t/' – releasing intervocalic or word-final /t/ as [t] – is often associated with intelligence in American English, while realising /t/ as [ɾ] may be associated with laziness. While these meanings are not necessarily opposite, Eckert (2008a: 468) argues that they both rely upon ideological associations between [t], Britishness and intelligence on the one hand, and [ɾ], Americanness and anti-intellectualism on the other. Crucially, Eckert discusses this variable in terms of an

'underlying potential', which suggests potentially related meanings across different variants of a variable. This conception evokes Labov's definition of a variable as 'a class of variants which are ordered along a continuous dimension', as long as we conceptualise this 'continuous dimension' as being both linguistic and meaning-based.

However, recent third-wave research has problematised the concept of a variable as carrying a set of related meanings across different variants. For example, in her perceptual study of (ING) in the USA, Campbell-Kibler (2011b: 435) finds that 'each variant is tied to a particular set of meanings, socially related to but distinct from those of its alternate'. She finds that different variants may index independent meanings, which contrasts with a straightforward binary view of social meaning, in which one variant means one thing and another variant means the opposite. In this way, Campbell-Kibler's study problematises a perspective on the variable as a unit of social meaning. That is, what does it mean to say that variables involve different ways of doing the *same* thing? Phonetic variation does not have propositional meaning in the way that discourse variation may have and it is not always clear how and to what extent different variants are linked to each other (Moore 2012). Campbell-Kibler (2011b) highlights the need to more explicitly define what the sociolinguistic variable might mean in third-wave variationist sociolinguistics. Some of the relevant issues surrounding this debate are addressed further in Chapter 7, where I consider the ways in which continuous phonetic variants may take on a diverse and often unrelated array of social meanings at their acoustic extremes.

2.4 Origins of sociophonetic variation

2.4.1 Variation as a source of information

Ladefoged and Broadbent (1957) classify the elements of speech that communicate 'information' into three types: physiological, social, and linguistic, which could also be broadly conceived as describing different sources of variation. Physiological variation can refer to the outcome of the well known variation in vocal tract shape and size, both in terms of sex (Peterson and Barney 1952) and individual differences in vocal morphology (Lammert et al. 2013). Linguistic variation describes systematic patterns that are common to the production of speech, such as coarticulation, and may be shared by a large proportion of speakers of a particular language variety. Finally, social variation is indicative of social group membership, such as region and social class, which we could extend to a broader range of social indexes as discussed

in Section 2.3.

So far, this chapter has almost exclusively focused on the latter point – how various social and ideological mechanisms allow phonetic variants to accrue social meaning. However, in order to provide a convincing account of the social stratification and social meaning of phonetic variation, a researcher must also be able to demonstrate that the variation cannot be explained with reference to physiological or phonetic context effects alone. Much of the the variationist literature uses terminology such as 'constraints' to describe predictors of linguistic variation and often distinguishes between 'linguistic' (e.g. phonetic context) and 'social' (e.g. social group) factors. However, the distinction between 'social' and 'phonetic' – as well as other binaries such as mechanical/controlled – is not straightforward or unproblematic. This section briefly reviews some of the distinctions and relationships between different explanations for variation in speech. This information is presented in order to contextualise the processes by which variation may acquire social meaning. It also allows me to suggest that the patterns evidenced in this analysis cannot be explained with reference to linguistic-phonetic, anatomical or physiological factors alone and that sociolinguistic factors have a substantial influence on the nature of phonetic variation in this community. This section is focused narrowly on coarticulation as a source of actuation, because of its relevance to the variables under study in this dissertation. Other phenomena, such as dispersion, vowel space symmetry, articulatory preferences and individual differences in cognitive processing, are not discussed here, but see Solé and Recasens (2012) for research on actuation in broader terms.

2.4.2 Mechanical or controlled?

A major issue in the study of human speech is the relationship between so-called *mechanical* and *controlled* factors. Controlled differences are those that can be altered by speakers and include, for example, well-established differences in VOT values for pre-voiced and aspirated stops across languages (Cho and Ladefoged 1999). The existence of language-specific patterns, as well as sociolinguistic variation within languages, suggests that these patterns are not wholly determined by physiology or aerodynamics (Solé 2007: 302). In contrast to controlled aspects of speech, a well-known mechanical phenomenon is the intrinsic fundamental frequency (f0) of vowels. F0 is higher in high vowels than in low vowels, which is a consequence of tongue movements during the production of high vowels (Whalen and Levitt 1995). In high vowels, the genioglossus muscle contracts as the tongue raises and moves

forwards (Honda and Fujimura 1991; Hoole 2006: 6). This causes the vocal folds to stretch vertically, thus raising f0.

It is likely that the various types of variation in f0 would be greater than that arising from intrinsic differences alone, as these are often fairly small in nature. However, for a sociolinguist investigating f0 patterns between different groups of speakers using unbalanced linguistic data, it would nonetheless be imperative to account for the intrinsic pitch effect in order to ensure that any variation evidenced between groups is of a greater magnitude than the inherent variation between high and low vowels. However, although vowel pitch may be intrinsic, it is also possible that a speaker's perception of this difference could result in this cue subsequently being used in a more deliberate fashion (Solé 2007: 3-4); for example, in order to enhance contrast between high and low vowels (Kingston and Diehl 1994). In turn, some of this variation may begin to take on language-specific patterns (Pape 2008). Examples such as this one suggest that distinctions between mechanical and controlled properties may often be ambiguous (Solé 2007: 304) or impossible (Hoole et al. 2012: 130).

Other well-known sources of variation include the size and shape of the vocal tract. Male speakers on average have longer vocal tracts than female speakers, which affects acoustic parameters such as f0 and vowel formant values (Peterson and Barney 1952). There are also considerable individual differences in vocal tract morphology both between and within sex groups (Lammert et al. 2013). Sociolinguistic research often attempts to account for physiological differences when comparing vowel realisations by males and females and by older and younger speakers, often using various normalisation techniques (Fabricius et al. 2009; Flynn 2011; Watt et al. 2011). However, anatomy and physiology also have a prominent effect on non-vowel sounds, but this is rarely explicitly accounted for. The shape and size of the palate affects articulation in consonants (Brunner et al. 2009), which is particularly prevalent in the case of stops and fricatives because they involve very precise tongue-palate contact. For example, Fuchs and Toda (2010) find a correlation between the front oral cavity length (the space between the tongue tip and the lips) and the acoustics of English /s/. This points towards biological sex differences. However, they also find that male and female speakers have acoustically different productions even after accounting for palate size, which points towards social gender differences. This illustrates that distinctions between social and physiological influences in speech are complex. Furthermore, despite the wide range of linguistic-phonetic and physiological influences, it must be stressed that there is also considerable plasticity in speech production. For example, speakers with different physiology are able

to produce acoustically similar output and speakers can also adapt their speech to drastic perturbations of the vocal tract, such as wearing a palatal prothesis (Brunner and Hoole 2012). These phenomena can be explained in terms of motor equivalence, whereby different motor strategies are used in order to achieve the same outcome (Lashley 1930).

In summary, the relationship between anatomical, physiological, linguistic-phonetic and social explanations for phonetic variation is complex, non-uniform and relatively understudied. However, this discussion does foreground the importance of attempting to account for non-social influences on phonetic variation, or at least how apparently non-social and social factors are interlinked. This discussion also raises a number of intriguing possibilities about how variation may become structurally patterned and, perhaps, socially patterned and socially meaningful. In the following section, I take up this line of inquiry, focusing on different explanations for where variation comes from and how it might acquire social meaning.

2.4.3 The actuation of socially meaningful variation

This section discusses some of the potential origins of sociophonetic variation in order to identify how variation arising from anatomy, physiology or phonetic context effects can become socially meaningful. One potential source of variation is coarticulatory and aerodynamic constraints on the speech signal. It is well known that the 'same' speech sound is realised in acoustically different ways in different phonetic contexts. For example, the /k/ in *keep* is usually articulated slightly differently from the /k/ in *coup* due to the different vowels that follow the /k/. The /ki/ syllable often involves a tongue dorsum constriction for /k/ that is more anterior than that found in the /ku/ syllable. Similarly, the vowel /u/ in *swoop* is often articulated with a more posterior tongue dorsum than the /u/ in *few* due to the fact that /f/ encourages fronting whereas /w/ does not (Kleber et al. 2011). This tendency for the articulation of sounds to overlap in time is called *coarticulation*, which results in a very wide range of acoustic variation in the speech signal.

Ohala (1981) hypothesises that variation caused by coarticulation could represent one potential source of sound change. He suggests that variation resulting from coarticulatory or aerodynamic constraints may be interpreted by the listener as intended, which can result in the listener producing the perceived sound in new phonetic contexts. Ordinarily, listeners are assumed to perceptually compensate for coarticulatory effects, such that they do not hear the /u/ in *few* as sounding fronter as the /u/ in *swoop*, despite the fact that the former would be acoustically

fronter than the latter. This is because listeners can compensate for the effects of coarticulation during the processing of speech (Mann 1980; Mann and Repp 1980). This effect has also been found to occur in non-human species (Lotto et al. 1997). Ohala's model applies to contexts in which this perceptual compensation weakens or does not occur, which causes listeners to hear coarticulatory effects on speech sounds as intentionally different realisations. Harrington et al. (2008) advance this model in their explanation for GOOSE-fronting in Southern British English, in which they find that perceptual compensation is weaker for younger speakers than older speakers, which may explain younger speakers' use of fronted variants. An alternative interpretation for the same phenomenon can be derived from exemplar theoretic models of speech production and perception (Pierrehumbert 2001). In this view, if a sound is most frequently produced in a context that yields some perceptible coarticulatory effect (e.g. producing the GOOSE vowel before alveolar consonants yields fronting) then the frequency of that context may allocate the resulting phonetic realisation greater weight in a person's mental representation (Harrington 2007). In turn, this makes it more likely that they will produce such realisations in their own speech.

There are a wide range of factors that can influence perceptual compensation, which has implications for how particular sounds may become changes-in-progress. These include a listener's language-specific experience (Beddor et al. 2002), the gender of a perceived voice (Strand 1999), and an individual's gender and 'autistic' traits (Yu 2010). Baker et al. (2011) also suggest that phonetically motivated change is more likely to occur when phonetic context effects are not shared by all members of a community, as this may make perceptual compensation more difficult. Therefore, speaker-specific differences are expected to play a role. To this end, it is likely that more ethnographically-specific characteristics can also influence perceptual compensation, such as iconic individuals in a community (Irvine and Gal 2000) and speakers with more or less distinctive voices (Goldinger 1996). Such factors are easily modelled in an exemplar theoretic account of this phenomenon, in which the mental representation of phonological units is based upon storage of phonetic detail (rather than phonological abstraction), alongside the rich social context in which those productions occurred (Goldinger 1996; Pierrehumbert 2001; Foulkes and Docherty 2006).

In summary, the perceptual compensation model of sound change, alongside its exemplar theoretic manifestation, offers one potential origin of socially-patterned variation: a pool of synchronic variation that arises from coarticulation. Similar sources of variation include the acoustic output of physiological differences between

speakers, as well as confusion between similar words, and hypo-/hyper-correction (Labov 1972b; Ohala 1989). The analytic power of such a model for more local studies of language and identity resides in the proposition that sound changes originate in individuals. Ohala (1974) suggests that much of this variation will represent 'mini sound changes' that are not taken up by a community, but this suggests that his model can easily account for socially meaningful variation that is prevalent within a social group but may not become a community-wide change. For an extensive discussion of how patterns of variation can diffuse in order to become community sound changes see Labov (1994).

Another potential source of variation that is pertinent to the study at hand is the role of cross-language phonetic influence and language contact (Labov 2007). Contact between speakers from different dialect and language backgrounds potentially increases the range of variation available to a community and this has been shown to be a driving factor behind dialect change in multiethnic communities (Cheshire et al. 2011). It is also well-known that bilingual speakers have phonetic systems that differ from those of monolingual speakers (Flege and Port 1981; Fowler et al. 2008). Cross-language phonetic influence describes the phenomenon in which the sounds of one language affect the sounds of another. This is more likely to happen when there is a greater degree of phonetic similarity between the sounds of a bilingual's two languages (Best 1994; Flege 1995). However, variation that emerges out of cross-language influence does not necessarily have to index the social characteristics of its speakers, such as ethnic groups or being a bilingual speaker. Instead, such variation can be reinterpreted for more local identity work, such that it indexes local distinctions between groups or contextually-specific stances (Eckert 2008b; Mendoza-Denton 2008; Alam and Stuart-Smith 2011).

Perceptual compensation, exemplar theoretic models of frequency, and cross-language influence all put forth promising explanations for potential origins of socially meaningful variation. However, the origin of variation does not necessarily give any clues as to its meaning, which necessitates a study of the indexical potential and contextual embedding of linguistic forms. The fact that variation emerges from coarticulation does not mean that it is necessarily socially meaningless, nor does evidence of cross-language influence imply that more local identities do not have a role to play. A comprehensive account of the social meaning of variation must account for correlations and associations at a number of levels that span stance, persona and social type. It is also likely that the nature and status of a phonetic feature may not be the same for all speakers (Solé 2007: 303). For instance, one axis of variation may be more aerodynamically motivated for one speaker and more socially

motivated for another, or dialectally phonologised for one speaker and lexically-specific for another. To this end, Munhall et al. (2000: 26) suggest that binaries such as mechanical/controlled and phonetic/social could limit our understanding of how these phenomena work together. An account that integrates different explanations for variation may hold greater explanatory power. I return to this discussion in Chapter 8, where I discuss the findings presented in Chapters 5–7 in terms of the various causes of, and explanations for, phonetic variation.

2.5 Summary

This chapter has synthesised a range of literature that informs the direction of the subsequent chapters in this dissertation. Specifically, I reviewed prior research on sociophonetic variation in multiethnic communities and suggested that a combination of approaches may help understand how variation is linked to ethnicity and other social categories. I also addressed debates on the social meaning and indexicality of linguistic variation and identified an area that has been discussed but subjected to little empirical study: the differences in social meaning between enregistered and unregistered variables and how this is manifest in interaction. Finally, I discussed some of the potential origins of sociophonetic variation and presented theories on how variation arising from anatomy, physiology, coarticulation and language contact may come to acquire sociolinguistic patterning and social meaning.

The chapters that follow detail a number of related analyses and discuss the significance and implications of the findings presented within. Chapter 3 details the ethnographic portion of this study, in which I outline the social context of the school and the ways in which the adolescents organise themselves into communities of practice. Chapter 4 describes the methodology for the quantitative phonetic analysis and Chapters 5 and 6 report an acoustic phonetic analysis of two phonetic variables: word-initial /t/ and word-final /i/. I chart the phonetic realisation of each of these features and consider the ways in which different forms of social grouping, such as ethnicity, community of practice and school orientation, influence their realisation. Chapter 7 expands upon the quantitative phonetic analysis by analysing how acoustically extreme tokens – that is, tokens with a particularly high or low value – are used in discourse. I examine how individual variants are combined with other linguistic and discursive features in order to do identity work in specific discourse moments and discuss some of their possible social meanings. Chapter 8 returns to the primary research questions of the dissertation, which are reproduced below:

1. Is phonetic variation used as a resource for constructing identities and, if so, how is this variation used to index different levels of identity, such as ethnicity and community of practice membership?

2. How does the degree of indeterminacy or enregisterment attributed to phonetic features affect the ways in which they can be used for social meaning?

3. To what extent is social meaning in discourse co-constitutive?

I discuss how the data presented in this dissertation inform and advance our understanding of the above areas. In doing so, I highlight the complexity of sociolinguistic variation in ethnically diverse communities, advance a theory of indexicality based around enregisterment and indeterminacy, and explore the extent to which sociolinguistic meaning is co-constitutive in discourse. Chapter 8 concludes the dissertation with a summary of the major findings of this dissertation and identifies areas for future research.

Chapter 3

An ethnographic study of Ashton Valley secondary school

3.1 Overview

3.1.1 Summary

This chapter reports the outcomes of an ethnographic study that was carried out in a secondary school in Sheffield, a city in the north of England. I advance an account of social practice and social organisation that underpins the quantitative phonetic analysis in Chapters 5 and 6, as well as the discourse-level phonetic analysis in Chapter 7. I begin by outlining the method for the ethnographic study, including how I came to do fieldwork in this particular school, a range of school- and neighbourhood-level statistics, and information on how I was positioned as a researcher. I then discuss the concept of social mixing and outline a number of dimensions along which social categorisation was operationalised by the students. These forms of social categorisation directly inform the quantitative sociolinguistic analysis reported in Chapters 5 and 6, as they are used in assessing which social variables predict phonetic variation. Following this, I present an analysis of social practice and social organisation amongst the adolescents in the school, reporting on how individuals clustered into particular communities of practice. I chart the relationship between social practice and social categories in the school, demonstrating how different social groups displayed differing orientations to

ethnicity, social class, social practice, and the institution of the school. These key concepts act as salient forms of identity construction and frame the social structure of the adolescent peer community. In summary, this chapter finds a number of distinctive social groups within Ashton Valley School and identifies the ways in which they are differentiated from each other. In particular, I suggest that the specific social dynamics that exist between these groups are a product of the intersection between demographic social categories, locally-situated social practices, and the socio-demographic profile of the school.

3.1.2 Motivations

The ethnographic study was conducted in an attempt to gain insights into the social organisation of adolescent peer groups and understand the social categories that were relevant to the participants themselves. Following previous ethnographic studies in the field of variationist sociolinguistics (Eckert 2000; Moore 2004; Mendoza-Denton 2008; Lawson 2011), I was particularly interested in the social groups that were relevant to the pupils in the school and what role, if any, ethnicity had to play in influencing the social composition of these groups. The ethnographic study was carried out between March 2010 and June 2011 at a secondary school in Sheffield, which I refer to using the pseudonym *Ashton Valley School*. Sheffield is the third largest district in England in terms of population, with 551,800 residents (Office For National Statistics 2012c). Sheffield is well suited for a study of language variation and ethnicity because it has both a well described regional dialect and a relatively large ethnic minority population. The city has a long history of welcoming incomers, many of whom came to work in Sheffield's large steel industry during the nineteenth and twentieth centuries. Sheffield was also designated the UK's first 'City of Sanctuary' in 2007, which involved the implementation of policies that ensure a safe and hospitable environment for asylum seekers and refugees.

3.2 Method

3.2.1 Choosing a fieldwork site

At the outset of this project, I was interested in language variation and different forms of social categorisation. I decided to examine these concepts in adolescent communities, which are well known to represent an intense period of social and linguistic change (Eckert 2003; Kirkham and Moore 2013). I decided that a secondary

school would be a good place to start with such a project and wrote to twenty different schools in and around Sheffield. I eventually received responses from three schools who were happy to enter into a dialogue about my project. Two of the schools served highly economically-deprived communities but had recently been placed into 'special measures'. Special measures is a status applied to schools by Ofsted, a UK government agency, which deems a school to be '[…] failing to give its pupils an acceptable standard of education […]' (Ofsted 2012: 4). In the case of the two schools I contacted, they were in the lowest 10% in terms of exam results across England, which was deemed to be a particularly strong indicator of 'failure'. As a consequence of the special measures designation, schools are generally subjected to regular inspections and greater levels of scrutiny. While the two schools were happy to let me conduct fieldwork there, they could only promise a short-term project of around two-to-three months. They were unable to facilitate a long-term period of fieldwork because of the additional complications and administrative work arising from their special measures designation. They also couldn't guarantee that they would still be open in a year's time.

The third school that was happy to consider my project was a school located in a very affluent suburb of Sheffield, which I call Ashton Valley School. While the school was located in one of the most affluent suburbs of Sheffield, it had a student population that was far more diverse than the neighbourhood in which it was located. For example, around 35% of the students in the school came from areas of the city that were significantly more economically deprived and ethnically diverse than the neighbourhood in which the school was located (I discuss the statistics of this in more detail in Section 3.2.2). This situation presented a microcosm of what happens when diverse social groups come into contact in a socially and physically bounded space. There was the possibility of communities of practice being formed that did not correspond to any neighbourhood-based peer groups, as well as the possibility of very high levels of segregation between people from very different backgrounds. Given the high levels of diversity, there was also the possibility that people might organise themselves into groups that did not correspond well to demographic categories, such as ethnicity and social class. The level of mixing in the school presented the opportunity for considerable inter-ethnic and inter-class contact. At the same time, high levels of diversity potentially make any lack of inter-ethnic and inter-class contact even more visible. One consequence of this could be increasing competition for shared sociocultural space, making social divisions even more prominent. This made Ashton Valley School an ideal site for the study of language variation, social practice and ethnicity in a group of adolescents.

3.2.2 Ashton Valley School

Ashton Valley School is a secondary school located in a suburb in the west of Sheffield. The precise demographics of the school, as well as its surrounding neighbourhood, are reviewed in more detail below. This short section aims to provide a more qualitative overview of the school's ideology and how this relates to the local and national educational landscape. As I briefly point out above, a unique characteristic of the school is that its student population is strikingly more diverse than that of the surrounding neighbourhood. This diversity was actively celebrated in the school, often featuring in the school's promotional materials.

The levels and nature of diversity in urban schooling communities is often referred to under the banner of 'social mixing' (Lees 2008). Schools in England now have a legal duty to promote diversity (Department for Children, Schools and Families 2007: 3) and some schools have begun to adopt what Hollingworth and Mansaray (2012) call a 'social mix ideology'. This refers to schools actively celebrating their diverse population, to the extent that diversity can be offered as a potential 'selling point' to parents, who may wish their children to experience interactions with different 'kinds' of people. However, while some White middle-class parents may value diversity, they often do so only as long as this social mix involves the 'right' (i.e. middle class) kind of people (Reay et al. 2007). I address issues surrounding ethnicity and social class in parental choice policies later in this section.

Ashton Valley's active celebration of diversity fits the trend described in Hollingworth and Mansaray (2012), whereby diversity is positioned as a selling point to parents of prospective students. The school actively recruited beyond its regular catchment area and provided extensive support for heritage language provision and also offers lessons in a wide range of non-European languages. This was also positioned as another selling point of the school and is reflected in the fact that the school has a higher proportion of students with English as an additional language when compared to local and national averages.

However, while diversity was celebrated in the school's promotional activities and institutional policies, this was not always the case from a student perspective. Some students praised the diverse nature of the school, claiming that it facilitated access to a wider range of cultures and people with whom they would otherwise not come into contact. However, other students said that the school was not multicultural and that they had experienced racism. Some White British students also felt as though they were discriminated against in light of additional provision for ethnic minority students. I analyse student orientations towards social mixing and diversity in much

more detail in Sections 3.4 and 3.5, but these brief comments aim to foreground the diversity in opinion, which represents part of the social practices and social ideologies embodied by different social groups in the school.

In the sections that follow, I provide an overview of a range of school-level, neighbourhood-level and city-level statistics. The neighbourhood statistics show that the school's surrounding area is significantly more affluent than the Sheffield average, while the school-level statistics demonstrate how the school is more diverse than is typical of the surrounding neighbourhood and the city of Sheffield. I also briefly contextualise the school-level statistics in terms of local and nationwide trends in education.

School neighbourhood statistics

Table 3.1 highlights some of the major statistics that characterise the school's surrounding neighbourhood and a set of comparative statistics with the city of Sheffield. The school's neighbourhood is defined in terms of the *Lower Layer Super Output Area* (LSOA), which is a census unit designed to capture neighbourhood-level information (Office For National Statistics 2012a). A city is made up of a number of LSOAs, each of which comprises around 1500 people. Therefore, it provides fairly fine-grained information on the area immediately surrounding the school. Table 3.1 shows that the most prevalent occupations in the school's neighbourhood are managerial, with 76.8% of adults working in the highest grade jobs (AB and C1) compared with 45.5% for Sheffield as a whole. This suggests that the area is considerably more affluent than is typical for Sheffield, given correlations between employment grade and salary. This is similarly reflected in benefit claimants, where the school LSOA average is substantially lower than the city-level average (6% versus 15% for benefit claimants; and 2% versus 4% for those claiming Job Seeker's Allowance). The school's LSOA also has a small proportion of people aged 16 and over with no formal qualifications (9.9%), compared with the city-level average (24.3%).

In summary, these statistics paint a picture of economic and social advantage in the school's local neighbourhood when compared with overall figures on the city of Sheffield. Given that levels of socioeconomic deprivation are largely relational within cities, the school's LSOA is considerably less deprived than the city as a whole.

School-level statistics

The above statistics demonstrate that the school's surrounding neighbourhood is clearly more affluent than Sheffield as a whole. This section draws upon two sets

Table 3.1: Census 2011 statistics for the School's Lower Layer Super Output Area (LSOA) and the Sheffield metropolitan district. Source: Census 2011 (http://www.neighbourhood.statistics.gov.uk/ accessed 7 March 2012).

Category	School LSOA	Sheffield
Population	1650	552,698
Approximated social grade		
% AB: Higher and intermediate managerial /administrative / professional	42.9	19.2
% C1: Supervisory, clerical, junior managerial / administrative / professional	33.9	26.3
% C2: Skilled manual workers	9.4	15.4
% D: Semi-skilled and unskilled manual workers	4.8	19.3
% E: On state benefit, unemployed, lowest grade workers	9.1	19.9
Benefits and qualifications		
% Working Age Benefit Claimants	6.0	16.0
% Working Age Job Seeker's Allowance Claimants	2.0	4.0
% People aged 16 and over with no formal qualifications	9.9	24.3
Health		
% Very good health	55.5	46.2
% Good health	31.9	33.4

of statistics from the school in order to demonstrate how the school differs from both local and national educational trends. In particular, I focus on the school's ethnic composition and pupil characteristics (such as free school meals, exam achievement, etc).

The statistics in Table 3.2 compare the ethnic composition of the school to both the school's surrounding neighbourhood (LSOA) and the city of Sheffield. Note that the definition of ethnicity is an etic definition based upon official census designations and does not capture the emic dimensions of ethnicity (see Section 2.2.1 for a discussion). Comparing school-level characteristics to the surrounding neighbourhood and the city of Sheffield is problematic as the school data only contains people aged 11–16, whereas the LSOA and city data contains people across the population age range. On a national level, there are a greater proportion of ethnic minority individuals amongst younger populations than amongst older populations (Centre on Dynamics

of Ethnicity 2013), which means that these statistics could potentially overestimate the differences between these areas. However, data on ethnicity-by-age were not available at LSOA-level and city-level at the time of writing. The school statistics in Table 3.2 also include data from sixth form students, who were aged 16–18 and in post-compulsory education (however, sixth form students are not included in the free school meals data). Impressionistically, the school's sixth form was much less diverse than its lower school, which runs counter to country-wide trends, in which White students are less likely to be in full-time education at age 18 (Department for Education 2010: 6; See et al. 2012: 410). As a consequence, the school figures in Table 3.2 under-estimate the proportion of ethnic minority children aged 11–16 in Ashton Valley School and, therefore, also underestimate the proportion of ethnic minority children in the year group with whom I worked.

The school had over 1600 children, with an almost equal gender split. The school has a much lower proportion of White British students (66.4%) than both the surrounding neighbourhood (88.9%) and Sheffield as a whole (80.9%). The largest ethnic minority groups in the school are Pakistani (6.5%), White & Black Caribbean (4.0%), African (4.2%; most likely Somali); and 'Any Other Ethnic Group' (4.9%). The percentages for all of these groups are considerably higher than in the surrounding neighbourhood and Sheffield. 'Arab' was not available as a category in the school data, but my qualitative observations suggest that Arab students may have made up the majority of the 'Any Other Ethnic Group' category.

The large disparity between the school and neighbourhood demographics is partly a consequence of parental choice policies, as well as the school's active promotion of diversity. Many of the middle-class White children who attended this school could have instead attended another nearby school, which had slightly higher exam results. However, there is a small but growing trend for politically liberal White middle-class parents to send their children to more multiethnic comprehensive schools instead of overwhelmingly White middle-class private schools. Reay et al. (2007) find that such parents are motivated by a commitment to egalitarian schooling and, in one interviewee's words, a desire to produce 'a different kind of middle class children'. While multiculturalism might be seen by parents to be a good thing in itself, it was also viewed as a useful resource that could be used to gain advantage. For example, parents expressed a desire for their children to have a more 'real world' experience that would prepare them for the 'realities' of twenty-first century life (Reay et al. 2007: 1046; see also Hollingworth and Williams 2010: 51). However, the parents' choices had an explicitly classed dimension and they were more likely to focus on the benefits of ethnic diversity rather than class diversity. Reay et al. (2007) interpret their

Table 3.2: Census 2011 'Ethnic group' statistics for the School, School's Lower Super Output Area (LSOA) and the Sheffield metropolitan district. Source: Census 2011 and Schools, Pupils and their Characteristics 2011/12.

Category	School	School LSOA	Sheffield
Population	1668	1650	552,698
White			
% English/Welsh/Scottish/N. Irish/British	66.4	88.9	80.9
% Irish	0.5	1.0	0.5
% Gypsy or Irish Traveller	0	0	0.1
% Other White	2.5	2.1	2.3
Mixed/Multiple Ethnic Groups			
% White and Black Caribbean	4.0	0.3	1.0
% White and Black African	0.5	0.2	0.2
% White and Asian	1.4	0.8	0.6
% Other Mixed	1.9	0.4	0.6
Asian/Asian British			
% Indian	0.2	1.3	1.1
% Pakistani	6.5	0.9	4.0
% Bangladeshi	1.3	0	0.6
% Chinese	1.3	0.8	1.3
% Other Asian	1.8	1.8	1.1
Black/African/Caribbean/Black Brit.			
% African	4.2	0.2	2.1
% Caribbean	1.4	0.1	1.0
% Other Black	0.5	0.3	0.6
Other Ethnic Group			
% Arab	NA	0.6	1.5
% Any Other Ethnic Group	4.9	0.5	0.7
% Unclassified	0.4	NA	NA

Table 3.3: Schools characteristics at Key Stage 4 for school, local authority (Sheffield), and England 2011/12. Source: Department of Education School and Local Statistics 2011/12; and Schools, Pupils and their Characteristics 2011/12.

Category	School	Sheffield	England
% Free school meals eligible	13.5	18.2	16.0
% Disadvantaged	22.0	28.7	25.3
% Ethnic minority	33.3	24.3	23.2
% with English not as first language	18.3	14.5	12.9
% 5+ A*-C GCSEs inc. English/maths (all)	51.0	55.6	58.8
% 5+ A*-C GCSEs inc. English/maths (EAL pupils)	43.0	47.5	56.2
% 5+ A*-C GCSEs inc. English/maths (disadvantaged pupils)	24.0	32.8	38.5

findings in terms of Skegg's (2004) analysis of class relations, whereby the middle-classes exploit working-class culture in order to construct authenticity, but without doing anything to address structural class inequalities.

Table 3.3 reports how the school compares to local and national averages in terms of population statistics and achievement-related metrics. These statistics were taken from 2011–12 datasets because this represents the data collected from pupils in the year group with whom I worked. These data are sampled each year at Key Stage 4, which captures pupils at the end of year eleven (aged between fifteen and sixteen). As the pupils in my fieldwork were in year ten in July 2011, they would have been in year eleven at the time that these statistics were collected. It is possible that there may have been changes in student population/orientation/achievement in the year that elapsed between the end of my fieldwork and the collection of these statistics. However, I judged it more appropriate to use data on my participants' actual year group, rather than data collected at the same time as my fieldwork but from a different year group.

Table 3.3 shows that the school is below the local and national average for free school meals eligible pupils and for pupils classed as 'disadvantaged' (i.e. pupils eligible for free school meals in the last six years and/or in local authority care). This suggests that the school's population is still considerably less deprived than is typical of Sheffield and the national average. However, the proportion of ethnic minority students is considerably higher in the school, as is the proportion of students with English not as a first language. The school's exam scores are slightly below the average for both Sheffield and England. However, exam scores are substantially below average for disadvantaged students in Ashton Valley School, with only 24%

achieving five or more A*–C GCSE grades (including English and Maths), compared with 32.8% in Sheffield and 38.5% in England.

Free school meals status is often used as a proxy for socioeconomic disadvantage, but as individual-level data were not available for this category I used other methods to explore fine-grained socioeconomic distinctions within the school. Here, I only used information drawn from the students whose speech data were analysed for this project and thus do not claim that my sample is statistically representative. However, I would suggest, based on my observations, that there is a broad mix of students. In order to chart the socioeconomic profile of the students who I interviewed, I use the index of multiple deprivation (IMD) statistic for each student whose interview was analysed in the phonetic study. The IMD is explained in more detailed in Section 4.3.3, but it broadly captures deprivation across five domains: income; employment; health and disability; education, skills and training; barriers to Housing and Services; living environment; and crime. The index for each student was retrieved from South Yorkshire Local Area Statistics Online (http://www.lasos.org.uk/), based on the student's postcode and its corresponding Lower Super Output Area, as defined by the Office for National Statistics. Local Area Statistics Online provides data on whether each area is significantly more or less deprived than the average for the city, which circumvents some of the numeric difficulties of dealing with the IMD data (see Section 4.3.3 for a discussion).

The school's surrounding neighbourhood IMD is significantly better than the city average and is comfortably in the top 25% percentile for the city. Of the forty-three students whose speech I analysed, nineteen were from areas that were significantly less deprived than the city average, while eighteen were from areas that were significantly more deprived than the city average. Six were from areas that were not significantly different from the city average. This suggests that the school represents the socioeconomic extremes in Sheffield, with only a minority of students coming from areas that represent average levels of deprivation. However, it is important to point out that 'average' levels of deprivation may not necessarily mean typical, as most UK cities feature a strong socioeconomic divide (Dorling 2010). Either way, it is likely that the school's demographics are highly atypical for the city. The massive socioeconomic split is illustrated by the fact that eighteen out of forty-three interviewees attended school in a very affluent area, despite being from areas significantly more deprived than the city average and, therefore, drastically more deprived than the school's neighbourhood. This socioeconomic split can also be partly viewed as an ethnic split or, perhaps more accurately, a White/ethnicity minority split. Of the eighteen students from the more deprived areas, only four

identified as ethnically White. In contrast, of the nineteen students from the most affluent areas, twelve identified as ethnically White.

One demographic group that is severely under-represented in the school is working-class White children. As the above profile suggests, only four out of eighteen students from more deprived areas of the city identify as White. Many White working-class parents may have experienced prejudice and disillusionment in their own encounters with Britain's schooling system, leading them to be suspicious of parental choice in schooling (Reay and Ball 1997). School choice policies privilege the aspirations of White middle-class families, who often value high-achieving schools over locality (Ball 2003; Allen 2007; Weekes-Bernard 2007; Coldron et al. 2008). However, such explanations risk propagating the 'poverty of aspirations' discourse found in media and policy representations of working-class children (Archer et al. 2010: 24). Poor children attend worse schools than non-poor children irrespective of choice, even when they live on the same street (Burgess and Briggs 2010). This discourse also fails to highlight the systematic marginalisation of working-class parents from school choice policies (Ball 2003).

Another possibility for the low representation of White working-class students in the school could be parents' reluctance to send their children to non-local schools due to greater orientation towards the local neighbourhood. This is often the case in British ethnic minority communities, where recent Somali, Bangladeshi and Pakistani migrants choose local schools over schools with 'higher standards' (Weekes-Bernard 2007). However, Coldron et al. (2008) find that non-White parents were twice as likely as White parents to take special actions (such as coaching, extra tuition or primary school choice) to secure their child a spot at a preferred secondary school. For example, aspirant Muslim parents will often choose a Muslim or single-sex school if possible, or a non-Muslim faith school as a viable alternative. Ethnic minority parents are also more likely to send their children to non-local schools if they are seen to specifically cater for underachieving ethnic minority children (Weekes-Bernard 2007: 32). Ashton Valley School actively recruits ethnic minority children from more deprived areas and maintains a Black students achievement scheme, which aims to give black and ethnic minority students additional support and mentoring from community members. These factors may explain why ethnic minority children from socioeconomically deprived areas attend this school in relatively high numbers, whereas White children from similar backgrounds do not.

Overall, Ashton Valley School is a fairly diverse school in terms of ethnicity, but it is not the most ethnically diverse school in Sheffield by a long way. Other schools located in more ethnically diverse neighbourhoods in Sheffield do have

greater levels of ethnic diversity. However, Ashton Valley is unique for its unusual mix of socioeconomically advantaged (mostly White) students and socioeconomically disadvantaged (mostly ethnic minority) students. The demographic profile of this school is a product of the school's admissions policy and parental choice. Parental choice policies often tend to increase segregation, resulting in less contact between people from different social and ethnic groups (Allen 2007; Weekes-Bernard 2007). However, when combined with an active attempt to attract a diverse student intake, this may have the effect of diversifying parts of the school population, as in Ashton Valley. The fact that the demographics of the school do not match that of the neighbourhood suggests that Ashton Valley School is not 'typical' in the statistical sense. However, this study does not aim to show what 'typically' happens in similar schools, as some ethnographic studies attempt to do (Eckert 1989: viii). Instead, I attend to what makes this particular case unique (Nespor 2000), with the aim of foregrounding how this context facilitates the specific social dynamics that occur within the social matrix of Ashton Valley School.

3.2.3 The fieldwork process

The analysis presented in this chapter is a response to the environment in which I carried out my fieldwork. While all ethnography is inherently interpretative, I foreground this process in order to highlight the ways in which this analysis is a response to the conditions that I encountered, rather than than the imposition of a prior theoretical or analytic framework. In this sense, my fieldwork took the approach of 'an inquiry process guided by a point of view, rather than a reporting process guided by a standard technique or set of techniques' (Erickson 1973: 10). It must be noted that questions proposed in Chapter 1 are focused upon sociophonetic phenomena rather than those typical of anthropological ethnographic studies. As such, ethnography in this study was used as a way of generating research questions and further understanding the community under study, rather the major form of analysis in itself.

It is widely acknowledged that ethnography can take a diverse range of forms. Some main principles of ethnography include (i) people's actions are studied in everyday 'natural' contexts, rather than under experimental conditions; (ii) data are gathered from a range of sources; (iii) data collection does not involved a fixed design and generally emerges from the process of fieldwork; (iv) the focus is often small-scale in order to facilitate detailed exploration; (v) the analysis focuses on interpretation of human behaviours and practices, with quantitative analysis playing

a minor role, if at all. (Hammersley and Atkinson 2007: 1–3). The primary method used in this study was participant observation, in which I engaged in observation of, and peripheral participation in, the same activities in which the students were engaged during school. I say 'peripheral' as it was clear to everybody that I was not a student and, therefore, I was unable to participate as a student in the classroom, for example. However, I did attend these activities and exerted a certain degree of influence on classroom behaviour, which changed the nature of the context in subtle and shifting ways. This influence represents a degree of participation that I discuss in greater detail later in this section. However, it should be noted that the boundary between observation and participation was not always clear cut and there are times when a researcher can shift between the two within the course of a single interaction.

I carried out fieldwork at Ashton Valley School with a single year group, who were aged between thirteen and fourteen (year nine) at the outset of the project and between fourteen and fifteen (year ten) when the fieldwork ended. I attended school in two periods, between March–July 2010 and October 2010–June 2011, for between two and four days each week. This involved attending school for the duration of the school day, which included attending the students' lessons and observing them during break and lunch times. The year group was divided up into two teaching groups, with students in one group sharing a similar timetable and students in the other group sharing a different timetable. Note that these two broad teaching groups were not intended to be stratified by ability or neighbourhood, but simply acted as a timetabling mechanism for the school. However, within these teaching groups, classes were stratified by ability for most school subjects. Initially, most of my fieldwork was carried out with one of these two groups, but this soon extended to following particular clusters of students, some of whom spanned teaching groups. In total, I carried out approximately 600 hours of fieldwork at the school, made around 400,000 words of field notes, and carried out interviews with sixty-eight adolescents.

To begin with, the bulk of my observations took place during lessons, which was a condition imposed upon my fieldwork by the school. Over the past decade, there have been a series of high-profile cases of sexual abuse involving adults in British schools, which has made carrying out non-essential work in some schools increasingly difficult. I was required to undergo the Criminal Records Bureau's Enhanced Disclosure in order to ascertain whether I was suitable to work with children, but the school were nevertheless anxious about allowing me to have unsupervised access to the students. They agreed that I could observe the students during break times and lunch times, but that I would have to be accompanied by a member of teaching staff at all times. This would have involved shadowing a teacher

who was on 'break duty', which in effect would have meant patrolling the school yard in order to make sure nobody was misbehaving. I decided to decline this option for a number of reasons. First, being physically co-present with a teacher could directly and visibly affiliate me with the teacher in the student's eyes. This could have the effect of positioning me as an authority figure and upholder of the school's social and moral order. Given that my aim was to understand the students on their own terms, this could have presented a significant barrier in encouraging the students to feel that they could be open with me and share things that they might not normally share with a teacher. Second, I also felt as though this would not be a particularly effective form of observation, as it is likely that the students would behave very differently when in view of a member of teaching staff. As the fieldwork progressed, the school agreed that I could have greater access to the students outside of the classroom environment, such as during break and lunch times.

From the outset of fieldwork I was allowed to observe as many classes as I wanted, so I decided that this was the best place to start. However, many previous sociolinguistic studies explicitly avoid the classroom as a fieldwork context. Eckert (1989: 29) avoided entering the classroom 'in order to avoid being associated with the official functions of the school or with the authority of teachers or administrators' and she claims that 'there is no question that the disadvantages of involving myself in any way with the formal educational process would have far outweighed the advantages'. Some sociolinguistic ethnographers do enter the classroom, with a particularly striking example being Nichols (1978), who took on a role as an English teacher. In general, however, variationist ethnographers rarely carry out fieldwork in the classroom, preferring to focus on out-of-class contexts only (Moore 2004; Mendoza-Denton 2008; Drager 2009; Lawson 2011).

I chose to enter the classroom for two reasons. First, this was the only way to gain extended access to the students at the beginning of my fieldwork, because I was initially unable to observe them outside of the classroom unsupervised. Second, I was interested in carrying out an ethnography of the school as a social context and adolescents' situatedness within this context. It is well known that the classroom is a site for the production of culture and social meaning (Mehan 1989; Rampton 1995, 2006) and this is one place in which social and institutional relationships are negotiated. Direct observations of the students in the classroom allowed me greater insight into how they organised themselves in different contexts, as well as how they positioned themselves relative to their peers when in the presence of teachers. Recent sociolinguistic research has also begun to extend this sort of ethnographic approach to classroom contexts, albeit with children of a younger age (Eckert 2008b, 2009;

Snell 2008). This may represent a rethinking of the researcher-participant dynamics in school settings and a recognition of the importance of the multiple contexts in which adolescents are engaged during school.

This chapter focuses on how adolescents carve out social distinctions within the school, but a focus on social practices within an institution is also a study of the institution itself. This perspective is foregrounded in this study, where I examine how the specific context of the school facilitates particular opportunities for social engagement. As I discussed in Section 3.2.2, the institution of Ashton Valley School is embedded in a series of social and educational policies, as well as broader socio-cultural ideologies of schooling, social class and multiculturalism. This necessitates an understanding of various dimensions of school life, including student-teacher and student-student classroom interactions, adolescents' social practices outside the classroom, and teachers' conceptions of institutionality. I did not formally interview any of the teachers and do not focus on quantitative patterns in their speech. However, insights gained from my interactions with the teachers afford a deeper understanding of how the school as an institution structures the daily lives of its students and aids in the production of social order. This context forms the background against which social practices are enacted and social categories are mobilised.

I was not able to access every student in the year group and did not aim to do so. This means that my account is inherently partial and may not easily generalise to other situations. However, instead of seeking out a 'representative' field site, I adopt the perspective that 'ethnographic sites should be chosen because they or the activities in them are intrinsically interesting or important in themselves, for themselves' (Walford 2007: 165). To this end, my focus on a subset of social groups in the school is motivated by their unique significance within the context of Ashton Valley School, which allows me to highlight the salient processes of identification that occur in this community. In this sense, ethnography may be better viewed as showing us what can happen in a specific situation, rather than as producing an account that can be easily generalised to other situations (Walford 2007: 161). While the ethnographer loses out on some aspects of generalisability, they gain a more detailed insight into why specific things happen in a particular context. How these findings can be generalised to other social contexts then becomes a matter of empirical investigation for other researchers, given their own knowledge of the different local contexts with which they are concerned (Connolly 1998: 7–8).

3.2.4 My positioning as a researcher

Writing on the nature of participant observation in ethnographic research, Paul (1953: 441) claims that 'participation requires emotional involvement; observation requires detachment'. This addresses a fundamental tension in ethnographic research as to participate reduces our ability to be objectively detached. While a postivistic or 'objective' orientation was particularly prevalent in the early anthropological research (Malinowski 1922), ethnographers since the 1960s and 1970s have adopted an increasingly reflexive approach to participant observation (see Giddens 1974 and Hammersley and Atkinson 2007 for further discussion). This frequently involves the researcher foregrounding their own involvement in the context under study. Tedlock (1991) characterises this as a shift from a detached conception of 'participant observation' to a more reflexive 'observation of participation'. Here, researchers produce narrative accounts of their highly personalised interactions with a particular ethnographic context and, in turn, problematise the distinction between participation and observation. This calls into question the idea of being a 'neutral' or 'objective' observer because the researcher always views events in a way that is influenced by their own biases, experiences and interests (Erickson 1973: 10). In light of this, I explicitly discuss my own positioning in relation to the school and the adolescents with whom I worked.

I was born and grew up in Chesterfield, Derbyshire, which is located only fifteen miles away from where I carried out fieldwork at Ashton Valley. At the time of starting fieldwork, I was twenty-two years old and had only left secondary school just under five years ago. It is inevitable that my ethnographic experiences were coloured by the recency and nature of this experience. I attended a Catholic comprehensive school, which was generally high-achieving and overwhelmingly White, with an ethnic minority population of around 6% (national average: 23.2%). My school wasn't selective based on neighbourhoods or catchment areas, but students from broadly middle-class families were in the majority, with only 6% of students eligible for free school meals (national average: 16%). This is typical of religious schools in the UK. Despite admissions criteria that focus on parental religion, faith schools often tend to be socioeconomically and ethnically homogeneous (Allen and West 2011). Therefore, I have never experienced ethnic diversity in a compulsory education context in the way that many of the children in Ashton Valley School experience every day.

I also grew up in a White middle-class family in a town whose primary industry used to be mining, but that had undergone considerable gentrification during my childhood. The ethnic minority population of my hometown was consistently under

5% during my childhood and this remains fairly stable today. Therefore, I rarely experienced Whiteness as a marked category during my adolescence. With this in mind, the following sections briefly address how my own personal history and characteristics – such as my age, gender, social class and ethnicity – influenced how I was positioned in relation to teachers and students within the school.

My positioning and the teachers

My positioning in relation to the teachers offers some interesting insights into the institutional relationships between students and teachers in the school. I spent a lot of time in various lessons and gaining access to the classroom was not difficult, as all teachers had been made aware that I may observe any of their classes with the year group under study. Some teachers were very enthusiastic about me being there, believing that I might be able to identify some of the shortcomings of what they perceived to be a recent shift in the school's culture due to a change in management. Others told me that it was useful to have another adult around 'just in case', whereas others interpreted my insider/outside status as somebody they could complain to about particular aspects of the job.

My presence was rarely acknowledged by the teachers in their formal interactions with the students. After the first time I'd attended a class taught by a particular teacher, I was treated as more or less invisible by them during lesson time. There were some rare occasions in which I was incorporated into classroom discourse by a teacher. For example, one of the religious education teachers would sometimes treat me as though I were a student and direct questions towards me as he did the others. I wasn't always sure how to react and I often felt my own secondary school instincts kick in, whereby answering questions in class meant being considered seriously uncool by everybody else. Most of the time, these instances caught me off guard and I hadn't actually been listening to the teacher, so I usually just looked slightly confused and murmured something. The teacher and the students found this ritual quite funny and there was an implicit recognition that this was a prolonged attempt at humour on the part of the teacher.

Only once did a teacher (the same one as above) attempt to align me with their institutional authority directly in front of other students, seeking my agreement on his perception of student behaviour – 'it's not right, is it Sam?' – during a period of particularly disruptive behaviour on the part of the students. In this situation I felt the tension of not wanting to annoy the teacher, but also not wanting to project myself as an authority figure. So again, I simply shrugged as though I

didn't really know what was going on. Although rare, there were some occasions when, after lessons had ended, teachers would ask my opinions on how to deal with so-called 'disruptive children'. In these episodes, teachers might tell me about particular students, offering their own interpretations and readings. Some teachers occasionally expressed profound confusion over why some children acted in certain ways, hypothesising that it could be due to particular 'cultural' (ethnic/classed) factors. As my fieldwork went on, I became more confident in responding to teachers about such issues and was often able to contextualise my answers in terms of my own work. In some cases, my explanations for student behaviour sometimes went against the teachers' perceptions, but I got the feeling that they generally appreciated my input, even though they felt relatively powerless to remedy the situations that they were worried about.

On the whole, I felt a constant tension in my interactions with the teachers. In many ways, we were demographically similar – predominantly White, university-educated, broadly pro-education. I was also of a fairly similar age to some of the newly qualified teachers and, in a few cases, discovered that we had mutual friends within the city. However, I often felt unable to sustain meaningful interactions with any of the teachers in view of the students, for fear of being positioned as being 'like them' – that is, as an authority figure. I did have more sustained interactions with some teachers in the staff room, or after class once the students had left the room, which gave me a range of interesting insights into how different teachers perceived the dynamics of the school. However, such interactions were always limited and, therefore, my own account of Ashton Valley School is strongly biased towards the students' perceptions.

My positioning and the students

Developing relationships and trust is essential in ethnographic research. However, I was always conscious of the power imbalance when carrying out fieldwork in Ashton Valley School. I was essentially an uninvited stranger in the adolescents' worlds and I was unsure how they would respond to this. Initially, I decided to impose myself on the students as minimally as possible, only ever observing them in situations outside of the classroom when invited. This inevitably meant that I learned a lot more about some groups of adolescents than I did others, as different groups oriented towards my presence in different ways. For example, the middle-class Ashton girls (see Section 3.4) took an immediate curiosity towards my presence and became fairly friendly within the first week, whereas the equally White and middle-class Ashton boys (see

Section 3.5) were initially more suspicious and came across as 'too cool' to be seen showing an interest in me.

My own experiences of education may have affected how I was able to engage with particular students. Demographically, I was most similar to some of the middle-class Ashton boys and I was often more able to relate their social practices and interests to those that I was interested in at their age – mainly computer games and alternative music. In contrast, I was initially told by some teachers that I might have trouble talking to Muslim girls, as they were generally quite shy and may not respond well to a male researcher. For the first few months, my interactions with some of the Muslim girls (see the Twilight girls in Section 3.4) were fairly restricted. They appeared to treat me with the sort of respect that they would a teacher and I got the impression that my adult status positioned me as an authority figure in their eyes. However, after spending time with a few of these girls outside of class, my interactions with them changed dramatically and they were far more open about their interests, as well as what they did and didn't like about the school (including teachers they didn't like). Indeed, I generally found this group to be the most talkative of all the groups I interviewed and they seemed to be the most excited about somebody being interested in their opinions and perspectives on the world.

There were occasions when the students would 'test' my position within the school by attempting to engage me in transgressive behaviours. This occurred most frequently in my interactions with the Rebellious boys, a multiethnic group of friends with a more anti-school orientation (see Section 3.5). The first time I experienced such a test was in a Religious Education class. I was sitting next to Aqil, a second-generation Pakistani boy who was known to be very disruptive in the classroom. He spent the first half of the class throwing stationery at another boy and then began repeating the teacher's every word until the teacher eventually shouted at him to stay quiet. Following this, he turned his attention towards me and repeatedly quizzed me on a number of risqué topics. This is documented in the following extract from my fieldnotes.

> Aqil begins to ask me a series of rather uncomfortable questions, including 'are you gay?', 'have you ever used a condom?' and one that I can't remember about my knowledge of particular genital diseases (I didn't know them). This made me quite uncomfortable I wasn't really sure how to respond to these! I interpreted this as some kind of test of my authority and was stuck between how to avoid answering his questions and not coming across like a teacher. In the end I settled with "I'm not telling you" as a response, which had the effect of not giving an answer, but not reprimanding him either.

Following this incident, Aqil was even more forthcoming with his opinions and actions. One such example is reported in the following scene from in my fieldnotes. In this scenario, I am in my third week of fieldwork and I'm attending a textiles class alongside some of the students.

> Aqil and Ben are both soldering metal links into a chain – an activity they seem to have performed in every textiles class so far, inevitably to be followed by them losing the chain after the lesson and being told off by the teacher next time around. Aqil attempts to jokingly stab Ben with a hot soldering iron, which causes them to break out in laughter and a play soldering iron stabbing battle commences. I start laughing and Aqil directs the action towards me, playfully pretending to attack me with the soldering iron. I start laughing, but this is quickly interrupted when Miss Smith shouts in our direction "stop messing about!". I pull a face in which I attempt to simultaneously project innocence to the teacher but complicity to the students, both of which are partially true. She smiles – I think I got away with it.

The above episode gives an example of how some students, over time, came to position me as a non-authority figure. Unfortunately, I was never able to interview Aqil, because every time I tried to arrange a meeting, he would turn up around forty minutes late, meaning that we didn't have enough time to make a recording. However, see Kirkham (2011b) for an earlier study in which he was recorded, albeit one without any discussion of these ethnographic insights.

This section aimed to highlight some of the ways in which I was positioned by the students and teachers in the school. I discuss these issues further when I detail the nature and composition of the different communities of practice who form the major focus on this study (see Sections 3.4 and 3.5).

3.3 The social organisation of adolescent peer groups

3.3.1 Social mixing and social categorisation

This section outlines the social organisation of the school, focusing on different forms of social categorisation. One of the primary areas of focus is the concept of social mixing. In a schooling context, *social mix* can refer to 'the composition or make-up of the school in terms of the common indicators of social difference: ethnicity and socio-economic status or social class (acknowledging also gender)'

(Hollingworth and Mansaray 2012: 3.6). Hollingworth and Masaray contrast social mix with *social mixing*, which refers to 'the dynamics of associative ties and friendship formation across social and ethnic difference'. However, providing the opportunity for social mixing does not guarantee that mixing will actually occur (Reay 2007). Hollingworth and Mansaray (2012) explore how sixth-formers (aged between sixteen and eighteen) in a mixed London school construct an image of a 'cosmopolitan canopy' – a multicultural social space in which everybody gets along (Anderson 2004). While the students talk about how everybody gets on with each other, many of them said that cross-ethnic mixing was less prevalent in lower school than in sixth form. However, this is to be expected, given that those who stay on at school past aged sixteen are perhaps likely to be 'more like each other'. Hollingworth and Mansaray advance a more critical account of this 'cosmopolitan canopy' constructed by the students. Friendship groups and ability stratification mean that certain students are more likely to enter into the sixth form cosmopolitan canopy. Participation is also not equitable for all – Black students were more likely to experience disruption of their existing communities of practice due to many of their (often Black and working-class) friends entering the workplace instead of sixth form.

As an institution, Ashton Valley actively promoted an ideology of social mixing, in which diversity was seen as a positive aspect of the school and something to be celebrated. However, in practice, there was considerable ethnic segregation amongst the adolescents' peer groups. This was particularly prevalent amongst the boys, where there was a split between White and largely ethnic minority boys. As I discuss in Section 3.4, there was a complex interplay between social practice and ethnicity and it certainly wasn't the case that there were no White boys with ethnic minority friends. However, the general lack of White boys from working-class backgrounds meant that this White versus ethnic minority split was also broadly mapped onto a socioeconomic split, with the White boys coming from largely affluent backgrounds and the ethnic minority boys mainly coming from more deprived backgrounds.

Social mixing is a key site of identity negotiation and, in the sections that follow, I examine how different communities of practice orient towards social categories, such as ethnicity and social class. Before outlining the different communities of practice, I briefly discuss the community of practice construct and how this intersects with ethnicity and the adolescents' orientations towards school authority.

3.3.2 Communities of practice

The *community of practice* construct was theorised by Lave and Wenger (1991) and introduced to sociolinguistics by Eckert and McConnell-Ginet (1992). They describe a community of practice as 'an aggregate of people who come together around mutual engagement in an endeavour' (Eckert and McConnell-Ginet 1992: 464). Communities of practice represent the social groupings that individuals construct for themselves (Moore 2011). As such, they contrast with the social structures that analysts may ordinarily use to organise their data, such as demographic categories and even social networks. Membership in a community of practice is ultimately defined by participation in a shared activity, which gives rise to mutually constituted practices and behaviours. The notion of *mutual engagement* in shared social practice is a key point in work on communities of practice. It does not simply describe how a group of people do a shared activity, but that they develop ways of doing that activity. This facilitates the production of shared ways of doing things, of which language is expected to play a significant role.

Taking the community of practice as its analytic starting point, a wide range of sociolinguistic research has shown that different communities of practice use sociolinguistic variation, alongside other semiotic resources, such as clothing, hairstyles and make-up, in ways that distinguish them from other groups in the surrounding social matrix (Eckert 2000; Moore 2004; Mendoza-Denton 2008; Drager 2009; Lawson 2011). Eckert (2000) illustrates distinctions between jocks and burnouts in a Detroit school, Mendoza-Denton (2008) focuses on the opposition between Norteñas and Sureñas in her study of Latina youth, and Drager (2009) finds distinctions between girls who eat lunch in the common room versus those who don't at a New Zealand high school. As these studies reflect, the community of practice construct has featured most prominently in studies of adolescent high school communities. These contexts provide an ideal testing ground, given the ways in which schools force adolescents to engage in intense and extended periods of interaction with their peers (Eckert 2003: 112).

One of the major advantages of the community of practice is its ability to capture the intersection between a number of social variables, such as social class, gender and ethnicity, and how they relate to local social practices. However, demographic and socioeconomic factors can intersect with social practice in a range of complex ways. For example, in her study of adolescent girls in Bolton, Moore (2010) shows that, for some groups, the correlation between social class and nonstandard *were* is stronger than the correlation between community of practice and nonstandard *were*.

She interprets this in terms of Bourdieu's (1977) concept of *habitus*, claiming that '[s]peakers cannot use language agentively if they are in some way constrained from fully engaging in the contexts in which alternative linguistic practices are acquired' (Moore 2010: 367). This implies that individuals' use of particular linguistic forms are facilitated by their engagement in particular social practices, but that demographic factors, such as social class, may restrict the extent to which an individual is likely to participate in a particular practice. This highlights the fact that communities of practice cannot capture all of the social practices in which individuals are engaged, as they may belong to a range of communities of practice that have variable relevance across difference contexts. Moore (2010) concludes that an analysis of social practices outside the school may reveal more about the patterns in her data that could not be explained with reference to school-based communities of practice.

An alternative form of social categorisation that could also be relevant to the context of Ashton Valley School is *friendship network*. The advantages of friendship networks are that they can provide a more precise measure of contact between individuals from different ethnic groups, as well as better capture the composition of the networks in which an individual is engaged inside and outside the schooling context. For example, Cheshire et al. (2008) examine the relationship between the ethnic composition of friendship networks and individuals' use of innovative linguistic variants in London. They capture information on friendship networks using self-reports and categorise each response on a scale from one-to-five, with one indicating 'all friends same ethnicity as self' and five indicating 'up to 80% of a different ethnicity'. Their results show that individuals with a more multiethnic friendship network are more likely to use linguistic innovations in London, such as GOOSE-fronting, TH-fronting and DH-stopping. The higher levels of inter-ethnic contact in these friendship groups may facilitate individuals' ability to borrow particular linguistic features from ethnic groups to which they do not belong (Rampton 1995). This suggests that ethnicity is an important factor in driving language change, but that the ethnic composition of friendship networks may be an even stronger factor for particular variables.

Friendship networks capture information on the number of ties between individuals, but generally represent a much broader level of categorisation than communities of practice and, therefore, may offer less detailed information on the social practices in which people are engaged. Cheshire et al. (2008) do discuss the social practices of the friendship groups in their study, but they define social practices very broadly, primarily focusing on 'common interests in sport, music, fashion' and so on (Cheshire et al. 2008: 4). This is in contrast to community of practice studies, where shared

interests are not a sufficient condition for CofP membership. Instead, there must be evidence that people form shared ways of doing things around those interests. It is this mutual engagement in an activity, as opposed to simply sharing interests, that constitutes a community of practice. The advantage of looking at communities of practice in this way is that it provides a very detailed account of the nature and community-specific meaning of friendship ties, rather than identifying their mere existence. For example, two individuals may have similar friendship network scores, but this does not tell us about what 'multiethnic' means in different communities of practice and how this impacts upon the social and linguistic practices of those individuals. My study focuses on the use of phonetic variation to construct identities in relation to other communities of practice in the surrounding social matrix. As such, I view the depth gained by analysing communities of practice to be an ecologically valid compromise, with full acknowledgement that the study therefore lacks some of the breadth of the friendship network approach.

In order to understand the nature of communities of practice at Ashton Valley School, I sometimes asked the students about whether there were different groups in the school. I often received answers such as 'chavs', 'geeks', 'moshers', 'Ashton boys/girls', 'common', 'gangster-wannabes', and so on. These labels were often preferred to macro-sociological labels pertaining to ethnicity or social class, although these labels often had a classed or ethnic dimension. Such group labels were commonly used to describe groups to which the speaker did not belong and, consequently, they were almost always used in a derogatory manner. The group names that I have used below are grounded in a mix of self-/other-labelling by the students and my own attempt to characterise different groups. I generally avoided using the exact labels that the students used to refer to groups to which they didn't belong (e.g. chavs, posh) as most people rejected these labels. Also, some individuals identified a greater number of more fine-grained social groups, whereas some made a simple binary distinction, such as 'chavs' versus 'normals'. This made relying entirely on explicit 'other' positioning problematic. Instead, I use terms relating to neighbourhoods (Ashton, Parkdale), as well as particular orientations and social practices (Rebellious, Twilight).

In her study of adolescents in a Detroit high school, Eckert (1989) found that around half of students were not obviously affiliated to the Jock and Burnout CoPs, but could be better characterised as 'in-betweens'. In this study, my use of CoPs is more narrowly defined and refers to much smaller friendship groups than is the case in Eckert's study. However, it was also not the case that every student in the school clearly belonged to one particular CoP. Amongst the boys, CoPs were very loose-

knit, but socioeconomic and ethnic divides meant that the male peer group featured relatively few in-betweens. As a consequence, most of the boys were ideologically associated with either the Rebellious boys or the Ashton boys, even if they weren't actively engaged in the core activities of these communities of practice. Amongst the girls, the CoPs were very tight-knit and clearly defined, meaning that a lot of the other girls who are not featured in this study did not clearly fit into one group or the other. Therefore, the four female communities of practice reported here represent a relatively small proportion of the the female peer group in the school. However, similar to Eckert's findings, these communities of practice act as major axes of social and ideological differentiation in the school, with other girls being positioned in relation to these different CoPs, even if they were not positioned as belonging to them.

I obtained information on communities of practice through self-reports during the interview phase of this project, as well as through ethnographic observation of the social practices in which the adolescents were engaged. I outline the different communities of practice in Sections 3.4 and 3.5. Before this, the following sections briefly cover the concepts of school orientation and ethnicity, because these forms of social grouping intersect with community of practice in a number of relevant ways.

3.3.3 School orientation

A dimension along which different communities of practice were more broadly organised was *school orientation*. School orientation refers to a broad ethnographic split in terms of the students' attitude towards schooling and school authority (Willis 1977). This broadly reflects Eckert's (1989) distinction between the Jocks and the Burnouts in her study of a Detroit high school, which she describes as follows:

> Their mutual differences are defined in terms of the fundamental issue of rejection or acceptance of specific values and interests of that institution, yielding a set of clear binary oppositions. […] Thus although the majority of high school students are not members of one category or the other, an important part of most adolescents' social identity is dominated by the opposition between the two categories (Eckert 1989: 5).

Pro-school groups had a generally positive approach towards education. While they didn't necessarily profess to love school, they did consent to maintaining the school's rules, values and ideologies. They respected the authority of teachers and were reasonably well behaved in lessons. They aspired to stay on at school to

complete sixth form and eventually go into higher education. On the other hand, anti-school groups were more suspicious of the school's educational ideology. Many of these students were disillusioned with education and felt that it didn't adequately prepare them for what they saw as the 'real world'. Many of the anti-school students did not aspire to enter higher education, although in many cases they cited financial cost as the major barrier rather than personal desire.

Previous research often positions school-based communities of practice on a pro-school to anti-school continuum, which aims to model how groups respect the school's institutional authority and whether they engage in prohibited activities, such as smoking, drinking and other behaviours deemed inappropriate by the school (Willis 1977; Moore 2010). For example, the jock and burnout categories in Eckert (1989) map onto a broad pro-school/anti-school distinction, while Moore (2004) also positions her communities of practices on a pro-/anti-school continuum, with the townies being the most anti-school, the Eden Village girls the most pro-school, and the Populars and Geeks situated in-between the two. In this study, I do not necessarily consider school orientation as a property of individuals, given that individual orientations were far too complex to collapse into a binary distinction. Following Eckert (1989) and Moore (2004), I use school orientation as a property of communities of practice and suggest that this orientation is normatively upheld by the group's ethos and its members' social practices. The school orientation of each group was derived from my own ethnographic observations of the students in their daily environments (which was greatly facilitated by classroom observations), as well as their own self reports and opinions about school. It must be stressed that school orientation is a broad grouping and, as Sections 3.4 and 3.5 shows, there are considerable differences within pro-school and anti-school clusters.

3.3.4 Ethnicity

Prior research suggests that inter-ethnic communities of practice are more common than inter-class communities of practice (Reay et al. 2007; Hollingworth and Williams 2010). For example, Papapolydorou (2010) finds that most adolescents at four London secondary schools report having multiethnic communities of practice, although the ethnic majority group in a given school is the group least likely to mix with those of a different ethnicity. Papapolydorou suggests that class, rather than ethnicity, is the main determinant of communities of practice. A significant factor is that British secondary schools are often more ethnically diverse than class diverse, thus offering greater opportunity for inter-ethnic contact. As illustrated above, Ashton Valley

School is also more ethnically diverse than class diverse, which motivated my focus on the potential significance of ethnicity in community of practices.

In the discussion that follows I primarily discuss ethnicity in terms of the UK Census 2011 categories. In order to collect this data, students were presented with a free response form on which they wrote information about themselves. The ethnicity question simply featured the word 'Ethnicity:' with a box for them to write in. Many of the responses neatly corresponded to the census categories, such as 'White British', 'Pakistani', 'Somali', and so on. However, there was a moderate amount of variation. In some cases ethnic categories were collapsed. For example, responses such as 'White-African Caribbean', 'White-Black Caribbean' and 'mixed race' were grouped together under the UK's Census 2011 category 'White and Black Caribbean'. 'Mixed race' was only ever used by students who had one White and one Black Caribbean parent. There were no students in my interview sample who reported having any other kind of mixed ethnicity. Some White British students put their ethnicity as 'English' or 'British'. Although these labelling decisions have interesting ideological implications, I do not explore these responses in further detail and instead collapse them in the manner described above.

This definition of ethnicity is problematic as it forces individuals to use discrete categories (although they were free to put down as many labels as they felt necessary). It is also likely that different students have different ideas about what ethnicity means. The fact that their responses corresponded to the census categories so neatly suggests that they treated the questionnaire as a formal census-like activity and they have clearly internalised the ability to fit themselves into official government terminology. However, in the discussion that follows I do not always interpret ethnicity as meaning things like shared language, culture, origin, and so on. I situate these self-defined groupings in terms of communities of practice and suggest that what may appear to represent an 'ethnic' grouping may sometimes represent a latent social practice distinction.

The following sections discuss the different communities of practice in Ashton Valley School. I discuss female and male communities of practice separately, because these two gender groups occupied distinct social spaces in the school. Although inter-gender friendships did exist, sustained contact was rare and all of the communities of practice were exclusively same-gender at this point in my fieldwork. Of course, the social practices in which the adolescents engaged were highly gendered and, for some groups more than others, an active heterosexual marketplace was in place (Eckert 1989, 2003). These issues are discussed where relevant in the following sections.

3.4 Female communities of practice

I focus on four female communities of practice below. This does not necessarily represent all of the different groups in this year group at Ashton Valley School, but instead reflects the groups that were most visible and well-defined at the time of the fieldwork. I include individual-level information on group members, such as ethnicity and indices of deprivation, in order to highlight the ways in which these factors intersect with community of practice membership. Only individuals whose speech is analysed in Chapters 5 and 6 are included in the tables in each section, because I was not able to collect demographic information from students who were not interviewed.

3.4.1 Ashton girls

The Ashton girls are named after the affluent neighbourhood in which the girls lived, which was also the school's surrounding neighbourhood. Their name reflects how the majority of other students in the school referred to this group, with many other girls explicitly calling them 'the Ashton girls' (or, more accurately, the non-pseudonym version of this name). Although the Ashton girls didn't necessarily name themselves in such a way, they were certainly aware of this positioning. As with all of the communities of practice, the Ashton girls simply saw themselves as 'normal', but for the other students 'Ashton' had strong connotations of poshness, snobbishness and affluence. The Ashton girls were broadly pro-school in that they respected institutional authority and conformed to the school's focus on aspirations towards higher education. All of them wanted to go to university and most of their parents had participated in higher education. The members of the Ashton girls who were recorded for this study are listed in Table 3.4, alongside self-reported demographic information for each individual.

The Ashton girls strongly oriented towards what they saw as cutting-edge fashion and music. Individual style was highly valued amongst the group and they were very critical of people who 'acted like sheep' and followed mainstream trends. They were also highly critical of people who copied their own individual styles. For example, Toni, one of the central members of the Ashton girls, often complained about how Lucy, a more peripheral member, regularly copied her haircut, music taste and dress sense. In doing so, Toni would implicitly position her own style as sufficiently cool enough to be copied by others, while also orienting towards individuality by outlining how annoying this is. The Ashton girls would often talk about boys and heterosexual

Table 3.4: Individual-level information on ethnicity, city of birth, deprivation and % of life in UK for the Ashton girls. Note that 'deprivation' refers to whether the individual's index of multiple deprivation was higher, lower or not significantly different from the city average. Non-UK cities/countries of birth appear in brackets.

	Ethnicity	City of birth	Deprivation	% Life in UK
Toni	White British	Sheffield	lower	100
Bea	White British	Sheffield	lower	100
Nikki	White & Black C.	Sheffield	lower	100
Nasra	Somali	(Netherlands)	higher	40

romance, but they were not openly sexually active in the way that some of the other girls were.

In terms of ethnicity, the Ashton girls were predominantly White. However, I was only able to successfully record four of the girls in this group (the equipment broke when recording three of the other girls), making my sample look slightly more diverse than was actually the case. Of the two ethnic minority girls, Nikki was White & Black Caribbean (she self-defined as 'mixed race') and a central member of the group, while Nasra was a Somali girl and a much more peripheral member. Nasra was one of the few Somali girls not to wear a headscarf and, although she had been raised as a Muslim, she did not identify with Islam. She sometimes spent lunchtimes away from the rest of the Ashton girls and could frequently be found playing chess with some of the other students. Nikki was one of the most outspoken members of the Ashton girls and, alongside her best friend Toni, they were most likely to determine and police the boundaries of appropriate behaviour for the group. They regularly made fun of Lucy and Nasra behind their backs, often mocking Lucy for being a Christian and, again, for allegedly copying Toni's style. During our interview, Nikki also whispered to me, 'I don't like Nasra', and she and Toni talked about how they wished she didn't hang around with them.

Toni and Nikki defined the cultural orientation of the group and they were both into trendy alternative music. Toni also wrote and recorded her own songs, which added to her cool and individual image. Toni and Nikki claimed to be obsessed with teenage pop singer Justin Bieber, which, in the context of their peer group, was certainly not 'cool'. However, their unapologetic and often over-enthusiastic love of Bieber often came across as more of a self-conscious 'he's so uncool he's cool' identity claim, rather than an un-self-conscious love of his music. To this end, the Ashton girls fit the description of so-called 'cultural omnivores', which refers to a tendency to mix high and low cultural forms (Peterson 1992). Fitting into this image

is very much dependent upon knowing how to mix high and low in the correct way and is often characteristic of young middle-class individuals (Ollivier 2008; Chan and Goldthorpe 2010).

On the whole, the Ashton girls did not integrate with other girls in the school. This could be because there was a relatively large group of Ashton girls within the school. In addition to this, membership in the group required substantial sociocultural and economic capital. This latter factor in particular may explain the considerable division between themselves and the other pro-school community of practice in my sample: the Twilight girls.

3.4.2 Twilight girls

The Twilight girls were self-named after their obsession with the *Twilight* novels – a fictional vampire-themed series about a teenage girl who falls in love with a vampire. All of the girls in this group identify as Muslim and, prior to getting to know them better, I considered calling this group the 'Muslim girls' because of this. To an outsider, all of the Twilight might be visually identifiable as Muslim, given that they all wore headscarves, which no other group of students did. However, there was considerable variation in how the Twilight girls dressed, such as the colour of their headscarf, and whether an individual wore a Jilbāb (long loose-fited garment worn by most of the Somali girls) or jeans and a top. Some of these differences in dress are reflected in (and represent) the ways in which individuals orient towards particular social and cultural practices. However, while being Muslim framed the Twilight girls' social practices and affected how they were positioned relative to other students, it did not define them in their eyes, hence why I used the 'Twilight girls' designation here. The members of the Twilight girls who were recorded for this study are listed in Table 3.5, alongside self-reported demographic information for each individual.

The Twilight girls embody broadly middle-class cultural values, in that they are respectful of authority, view education as important, and do not engage in overly risky social practices. Although the Twilight girls share a pro-school orientation with the Ashton girls, they generally do not have access to the social or economic capital of the Ashton girls. While the Twilight girls might be broadly described as culturally middle-class, few of them would be described as economically middle-class and they generally come from poorer neighbourhoods, which is indicated in Table 3.5.

While the Twilight girls lacked the economic and cultural capital of the Ashton girls, they were also less able to participate in the risky social practices of the anti-school girls, such as drinking and socialising with boys. They explained to me that

Table 3.5: Individual-level information on ethnicity, city of birth, deprivation and % of life in UK for the Twilight girls. Note that 'deprivation' refers to whether the individual's index of multiple deprivation was higher, lower or not significantly different from the city average. Non-UK cities/countries of birth appear in brackets.

	Ethnicity	City of birth	Deprivation	% Life in UK
Naadiya	Somali	(Somalia)	higher	60
Aisha	Somali	(Somalia)	average	80
Hishma	Somali	(Somalia)	higher	57
Izma	Pakistani	(Pakistan)	lower	43
Salma	Pakistani	Sheffield	higher	100
Aatifa	Pakistani	Sheffield	higher	100

this was due to gendered and religious ideologies surrounding appropriate behaviour for Muslim women, whereby displays of heterosexuality and underage drinking were strongly condemned by the Twilight girls' parents. Engagement in these activities would have far more serious consequences for the Twilight girls than for any of the other groups. As such, there was little contact between the Twilight girls and the other communities of practice.

The Twilight girls were one of the more socially marginalised groups amongst the girls, in the sense that their community of practice and social practices did not overlap with any of the other groups. Some of the girls also talked about their experiences of racism in the school. For example, the following extract comes from an interview with Izma, a Pakistani Muslim member of the Twilight girls, who is talking about racism in the school (see Appendix A for transcription conventions).

1 Izma: here's like,
2 I dunno it's kinda,
3 like,
4 if-
5 say say now us-
6 we're Muslims and all that like.
7 some people won't just talk to us simply because like,
8 we're Muslims and all that.
9 it's a bit like racist.

Izma directly accuses other students in the school of not talking to her friends because 'we're Muslims and all that' (line 8). This contrasts with some of the attitudes express by some of the Rebellious girls below, in which they talked about the students' intolerance of racist behaviour within the school. While individuals from different groups may present contrasting accounts, what is important is how different groups perceive the nature of social mixing and how they position themselves relative to it. The Twilight girls frequently said that they had experienced racism at school, which they claimed was not the case prior to attending Ashton Valley School. Other Pakistani students, such as Leila of the Rebellious girls, made claims to the contrary regarding racism, which points towards different conceptualisations of social mixing as a function of an individual's experiences and community of practice membership.

3.4.3 Parkdale girls

The Parkdale girls had a broadly working-class and anti-school orientation and, compared with the Ashton girls, were from much less affluent neighbourhoods. Many of the other students referred to Parkdale girls as 'chavs' or 'common'. This labelling implicitly – and quite often explicitly – was used to denigrate the group and their social practices as inappropriate (see Jones 2011 for a broad discussion on the word 'chav' in the UK and Bennett 2012 for a linguistic-discursive analysis). However, every member of Parkdale girls was very quick to refute such labels and point to other students who they felt better embodied the label 'chav'. The members of the Parkdale girls who were recorded for this study are listed in Table 3.7, alongside self-reported demographic information for each individual.

Table 3.7: Individual-level information on ethnicity, city of birth, deprivation and % of life in UK for the Parkdale girls. Note that 'deprivation' refers to whether the individual's index of multiple deprivation was higher, lower or not significantly different from the city average. Non-UK cities/countries of birth appear in brackets.

	Ethnicity	City of birth	Deprivation	% Life in UK
Kasey	White British	Sheffield	higher	100
Claire	White British	Sheffield	higher	100
Alyssa	White & Black C.	Sheffield	average	100
Jada	White & Black C.	Sheffield	higher	100
Tammy	White & Black C.	Sheffield	higher	100

The Parkdale girls differ from the other female communities of practice in that they had a much stronger orientation towards adult social practices, such as hanging

around with boys, smoking, and drinking alcohol. While they were perceived by teachers to be very rebellious, many of the Parkdale girls completely rejected school authority and were completely disengaged from education. Many of them left school during lunch hours, which was prohibited by the school, and would hang out with older boys and smoke. This contrasts with the Rebellious girls (see below), who were characterised by a different kind of rebellion. In terms of in-school behaviour, there was a minor split between Kasey and Claire, who rejected school authority but were not actively hostile towards teachers, and Alyssa, Jada and Tammy, who were extremely abusive towards teachers and other students. Jada and Alyssa were particularly disruptive during lessons and were constantly threatened with expulsion. For example, during my fieldwork, Jada kicked a hole through a wall in a temporary classroom, which she said was caused by her frustration at a teacher telling her to be quiet. The Parkdale girls had no aspirations to continue education beyond compulsory schooling and often said that school was a waste of time.

3.4.4 Rebellious girls

The Rebellious girls are named after their engagement in rebellious behaviours and transgressive social practices in the school. While the Parkdale girls displayed outright rejection of school authority, the Rebellious girls instead expressed a desire to renegotiate the school/student relationship in a way that was more favourable to them. The distinction between the Rebellious and Parkdale girls mirrors conceptualisations of adolescence in sociology. Earlier work theorised adolescence as representing a rejection of adult norms and a split between adolescent and adult cultures, which is characteristic of the Parkdale girls (Coleman 1961). However, more recent research suggests that adolescence represents more of a renegotiation of the adult/adolescent relationship, which is more characteristic of the Rebellious girls (Crosnoe and Johnson 2011; see Kirkham and Moore 2013 for an overview). The Rebellious girls positioned themselves as rebelling against the dominant ideologies of the school, hence their name, whereas school was more of a huge inconvenience for the Parkdale girls, who wished they could be elsewhere. The Rebellious girls frequently drew upon a discourse of 'respect' when evaluating their relationship with teachers and other authority figures. Anderson (1990) suggests that the notion of respect is an integral characteristic in discourses surrounding inner-city multiethnic youth. It is likely that the Rebellious girls have access to and orient towards the discourse of respect through their engagement with various forms of popular urban culture.

Table 3.8: Individual-level information on ethnicity, city of birth, deprivation and % of life in UK for the Rebellious girls. Note that 'deprivation' refers to whether the individual's index of multiple deprivation was higher, lower or not significantly different from the city average. Non-UK cities/countries of birth appear in brackets.

	Ethnicity	City of birth	Deprivation	% Life in UK
Holly	White British	London	lower	100
Katy	White British	Sheffield	higher	100
Mel	White British	Sheffield	lower	100
Amy	White British	Sheffield	lower	100
Polly	White & Black C.	Sheffield	lower	100
Saliha	White & Black C.	London	higher	100
Leila	Pakistani	Sheffield	higher	100
Zara	Bangladeshi	Sheffield	higher	100

The members of the Rebellious girls who were recorded for this study are listed in Table 3.8, alongside self-reported demographic information for each individual. The most popular and iconic member of the Rebellious girls was Leila. Leila identified as ethnically Pakistani and Muslim and she was unique in that she was the only Muslim girl in my sample who was not a member of the Twilight girls. Before I first met Leila, one of the teachers who knew about my research interests told me 'you'll find her interesting, she's very Western, very much against traditional Asian things'. After initially meeting Leila, this description confused me somewhat. Leila wore a headscarf like all of the other Muslim girls and she was fairly quiet and shy during the first few minutes that I spoke to her. However, she soon opened up and became one of the most outspoken students during our interactions. Leila's father was born in Pakistan but moved to Sheffield at a young age and had lived there ever since. Leila describes her father as follows:

1 Leila: My dad's more like,
2 he's been like,
3 here.
4 he was born in Pakistan then when he was like,
5 like two or three or something.
6 he came here,
7 so he's like,
8 proper like full on English.

The fact that Leila was the only Pakistani girl who was not a member of the Twilight girls may be related to the fact that she is also a third-generation member of the Sheffield Pakistani community. Her description of her father in the the extract above as 'proper like full on English' in line 8 sets up an implicit contrast with her mother, who grew up in Pakistan and is presumably not 'full on English'. This is reinforced later in the conversation when Leila says that she only ever speaks to her father in English, whereas she speaks to her mother primarily in Urdu.

Just after our interview, Leila was due to visit Pakistan for her maternal uncle's forthcoming wedding, which she claimed she was looking forward to. In general, however, she expressed very negative opinions of Pakistan and said that she disliked her family there. She often complained about Pakistan being the only place that she ever goes on holiday, which is captured in the extract below (note that the uncle she mentions below is her paternal uncle):

1	Leila:	I don't really wanna go Pakistan, because,
2		I'd rather go Alton Towers with my uncle.
3		that'd be so fun.

Leila's orientation towards Pakistan contrasts with that of Izma, a Pakistani member of the Twilight girls. Izma was studying Urdu as a GCSE subject and often spoke of 'my country Pakistan' during our discussions.

There was some overlap between the Parkdale girls and Rebellious girls, but my impression was that these were two distinct communities of practice with subtly different social practices and socio-ideological orientations. However, these two groups shared a broadly anti-school orientation and were closer to each other than they were to the Ashton girls and the Twilight girls. Both groups could also be described as broadly multiethnic, but it is worth noting that the groups were not overwhelmingly inclusive. The Parkdale girls did not feature any Muslim girls and there is only one Muslim amongst the Rebellious girls. However, I would suggest that the social practices and orientations of the two groups make it more likely for Muslim girls to belong to the Rebellious girls than the Parkdale girls. As mentioned above, the Parkdale girls were engaged in a number of social practices that were often heavily stigmatised for Muslim girls, such as hanging around with older boys outside of school and drinking alcohol (Alam 2007).

The Rebellious girls were one of the more diverse groups in terms of ethnicity and class and there was greater variation in how members of this group conceptualised the school's social mix. While some saw it as a multicultural haven in which

everybody got along, others saw the school as divided and, sometimes, racist. The Rebellious girls talked about the social mix of the school far more frequently than any other groups in the school, perhaps as a consequence of their highly mixed community of practice. However, opinions differed with respect to the benefits and shortcomings of social mixing. For example, Amy was a member of the Rebellious girls, but came from a more affluent family who lived in the Ashton neighbourhood. In the following extract she talks about social mixing in the school and how meeting people from different backgrounds has made her more aware of her own privilege.

1	Amy:	well yeah because,
2		(1.0)
3		if I went to,
4		(1.0)
5		if I went somewhere else I wouldn't really get,
6		(2.0)
7		pic- like,
8		a private school.
9		I would never get like the picture of,
10		(2.0)
11		other people's,
12		(1.5)
13		backgrounds like.
14		you get more,
15		like,
16		like you get different stories and,
17		like different religions and,
18		you hear what they have to do and,
19		(1.0)
20		but if you went to a private school or whatever,
21		I don't think people would,
22		(2.0)
23		p-
24		most people would be from the same kinda rich,
25		background.
26		but when you come to this school there's all sorts,
27		of people.
28		and it's quite,

29 I like listening to their stories and seeing where,
30 they're from,
31 and like,
32 people with their parents and,
33 (1.0)
34 you just,
35 listen and you think how lucky you are.
36 I suppose.
37 (1.0)
38 and if I didn't come here,
39 I wouldn't realise,
40 (1.0)
41 what kind of,
42 (0.5)
43 background I'm from and how lucky I am to,
44 be who I am.
45 cause I hear stories about people,
46 people's dads running away and stuff.
47 and I sit and think I'm glad my dad doesn't,
48 (2.0)
49 doesn't do that and,
50 you just hear different people and,
51 because everyone's from a different background.
52 it's erm,
53 (1.0)
((then goes on to talk about how coming from certain backgrounds might make you more angry, which is manifested in fights at school))

In this extract, Amy discusses the benefits of attended a socially mixed school. She constructs private schools as inherently non-diverse (lines 20–21), positioning her own school as more socially mixed. She describes how attending this school has made her more knowledgable about different cultures and religions, as well as how it has made her more aware of her own privilege. As noted earlier, White middle-class children's participation in socially mixed schools is something of a two-sided coin (Reay et al. 2007). While they are able to gain a form of middle-class social capital by knowing more about 'other cultures', this may have few reciprocal benefits for their

non-White non-middle-class peers.

However, while some White Rebellious girls pointed out the benefits of attending a diverse school, others were quick to criticise what they perceived to be special provision for ethnic minority students in the school:

1 Katy: [1][it is a good thing.][1]
2 Holly: [1][I think it's a good thing][1] cause,
3 you learn how to mix with other people.
4 [2][and have to put up with them.][2]
5 Sophie: [2][yeah it is but,][2]
6 they do get a Black people's (0.5)
7 group here.
8 (0.5)
9 Holly: [3][ye-][3]
10 Katy: [3][which][3] is unfair.
11 I think that's unfair [4][x xx][4]
12 Holly: [4][Black people][4] get treated better
13 than the White.
14 Katy: like I'm not,
15 like being racist or anything.
16 I just think,
17 like they get a,
18 (1.0)
19 they got a lot of things and we don't.
20 Katy: m- my closest best,
21 hhh
22 I got about four best,
23 (0.5)
24 bestest bestest friends and one of them is,
25 (1.0)
26 she's a Muslim.
27 and I just love hearing about,
28 what they can and can't do,
29 I'm not,
30 I'm not a racist person but,
31 hhh
32 but at this school you can say one thing,

33 and like people like misinterp-
34 well.
35 (1.0)
36 na- I don't think they do that.
37 I think they just chang-
38 twist words,
39 $_{5}$[and make people got,]$_{5}$
40 Holly: $_{5}$[before I said]$_{5}$
41 Katy: like a racist name,
42 and $_{6}$[I don't think that-]$_{6}$
43 Holly: $_{6}$[yeah I said to this person before]$_{6}$

Katy criticises the school's Black students' achievement scheme, which aims to provide mentoring to Black and minority ethnic students. From her perspective, the students involved in this scheme got to do lots of fun things, such as go on trips to theme parks, which she perceived to be unfair. They also talked about how other students would sometimes misinterpret things as racist (lines 28–43). Notably, the Muslim friend that Katy refers to in lines 23–28 is Leila, who was the only Rebellious girl who identified as Muslim and Pakistani.

The following extract also features a discussion of racism, but this time from a different perspective. This is from an interview with Leila and Saliha. Leila identifies as Pakistani and is third-generation. Saliha identifies as fourth-generation White & Black Caribbean, but also has a Yemeni Muslim grandfather. The following extract comes after they have told a story about a girl who called somebody a 'Paki' (a pejorative term for Pakistani people in the UK), who was then subjected to extensive abuse from other students in the school as a consequence:[1]

1 Sam: does that sort of stuff happen a lot?
2 Saliha: erm no but I think $_{1}$[it when it-]$_{1}$
3 Leila: $_{1}$[no n-]$_{1}$
4 Saliha: it happens occasionally but,
5 Leila yeah but I don't think there's a lot of racism at our,
6 $_{2}$[school.]$_{2}$
7 Saliha: $_{2}$[cause]$_{2}$ there's a lot of different people,
8 Leila: $_{3}$[yeah.]$_{3}$

[1]The word *summat* in this transcript (line 18) is used to represent the pronunciation [sʊmə?]. This is a common pronunciation of *something* in Sheffield and the North of England more generally.

9 Saliha: $_{3}$[so if]$_{3}$ one person does it then everyone is gonna be
10 like really,
11 Leila: yeah like there's a load,
12 like there's loadsa like different cultures and stuff like so.
13 I don't think people are like,
14 Saliha: $_{4}$[it's not gonna,]$_{4}$
15 Leila: $_{5}$[too much]$_{4}$ bothered about that.
16 (1.0)
17 Saliha: gonna really.
18 Leila: yeah,
19 Saliha: cause they know they'll get beaten up.
20 Leila: $_{5}$[yeah.]$_{5}$
21 Saliha: $_{5}$[or]$_{5}$ summat will happen to them that $_{6}$[they do.]$_{6}$
22 Leila: $_{6}$[yeah.]$_{6}$

Leila and Saliha both state that racism is not particularly prevalent in the school, but that it 'happens occasionally' (line 4). However, they actively construct the school's pupils as largely anti-racist, explaining that if somebody was to be racist then 'they know they'll get beaten up' (line 19) and 'summat will happen to them' (line 21). They then proceeded to tell a story about one girl who did make a racist comment and was subject to extensive harassment from other students in the school.

These extracts show how communities of practice – and individuals within communities of practice – express different attitudes towards social mixing. The Twilight girls discussed their experiences of racism, whereas the Rebellious girls largely claim that racism is rare and not tolerated by other students. Some of the White Rebellious girls mentioned that it was easy to be accused of racism for making supposedly innocent comments. They also claimed that extra provisions for ethnic minority students were unfair. The Parkdale girls and Ashton girls were much less likely to talk about social mixing, meaning that direct comparison with these groups is not possible. However, the fact that these groups did not talk about it may be a consequence of their ethnic composition and experiences of racism within the school. With few exceptions, both groups were predominantly of White and White & Black Caribbean ethnicity. Whiteness is often experience by White people as an 'unmarked' social category that is positioned as the norm from which other ethnic groups deviate (Frankenberg 1993: 194). While the diverse nature of Ashton Valley is likely to have made Whiteness less marked, it remains likely that the Ashton and Parkdale girls were less consciously aware of their ethnicity, given its culturally

privileged position. Related to this, there were also much fewer individuals from second- or third-generation minority groups amongst the Ashton and Parkdale girls and it was often these individuals who reported experiencing racism within the school. While White & Black Caribbean students did report experiencing racism from authority figures, such as teachers and the police, they rarely reported racism amongst their peer group.

3.5 Male communities of practice

I was able to identify two broad communities of practice amongst the male students – the Ashton boys and the Rebellious boys. The boys didn't appear to organise into the smaller tight-knit communities of practice that were characteristic of the girls. Instead, the boys were clustered into broader networks within which there were more fluid social divisions. This degree of overlap and fluidity may be one reason that it was more difficult to identify a number of smaller groups amongst the boys. The girls were also more openly vocal about divisions within their gendered peer network, whereas the boys often posited very broad binary divisions, such as chav/posh, Ashton/gangster, and so on.

3.5.1 Ashton boys

The Ashton boys came from the affluent neighbourhood that surrounds the school and they were almost exclusively ethnically White. Their name mirrors that of the Ashton girls, but this is not meant to imply that these two groups are strict gender equivalents. 'Ashton' represents a series of cultural associations, such as White, middle-class and highly affluent, but these intersect with gender in a way that makes the Ashton boys and girls different in orientation and social practices. The members of the Ashton boys who were recorded for this study are listed in Table 3.14, alongside self-reported demographic information for each individual.

Within the Ashton boys, the core group was comprised of Dom, Neil, Simon, Robby, Callum and Ben, with Mark, Jon and David being more peripheral members.[2] Of the eight Ashton boys that I interviewed, six were from areas that were significantly less deprived than the city average, meaning that they were from the most affluent parts of the city. The two boys who were from less affluent areas were both more peripheral members, which I discuss below. Within the core group,

[2] I was not able to interview Ben as he often failed to show up when we arranged meetings. However, he was one of the participants in Kirkham (2011b).

Table 3.14: Individual-level information on ethnicity, city of birth, deprivation and % of life in UK for the Ashton boys. Note that 'deprivation' refers to whether the individual's index of multiple deprivation was higher, lower or not significantly different from the city average. Non-UK cities/countries of birth appear in brackets.

	Ethnicity	City of birth	Deprivation	% Life in UK
Dom	White British	Sheffield	lower	100
Neil	White British	Manchester	lower	100
Jon	White British	Sheffield	average	100
Mark	White British	Sheffield	lower	100
David	White British	Rotherham	higher	100
Callum	White British	Sheffield	lower	100
Simon	White British	York	lower	100
Robby	White British	Sheffield	lower	100

the Ashton boys were heavily invested in computer gaming and alternative music, particularly heavy rock and metal. Dom was the most central member of the group. He often expressed a cynical and dismissive attitude towards school, but he explained that this was more an expression of boredom rather than a rejection of education. In fact, Dom criticised the 'chavs' on the basis that 'they fuck around and get no qualifications and then go, oh wait I'm gonna be stuck in a dead end job forever now'. The group as a whole were overtly critical of 'chavs', who they saw as unintelligent and aggressive.

The more peripheral members included Jon, Mark and David. Jon came from an area that wasn't significantly more or less deprived than the city average, whereas David was from an area more deprived than the city average. Jon and Mark were best friends and sometimes felt that they were positioned as 'geeks', due to their interest in PC gaming (rather than console gaming), non-mainstream cinema, and science. They also had a stronger investment in education and were very pro-school and achieved very high grades. David, on the other hand, spent a lot of his time away from the rest of the group and often seemed to prefer the company of his friend Fuad, who had recently arrived at the school from Saudi Arabia. He also played in a band, but with friends from outside school and he didn't spend much time with the other boys outside of school. Another member of the Ashton boys who I was not able to interview was Ben. Ben was liked amongst the Ashton boys and he was renowned for being a particularly 'hardcore' computer gamer. Dom told me than Ben once skipped school for two days in order to play a new computer game and, in doing so, missed an important maths test.

Table 3.15: Individual-level information on ethnicity, city of birth, deprivation and % of life in UK for the Rebellious boys. Note that 'deprivation' refers to whether the individual's index of multiple deprivation was higher, lower or not significantly different from the city average. Non-UK cities/countries of birth appear in brackets.

	Ethnicity	City of birth	Deprivation	% Life in UK
Mohammed	Somali	Sheffield	lower	100
Abdullah	Somali	London	lower	100
Sarim	Somali	Sheffield	average	100
Rahil	Somali	Manchester	lower	100
Aamir	Somali	Sheffield	average	100
Wasif	Yemeni	Sheffield	lower	100
Mohid	Yemeni	Sheffield	higher	100
Aasif	Yemeni	(Yemen)	higher	79
Khalil	Pakistani	(Pakistan)	lower	86
Tariq	Pakistani	(Pakistan)	higher	79
Lee	White British	Sheffield	lower	100
Jordan	White & Black C.	Sheffield	higher	100

Some of the girls felt that the Ashton boys possessed a strong sense of entitlement. For example, they were accused of 'thinking they're better than everyone else' because they came from more affluent families. Kasey (Parkdale girls) told me that the Ashton boys were often the worst behaved at parties, because they had more money to buy alcohol. However, it is important to stress that my sample of Ashton boys is not wholly representative of how the group was always perceived in the school. The sample here represent the boys who were more into alternative music and computer games, thus over-representing the slightly 'geekier' end of the Ashton boys spectrum.

3.5.2 Rebellious boys

The Rebellious boys were a multiethnic group of boys with a broadly anti-school orientation. They mainly listened to popular rap and hip-hop music, although there were some divisions in the group with Lee and Jordan favouring underground British rap music and the rest of the boys favouring American urban chart music. The majority of them wore clothes from popular urban streetwear brands, such as G-Star RAW, Superdry, and Nike. The members of the Rebellious boys who were recorded for this study are listed in Table 3.15, alongside self-reported demographic information for each individual.

I found it more difficult to identify central members of the Rebellious boys; instead, there were clusters of boys, all of whom interacted with each other. All

of the Rebellious boys oriented towards some form of aggressive masculinity. Very few ever got into any fights, but two of the boys, Lee and Jordan, were renowned for their fighting across the school. Lee was from the affluent Ashton neighbourhood and identified as ethnically White, but he socialised almost exclusively with the Rebellious boys. His postcode was the second most affluent out of all the students recorded for this study, which contrasts significantly with that of his friends. His best friend, Jordan, was a White-Black Caribbean boy from a much more deprived area of the city. Both were renowned for getting into fights inside and outside the school, usually instigated by or against Lee.

Mohammed and Abdullah were both Somali boys from the same neighbourhood in Sheffield. Abdullah was known to be one of the more rebellious and daring boys. For example, during my time at the school he was caught viewing pornography on school computers and was also complicit in a partially successful attempt to lock a teacher in a cupboard. However, his most serious transgression occurred during a Religious Education class. After spending most of the lesson talking to his friends and being disruptive, Abdullah asked the teacher if he could go to the toilet. Perhaps sensing Abdullah was embarking upon another attempt to mess about, the teacher said no and told Abdullah to wait fifteen minutes until the end of the class. Abdullah argued back, culminating in him stealing another boy's bag, running out of the classroom, and urinating in the bag in the school's hallway. He was temporarily excluded from the school for this incident, but it brought him notoriety and respect amongst the boys. It was incidents like this that led Abdullah to be characterised as the most daring of the Rebellious boys; the one who was always pushing the envelope and being dared to do increasingly rebellious things.

All of the Rebellious boys reported playing computer games on Sony's PlayStation 3 (PS3) console. This contrasts with the Ashton boys, who mainly played Microsoft's Xbox 360 console. Computer gaming played a huge part in all of the boys' lives and many played games with their friends every evening via online gaming services. Consequently, not having the same console as your friends made it more difficult to participate in these online games, which may in part explain the close relationship between console ownership and community of practice. A few of the Rebellious boys explained to me that they played PS3 because the online service was free, whereas Xbox 360 requires a monthly paid subscription in order to play online. In this way, console ownership also has a socioeconomic dimension, creating a split between those who could afford expensive monthly subscriptions versus those who couldn't. Discussion about games was one of the primary social practices amongst both male communities of practice, to the extent that the first question I was asked

upon meeting male students was almost always 'what console do you play?' or 'what's your favourite game?'. Most of the boys couldn't understand why I reported playing PC and Nintendo handheld consoles rather than XBox or PS3. My answer had the benefit of not situating me on one particular side of the console division, but the fact that my answer was such as oddity to the boys demonstrates the importance of a particular kind console gaming to their lives.

3.6 Summary and discussion

This chapter detailed the social organisation of adolescent peer groups in Ashton Valley School. I identified a number of communities of practice that emerged over the course of the fieldwork. Each community of practice engages in a distinctive set of social practices, out of which emerges shared ways of doing things. For example, each group demonstrates a distinctive orientation towards schooling and adult/peer cultures that positions them relative to others within the school. Chapters 5 and 6 tests the extent to which phonetic variation represents a manifestation of shared social practice in these data, as has been found to be the case in previous work (Eckert 2000; Moore 2004; Mendoza-Denton 2008).

Amongst the girls, there are four communities of practice who are clearly divided in terms of their orientation towards schooling and school authority. The Rebellious girls and Parkdale girls could be described as anti-school, but this is manifested in different ways. The Rebellious girls engaged in rebellious behaviours at school, such as being disruptive in lessons, but they often expressed a desire to renegotiate their relationship with school authority figures, often drawing upon discourses of respect. On the other hand, the Parkdale girls completely reject middle-class models of appropriate adolescent behaviour and instead orient towards adult social practices, such as drinking, smoking and sexual activity. They are also considerably more disengaged from school than the Rebellious girls and were often actively hostile towards teachers.

The Ashton girls and Twilight girls are both pro-school, but their pro-school status intersects with social class and ethnicity in different ways. The Ashton girls come from a very affluent area and display considerable cultural capital, whereas the Twilight girls are from more deprived areas and were generally not considered cool enough to hang around with the Ashton girls. Moreover, the Twilight girls were unlikely to be engaged in social practices with their peers from more deprived neighbourhoods due to gendered and religious ideologies prescribing appropriate behaviour for Muslim girls. The Twilight girls often told me that if they were to

drink alcohol or hang around with boys outside of school then they would be in serious trouble with their parents. The Parkdale girls were less likely to be subjected to the same pressures, and the Ashton girls also showed interest in having boyfriends.

Amongst the boys, I identified only two broad communities of practice, which directly map onto school orientation and, to some extent, ethnicity and socioeconomic deprivation. The Ashton boys were overwhelmingly White, middle-class, and pro-education, whereas the Rebellious boys were mainly ethnic minority, generally less middle-class, and anti-school. Unlike the female groups, these two male groups had very little contact with each other and occupied distinct social spaces in Ashton Valley School. This has implications for their use of phonetic variation. While it is likely that these two groups will sound different from each other due to their different styles and linguistic backgrounds, it may be the case that phonetic variation is not as salient an identity marker for the boys, given that the two communities of practice do not really come into contact. The findings in Chapters 5 and 6 appear to support such a claim and I discuss this possibility in greater detail in Chapter 8.

The ability for individuals to move beyond demographic groupings in forming communities of practice is illustrated by the extent of social mixing in the school. Communities of practice are generally more ethnically diverse than socioeconomically diverse, which is in line with previous research on adolescent friendship groups in Britain (Reay et al. 2007; Hollingworth and Williams 2010; Papapolydorou 2010). However, the extent of ethnic diversity was predominantly limited to the Rebellious girls and the Rebellious boys. Pro-school communities of practice were generally much less diverse than anti-school communities of practice. The Twilight girls were one of the more demographically homogeneous groups, given that they are all Pakistani or Somali and all identify as Muslim. However, this is not deterministic, as Leila is also a Pakistani Muslim but engages in Islamic practices much less frequently and hung around with mostly non-Muslims. These social dynamics are likely to be highly contingent upon the social dynamics of the community. If the school was predominantly Muslim then it is likely that different distinctions would emerge, which is evidenced in studies that focus on variation within a larger single ethnic minority population (Alam 2007; Mendoza-Denton 2008). The anti-school Parkdale girls were also fairly homogeneous in the sense that all were White or White & Black Caribbean and from more socioeconomically deprived areas. So, while Ashton Valley School has a diverse social mix, this does not necessarily lead to a very high degree of social mixing, at least in terms of meaningful social contact between individuals from different demographic backgrounds.

In summary, this chapter has identified a number of communities of practice into

which the adolescents are grouped, which would not be obvious prior to carrying out the ethnographic study. It must be stressed that this analysis represents a single snapshot in time and it is likely that these communities of practice will have changed and dissolved in the time that elapsed after my fieldwork ended. The following chapters build directly upon these findings by considering the ways in which ethnicity, communities of practice and school orientation pattern with the adolescents' use of phonetic variation. More specifically, I carry out acoustic phonetic analysis and statistical modelling of two phonetic variables in order to answer the first research question set out in Chapter 1: *is phonetic variation used as a resource for constructing identities and, if so, how is this variation used to index different levels of identity, such as ethnicity and community of practice?* Before reporting these analyses, Chapter 4 details a number of methodological issues that directly inform the analysis in Chapters 5 and 6.

Chapter 4

Methodology for quantitative analysis

4.1 Sampling

Obtaining a sample of a community is necessary in any study where it is not feasible to collect data from the entire population. Traditionally, sociological sampling involved random sampling in order to ensure that the research design accurately represents the population it is designed to study. Random sampling is sometimes used in variationist sociolinguistics (Labov 1984), but researchers more commonly employ varying forms of snowball or social network sampling (Tagliamonte 2006). Regardless of this, variationist studies often attempt to obtain *stratified samples*. This means that the sample contains a balanced number of participants across different groups, such as age, gender and social class, in order to facilitate more robust statistical comparisons (Labov 1966b). However, ethnographic sampling rarely follows the same procedures as experimental or stratified sampling. Instead, ethnographic research is often characterised by what Strauss and Glaser (1967) call 'theoretical sampling'. This refers to a move away from statistical or representative sampling towards a 'process of data collection for generating theory whereby the analyst jointly collects, codes, and analyses his data and decides what data to collect next and where to find them, in order to develop theory as it emerges' (Strauss and Glaser 1967: 45). Of course, theoretical sampling doesn't involve randomly collecting data wherever and

whenever one can, but is often guided by some initial key observations (Charmaz 2006). For example, my interest in language, ethnicity and social practice emerged from the initial stages of my fieldwork. When it came to collecting data, I was particularly interested in interviewing people from a range of different ethnic groups and communities of practice.

I started to record interviews with speakers approximately twelve months after I started fieldwork at Ashton Valley School, between March and June 2011. The considerable delay between the start of the fieldwork and the start of recording was an intentional strategy directed towards naturalising my presence in the school in the eyes of the adolescents. I hoped that this would give them time to get to know me and see me as a non-authority figure (Eckert 1989; Moore 2004). In terms of sampling of participants, I followed an opportunistic approach in the sense that I asked for volunteers who wished to take part in an interview about their daily lives and interests. This method facilitated a fairly large sample that captured individuals from a range of social groups. However, one major shortcoming of this approach is that some groups will inevitably be under-represented. For example, White boys from working-class backgrounds – of whom there were fairly few at Ashton Valley School – were difficult to recruit. Many of these boys did not volunteer to take part and did also not express any interest when I informally mentioned it to them. However, the sample still includes a wide variety of individuals from different social backgrounds and comprises a number of different communities of practice (see Sections 3.4 and 3.5 for further details).

All speakers were aged between fourteen and fifteen at the time of recording, which means that they were in year ten, the penultimate year of compulsory education in England. In total, I recorded sixty-eight adolescents and analysed phonetic data from forty-three individuals. Twenty-five adolescents were not featured in the data analysis, who were excluded for the reasons detailed below.

Fifteen speakers were excluded from the phonetic analysis because they did not produce enough tokens of both of the variables analysed in Chapters 5 and 6. Speakers who produced fewer than ten tokens of each variable were not included. The usual reason for a speaker not producing enough tokens of a particular variable was a relative lack of speech throughout the entire interview. This usually occurred in the case of pairs or small groups in which one individual completely dominated the conversation, whereas the other(s) remained relatively quiet. In terms of the social characteristics of individuals excluded for too few tokens, nine were Rebellious boys (two Somali, two Pakistani, two Palestinian, one White & Black Caribbean, one Yemeni, one Bengali), three were Rebellious girls (two White; one White &

Black Caribbean), two were working-class White boys who did not belong to the communities of practice outlined here, and one was an Ashton boy (White). This appears to represent some form of social stratification, with far more Rebellious boys being excluded than from other groups. One reason for this is that Rebellious boy conversation pairs were often comprised of an incredibly talkative speaker and a quieter speaker. In addition to this, the Rebellious boys were more likely to leave the interview room if they got bored, which was the case for two of the individuals who were excluded here.

Six speakers were excluded because they had lived in the UK for fewer than five years. These speakers did not consider themselves native speakers of English. Four of them saw their stay as transitory, as they had moved to the UK due to their parents studying at university in Sheffield. Five of the six speakers were peripheral members of the Twilight girls (four Yemeni and one Pakistani), whereas one was a Saudi Arabian male who floated between different communities of practice.

Three speakers (all Ashton girls; two White, one White & Black Caribbean) were excluded because one of the microphones broke during their recording sessions, meaning that these individuals were instead recorded using a different microphone. The particular model of microphone used can significantly impact upon the recorded acoustic signal, which can affect any measurements that are applied to that signal (Shadle 2006). As such, these recordings were not comparable with the rest of the data set and were excluded from the analysis. Finally, one speaker (a male Pakistani Rebellious boy) was excluded because he wore a palatal expander during the interview, which is well known to significantly distort speech acoustics (Stevens et al. 2011).

4.2 The ethnographic interview

4.2.1 Methodological principles

The sociolinguistic interview was originally designed to capture the 'vernacular' in a format that could be compared across speakers with relative ease (Tagliamonte 2006: 8). Labov (1972a) suggests that one of the major issues in conducting sociolinguistic interviews is the problem of the *observer's paradox*. This refers to the idea that we wish to understand how people speak when they are not being observed, but in order to do we have to observe them. One of the most common ways that researchers have attempted to solve this problem in ethnographic sociolinguistics is through the simple fact of doing ethnography (Eckert 2000; Moore 2004; Mendoza-Denton 2008).

The rationale behind this is that, if speakers are used to engaging with a researcher over a prolonged period of time, then the effects of the researcher attempting to record speech data should be somewhat minimised when compared with a researcher who is unknown to the speakers.

Subsequent research has shown that moving beyond the sociolinguistic interview demonstrates the extent to which speakers' use of linguistic variation is highly variable across different interactional contexts (Sharma 2011). To this end, research that examines the social meanings of variation increasingly encourages speakers to selectively record themselves in a number of their everyday interactional settings (Podesva 2007; Sharma 2011). There are clear advantages to this, such as the reduction of the observer's paradox and the fact that the data should reflect the types of interactions in which an speaker engages. It is unlikely that people regularly participate in sociolinguistic interviews, which suggests that interviews generally do not pass what Potter (1996: 135) calls the 'dead social scientist test' – the idea that the interaction would still have happened if the researcher had died earlier that day. However, this is not to say that ethnographic interviews are 'bad' data; analysis of discourse, identity and social meaning is frequently carried out on researcher-participant conversations collected as part of an ethnographic study (Bucholtz 1999; Moore 2006; Moore and Podesva 2009; Bucholtz 2011). Indeed, Wolfson (1976) suggests that linguists would do better to abandon ideologies of authenticity surrounding different kinds of data and properly contextualise the data in terms of the specific type of interaction taking place (see also Bucholtz 2003; Potter and Hepburn 2012).

In this dissertation, I use an adapted version of the traditional sociolinguistic interview called the *ethnographic interview* (Spradley 1979). I avoid the term sociolinguistic interview because my interviews never followed a pre-determined structure, with a list of questions that were directed towards each individual. Instead, they were informed by the ethnographic process and were often dependent on my own prior knowledge of the speakers. This meant that some interviews took a much more conversational form, with the interview serving as a recorded extension of our usual interactions, whereas other interviews were more focused around a question and answer format. While this may hinder true comparability across interviews, this will always be the case given that different individuals will experience the interview context in different ways. However, in view of my earlier comments on theoretical sampling, this approach was carried out in order to facilitate a deeper understanding of particular aspects of the data and inform my knowledge of social processes in Ashton Valley School. Moreover, the finding that different speakers

behave differently in the interview context may also provide interesting insights into the social practices and orientations of different communities of practice (Moore and Podesva 2009).

4.2.2 Procedure

The ethnographic interviews always took place between myself and between one and four adolescents and lasted between thirty and ninety minutes in duration. The ethnographic interview represented an extension of my regular interactions with the adolescents. While there were no pre-determined questions, there were particular areas of discussion that I would bring up in most of the conversations. These included:

- Their worst teachers in the school.
- Their experience of fighting in the school.
- The worst thing they have ever seen a student do in class.
- How they felt about living in Sheffield.
- Whether they felt they had an accent and how they felt about this.

Different individuals were able to answer these questions to varying degrees, with some producing lengthy narrative about fights in which they had been involved, with others only providing brief anecdotes. To this end, these questions may appear slightly skewed towards individuals engaged in more rebellious social practices, but this was not the case given the context of the school: everyone I interviewed was able to produce lengthy narratives about fights they'd seen or a story about somebody behaving particularly badly in class. What differed was whether those individuals were involved in the narrative (as was often the case with the more rebellious adolescents) and how they positioned themselves relative to the incidents they discussed. At the end of the interview, each individual was required to fill in a questionnaire which included questions on their demographic background. The questionnaire is reproduced in Appendix D.

4.2.3 Recording set-up

All recordings took place in the same quiet room at the school in order to maintain consistency between recordings in terms of the acoustic environment. All sound files were recorded as 16-bit 44.1 kHz WAV files using head-mounted Beyerdynamic

Opus 55 MkII omnidirectional condenser microphones through a signal chain (Beyerdynamic MJ-53 phantom power adaptor; Rolls LiveMix MX34b pre-amplifier; Behringer UCA-202 USB sound card; laptop computer running Audacity software). All equipment was operated using battery power in order to reduce the potential for group loop interference. Headset microphones were used in order to maintain a consistent distance and angle between the microphone and the speakers' lips, which is important for maintaining spectral consistency across different recordings (Shadle 2006: 443). In all cases, the microphone was positioned 5cm from the speaker's lips at approximately thirty degrees off-axis. This is important as distance and axis have a pronounced and non-linear effect on the amplitude of particular frequency ranges (Beranek 1954: 148). In order to minimise any further unnaturalness introduced by the headset, the microphones were attached to Xbox computer gaming headsets. Many of the adolescents were already familiar with these headsets, as the majority of them (male and female) played computer games regularly and had used similar equipment. The headsets were generally well received and usually prompted a heated debate over the relative merits of the Xbox360 and PlayStation 3 gaming consoles.

4.3 Social and demographic characteristics

The statistical models in Chapters 5 and 6 include a number of predictor variables that aim to capture the social characteristics of particular speakers. These include community of practice membership, ethnicity, index of multiple deprivation, and first language. This section details the coding procedure for these variables.

4.3.1 Community of practice

This section discuss the statistical implementation of the community of practice (CoP) construct. The theoretical and methodological decisions adopted in defining CoPs were covered in Section 3.3.2. Each of the forty-three adolescents were assigned to a single community of practice based on their engagement in shared activities and shared ways of doing things with other individuals. My evidence for this comes from a range of sources, such as long-term ethnographic observation, self report, reports of other and outgroup memberships, and explicit identification practices. As operationalised here, the community of practice does not capture all of the social practices of its members (Moore 2010). Instead, it captures the shared ways of doing things that its members have developed in relation to a set of activities that take place in and around the context of the school.

Table 4.1: Number of speakers in each community of practice.

Community of practice	No. of speakers
Ashton girls	4
Twilight girls	6
Parkdale girls	5
Rebellious girls	8
Ashton boys	8
Rebellious boys	12

There were no obvious cross-gender communities of practice, meaning that female and male CoPs were considered separately. I identified four female and two male communities of practice, which are described in greater detail in Sections 3.4 and 3.5. The number of speakers in each CoP is presented in Table 4.1. For information on individual community of practice members, as well as how CoP intersects with ethnicity and deprivation indices, also see Sections 3.4 and 3.5.

Tagliamonte (2006: 31) suggests the use of between three and five speakers per cell for the purpose of variationist statistical analysis. However, it is more likely to be the case that this number is study-specific and depends on the analysis in question. The communities of practice do feature four-or-more speakers per group, but when cross-tabulated with other social variables, such as ethnicity, then it is clear that there are a lot of empty cells; for example, there are no Pakistani Ashton girls and no White Twilight girls. This does present some issues for the quantitative analysis, but the sampling reflects the ethnographic reality, meaning that there will inevitably be a trade-off between statistical power and an ecologically-valid sampling approach.

Table 4.1 shows that the the smallest community of practice is the Ashton girls, which is due to three speakers from this group being excluded due to microphone issues (see Section 4.1). Nonetheless, this group were highly consistent in their phonetic realisations and the sampling represents the ethnographic reality (as well as some of the pains of technological failure). The communities of practice are larger amongst the boys, which is also a consequence of the ethnographic situation in which male CoPs were larger and less tight-knit than female groups.

4.3.2 Ethnicity

As was discussed in Section 3.3.4, ethnicity was coded using adapted categories from the England and Wales Census 2011, which are available in Office For National

Table 4.2: Number of individuals in each ethnic group amongst female and male speakers.

Ethnicity	Female	Male
White British	8	9
White & Black Caribbean	6	1
Somali	4	5
Pakistani	4	3
Yemeni	0	2
Bangladeshi	1	0

Statistics (2012b). These data were derived from self-reported written questionnaire data that were completed after the ethnographic interview. The results are presented in Table 4.2. In the case of respondents using a label that did not fit into those listed here, they were allocated to the nearest category based on my own analytic judgement. For example, 'mixed race' was classed as 'White & Black Caribbean' in instances where this label captured the 'mixed' dimension of their self-categorisation. Such information was gleaned from the ethnographic conversation, in which speakers often provided more detailed descriptions of their family histories and perceived self-identification. However, such an approach is problematic because the specific labels used by individuals may be socially important. However, for the purposes of statistical analysis it was necessary to collapse slightly different labels into the categories shown below in order to boost statistical power. For information on how ethnicity intersects with community of practice and deprivation indices see Sections 3.4 and 3.5.

As with the community of practice data, none of the groups have large sample sizes. However, this is reflective of my attempt to capture the extent of social and ethnic diversity in Ashton Valley School. I must also reinforce the point that, in operationalising ethnicity as an explanatory variable, I do not necessarily assume that 'ethnicity' always refers to some shared sense of national or cultural collectivity amongst all self-designated members of this group. In some cases, ethnicity in this context may be a proxy variable for other things, such as particular social practices, or the effects of ethnicity on social practices. This becomes apparent in the phonetic analyses, in which Somali boys differ from other groups, but these patterns appear to be a result of social practices that are shared by the Somali boys. This suggests that ethnicity may influence variation in indirect and non-deterministic ways, such that ethnicity can potentially constrain social practices.

4.3.3 Index of deprivation

Socioeconomic class is well known to correlate with linguistic variation (Labov 1966b). However, the ways in which class is operationalised differs widely across studies. In this analysis I use the Index of Multiple Deprivation (IMD), a UK government statistic that is designed to capture deprivation across multiple domains. This was covered briefly in Section 3.2.2, where I discussed the socioeconomic profile of the students in Ashton Valley School. However, this section outlines the specifics of the IMD score for the purposes of statistical analysis.

The IMD score is derived by calculating thirty-eight indicators across the following seven domains:

- Income
- Employment
- Health and disability
- Education, skills and training
- Barriers to Housing and Services
- Living environment
- Crime

These indices are combined to create a single IMD score for each neighbourhood in the UK, which are then ranked in order of deprivation. This index does make some assumptions, such as the ability to adequately measure each of these domains independently of one another. However, it remains a more holistic measure of socioeconomic deprivation than single measures, such as house price or parental occupation.

The available IMD scores take the form of ordinal nationwide rankings, which means that they must be treated as relative measures. For example, a ranking of twentieth most deprived does not necessarily indicate twice as deprived as a ranking of fortieth most deprived (Department for Communities and Local Government 2011). In order to get around this issue, I use additional statistics provided by South Yorkshire Local Area Statistics Online (LASOS; http://www.lasos.org.uk/). The index for each student was retrieved from the LASOS database, based on the student's postcode and its corresponding Lower Super Output Area, as defined by the Office for National Statistics. This then produces a series of results, which also includes data

Table 4.3: Levels of deprivation indices in female and male speakers. The categories higher/average/lower refer to whether an individual's neighbourhood is significantly different from the average levels of deprivation from the city of Sheffield.

Level of deprivation	Female	Male
Lower	11	12
Average	2	3
Higher	10	5

on whether that individual's neighbourhood is significantly more or less deprived than the average for the city (or whether an area is not significantly different from the city average). I gathered the data from the LASOS website and, based on this, each individual was allocated to one of three categories – higher, lower, or average – which refers to whether an individual's IMD score was lower than (less deprived), higher than (more deprived) or not significantly different from (average) the city-wide average for Sheffield. These categories were determined using an algorithm built into the LASOS database, which assesses whether the differences between raw IMD scores are statistically significant. Significance here is collapsed into higher/lower/average because more fine-grained data was not available. I do not define these three IMD categories in terms of more common social class labels, such as lower/middle/upper working-class. Instead, these categories are treated as indicators of relative socioeconomic advantage. I make this distinction because, in Chapter 7, I use labels such as 'working-class' in order to reference the ideological and sociocultural dimensions of class, of which socioeconomic profiles are only a part. In contrast, the IMD scores refer only to socioeconomic indices.

Table 4.3 details the levels of deprivation in each gender group. For information on how deprivation intersects with community of practice and ethnicity see Sections 3.4 and 3.5. The table shows that, amongst the girls, there is a fairly equal split between speakers from more deprived and less deprived areas of the city. This is reflective of the fact that most UK cities are very socioeconomically divided (Dorling 2010). The 'lower' and 'average' categories for the boys are very similar to those found amongst the girls, but the boys have far fewer individuals in the 'higher' category. Part of the reason for this is a greater number of ethnic minority speakers from less deprived areas amongst the boys. I have no explanation or suggestions for why this should be the case and assume that this gender difference would balance out in a much larger sample.

4.3.4 Bilingualism

Many speakers in Ashton Valley School were heritage language speakers – individuals who were raised in families where a minority language was spoken and who possess varying degrees of proficiency in both the dominant and the heritage language (Valdés 2000). Polinsky and Kagan (2007) define a heritage speaker as an individual who acquired the heritage language first but did not completely acquire it due to a switch to the dominant language. Montrul (2010: 4–5) specifies that heritage speakers 'have achieved partial command of the family language, short of the native speaker level of their parents and of peers raised in their home countries', whereas Van Deusen-School (2003: 222) defines them as those who 'have been raised with a strong cultural connection to a particular language through family interaction.' The one thing that all of these definitions have in common is that heritage language acquisition begins in the home. In this sense, it is unlike foreign language acquisition, which usually begins in the classroom (The UCLA Steering Committee 2000). Polinsky and Kagan (2007: 369) make this point explicit when they explain that '[c]ulturally motivated learners who learn their heritage language from scratch as adults are regular second-language speakers'. While individuals may take classes in their heritage language, for them to be considered heritage speakers they must have had a degree of interaction with the language at home.

Previous sociolinguistic studies of British English often find little effect of levels of heritage language usage. Sharma and Sankaran (2011) find no significant effect of reported Panjabi usage amongst London Asian speakers. Other studies do not investigate the effects of bilingualism quantitatively, but qualitatively report that differing levels of proficiency or usage do not seem to predict phonetic variation (Lambert et al. 2007; Kirkham 2011b). To this end, Lambert et al. (2007) hypothesise that variation emerging from bilingualism may not necessarily reflect an individual's frequency of usage of the heritage language, but can instead be operationalised for identity work (see also Eckert 2008b). These results suggest that indices of self-reported bilingualism may be useful, but that post-hoc qualitative interpretations relating to bilingualism can also inform an analysis. In many cases, self-reported data on bilingualism 'relates to declared behaviour as perceived by the subject and not to an actual observable behaviour and should therefore be used in combination with other measures' (Hamers and Blanc 2000: 40). For this reason, combining self-reported bilingualism with other approaches, including quantitative measures of proficiency and qualitative ethnographic insights, can yield insights into multiethnic contact situations with a high proportion of bilingual speakers.

Table 4.4: First language spoken by female and male speakers.

Language	Female	Male
English	15	10
Somali	4	5
Panjabi/Urdu	4	3
Yemeni Arabic	0	2

The primary bilingualism predictor entered into the statistical model was *first language learned*. This was based on self-reports by each individual about which language they began to speak first as a child. Responses included English, Somali, Panjabi/Urdu, and Arabic. When individuals responded with English and another heritage language then I coded this response as the heritage language. This was because the number of speakers who reported learning to speak both languages at the same time was very small and collapsing them into heritage language categories was done to boost statistical power. In every instance, this self-reported first language was also reported to be the functional home language. Table 4.4 details the first languages spoken by male and female speakers.

All of the languages in Table 4.4 have low numbers, except for English. One potential solution to the very low numbers is to group different languages together based on predictions of how their phonetic make-up may similarly influence the phonetics of a speaker's English. Broad predictions regarding cross-language influence for single languages are given for each variable in Sections 5.2.4 and 6.2.4. The reasons for not collapsing languages into similar groups are as follows. First, there are substantial problems with making predictions for *individual languages*. Most of the phonetic descriptions that are available for the languages in Table 4.4 are based on phonological descriptions of monolingual varieties, often drawn from a very small number of speakers. Claiming, for example, that monolingual speakers of Somali produce /l/s with a clear resonance does not necessarily entail that bilingual speakers of Somali who have largely acquired Somali in Britain will do the same. If it is difficult to make reliable predictions for single languages, then grouping them together on the basis of these assumptions could yield misleading insights. Second, grouping together different languages is likely to obscure some of the important phonetic differences between languages with similar phonological systems. For example, while we might expect that speakers of Panjabi and Somali would both produce phonetically clear /l/s in those languages, the phonetic characteristics of /l/ in each language are likely to be different from each other. Clearness in laterals

is a relational property and phonological or allophonic descriptions rarely capture relative notions of clearness. Therefore, while grouping languages together on phonological grounds may be theoretically justified, grouping them on phonetic grounds makes a number of assumptions that have yet to be tested. Therefore, this analysis sacrifices a degree of statistical power with the aim of avoiding assumptions about the phonetic characteristics of particular sounds in the bilingual varieties of these languages.

As the above discussion suggests, bilingualism is only weakly accounted for in the statistical model and is perhaps better characterised as 'first language' or 'community language', which in this study is also highly correlated with the ethnicity variable. However, other data were collected on bilingualism, but were not used in this study due to some methodological issues. A proficiency task was designed around a basic vocabulary translation task, which involved the speaker translating words from English into their heritage language. Basic vocabulary translation tasks have previously been found to strongly correlate with morphological and syntactic proficiency for other heritage languages (Godson 2003; Montrul 2006; Polinsky 1997, 2000, 2006). I designed a translation task in which words were derived from the Swadesh list (Swadesh 1971), specifically the forty-word reduced list from Holman et al. (2008). However, out of the twenty speakers who reported having some ability or knowledge of a language other than English, only six agreed to complete the translation task. The task was scheduled to take place after asking the speakers a number of questions about bilingualism and their heritage language usage. Although some speakers reported reasonable ability and usage of their heritage language during the questions, they became very hesitant when it came to the translation task and many claimed that they did not speak the language well enough to complete it. It is likely that the speakers were reluctant to be 'objectively' tested on their language abilities and therefore declined the option of taking the test. As a result, there was insufficient data form the vocabulary translation task to include it in the statistical analysis.

Data were also collected on a range of other bilingualism factors that are reported in other studies, such as the language used when speaking to their mother, father, grandparents, older siblings, younger siblings, other family members, and so on (Wei 1994; Sharma and Sankaran 2011). I also collected data on which language each speaker would use when counting and dreaming, as well as whether they consumed any non-English media. However, there were two related problems with these data, which made them unsuitable for quantitative analysis. First, due to the ethnographic sampling approach, the data set did not contain large or balanced samples of any

bilingual groups of speakers. Stratifying further within these groups in terms of usage would be unlikely to yield any statistically meaningful findings due to the difficulty in discerning reliable patterns within small groups. Second, there are also problems with collapsing across the different heritage languages with the aim of focusing on 'degree of bilingualism'. It is theoretically problematic to posit that two speakers who use different heritage languages in the same contexts or quantities can be considered as equivalents, presuming that other factors can be held constant. Different languages may have different potential influences on the English of bilingual speakers and it is likely that the ideological relationship between English and the heritage language differs across different bilingual communities.

While factors such as degree of bilingualism are sometimes used in studies of a single ethnic minority community (Sharma and Sankaran 2011), they feature much less commonly in studies that focus on multiethnic contact situations in which different languages are used by different speakers (Fox 2007; Cheshire et al. 2011; Madsen 2013). Instead, studies of multiethnic adolescent friendship groups have tended to interpret statistical patterns in terms of broader qualitative information about bilingualism. In the absence of reliable self-reported data in the statistical model, I also mainly approach bilingualism from a more qualitative perspective in the discussion of the results, by exploring the ways in which particular heritage languages intersect with ethnicity and patterns in the data. In terms of the statistical model, this means that aspects of bilingualism and heritage language usage are unlikely to be significant predictors. To some extent, the predictor category of 'ethnicity' ought to capture some aspects of bilingualism, at least in terms of the effects of *different* heritage languages. Distinctions in language usage/ability within ethnic or linguistic groups are not accounted for here. The regression model would lack the statistical power to detect such effects, given that the bilingual ethnic groups only include between two and five speakers, which does not provide enough data to detect continuous effects of proficiency or usage. Instead, I discuss these issues based on qualitative information and tendencies in the data.

4.4 Phonetic methodology

4.4.1 Representing sounds

'Writing is not language, but merely a way of recording language by visible marks' (Bloomfield 1933: 21). Bloomfield's claim echoes an earlier argument made by Saussure that speech and writing represent related but distinct systems (Saussure

1915). This becomes particularly apparent when we wish to use writing to represent the sounds of speech, which are arbitrary and continuous in nature. Symbolic systems are often strongly tied to theoretical positions in phonology (Coleman 1998), which necessitates a brief discussion of the phonetic notation used in this dissertation.

In the analysis I focus on the sounds that are represented by the underlined orthography in lexical items such as *t̲ap* and *happy̲*. For the purposes of convenience I refer to these two sounds as 'word-initial /t/' and 'word-final /i/' respectively. The symbol /t/ is used to represent what is commonly described as a voiceless alveolar plosive, whereas the symbol /i/ represents the vowel at the end of words such as *happy*, *silly* and *furry*. Word-final /i/ therefore constitutes what Wells (1982) calls the happʏ vowel in his outline of lexical set keywords for English vowels. However, I use /i/ rather than happʏ in order to maintain consistency with the representation of /t/ throughout this dissertation. Further details on the use of these symbols can be found in the respective analysis chapters for /t/ and /i/.

In both cases, my use of slashed brackets is a matter of convention and does not make any assumptions regarding 'underlying' forms, as is the case in generative phonology. Also, my use of segmental notation is not meant to imply a purely segmental approach. In practice, it is impossible to chop up speech into segment sized chunks, because there is considerable overlap between adjacent sounds (Ladefoged 2003). To this end, the acoustic analysis in Chapters 5 and 6 also considers aspects of the syllable in which /t/ and /i/ occur, which points towards the importance of information beyond the 'segment'. However, as Coleman (1998: 21) points out, '[t]he use of a segmental notation-system does not commit a phonetician to a segmental view of speech'. In this way, my use of the notation system outlined here represents an analytic convenience rather than an explicit theoretical position.

4.4.2 Acoustic targets and transitions

Traditionally, acoustic phonetic analysis takes measurements at pre-defined static points during a segmental interval. For example, the majority of studies that conduct acoustic analysis on monophthongal vowels define the onset and offset of the vowel with reference to visually observable acoustic properties on the waveform and spectrogram and then derive a measurement at the vowel's temporal mid-point (Lindblom 1963b). While it is well-established that the dynamic properties of speech sounds are crucial to their perception, vowel quality *can* be appropriately modelled using a static measurement at the temporal mid-point of the vowel (Harrington and Cassidy 1999: 60). Similar approaches are sometimes applied to consonant sounds as

well. For example, the noise spectrum of a fricative is sometimes calculated at its temporal midpoint (Cho et al. 2002).

Another approach to identifying acoustic targets is to use more flexible acoustic parameters in order to define targets (Lisker 1984). For example, Watson and Harrington (1999) suggest that acoustic targets in Australian English may be poorly captured by fixed time-points. Instead, they identify vowel targets based on acoustic minima and maxima, such as peak F2 in high-front and mid-front vowels, minimum F2 in mid-back and high-back vowels, and maximum F2 in open vowels.

In the analyses presented in this dissertation I identify acoustic targets based on acoustic maxima rather than pre-defined time-points. These include peak zero-crossing rate for word-initial /t/ and the value of F2 minus F1 at the peak F2 time-point for word-final /i/. These measures are calculated using an automatic procedure that calculates the acoustic measurement across the entire signal file and then searches for the specified maximum value within a labelled interval (Harrington 2010b: 151). In practice, vowel measurements may show few differences between formant minima/maxima values or midpoint values (van Son and Pols 1990). However, I use the procedure outlined above in order to avoid prior assumptions about when salient acoustic events are likely to occur. This is important in the case of /t/, where the measurement applied is relatively under explored for the particular application reported here. This approach also has benefits for the analysis of /i/ where vowel targets may differ in different phonetic contexts, such as preceding liquid sounds.

Phonetic targets play an important role in the perceptual identification of sounds, but to what extent do dynamic acoustic patterns communicate sociolinguistic information? It is well known that dynamic acoustic information facilitates classification and perceptual identification of vowels (Nearey and Assmann 1986; Harrington and Cassidy 1994; Jenkins and Strange 1999), which suggests that acoustic dynamics could exhibit sociolinguistic patterning. This proposition has been evidenced in a small number of studies. For example, Fox and Jacewicz (2009) use dynamic measures in order to uncover dialectal differences in formant transitions in American English. Hughes et al. (2011) also find dynamic differences between vowels in Manchester and York English. York speakers front GOAT with greater curvature in the formant trajectory, whereas Manchester speakers front GOAT with a much flatter trajectory. Dynamic differences are also evident between social groups within Manchester, such as female speakers showing fronter trajectories in the realisation of the GOAT vowel.

In the analysis presented in this dissertation I utilise an approach that captures acoustic trajectories across the segmental intervals of word-initial /t/ and word-final

/i/. I calculated the relevant acoustic measurements at eleven equidistant time-points across the segmental interval (e.g. 0%, 10%, 20%, ..., 100%). A statistical procedure was then applied in order to smooth the transitions between these consecutive measurements and to derive confidence intervals from which statistical inferences can be made. The precise methodology behind this approach is reviewed below in Section 4.5.2.

In summary, the acoustic phonetic analysis in Chapters 5 and 6 combines two approaches: (i) the identification of measurement time-points with reference to acoustic maxima, rather than pre-defined temporal points; and (ii) a dynamic analysis of acoustic signals over the time course of a segment or syllable. Both analyses facilitate a move away from strict assumptions about where particular acoustic landmarks are likely to occur and aim to capture dynamic acoustic transitions over the time course of a defined segmental interval.

4.5 Statistics

4.5.1 Mixed-effects linear regression

In order to explore and test patterns in the data I constructed a series of linear mixed-effects regression models using the lmer function in R. The specifics of the models are presented in the respective analysis chapters, but I give a non-technical summary of the method here, alongside justifications for particular analytic decisions.

Variationist sociolinguistic analysis generally attempts to assess the effects of social and linguistic variables on the realisation of a particular linguistic variable (Tagliamonte 2006). A common way of doing this is through the use of *regression modelling*. Regression modelling allows the researcher to test the relationship between a group of predictor variables (such as ethnicity and preceding phonetic context) and an outcome variable (such as vowel F2). This helps us to understand how the outcome variable changes when any of the predictor variables change. Regression modelling is carried out by testing the relationship between a predictor and outcome variable while holding all other variables constant. The contribution of a predictor variable to explaining the data is tested against a *null hypothesis* of 'no effect', which holds that the result is due to chance. If the null hypothesis is rejected by the regression model then the predictor variable is considered to reliably contribute towards explaining some of the variation in the data and is often referred to as *statistically significant*. If the null hypothesis cannot be rejected then the predictor variable is considered to not be statistically significant. This procedure of testing

against a null hypothesis is assessed using probability measures, which evaluate the probability of the null hypothesis being falsely rejected if the experiment was repeated an infinite number of times. This probability is often expressed as a p-value. In this dissertation, a p-value of less than .05 is considered to be statistically significant, which is consistent with much research in the social sciences (denoted as $p < .05$). A value below .05 would suggest that the null hypothesis has a below 5% probability of being falsely rejected.

The specific implementation of regression modelling used here is mixed-effects linear regression, which represents a relatively new but highly recommended technique for variationist sociolinguistic analysis (Baayen 2008; Johnson 2009; Tagliamonte 2012). An assumption of regression analysis is that individual observations, such as multiple tokens from the same speaker, are independent of one another. However, this is clearly not the case with linguistic data in which repeated observations are taken from each speaker. For instance, we would expect that five tokens of /t/ that were produced by speaker A are likely to be more similar to each other than to five tokens of /t/ produced by speaker B. A traditional regression model that only includes *fixed effects* would not account for this. As such, the model treats each observation as independent, which leads it to overestimate the significance of the effect of social characteristics of the speaker, such as age, gender and so on (Johnson 2009: 363). In contrast to this, mixed-effects models (sometimes called random-effects or hierarchical models) include fixed effects, but also facilitate the inclusion of *random effects*. Random effects are often variables that are specific to the sample (e.g. individual speakers, individual tokens) and are not generalisable to the wider population. This contrasts with fixed effects, such as gender and age, which represent variables that also occur in the wider population. Including 'speaker' as a random effect accounts for the fact that multiple tokens have been produced by that one speaker and, as a result, the individual observations are not treated independently of one another. This results in a model that more conservatively estimates the contribution of different predictor variables, which makes the model less likely to erroneously identify chance findings as statistically significant. This ought to result in a more robust model, but it can occasionally result in significant effects being identified as non-significant. However, such a trade-off is considered optimal, as it may be more desirable to occasionally miss significant effects than to erroneously identity non-significant effects as significant (Baayen 2008; Tagliamonte 2012).

Mixed-effects regression modelling belongs to the family of parametric statistics, which means that a number of assumptions have to be met for the model to be considered even vaguely robust. These include normally distributed variables and

an absence of highly correlated predictors (Gelman and Hill 2007: 45). Normality and multicolinearity were assessed prior to fitting models via extensive visualisation of the data and descriptive statistics.

In order to obtain a regression model that provided the best fit of the observed data, I conducted general-to-specific modelling (Baayen 2008: 186–188). This entails fitting a model that includes all available variables that can be justified on theoretical and analytic grounds. The model is then run and any predictors that are not statistically significant at the $p < .05$ level are removed from the model. Following this, the model with the non-significant predictor and the new model without the non-significant predictor are compared using an ANOVA in order to determine which model best fits the data. In the event that the model with the non-significant predictor was a significantly better fit, then the non-significant predictor was entered back in to the new model; otherwise it was left out. This is to ensure the inclusion of predictors that may not be significant but contribute to the overall model fit. However, this never occurred in the analyses reported here, which means that all predictors in the final models were statistically significant. This procedure is repeated until an optimum model is reached in which all predictors are significant.

In all cases the following statistics are reported for each mixed-effects regression model:

- Regression coefficient [β]
- Standard errors [SE]
- 95% Bayesian confidence intervals [95%CI]
- p-values [p]

All of the predictor variables in a regression model have a β coefficient, which represents the regression coefficient. This indicates the change in the outcome variable (e.g. the acoustic measurement) associated with a unit change in that particular predictor variable (e.g. community of practice, ethnicity, duration, preceding context, and so on). The standard error tells us how much variability there is in the β estimate across the sample. Larger values indicate larger errors. The 95% Bayesian confidence interval represents a range of values within which the true value of that statistic is believed to exist. Finally, the p-value represents the probably of obtaining a β value as extreme as the one that occurred, assuming that the null hypothesis of 'no effect' is true. In this dissertation, a p-value of below .05 is interpreted as indicating that the result is unlikely to be due to chance under the

assumption of a null hypothesis, which is then referred to as 'statistically significant'. In practice, this is an unrealistic assumption, as we would rarely expect there to be absolutely zero effect of a predictor in any real world scenario. For this reason, while I interpret significance in terms of p-values, I also attend to the direction (β value) and precision (confidence intervals) of the effect in order to provide a more informative account of patterns in the data. I do not report t-values in this analysis for the sake of conciseness. The standard error provides more useful information about the model parameters and t-values can be easily calculated using the estimate and standard error if necessary ($t = \frac{\beta}{SE}$).

As reported above, all of the regression analyses reported in this dissertation use mixed-effects modelling. However, given the relative recency of this technique, it is not yet clear what is the most appropriate way for calculating p-values. Baayen (2008: 248) recommends using a technique called Markov Chain Monte Carlo (MCMC) sampling in order to obtain p-values for mixed-effects models, the details of which can be found in Baayen et al. (2008: 396–397). Accordingly, β coefficients, 95% confidence intervals and p-values were obtained via MCMC sampling using the $\mathrm{pvals.fnc}$ function in R (Baayen 2008). In accordance with American Psychological Association (2010), all statistics are reported to two decimal places, with the exception of p-values, which are reported to three decimal places or as $p < .001$ when p is any value smaller than .001.

4.5.2 Dynamic statistical analysis

As discussed in Section 4.4.2, phonetic variation is an inherently dynamic phenomenon, with the modulation of acoustic values over time potentially holding sociolinguistic significance. In order to model acoustic patterns over time, I implement a statistical technique for the analysis in Chapters 5 and 6.

A range of previous methods exist for the analysis of time-varying information. Methods such as growth curve analysis (GCA) allow the researcher to fit polynomials (different shaped curves plotted against time) to time-varying data in order to examine differences between different groups or conditions. This allows us to test whether the relationship between time and the outcome variable displays some degree of curvature and, if so, estimate the shape of this curvature. GCA is more reliable than a traditional approach that carries out a number of individual ANOVAs or t-tests on consecutive time bins (Britt and Mirman 2012). GCA has been used in previous phonetic research because it facilitates entering multiple predictors into the regression model, which allows the analyst to consider how different factors affect

the curvature of a trajectory (Iskarous et al. 2011). However, GCA's approach of estimating curvature in this way sometimes results in fairly abstract statistics that can be difficult to interpret in a non-graphical format.

An alternative approach is to use a non-parametric regression technique that facilitates smoothing of a series of points across time. A non-parametric technique fits a curve based on the data instead of imposing a pre-defined shape on the data, as would be the case with growth curve analysis. The specific technique used here is called a *generalized additive model with integrated smoothness estimation*, which I summarise as GAM smoothing. I do not provide a technical overview of this procedure but instead refer the reader to Wood (2004, 2011) for a comprehensive account. In terms of its utility for phonetic research, this represents a similar technique to the smoothing spline ANOVA, which has also been used in the analysis of ultrasound tongue contours and phonetic transitions (Davidson 2006). Both techniques can also be used to yield similar graphical outputs; that is, graphs of an outcome variable over time with confidence intervals around the time-varying lines.

In order to facilitate ease of interpretation, this procedure is implemented in a graphical format for the analyses in Chapters 5 and 6. This entails a graph with time on the x-axis and acoustic measurement on the y-axis. The graph displays a single smooth line per social group, which represents the acoustic measurement over time. 95% Bayesian confidence intervals are plotted as a grey shaded area around each line. If the two confidence intervals do not overlap then we can assume that there is a statistically significant difference between those two groups at that particular point. However, it is important to stress that these graphs do not control for phonetic context effects, meaning that they should be interpreted as exploratory rather than confirmatory. When discussing these results, I consider them alongside the results from the mixed-effects regression model in order to facilitate a more informed interpretation of the patterns. The computational implementation of these graphs was performed using the ggplot2 package in R. Plots were generated using the ggplot function and the GAM smoothing procedure is facilitated by passing the stat_smooth option to the ggplot function.

4.6 Ethical approval

4.6.1 Procedures

This project was granted ethical approval by the School of English ethics committee at the University of Sheffield. This was in order to ensure the safety and wellbeing of

the researcher and participants involved in the project. In order to conduct research with individuals under the age of eighteen, I was required to submit a Criminal Records Bureau Enhanced Disclosure, which assessed my suitability for working with children.

The project was approved by the school, who then contacted the children's parents by letter and email in order to inform them about the project. The school took the decision on my behalf not to seek informed consent from the children's parents as they believed that the students were too unreliable to get their parents to sign the forms. As such, the school assumed a guardian role over the children and informed the parents that they could opt out of the consent process, which meant that their child would not feature in the study. Lack of response was interpreted as indicating consent. Informed consent was gained from each participant, who was required to read an information sheet and sign a consent form prior to the recording taking place. Participants were free to abort their involvement at any stage without giving any reason. The information sheet and consent form are reproduced in Appendices B and C.

4.6.2 Anonymity

Maintaining participants' anonymity is a key ethical principle of ethnography and qualitative research, as it is seen to protect participants from any potential (often negative) implications of the research. However, some argue that anonymity actually only protects researchers, allowing them to be more liberal with their descriptions than if participants were explicitly named (Scheper 2000: 128). In turn, this can make ethnographic accounts appear more generalisable than may actually be the case (Nespor 2000). When anonymity is abandoned in ethnographic writing, researchers must have much stronger evidence in making claims about their fieldwork sites (Walford 2007: 163). Furthermore, if the research involves schools then disguising their identity may be tokenistic at best, given that their identity can often be easily discovered using information from the ethnographic description, irrespective of whether or not pseudonyms are used (Walford 2002).

Foregoing attempts to anonymise institutions and participants is unlikely to sit well with university ethics committees. Institutions may also refuse access to researchers who cannot guarantee anonymity and potential participants may be more reluctant to allow us access to their lives. My study does not break with this tradition and all names in this dissertation, including personal names and institutional names, are presented as pseudonyms in order to protect the identity of the participants. This

was a strict condition of this project's ethical review and the school's involvement. In some cases I have omitted important identifying characteristics of individuals and the school that are highly relevant to this investigation, but that would compromise the school's anonymity. However, I have outlined the above debate surrounding responsibility and anonymity in order to position my research as a project in which anonymity is an active research decision, rather than a default position. I have attempted, as far as is possible, to write about my context of study *as though* the school is not anonymous. In addition, I chose to give the school a pseudonym, rather than referring to it as 'the school', in an attempt to stress that the findings are specific to this particular context. However, any attempt to maintain anonymity must make explicit the consequences that accompany that decision, such as the increased lack of accountability to the community's standards of truth and fairness in terms of representation (Walford 2007).

4.7 Summary

This chapter has summarised some of the overarching methodological details that frame the analysis in Chapters 5–7. This includes my sampling methodology and how this was informed by the ethnographic portion of this study. I also covered the interview methodology, as well as how different social factors were coded. The phonetic methodology identifies the possibility of examining both static and dynamic patterns in the segments analysed in Chapters 5 and 6, while the section on statistics details the specific implementation of a methodology that facilitates these two approaches. Finally, I discussed issues surrounding ethics and anonymity, and also detailed the ethical procedures followed over the course of the fieldwork, analysis and writing stages.

This chapter and the preceding chapter on ethnography provide the background for the subsequent three chapters, each of which reports an analysis of sociolinguistic variation. Chapters 5 and 6 examine quantitative patterns in the realisation of word-initial /t/ and word-final /i/. This involves acoustic phonetic analysis and statistical modelling in order to assess the influence of multiple social, linguistic and phonetic factors on sociophonetic variation. Chapter 7 then takes a more qualitative approach by analysing the use of phonetic variation in discourse. In particular, it focuses on the variables analysed in Chapters 5 and 6: word-initial /t/ and word-final /i/. I report a number of detailed discourse analyses and chart the indexical associations of phonetic variables, elucidating the ways in which they are imbued with meaning at multiple levels, from the micro-interactional context to society-wide ideologies. Chapter 8

draws together the main findings of this dissertation and discusses their implications for the study of sociolinguistic variation and social meaning.

Chapter 5

Word-initial /t/

5.1 Overview

5.1.1 Summary

This chapter analyses the realisation of word-initial /t/ in Ashton Valley School in terms of its sociolinguistic patterning and indexical potential. In particular, I focus on the quality of the frication noise in /t/, which can be broadly conceptualised in terms of a continuum between a canonical aspirated variant [t^{h}] and an affricated variant [t^{s}]. This chapter begins by reviewing previous sociolinguistic research on ethnicity and /t/ realisation in British English, as well as previous studies on affricated /t/ and the potential for cross-linguistic influences from a range of heritage languages. I then discuss canonical and affricated realisations of /t/ and acoustic techniques for measuring /t/ affrication. This chapter then reports two analyses: the first is an acoustic profiling analysis that categorises /t/ into different acoustic variants; the second is a quantitative acoustic analysis of the quality of frication noise in word-initial /t/. This analysis demonstrates that variation in word-initial /t/ exhibits patterns of variation between social groups and suggests that this variation can be operationalised for identity work. However, there is a complex relationship between ethnicity, social practice and the role of heritage languages, which problematises a straightforward explanation for the patterns in the data.

5.1.2 Motivations

Previous research in British communities finds a strong link between ethnicity and /t/ realisation (Heselwood and McChrystal 2000; Lambert et al. 2007; Alam and Stuart-Smith 2011; Kirkham 2011b; Sharma and Sankaran 2011). The majority of this work has focused on the retroflexion or retraction of /t/ by British Asian speakers, but in this chapter I focus on a dimension of /t/ realisation that has not previously been linked to ethnicity in a British context: /t/ affrication. My motivations for focusing on /t/ affrication were derived from the data in Kirkham (2011b), where a large number of tokens were removed due to particular realisations being highly affricated and, therefore, not suitable for the particular analysis that was carried out in that study. This suggested that /t/ affrication may hold some sociolinguistic significance. A second motivation resides in the research question on how enregisterment and indeterminacy affect the ways in which variation can be used for social meaning. /t/ affrication has not yet been reported in Sheffield English and there was never any metalinguistic commentary about it in these data. Therefore, /t/ affrication potentially represents a unenregistered feature, with very little shared indexical potential across different interactions. Contrast this with the analysis of word-final /i/ in Chapter 6, for which laxer realisations of /i/ are highly enregistered as indexing locality in Sheffield. Therefore, the choice of these two variables facilitates an empirical investigation of how variables with differing levels of enregisterment are operationalised for the construction of stances, personae, and social types.

This chapter builds upon this previous research by examining /t/ realisation amongst multiethnic British youth, but focuses on a different phonetic parameter: /t/ affrication. While /t/ affrication has been reported for some British English varieties (Jones and Llamas 2008; Buizza and Plug 2012), as well as amongst multiethnic youth in other European cities (Quist 2012), it has not been comprehensively studied in a British multiethnic youth context. This chapter investigates this phonetic variable in Ashton Valley School and charts its social distribution and social meaning. The main research questions that provide the focus for this investigation are:

1. Is variation in word-initial /t/ used to index social distinctions and, if so, how?
2. Does the statistical analysis point towards any possible social meanings of /t/ affrication in Ashton Valley School?
3. To what extent do the patterns in the data suggest a coarticulatory or cross-language influence explanation for the origins of /t/ affrication in this community?

5.2 Background

5.2.1 Ethnicity and /t/ realisation in British English

As mentioned above, previous research in British communities finds a strong link between ethnicity and /t/ realisation. The majority of these studies have focused on the English spoken by second-generation immigrants from the Indian subcontinent, particularly Pakistan, India and Bangladesh. British Asian speakers have been found to produce postalveolar or retroflex articulations of /t/ in a number of different British cities. As most of these speakers speak Urdu, Panjabi or Hindi as their heritage language, /t/ retroflexion or retraction in British Asian Englishes is often hypothesised to represent cross-linguistic phonetic influence from the heritage language. The following paragraphs review previous findings on ethnicity and /t/ realisation in British English and explores some of the possible reasons for this kind of ethnically-linked variation.

Heselwood and McChrystal (2000) report a number of studies on English-Panjabi bilingual children, all of which focus on 'non-native' accent features. The first study focuses on listener perceptions of English-Panjabi bilinguals' accents by phonetically trained listeners. Listeners rated words spoken by twenty-nine different speakers (nineteen bilingual, ten monolingual) on a four-point scale according to the presence or absence of accent features not normally associated with monolingual British English. Male bilingual children were rated as having greater non-English influences in their pronunciation and the most commonly reported feature by listeners was postalveolar/retroflex articulation of /t d/, as well as clear /l/ in syllable codas. The authors also report an auditory analysis of seven variables that are not typically associated with Bradford English. For example, they find that the English-Panjabi boys realise /t d n/ as postalveolar/retroflex in 38.9% of tokens, compared to 21% amongst the girls. They interpret this in terms of a tendency for girls to orient to supralocal norms and for boys to orient towards more local norms, which, in this case, is the local Pakistani community (Watt and Milroy 1999). This suggests that the make-up of the local heritage community and its relationship with the city may affect conceptions of localness, which in turn can affect how variation is used to index orientations to locality and supralocality.

A number of studies further investigate the indexical meanings of postalveolar /t/ within British Asian communities, particularly in Glasgow. Lambert et al. (2007) report on Alam's (2007) ethnographic study of Pakistani high schools. The analysis focuses on word-initial /t/ and /d/ and they find that variation amongst the Pakistani

girls is often linked to topic; for example, when the girls talked about school they were more likely to use alveolar variants. They also find that the 'trendier' Glasgow Asian girls at the school used postalveolar variants least frequently. They conclude by suggesting that 'certain features originally derived from language interference are now being actively deployed as English accent features by second and later generation speakers, though with rather different realisations and distributions from those expected in the original language' (Lambert et al. 2007: 1512).

Alam (2009) and Alam and Stuart-Smith (2011) further detail the findings from Alam's ethnographic study with an acoustic phonetic analysis of /t/ in three communities of practice: Conservatives, Moderns, and Messabouts. They find that community of practice significantly affects three spectral moments — centre of gravity, skew, and kurtosis – which capture information about the frequencies at which acoustic energy is concentrated during /t/ production. Auditory analysis also suggests different places of articulation according to community of practice, ranging from apical post-alveolar (Conservatives) to laminal dental (Messabouts). They conclude that phonetic variation that usually indexes ethnicity is here used to index more locally-specific ethnic identities within the school.

While the majority of research reviewed in this section focuses on British Asian adolescents, Sharma and Sankaran (2011) examine generational differences in /t/ realisation in a British Asian community in Southall, London. They find that middle-aged second-generation speakers maintain first-generation patterns of retroflexion, with no significant gender differences within these two groups. Younger second-generation speakers, however, exhibit lower rates of retroflexion, but the authors report that these speakers realise /t/ with a louder and more retracted quality than first-generation and middle-aged second-generation speakers. Young second-generation men are also found to use retroflex forms significantly more (14.2%) than young second-generation women (1.1%). In this sense, the social meaning of retroflexion appears to be undergoing a change in meaning and usage.

An underlying assumption in variationist sociolinguistics is that interview speech is a reliable indicator of an individual's stylistic range and repertoire. This assumption has been problematised in studies of individual variation across interactional contexts (Podesva 2011a; Sharma 2011). However, it is particularly problematic assumption for ethnic minority individuals, who may have extensive networks within both the minority and majority communities. This means that they may have to negotiate a very wide range of interactional contexts and, especially with multilingual speakers, may have a very wide pool of potential phonetic variants at their disposal. Sharma (2011) addresses such a scenario by investigating stylistic uses of /t/ in London

Asian English. She recorded the speech of individuals across different interactional contexts and analysed the frequency with which they realise /t/ as [t]. She finds that, while female speakers use high rates of the alveolar variant in the sociolinguistic interviews (Sharma and Sankaran 2011), they are much more variable across different interactional contexts. For instance, Sharma finds that young women hardly ever use retroflex variants of /t/ in sociolinguistic interviews, but use them regularly in the home context. On the other hand, other speakers, such as older women and younger men, show a less sharp differentiation between different contexts. This suggests that individuals may use retroflex realisations for particular stylistic effects in different interactional contexts, which problematises the concept of a uniform 'ethnic' speech variety that cuts across social situations and speaking contexts. Sharma demonstrates that an analysis of speaker's sociolinguistic repertoires reveals a more complex picture of the relationship between social change and language change in ethnic minority communities.

As the above review shows, most of the research on ethnicity and /t/ realisation in British English has focused on place of articulation, such as degree of retraction or retroflexion. This is a consequence of this feature's highly salient status in many varieties of British Asian English. Other research has focused on the alternation between glottal and alveolar variants of /t/, which is a well-established feature of many varieties of British English (Drummond 2011; Schleef 2013). Another dimension of variation in /t/ that has been found to be ethnically-linked in other European countries is /t/ affrication. /t/ affrication refers to a production of /t/ that features higher frequency noise and a longer duration of frication noise, resulting in a sound that could be transcribed as affricated [t^{s}] rather than aspirated [t^{h}]. The affricated variant is sometimes described as sounding more 'fricative-like' than a canonical aspirated stop. The analysis in this chapter primarily focuses on affrication in /t/ and its sociolingustic distribution and social meaning. The following sections discuss /t/ affrication in terms of previous sociolinguistic research, the potential for cross-language influence, and the articulatory and acoustic characteristics of affrication.

5.2.2 /t/ affrication as a sociolinguistic phenomenon

In his discussion of English plosives, Ogden (2009: 111) suggests that 'most speakers have some degree of frication in their release of the closure for [t], giving a sound that is sometimes transcribed as [t^{s}]'. To this end, a range of studies find robust evidence for affricated and fricated stops across a number of varieties of English. These include Liverpool English (Sangster 2001; Watson 2007), Middlesbrough English (Jones

and Llamas 2008), Dublin English (Hickey 1999), Southern British English (Ashby and Przedlacka 2011; Buizza and Plug 2012), and Suffolk English (Simpson 2001). Affrication of plosives is also a well attested cross-linguistic phenomenon and it has been reported across a range of languages, including American English (Lavoie 2001; Davidson 2011), Australian English (Jones and McDougall 2009), Austrian German (Moosmüller and Ringen 2004), Standard Greek (Nicolaidis 2001), and Copenhagen Danish (Pharao 2010), amongst others. Note that there is variation in terminology across these studies, with some distinguishing between frication and affrication, whereas others make no such distinction. In the section that follows I discuss studies of both frication and affrication, but use *affrication* to refer to tokens that feature canonical stop-like properties, such a silent closure period, but also have a greater degree of high frequency noise. I use *frication* to refer to fricative realisations of stops. Both of these phenomena can be gradient, given that some degree of frication noise is usually present in most /t/ productions, but I use these labels here for the purposes of convenience and consistency with previous research. I discuss these definitions in greater detail in Section 5.2.5.

Research on British English has identified /t/ affrication as a potential sociolinguistic phenomenon. However, the majority of this work has discussed affrication in terms of its phonetic characteristics and phonological specification, with only a limited focus on its social distribution and social meaning. Both Sangster (2001) and Watson (2006) find fricated realisations of /t/ in Liverpool English, which is a widely stereotyped feature of the variety. Sangster (2001) finds no significant differences between working-class and middle-class speakers in terms of the duration of affricated stops in Liverpool. Watson (2006) also analyses the realisation of /t/ as the fricative [h] in Liverpool and finds extensive use of [h] in pre-pausal position. This runs contrary to a trend in other varieties of British English for glottal plosives in this position. Watson suggests that divergence from supralocal dialect levelling trends may be a consequence of Liverpool's distinctive regional identity. Sangster and Watson find little evidence of variation within Liverpool, which suggests that the primary social index of /t/ frication in Liverpool may be regional identity, rather than indexing more fine-grained distinctions within Liverpool.

Jones and Llamas (2008) also present evidence of fricated plosives in Middlesbrough and Dublin English. While they do find evidence for affricated productions, they primarily focus on fricated /t/, which is described as being more fricative-like than a canonical /t/. They posit the frication of plosives to be a largely categorical phenomena, with little evidence of gradience. Their results show acoustic differences between Dublin and Middlesbrough fricated /t/ and interpret this finding as evidence

against a shared origin for /t/ frication. This leads them to reject the dialect contact hypothesis as an explanation for fricated realisations in both locations. Buizza and Plug (2012) also focus on affricated /t/ by examining differences between aspirated, affricated and fricated /t/ in RP English. They find that affricated /t/ is widespread in RP and that affricated variants are acoustically different from aspirated and fricated variants. Contrary to Sangster (2001), they propose that affrication should be conceptualised as phonological strengthening rather than weakening, as it occurs in slower speech and prosodically strong positions.

While a number of studies find patterns of affricated /t/ in British English, few examine its social stratification and social meaning, particularly in British multiethnic youth contexts. However, the social meaning of /t/ affrication has been studied in much more detail across a number of multiethnic youth communities in Europe. For example, /t/ affrication is often described as a feature of youth Copenhagen speech styles (Fischer-Jørgensen and Hutters 1981). Quist's (2010) ethnographic study of a Copenhagen school finds that White Danish boys have the longest duration for affricated /t/. Quist demonstrates that, while /t/ affrication is correlated with ethnicity, it is also linked to particular stylistic practices on a local level. For example, the boys who had the longest duration of affricated /t/ were engaged in stylistic practices such as disengagement from school, drinking alcohol, and a hip-hop style of dress. Importantly, this variation does not pattern with the socioeconomic background of the adolescents; instead, it more closely correlates with the social practices in which a speaker is engaged. An affricated and palatalised realisation of /t/ is also linked to a 'tough ethnically mixed' male style in Copenhagen (Maegaard 2007: 164). This is often considered to be more broadly associated with adolescents from a Turkish ethnic background in the city (Møller 2009; Madsen et al. 2010). For example, Madsen (2013) shows how affricated /t/ is used for performative stylistic effect in her interactional analysis of Danish youth talk. She suggests that it is often used as part of a broader 'street language' repertoire, which can index tough masculinity and a pan-ethnic youth street culture.

Affricated plosives also demonstrate sociolinguistic patterning in other European languages. For example, affrication of dental plosives has been reported as a salient feature in the speech of Maghrebian French youth in Marseille (Binisti and Gasquet-Cyrus 2003; Jamin et al. 2006), as well as in Grenoble (Trimaille 2003), and the suburbs of northern Paris (Armstrong and Jamin 2002). This research suggests that affrication indexes an urban multiethnic youth identity. However, while affrication in French is mainly associated with ethnic minority youth, Candea et al. (2012) also find affrication in national TV and radio broadcasts, as well as in French foreign language teaching

materials. Their perception experiments suggest that affrication is not negatively stereotyped, at least within these more formal speech styles. Based on this, they suggest that affrication could represent an ongoing sound change that cuts across social groups in French. However, it is possible that the social evaluation of affrication in French may also depend on the wider style in which it is embedded. For example, Pharao et al. (2014) find that similar realisations of Copenhagen /s/ can be perceived in different ways in different styles, such as standard Copenhagen versus street Copenhagen. Interpreting the data in Candea et al. (2012) in terms of style could explain the lack of negative evaluation when /t/ affrication appears in more formal public speech, as well as its stereotyped use as a stylistic marker in multiethnic Marseille speech.

While its distribution and social meanings may differ across languages and communities, /t/ affrication indexes various identities in a range of multiethnic youth communities across Europe. While a number of studies find /t/ affrication in varieties of British English, little attention has been given to its sociolinguistic patterning and social meaning in these varieties. This chapter investigates /t/ affrication in a British context and adds to the literature that analyses /t/ affrication in European multiethnic communities. The following sections address three areas that inform the analysis of /t/ realisation presented in Sections 5.3 and 5.4. The first reviews previous work on /t/ in Sheffield and potential influences due to dialect contact. The second examines the potential for cross-language phonetic influence via the heritage languages spoken by some of the adolescents in Ashton Valley School. The third briefly covers the articulation and acoustics of affricated /t/ and discusses some of the measurements commonly used to quantify affrication.

5.2.3 /t/ realisation in Sheffield English

Previous sociolinguistic research in Sheffield has focused on variation between alveolar [t] and glottal [ʔ] variants of word-medial and word-final /t/. For example, the use of glottal variants in word-medial and word-final position is well attested by Stoddart et al. (1999: 77), who claim that usage of glottals has increased since the Survey of English Dialects was conducted in the 1950s and 1960s. Finnegan's (2011) more recent study of middle-class Sheffield speakers also reports an increase in glottal realisations, with younger people realising /t/ as [ʔ] 87.5% of the time in word-final position, and 43.7% of the time in word-medial position. However, glottal realisations do not appear in word-initial position in Sheffield English, so this research cannot offer any predictions regarding affricated realisations of word-initial /t/ in Sheffield.

Auditory impressions of the data recorded for the Survey of Sheffield Usage in the 1980s suggests that /t/ affrication does occur in Sheffield English, but that aspirated realisations are likely to be the majority variant. Without further investigation it is not possible to be certain about the distribution of this variant in Sheffield. Given the uncertainty about the status of affrication in Sheffield English, I also consider the possibility of dialect contact as a potential explanation. Other northern dialects, such as Middlesbrough and Liverpool English have widespread affrication of stops, as does Dublin English (Hickey 1999; Jones and Llamas 2008; Watson 2006). However, it is unlikely that Middlesbrough and Liverpool could have had any direct influence on the Sheffield accent due to their lack of geographical proximity. Liverpool is over seventy-five miles away from Sheffield and Middlesbrough is around one-hundred miles away, and there appears to be little evidence of significant migration patterns between either of these cities and Sheffield.

The influence of Irish migration on the dialects of the north east and north west of England is well documented (Knowles 1973; Beal 1993; Watt 1998). In the nineteenth-century, Sheffield saw the development of a large steel industry, which attracted a significant amount of incomers to the area. The 1851 census reports 36.3% of the population as being born outside of the borough boundary, of which 3.3% were Irish (Hey 1998). Hey notes that:

> More Irish people settled in Sheffield in the next few decades [after 1851]. They came mostly from western and central Ireland and congregated in the north-western part of the central township, where in 1861 some enumerators' districts contained as many as 25 per cent Irish residents (if English-born children of Irish parents are counted.) The Irish in Sheffield were never as numerous as those in Leeds or the industrial towns of Lancashire (Hey 1998: 148).

The Irish in Sheffield were visible enough to attract comment in Pollard (1959: 22), who laments their poor living conditions. However, he too states that the community was small in number. Beal (2006) adds that the tight-knit and longstanding nature of Sheffield's communities meant that the small Irish population was not able to have a significant influence on the Sheffield dialect. This is evidenced by the lack of typical Irish dialect features in Sheffield, such as plural *youse*, double modals, and generic *the*. She concludes that there is no solid evidence for the influence of Irish English on the Sheffield dialect. While it remains possible that Sheffield could have been influenced by neighbouring (or further afield) varieties that feature widespread use of affricated stops, there is little evidence to support this claim at present.

5.2.4 The role of cross-linguistic influence

A potential influence on the realisation of /t/ by the bilingual speakers in Ashton Valley School could be the phonetics of their heritage languages. The ways in which bilingual speakers' phonetic systems interact have been the focus of research since at least the 1950s (Weinreich 1953) and it is well known that bilingual speakers often differ from monolingual speakers in the phonetics of their two languages (Flege and Port 1981; Fowler et al. 2008). This has been extensively replicated in studies of stop consonants and for /t/ realisation more specifically (Sundara et al. 2006). Every language in the world has stop consonants (Maddieson 1984) and coronal articulations are the most prevalent stop type across the world's languages (Henton et al. 1992). Theories such as the Speech Learning Model (Flege 1995) and Perceptual Assimilation Model (Best 1994) suggest that the potential for cross-language phonetic influence may be greater when there is greater phonetic similarity between a bilingual's two languages, meaning that an investigation of the coronal stop inventories of the heritage languages spoken by the adolescents in Ashton Valley School is important for the present study.

The heritage languages spoken by the adolescents in Ashton Valley are Panjabi, Urdu, Bengali, Yemeni Arabic, and Somali. It is important to note that the majority of descriptions for these languages concern monolingual varieties in countries where they are a majority language. Information about British varieties of these languages is much less widespread, but monolingual speakers in Britain may differ from bilingual speakers (McCarthy et al. 2013). This is particularly important because most of the participants in this study were not proficient heritage language speakers and thus may not have phonetic systems that are identical to those of monolingual speakers.

It is well known that Indo Aryan languages – the language family to which Panjabi, Urdu and Bengali belong – have large coronal stop inventories. Phonological descriptions posit coronal distinctions for place (dental-retroflex), aspiration (unaspirated-aspirated), and voicing (voiceless-voiced), which gives Panjabi, Urdu and Bengali the following coronal stop series /t̪ d̪ t̪ʰ d̪ʰ ʈ ɖ ʈʰ ɖʰ/ (Kostić and Das 1972: 168–169; Masica 1991: 107). It is well-known that 'retroflex' articulations in Indo-Aryan languages can involve curling back of the tongue tip, but that they may also simply involve retraction (Masica 1991: 94). There is considerable variation within each language, making it difficult to pinpoint exactly how the speakers' heritage language may influence their English. However, there is extensive recorded evidence that speakers who are bilingual in Panjabi/Urdu and English show more retracted articulations of /t/ than is typical of monolingual White English speakers (Lambert

et al. 2007; Kirkham 2011b; Sharma and Sankaran 2011). Bhatia (1993: 332) reports three palatal affricates for Panjabi. Bengali has voiceless /tʃ/ and voiced /dʒ/ affricates, which are also contrasted across aspiration (aspirated/unaspirated) and quantity (singleton/geminate) (Mikuteit and Reetz 2007), but there is sparse evidence on how these features influence the English of English-Bengali speakers.

Somali is reported to have two dental stops /t̪ d̪/ and a voiced retroflex stop /ɖ/. Voiceless stops in Somali are phonetically aspirated, while voiced stops are unaspirated (Gabbard 2010: 7). /ɖ/ is often devoiced before voiceless sounds and in word-final position, and is often realised as a fricative intervocalically, whereas /t̪/ – or more accurately [t̪ʰ] – only occurs in syllable onsets and is not fricated intervocalically (Saeed 1999: 7–9). The voiced retroflex plosive /ɖ/ is sometimes reported as having an implosive quality (Moreno 1955), but this has not been widely verified. Previous findings suggest that Somali speakers of English have VOTs for /t d/ that are comparable to those of monolingual English speakers (Abdiraman and Koffi 2012), while less proficient speakers sometimes realise intervocalic /t/ as [θ] (Conway 2008: 62). This suggests that Somali English /t/ could be realised as a dental plosive, but is unlikely to be fully fricated. Somali has a palato-alveolar affricate /tʃ/, which can also be realised as [dʒ] (Saeed 1999: 10).

Arabic typically contrasts coronals in terms of voicing, with dental /t̪ d̪/, but there are no reported phonological place distinctions for coronals (Watson 2002: 14). There is also the voiceless 'emphatic' plosive, usually pharyngealised in Arabic /tˤ/, and occasionally reported as being voiced in word-initial and intervocalic position in some Central Yemeni dialects (Watson 1993: 9). Speakers of Yemeni Arabic are known to produce /t̪/ with some aspiration and a VOT of around 30 milliseconds (Al-Nuzaili 1993: 75), which is consistent with other varieties of Arabic (Heselwood 1996). Most Arabic dialects are reported to only have a voiced postalveolar affricate /dʒ/ (Thelwall and Sa'adeddin 1999).

In summary, the heritage languages spoken by the speakers in this community show some potential for cross-linguistic influence. They all feature a series of coronal stops, many of which have a slightly different phonological and phonetic specification from those of monolingual Sheffield English. A very simplistic prediction might posit that Panjabi/Urdu/Bengali speakers will have a more retracted articulation of /t/, while Somali and Yemeni Arabic speakers will have a more dental articulation. These hypotheses will be related to the findings presented later in this chapter.

5.2.5 The phonetics of affrication

Articulatory description

This section reviews the articulatory and acoustic correlates of variation in /t/ affrication. This research is reviewed in order to relate the findings of the sociolinguistic analysis to differences in the acoustic signal, as well as to potential differences in articulation. This information is presented here because it is important in understanding the nature of the variation detailed in the phonetic analysis and informs the analysis of /t/ reported in this chapter.

A canonical oral alveolar stop articulation is described by Laver (1994: 205) as a constriction involving complete oral closure made by the active articulator (tongue tip/blade) against the passive articulator (alveolar ridge), accompanied by a raised velum. When produced with an egressive or outwards airstream (as is common with stops in English) these factors result in a rise in intra-oral air pressure behind the closure. When this closure is released, the compressed air escapes out of the mouth, producing what is commonly called a stop burst. The burst is often visible as a small transient (vertical spike) on the acoustic waveform, which is usually referred to as the burst transient. Figure 5.1 shows an example of a burst transient, with the transient being the vertical spike indicated by the horizontal arrow. For the purpose of illustration, this particular example features a transient with a fairly high amplitude, but, in practice, the transient may have a much lower amplitude.

In a canonical production of /t/ preceding a vowel, the tongue tip moves away from the alveolar ridge very quickly at the release of the closure into a position of open approximation for the following vowel (Laver 1994: 363). 'Affricated stops', on the other hand, usually involve a slower movement of the tongue away from the oral constriction into the position for the following sound. This prolonged period of movement results in a more gradual increase in the gap between the tongue tip and alveolar ridge than is the case with canonical /t/ productions and, as a result, a prolonged period of audible frication noise is produced. Another factor involved in producing greater amounts of frication noise could be differences in muscular tension across the tongue. For example, during the production of a canonical /t/ we might expect relatively uniform tension across the area of articulatory contact, whereas a more affricated production may feature surface tensing of the tongue muscles towards the side of the contact area. Therefore, when the constriction is released, a small groove appears in the centre of the tongue before spreading across the tongue surface (Catford 1977: 213–214). This could also represent a prolonged stop release and would result in a longer duration of frication noise. There is no straightforward distinction

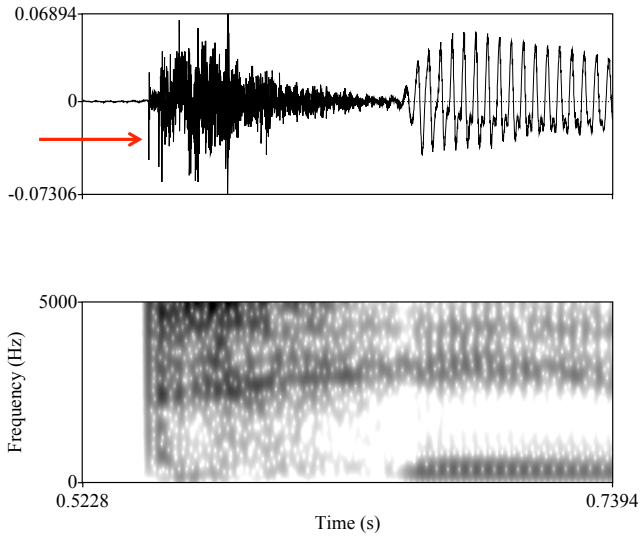

Figure 5.1: Acoustic representation of a /t/ burst transient. The horizontal arrow pointing at the vertical spike indicates the location of the burst transient in this particular token of /t/.

between the terms *frication* and *affrication*, but affricated /t/ is often described as having a silent closure phase (as in Figure 5.1), whereas fricated /t/ has a noisy closure or lacks a closure phase altogether. Fricated productions sometimes also lack a release transient, which may be the result of an incomplete closure in the vocal tract (Buizza and Plug 2012).

Frication and affrication are sometimes discussed in terms of 'lenition'. In historical linguistics, lenition often refers to a segment's gradual change towards deletion (Lavoie 2001: 6). However, as Lavoie (2001: 4–21) points out, there is little agreement on a definition of lenition, with different sources sometimes using completely opposing definitions that relate to weakening or strengthening. For this reason, I do not use the term lenition in my discussion of the data presented in this chapter. I use *frication* to refer to any high frequency supraglottal noise; that is, noise generated at the gap between the tongue tip and the passive articulator (usually the alveolar ridge). I use *aspirated* to refer to a production of a stop that features a silent closure and a burst transient, followed by a very short period of frication noise and a longer period of aspiration noise. I use *fricated* to refer to a production of a stop that lacks an acoustic closure phrase and is characterised by a sustained period of frication noise. I use *affricated* to refer to a production of a stop that features a silent closure, a burst transient, and a greater amount of frication noise at its release than is typical of a canonical stop. When I refer to these variants using phonetic transcriptions, I use [t^{h}]

for aspirated /t/, [tˢ] for affricated /t/, and [t̪] for fricated /t/ (Buizza and Plug 2012). The use of the lowering diacritic for fricated [t̪] is used to indicate a lowering of the active articulator towards a position of greater approximation, which would result in a fricative articulation. However, as the measurements used in this dissertation are acoustic, I primarily discuss the continuum between aspiration and affrication as a gradient phenomenon in order to avoid assumptions about the potential nature of categoricity relating to this kind of variation.

While the overview in Section 5.2.2 suggests that sociolinguistic factors may be important in explaining patterns of /t/ affrication, it is also important to point out the effects of linguistic-phonetic factors, such as aerodynamics and phonetic context effects. Jones and Llamas (2008: 419) suggest that a likely explanation for frication in many varieties is articulatory undershoot, whereby 'the frication is most likely to be a low-level phonetic effect due to an incomplete closure of the plosive'. They suggest that, over time, this casual low-level frication may be phonologised and incorporated into a variety in a more categorical sense. They give the example of Liverpool English, which has widespread frication and affrication of plosives. They acknowledge potential sociolinguistic processes, but suggest that frication and affrication are probably best described as 'casual speech processes'. However, this may be because their sociolinguistic patterning has not been comprehensively investigated. Furthermore, the distinction between phonetic and sociolinguistic explanations is in many cases untenable. For example, in their study of Scottish English preaspirated fricatives, Gordeeva and Scobbie (2010) suggest that the patterns in their data can be explained by aerodynamics, and could thus be called 'automatic'. However, they also suggest that variation in the timing of the glottal gesture involved in producing preaspiration can be learned and actively controlled. This suggests that, in some cases, variation that originates as an 'automatic' casual speech process may be adopted for the purposes of creating sociolinguistic meaning.

Measuring affrication

Frication is considered to be the result of a narrow constriction in the vocal tract and is defined aerodynamically as 'a turbulence-noise source, caused by flow through a supraglottal constriction, and is sometimes enhanced by an edge or obstacle in the path of the jet' (Jackson 2000: 7). By contrast, aspiration can be characterised as 'flow-induced turbulence noise that is not frication' (Jackson 2000: 10), which distinguishes aspiration as noise from the glottis versus frication as noise generated at a supraglottal constriction (Stevens 1971: 1183). Shadle (2010: 55) notes that the transient and

frication phases in stops generally last around 5 milliseconds, with aspiration usually lasting for 50 milliseconds or more. However, frication and aspiration noise are often simultaneously co-present (Fant 1960: 185), making clear distinctions between the two difficult in practice. This is captured by the 'composite source-filter' model of aspiration, which views aspiration as a mix of frication and aspiration noise due to variation in the timing of the glottal opening and the supraglottal constriction (Gordeeva and Scobbie 2010; see also Kim 1970: 111).

A common approach in the analysis of fricated and affricated plosives is to identify fricated and affricated productions based on their qualitative acoustic characteristics on the waveform and then compare these tokens to other types of /t/ realisation, or to phonological fricatives. For example, Jones and Llamas (2008) identify fricated tokens of /t/ as those featuring 'a sustained period of aperiodic noise and lack[ing] a preceding silent period.' They then compare these tokens to phonological fricatives. Buizza and Plug (2012) take a similar approach by positing three variants for /t/: aspirated, affricated and fricated. Aspirated and affricated tokens both have a silent closure and a release transient, but they describe aspirated tokens as involving frication at the glottis and affricated tokens as involving frication at the alveolar ridge. Fricated tokens are defined as lacking a silent closure phase with frication noise throughout the plosive. They then apply a series of acoustic measurements in order to identify quantitative acoustic differences between aspirated, affricated and fricated /t/.

The fairly small number of studies on affricated /t/ have advanced a number of methods for quantitative phonetic analysis. These include duration, spectral characteristics, and amplitude. In terms of duration, Buizza and Plug (2012) find that RP affricated /t/ is longer in duration than both aspirated and fricated /t/. This may be explained in terms of the tongue's slower release from the alveolar ridge, which results in a prolonged period of frication noise. Im their comparison between fricated /t/ and phonological fricatives, Jones and Llamas (2008) find that fricated /t/ is shorter in duration than /s/ and /ʃ/ in both Dublin and Middlesbrough English.

Spectral characteristics of affricated plosives have also been studied. The most common measurement is the centre of gravity (COG) of the spectrum, which captures 'the frequency at which the spectral energy is predominantly concentrated' (Harrington 2010a: 107). Jones and Llamas (2008) find that Dublin fricated /t/ has a COG than is more similar to /ʃ/ than /s/, with Middlesbrough fricated /t/ being more similar to /s/ than /ʃ/. Jones and McDougall (2009) also find that the acoustic quality of fricated /t/ in Australian English is similar to that of /ʃ/ in terms of spectral characteristics, but that /t/ and /ʃ/ remain distinct in terms of duration (/t/ is shorter).

While these two studies examine differences between fricated /t/ and phonological fricatives, Buizza (2011) and Buizza and Plug (2012) focus on distinctions between different acoustic variants of /t/. For example, Buizza (2011) finds that affricated and fricated /t/ have higher COG than aspirated /t/, which suggests higher frequency noise. However, they find that affricated and fricated variants are not significantly different from each other on this parameter.

Although duration and spectral moments are the most common measurements in the study of affricated stops, there are a number of other useful techniques. For example, some studies focus on the amplitude of the burst, such as Buizza and Plug (2012), who find that affricated /t/ has a higher amplitude burst than both aspirated and fricated /t/. Another measurement that is suited for quantifying frication noise in a way similar to spectral centre of gravity is the zero-crossing rate (ZCR) (Ito and Donaldson 1971). ZCR calculates the number of times that the sound wave crosses the time-axis (zero-crossings) within a specified time period and then divides this value by the number of samples in that time window. This gives a value that represents the number of zero-crossings per second in a particular analysis window. Higher ZCR values indicate frication and lower values can represent lower frequency noise or voicing.

ZCR has been used to differentiate between classes of sounds, such as voiceless fricatives and voiceless plosives (Ito and Donaldson 1971), voiced and voiceless fricatives (Rabiner and Sambur 1975), and plosives and fricatives (Weigelt et al. 1990). ZCR has also been used to quantify preaspiration noise in Scottish English (Gordeeva and Scobbie 2010) and Scottish Gaelic (Nance and Stuart-Smith 2013), as well as for distinguishing between affricated /t/ and /ts/ clusters in Ghanian English (Brato forthcoming). As stated above, higher ZCR values generally indicate frication, whereas lower values can indicate voicing or lower frequency turbulent noise. This makes it ideal for distinguishing different kinds of noise, such as frication and aspiration, and also for quantifying the frequency characteristics of frication noise. Buizza and Plug (2012) define affricated /t/ as involving noise generated at the supraglottal constriction (usually the alveolar ridge), which they contrast with aspirated /t/ as involving noise generated at the glottis. By this reasoning, affricated /t/ should have higher ZCR than aspirated /t/, as frication noise is higher in frequency than aspiration noise. Furthermore, as ZCR captures information about the frequency of the noise, it is highly correlated with measures such as COG (Ito and Donaldson 1971; Saunders 1996: 994). This makes ZCR a comparable measurement to the centre of gravity measurement used in the studies of affrication reviewed above. To this end, the correlation between peak ZCR and centre of gravity at the peak ZCR time-point

was above r = .90 for all groups in the data presented in Section 5.4. This suggests that these measurements capture very similar information about the frequency content of /t/.

5.3 Acoustic profiling

5.3.1 Motivations

In order to chart and delimit the range of variation in /t/ in Ashton Valley School, this section reports an acoustic profiling analysis that aims to categorise different tokens of /t/ in terms of their qualitative acoustic properties. I examine the distribution of these different variants across social groups and use these results to inform the quantitative acoustic analysis reported in Section 5.4. The acoustic profiling survey was carried out because preliminary analysis revealed that there were a number of qualitative visual differences in the acoustic representations of /t/. While this variation is not inherently problematic, the interpretation of the acoustic measurements in Section 5.4 makes certain assumptions about the acoustic events that are present at the point at which a measurement is taken. If different tokens radically differ in their acoustic profile across time, then it is possible that a measurement applied to a particular time-point may end up measuring different things in different tokens. This would inhibit comparability across tokens and may obscure sociolinguistic patterns. As such, this analysis surveys the range of variation, identifies a more restricted range of variation to be subjected to further analysis, and discusses the tokens that are not subjected to further analysis.

In order to determine the range and extent of acoustic variation in these data, an acoustic profiling survey was conducted. This approach is inspired by Docherty and Foulkes (2005), who carry out a similar analysis of glottal variants of /t/ in Tyneside English. Their method involves 'auditorily identifying glottal variants of /p t k/ and classifying and quantifying the acoustic features which are found at these sites' (Docherty and Foulkes 2005: 179). They then carry out categorical coding of a number of acoustic parameters, based on visual inspection of the acoustic waveform and spectrogram. These included the presence of periodicity (fully voiced/partly voiced/voiceless), formant transitions (presence or absence of a supralaryngeal gesture), and burst transient (presence or absence of a release burst). This approach uncovers a wide range of variation in glottal realisations that could not be captured through allophonic phonetic transcription. Indeed, Docherty and Foulkes (2005: 191) state that '[t]he acoustic profiling approach which we applied in

this study has made it very clear that tokens which we hear as glottal/ised stops may often not be so.'

As discussed in Section 5.2.5, previous studies that analyse plosive affrication have relied on visually identifying certain acoustic variants from waveforms and spectrograms, which has proven to be a useful method for delimiting the types of variation in the data. Unlike Docherty and Foulkes (2005), my data are not separated into auditory categories prior to acoustic profiling given the highly gradient nature of affrication. Instead, I simply record a number of acoustic characteristics for each token of /t/ and then distinguish a number of acoustic variants in a manner similar to Jones and Llamas (2008) and Buizza and Plug (2012). This categorisation is primarily carried out in order to ensure that measurements are applied to comparable tokens, but it also has the effect of uncovering sociolinguistic variation in terms of qualitative acoustic realisations.

5.3.2 Method

Tokens of word-initial /t/ that appeared in a word-initial stressed CV syllable were extracted from sociolinguistic interviews. Their surrounding intonation phrase was also extracted in order to preserve contextual information. Words with unstressed syllable onsets, such as 'today' and 'together', or words featuring /t/ followed by an approximant, were not analysed here. In total, 1456 tokens of word-initial /t/ were analysed.

As part of the acoustic profiling analysis, the data were labelled and coded a number of times in order to arrive at a number of qualitative acoustic profiling categories that could be reliably applied. This involved repeated listening alongside detailed inspection of the waveform and spectrogram, after which a series of notes were made for each token. This process was repeated five times before I arrived at a set of categories that could be reliably applied to the data. As a consequence of this detailed analysis and listening, I occasionally make reference to my own auditory judgements of particular tokens in the analyses that follow. Although categorical auditory analysis in terms of degree of affrication is not reported here, this information was recorded during the five coding sessions. Any subsequent claims about my own perception of the auditory properties of particular tokens are grounded in this procedure of detailed listening and qualitative analysis.

The data were then coded in terms of four acoustic variants that characterised different acoustic realisations of /t/ in the data. Only descriptive statistics are presented in this section in order to chart the nature and range of the variation. More

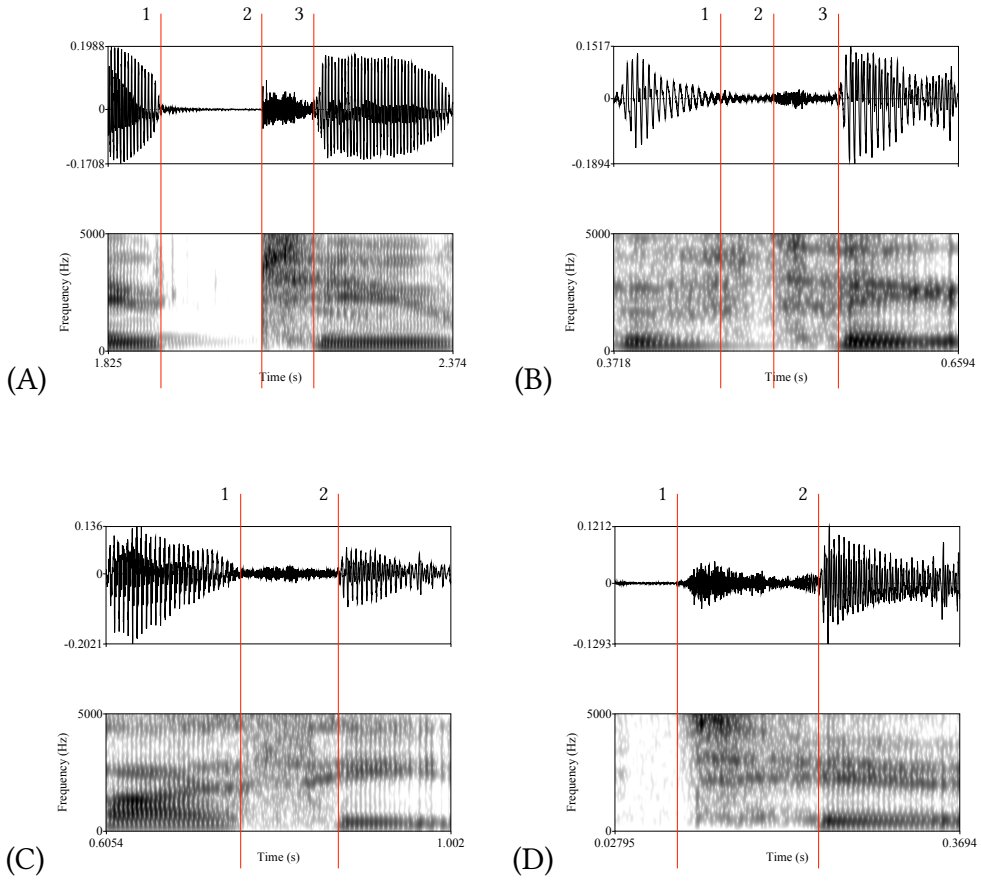

Figure 5.2: Acoustic representations corresponding to the four acoustic profiling categories. (A) silent closure + release; (B) noisy closure + frication; (C) no closure + frication; (D) silent closure + gradual frication.

extensive statistical modelling is carried out on the acoustic measurements in Section 5.4.

There were four categories of 'closure-release type' for the acoustic profiling. Acoustic representations of each category are depicted in Figure 5.2 and a brief description of each category is provided below. In each case, I refer to the different panels labelled A, B, C and D in Figure 5.2 in order to illustrate relevant acoustic landmarks.

(A) Silent closure + release: silent stop closure (interval between 1 and 2 in panel A) followed by a visible burst transient (marker 2 in panel A).

(B) Noisy closure + frication: aperiodic noise throughout both the closure and release phases. There was usually no evidence of a burst transient. The closure and release phases were distinguished on the basis of visually detectable spectral discontinuity between the fricated closure (interval between 1 and 2 in panel B)

and the release (interval between 2 and 3 in panel B).

(C) No closure + frication: no discernible stop closure, with the onset of frication beginning at the offset of the preceding segment (interval between 1 and 2 in panel C). There is no spectral discontinuity that would appear to mark distinct closure and release phases as is the case with B.

(D) Silent closure + gradual frication: silent stop closure followed by a very gradual rise in aperiodic noise that continues until the onset of periodicity. This is typically characterised by the onset of very low amplitude frication noise, which gradually increases in amplitude over time. An example of the onset of this gradual frication noise can be seen at marker 1 in panel D.

Pattern (A) constitutes 'aspirated' and 'affricated' realisations, because they feature a silent closure phase. Patterns (B), (C) and (D) all constitute 'fricated' realisations because they lack a silent closure phase (Jones and Llamas 2008; Buizza and Plug 2012). This coding does not specify further detail about the acoustic events that follow the plosive release, which is instead addressed using acoustic analysis in Section 5.4. Some tokens followed a similar pattern to (D), but also featured a transient after the onset of aperiodic noise. These tokens were often phrase-initial, which is the case in example (D) in Figure 5.2. One possibility is that this could represent a stop release, with some frication noise occurring before the transient. Other explanations for this could include 'brief incomplete occlusion of part of the narrow constriction due to saliva' (Jones and Llamas 2008: 427) or the tongue making contact with the teeth during the frication phase (Ogden 2009: 35), both of which could produce a transient spike on the waveform. The very small number of tokens that fit this description were categorised as (D).

The acoustic profiling approach is not unproblematic because there is no evidence that these acoustic differences are perceptible to listeners. For example, do listeners hear a stop produced with a noisy closure and fricated release any differently from one with no closure and a fricated release? This question requires further empirical investigation in order to determine the perceptual reality of such variation. However, the primary purpose of this acoustic profiling analysis is to determine a particular acoustic realisation that can be reliably subjected to quantitative analysis. In doing so, I also highlight the spread of acoustic realisations across social groups. Such acoustic differences may or may not be sociolinguistically important, but this information is important in providing a more comprehensive account of the data that were not subjected to quantitative analysis. As mention above, the acoustic profiling categories

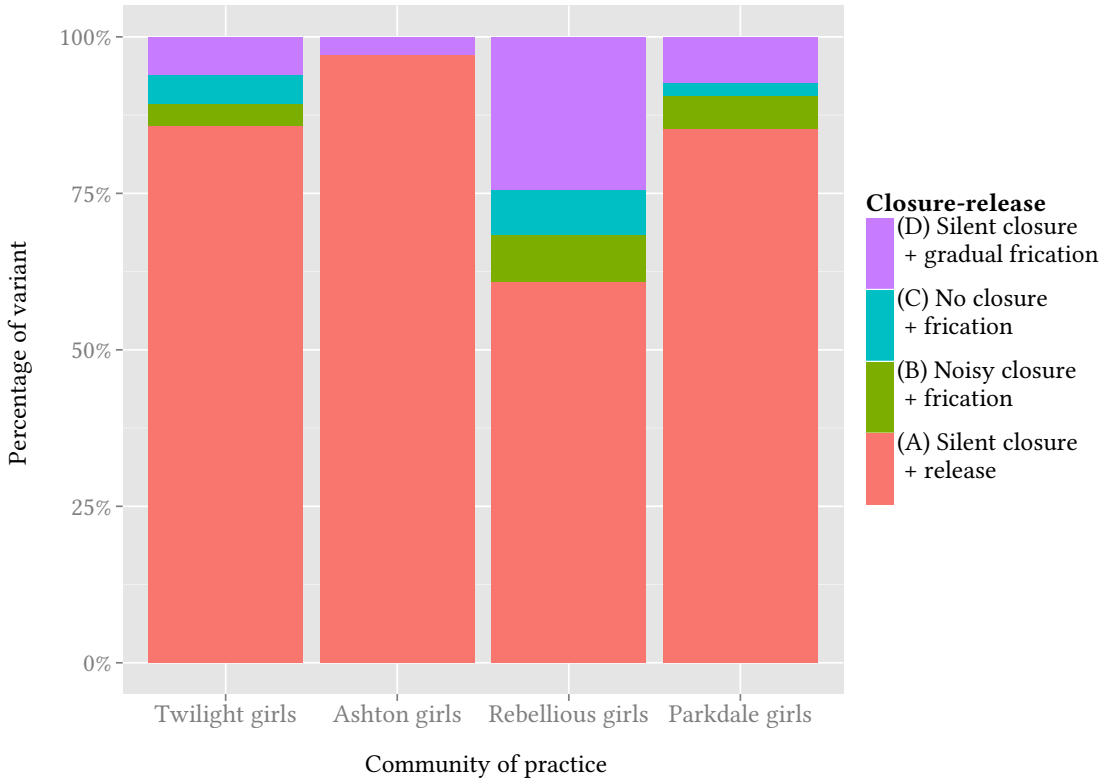

Figure 5.3: Proportion of closure-release variants across female communities of practice.

(A–D) do not specify any information about the acoustic events following the release of the plosive. However, the acoustic information following the release is investigated in more detail in Section 5.4, which focuses only on tokens that are classified as belonging to category (A) (silent closure + release).

5.3.3 Results: female speakers

Figure 5.3 shows the distribution of closure-release types across the four female communities of practice. The majority variant across all groups is the canonical silent closure followed by burst transient. The second most frequent variant is pattern (D), which is a silent closure followed by a very gradual rise in frication. This pattern characterises 24.40% of tokens produced by Rebellious girls, which is substantially more than Parkdale girls, who are the next highest group with 7.33%. Rebellious girls also have a greater proportion of the (B) and (C) closure-release variants.

These results suggest that Rebellious girls have the highest proportion of tokens of /t/ that are acoustically fricated and that the Ashton girls have the least. The Parkdale girls and Twilight girls are fairly similar to each other in terms of proportions of each

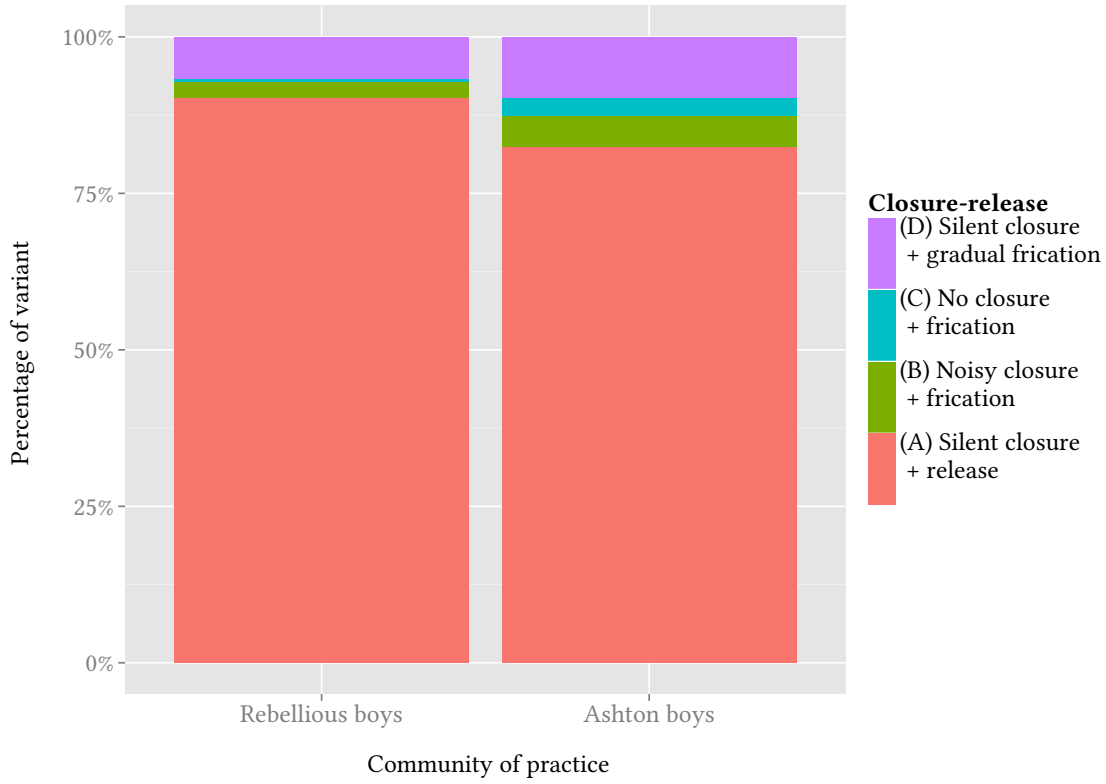

Figure 5.4: Proportion of closure-release variants across male communities of practice.

variant.

5.3.4 Results: male speakers

Figure 5.4 shows the distribution of closure-release types across the two male communities of practice. The majority variant across all groups is the canonical silent closure followed by burst transient, which suggests that aspirated and affricated productions are also the majority variants in the male data. As was the case with female speakers, the largest other variant is pattern (D), which is a silent closure followed by a very gradual rise in frication. This pattern characterises 9.09% of the Ashton boys' tokens, which is more than the Rebellious boys (6.91%). The Ashton boys also have a greater proportion of the (B) and (C) closure-release variants.

These results suggest that the Ashton boys have the highest proportion of tokens of /t/ that are acoustically fricated and that the Rebellious boys have the least. However, the overall differences between these two groups are fairly small and certainly smaller in magnitude than the differences between the female speakers.

5.3.5 Summary of results

The results of the acoustic profiling analysis show that the majority of tokens produced by all communities of practice resemble a canonical acoustic production of /t/, in that they have a silent stop closure phrase and a visible burst transient. This analysis does not distinguish between aspirated and affricated productions; instead, it focuses on a distinction that could be considered affricated/aspirated (variant A) versus fricated (variants B, C, D). Along this dimension, there are some differences between the different communities of practice.

Amongst the female speakers, the Ashton girls have the highest proportion of tokens with a silent closure and burst transient and Rebellious girls have the lowest proportion. The Rebellious girls have the highest proportion of tokens with a silent closure and no transient, with the onset of /t/ simply marked by a gradual rise in frication noise. This could be indicative of a greater proportion of fricated realisations amongst this group. These data suggest that there are differences between some communities of practice in categorical acoustic realisations, with the largest differences between the Ashton girls and Rebellious girls.

Amongst the male speakers, the differences are much smaller, but it appears as though the Ashton boys have a higher proportion of tokens that lack a silent closure and release transient. This could be indicative of a greater proportion of fricated realisations amongst this group.

This analysis does not take into account linguistic-phonetic context effects, such as surrounding phonetic contexts and the effect of nuclear pitch accents. This is because there were often too few tokens in each acoustic category that occurred in the full range of phonetic contexts. As a result, an inferential statistical analysis was not appropriate for these data. Linguistic-phonetic context effects are modelled on a subset of these data in Section 5.4. Another finding of this analysis is that there are also not enough tokens of acoustically fricated /t/ (variants B, C and D) to subject to a quantitative acoustic analysis. For example, there are only 213 tokens without a burst transient across the whole data set and some speakers did not have a single token of /t/ that lacked a silent closure and burst transient. As such, the acoustic analysis in Section 5.4 only analyses tokens that feature a burst transient in order to ensure consistency in the application of acoustic measurements. Finally, this analysis does not account for whether listeners perceptually distinguish between these acoustic variants, which raises issues surrounding the perceptual correlates of these qualitative acoustic variants. However, my decision to focus only on tokens that are classified under category (A) (silent closure + release) is

motivated by a conservative approach to the data that focuses on variation within a class of acoustically similar tokens. This is not meant to imply that categories (B–D) are perceptually distinct, but is instead oriented towards consistently applying the analysis procedure in Section 5.4. Further investigation is needed in order to empirically establish the perceptual and sociolinguistic status of different variants from the acoustic profiling analysis.

5.4 Acoustic analysis

5.4.1 Motivations

This section builds upon the acoustic profiling analysis by reporting a quantitative acoustic analysis of the degree of frication noise during the release phase of word-initial /t/. This section only focuses on tokens with an acoustically visible silent closure and release transient, as discussed in Section 5.3.2. This is to ensure that the analysis procedures are reliably applied to comparable tokens. 213 tokens did not fit the above criteria and were excluded from this analysis. These tokens were discussed in more detail in Section 5.3.

5.4.2 Method

Coding

Tokens of word-initial /t/ that appeared in a word-initial stressed CV syllable were extracted from sociolinguistic interviews. Their surrounding intonation phrase was also extracted in order to preserve contextual information. Words with unstressed syllable onsets, such as 'today' and 'together', or words featuring /t/ followed by an approximant, were not analysed. For the acoustic analysis I only focus on tokens of /t/ with an acoustically visible stop burst transient and silent closure phase (see Section 5.3). In total, 1243 tokens of word-initial /t/ with a burst transient were subjected to quantitative acoustic analysis.

A number of word- and phrase-level properties were then coded for each instance of /t/. These were as follows:

- Lexical item
- Preceding phonetic context
- Following vowel

- Position in intonation phrase [initial; medial; final]
- Nuclear pitch accent [yes; no]
- Number of syllables in word
- Number of syllables in intonation phrase
- Word class [noun; verb; adjective; adverb; preposition; pronoun]

Lexical item accounts for the word in which a token of word-initial /t/ occurred. Preceding phonetic context was transcribed using broad phonetic (allophonic) transcription. For the statistical analysis, preceding phonetic context was collapsed into the following categories: schwa, front vowels, back vowels, liquids, nasals, coronal fricatives, non-coronal fricatives, stops, pause. The following vowel was also phonetically transcribed, but vowel formant values are used instead in order to provide continuous information about vowel quality. Number of syllables in word and intonation phrase were coded based upon auditory impressions of actually produced syllables, rather than citation forms.

Prosodic properties included the position of the word in the intonation phrase (initial/medial/final) and whether or not the syllable in which /t/ occurred received a nuclear pitch accent. Previous studies show that phrasal accents and prosodic position have an effect on the acoustics and articulation of stop consonants (e.g. Cho and Keating 2001; Cho and McQueen 2005; Byrd and Saltzman 2003). Nuclear pitch accent was coded based on whether the word containing a token of word-initial /t/ received the most prominent pitch accent in the intonation phrase, which was coded based on auditory impressions of prominence in terms of a large pitch excursion and variation in intensity. A nuclear pitch accent was defined as 'the degree of distinctiveness or prominence of a given linguistic unit relative to the rest of the phrase or sentence' (Cho 2004: 143).

Labelling

A number of acoustic landmarks were labelled for each token of /t/ based on visual observation of waveforms and wide-band spectrograms. All markers were positioned at the nearest zero crossing. Figure 5.5 shows a labelled example of a token of /t/. The list below describes the criteria for the position of each label. The numbers referenced in the list below correspond to the numbered markers in Figure 5.5 and act as an example of where that marker was placed for this particular token.

1. Closure onset (offset of preceding sound)

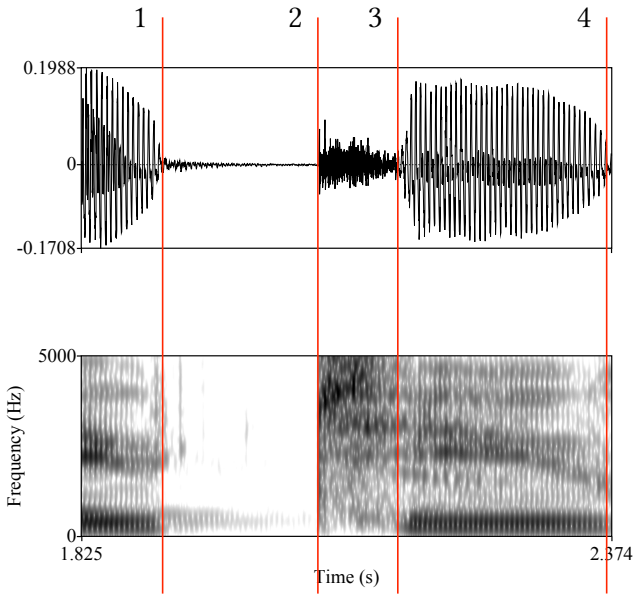

Figure 5.5: Example of a labelled token of word-initial /t/.

- If the preceding sound was a vowel, the offset of F2 as visible from the spectrogram.
- If the preceding sound was not a vowel, the offset of voicing for voiced sounds or the offset of frication noise for turbulent sounds.

2. Onset of release

   - Acoustically visible transient (vertical spike) on the waveform.
   - If there was more than one transient then this label was placed at the last transient (following Cho and Ladefoged 1999).

3. Onset of periodicity

   - The beginning of the first periodic wave following the burst transient. This was defined as including any breathy voice.
   - Including breathy voice as part of the vowel means that tokens are more comparable because this phase only includes the transient, frication and aspiration. However, it means that sociolinguistic differences in stop breathiness are not captured. As this was not the aim of this study, this decision is considered to be a satisfactory compromise.

4. Offset of vowel

   - The offset of F2 as visible on the spectrogram.

- If the vowel was followed by a liquid, the offset of the vowel was defined with reference to changes in formant trajectories.
- If the vowel was followed by a nasal, the offset of the vowel was defined as the onset of lower amplitude formants that characterise nasals (Johnson 2012: 201).

Acoustic analysis

All sound files were originally recorded as 16-bit 44.1 kHz WAV files. These were band-pass filtered at 200 Hz and 11 kHz and downsampled to 22.05 kHz prior to analysis. The lower limit allows for the reduction of background noise and also reduces the effect of voicing on the waveform. The presence of periodic energy significantly affects the number of zero-crossings on the waveform, so it is important to filter out any potential periodic energy when wishing to analyse frication noise (Gordeeva and Scobbie 2010).

Segmental labelling, filtering and downsampling were carried out using Praat and files were then converted to an Emu file formant. Acoustic analysis was conducted using Emu and the resulting measurements were processed and transformed using R and the accompanying `emu` package. In all cases, the duration of /t/ was defined in terms of its voice-onset time, which here represents the interval between the burst transient and the first quasi-periodic wave (hence excluding breathy voice from the duration measurement).

Acoustic measurements were calculated using Emu. The zero-crossing rate (ZCR) was estimated by applying a 10 ms window with a 5 ms window shift across the entire sound file and a ZCR value was recorded for each successive window. ZCR measurements were then imported into R and the highest ZCR value within the duration of /t/ (as defined by VOT) was extracted for each token. This value is here referred to as the peak zero-crossing rate (pZCR). The peak value was taken in order to ensure that the measurement detects frication noise, which is higher in frequency than aspiration noise. The peak value gives an indication of the point at which frication noise reaches its highest frequency, which is one correlate of affrication. Higher values of pZCR indicate higher frequency frication noise, which is interpreted as a more affricated production of /t/.

The pZCR measurements have not been normalised in order to account for physiological differences, such as vocal tract size, as there is no established procedure for normalising frication noise in stops. This is not a significant problem as the ethnographic process justifies carrying out separate analyses on male and female

speakers, given that there were no obvious inter-gender communities of practice. In addition to this, all speakers are within the same age range (fourteen-to-fifteen years old). As such, it is reasonable to assume that any physiological differences between speakers are not as large as those that are normally controlled for in many sociolinguistic studies, such as the differences between adolescents and adults.

In order to account for vowel context effects on /t/ production, the first two formants (F1; F2) of the vowel following /t/ were estimated using Emu's `forest` function. Spectral data were obtained using a 45 ms Blackman window with a 10 ms window shift across the entire signal duration and formant values were calculated using Linear Predictive Coding. All formant values were visually inspected by overlaying formant tracks on wideband spectrograms in Emu and, where necessary, formant tracks were hand-corrected using Emu's formant correction tool. F1/F2 values were automatically extracted from the temporal midpoint of the vowel following /t/ and then converted to the Bark scale (Traunmüller 1990) and normalised using the Lobanov technique (Lobanov 1971). All of the vowels produced in the /tV/ intervals were included in the normalisation procedure, which represents a reasonable spread of tokens from across the vowel space for each speaker. The vowels were normalised because the procedures for this are well-established, whereas this is not the case for the pZCR measure, hence the different approaches used for these different classes of sound.

Statistical model

Mixed-effects regression models were fitted to the data. Peak ZCR was the outcome variable and potential predictor variables included a series of linguistic factors (preceding phonetic context; nuclear accent; word syllables; word class; /t/ duration; following vowel F1; following vowel F2), social factors (community of practice; ethnicity; index of multiple deprivation), bilingualism (first language), and interactions between social factors and linguistic factors (community of practice/ethnicity * vowel F1; community of practice/ethnicity * vowel F2; community of practice/ethnicity * duration; community of practice/ethnicity * word class; community of practice/ethnicity * nuclear accent). Other theoretically sensible interactions were also tested, but these were often too highly correlated and thus could not be included in the model. Speaker and word were entered into the model as random factors.

Baseline variables for categorical variables included Rebellious girls or Ashton boys (Community of practice), White (Ethnicity), schwa (Preceding context), silent

closure (Closure type), medial (Intonation phrase position), Non-nuclear accent (Nuclear pitch accent), noun (Word class), English (first language), and average levels of deprivation (Index of multiple deprivation).

A series of models were fitted using a general-to-specific modelling approach. This was repeated until an optimum model was reached in which all predictors were significant. Model comparison was carried out using ANOVAs. This procedure and the motivations behind it are discussed in more detail in Section 4.5.1.

For the dynamic analysis, I use a graphical representation of a regression analysis, which is described in Section 4.5.2. The results are reported by displaying ZCR values over proportional time, from 0% to 100%. This represents the frequency of the frication and aspiration noise over the duration of /t/. Higher values indicate greater high frequency noise. The dynamic data were smoothed using a generalised additive regression model, from which 95% Bayesian confidence intervals were derived. At the points at which the confidence intervals of different groups do not overlap then we may expect the differences between those groups to be statistically significant. However, it should be stressed that these plots do not control for other phonetic context effects and should therefore not be interpreted as confirmatory.

5.4.3 Results: female speakers

This analysis focuses on the amount of turbulent noise following the release of /t/ amongst female speakers. High peak zero-crossing rate (pZCR) values indicate more affrication, such that /t/ is closer to [t^{s}] than [t^{h}]. Two analyses are reported in this section. The first analysis is a mixed-effects linear regression analysis of pZCR in /t/. The second analysis examines dynamic patterns in zero-crossing rate between the release of /t/ and the onset of voicing.

Static analysis

The regression model summarised in Table 5.1 examines peak zero-crossing rate amongst the female speakers. The only social factor that was statistically significant is community of practice. The Rebellious girls have the highest pZCR, with the Ashton girls, Twilight girls and Parkdale girls all having significantly lower pZCR than the Rebellious girls. Full regression statistics can be found in Table 5.1 . This suggests that Rebellious girls have the most affricated realisations of /t/ and, at the opposite end of the continuum, that Parkdale girls have the least affricated realisations. Ethnicity, index of multiple deprivation and first language were not significant predictors in

Table 5.1: Final regression model for female peak ZCR data. Statistics were derived using Markov Chain Monte Carlo sampling. The intercept represents Rebellious girls (Community of practice) producing /t/ with a preceding schwa (Preceding context). Speaker and lexical item were included as random effects.

Peak ZCR	β	St. Err.	95% HPD CI	p
Intercept	4973.47	284.38	4477.11, 5415.12	$< .001$
Community of practice				
Ashton girls	-1341.36	406.80	-2060.84, -606.61	$< .001$
Twilight girls	-1120.77	357.22	-1729.05, -445.68	$< .001$
Parkdale girls	-1989.42	376.83	-2654.98, -1324.37	$< .001$
Preceding context				
Non-coronal fricatives	-570.14	287.59	-1139.31, -21.05	.045
Vowel F2	308.20	51.24	214.71, 408.75	$< .001$
Duration	16.21	2.15	12.18, 20.48	$< .001$
Community of practice * non-coronal fricatives				
Twilight girls	1545.70	783.38	100.04, 3002.54	.039

this model. This suggests that community of practice is the best social predictor of variation across this dimension of /t/ realisation amongst the female speakers.

In terms of linguistic predictors, preceding non-coronal fricatives lower pZCR in the overall model (less affricated), but an interaction between preceding context and community of practice suggests that the Twilight girls have higher pZCR (more affricated) when /t/ is preceded by non-coronal fricatives. We might expect that coronal fricatives would have a greater effect on pZCR, given that /t/ shares more articulatory similarity with /s/ than something like /f/. Nonetheless, this effect does suggest coarticulation between a preceding non-coronal fricative and /t/, leading to a greater amount of high frequency noise in /t/. There was also an effect of duration, with longer tokens of /t/ having higher pZCR. This is consistent with previous findings that affricated stops have a longer duration (Buizza and Plug 2012). An increase in F2 of the following vowel results in an increase in pZCR, which suggests that /t/ is more affricated when followed by fronter vowels. There were no significant interactions between social factors and duration or vowel F2. There were no significant effects of nuclear pitch accent, word syllables, word class, or vowel F1, and interactions between these predictors and social factors were also not significant.

In summary, the major finding of the regression analysis is that the Rebellious girls have the most affricated /t/s when compared to the other three communities of practice. The Parkdale girls have the lowest pZCR values, indicating the least affricated realisations of /t/. This suggests that the phonetic extremes in /t/ affrication are occupied by the two anti-school communities of practice: the Rebellious girls and the Parkdale girls.

Dynamic analysis

Dynamic differences between the female communities of practice are captured in Figure 5.6, which displays zero-crossing rate over the duration of /t/ between the burst transient and the onset of voicing. On the x-axis, 0% represents the point at which the burst transient occurs, whereas 100% represents the point just before voicing begins for the following vowel. On the y-axis, higher values indicate higher ZCR, which is indicative of higher frequency frication noise. The shaded grey borders around each line represent 95% Bayesian confidence intervals derived from regression analysis; where the grey lines do not overlap, we would expect a significant difference between groups at that point in time. However, it is important to emphasise that these plots do not control for phonetic context effects, meaning that they should be interpreted as exploratory rather then confirmatory. A more detailed methodology for this procedure was reported in Section 4.5.2.

All groups show a well-defined peak during the 12.5–25% interval, followed by a fall in pZCR, which then begins to rise back up to the peak value towards the end of /t/. The peak occurs during the period where we would expect frication noise during the release of /t/ and before the longer stretch of aspiration noise that characterises the latter part of /t/'s duration. The Twilight, Ashton and Parkdale girls all have very similar pZCR contours, whereas Rebellious girls have a much higher and steeper peak. Despite these differences, all groups appear to have very similar minimum pZCR values in the 75–100% interval. This suggests that the dynamic differences between the Rebellious girls and the other groups operate across two dimensions: (1) Rebellious girls have overall higher ZCR values across the first 50% of the duration of /t/; (2) Rebellious girls have a much steeper peak and a greater range between the peak value (located at 12.5–25%) and the minimum value (located at 75–10%). There are some small differences at peak ZCR for the Twilight, Ashton and Parkdale girls (located at 12.5–25%). However, these differences were not significant in the mixed-effects regression model (see Table 5.1), which provides a more robust estimate because it accounts for the effects of phonetic context and other social factors.

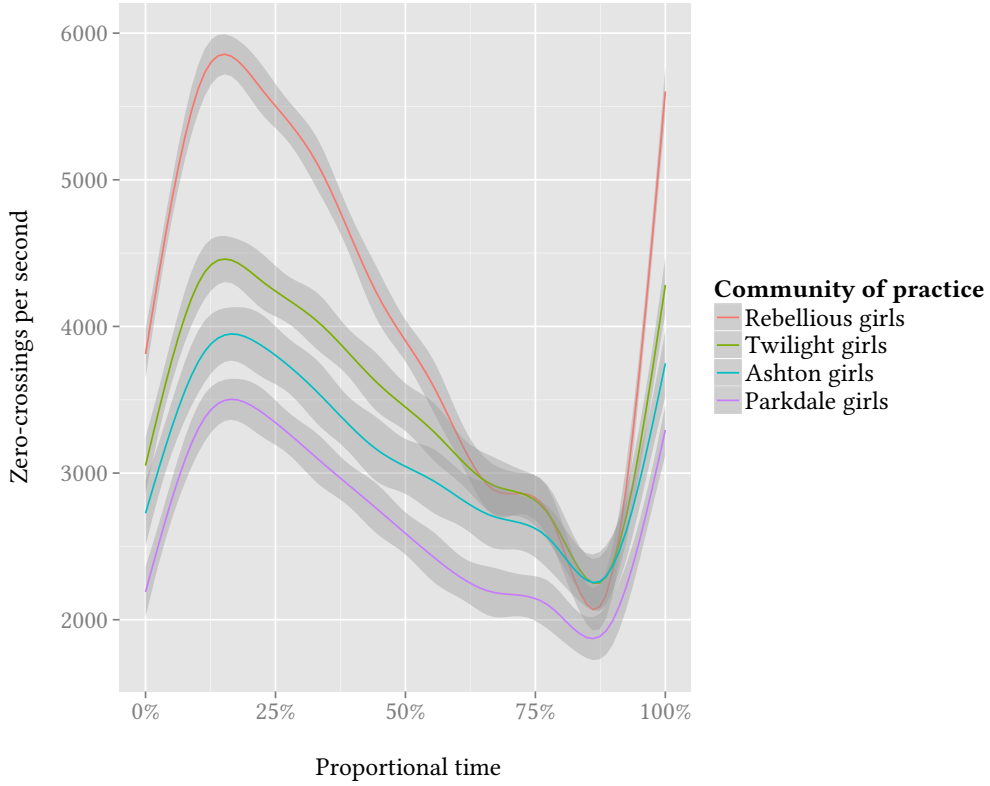

Figure 5.6: Plot of zero-crossings per second against proportional time in word-initial /t/ for female communities of practice. Lines smoothed using a generalized additive model. The shaded areas around each line represent 95% Bayesian confidence intervals.

In summary, the Rebellious girls have higher ZCR across the first 50% of /t/, as well as a much steeper ZCR peak. The interpretation of the dynamic results is not necessarily straightforward, but they suggest that the Rebellious girls produce /t/ with higher frequency frication noise during the period in which we would expect frication noise and mixed frication/aspiration noise to occur. There are some minor visual differences between the other three communities of practice, but it is likely that these are not robust differences given that they are not reflected in the mixed-effects regression model.

5.4.4 Results: male speakers

This analysis focuses on the amount of turbulent noise following the release of /t/ amongst male speakers. As with the female data, higher peak zero-crossing rate (pZCR) values indicate more affrication, such that /t/ is closer to [t^{s}] than [t^{h}]. Two analyses are reported in this section. The first analysis is a mixed-effects linear

Table 5.2: Final regression model for male peak ZCR data. Statistics were derived using Markov Chain Monte Carlo sampling. The intercept represents the White boys (Ethnicity) producing /t/ with a preceding schwa (Preceding context). Speaker and lexical item were included as random effects.

Peak ZCR	β	St. Err.	95% HPD CI	p
Intercept	3482.24	311.13	2981.80, 3949.046	$< .001$
Ethnicity				
Somali	965.09	486.58	278.00, 1679.56	.009
Yemeni	1289.77	583.68	465.69, 2155.61	.003
Vowel F2	219.93	48.30	134.57, 306.07	$< .001$
Duration	19.03	2.09	14.85, 23.06	$< .001$
Ethnicity * coronal fricatives				
Pakistani	2186.76	979.96	271.52, 4143.32	.030

regression analysis of pZCR in /t/. The second analysis examines dynamic patterns in zero-crossing rate between the release of /t/ and the onset of the following vowel.

Static model

The regression model summarised in Table 5.2 examines peak zero-crossing rate amongst the male speakers. In contrast to the female data, the only social factor that was statistically significant is ethnicity, with Somali and Yemeni speakers having higher pZCR than White speakers. This suggests that Somali and Yemeni boys' /t/s are more affricated than those produced by White boys. None of the other ethnic groups were significantly different from the White speakers. The possible reasons for this are addressed in Section 5.5. Community of practice was not a significant predictor in this model, nor were any of the other social or bilingualism predictors.

In terms of linguistic predictors, there was an effect of duration, with longer tokens of /t/ having higher pZCR (more affricated). As I noted in the female results, this is consistent with previous findings that affricated stops have a longer duration (Buizza and Plug 2012). Higher F2 in the following vowel also increased pZCR, which suggests more affricated realisations of /t/ in fronter vowels. There were no significant interactions between social factors and duration or vowel F2. The significant effects of duration and vowel F2 were also present in the female model for

/t/, which suggests consistent phonetic effects across the community, even though the significance of social predictors differs between the two gender groups. Other predictors, such as vowel F1, closure type, nuclear accent, word class, and preceding context were not significant. However, there was a significant interaction between ethnicity and preceding context, with Pakistani speakers having higher pZCR when /t/ was preceded by a coronal fricative. This could be explained with reference to coarticulation between coronal fricatives, most of which were /s/ and /z/, and the following /t/. When /t/ follows a sound composed primarily of frication noise this is likely to also increase frication noise in /t/ due to coarticulation.

In summary, there were no significant differences in /t/ affrication between the Ashton boys and Rebellious boys. This suggests that community of practice is not an axis of differentiation in terms of /t/ affrication amongst the boys. However, Somali and Yemeni boys do have more affricated /t/s than White boys, and Pakistani boys have more affricated /t/s when preceded by a coronal fricative. This suggests that ethnicity patterns with /t/ realisation amongst the boys.

Dynamic analysis

Dynamic differences between the male ethnic groups are captured in Figure 5.7, which displays zero-crossing rate over the duration of /t/ between the burst transient and the onset of voicing. The format of these plots were explained for the female speakers in Section 5.4.3 and a more detailed methodology was reported in Section 4.5.2. Again, it is important to emphasise that these plots do not control for phonetic context effects, meaning that they should be interpreted as exploratory rather then confirmatory.

The confidence intervals for all groups are fairly wide as each group is only represented by a relatively small number of speakers. The overall shape of the curves differ slightly from those of the female speakers in Figure 5.6. Male and female speakers have similar ZCR minima but female speakers have greater ZCR maxima. One possible explanation for this could be the role of sex/gender differences in speech production, with female speakers' shorter vocal tracts, smaller palates and learned gender differences contributing towards higher frequency productions of /t/. Similar explanations have been proposed for gender differences in /s/ production in English and German (Stuart-Smith 2007b; Fuchs and Toda 2010).

There are three primary axes of variation in Figure 5.7. First, Yemeni, Somali and White & Black Caribbean boys have the highest peaks around 5000 zc/s, whereas White and Pakistani boys have lower peaks around 4000 zc/s. This mirrors the

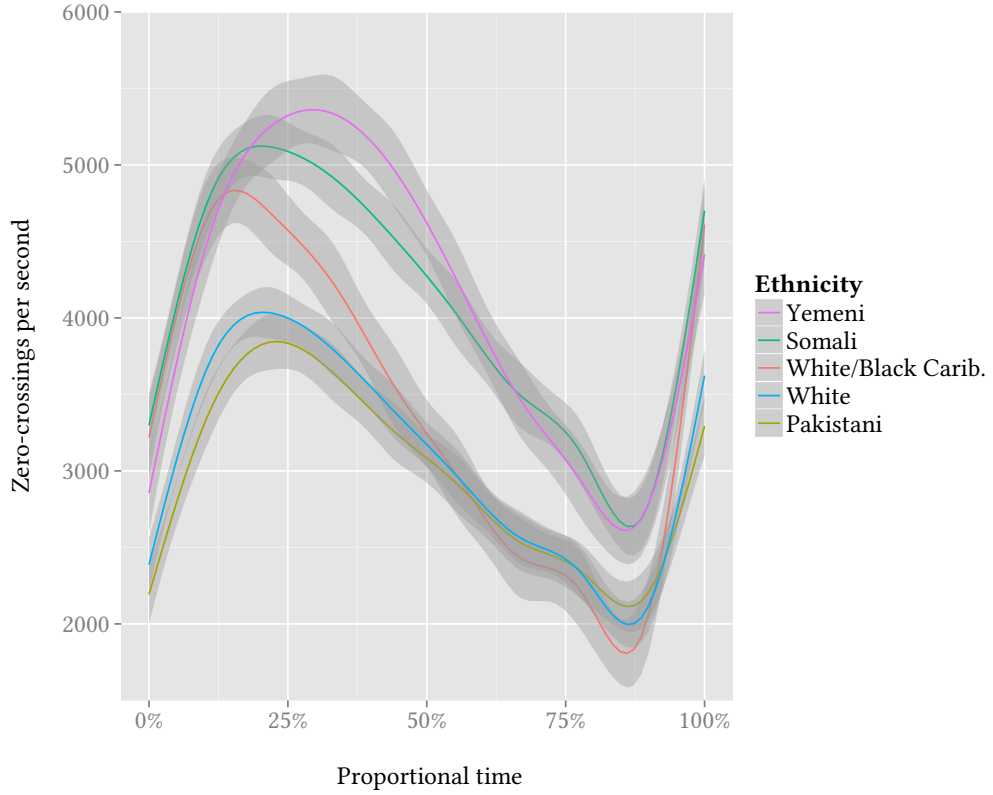

Figure 5.7: Plot of zero-crossings per second against proportional time in word-initial /t/ for male ethnic groups. Lines smoothed using a generalized additive model. The shaded areas around each line represent 95% Bayesian confidence intervals.

results of the mixed-effects regression model (see Table 5.2), with Yemeni and Somali speakers having higher pZCR than White boys). The White & Black Caribbean group is only represented by a single speaker, which explains why this group was not significantly different from White boys in the statistical model.

The second axis of variation is the timing of the peak. The peak for Yemeni boys occurs later than for the other groups, the White & Black Caribbean peak occurs earliest, and the White and Pakistani peaks occur between these two. The third and final dimension is the overall profile. White and Pakistani speakers both have very similar pZCR values across time and their confidence intervals overlap throughout the duration of /t/. This suggests that the frication and aspiration profiles of White and Pakistani speakers, as measured by ZCR, are similar across these data. Yemeni and Somali speakers also have very similar profiles, but show higher values than White and Pakistani speakers at most time points.

In summary, Somali and Yemeni boys have higher ZCR peaks, which reflects the findings from the regression model. The White & Black Caribbean boys also had a high ZCR peak, but this group only represents a single speaker, making it difficult to

make robust claims. There was greater variation in the timing of the peak amongst the boys than was evident with the girls. However, the overall ZCR profiles are consistent with the expectation that frication noise occurs in the first 30% of /t/, followed by lower frequency aspiration noise for the rest of the segment's duration.

5.4.5 Summary of results

Amongst the female groups, Rebellious girls have the most affricated realisations of /t/ (highest pZCR), whereas the Parkdale girls have the least affricated (lowest pZCR). The Twilight girls and Ashton girls fall in-between these extremes. This suggests that /t/ affrication distinguishes between different communities of practice amongst the girls. However, this was not the case amongst the boys, for whom community of practice was not a significant predictor. Instead, there were some ethnic differences amongst the boys, which did not occur with the girls. For example, Yemeni and Somali boys have more affricated realisations of /t/ than White boys, and Pakistani boys have more affricated realisations when /t/ is preceded by a coronal fricative. Other social factors, such as bilingualism and socioeconomic indices, were not significant for male or female speakers. There were some consistent effects across all models, such as an increase in duration and F2 in the following vowel both increasing pZCR. Any interactions between social and linguistic predictors tended to be specific to that particular model.

The dynamic analysis largely mirrored the results from the regression model, but also produced some further insights. Amongst the girls, all communities of practice had fairly similar ZCR contours, with the main differences occurring in the peak. The Rebellious girls have a much steeper ZCR peak, which is suggestive of greater affrication. There were also differences between male ethnic groups, both in terms of peak values and ZCR contours, with Somali and Yemeni boys having higher peaks than other groups.

5.5 Discussion

This section discusses the findings of the two analyses in Sections 5.3 and 5.4 and identifies key points and areas for future investigation. The discussion is framed in terms of this chapter's three research questions outlined in Section 5.1.2, which are also reproduced below.

1. Is variation in word-initial /t/ used to index social distinctions and, if so, how?

2. Does the statistical analysis point towards any possible social meanings of /t/ affrication in Ashton Valley School?

3. To what extent do the patterns in the data suggest a coarticulatory or cross-language influence explanation for the origins of /t/ affrication in this community?

5.5.1 Ethnicity, social practice and phonetic variation

The results of this analysis suggests that variation in word-initial /t/ is used to index social distinctions in Ashton Valley School. Amongst the girls, community of practice was a significant predictor of /t/ affrication, whereas other social factors, such as ethnicity, were not. The Rebellious girls produced the most affricated realisations of /t/, whereas the Parkdale girls produced the least affricated realisations. Auditorily, the Rebellious girls produce tokens that are far more fricative-like and the Parkdale girls produce tokens that often sound unaspirated. The Ashton and Twilight girls have ZCR values that are significantly lower than the Rebellious girls (less affrication), but not as low as the Parkdale girls. This shows that the Rebellious and Parkdale girls occupy the acoustic extremes in terms of /t/ affrication, which presents the possibility that /t/ realisation could be used to construct oppositions between the two anti-school communities of practice. While these two groups share a broad anti-school orientation, Chapter 3 hinted at a number of differences, such as the Rebellious girls' desire to renegotiate the terms of their relationship with school authority, which contrasts with the Parkdale girls' outright rejection of schooling. It could be the case that differences in /t/ realisation amongst the girls are bound up with and reflect these social differences. This suggests that the potential indexical values of affricated /t/ are highly community-specific, with this phonetic distinction emerging due to the local dynamics of the school. I discuss how these results might tell us about possible social meanings in the next section, as well as in Chapter 7.

Amongst the boys, community of practice was not a significant predictor of /t/ affrication, which contrasts with the girls' results. However, ethnicity was a significant predictor amongst the boys, with Somali and Yemeni speakers producing more affricated realisations of /t/ than White boys. Pakistani boys also have more affricated realisations when /t/ is preceded by a coronal fricative. The results of the statistical model suggests that the most prominent distinction in /t/ realisation may actually be between two groups: Somali and Yemeni boys on the one hand, and White, Pakistani and White & Black Caribbean boys on the other. However, I would suggest that the boys' language use is not a predictable consequence of their

ethnicity, because it is unlikely that all Somali and Yemeni boys in Sheffield produce highly affricated /t/. Instead, it could be the case that these 'ethnic' differences represent other factors. For example, some of the boys who were engaged in the most daring and transgressive behaviours also happened to be Somali or Yemeni, so their use of highly affricated /t/ may be linked to being the more rebellious members of the Rebellious boys. Another possibility is engagement in communities of practice outside of the school. The Somali boys in particular tended to spend more time with each other outside the school, often attending Somali community centre, homework clubs and Islamic school together. It could be the case that their engagement in social practices beyond the school facilitates the Somali boys' use of variation within the school (Moore 2010). This suggests that patterns that appear to be ethnically-correlated may actually be more closely linked to engagement in particular social practices, which has been found to be the case in previous research on ethnic minority communities (Alam 2007; Lambert et al. 2007; Eckert 2008b; Mendoza-Denton 2008). The analysis of individual speakers in Chapter 7 also suggests that this may be the case, thus presenting the possibility that variation in /t/ affrication closely patterns with differences in an individual's stance and orientation towards particular constellations of sociocultural meaning.

5.5.2 Potential social meanings of /t/ affrication

As I hinted above, while there are clearly sociolinguistic differences in /t/ affrication, the correlational results alone point to no obvious meanings for different realisations of /t/. Generally speaking, the most affricated productions of /t/ are used by speakers who belong to a more multiethnic community of practice and demonstrate a more urban orientation. For example, the Rebellious girls are the most ethnically diverse group amongst the girls and show a greater orientation towards mainstream urban culture, such as listening to rap music and engaging in discourses of respect. Likewise, the Somali and Yemeni Rebellious boys display an even more extreme orientation towards an urban youth style and would often joke about being 'gangster' and talking about life on the street.

The possibility that /t/ affrication may be linked to multiethnic youth styles patterns with previous research in other European cities, such as Marseille (Binisti and Gasquet-Cyrus 2003) and Copenhagen (Maegaard 2007). In these cities, /t/ affrication is found to index a pan-ethnic urban orientation amongst adolescents. This pattern may be due to the presence of similar, often Arabic-speaking, ethnic groups in these cities, who may already have highly affricated realisations of /t/

in their repertoire. It is not certain to what extent the results from Ashton Valley represent a similar pattern to that found in these previous studies, given that the ethnic composition of Ashton Valley is rather different from the contexts described for Marseille and Copenhagen. However, it seems likely that /t/ affrication may be part of a multiethnic urban youth style. This may explain why the Rebellious girls use this feature, but it could be the case that the Parkdale girls' use of highly unaffricated /t/ represents oppositional differentiation from this multiethnic youth style.

The association between affrication and a multiethnic urban youth style could apply to the boys to some extent, but this explanation alone would not account for the finding that that some of the Rebellious boys are not significantly different from the Ashton boys, despite the considerable social differences between these two groups. I noted that the Somali boys in particular are more rebellious than the other Rebellious boys, but this difference was nowhere near as large as the difference between Ashton and Rebellious boys. One possibility could be that the pronounced lack of social contact between these two groups (see Section 3.6) means that phonetic variation, such as /t/ affrication, is not as useful a resource for indexing distinctions within the boys' peer group. If the Ashton and Rebellious boys rarely come into contact, then it is unlikely that a fairly subtle form of phonetic variation is likely to take hold as a salient indicator of social group membership.

In summary, it appears as though there is a potential association between /t/ affrication and a multiethnic urban youth style in these data. However, further investigation is required in order to ascertain social meanings of affricated /t/ amongst the Ashton boys, who use this feature but actively shun associations with other multiethnic and urban-oriented groups. I report on such an analysis in Chapter 7, where I examine the social meanings of /t/ realisation in discourse.

5.5.3 Cross-language influence and phonetic origins

Affrication of /t/ has not previously been reported as a sociolinguistic feature in Sheffield English and has rarely been subjected to sociolinguistic investigation in other dialects of British English. For this reason, it is worth considering some of the potential origins of /t/ affrication, which could provide some indications about how this feature has taken on social meaning. For example, could /t/ affrication originate as a phonetic context or aerodynamic effect that has taken on social meaning and become sociolinguistically patterned? Or are the phonetics of a bilingual speaker's heritage language likely to have influenced their /t/ realisations? I discuss some of these questions below and outline their implications for studying the social meaning

of /t/.

While bilingualism was not extensively accounted for in the analysis, it is possible that effects of ethnicity may represent latent effects of bilingualism. Ethnicity and heritage language background are largely confounded in these data, such that Somali is only spoken by Somali speakers. It could be the case that Somali and Yemeni boys have more affricated productions as a consequence of the phonetics of their heritage languages. Cross-language influence is often hypothesised to be a potential origin for variation amongst ethnic minority speakers in Britain, especially in /t/ realisation (Heselwood and McChrystal 2000; Lambert et al. 2007; Kirkham 2011b; Sharma and Sankaran 2011; McCarthy et al. 2013). Somali and Yemeni are described as realising coronal stops as dentals (Saeed 1999: 7–9; Watson 2002: 14) and most of the Somali and Yemeni speakers in these data also realised English /t/ as auditorily dental or alveo-dental. This was not the case for Pakistani speakers, who had primarily alveolar and occasionally postalveolar realisations, or for White & Black Caribbean and White speakers, who had alveolar productions. It is possible that affrication varies as a function of place of articulation and that the higher pZCR values in Somali and Yemeni speakers may be a function of dental articulations. However, the Somali and Yemeni speakers in the sample are variable in their realisations, such that their dental /t/s do not always sound affricated. This suggests that the differences evidenced in the data cannot be explained solely with reference to bilingualism. The heritage language could be a source of variation but it does not necessarily determine the use and meanings of variation (Eckert 2008b).

Another possibility could be that some of the variation evidenced here could be explained with reference to aerodynamic or phonetic context effects. There were significant effects of duration and F2 in the following vowel across all models, with /t/ being more affricated when the following vowel has higher F2 and more affricated when /t/ is longer in duration. As noted in the analysis, this is consistent with previous studies of /t/ affrication (Buizza and Plug 2012) and is likely to be caused by the slower movement of the tongue tip away from the alveolar ridge during affricated productions. This creates a longer duration of high frequency noise and results in an overall longer duration. The finding that an increase of F2 in the following vowel results in an increase in pZCR is also consistent with an articulatory explanation. Higher F2 generally indicates a fronter vowel and the tongue blade is always close to the alveolar area during the production of high front vowels, which results in more frication as the air flows through the opening (Ohala 1983; Hall and Żygis 2010). Instead of a sociolinguistic explanation, it could be the case, for example, that Rebellious girls simply produce most of their tokens of /t/ before fronter vowels.

However, this is unlikely, as there were no interactions between Rebellious girls and these predictors, and the statistical model would also control for any such outcome. While it is possible that there are other variables that have not been measured here, such as speech rate or different kinds of pitch accent, the fact that the statistical models report significant differences between social groups suggests that there are sociolinguistic differences, irrespective of the potential origins of that variation.

Although the origins of /t/ affrication could reside in aerodynamic factors or bilingualism, it remains possible that 'non-sociolinguistic' phonetic variation that exists within a community can be utilised for making social meaning and transformed into sociolinguistic variation (Lambert et al. 2007; Eckert 2008b; Mendoza-Denton 2008). Jones and Llamas (2008) explain the related phenomenon of /t/ frication as a low-level phonetic context effect that, over time, becomes phonologised in particular dialects. It is likely that social factors will play a significant role in determining which variation becomes sociolinguistically patterned. For example, Somali and Yemeni boys may have more affricated /t/s due to influence from their heritage languages, but, as social divisions begin to emerge in a community, these existing differences may be magnified in order to index stances and position oneself within the social matrix of the school. So, while a variant may originate in a particular ethnic group, it does not necessarily hold that 'ethnicity' is always its primary indexical value (Eckert 2008b; Alam and Stuart-Smith 2011). Instead, /t/ affrication may represent one feature amongst a repertoire or pool of resources, potentially indexing a multiethnic urban youth style, or potentially facilitating other stances in specific episodes of interaction (Cheshire et al. 2011). I explore these different possibilities further in Chapter 7, where I examine the use of /t/ affrication in discourse.

5.6 Summary

This chapter demonstrates that there is a relationship between /t/ affrication and social practice in Ashton Valley School. Community of practice systematically predicts variation in word-initial /t/ amongst the girls, with the Rebellious girls having the most affricated realisations of /t/ and the Parkdale girls the least affricated. This supports previous findings that community of practice is sometimes a better explanatory variable than demographic categories, such as ethnicity (Alam 2007; Eckert 2008b; Mendoza-Denton 2008). However, amongst the boys, community of practice is not a significant predictor and there are some ethnic differences, such as between Somali/Yemeni and White boys. However, I suggest that these results may be indicative of social practice differences within male communities of practice, as

well as a lack of social contact between the Rebellious and Ashton boys.

The results suggest that /t/ affrication may be broadly indexical of an urban orientation and a multiethnic youth style within Ashton Valley School. However, variation is largely indeterminate when considered independently of styles and the specific discourse contexts in which it is used (Silverstein 2003). Chapter 6 reports an analysis of another phonetic variable, word-final /i/, in order to contextualise the use of these phonetic variables in terms of each other and to examine how different variables are operationalised for different identity work. Chapter 7 then focuses on individual variation and advances an account that locates the social meaning of word-initial /t/ and word-final /i/ in terms of discourse. Chapter 8 discusses the major findings of this dissertation and outlines avenues for future research.

Chapter 6

Word-final /i/

6.1 Overview

6.1.1 Summary

This chapter analyses the realisation of word-final /i/ in Ashton Valley School in terms of its sociolinguistic patterning and indexical potential. In particular, I focus on an acoustic continuum that ranges from tenseness (fronter and higher) to laxness (backer and lower) in the realisation of this vowel. This chapter begins by outlining the motivations for analysing this sound, before reviewing previous work on word-final /i/ in varieties of British English. As 66.06% of word-final /i/ tokens occur in /li/ and /ɹi/ clusters in these data, I give considerable attention to liquid-vowel clusters and, in doing so, also review previous research on liquid consonants. I then discuss the potential for cross-language influence from a range of heritage languages, before reporting static and dynamic analyses of word-final /i/ in Ashton Valley School. The results are discussed in terms of social practice and group membership, regional enregisterment, and the potential for cross-language influence.

6.1.2 Motivations

The focus of this chapter is word-final /i/, which is the sound that occurs at the end of words such as *happy, silly, furry*. It is often described using the lexical set keyword happʏ (Wells 1982). In accordance with previous research, I use the term *lax* to refer

to lower and backer vowel realisations, and *tense* to refer to higher and fronter vowel realisations (Wells 1982; Harrington 2006). Recent research shows that word-final /i/ has been undergoing tensing (raising and fronting) in many dialects of British English since the 1950s. However, in other varieties, such as Sheffield English, word-final /i/ is often realised as a lower and backer vowel, such as [ɛ] (Stoddart et al. 1999; Finnegan 2005; Beal 2004). These laxer realisations are often associated with older working-class speakers in Sheffield (Beal 2004).

My primary motivation for analysing this feature is that, in contrast to word-initial /t/, it appears to be subject to enregisterment in Ashton Valley School. This means that there are established, sometimes stereotyped, associations between a phonetic realisation and a social group. In this instance, I suggest that the enregisterment of laxer realisations of word-final /i/ include regional (Sheffield/Yorkshire) and classed (chav/common/working-class) associations. Some adolescents in the school explicitly commented on the indexical meanings of word-final /i/, such as Polly's (Rebellious girls) discussion of how 'chavs' speak in the extract below.

1	Sam:	how do they speak?
2		(.)
3	Polly:	common.
4	Sam:	like w- w- what does=
5	Polly:	=like they don't say
6		[pʰɒɬi] they say [pʰɒɬɛ].

This metalinguistic commentary is interesting because it tells us about a potential indexical value for laxer realisations of word-final /i/ in this community – 'common'. The students in Ashton Valley often used the term common to refer to people who they felt were inferior or undesireable and it was often used synonymously with other derogatory terms, such as 'chav'. Another insight from this brief metalinguistic comment is how Polly associates word-final /i/ with the high front vowel [i], rather than the more traditional RP vowel [ɪ]. The token in the first production of *Polly* (line 6) is audibly very tense, whereas the token in the second production is hyper lax, to the extent that it was acoustically lower and backer than any other token produced by any other speaker in the data set.

The overt indexicality of word-final /i/, evidenced in the extract above, acts as one motivation for analysing the realisation and distribution of this feature. The overt awareness of this variation contrasts with the case of word-initial /t/, which was subject to no overt commentary, but still patterned with communities of practice amongst the girls and some ethnic groups amongst the boys. This suggests that word-

final /i/ may be subject to a degree of enregisterment in a way that word-initial /t/ is not. Comparing a phonetic feature that is subject to conscious noticing with one that is not provides an opportunity to explore how different types of linguistic features can be used to signal group boundaries and create social meaning.

The main research questions for this chapter are:

1. Is variation in word-final /i/ used to index social distinctions and, if so, how?
2. Does the statistical analysis and enregistered status of word-final /i/ point towards any possible social meanings of this variable in Ashton Valley School?
3. To what extent do the results suggest a coarticulatory or cross-language explanation for the origins of word-final /i/ in these data, especially for tokens preceded by /l/?

6.2 Background

6.2.1 Unstressed vowels in British English

Word-final /i/ is here defined as the vowel that occurs in words ending in orthographic <-y>, <-ie>, <-i>, <-ee>, <-ey> and <-ea>, such as *city, movie, spaghetti, coffee, hockey, Swansea* (Wells 1982: 166). Words with <-ay> suffixes such as *Monday* may have a vowel with a similar quality to [ɪ], especially in Northern dialects. However, such words were not included in this study as they generally do not exhibit variation in the [i ɪ ɛ] monophthong space in these data for all speakers and were also infrequent. There were no tokens of orthographic <-ea> in the data presented here.

The quality of word-final unstressed /i/ is generally considered to be closer to [ɪ] in conservative varieties of RP (Wells 1982: 165). However, this vowel is reported to have undergone a shift in quality in more contemporary RP, from [ɪ] to a fronter and higher [i] (Wells 1982: 258). This phenomenon is often referred to as 'happʏ-tensing', after Well's (1982) keywords system. Fabricius (2002) finds realisations closer to [i] than [ɪ] in her corpus of modern RP speech and Harrington (2006) also reports tensing of /i/ from [ɪ] towards [i] by the Queen in her 1980s Christmas broadcasts when compared with those from the 1950s.

In many Northern English dialects, the tensing of /i/ is less widespread and geographically variable. Hughes et al. (2005) report this vowel to be [i] in Southern England and [ɪ] in some areas of Northern England. However, Liverpool and Tyneside typically have [i] rather than [ɪ]. Some Northern accents, such as Sheffield and

Manchester, are reported as having realisations that are closer in quality to [ɛ] (Stoddart et al. 1999; Beal 2004), whereas some Midlands accents are reported to use the 'Southern' [i] variant; for example Derby (Docherty and Foulkes 1999: 50), Leicester (Hughes et al. 2005: 88) and Nottingham (Flynn 2010).

Sociolinguistic accounts of /i/-tensing often imply that it is a sound change that has spread from the South of England, but this is problematised by its occurrence in Northern areas such as Liverpool and Tyneside (cf. Watts 2006: 183). Trudgill (1999: 82) implies that the tensed form has simply skipped the non-tensing Northern cities and has spread to Liverpool and Tyneside, but this account is disputed by Beal (2000), who claims that [i] is not a recent innovation as it has been around since at least the eighteenth century. Watts (2006: 183) highlights Knowles' (1997) suggestion that coastal locations, such as Liverpool and Tyneside, have historically experienced greater levels of dialect contact, which could explain the use of [i] in these areas. However, if this is true, then we might also expect to see use of [i] at an earlier time in these locations given the long history of contact (Watts 2006: 183).

The majority of research on word-final /i/ in British English has focused almost exclusively on ethnically White Anglo speakers. There has been little quantitative investigation of this vowel feature in ethnic minority British English speakers, but previous research offers some clues and tendencies about possible realisations. For example, in their study of Panjabi-English bilingual children, Heselwood and McChrystal (2000: 50) report that two listeners reported 'lengthening of lax vowels' as a characteristic of Panjabi-accented English. Further impressionistic observations concerning word-final /i/ in Sheffield English are addressed in Section 6.2.5.

6.2.2 Phonetic context and prosodic effects on word-final /i/

Word-final /i/ is the only full (i.e. non-schwa) vowel that occurs in unstressed open syllables (Harrington 2006: 441). Word-final /i/ frequently occurs phrase-finally and/or turn-finally, which is a context that often encourages syllable lengthening. Tensing in phrase-final environments may lead to lengthening/tensing in all environments, which could explain the patterns of /i/-tensing evidenced over the past sixty years (Harrington 2006: 441). However, this explanation may not hold for all dialects. Wells (1982: 165) reports lower/backer realisations of /i/ occurring in absolute phrase-final position in varieties of English that typically do not show tenser variants. This suggests that whether word-final /i/ is typically realised as tense or lax may influence the ways in which phonetic and prosodic factors interact with vowel quality.

As word-final /i/ occurs in unstressed syllables, it is perhaps surprising that it has not undergone more complete vowel reduction and become a more centralised vowel, such as [ə]. Vowel reduction refers to the phenomenon in which the acoustic vowel space is reduced in size, which often involves peripheral vowels becoming more centralised than in their canonical productions (Lindblom 1963a). Reduction can be caused by changes in speech rate and speaking style, such as the difference between citation forms and clear speech (Moon and Lindblom 1994). One reason why word-final /i/ is not always reduced could be the existence of minimal pairs, such as *sandy* and *sander*, which are maintained through the non-reduction of word-final /i/. Another explanation for the the lack of diachronic reduction in word-final /i/ is its greater coarticulatory resistance. Recasens (1987) suggests that sounds with a high tongue body position may be more resistant to coarticulation and findings from a number of experimental studies support this hypothesis (Butcher and Weigher 1976; Recasens 1985, 1989). For this reason, it is often claimed in the literature that /i/ possesses a high degree of articulatory stability (Stevens 1989).

While word-final /i/ is more resistant to coarticulation than other vowels, it nonetheless does exhibit *some* degree of variation across different phonetic contexts. It may be higher/fronter when followed by another vowel and lower/backer when followed by a consonant (Wells 1982: 165). Rhythm also influences the realisation of word-final vowels. For instance, the final vowel in *busy, city, very* is often different from the final vowel in *easy, tidy, country, handy*, at least in Tyneside English (Local 1986). The syllable differences between these sets of words are sometimes termed 'short-long' and 'equal-equal', after Abercrombie (1964: 218). Short-long forms feature a short vowel in the first syllable followed by no more than one consonant (*city*), whereas equal-equal forms tend to have a long vowel in the first syllable (*easy*) or a short vowel followed by more than one consonant (*country*). Local (1986) found that word-final /i/ in short-long words was backer/lower than in equal-equal words. His results also show that short-long words have a higher vowel when followed by a voiced sound. Flynn (2007) does not find word rhythm to have a significant effect on the realisation of word-final /i/ in Nottingham, but Watts (2006) finds an effect in the same direction as Local (1986) in her study of Cheshire English, with short-long words being more likely to have a laxer word-final /i/ vowel.

Word-final /i/ only occurs in polysyllabic words and this makes it a potential candidate for vowel-to-vowel coarticulation across adjacent syllables. Previous research on word-final /i/ often refers to this under the banner of 'vowel harmony' (e.g. Watts 2006; Flynn 2007; see Katamba 1989: 211 for a brief overview of vowel harmony). However, this terminology is not used here as it suggests that vowel-to-

vowel coarticulation has become phonologised (Ohala 1994) and I do not intend to address this issue in the present work. For this reason, I refer to this phenomenon simply as vowel-to-vowel coarticulation. Watts (2006: 237) uncovers an effect of vowel-to-vowel coarticulation in her analysis of word-final /i/ in Cheshire, with an increased use of the [ɪ] variant when there is a [ɛ] in the preceding syllable. This pattern is also found in Flynn's (2007) study of Nottingham adolescents. Flynn also finds that tensed variants are more likely to occur when the vowel in the previous syllable is [i]. This is consistent with an articulatory explanation for vowel-to-vowel coarticulation, given that the higher and fronter tongue body position for the vowel in the previous syllable may carry over into following syllables.

The above factors highlight the importance of phonetic context effects in the realisation of word-final /i/. These include preceding and following phonetic contexts, rhythm, and vowel-to-vowel coarticulation. All of these factors are considered in the analysis presented in Section 6.3. However, one major factor to be considered in this study is the role of a preceding liquid consonant, such as /l/ or /ɹ/. Around 66% of tokens of word-final /i/ in these data occur in /li/ or /ɹi/ clusters and it is well known that liquid sounds exert considerable articulatory and acoustic influence on surrounding sounds. For this reason, I review research on liquid consonants below, which informs the analysis presented in Section 6.3

6.2.3 Liquids in British English

Production of liquid consonants

The term 'liquids' is used to refer to a set of laterals and rhotics, which are often grouped as they pattern together distributionally (Carter and Local 2007: 183). However, even within the categories 'lateral' and 'rhotic' there is extensive heterogeneity, meaning that such groupings must be treated with caution if we wish to uncover more specific details about their production (Ladefoged and Maddieson 1996: 212, 244; Lawson et al. 2011a: 73). Liquids are often characterised as complex sounds which require the timing of multiple lingual and labial articulations (Alwan et al. 1997; Narayanan et al. 1997). As the primary focus in this analysis is on liquids that occur in /li/ and /ɹi/ clusters I do not report an extensive review of postvocalic rhoticity or vocalisation of /l/ (for an overview of this research see Lawson et al. 2011a). This section also gives more attention to /l/ than /ɹ/ because /li/ clusters were also much more frequent than /ɹi/ clusters in these data.

Studies of British English laterals normally focus on the oral lateral approximant and its positional variants. Many studies of laterals makes a distinction between

'clear/light' and 'dark' variants. I use the term 'clear' rather than 'light' when describing liquids and refer to these variants as 'clear /l/' and 'dark /l/'. This distinction is only used for descriptive purposes and is not meant to imply that they are phonologically distinct. Clearness and darkness is often used to refer to different degrees of tongue body retraction and the timing relationship between the alveolar and dorsal constrictions involved in lateral production. Variants of /l/ are both phonetically predictable (Sproat and Fujimura 1993) and can exhibit gradience (Narayanan et al. 1997). Descriptions of RP and other Southern British English varieties often state that clear /l/ occurs in syllable-onsets and dark /l/ occurs in syllable-rimes (Wells 1982). However, many northern varieties have dark /l/ in all syllable positions (e.g. Leeds) and some have clear /l/ in all syllable positions (e.g. Newcastle) (Carter and Local 2007). Clear and dark rhotics also occur in British English (Kelly and Local 1986), but the use of the 'clear/dark' terminology to describe rhotic sounds is comparably rare in the literature (Carter 2003: 241). Rhotics are often described as dark in syllable-initial position and clear in syllable-final position (Olive et al. 1993).

One of the primary acoustic correlates of clearness and darkness in liquids is F2. Generally, clear /l/ has high F2 and low F1, while dark /l/ has low F2 and high F1 (e.g. Lehiste 1964; Ladefoged and Maddieson 1996; Carter and Local 2007). Stevens (1998: 543) reports that F3 is related to the size of the back cavity in lateral production, with higher values indicating a smaller back cavity. Lip rounding and protrusion can also raise F3, but this effect may be more pronounced in the case of clearer laterals (Recasens and Espinosa 2005: 11). In terms of dynamic patterns, clearer laterals have faster formant transitions into and out of the lateral steady-state phase, whereas darker laterals have slower transitions into and out of the steady-state phase (Carter 2003: 248–249). This difference is generally greatest in the transition into the lateral. The steady-state phase is often longer in duration for clearer laterals and shorter for darker laterals.

Liquids are known to exhibit long-range effects, such that /l/ and /ɹ/ phonetically colour any adjacent vowels and sometimes the vowels in neighbouring syllables (Kelly and Local 1989; Hawkins and Slater 1994; West 1999). This long-range phenomenon is often called *resonance*. For example, Kelly and Local (1989) claim that tokens of word-final /i/ preceded by /l/ or /ɹ/, such as *telly* vs *Terry*, are audibly distinct in many British English varieties. These resonance effects can be found in as many as five syllables before the occurrence of /l/ or /ɹ/ (Heid and Hawkins 2000). It has been suggested that resonance effects may affect unstressed syllables more than stressed syllables (Hawkins and Slater 1994). However, as vowel height also interacts

with resonance it can be difficult to disentangle distinctions between stress and vowel height (Tunley 1999).

As discussed above, the /i/ vowel is often claimed to possess high articulatory stability and to be more resistant to coarticulation than other sounds (Recasens 1987). However, this contrasts somewhat with Kelly and Local's (1989) finding that /i/ is subject to extensive coarticulatory variability when preceded by a liquid. However, as Tunley (1999: 17) points out, most studies rarely look at /i/ in contexts where it is adjacent to /l/ or /ɹ/, and also do not focus on /i/ in unstressed contexts, such as *telly* or *Terry*.

Sociolinguistic variation in British English liquids

Sociolinguistic studies of rhotic consonants have generally tended to examine postvocalic rhoticity in English (e.g. Stuart-Smith 2007a; Lawson et al. 2011b). Sheffield English is not rhotic and the present study focuses only on tokens of /ɹ/ that occur in word-final suffixes, such as <-ry>. Consequently, the large body of research on postvocalic /ɹ/ will not be reviewed here. Comparably little work has focused on /ɹ/ in the particular context examined here (word-medial post-accentual position), but this is discussed below where relevant.

Carter and Local (2007) examine F2 differences in liquid production in Newcastle and Leeds English. They focus on /l/ and /ɹ/ in initial, medial and final position, with distinctions for prosodic position within medial contexts: iambic/pre-accentual (e.g. *believe, bereave*) versus trochaic/post-accentual (e.g. *belly, berry*). They find that Newcastle speakers have higher F2 in initial and pre-accentual medial /ɹ/ than in the same /l/ contexts, while this pattern is reversed for Leeds speakers, who have lower F2 for /l/ when compared to /ɹ/. However, the Newcastle speakers do not distinguish /l/ and /ɹ/ in post-accentual medial contexts, whereas Leeds speakers have a lower F2 for /l/ when compared to /ɹ/ in this context. This generally suggests darker realisations of /l/ and clearer realisations of /ɹ/ in Leeds English, and clearer realisations of /l/ and /ɹ/ in Newcastle English.

Previous research also finds correlations between /l/ realisation and ethnicity in Britain. For example, Heselwood and McChrystal (2000) find that English-Panjabi bilinguals in Bradford produce /l/ in syllable codas as auditorily clear in the majority of cases. They note that /l/ is normally clear in this context in White Bradford English, but that the Asian speakers' productions are even clearer. Furthermore, phonetically-trained listeners also identified clear /l/ in syllable codas as a salient feature in the English of English-Panjabi bilinguals in Bradford. Lambert et al. (2007) also report on

an auditory study of /l/ realisation by White and Asian speakers in Glasgow English. They find that Asian speakers use more postalveolar realisations of /l/ while White Glaswegians use more dentalised articulations. This finding was also reflected in an accent judgement test, where listeners all identified retroflex articulations of /l/ and /ɹ/ as characteristic of Glasgow Asian speech.

Acoustic studies have also found relationships between /l/ clearness/darkness and ethnicity. Stuart-Smith et al. (2011) report an acoustic analysis of syllable-initial /l/. They find that /l/ is clearer (higher F2) in Glasgow Asian speakers when compared to White speakers. However, the values for the Asian speakers are still very low, suggesting that Asian /l/ can still be considered 'dark', just not as dark as the /l/s of the White speakers. This problematises the clear/dark binary, as ethnic variation in Glasgow may be more about the darkness of the lateral, rather than a simple clear/dark distinction. This suggests that the simple clear/dark terminology may not reflect community-specific patterns and that /l/ realisation may be better conceptualised in terms of the degree of tongue body retraction rather than as a binary variable.

6.2.4 The potential for cross-language influence

As documented in Section 5.2.4 on word-initial /t/, it is possible that bilingual speakers' English productions may be influenced from the phonetics of those speakers' heritage languages. There is little research that focuses explicitly on word-final unstressed vowels in the heritage languages of the speakers in this study: Panjabi, Urdu, Bengali, Yemeni Arabic, and Somali. As I mention in Section 5.2.4, there is also very little research on these varieties in British contexts. It is highly likely that the phonetic system of British Panjabi is different from varieties of Pakistani Panjabi (Heselwood and McChrystal 2000). Furthermore, it is also difficult to make clear predictions about cross-language vowel effects given that word-final /i/ is a highly specific phonetic context that may not always occur in every language. Nonetheless, I highlight some relevant findings on word-final and front vowels, but also focus on the role of rhythm and timing, as well as clearness/darkness in laterals.

Vowels

Bhatia (1993: 341) claims that all vowels can appear in word-final position in Panjabi, except for short centralised vowels such as /ɪ/. The higher/fronter vowel /i/ can occur in word-final position according to Bhatia. Schmidt (2003: 311) also describes a similar situation for Urdu. Mahboob and Ahmar (2004: 1007) give /ɪ/ as the phoneme for

word-final /i/ in Pakistani English (as spoken in Pakistan), but my own impressions based on data collected for Kirkham (2011b) suggest that it is phonetically much closer to /i/, with the specific realisation being closer to cardinal vowel 1 than would be the case for most /i/-tensing speakers of British English.

Phonological descriptions of Somali posit the nearest vowel to be /i/, which is realised with contrastive length and possibly contrastive voice quality or registers (Edmondson et al. no date). In the *Principles of the IPA*, Berbera Somali /i/ is transcribed as [i̤], suggesting a realisation slightly lower than cardinal vowel 1 (International Phonetic Association 1949: 34). Edmondson et al. (no date: 7) also transcribe this vowel as /i/, but note that it can occasionally be raised and fronted in the 'expanded register' (which is defined as expanded supraglottal cavity).

Rhythm and timing

One area that can be used to infer potential expected patterns is rhythm and timing. Word-final /i/ generally occurs in unstressed syllables in most varieties of British English. This prosodically weak position has a tendency to result in 'reduced' vowels (Lindblom 1963a). However, if a language has syllable-timing then we might expect that equal weight is given to all syllables. Given that vowel reduction and /i/ laxing is sometimes expected in unstressed syllables, it follows that word-final /i/ may be tenser if the syllable in which it appears receives more prominent stress.

In terms of the heritage languages spoken by speakers in this study, there is a range of reported rhythmic differences. Heselwood and McChrystal (2000) suggest that syllable-timing may not be a feature of Panjabi, which is also supported by Bhatia (1993: 343). However, Mahboob and Ahmar (2004: 1014) report Pakistani English to be syllable-timed and claim that this is also the case for many other South Asian languages, such as Urdu and Bengali (Faehndrich 2005). Studies of East African English generally report syllable-timing (Melchers and Shaw 2003; Mesthrie and Bhatt 2008) and, based on repeated listening to the data and my exposure to Somali speakers in Sheffield, Somali could be considered a more syllable-timed language. Arabic is often considered to be stress-timed (Abercrombie 1967: 97), but there is considerable variability between dialects.

Laterals

Some phonological descriptions propose that Panjabi contrasts dental and retroflex /l/, but this contrast is neutralised in many varieties in favour of the dental lateral (Shackle 2003: 590). Wells (1982: 625) claims that /l/ is always clear in Indian varieties

of English. Heselwood and McChrystal (2000) find that English-Panjabi bilinguals have clear /l/ in syllable codas, while Mahboob and Ahmar (2004: 1011) also report categorical clear /l/ in Pakistani English.

Dasgupta (2003: 358) notes that /l/ can have dental, retroflex and palatalised allophones in Bengali, but does not discuss clearness/darkness or velarised /l/. From this, I assume that Bengali does not have dark /l/, but further research is warranted in order to confirm this. Armstrong (1934: 11) claims that 'the resonance of *l* [...] is never very "clear"' in Somali. Exactly how Armstrong interprets prototypical clearness is not explicit. Neither Armstrong nor Saeed (1999: 11) mention velarised allophones of /l/ and all of the Somali speakers I interviewed had auditorily clear /l/s in both their English and Somali speech. This was also the case when I spoke informally to older Somali community members. To this end, Edmondson et al. (no date: 7) describe Somali initial and final /l/ as a voiced apico-alveolar lateral and medial /l/ as 'short and with less strength of articulation', which suggests that Somali /l/ is not typically velarised. Arabic /l/ is typically a voiced dental lateral and clear in all word positions (Khattab 2002: 339). Khattab (2002) finds that English-Arabic bilingual children in Yorkshire produce clear /l/ in syllable-initial position, but primarily dark or vocalised /l/ in syllable-final position.

6.2.5 Word-final /i/ and liquids in Sheffield English

Stoddart et al. (1999) report robust use of [ɪ] for word-final /i/ in monolingual White Sheffield English, with laxer variants such as [ɛ] also being very common. Finnegan (2005) reports an auditory analysis of data from Survey of Sheffield Usage recorded in the 1980s and finds that [ɪ] is the most frequent variant. However, she finds that the [ɪ] variant is decreasingly slightly in apparent time, but that all age groups still use this variant very frequently (70% and above). Interestingly, the decrease of [ɪ] in younger speaker appears to pattern with an increase in the use of [ɛ] rather than an increase in [i], the latter being used more frequently by middle-aged speakers. There has been little analysis of this vowel in data recorded after the 1980s, but Beal (2004: 126) claims that the use of the tense variant [i] may be on the rise in contemporary Sheffield English. Despite Finnegan's finding that [ɛ] was used more frequently by younger speakers in the 1980s, Beal claims that the increased use of [i] could represent a move away from [ɛ], which may be associated with much older speakers in Yorkshire.

There is little previous research on /l/ in monolingual White Sheffield English. Wells (1982: 370–371) describes Northern dialects as generally lacking a clear/dark distinction, with 'a middle kind of /l/' often being used. Wells claims that this can

give the impression of darkness when used in positions where other varieties would have clear /l/. Impressionistically, the liquid system of White Sheffield English is similar to that described by Carter and Local (2007) for Leeds English, with dark /l/ in all syllable positions.

6.3 Acoustic analysis

6.3.1 Motivations

This section reports a quantitative acoustic analysis of vowel quality in the realisation of word-final /i/. I also report an analysis that examines the dynamic transitions across liquid-vowel clusters involving word-final /i/, because these tokens form a substantial part of the data and reveal further insights into the relationship between phonetic variation and identity in Ashton Valley School.

6.3.2 Method

Coding

The word-final /i/ variable was defined as the word-final unstressed vowel that appears in the suffix of orthographic <-y>, <-ie>, <-i>, <-ee>, <-ey> words. This meant that words with <-ly> and <-ry> suffixes were also included. Plural suffixes, such as <-ies>, were not included because I decided to limit the focus to words in which /i/ was absolute word-final. Some previous studies avoid tokens with preceding /ɹ/ because they result in a lowering of F2 in the vowel phase (Fabricius 2002: 219). However, these tokens are included here and any effects of preceding phonetic context are accounted for in the statistical model.

In total, 1294 tokens of /i/ were analysed (mean = 30.09 per speaker; range = 10–41). 54.56% of the /i/ tokens occurred in /li/ clusters (N = 706; mean = 16.42 per speaker; range = 1–40), while 11.51% of tokens occurred in /ɹi/ clusters (N = 149, mean = 3.47 per speaker; range = 0–8). Given the high frequency of /li/ tokens, this cluster forms the focus of a dynamic analysis. The number of /ɹi/ tokens was too low to be subjected to a similar analysis, so the dynamic sections only focus on /li/. As the focus here is on unstressed open syllables, all tokens of /l/ and /ɹ/ preceding /i/ occur in post-accentual prosodic positions (Carter and Local 2007: 185).

Following identification of tokens, a number of word- and phrase-level properties were then coded for each instance of word-final /i/. These include:

- Lexical item

- Preceding phonetic context
- Following phonetic context
- Vowel in previous syllable
- Position in intonation phrase [non-final; final]
- Nuclear accent [yes; no]
- Number of syllables in word
- Number of syllables in intonation phrase
- Word class [noun; verb; adjective; adverb; preposition; pronoun]
- Word rhythm [short-long; equal-equal]

Lexical item accounts for the word in which a token of word-final /i/ occurred. Preceding and following phonetic contexts, as well as vowel in previous syllable, were transcribed using broad phonetic (allophonic) transcription. The previous section outlined predictions regarding the phonetic characteristics of a preceding /l/ across the different heritage languages. One consequence of this could be to code the allophonic realisation of the preceding /l/ as clear or dark. This approach was not carried out here as phonetic characteristics of the preceding /l/s are explicitly analysed in the dynamic analysis of liquid-vowel sequences, which negates the need for a separate categorical analysis. Number of syllables in word and intonation phrase were coded based upon auditory impressions of actually produced syllables, rather than citation forms. Vowel in the previous syllable was coded in order to examine possible effects of vowel-to-vowel coarticulation.

Prosodic properties included the position of the word in the intonation phrase (non-final; final) and whether or not the syllable in which /i/ occurred received a nuclear pitch accent. Nuclear pitch accent was coded based on whether the word containing a token of word-final /i/ received the most prominent pitch accent in the intonation phrase, which was coded based on auditory impressions of prominence in terms of a large pitch excursion and variation in intensity. A nuclear pitch accent was defined as 'the degree of distinctiveness or prominence of a given linguistic unit relative to the rest of the phrase or sentence' (Cho 2004: 143). Word rhythm was coded in order to examine possible effects of rhythmic properties, which was discussed in more detail in Section 6.2.2. Following Local (1986), word rhythm was coded as either 'short-long' or 'equal-equal'. Short-long words featured a short vowel

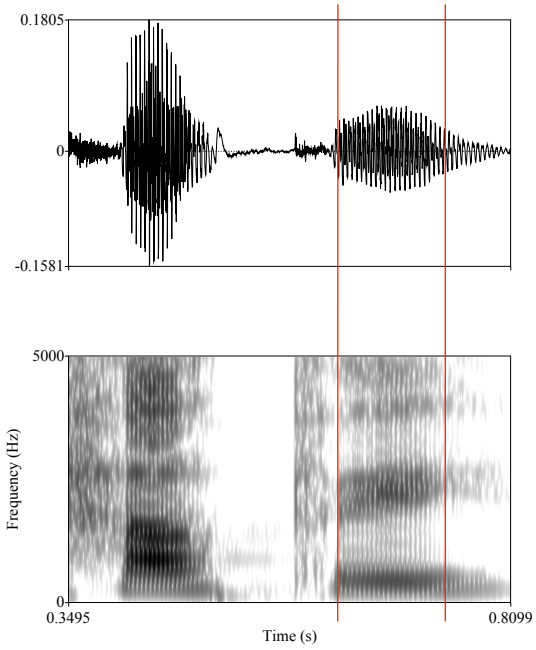

Figure 6.1: Acoustic segmentation of /i/ in the word *happy*. This particular example was produced by a White female speaker.

in the preceding syllable, followed by no more than one consonant (e.g. *very, city*). Equal-equal words were those with either (i) a short vowel in the preceding syllable, followed by more than one consonant (e.g. *country, mainly*); or (ii) a long vowel in the preceding syllable, followed by any number of consonants (e.g. *daily, easy*). Word rhythm was coded based on the actual productions, rather than citation forms.

Labelling

Acoustic landmarks were labelled for each token of /i/ based on visual observation of waveforms and wide-band spectrograms. All markers were positioned at the nearest zero-crossing. For tokens with a preceding context that was *not* a liquid, the onset of the labelled interval was defined as the onset of F2 on the spectrogram, and the offset of the labelled interval was defined as the offset of F2. An example of this kind of acoustic segmentation is presented in Figure 6.1.

For tokens with a preceding liquid, the onset of the labelled interval was defined as the onset of the liquid steady-state portion, at which the F2 frequency was static for a sustained period of time. The labelled interval did not include transitions into the liquid. No attempts were made to separate the liquid and the vowel because there was not always a reliable distinction between the two. Tokens with an audibly clear preceding /l/ were visibly distinguishable on the spectrogram, with the /l/ having a

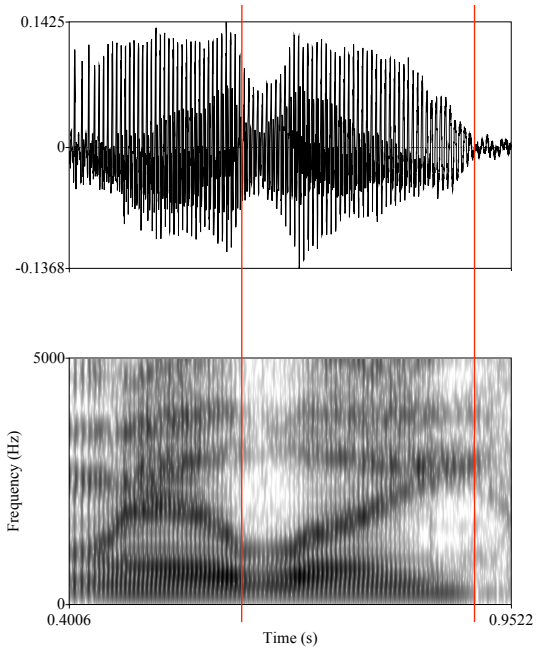

Figure 6.2: Acoustic segmentation of a /li/ cluster in the word *really*. This particular example was produced by a White female speaker. The resonance of /l/ in this example is auditorily 'dark'.

similar formant trajectory to the vowel but with lower amplitude formants. Tokens with a darker preceding /l/ had less abrupt transitions and were marked by gradual changes in formant trajectories, such a steep rise in F2 as the vowel moved towards its target state. An example of acoustic segmentation of a dark /l/ is presented in Figure 6.2.

Acoustic analysis

All sound files were originally recorded as 16-bit 44.1 kHz WAV files. These were low-pass filtered at 11 kHz and downsampled to 22.05 kHz prior to analysis. Segmental labelling, filtering and downsampling were carried out using Praat and files were then converted to an Emu file formant. Acoustic analysis was conducted using Emu and the resulting measurements were processed and transformed using R and the accompanying emu package.

The first two formants (F1; F2) of the labelled vowel and liquid-vowel intervals were estimated using Emu's forest function. Spectral data were obtained using a 45 ms Blackman window with a 10 ms window shift across the entire signal duration and formant values were calculated using Linear Predictive Coding. LPC order was determined using Emu's 'nominal F1' setting, which was set at 600 Hz

for male speakers (LPC order: 20) and 650 Hz for female speakers (LPC order: 18). All formant values were visually inspected by overlaying formant tracks on wideband sprectrograms in Emu and, in cases where the overlaid formant tracks did not correspond to visually identifiable formants on the spectrogram, they were hand-corrected using Emu's formant correction tool. All formant data were then transformed to the Bark psychoacoustic scale using the formula in Traunmüller (1990) in order to better approximate human auditory perception.

The measurement used to capture vowel quality was F2 minus F1 (F2–F1) at the time of the peak F2 (Bark) value within the 20–80% portion of the labelled interval. The labelled interval was either the /i/ vowel or the /li/ or /ɹi/ sequence. Peak F2 was chosen as this can be assumed to represent the vowel target for high front vowels (Harrington 2010b: 182). F2–F1 measurements were also taken at the time of the F1 minimum (potentially representing peak vowel height), but the results obtained at this time-point were not significantly different from those taken at peak F2 and previous studies do not generally use F1 minima to identify vowel targets for /i/. The 20–80% interval was chosen in order to reduce the influence of adjacent segments on the formant measurements as far as possible, while acknowledging that this is rarely possible, especially when preceding liquid sounds are involved. A higher F2–F1 value represents an acoustically higher and fronter vowel, whereas a lower F2–F1 value represents an acoustically lower and backer vowel. As mentioned earlier, I use the term *lax* to refer to lower and backer vowel realisations, and the term *tense* to refer to higher and fronter vowel realisations (Wells 1982).

For the dynamic analysis, I calculated F2–F1 at eleven proportional points over the duration of the labelled segment, which was either the /i/ vowel or the /li/ or /ɹi/ sequence. F2–F1 is also an effective measure for analysing liquids as it captures information about clearness and darkness. Figure 6.3 shows prototypical productions of clear and dark /l/ from word list data. The relationship between F1 and F2 is clearly different in these acoustic representations, with a much greater distance between F1 and F2 for clear /l/ (left) than for dark /l/ (right). This suggests that the F2–F1 measurement should capture this dimension of clearness/darkness effectively, with higher values indicating clearer /l/s and lower values indicating darker /l/s.

The F2–F1 data were not subject to further speaker normalisation because the measurement captures information about relative formant values, which normalises for between-speaker variation. To this end, F2–F1 is already one possible formant-extrinsic normalisation technique (Syrdal and Gopal 1986) and it is possible that further normalisation may risk 'over-normalising' the data, thereby reducing potentially significant sociolinguistic differences. Also, all of the speakers in this

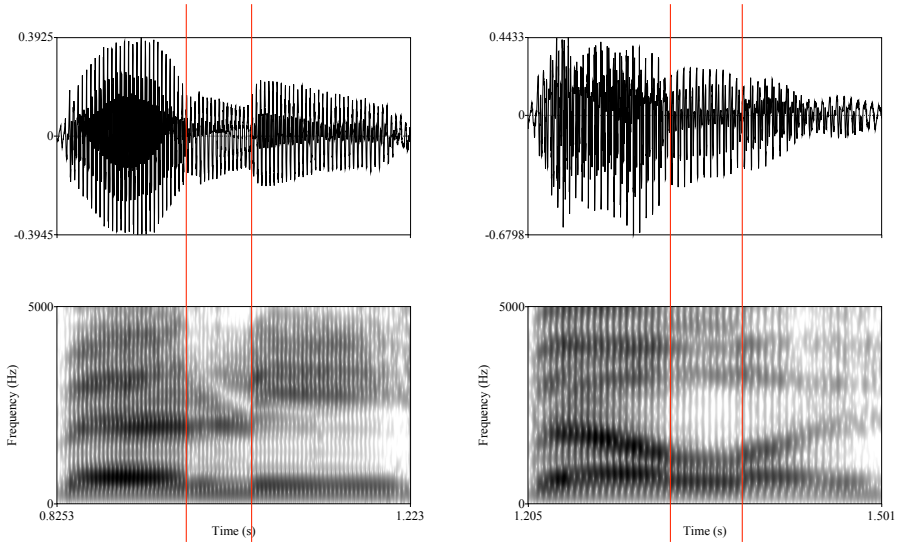

Figure 6.3: Waveforms and spectrograms for two productions of /l/ in the word *belly*. The labelled interval represents the /l/ F2 steady-state. The left diagram shows a prototypically 'clear' /l/ produced by a Pakistani male. The right diagram shows a prototypically 'dark' /l/ produced by a White male.

sample were very highly age-homogeneous and belonged to the same age cohort within the school. The analysis of male and female speakers was also carried out separately, which is grounded in the lack of interaction between female and male groups (see Chapter 3). The combination of these factors motivated the decision not to apply further normalisation procedures to these data.

Statistics

For the static analysis of vowel quality, mixed-effects regression models were fitted to the data with F2 minus F1 at peak F2 (Bark) as the outcome variable. Predictor variables included a series of linguistic factors (preceding phonetic context; following phonetic context; vowel in previous syllable; position in intonation phrase; presence/absence of nuclear accent; word syllables; word class; word rhythm; duration of vowel/liquid-vowel), social factors (ethnicity; index of multiple deprivation; community of practice), bilingualism (first language), and interactions between social factors and linguistic factors (community of practice/ethnicity * preceding context; community of practice/ethnicity * nuclear accent; community of practice/ethnicity * nuclear accent * preceding context; nuclear accent * vowel in previous syllable; duration * vowel in previous syllable; word rhythm * vowel in previous syllable). Speaker and word were entered into the model as random factors.

Baseline variables for categorical variables included Rebellious girls or Ashton

boys (Community of practice), White (Ethnicity), preceding front stop (Preceding context), schwa vowel in the previous syllable (Vowel in previous syllable), a following pause (Following context), non-nuclear-accented syllable (nuclear accent), medial (Intonation phrase position), noun (Word class), equal-equal (word rhythm), English (first language), and average levels of deprivation (Index of multiple deprivation).

A series of models were fitted using a general-to-specific modelling approach. This was repeated until an optimum model was reached in which all predictors were significant. Model comparison was carried out using ANOVAs. This procedure and the motivations behind it are discussed in more detail in Section 4.5.1.

For the dynamic analysis, I use a graphical representation of a regression analysis, which is the same as that reported in Chapter 5. The results are reported by displaying F2–F1 values over proportional time, from 0% to 100%. This represents clearness/darkness and tenseness/laxness over the transition between the onset of the liquid steady-state and the offset of /i/. Higher values indicate clearer/tenser realisations and lower values indicate darker/laxer realisations. I make no efforts to represent a segmental boundary between /l/ and /i/, but we would expect that the /l/ target is within the 0-25% time-point, whereas the /i/ target is within the 50–75% time-point. The dynamic data were smoothed using a generalised additive regression model, from which 95% Bayesian confidence intervals were derived. At the points at which the confidence intervals of different groups do not overlap then we may expect the differences between those groups to be statistically significant. However, it should be stressed that these plots do not control for other phonetic context effects and should therefore not be interpreted as confirmatory.

6.3.3 Results: female speakers

This section focuses on the tenseness/laxness of word-final /i/ amongst female speakers. Higher F2–F1 values indicate a tenser realisation of /i/, whereas lower F2–F1 values indicate a laxer realisation of /i/. The first analysis is a mixed-effects linear regression analysis of F2–F1 at peak F2 in /i/. The second analysis examines dynamic patterns in F2–F1 across /i/ and /li/ intervals.

Static analysis

The regression model summarised in Table 6.1 examines F2–F1 values amongst the female speakers. The only social factor that was statistically significant is community of practice. The Ashton girls and Twilight girls both have significantly tenser

Table 6.1: Final regression model for female F2–F1 (Bark) at peak F2. Statistics were derived using Markov Chain Monte Carlo sampling. The intercept represents Rebellious girls producing /i/ with a preceding front stop (Preceding context), a following pause (Following context), in a non-nuclear-accented syllable (nuclear accent).

F2–F1 at peak F2 (Bark)	β	St. Err.	95% HPD CI	p
Intercept	10.24	0.25	9.77, 10.72	$< .001$
Community of practice				
Ashton girls	0.89	0.38	0.18, 1.63	.017
Twilight girls	0.76	0.37	0.07, 1.48	.032
Parkdale girls	-0.68	0.37	-1.36, 0.04	.063
Preceding context				
[l]	-1.08	0.16	-1.37, -0.79	$< .001$
[ɹ]	-0.93	0.20	-1.30, -0.55	$< .001$
Nuclear accent				
Yes	-0.29	0.13	-0.55, -0.03	.031
Community of practice * prec. /l/				
Twilight girls	0.58	0.28	0.03, 1.10	.033
Community of practice * nuclear acc.				
Parkdale girls	-1.26	0.30	-1.87, -0.69	$< .001$

realisations of /i/ when compared to the Rebellious girls, whereas the Parkdale girls are not significantly different from the Rebellious girls. This suggests a clustering between Ashton and Twilight girls on the one hand, who have tenser realisations of /i/, and Parkdale and Rebellious girls on the other hand, who have laxer realisations of /i/. This distinction maps onto a pro-school versus anti-school split amongst the girls, with the Ashton and Twilight girls adopting a more pro-school orientation and the Parkdale and Rebellious girls adopting a more anti-school orientation. This contrasts with the results for /t/, in which the Parkdale and Rebellious girls occupied different ends of the acoustic extreme in terms of affrication. Other social factors, such as ethnicity, index of multiple deprivation, and first language, were not significant predictors in this model. This suggests that community of practice is the best social predictor of variation across this dimension of word-final /i/ realisation amongst the female speakers.

In terms of linguistic predictors, a preceding /l/ or /ɹ/ lowers F2–F1, resulting

in a less tense production of /i/. This effect can be explained with reference to the articulatory effects of liquid consonants on surrounding vowels, whereby preceding liquids generally lower F2 in the following vowel (Tunley 1999). There was also an effect of nuclear accent, with F2–F1 being slightly lower in nuclear accented syllables. In terms of significant interactions between social and linguistic factors, the Twilight girls have tenser /i/ in preceding /l/ contexts. This runs contrary to the main effect, in which a preceding /l/ lowers F2–F1. However, as the dynamic analysis below shows, this effect is likely to represent the interaction between the Twilight girls' very clear realisations of /l/ and their production of tense /i/ vowels. On the other hand, the Parkdale girls have much laxer /i/ in nuclear accented syllables when compared with the Rebellious girls, with a fairly large regression estimate (β = -1.26). This may appear unusual, given that nuclear accented syllables would be considered a prosodically strong context that would usually encourage tensing (Harrington 2006). However, speakers of varieties that tend to produce laxer realisations of /i/ may show even laxer variants in prosodically strong positions (Wells 1982: 165). Given that the Parkdale girls produce the laxest tokens out of all four female groups, this is also likely to be the case here.

In summary, there are community of practice differences amongst the girls in terms of word-final /i/. The anti-school Parkdale and Rebellious girls produce laxer realisations, whereas the pro-school Ashton and Twilight girls produce tenser realisations. This could suggest that /i/ realisation is used to index broad distinctions in terms of school orientation within Ashton Valley School.

Dynamic analysis

Dynamic differences between the female communities of practice are captured in Figure 6.4. The left panel displays F2–F1 across the duration of all tokens of /i/ that are not preceded by /l/, whereas the right panel displays F2–F1 across the duration of tokens that are preceded by /l/. In the right panel, the /l/ starts at 0% and the /i/ ends at 100%, with the space between representing the transition between /l/ and /i/. Higher values indicate a clearer realisation of /l/ and a tenser realisation of /i/, whereas lower values indicate a darker realisation of /l/ and a laxer realisation of /i/. The shaded grey borders around each line represent 95% Bayesian confidence intervals derived from regression analysis; where the grey lines do not overlap, we would expect a significant difference between groups at that point in time. However, it is important to emphasise that these plots do not control for all phonetic context effects, meaning that they should be interpreted as exploratory rather then confirmatory.

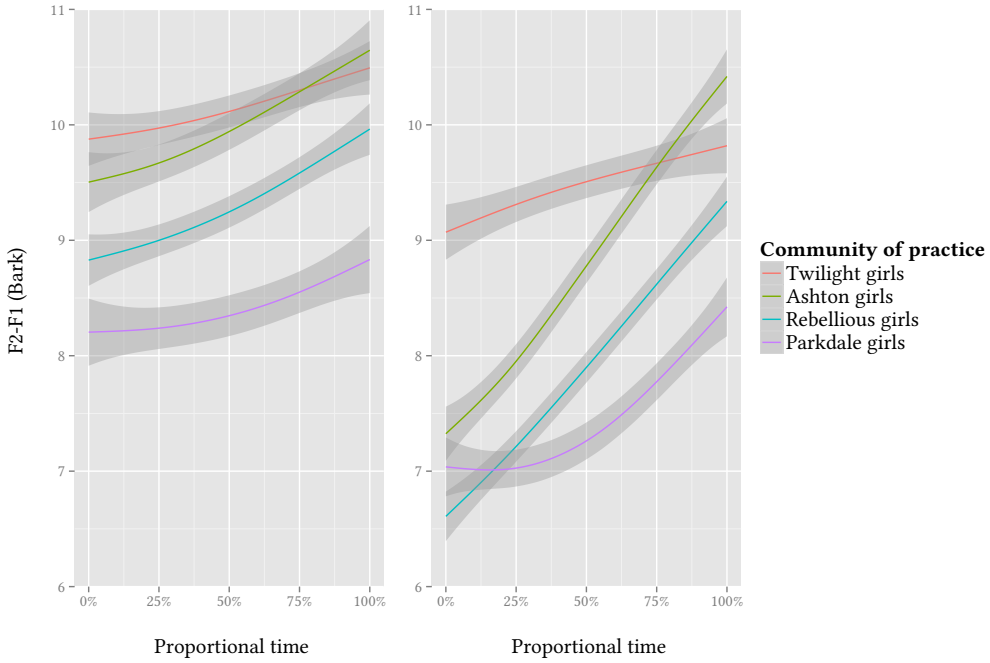

Figure 6.4: Plots of F2-F1 against proportional time for all tokens of /i/ not preceded by /l/ (left) and /li/ tokens only (right) in female communities of practice. Lines smoothed using a generalized additive model. The shaded areas around each line represent 95% confidence intervals.

The differences between the left and right panels of Figure 6.4 clearly show that F2–F1 is much lower in /li/ contexts compared to non-/li/ contexts, which is consistent with predictions that a preceding lateral will lower F2 in the following vowel (Stevens 1998). In terms of differences between social groups, the results from the regression analysis are broadly reflected in the patterns found in the 75–100% time-point in the left of Figure 6.4. Here, the Twilight and Ashton girls have the highest values, whereas the Parkdale and Rebellious girls have lower values. Note that the confidence intervals of the Parkdale and Rebellious girls do not overlap during this period, but this difference was not significant in the statistical model, whereas the difference between the Rebellious girls and the other two groups was significant in the regression analysis.

The right panel of Figure 6.4 represents /li/ clusters only. The 0–25% time-point for /li/ shows that the Ashton, Rebellious and Parkdale girls all have very similar F2–F1 values, whereas the Twilight girls have much higher values. As this time-point reflects information about the quality of the /l/ during the production of /li/, it appears that the Twilight girls have a much clearer realisation of /l/ than the other three groups. Auditory impressions confirm that the Ashton, Rebellious and Parkdale girls generally produce very dark /l/s, whereas the Twilight girls produce

very clear /l/s. This pattern fits the prediction that British Pakistani speakers may produce clearer realisations of /l/ than their White monolingual peers (Stuart-Smith et al. 2011), as well as my auditory impressions that the Somali speakers also produce very clear /l/s. However, this is not a deterministic pattern as Leila, one of the Pakistani Rebellious girls, produces a number of tokens that are amongst the darkest of all /l/s. This suggests that community of practice membership is a stronger determinant of /l/ realisation than ethnicity alone. In Section 6.4.1 I discuss the indexical potential of such realisations in light of predictions about cross-language influence and ethnically-linked variation.

In terms of the F2–F1 transition across the /li/ cluster, the Twilight girls have the flattest slope, suggesting a clear realisation of /l/ and a tense realisation of /i/. The other groups have much steeper slopes, but vary in terms of the degree of steepness according to the tenseness/laxness of their /i/. For instance, the Ashton girls have a dark /l/ and a very tense /i/, resulting in a very steep slope, whereas the Rebellious girls have a slightly flatter slope than the Ashton girls, reflecting their laxer production of /i/. On the other hand, Parkdale girls maintain a relatively flat profile, which then begins to rise more steeply just before the 50% time-point. This clearly indicates a dark realisation of /l/ and a lax realisation of /i/ relative to the other groups.

In summary, the dynamic analysis reveals a number of differences in terms of F2–F1 values at particular time points, as well as in the formant transitions across the /li/ cluster. This reveals clear sociolinguistic patterning not only in static measures of vowel quality, but also in the dynamic acoustic patterns over time. In particular, the Twilight girls have very clear realisations of /l/, whereas the other communities of practice have darker realisations.

6.3.4 Results: male speakers

This section focuses on the tenseness/laxness of word-final /i/ amongst male speakers. Higher F2–F1 values indicate a tenser realisation of /i/, whereas lower F2–F1 values indicate a laxer realisation of /i/. The first analysis is a mixed-effects linear regression analysis of F2–F1 at peak F2 in /i/. The second analysis examines dynamic patterns in F2–F1 across /i/ and /li/ intervals.

Static analysis

The regression model summarised in Table 6.2 examines F2–F1 values amongst the male speakers. The were no significant main effects of ethnicity or community of

Table 6.2: Final regression model for male F2–F1 (Bark) at peak F2. Statistics were derived using Markov Chain Monte Carlo sampling. The intercept represents White boys producing /i/ with a preceding front stop (Preceding context), a following pause (Following context), in a non-nuclear-accented syllable (nuclear accent).

F2–F1 at peak F2 (Bark)	β	St. Err.	95% HPD CI	p
Intercept	9.72	0.22	9.29, 10.15	$< .001$
Preceding context				
[l]	-1.06	0.13	-1.31, -0.80	$< .001$
[ɹ]	-0.76	0.17	-1.10, -0.44	$< .001$
Following context				
Front vowel	0.65	0.23	0.91, 1.10	.006
Nasal	0.64	0.23	0.18, 1.07	.006
Stop	0.45	0.14	0.19, 0.73	$< .001$
Voiceless fricative	0.56	0.16	0.23, 0.88	$< .001$
Duration	0.008	0.001	0.006, 0.011	$< .001$
Ethnicity * prec. /l/				
Somali	0.81	0.22	0.39, 1.27	$< .001$
Ethnicity * prec. /ɹ/				
Pakistani	-1.41	0.52	-2.42, -0.41	.006
Ethnicity * nuclear acc.				
Somali	0.84	0.22	0.39, 1.26	$< .001$
Ethnicity * duration				
White & Black Caribbean	-0.17	0.01	-0.03, -0.01	.004

practice, which contrasts with the female data, in which community of practice was significant but ethnicity was not. Additional social factors, such as index of multiple deprivation, and first language, were also not significant predictors in this model.

In terms of linguistic predictors, a preceding /l/ or /ɹ/ lowers F2–F1, resulting in a less tense production. This effect was also present in the female data and can be explained with reference to the articulatory effects of liquid consonants on surrounding vowels, whereby preceding liquids generally lower F2 in the following vowel (Tunley 1999). In addition to this, a following front vowel, nasal, stop or voiceless fricative raises F2–F1, while longer tokens also have higher F2–F1. All of these phonetic context effects predict tenser realisations. These effects were not

significant in the female data.

While there are no significant main effects for any social factors, there are some significant interactions between ethnicity and linguistic factors. For instance, Somali boys have tenser /i/ in preceding /l/ contexts and nuclear accented syllables, whereas Pakistani boys have laxer /i/ in preceding /ɹ/ contexts. The interaction between Somali ethnicity and preceding /l/ is similar to that found in the female data for the Twilight girls, all of whom are Somali or Pakistani. Moreover, this effect runs counter to the main effect of a preceding /l/, which predicts lower F2–F1. As the dynamic analysis below demonstrates, it is likely that Somali boys' tenser realisation of /i/ in /li/ clusters interacts with the fact that they have much clearer realisations of /l/ in these clusters. On the other hand, Pakistani speakers' very low values in preceding /ɹ/ contexts may be a consequence of the fact that they have auditorily darker realisations of /ɹ/ than other speakers. Finally, White & Black Caribbean boys also have slightly laxer /i/ in tokens with a longer duration, which runs counter to the main effect of longer tokens generally having a tenser realisation. However, this ethnic group was only represented by a single speaker, who also happened to be the only Rebellious boy who regularly produced audibly lax realisations of /i/. As such, this result must be treated with caution and cannot be treated as representative of all White & Black Caribbean speakers in Ashton Valley School.

Dynamic analysis

So far, I have only presented dynamic data on social variables that are significant in the regression model, such as community of practice for the girls and ethnicity for the boys. This is because the dynamic data for non-significant predictors did not yield any further interesting insights. However, in this instance, there are some interesting differences between the male communities of practice that are not evident from the analysis of /i/ alone. The dynamic F2–F1 patterns are shown in Figure 6.5 (community of practice) and Figure 6.6 (ethnicity). Figure 6.5 shows that the differences between the two male communities of practice in non-preceding /l/ contexts (left) and preceding /l/ contexts (right) The differences between groups in non-preceding /l/ contexts is very small, whereas there are some clear differences in /li/ clusters. The values in the 75–100% interval are fairly similar and often overlap, which explains the lack of significant differences between communities of practice in the statistical model. However, the values in the 0–25% interval are very different. This suggests that, while Rebellious and Ashton boys do not differ in their realisation of the /i/ target, Rebellious boys have much clearer /l/s than Ashton boys in /li/

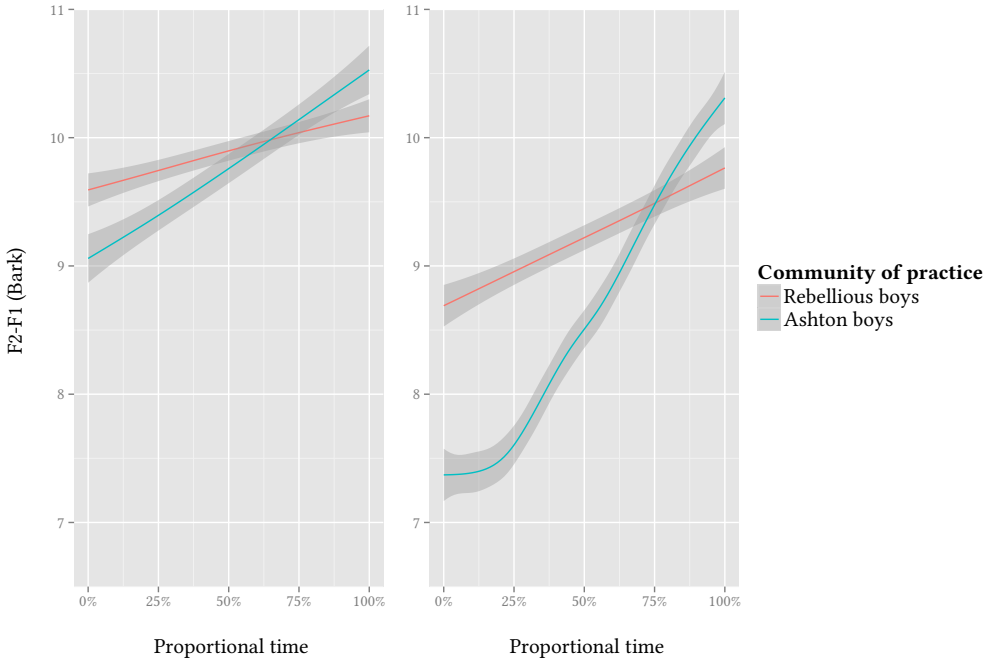

Figure 6.5: Plots of F2-F1 against proportional time for all tokens of /i/ not preceded by /l/ (left) and /li/ tokens only (right) in male communities of practice. Lines smoothed using a generalized additive model. The shaded areas around each line represent 95% confidence intervals.

clusters. I address the implications of this in Sections 6.4.1 and 6.4.3.

Figure 6.6 shows the same information but for the different ethnic groups amongst the boys. The left panel shows that most of the ethnic groups are very similar in non-preceding /l/ contexts. Note that the White & Black Caribbean group is only represented by a single speaker called Jordan. Jordan was the only male speaker to produce audibly lax realisations of /i/, but this effect was not significant in the regression model, presumably because there is only one speaker in the White & Black Caribbean group.

The right panel of Figure 6.6 shows the dynamic F2–F1 patterns in /li/ clusters only. Somali speakers have the highest F2–F1 values in the 75–100% period, which reflects the results from the mixed-effects regression model, in which Somali boys had significantly tenser /i/ than White boys in preceding /l/ contexts. None of the other groups were significantly different in this context in the statistical model. Again, the values shown for the White & Black Caribbean group were not significant in the regression model because this group is only represented by a single speaker.

The patterns at the 0–25% time-point in the /li/ plot illustrate further differences, such that White and White & Black Caribbean boys have lower F2–F1 whereas Somali, Pakistani and Yemeni boys have higher F2–F1. As this time-point reflects

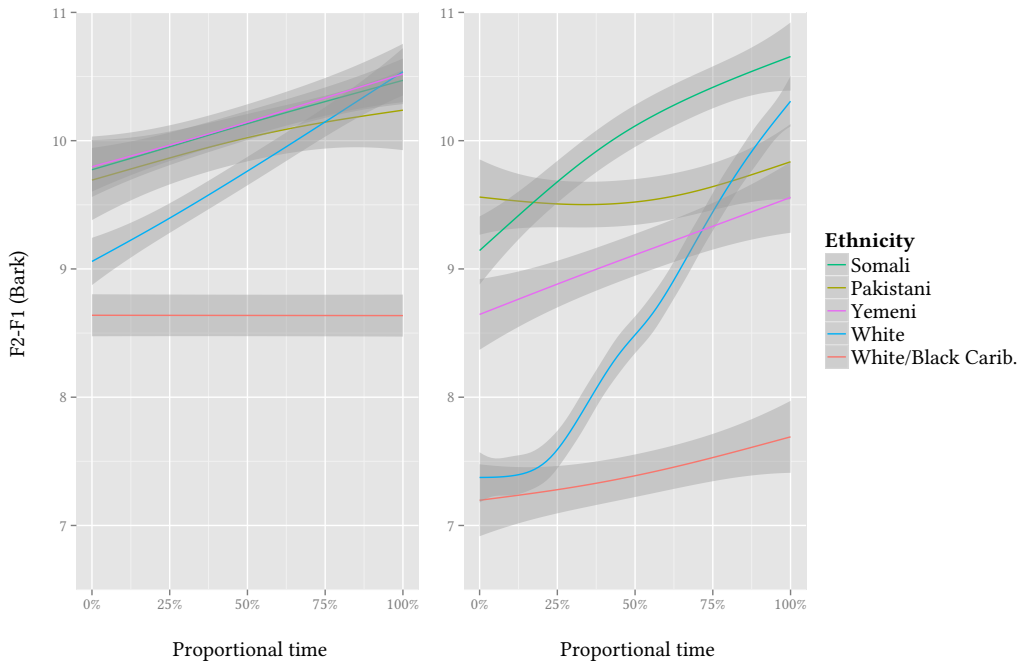

Figure 6.6: Plots of F2-F1 against proportional time for all tokens of /i/ not preceded by /l/ (left) and /li/ tokens only (right) in male ethnic groups. Lines smoothed using a generalized additive model. The shaded areas around each line represent 95% confidence intervals.

information about the quality of the /l/ during the production of /li/, it appears that the Somali, Pakistani and Yemeni boys have much clearer realisations of /l/ than the White boys and the single White & Black Caribbean boy. As was also the case in the female data, this pattern fits the prediction that British Pakistani speakers may produce clearer realisations of /l/ than their White monolingual peers (Stuart-Smith et al. 2011). In addition to this, my auditory impressions indicate that the Somali, Pakistani and Yemeni speakers do generally produce very clear /l/s. In Section 6.4.1 I discuss the indexical potential of such realisations in light of predictions about cross-language influence and ethnically-linked variation.

In terms of the transition across the /li/ cluster, the White boys have the steepest slope, indicating a darker realisation of /l/ and a tenser realisation of /i/. This is very similar to the Ashton girls' pattern in the female data, who had a similar transition between these sounds. All of the other groups have much flatter slopes. Pakistani speakers notably have similar F2–F1 values at the onset of /l/ and the offset of /i/, with a slight dip between these points. Yemeni and Somali speakers have a more linear slope, albeit one that is still relatively flat. For these three groups, their slopes indicate relatively clear /l/s and relatively tense /i/s.

In summary, the dynamic analysis reveals a number of differences in terms of

F2–F1 values at particular time points, as well as in the formant transitions across the /li/ cluster. While the results from the statistical model showed few significant differences between any social groups, the dynamic patterns reveal a somewhat richer picture of differences between social groups, albeit a much more tentative and exploratory one. The primary difference appears to be the realisation of /l/ between the White boys, who have a darker /l/ and a tense /i/, and the Somali, Pakistani and Yemeni boys, who have a clearer /l/ and also a tense /i/.

6.3.5 Summary of results

This acoustic phonetic analysis shows social group differences amongst both female and male speakers in terms of word-final /i/ realisation. However, the social categories that pattern with phonetic variation differ according to gender. Amongst the girls, communities of practice are significant predictors of variation, with the Ashton and Twilight girls producing tenser realisations of /i/ and the Rebellious and Parkdale girls producing laxer realisations of /i/. Ethnicity was not a significant predictor of variation amongst the girls. The dynamic patterns largely confirm the results of the statistical analysis, but also reveal differences in /l/ realisation. Twilight girls have very clear realisations of /l/, whereas Ashton, Rebellious and Parkdale girls have dark realisations of /l/. This results in striking dynamic differences, such as the difference between the Twilight girls' flatter F2–F1 slope (clearer /l/ and tenser /i/) and the Ashton girls' very steep F2–F1 slope (darker /l/ and tenser /i/). The results suggest a pro-/anti-school split in /i/ realisation amongst the girls.

Ethnicity was a significant predictor of variation amongst the boys when /i/ was preceded by /l/, but community of practice was not significant. When compared to White boys, the Somali boys had tenser realisations of /i/ in preceding /l/ and nuclear accented contexts, whereas Pakistani boys had laxer realisations of /i/ in preceding /ɹ/ contexts. The dynamic patterns suggest that these results may represent the relationship between the preceding /l/ and the vowel. For example, Somali boys have very clear realisations of /l/ in /li/ clusters, which may exert some degree of coarticulatory influence on the vowel. The results suggest that particular clusters of ethnic groups differ from each other in /i/ realisation amongst the boys, but that this finding is strongly influenced by sociolinguistic differences in /l/ realisation.

6.4 Discussion

This section discusses the findings of this analysis and identifies key points and areas for future investigation. The discussion is framed broadly in terms of this chapter's three research questions outlined in Section 6.1.2. These are reproduced below.

1. Is variation in word-final /i/ used to index social distinctions and, if so, how?
2. Does the statistical analysis and enregistered status of word-final /i/ point towards any possible social meanings of this variable in Ashton Valley School?
3. To what extent do the results suggest a coarticulatory or cross-language explanation for the origins of word-final /i/ in these data, especially for tokens preceded by /l/?

6.4.1 Ethnicity, social practice and phonetic variation

The results of this analysis suggest that variation in word-final /i/ is used to index social distinctions within Ashton Valley School. Amongst the girls, community of practice is a significant predictor of variation in word-final /i/, whereas all other social factors, including ethnicity, were not significant predictors. This mirrors findings from previous studies of variation in adolescent multiethnic communities, which often find that community of practice predicts variation better than demographic categories (Mendoza-Denton 2008; Alam and Stuart-Smith 2011). The female communities of practice cluster primarily in terms of school orientation: the pro-school groups (Ashton girls; Twilight girls) produce tenser realisations of /i/, whereas the anti-school groups (Rebellious girls; Parkdale girls) produce laxer realisations of /i/. This contrasts with the /t/ results, where the biggest difference was *between* the two anti-school groups. In the next section, I suggest that this may be a consequence of the enregistered status of word-final /i/ in this community, which may exert constraints on the social meanings of lax variants.

Amongst the boys, ethnicity is a significant predictor of variation in word-final /i/ for some groups, whereas community of practice is not. This runs contrary to the girls' results and is perhaps indicative of different social dynamics in female and male peer groups. The results suggest that Somali boys produce tenser /i/ in preceding /l/ contexts and in nuclear accented syllables and Pakistani boys produce laxer /i/ in preceding /ɹ/ contexts. As I mentioned in Section 5.5.1, three of the five Somali boys in this sample – Mohammed, Abdullah and Aamir – were the most rebellious of the Rebellious boys. They were also engaged in a greater number of

activities with each other outside of the school, such as homework club at the Somali community centre, as well as weekly Islamic school. While I was not able to observe them in these contexts, it was possible to infer that they were also engaged in shared social practices at these sites, often with friends from other schools. As previously mentioned in Section 5.5.1, this apparent effect of ethnicity may actually represent one of the ways in which ethnicity impacts upon social practices within the Rebellious boys. These patterns could also reflect distinctions within the Rebellious boys, or perhaps something else entirely which cannot be captured by the school community of practice. A further understanding of social distinctions within the Rebellious boys may require a greater understanding of the communities of practice in which speakers are engaged outside of the school (Moore 2010).

It is clear that the patterns of phonetic variation reported here show different dynamics across gendered peer groups. This may be because the social structure of female and male peer groups differ in Ashton Valley School. The girls formed more well-defined and tight-knit communities of practice, which were clearly oriented around distinctive norms and were easily distinguishable from each other within the social landscape of the school. The boys, however, often belonged to much broader and loose-knit networks. Furthermore, there were very low levels of contact between the Ashton boys and the Rebellious boys, with both groups occupying radically different social and physical spaces in the school. As I suggested in the previous chapter, this lack of contact may mean that particular types of phonetic variation are used differently when compared to groups who do come into close contact with each other. I further discuss the implications of this lack of contact in Chapter 8.

6.4.2 Potential social meanings of word-final /i/

In Chapter 5 I focused on word-initial /t/, which does not appear to be at all enregistered within Ashton Valley School. However, word-final /i/ does appear to have stronger social associations according to the previous literature and metalinguistic commentary in these data. This variable is known to be undergoing sound change towards increasingly tense qualities across varieties of English (Wells 1982; Harrington 2006; Flynn 2010). At the same time, very lax realisations are strongly stereotyped as sounding 'working-class', 'Sheffield' or 'Yorkshire', at least within Sheffield (Beal 2004; Finnegan 2005). Polly's metalinguistic commentary at the beginning of this chapter hints at more local social associations with lax /i/, where she attributes laxer realisations to 'chavs' and 'common' people. Chav is sometimes used as a derogatory term for working-class White people (Jones 2011) and Polly's

claim suggests that this variant may have associations with working-class speakers (see also Stoddart et al. 1999). To this end, it is the anti-school communities of practice with a more working-class orientation (Rebellious and Parkdale girls) that use laxer realisations amongst the girls. This could perhaps suggest that the social meaning of lax /i/ in Ashton Valley is 'anti school' or perhaps some other related characteristics.

One possibility is that the Parkdale and Rebellious girls' acquisition of this variant may be facilitated by their sustained engagement with working-class networks in Sheffield, which are less readily available to the Ashton and Twilight girls and the Ashton and Rebellious boys. Note that the emphasis here is on engagement with networks, as opposed to the socioeconomic profile of the individuals themselves. The Rebellious girls are the second least socioeconomically deprived community of practice amongst the girls, but their sociocultural orientation is strongly focused around social practices and ideologies that are associated with being working-class. Contrast this with the Twilight girls, who are relatively socioeconomically deprived, but strongly orient towards ideologically middle-class values and practices. In this way, speakers from socioeconomically deprived backgrounds should not be viewed as automatically using laxer variants as a consequence of their background. Instead, individuals who engage with these communities and the social practices associated with them may be more likely to have this variant in their repertoire. One of the reasons for there being very few lax realisations amongst the boys may be because there are very few White and White & Black Caribbean boys from socioeconomically deprived backgrounds in the sample. The ethnic minority boys from socioeconomically deprived backgrounds are less likely to have had sustained engagement with White working-class Sheffield speakers, given that most of them come from predominantly ethnic minority neighbourhoods. This could explain why lax /i/ could index 'anti-school' amongst the girls, but is less likely to be used for such purposes amongst the boys.

Tenser realisations of /i/ were not subject to explicit metalinguistic commentary in terms of social class or region. Instead, these realisations could represent participation in a supralocal sound change that is known to be taking place across varieties of British English (Wells 1982; Harrington 2006; Flynn 2010). One possibility is that middle-class speakers have greater networks beyond Sheffield, facilitating greater contact with the supralocal variant. This could explain the use of tenser /i/ by the Ashton boys and girls. However, the Rebellious boys and Twilight girls do not have these sorts of White middle-class networks, but still produce tense realisations.

This suggests that the use of tense /i/ is unlikely to index an orientation towards supralocality in a straightforward way. Amongst the girls, tense /i/ may index pro-

school, in opposition to the association between laxness and anti-school. This could be reflective of different social class orientations that fit community-level patterns for word-final /i/ in Sheffield. It is also likely that the girls' usage is bound up with enregisterment, with the Ashton and Twilight girls avoiding the associations of social class and region that are stereotypically attributed to laxer realisations. However, amongst the boys, few speakers produce tokens that could be described as auditorily lax. The Somali boys' use of tenser /i/ in preceding /l/ contexts could be a feature of a 'rebellious' style for these boys, but it could also be the case that the Somali boys' realisations are influenced by their use of very clear /l/s, which may be a consequence of cross-language influence.

Another possibility is that the differences for word-final /i/ amongst the boys reside in how the tense variant is used stylistically, rather than a difference in its phonetic make-up. Both groups use similar realisations, but these could index very different meanings due to how this feature fits into different styles (Eckert 2000). As I discuss below, tense /i/ in the Rebellious boys may originate in cross-language influence and could form part of a multiethnic urban youth style. In contrast, tense /i/ in the Ashton boys could represent participation in a supralocal middle-class norm and may serve to differentiate themselves from the enregistered meanings of lax variants. I explore these possibilities further in Chapter 7, but the following section first addresses the role of cross-language influence and potential contexts of acquisition in greater detail.

6.4.3 Cross-language influence and phonetic origins

This section briefly reviews the role of cross-language influence and how 'similar' forms of phonetic variation may have different origins for different speakers. I explore how this might have consequences for the social meanings of word-final /i/.

A strong possibility is that different speakers may have acquired similar phonetic realisations in different contexts, which suggests that they could also have acquired different meanings for the same feature. For example, the Twilight and Ashton girls' engagement in particular social networks might have facilitated their acquisition of the tenser variant, but it is likely that these networks are very different. The Ashton girls are likely to have acquired a middle-class variety of Sheffield English in which tenser variants are more common (Stoddart et al. 1999; Beal 2004), whereas the Twilight girls could may have acquired tenser realisations due to their heritage language background and exposure to L2 varieties of English. Very tense realisations of /i/ are particularly prevalent amongst the Sheffield Pakistani

and Somali communities and it is likely that the Twilight girls acquired similar realisations. In the context of Ashton Valley School, these existing differences are reinterpreted in terms of distinctions between communities of practice. The tense variants produced by the Ashton and Twilight girls fit their school orientation due to the associations between tenseness and middle-class speakers. These variants also serve to distinguish them from the Rebellious and Parkdale girls, who produce laxer /i/ and display a more anti-school and working-class orientation.

Contexts of acquisition also play an important role for the boys. Jordan was the only White & Black Caribbean speaker in the Rebellious boys sample and he was also the only speaker in this group to produce any auditorily lax tokens of /i/ (see the 'White & African Caribbean' group in Figure 6.6). Both of Jordan's parents were born in Sheffield: his mother was White British, while his father's family were from Jamaica but 'have been here [in Sheffield] for ages'. Jordan's mother had extensive connections within White working-class communities, which suggests that Jordan may have experienced greater engagement in social networks that could have facilitated the acquisition of laxer /i/. However, Jordan was only one speaker amongst the Rebellious boys and there was an overall tendency for Rebellious boys to have little sustained engagement with White working-class communities in Sheffield. This may explain why there is not a straightforward lax/anti-school versus tense/pro-school distinction amongst the boys.

Cross-language influence is also likely to be important in explaining these results. The Twilight girls and Somali boys produced tenser /i/ in preceding /l/ contexts. Both groups produce very clear /l/s, which contrasts with the darker /l/s of other speakers, such as the Ashton girls. This is consistent with previous literature on British Pakistani speakers (Heselwood and McChrystal 2000; Stuart-Smith et al. 2011) and confirms my informal observations of the Somali community in Sheffield. This suggests that these phonetic realisations may be the product of cross-language influence from Somali and Panjabi respectively. That their use of clear /l/s is related to very tense /i/ in this context suggests that the realisation of /l/ could be the major sociolinguistic difference here, rather than the realisation of /i/.

These results raise questions surrounding the flexibility with which phonetic variants can be used over an individual's lifespan. Can we consider the Somali boys' use of tense /i/ and clear /l/ to be socially-meaningful and agentive if they have little opportunity to use other variants? I would suggest that these boys are significantly less likely to produce lax /i/ or dark /l/ as they may not have sufficiently strong representations of these sounds in their mental lexicon. Exemplar theory predicts that prior usage and perception influences current productions (Goldinger 1997; Johnson

1997; Pierrehumbert 2002). For example, there is a strong relationship between having native-like phonology in a second language and the amount of exposure to that L2 (Flege 2007). Frequency and recency of exposure strongly impact upon an individual's phonetic productions and if an individual has not experienced particular kinds of exposure to particular variants, then it is highly unlikely that they will produce them (Mendoza-Denton 2007). In these data, the Somali boys are, at least functionally, L1 speakers of English, so it not as simple as saying they have had little exposure to monolingual White varieties of Sheffield English. Nonetheless, the role of frequency and recency have an influence on speech development and it is likely that the Somali boys have had many years of building up strong mental representations of sounds such as tense /i/ and clear /l/, which makes it unlikely for them to produce a high frequency of lax /i/ and dark /l/ tokens. It is possible that these existing differences could be reinterpreted as socially meaningful in a contact situation such as the school, which I briefly explore below.

While speech development and exemplar learning may offer one possibility for some of the differences, this is not the whole story. Exemplar models can also help to understand potential phonetic changes during adolescence, whether changes in form or meaning. In an exemplar model of speech processing, variation is stored in tandem with linguistic and social information (Johnson 1997; Foulkes and Docherty 2006; Drager 2010). One possibility is that variation that originates in the heritage language or home community may be imbued with social meaning when social distinctions emerge in a community. In this perspective, social meanings may be attributed to existing variation when that variation happens to distinguish groups in a particular social matrix. In turn, these newer meanings may be incremented into exemplar representations of the relevant sounds. Over time, these incremented meanings could begin to influence speech production, with the linguistic feature becoming used as an active marker of group identity, rather than an unmarked and potentially socially meaningless difference. This suggests that, while developmental trends may constrain an individual's productions to some degree, there is scope for particular meanings to be attributed to existing variation, which can result in such variation becoming more focused across a community. For now, the degree to which particularly kinds of variation can be considered agentive and/or socially meaningful is unclear, but this discussion presents some possible explanations that I will return to in the following chapters. However, a more detailed study of developmental patterns between childhood and adolescence in a similar group of children would be required to further unpack these factors in a more comprehensive manner.

Cross-language influence and the role of speech development are clearly a factor

in these patterns, and emerging social differences may explain how variation becomes socially meaningful. However, it is also the case that the patterns evidenced in this analysis – such as the link between ethnic minority students and tense /i/ – are not always a predictable consequence of ethnicity or bilingualism. Leila (Rebellious girls) is Pakistani and identifies as Muslim, similar to the Twilight girls, but she produced eleven tokens that occurred in the lowest 10% of F2–F1 values amongst the female speakers, suggesting that she has hyper-lax realisations of /i/. Leila also produced very dark /l/s, in contrast to the Twilight girls' clearer /l/s. This problematises explanations based on ethnicity or heritage language alone and suggests that variation that originates in the heritage language may be used variably by different individuals (Lambert et al. 2007). Instead, community of practice, school orientation and other social factors interact with ethnicity and heritage language in complex ways, resulting in differing relationships between variation and social practice amongst people with 'similar' demographic backgrounds.

6.5 Summary

This chapter demonstrates that there is a relationship between /i/ realisation and social practice in Ashton Valley School, but the nature of this relationship differs between female and male speakers. Amongst the girls the primary distinction is school orientation, with anti-school Rebellious and Parkdale girls producing laxer realisations of /i/ than the pro-school Ashton and Twilight girls. I suggest that these realisations may be facilitated by the social networks and social practices in which speakers are engaged, but that any existing linguistic differences due to an individual's background can become magnified when social divisions emerge in a community. Amongst the boys, community of practice is not a significant predictor, but there are some differences between ethnic groups. This could be a consequence of the ways in which ethnicity interacts with social practice. The dynamic analysis of /li/ clusters also reveals a number of other differences, with the Twilight girls producing much clearer /l/s than the other three female communities of practice. Rebellious boys also produce clearer /l/s than Ashton boys, but inspection of the ethnicity results show that it is primarily Somali, Pakistani and Yemeni speakers who are producing these very clear /l/s. The dynamic analysis demonstrates some of the ways in which phonetic transitions can demonstrate sociolinguistic patterning.

The results suggest that /i/ laxing is broadly indexical of an anti-school orientation amongst the girls, whereas tenser realisations may draw upon community-wide associations between tense /i/ and middle-class speakers. These patterns may be a

consequence of the enregisterment of lax /i/ as regional and working-class, given that regional accents often tend to be ideologically associated with White working-class speakers in British cities (Wells 1982). Amongst the boys, there are very few lax productions of /i/, suggesting that male speakers index anti-schoolness in different ways. I further discuss the role of enregisterment and how this impacts upon social meaning in Chapter 7, in which I analyse the interactional use of word-initial /t/ and word-final /i/ in discourse. Chapter 8 then synthesises the main findings of this dissertation and discusses their implications for the study of sociophonetic variation and social meaning.

Chapter 7

Social meanings of variation in Ashton Valley School

7.1 Overview

7.1.1 Summary

This chapter examines the potential social meanings of word-initial /t/ and word-final /i/. Chapters 5 and 6 presented quantitative accounts of how phonetic variation is distributed across communities of practice and ethnic groups in Ashton Valley School. This chapter takes a much more exploratory approach in order to unpack some of the potential social meanings of /t/ and /i/ in this community. As such, the nature of this chapter is considerably different from the quantitative chapters in the sense that I present a partial account of some potential social meanings of variation, based on my own knowledge and interpretation of the data. As Moore and Podesva (2009: 479) point out, links between linguistic variants and social meanings are only interpretable as such 'if the interpreter engages with an ideology that facilitates such a link'. This is true of speakers and hearers themselves, but it can also characterise the analyst's approach to charting indexical associations. Ethnography allows an analyst to get closer to a participant's understanding of their world and, as such, facilitates a closer view on how ideologies facilitate local indexicality. I attempt to demonstrate some of the ways in which this might occur based on evidence in the data, but acknowledge that this represents just one perspective and that other possible interpretations are

available.

In this chapter, I focus on how social meanings are manifested in discourse and become part of different kinds of identity work. I begin by outlining the motivations for the approach taken in this chapter, before synthesising previous research that informs the analysis. In particular, I focus upon the construction of stance and personae through discourse, the role of indexicality and enregisterment, as well as approaches to analysing patterns of phonetic variation in discourse. I then discuss the methodology for the analysis, before presenting an interactional analysis of /i/ and /t/ realisation. In Chapters 5 and 6 I presented the analysis of /t/ first because this represented the order in which I noticed these variables over the course of the ethnography. However, in this chapter I present the analysis of /i/ first because my primary focus here is on enregisterment and the chapter flows better by analysing the highly enregistered feature first and then comparing the unenregistered feature to it. In this analysis, I focus on how acoustically extreme realisations of /i/ and /t/ are used in their discourse contexts and examine the ways in which single phonetic variants are used alongside stances in order to index more enduring social qualities, such as personae and social categories. In particular, I focus on the relationship between a variable with more enregistered meanings (/i/-tensing/-laxing) and a variable that does not appear to have similar meanings that reccur across different interactions (/t/ affrication).

This chapter charts the relationship between variants, stances and social styles in order to examine how meaning can operate at different indexical levels, given differing levels of enregisterment and indeterminacy. These results are discussed in terms of theories of indexicality, the interaction between supralocal sound change and local social meaning, and the co-constitutive nature of social meaning.

7.1.2 Motivations

This chapter attempts to explore some of the social meanings of word-initial and word-final /i/ by further analysing their use in discourse. Specific interactional moments represent the sites at which meaning is negotiated (Coupland 2007) because linguistic forms are inherently indeterminate with respect to meaning (Johnstone and Kiesling 2008). This is true of all forms, but it remains the case that variants that are subject to greater levels of enregisterment can at least facilitate some similarities in meaning across contexts. It is important to stress, however, that an enregistered indexical value is only a single potential meaning (Silverstein 2003). A more comprehensive account of social meaning necessitates a closer analysis of how

single tokens are used to index social meanings at a discourse level, as well as how this discourse-level meaning indexes meaning at other levels of social structure.

Word-final /i/ is interesting for examining indexicality and enregisterment as laxer realisations are commonly enregistered as 'working-class' and 'Sheffield' (Beal 2004), whereas tenser realisations potentially reflect participation in a 'supralocal' sound change that is taking place across England (Wells 1982; Finnegan 2005; Harrington 2006; Flynn 2010). I use the term *supralocal* to denote patterns that occur at a higher level than the immediate local context 'without being more precise' (Britain 2010: 197). Supralocalisation is often explained with reference to increased mobility and migration, as well as changes in educational and employment trends (Britain 2010). Research by Stuart-Smith et al. (2007) demonstrates the importance of the local context in explaining supralocal sound changes, showing that the social meaning of a supralocal feature is highly dependent upon relationships between social groups in that community. This chapter addresses how supralocal and geographically specific meanings of /i/ realisation may be negotiated in discourse and, as a consequence, be subjected to indexical reinterpretation for the purposes of marking more local social distinctions.

In contrast to the relatively enregistered nature of word-final /i/ variants, /t/ affrication is not an enregistered feature of Sheffield English. It was never subject to metalinguistic commentary within Ashton Valley School and has not previously been reported in the literature as a feature of Sheffield English. This makes it a feature with a very high degree of indeterminacy in the sense that it may not have some of the more enduring indexicality that is characteristic of /i/-laxing. In the analysis that follows I unpack social meanings of /i/ and /t/ realisation, but also compare the ways in which these two variables index social meaning. This allows me to explore how differing levels of enregisterment impact upon how variants index social meaning, as well as how enregistered meanings can be ideologically reinterpreted in order to do relational identity work within Ashton Valley School.

Research on style suggests that the social meaning of variation may depend on the other semiotic resources used by a group of individuals, with variation forming part of a distinctive style (Eckert 2000; Mendoza-Denton 2008; Moore and Podesva 2009; Campbell-Kibler 2011a; Eckert 2012; Moore 2012). In this view, style is co-constitutive in the sense that the semiotic impact of a stylistic move is affected by other resources within that style. This chapter extends this perspective to discourse-level sociolinguistic meaning and I suggest that single linguistic variables may take on different meanings when used alongside other interactional resources. This raises issues about whether it is appropriate to start with an indeterminate linguistic unit,

such as the sociolinguistic variable, and then track the ways in which that variable is used for meaning making (Moore 2012), or whether we should we instead start with social meanings that are realised in discourse and then examine how linguistic variants contribute towards meanings (Coupland 2007). The analysis reported in this chapter primarily takes the first approach, but the results are discussed in terms of alternative approaches and what these may contribute to the study of social meaning.

With the above in mind, the main questions addressed in this chapter are:

1. Is phonetic variation used as a resource for constructing identities through discourse and, if so, how is this operationalised?
2. What is the relationship between supralocal, geographically-specific, and local social meanings of variation and how are they indexed through discourse?
3. Does the degree to which a variant is enregistered affect the types and levels of social meaning that can be attributed to it?
4. Can an analysis that starts with the phonetic variable account for the co-constitutive nature of social meaning?

7.2 Background

7.2.1 Constructing identity through discourse

This chapter is concerned with how phonetic variation is imbued with social meaning in order to construct identities and affiliations. In this section I outline a more general theory of how identity is constructed through discourse. In the subsequent sections, I then address the more specific role of variation in this enterprise. In the paragraphs that follow, I primarily focus on the notions of stance and levels of identity. Some of this material was covered in greater detail in Section 2.3, but it is briefly re-capped and linked to the focus of the current investigation here.

Identities emerge in discourse through a range of processes, which include overt mention of identity categories, implicature and presupposition, evaluative and epistemic orientation to talk, participant roles, and the use of linguistic and interactional forms that are ideologically associated with personae and social types (Bucholtz and Hall 2004: 594). A more enduring persona may emerge over the course of one or several interactions through the repetition of particular stances, a process which is sometimes termed *stance accretion* (Rauniomaa 2003). Following Moore and Podesva (2009), I use the terms stance, persona, and social type in order to track

different levels of identification. *Stance* refers to specific attitudes and positionings towards things in talk (see Section 2.3.1 for a more detailed overview of stance). *Persona* refers to interactionally-specific positionings or participant roles that emerge through repeated stances or overt positionings and include things such as student, teacher, tough, street and quirky. *Social type* refers to macro-sociological categories, such as gender, social class and regional identity. Stance, persona and social type specify particular levels of identification and are therefore more specific than broader terms such as 'identity' (Moore 2011).

The mechanics of how stances and personae are constructed in discourse are varied. Bucholtz and Hall (2004) propose one framework for such an analysis, which they frame in terms of a number of *tactics of intersubjectivity*. These include adequation/distinction, authentication/denaturalisation, and authorisation/illegitimation. *Adequation* refers to how actions that position individuals or groups as alike inevitably involve downplaying existing differences and foregrounding similarities. *Distinction* refers to the process of essentialising the characteristics of particular social groups in order to position them as different from something else. Such social constructs do not always have to be co-present; for example, Jones (2012) shows how a group of lesbian women construct locally-specific identities in reaction to heteronormative ideologies.

Stances may also be used to allocate authenticity or artificialness to an individual or concept, which Bucholtz and Hall (2004) term *authentication* and *denaturalisation*. *Authentication* may refer to the discursive construction of realness and authenticity, whereas *denaturalisation* foregrounds the partial and fractal nature of identity. Denaturalisation is often evident in performances of parody, such as White students' stylised use of Panjabi lexis and phonology (Rampton 1995) or the ways in which a Korean-American comedian enacts revoicings of 'Mock Asian' speech (Chun 2004). Denaturalisation strategies recontextualise a stereotyped set of behaviours in a way that foreground their nature as styles, rather than inherent properties of individuals. In Sections 7.4 and 7.5, I adopt Bucholtz and Hall's (2004) tactics of intersubjectivity in order to identify how speakers carve out affiliations and distinctions in their social world. By tying these interactional strategies to stylistic uses of variation, I aim to chart the ways in which variation contributes towards the construction of social meaning in discourse.

7.2.2 Indexicality, enregisterment and indeterminacy

Coupland (2007: 112) suggests that the 'potential metaphorical transfer through which a linguistic feature comes to stand for or to mean something social has to be occasioned in discourse'. While we can make informed evaluations of possible social meanings by examining correlations between social groups and linguistic forms, a more precise account of social meaning requires us to look towards the specific discourse moments in which variation is used, alongside the sorts of identity work performed in these moments. In Section 2.3.2 I outlined theories of indexicality in greater detail, but I present a quick re-cap here. A link between a linguistic form and a social meaning is always ideological in nature, with indexical associations relying on creating an essentialised version of a social group that foregrounds certain characteristics and downplays others (Silverstein 2003). Indexicality operates across multiple levels, such that a variant may be correlated with social class (an *n*-th order index), but ideological associations between social class and prestige may lead to that variant also being interpreted as high status (an *n*+1st order index). This demonstrates how correlations and stance-related meanings can be associated with social types, such as gender, social class and ethnicity.

It is well known that variants can be enregistered, which means that they index a particular social entity or characteristic in a way that may be subject to overt levels of awareness and metalinguistic commentary (Agha 2003). Enregistered social meanings provide a relatively clear indexical *potential*, but the use of the variant may not always index its enregistered meanings. As Silverstein (2003) points out, meanings at different indexical orders can be ideologically reinterpreted in order to create new meanings, which may even supplant the prior indexical value. Podesva's (2011) research on the California Vowel Shift (CVS) and gay identity illustrates how regionally enregistered variation can be used to construct personae at a more local level. The CVS involves a number of changes, such as fronting of the mid and high vowels (Hall-Lew 2009) and has been associated with a number of local identities, such as gang affiliation (Mendoza-Denton 2008) and neighbourhood membership (Hall-Lew 2009). Podesva (2011b) examines CVS vowel realisations by Regan, an Asian American gay man, across different interactional contexts. He finds that Regan uses more advanced CVS variants when on a 'boys' night out' and the least advanced variants when meeting his supervisor at the office. Podesva argues that Regan uses shifted vowel variants – alongside other phonetic resources such as falsetto, and discourse about alcohol and partying – in order to construct a *partier* persona. He suggests that this persona can be invoked by drawing upon enregistered associations

between the CVS and California stereotypes, such as the valley girl and surfer dude. These characters are often depicted as carefree and fun and Podesva suggests that Regan's use of the CVS draws upon these associations in constructing an interactional persona, which is itself ideologically interpretable as part of a mainstream gay style. Podesva demonstrates how a regional sound change (CVS), which has a geographically-specific meaning (California), can be used for interactional stance-work by ideologically reinterpreting associations between variants and their potential indexical values.

Podesva's work demonstrates that variation is inherently indeterminate with respect to social meaning, in the sense that precise social meanings are only realised in discourse (Chun and Podesva 2007). Nonetheless, enregistered variants appear to be less indeterminate than those without any known social associations. For the purposes of illustration, I distinguish between enregistered and highly indeterminate variants in terms of whether they have indexical potential that transcends single interactional moments (enregistered) or not (indeterminate). This is somewhat captured by Kiesling's (2009) distinction between *interior* and *exterior* indexicality. Interior indexicality describes indexical meaning that is specific to the interactional context, while exterior indexicality is 'transportable from one speech event to another' (Kiesling 2009: 177). The interior/exterior indexicality is a useful distinction for discussing indexical meanings in a more abstract sense and points towards some of the ways in which meanings can stabilise (Johnstone and Kiesling 2008: 29). However, it is also important to foreground the dialectical relationship in which enregistered meanings are indexed through contextual priming (Coupland 2007: 112). In this view, such 'exterior' meanings are likely to be reconstrued in ways that are highly interactionally-specific and may not always cohere with the stereotyped or metalinguistic meanings. For this reason, I focus on enregistered meanings as *potentials* that can be taken up, reinterpreted and subsequently make available new indexical meanings. This approach captures the fact that particular forms may have partial associations that trail behind them across contexts, but acknowledges that these associations themselves are essentialising constructs that can be selectively reinterpreted and reconstrued in discourse for a wide range of social actions.

The above discussion suggests that differing levels of enregisterment and indeterminacy affect the types of social meaning that variables can index. Kiesling (2009: 191) addresses this issue, suggesting that 'the amount of negotiation available [in terms of social meanings] likely depends on the amount of enregisterment'. However, the majority of research has focused on linguistic variables that are often known to correlate with particular social or demographic groups, or are highly

enregistered. There has been much less research on variables that have not yet been found to correlate with social types or that are not known to be undergoing a change-in-progress (Eckert 2008a: 472). As such, differences between enregistered and unregistered features represent a promising line of inquiry, but one which has been rarely subjected to empirical investigation to date. The analysis in this chapter addresses this issue by comparing a feature with no known enregisterment, correlations or social meanings in Sheffield (/t/ affrication) with one that is well known to be strongly enregistered (/i/ laxing).

7.2.3 Approaches to analysing variation in discourse

Variationist sociolinguists often deal with very large numbers of tokens and it is generally not possible to carry out a detailed qualitative analysis of a few thousand tokens in their discourse contexts. One approach is to carry out discourse-level coding of the speech context in which particular tokens occur. Coding stances can be a useful approach as it allows us to identify the stances in which a particular phonetic variant occurs most frequently, which may provide some insights into how variation patterns with stance. Kiesling (2009) demonstrates a number of such coding systems that can act as a proxy for stance. He discusses coding interactional talk in terms of 'speech activities', such as commiserating, providing expertise, facilitating, gossiping, and so on. This allows Kiesling to show that the use of linguistic variables, such as (ING), pattern in terms of frequency with particular speech activities. He interprets these results in terms of the stances that are characteristic of particular speech activities.

Other approaches include focusing on the discourse contexts of a selective number of tokens in much greater detail. Mendoza-Denton (2008) illustrates such an approach in her analysis of discourse markers amongst Latina girl gangs, where she examines the interactional function of linguistic forms in specific interactional moments. A different take on this approach is to select tokens based on acoustic phonetic extremes, which avoids some of the analytic subjectivity involved in selecting particular tokens for analysis. In his work on the social meaning of variation in three gay professionals, Podesva (2007, 2011a) focuses on acoustically extreme tokens and ties these realisations to the interactional work being carried out at the time. Podesva hypothesises that '[i]f an axis of phonetic variation indexes a particular social meaning, then outliers on that axis can be understood as the strongest indicators of meaning (Podesva 2011a: 254). This provides an intriguing opportunity for studying social meaning and raises a number of questions. Are the

interactional moments in which acoustically extreme tokens occur more stylistically marked than those in which less extreme tokens occur? Or are there particular acoustic regions in which phonetic tokens seem to do stylistic work, which may be completely different from that done in other acoustic regions? The analysis that follows suggests a number of possibilities with respect to these questions and identifies areas for further research.

7.3 Method

7.3.1 Data

The data for the discourse-level analysis were drawn from the ethnographic interviews used for the analysis in Chapters 5 and 6. As a consequence, the analysis reported here represents only one aspect of a speaker's repertoire. Other research demonstrates that some speakers may have a much wider repertoire beyond that represented by the sociolinguistic interview (Sharma 2011). Where possible, I try to contextualise the analysis of single discourse moments in terms of my ethnographic observation of the individuals concerned in order to illustrate how the social actions in this moment connect to more enduring qualities of that person. Another important point is that different individuals may orient towards the interview context in different ways. Moore and Podesva (2009) find that their Eden Village community of practice displays a much more interactive and overlapping style than that displayed by their Townie community of practice. In my data some speakers also oriented towards the context as a conversation in which turn-taking was not determined by an interviewer, whereas others provided responses to questions in terms of a turn structure that is fairly characteristic of the interview genre. I account for any such differences in the specific fragments of discourse I analyse, but it is more generally worth foregrounding the fact that the 'same' context may not be experienced in the same way by all individuals.

In contrast to the analysis in Chapters 5 and 6, this analysis focuses on individual speakers because I analyse stretches of discourse that feature small groups of speakers (between one and four). I do not necessarily claim that these individuals are always representative of the community of practice to which they belong. In some cases, I focus on individuals who are iconic members of a group in order to illustrate the stylistic extremes or dominant personalities that characterise a particular community of practice's style. In other cases, I focus on more peripheral members in order to discuss the notion of group boundaries and fluidity. In doing so, this analysis does

not aim to represent 'what typically happens' in terms of processes of indexicality, identity and social meaning, but instead examines a number of contextualised case studies in order to closely examine the nuances of social meanings in this community (Coupland 2007: 28).

7.3.2 Locating acoustic-phonetic extremes

In this analysis I adopt a focus on acoustic-phonetic extremes, with the aim of analysing the social meanings associated with extreme tokens. I do not necessarily claim that the phonetic feature alone is responsible for constructing a particular stance. Instead, I propose that meaning is co-constitutive, with linguistic variation acting as *one* possible resource for constructing stances. In this view, the 'same' stances could occur in two situations: one where a particular feature occurred and another where it did not. This does not problematise the view that variation contributes to meaning; it simply suggests that other linguistic and non-linguistic resources can also do a similar job in other contexts. In this analysis, I focus on how linguistic features cluster with voice quality, intonation and other phonetic features. I also invoke concepts such as the indexical order (Silverstein 2003) and the indexical field (Eckert 2008a) in order to chart indexical associations and conceptualise these in terms of a field of ideologically related meanings (see Section 2.3.2 for an overview of these concepts).

In order to identify extreme realisations, the acoustic data for both /t/ and /i/ were sorted into deciles and I examined the tokens that occupied the highest 10% and lowest 10% of the data range within each gender group. For the purposes of readability I assign impressionistic labels to these deciles, with 'lax /i/' and 'unaffricated /t/' being used for the lowest 10% of acoustic values in each case, and 'tense /i/' and 'affricated /t/' being used for the highest 10% of acoustic values in each case. The tokens in these categories were checked in order to assess whether the individual realisations accurately corresponded to the impressionistic lax/tense and unaffricated/affricated descriptions. In the majority of cases there was a straightforward relationship between my own auditory perception and the acoustic value. There were a few exceptions where this was not the case and I suggest that this is primarily due to the effects of surrounding phonetic contexts. Such tokens exhibit extreme acoustic values but may not sound auditorily extreme because listeners can perceptually compensate for phonetic context effects (Mann 1980; Mann and Repp 1980). In cases where such tokens are included in the specific analyses below, I provide a more extensive discussion and point out the relevant factors in explaining the acoustics-auditory

mismatch. In order to contextualise single tokens in terms of other acoustically similar productions, I also list the relevant speaker's five most acoustically extreme tokens, alongside information about the discourse context in which they occur. In the case of /i/, F2–F1 values are presented in Bark, but Hertz values are also listed in each table for readers who may be more familiar with this unit of measurement. For /t/, the peak zero-crossing rate (pZCR) is the measurement reported for each token.

A number of factors problematise a straightforward interpretation of extreme acoustic values. First, phonetic context is likely to have a substantial influence; for example, tokens of /i/ with a preceding (dark) /l/ may be more likely to be in the lowest 10% than tokens without a preceding /l/. This bears upon issues of perceptual compensation: do listeners in Ashton Valley compensate for the effect of a preceding liquid and hear the token as less lax than the acoustics would suggest? Or do they not compensate for coarticulation and hear the token as more lax than those in other phonetic contexts? Section 2.4.3 suggested that the degree of perceptual compensation is likely to be a key factor in whether coarticulatory variation leads to sound changes (Mann 1980; Ohala 1981; Harrington et al. 2008). I am unable to make reliable claims without controlled perception tests with the participants. However, inspection of the data reveals that extreme tokens are not confined to a single phonetic context. For example, some speakers have tokens of /i/ that are laxer across all phonetic contexts when compared to other speakers' productions of just /li/ contexts. This suggests that the acoustic extremes in this study are not wholly determined by phonetic context effects.

A second issue is that of normalisation. The /t/ data were not subject to normalisation procedures which aim to account for the cognitive processing of speech from speakers with a wide range of variation in vocal tract size and shape. However, I consider gender groups separately, meaning that accounting for gender differences is not an issue. It is likely that there still exists considerable physiological variation within gender groups (Fitch and Giedd 1999; Lammert et al. 2013). However, normalisation techniques for consonant frication noise are underdeveloped. In addition to this, some models of speech perception suggest that listeners store absolute phonetic values, rather than cognitively normalised values, in their mental representations of speech (Johnson 1997). In contrast to the /t/ data, the /i/ data were subject to a form of normalisation in the sense that the F2–F1 measurement is a relative measure of the distance between formants. This suggests that the same issues should be less pronounced in the case of the /i/ data. In summary, I do not consider the lack of normalisation to be a major shortcoming of this analysis, but it is worth drawing attention to the fact that acoustically extreme tokens may not always

be perceptually extreme. I explore possible explanations for this in the analysis by considering how extreme tokens pattern with particular stylistic moves.

A third note of methodological caution is that I do not assume a linear relationship between social meanings and continuous acoustic measurements, such that a higher acoustic value always indicates progressively 'more' of a particular social meaning. In fact, the results of this analysis suggest that the acoustics-meaning relationship is likely to be highly non-linear and variable across different groups and different linguistic features.

Finally, my primary focus in this analysis is upon phonetically extreme tokens that occur in stylistically marked episodes of discourse. This refers to moments where there is evidence of distinctive identity work in interaction. In some cases, speakers use acoustically extreme phonetic variants, but there is little evidence of stance-taking in these episodes of discourse that bears upon identity construction. I do not analyse such examples because the social meanings present in these instances are not always clear or evident, which makes it difficult to say how variation contributes to them. An analysis of how every single group uses variation in discourse would also prohibit the kind of analytic detail in which I engage below, meaning that this analysis is necessarily selective and partial. I do, however, point out cases in which particular groups do not use extreme tokens in highly marked episodes of identity construction, because this may be an important factor in itself. What counts as 'distinctive identity work' is of course subjective and dependent upon analytic interpretation, but I hope that my ethnographic knowledge of the participants lends some authority to my claims that particular episodes of discourse are more 'identity laden' than others.

7.3.3 Transcription and representation

Transcriptions are presented using broadly standard English orthography following Bucholtz (2011). I include so-called 'non-standard' syntactic constructions in my transcripts with the aim of avoiding prescriptive judgements over grammaticality and in order to present a more accurate account of what was actually said. Given my interest in phonetic variation, the transcriptions feature information on some segmental and suprasegmental aspects of speech. These include vowel length, intonation, voice quality, stress, and, on occasion, phonetic transcriptions using IPA notation. This is motivated by previous research on the phonetics of talk-in-interaction, which finds that phonetic resources co-occur in terms of how they pattern with interactional structure (Local 2003; Local and Walker 2005; Walker 2013). I also transcribe precise details of potential turn-taking devices, including overlap,

inbreaths, outbreaths, pauses, false starts, and hesitations (Jefferson 2004). A detailed list of transcription symbols and conventions is provided in Appendix A.

In some cases, I make selective use of IPA notation in order to draw attention to particularly distinctive or unusual pronunciations of words. IPA transcriptions are indicated using a ⇒ symbol at the beginning of a line. IPA transcriptions refer to the line immediately above. The IPA transcriptions are not enclosed in square brackets in order to avoid confusion with sections of overlap, but are meant to represent narrow phonetic transcriptions. Pitch movement is represented only at the end of an intonation phrase, such as using the ? symbol to represent rising intonation, or during instances of particularly high or low pitch, such as using ↑ to signal high pitch and ↓ to signal low pitch (Jefferson 2004). As Walker (2013: 470) points out, pitch is distributed across an utterance and a transcription system that relies upon locating pitch movement at specific points in time does not do justice to this distributed nature. However, Walker points out that alternative systems, such as including diagrams of f0 traces over time, also have their own shortcomings and that any analysis should be explicit about the implications and limitations of the transcription system used.

7.4 Social meanings of word-final /i/

7.4.1 Summary of correlational analysis

The results in Chapter 6 show that /i/ realisation patterns with social groups in Ashton Valley School. Amongst the girls, the Ashton girls and Twilight girls have tenser realisations, whereas the Rebellious and Parkdale girls have laxer realisations. This suggests a split between anti-school and pro-school girls. However, amongst the boys there were no significant differences between communities of practice. There were some significant results in terms of ethnicity, such as Somali boys producing tenser realisations of /i/ in preceding /l/ contexts and nuclear accented syllables. These results were interpreted as potentially representing social practice distinctions within the Rebellious boys. However, there are also other explanations, such as the role of the heritage language and differing contexts of speech acquisition, which problematise a straightforward interpretation of the boys' variation being directly linked to social practice.

The following analysis focuses on social meanings of different /i/ realisations. I divide the analysis into categorical realisations of tense and lax /i/ based on the acoustic-phonetic extremes in the data. I do not address phonetic realisations in-between these extremes, but this represents an area for future study. The first

section focuses on the social meanings of lax realisations of /i/, focusing on regional enregisterment and how this is construed in different ways. The second section then focuses on tense realisations of /i/, showing how the Ashton girls use these realisations during the construction of a quirky cool persona, whereas the Rebellious boys use them alongside tough and streetwise stances that are associated with urban masculinity. I then discuss the indexical fields of different types of /i/ realisation and discuss the relationship between a range of related and separate indexical fields in Ashton Valley School.

7.4.2 Social meanings of lax /i/

In this section I focus on some of the social meanings of lax realisations of word-final /i/. I begin by examining how laxer realisations are enregistered in discourse as 'Yorkshire', 'Sheffield' and 'common' and examine how this enregisterment is then used to index distinctiveness and authenticity. In doing so, I unpack the ideological links between region, authenticity and forms of social organisation, such as communities of practice. I explore how two individuals – Leila (Rebellious girls) and Kasey (Parkdale girls) – use similar phonetic realisations and draw upon similar indexical meanings, but exploit the ideological entailments of these indexical meanings in different ways. In doing so, this analysis suggests that the social meanings of lax /i/ can be contextualised in terms of enregistered associations with regional dialects. However, these associations are manifested in different ways by different speakers in order to construct stances and personae in discourse.

None of the male speakers who featured in the analysis in Chapter 6 consistently produced tokens of /i/ that were auditorily lax. There were male speakers within the school who had laxer productions, but these were often White boys from socioeconomically deprived backgrounds, who were few in number and generally absent from this study (see Section 3.2.2 for further details). As a consequence of this, the discourse analysis of lax /i/ only focuses on the girls.

The two female groups with the laxest productions of /i/ were the two communities of practice with a more anti-school orientation: the Rebellious girls and Parkdale girls. Chapter 6 already hinted at potential indexical values of lax /i/ with Polly's (Rebellious girls) metalinguistic comment that so-called chavs 'don't say [pʰɒɬi] they say [pʰɒɬɛ]'. These two particular tokens were not included in the analysis in Chapter 6 as they represented metalinguistic commentary on other people's pronunciations. However, the token represented by [i] in this utterance has an F2–F1 value of 11.02 Bark, which would reside in the 10–20% percentile in terms

of highest values amongst the female speakers. The second token represented by [ɛ] has a F2–F1 value of 3.26 Bark, which was lower than any other token in the data analysed in Chapter 6. The difference between these individual words in this stylised performance represents a striking phonetic contrast, with the laxer realisation of /i/ having the enregistered indexical value of 'chav' for Polly. I discuss how this relates to the indexical fields of /i/ realisation below.

Constructing an 'authentic Yorkshire speaker' persona

The first individual I focus on here is Kasey (Parkdale girls). Kasey was a well-liked and respected member of the Parkdale girls, known for her honesty, well-balanced personality and fairness. She was from a socioeconomically deprived neighbourhood, which was a traditionally working-class area of Sheffield. While the Parkdale girls engaged in a number of more transgressive social practices, such as drinking, hanging out with boys and being abusive towards teachers, Kasey was often the person who would tell the others if she felt their behaviour was 'going too far'. This sometimes earned her the status of the 'sensible one' in the group, but did so without the cost of being 'uncool'. To this end, Kasey never bossed anybody around or aggressively policed social boundaries, but she projected a quiet form of authority within the group. Kasey often spoke about how she was proud of being from Sheffield and, as the following analysis shows, considered herself to have more of a Yorkshire accent than any of her friends.

Kasey produced 11 tokens that were amongst the lowest 10% of female F2–F1 values and also produced the token with the lowest F2–F1 value in the whole data set (not counting Polly's stylised token discussed above), with a value of 3.92 Bark. Her five tokens with the lowest values, as well as the word and conversational topic in which each token occurred, are detailed in Table 7.1.

Table 7.1: Kasey's five laxest productions of word-final /i/ in terms of F2–F1 at peak F2 in Bark (Hertz values given in brackets). All five tokens were amongst the 10% lowest F2–F1 values across all female speakers (female mean: 9.64; female range: 3.92–13.80). Lower values indicate laxer realisations.

F2–F1	Word	Topic
3.92 (390)	naturally	having a Sheffield accent
4.71 (476)	really	karate competitions being about money
4.77 (483)	naturally	liking the Sheffield accent
5.80 (606)	really	talking to friends using Facebook
5.95 (625)	money	youth clubs being shut down due to lack of money

Table 7.1 shows that Kasey's laxest token – also the laxest token produced by any female speaker – is used when she is talking about her own Sheffield accent. Her third laxest token also occurs when talking about the same conversational topic. However, the analysis below demonstrates that it is Kasey's relationship with the topic, rather than the mention of the topic itself, that matters. Two others tokens occur during Kasey's criticisms of institutions in which she participates. The extract below details the discourse context in which Kasey's laxest token was produced.

(Fragment 7.1)

1	Kasey:	I'm the one out of all our friends that talks <u>really</u>*[10.62]
2		York$_1$[shire.]$_1$
3	Claire:	$_1$[yeah.]$_1$
4	Kasey:	$_2$[@@@]$_2$
5	Claire:	$_2$[like my mum]$_2$ says things like water.
		⇒ laːk mə̞ mɐ̰̃m sɛ̈z̥ θĩŋz̥ laːk ˈwa.ʔə
6		$_3$[instead of water?]$_3$
		⇒ ĩnstɛdə ˈwɔ.tʰə
7	Kasey:	$_3$[yeah water,]$_3$
		⇒ jɛ ˈwa.tʰə
8		h-
9		heard,
		⇒ ˈi.jəd
10		again,
		⇒ ə.ˈge.jə̃n
11		@and things @like that@,
12	Claire:	$_4$[@@]$_4$
13	Kasey:	$_4$[and like]$_4$ stupid little things,
14	Sam:	do you- do you say things like that?
15	Kasey:	yeah sometimes,
16		like if I'm on a roll I say it but,
17		I don't mean to.
18		it just like,
19		comes out naturally,*[3.92]
		⇒ kʰʊ̃mzaːʔ natɹ̥əɫɛ̞̈
20		@@=
21	Claire:	=like the accent's kind of like dying out now.
22		with like the new generation.=

⇒ wɪ laːk ðə nu dʒɛ̃nəɹeːʃə̃n

23 Kasey: =yeah.

In line 1, Kasey uses the intensifier *really* in order to construct a strong epistemic stance that positions herself as having a marked Yorkshire accent. There is no hedging of her claim, evidenced by the lack of epistemic markers such as *I think*. Kasey introduces the concept of having a Yorkshire accent as a relevant form of social categorisation, which makes available potential ideological associations which can be drawn from the idea of speaking with a Yorkshire accent. In this instance, Kasey uses comparative stance work in order to differentiate herself from others, which Bucholtz and Hall (2004) call *distinction*. This is evidenced in her claim that 'I'm the one out of all our friends that talks really Yorkshire' (line 1). Her extreme formulation posits her as 'one' out of 'all' and her statement also concerns 'all of *our* friends' rather than, for example, 'all of *my* friends'. This positions Kasey as a more central member of the 'Yorkshire accent speakers' category. This is also a very clear example of Kasey engaging in what Bucholtz and Hall (2004: 498) call *authentication*, in the sense that Kasey constructs an essentialised version of what it means to 'speak Yorkshire', which excludes speakers without a stereotypical 'traditional' accent. In this case, distinction and authentication work together, with Kasey constructing an image of the authentic dialect speaker in order to distinguish herself from others.

Following this, Kasey and Claire then proceed to discursively enregister the Yorkshire accent in terms of pronunciations of particular lexical items, such as *water* (lines 5 and 7), *heard* (line 9) and *again* (line 10). These include the use of a front vowel [a] instead of the more middle-class-associated back vowel [ɔ] in *water*, as well as a trisyllabic pronunciation of *again* [ə.ˈge.jə̃n]. While the pronunciation of *again* features in stereotyped representations of other accents, such as Geordie, these features are all positioned by Kasey and Claire as salient and distinctive characteristics of the Yorkshire accent. In line 21, Claire then ideologically positions the Yorkshire accent as 'kinda of like dying out now'. This further essentialises the Yorkshire accent as a well-delimited entity – note the use of 'dying out' rather than 'changing' – and further reifies its autheniticity. One interpretation of this utterance is that Claire is discursively positioning Kasey as a more 'authentic' speaker than the 'new generation' responsible for the Yorkshire accent's decline (line 22). This fits with Kasey's identity claim in line 1, as well as her assertion that she uses stereotyped Yorkshire pronunciations 'if I'm on a roll' (line 16). The conditional *if* statement links her use of marked accent features to 'being on a roll', which could represent unselfconscious speech or simply being emotionally engaged in a particular

discussion. Kasey rejects the idea that she's trying to speak in a particular way, which could presumably be deemed inauthentic, and instead positions her accent as something that 'comes out naturally' (lines 18–19).

In terms of how Kasey's realisation of word-final /i/ is connected to the stances discussed above, there are two relevant tokens in this fragment. Her token in 'really' (line 1) is acoustically quite tense (10.62 Bark; female average = 9.64). This was rather uncharacteristic of Kasey's speech, given that she had the joint greatest number of tokens in the bottom 10% of /i/ values. This token actually represents one of her tensest realisations, which could seem at odds with her claims to Yorkshireness, given that the laxer variant is generally enregistered as sounding traditionally Yorkshire or Sheffield within this community. One explanation could be that this token of *really* receives emphatic stress, which is a strong prosodic context that predicts tensing (Harrington 2006). Furthermore, the sound following the token of /i/ is the palatal approximant [j] in *Yorkshire*. The production of [j] involves a high tongue body position, which could result in the preceding /i/ adopting a higher tongue position – and therefore a tenser vowel realisation.

In contrast, Kasey's production of /i/ in 'naturally' (line 19) is acoustically very lax (3.92 Bark), which is a realisation that is stereotypically associated with older Yorkshire speakers (Beal 2004: 126). As this form may be sufficiently enregistered in Sheffield as indexing 'Yorkshire' then it is possible that this indexical value is shared between the speakers in this interaction, with its use here drawing upon associations between /i/-laxing and Yorkshireness. She also uses a number of other features that are characteristic of White working-class Sheffield speech during this utterance (line 19), such as the realisation of the MOUTH vowel in *out* as the monophthongal [a:], as well as a very dark realisation of /l/ in *naturally* (Stoddart et al. 1999). This suggests that Kasey's use of lax /i/ may be facilitated by – as well as signal an orientation towards – her ideological engagement with notions of Yorkshireness, at least in this interaction.

The patterning between phonetic variants, stance and personae is far from straightforward in this example. For instance, we see how both tense (line 1) and lax (line 19) realisations of /i/ are used in the context of similar stances, with little evidence of any differences in terms of how Kasey and Claire orient towards Yorkshireness. An explanation for this could be topic-related priming of phonetic variants in talk, whereby a particular topic may activate exemplars associated with it (Gordon et al. 2004). More specifically, a topic could potentially prime a shift in identity, thus activating phonetic exemplars that may be relevant to that identity (Love and Walker 2013). It is also likely that such a phenomenon has a temporal

dimension, with exemplar activation becoming stronger over the course of the topic. This could explain Kasey's use of /i/, with the occurrence of a tense token in line 1 and a lax token in line 19 relating to the activation of particular exemplars over the duration of the discourse. As the token on line 1 occurs when Kasey has just initiated the topic of the traditional Yorkshire accents, it is possible that the social association of 'Yorkshireness' is not as strongly activated as it is later on in the discourse when she produces the lax token (line 19). By line 19, she is fully engaged in metalinguistic discourse about Yorkshire accents and it likely that her pre-existing association between 'Yorkshire' and 'lax /i/' is much more strongly activated by this point, thus potentially explaining the difference between these two realisations. This explanation is not entirely unproblematic, as it would be dubious to claim that Kasey's token on line 1 is her 'default' realisation and that her token on line 19 is entirely caused by the discourse content. However, it does offer some possible insights into the complex mapping between form and meaning and illustrate the co-constitutive and dialectical nature of stances and styles. In this instance, the combination of linguistic and interactional features appears to be more important than isolated phonetic tokens. I discuss this possibility further in Section 7.6.4. Note, though, that this example seems to problematise uniform explanations for the relationship between individual variants and stance.

The ideological reconstrual of 'regional' indexicality

The above section shows how the potential indexical associations between lax /i/ and Yorkshire may be evoked in discourse in order to construct a persona. Leila (Rebellious girls) is another speaker who produced very lax realisations of /i/, with eleven tokens amongst the lowest 10% of female F2–F1 values. The Rebellious girls and Parkdale girls were not significantly different from each other on the group level for /i/, but in the following discussion I unpack subtly different indexical meanings for phonetically similar realisations. Leila's five tokens with the lowest values, as well as the word and conversational topic in which each token occur, are detailed in Table 7.3.

The information in Table 7.3 suggests that Leila's laxest productions of /i/ tend to occur when she is talking about being disruptive in lessons and scaring teachers. While it is important to stress that topic alone tells us relatively little about social meaning, the ways in which a speaker constructs their relationship with a particular topic can be instructive (Bell 1984; Rickford and McNair-Knox 1994). For example, the following fragment details Leila's feelings about how teachers don't respect the

Table 7.3: Leila's five laxest productions of word-final /i/ in terms of F2–F1 at peak F2 in Bark (Hertz values given in brackets). All five tokens were amongst the 10% lowest F2–F1 values across all female speakers (female mean: 9.64; female range: 3.92–13.80). Lower values indicate laxer realisations.

F2–F1	Word	Topic
4.26 (426)	__ly (name)	teachers being scared of a student
4.27 (427)	properly	teachers not respecting students
4.30 (431)	easily	being easily distracted in class
4.64 (468)	apparently	teacher misbehaving in class
4.80 (486)	__ty (pseudonym)	having a Sheffield accent

students properly.

(Fragment 7.2)

1	Leila:	they don't like,
		⇒ ðe̞ɪ dõːnʔ ɬaɪʔˀ
2		hh
3		I think some teachers like don't like,
4		understand.
5		(0.5)
6		like they don't like respect you properly,*[4.27]
		⇒ laːʔ ðe̞ɪ dəʊ̃nʔ laːʔ ɹəspɛʰktʃə pɻɒpɬë
7	Saliha:	yeah I think that's big thing.
8	Leila:	hh yeah. hh

Leila uses a variety of evaluative stance markers in order to criticise teachers. Some of these stances feature epistemic verbs, such as 'I *think* some teachers' (line 2), whereas others lack such verbs, constructing a stronger epistemic stance, such as 'they don't like respect you properly'. These act as oppositional stances, which position Leila as directly opposed to the teachers and, by implication, the school's institutional authority. This represents what Bucholtz and Hall (2004) describe as *distinction* – essentialising a particular group of people in order to position oneself in opposition to them. Processes of distinction crucially involve *erasure*, 'the process in which ideology, in simplifying the sociolinguistic field, renders some persons or activities (or sociolinguistic phenomena) invisible' (Irvine and Gal 2000: 38). In this instance, teachers are reduced to two groups: those who understand and respect students versus those who do not. In Section 7.5.4, I suggest that this discourse of respect (line 5) may be ideologically connected to discourses of 'street life' that were common amongst the Rebellious girls and boys (Anderson 1990).

In terms of how phonetic variation patterns with these stances, the token of /i/ in *properly* (line 6) is auditorily and acoustically very lax (4.27 Bark) and Leila also uses monophthongal realisations of the GOAT and PRICE vowels in *don't* (line 1) and *like* (line 6), which are described as characteristic features of working-class Sheffield accents (Stoddart et al. 1999). Leila frequently uses lax tokens of /i/ while criticising teachers or discussing her own misbehaviour in class and, while lax tokens are not directly constructing the stances on their own, the social meaning of /i/-laxing could be mediated by their repeated use in these stances.

While Leila frequently uses lax /i/ when constructing evaluative stances towards teachers, the last token in Table 7.3 was produced by Leila while she was engaged in metalinguistic discourse. Here, Leila talks about having more of a Sheffield accent when she speaks to Katy, another member of the Rebellious girls. This is notable because the prior analysis of Kasey's /i/ realisation revealed a similar pattern between lax realisations and claiming to have a regionally-marked accent. In the extract below, Saliha and Leila are talking about who in the school has a Sheffield accent.

(FRAGMENT 7.3)

1	Saliha:	you know Shaznee and all that,
2		$_1$[I think]$_1$ they've got like,
3	Leila:	$_1$[yeah.]$_1$
4	Saliha	more of a,
5		(.)
6	Leila:	common=
7	Saliha:	=full on sh-,
8		yeah like.
9		full on Sheffield accent.
10		it's like,
11		(1.0)
12		you can't really $_2$[understand.]$_2$
13	Leila	$_2$[I have]$_2$
14	Leila:	I have when I talk to Katy*[4.80]
15	Saliha:	$_3$[yeah]$_3$
16	Leila:	$_3$[I talk]$_3$ like,
17		(.)
18		common.
19		because,
20		I don't know I just do.

21 because she's like,
22 common,
23 but like,
24 when I'm $_{4}$[talking to]$_{4}$ like people that,
25 Saliha: $_{4}$[@@@]$_{4}$
26 Leila: I don't know how to explain it.

Leila claims that she has a Sheffield accent when she talks to her friend Katy (line 14), which makes available the concept of 'accent' as a social identifier. Leila has already evaluated this way of talking as 'common' (line 6) and she claims she speaks to Katy like this because Katy is also 'common' (line 18). The notion of being common was often used as an insult towards those who were perceived to be working-class in the school. In addition to this, the term 'Sheffield accent' generally acted as a stand-in for 'traditional working-class Sheffield accent' within the school and Leila's discourse in Fragment 7.3 appears to be grounded in associations between this construct and middle-class stereotypes of working-class social practices, such as rebelliousness and deviance. This is bolstered by Polly's earlier claim that so-called chavs 'don't say [pʰɒɬi] they say [pʰɒɬɛ]', which also hints at associations between lax /i/ and particular working-class stereotypes.

In terms of how the phonetic realisation of /i/ contributes towards the construction of this persona, the token in the word *Katy* (line 14) is one of Leila's laxest tokens (4.80 Bark). In this way, Leila's use of lax /i/ could be instead indexing its enregisterment as 'common' rather than 'Yorkshire' in order to draw upon associations between working-classness and rebelliousness and disrespect for authority. It is difficult to determine whether the choice of 'Sheffield accent' (line 9) rather than 'Yorkshire' (see Kasey in Fragment 7.1) is significant here, as these terms were sometimes used interchangeably by different individuals. However, irrespective of this, Leila appears to use lax /i/ vowels when constructing a more rebellious anti-school persona, which was also evidenced in her use of lax realisations alongside critically evaluative stances of teachers in Fragment 7.2.

In summary, laxer realisations of /i/ are sometimes ideologically associated with Yorkshire and Sheffield accents, evidenced by their patterned use with particular stances, as well as their co-occurrence with stances towards particular speech topics. My focus on metalinguistic talk in this section is not coincidental, given that a number of very lax tokens occurred during this kind of discourse. However, Kasey's and Leila's use of lax /i/ in these stances reflects different dimensions of what it means to be speak a Yorkshire or Sheffield accent. Kasey uses lax /i/ vowels alongside

other regionally-marked phonetic variants, such as a monophthongal MOUTH vowel, as well as conditional statements that foreground the 'naturalness' of speaking with a Yorkshire accent. This facilitates her construction of an 'authentic speaker' persona, which may be ideologically grounded in working-class values of honesty and authenticity. Leila on the other hand, uses lax /i/ vowels alongside strong epistemic markers that critically evaluate teachers and alongside stances that position having a Sheffield accent as 'common'. Both speakers draw upon associations between regional accents and working-class characteristics, but Kasey evaluates being working-class positively with claims of authenticity, whereas Leila evaluates it negatively by using terms such as 'common'. While both speakers conceptualise class and regional accents in different ways, there nonetheless remains a 'kernel of similarity' (Podesva 2008: 3), with enregistered associations of social class ideologies being attributed to lax /i/.

7.4.3 Social meanings of tense /i/

The above discussion focuses on the laxest productions of /i/, but there is also a rich indexical spectrum at the other end of the lax-tense continuum. This section explores the stances and social meanings associated with the acoustically tensest realisations. I begin by exploring how tenser realisations are used to construct a 'quirky cool' persona by two of the Ashton girls, Toni and Nikki. I then explore the ways in which one of the Rebellious boys, Mohammed, uses similar phonetic realisations but for very different identity work. There is little evidence of patterning between distinctive identity work and extreme /i/ values amongst the Ashton boys and the Twilight girls, so I instead discuss these groups in Section 7.4.4.

Quirky coolness

This section focus on the two central members of the Ashton girls, Toni and Nikki. Toni and Nikki were best friends and, in many ways, policed the ideological and cultural orientations of the Ashton girls group. They were the trend setters who attempted to determine what was cool and would often seek to distinguish themselves as slightly cooler than the rest of the Ashton girls, setting a trend but then criticising others for blindly following. To this end, the Ashton girls highly valued individuality. As I go on to explain, their cultural orientations were characterised by a quirky style involving a mix of edgy alternative music, unique fashion, and ironic appreciation of markedly uncool or age-inappropriate cultural forms.

Table 7.6: Toni's and Nikki's five tensest productions of word-final /i/ in terms of F2–F1 at peak F2 in Bark (Hertz values given in brackets). Four of Toni's tokens, and all five of Nikki's tokens, were amongst the 10% highest F2–F1 values across all female speakers (female mean: 9.64; female range: 3.92–13.80). Higher values indicate tenser realisations.

F2–F1	Word	Topic
Toni		
11.32 (1553)	many	a friend being obsessed with Disney songs
11.67 (1637)	really	mocking her own music taste
11.72 (1649)	dirty	making sexual innuendos
11.74 (1654)	basically	her dad being a record producer
11.84 (1679)	__my (name)	her friends telling bad jokes
Nikki		
11.71 (1647)	Disney	playing a Disney game
11.90 (1694)	literally	male friend screaming 'like a girl'
12.15 (1759)	__kie (name)	going to Thorpe Park
12.23 (1780)	apparently	sitting next to the radiator (inside joke)
12.30 (1799)	__kie (name)	Nikki's friend writing a song for her

Toni and Nikki were interviewed together. Toni produced four tokens that were amongst the highest 10% of F2–F1 values, whereas Nikki produced six. The five tokens with the highest values for both Toni and Nikki, as well as the word and conversational topic in which each token occurs, are detailed in Table 7.6.

Most of the tokens in Table 7.6 occur when Toni and Nikki are talking about themselves and their friends being engaged in social practices such as telling bad jokes, having bad taste in music, and liking age-inappropriate things, such as Disney soundtracks. All of these discussions are often accompanied by a comment on how (self-consciously) uncool Toni and Nikki feel their group are. Three of Toni's tokens in Table 7.6 occur in the following fragment, in which she and Nikki are discussing their taste in music.

(Fragment 7.4)

1	Toni:	my music taste used to be really*[11.67] ↑good,
2		and then it just-
3		$_1$[really went down hill,]$_1$
4	Nikki:	$_1$[and then I became friends with her.]$_1$
5	Toni:	yeah.=
6	Nikki:	=@@

7 Toni: $_2$[you ↓ru:↑ined e::verything.=]$_2$
8 Nikki: $_2$[hh@ actually @true though,=]$_2$
9 Toni: =no I'm kidding
10 you haven't you haven't.
11 (1.0)
12 but erm,
13 Nikki: $_3$[°I was gonna say, ↑go::d.°]$_3$
14 Toni: $_3$[I have a lot of]$_3$ Disney,*[10.89]
15 oh-
16 ((x xx x)) oh-
17 @ $_4$[@]$_4$@
18 Nikki: $_4$[@]$_4$
19 Toni: hh@h right our friend,
20 well actually no.=
21 Nikki: =yeah he's our friend?
22 $_5$[Mike he's our friend.]$_5$
23 Toni: $_5$[yeah ok Mike]$_5$ he's our friend.
24 I ↑love saying Mike.
25 (puts on mock American voice) ↑hi::↓ya ↑Mi::↓ke.
26 ok no.
27 basically,*[11.74]
28 $_6$[our friend Mike]$_6$
29 Nikki: $_6$[inside joke hhh@]$_6$
30 Toni: he's got s-
31 he's got so many*[11.32] D-
32 $_7$[Disney]$_7$
33 Nikki $_7$[Disney]$_7$ soundtrack theme tunes

In lines 1–3, Toni states how her music taste 'used to be really good', which sets up a contrast between her current self and a projected former self. The tactic of attributing good musical taste to her former self could represent compliance with what Leech (1983: 132) terms the 'modesty maxim'. This comprises 'minimise praise of self' and 'maximise dispraise of self' and here we see Toni engaged in dispraise of herself, positioning her current self as uncool in contrast to how her music taste 'used to be'. Nikki collaborates in this positioning, implying that she negatively influenced Toni's music taste (line 4). One interpretation of this is that Toni is actually making a claim to coolness in the present, but by attributing this to a projected former self

she avoids violating the modesty maxim. The Ashton girls regularly constructed similar self-critical evaluative stances when admitting their consumption of cultural phenomena that they considered age-inappropriate or uncool, such as their playful mocking of Mike on lines 19–33 for liking Disney soundtracks. The use of the noun phrase 'our friend' with reference to Mike occurs five times over lines 19–33. This represents Toni and Nikki engaging in collaborative positioning over the status of Mike as a friend. Toni's initial assertion, 'right our friend', is instantly followed by negation, 'well actually no.' (lines 19–20). However, this is then met with a contrasting assertion from Nikki, 'yeah he's our friend', which represents disagreement. This is then followed by agreement from Toni, which demonstrates recourse to her initial assertion on line 19. This brief conversational structure reveals how Toni and Nikki intersubjectively police friendship boundaries.

Toni and Nikki go on to explain how Mike has a lot of Disney soundtracks, but this also represents a similarly self-critical evaluative stance, given that Toni says on line 14 that she also has 'a lot of Disney'. In doing so, Toni positions herself as engaged in a range of diverse cultural practices that span the uncool-cool continuum. The notion of something being 'so uncool it's cool' was a defining characteristic of Toni's and Nikki's cultural orientations and they would frequently use their intense obsession with particularly uncool things in order to construct a 'quirky cool' persona. Bucholtz (1999) notes similar engagement with avowedly uncool practices and a focus on individuality by nerd girls in a California high school.

In terms of phonetic variation, Fragment 7.4 contains four tokens of /i/ produced by Toni on lines 1, 14, 27 and 31, three of which were amongst her five tensest tokens (lines 1, 27 and 31). Note that there are also audibly tense tokens on lines 5 and 25 (Nikki) and line 26 (Toni), but these were not analysed acoustically as they were produced during overlap. The production of /i/ in *actually no* (line 20) was realised [akʃənɘʊ] and was therefore not included in the acoustic analysis. The tokens on lines 1, 27 and 31 were amongst Nikki's tensest realisations and, in each case, a tenser realisation of /i/ is used alongside self-critical evaluative stances. This combination may facilitate Nikki's construction a quirky but cool persona and, over time, the use of /i/-tensing alongside these stances may accrue social meanings such as quirkiness, mock surprise, and evaluation. The list of tokens in Table 7.6 clearly demonstrate that tenser realisations of /i/ are most prevalent when Toni and Nikki express their relationship to particular conversational topics, such as the ones detailed in this analysis, and I suggest that this persona is characteristic of the overall Ashton girls' style.

Table 7.8: Mohammed's five tensest productions of word-final /i/ in terms of F2–F1 at peak F2 in Bark (Hertz values given in brackets). All five tokens were amongst the 10% highest F2–F1 values across all male speakers (male mean: 9.64; male range: 3.92–13.80). Higher values indicate tenser realisations.

F2–F1	Word	Topic
12.08 (1741)	__ly (name 1)	worst teachers in the school
12.17 (1764)	funny	getting into a fight
12.19 (1769)	__ly (name 2)	fights at school
12.26 (1788)	__ly (place name 1)	worst places in Sheffield
12.28 (1793)	__ly (place name 1)	getting into a fight

Street toughness

The above analysis suggests that tenser realisations of /i/ may be used alongside stances that construct a quirky cool persona amongst the Ashton girls. However, the Rebellious boys also use very tense productions of /i/ but do not display any such orientations in their social practices. There were no significant differences between the Rebellious and Ashton boys in the statistical model, but some of the individual speakers used a greater frequency of tenser realisations than other speakers. One of the Rebellious boys with the highest number of tokens in the top 10% of /i/ values was Mohammed. Mohammed identified as Somali, which also fits the statistical finding that Somali boys have significantly tenser /i/ vowels in preceding /l/ contexts. Mohammed and Abdullah, another Somali boy, were constantly in trouble for doing the most daring things and getting into fights.

Table 7.8 lists Mohammed's five tensest tokens, all of which were amongst the 10% highest F2–F1 values across all male speakers. The majority of Mohammed's tensest tokens occur when he talks about getting into fights or condemning teachers. The two anonymised name words in Table 7.8 were two different people's names ending in <ly>, while the anonymised place name words both represent the same location, also ending in <ly>. Note that four of the five tokens occur in preceding /l/ contexts, which may be reflective of the finding that Somali boys have tenser realisations of /i/ in this context.

The extract below details Mohammed's use of two tense tokens of /i/, one of which is amongst his five tensest tokens. This provides a vivid illustration of how he combines tense productions of /i/ with other linguistic and stance-based markers in order to construct a 'tough street' persona.

(Fragment 7.5)

1	Mohammed:	(name)ly*[12.26] is like,
2		the worst place.
3		Sheffield like-
4		so much.
5		(1.0)
6		there's people with like,
7		different kinds of attitude.
8		d'ya know like,
9		this-
10		for example I was walking yeah?
11		from my tutor's house?
12		my English tutor?
13		I was walking,
14		some guy said "what you looking at?"
15		(1.0)
16		I- I was- I didn't even look at him.
17		said to me "what you looking at?" and I said,
18		((puts on threatening voice)) "I'm looking at you."
19		and that's like he try to-
20		he's way older he's like in-
21		I think he's in university.*[11.04]
22		so that big innit?
23		he said "hh come on then hh"
24		I was like ".hh come .hh come,"
25		and this girl were like,
26		"just leave it just leave it."
27		and I was like "tsh that's what I thought."
28		just walks off.

Just prior to Fragment 7.5, Mohammed was describing the 'worst parts' of Sheffield, after which goes on to describe the neighbourhood in which he lives (lines 1–5). He expresses a strongly negative opinion towards his neighbourhood, using the most extreme formulation: 'the worst place' (line 2). Contrast this with other phrasing that Mohammed could have used, such as 'a bad place', which is indefinite and not as bad as 'the worst'. This utterance is not modified by any overt epistemic markers, evidencing a strong epistemic commitment to this critical stance. In lines

10–28, Mohammed goes on to describe a confrontation with an older male in his neighbourhood. His reported speech deploys exaggerated mock voicing of himself and the other man in lines 14–27. This is signalled by his use of breathy voice in lines 23–24 and a more syllable timed speech rhythm, the latter feature being characteristic of multiethnic youth speech in Britain (Torgersen and Szakay 2012). His use of reported speech represents a kind of stance-taking in that Mohammed positions lines 14–28 as a literal representation of what was said (Clift 2006). In this case, Mohammed does so by positioning the interaction between him and the man as a confrontation with the potential for violence.

Mohammed elaborates the narrative using other positioning devices. For example, Mohammed invokes age as a categorisation method, claiming that the man is 'way older' (line 20). This is followed by a number of strategies of *distinction*, which serve to differentiate Mohammed from the man across a number of areas (Bucholtz and Hall 2004). For example, we can infer social characteristics that are typically associated with age, such as increased size and physical strength, to be relevant in the context of a potentially violent encounter. Mohammed directly alludes to this when he describes the man as 'that big innit' (line 22), which sets up a contrast between himself and an older and physically larger male. This implies that the odds would be stacked against Mohammed in a fight, but he goes to position himself as echoing the man's invitation to fight, indicated by the repetition of similar verb phrases such as 'come on' and 'come' (lines 23–24). He infers that the only reason he didn't fight the man was because a girl told him to 'just leave it' (line 26), after which the man walked away. This firmly constructs Mohammed as tough and unafraid to fight, evidenced through his claims of provocation (line 23), as well as his negative evaluative stance towards the man walking away (line 27). In doing so, he positions himself as tough and streetwise. In terms of the oppositional nature of stances, this may represent his engagement with a tough male street style that was very prevalent amongst the Rebellious boys. This style was directly opposed to that of the Ashton boys, who the Rebellious boys considered to be aligned with the teachers, as well as 'stuck up' and 'posh'.

In terms of how phonetic variation contributes to these stances, Mohammed uses very tense realisations of /i/ when he condemns the neighbourhood of Sheffield in which he lives (line 1). A lot of his very tense tokens occur in place names. This could represent some kind of lexical effect, or it could be that Mohammed's use of the non-traditional hyper-tense variant in local place names represents rejection of traditional working-class stereotypes that are linked to place. Later in this episode, Mohammed uses another token of /i/ when he describes nearly getting into a fight (*university*,

line 21). However, this second token is only in the top 30% of values and, therefore, does not represent a hyper-tense token like that in line 1. This problematises a straightforward patterning between vowel realisation and stance. However, this token is still considerably more tense (11.04 Bark) that the average value for male speakers (9.64 Bark) and it could be the case that the hyper tense tokens are more likely to occur in place names and /li/ contexts for either of the reasons outlined above.

In summary, Mohammed uses very tense realisations of /i/ alongside stances that construct a tough street persona. The social matrix of the school makes this persona a salient form of categorisation, as the Ashton boys frequently mocked the Rebellious boys' orientation to 'gangster' culture. The Rebellious boys privileged characteristics such as toughness and a streetwise persona, whereas the Ashton boys rejected these orientations in favour of proclaimed cultural superiority ('we don't listen to that mainstream rap bullshit' – Neil, Ashton boys) and a more pro-school perspective. Most of Mohammed's most tense tokens occur in names or place names, but this may represent his rejection of traditional working-class associations with these places. Also, Mohammed did produce instances of similar place names in other episodes of discourse with less extreme acoustic values. This supports the claim that Mohammed's use of phonetic variation analysed in this section is linked to the construction of distinctive stances and personae

7.4.4 Indexical fields of /i/ realisation

The analysis reported in this section highlights the range of social meanings and stance-taking devices with which different realisations of /i/ co-occur. For some speakers, such as Kasey (Parkdale girls), Leila (Rebellious girls), and Mohammed (Rebellious boys), there appears to be a relationship between particular kinds of stance-work, the acoustic realisation of /i/, and the construction of a persona. This suggests that the acoustic extremes of the tense/lax continuum may be used for identity work in discourse. The following analysis discusses social meanings in terms of indexical fields, but it must be stressed that the these indexical fields that are largely derived from interactional analysis of only one or two speakers. As a consequence, they should not be seen as completely representative of the social meanings of /i/ in each community of practice. The indexical associations of other speakers' productions are likely to be similar, but how these are manifested in discourse will inevitably differ. For this reason, I have chosen to focus on a small snapshot of potential indexical meanings in the speech of core community of practice members.

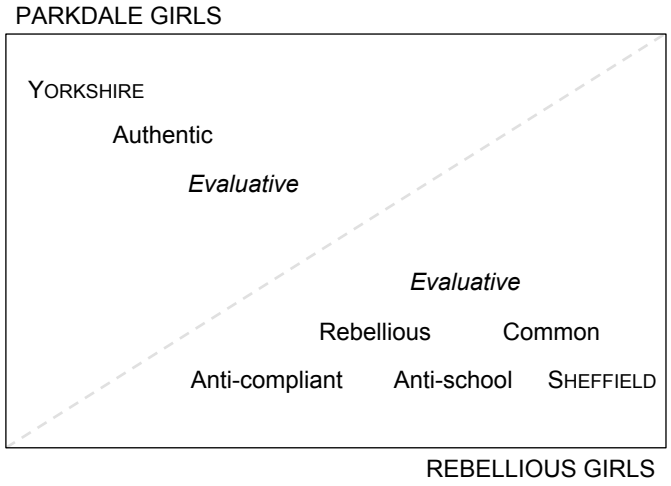

Figure 7.1: Indexical field for lax realisations of /i/ by Parkdale and Rebellious girls. Stances appear in italics, personae in plain text, and social types in small capitals, following Moore and Podesva (2009).

Female speakers

Figure 7.1 represents the 'indexical fields' for my analysis of lax realisations of /i/ by the Rebellious girls and Parkdale girls. The concept of the indexical field refers to a 'constellation of ideologically related meanings, any one of which can be activated in the situated use of the variable' (Eckert 2008a: 454; see Section 2.3.2 for a detailed discussion). As the Twilight girls and Ashton girls generally did not produce lax realisations, these groups do not figure in this particular dimension of variation. Figure 7.1 suggests that very lax tokens occurr in evaluative stances for Kasey (Parkdale girls) and Leila (Rebellious girls). At the same time, lax realisations also feature in metalinguistic discourse about regional accents. Meanings in the indexical field are co-present and the use of lax realisations can simultaneously index enregistered regional meanings and locally-situated stances. Different levels of indexical meaning can also shift over the course of an interaction, such that variation may index a stance in one instance and a social type in another.

Figure 7.1 suggests that Kasey's use of lax /i/ may index a supra-interactional meaning of 'Yorkshire', which is a fairly well-established enregistered meaning. This is evidenced by the use of her laxest tokens during metalinguistic discourse about her own Yorkshire accent. However, constructs such as 'Yorkshire accent' are essentialising in the sense that 'Yorkshire accent' is used to stand in for only a subset of speakers in Yorkshire. This construct is also underspecified, in that there are many indexical entailments of Yorkshireness that may or may not be relevant at

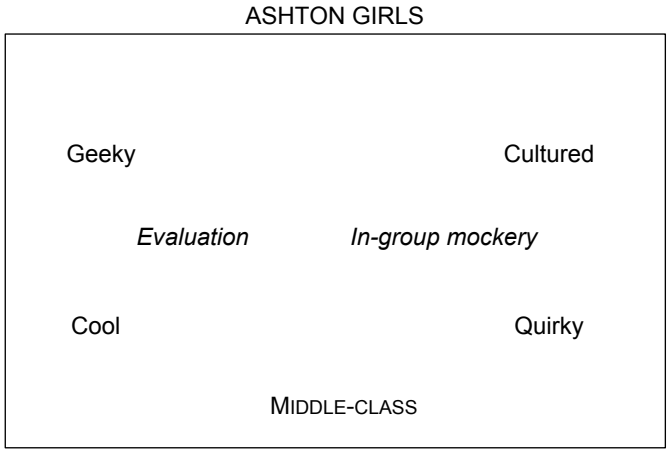

Figure 7.2: Indexical field for tense realisations of /i/ by Ashton girls. Stances appear in italics, personae in plain text, and social types in small capitals, following Moore and Podesva (2009).

a particular point in time. In the example above, we see that enregistered meanings are operationalised in discourse in a way that ideologically reconstrues the indexical field for lax /i/. Yorkshireness is invoked alongside stances that position Kasey as authentic and natural. On the other hand, Leila uses lax /i/ during metalinguistic discourse about the Sheffield accent, but instead evaluates this as 'common', which draws upon a different set of associations of regional accents. This is represented by the persona-level associations in Figure 7.1, such as rebellious, common and anti-school for the Rebellious girls, and authentic for the Parkdale girls.

Tenser realisations of /i/ do not appear to be subjected to the same levels of enregisterment as laxer realisations, perhaps due to the tense variant increasingly becoming the majority realisation in many UK dialects (Wells 1982; Fabricius 2002). However, this lack of overt enregisterment for tenser variants suggests that this variant could facilitate a more diverse array of indexical manoeuvres, as emergent meanings do not face competition from more enregistered meanings. An indexical field for the Ashton girls' use of tense word-final /i/ vowels is depicted in Figure 7.2. Toni and Nikki use tenser realisations in stance clusters involving evaluation and in-group mockery (i.e. humorously critiquing their own and their friends' cultural tastes). This suggests stance-based meanings of 'evaluation' or 'mocking'. These stances consolidate a quirky cool persona through a series of persona-level associations that naturalise the link between self-mockery and other social characteristics, such as coolness and geekiness.

In the context of Ashton Valley School, this quirky cool persona and the social practices of the Ashton girls are interpretable in terms of demographic social types,

such as age and social class. For example, the Ashton girls' combination of self-critical evaluative stances, /i/-tensing and a quirky cool persona links to discourses surrounding 'cultural omnivores' (Peterson 1992). This refers to a tendency to orient to cultural forms that cut across distinctions between 'high' and 'low' culture, and this trend is ideologically associated with the young and middle-class (Ollivier 2008). However, instead of creating a more inclusive form of culture, cultural omnivorousness reinforces status hierarchies by valuing knowledge of the 'right' cultural mixes (Savage and Gayo 2011: 138). In Bourdieu's (1984) terms, this allows social groups with access to the 'right' cultural mix to assert their superiority via distinction from those with more 'restricted' tastes (Chan and Goldthorpe 2010: 9). Toni's and Nikki's self-critical evaluations signal clear familiarity with the concept of culturally diverse practices that span different levels of coolness. Their ability to engage in markedly uncool cultural practices, such as listening to Disney soundtracks and going to Justin Bieber concerts, demonstrates their level of social capital amongst the Ashton girls, as these are activities that were actively shunned by the rest of the school. At the same time, they directly orient towards cool cultural practices in other instances, such as constantly seeking out music that their friends haven't heard of and discussing their intended future careers, such as photography and music.

In summary, possible indexical values of tenser realisations of /i/ for the Ashton girls span stance (self-critical evaluation), persona (quirky cool), community of practice (Ashton girls), and demographic category (young, middle-class). However, while there is patterning between tense /i/ and personae for the Ashton girls, there was no evidence for this amongst the Twilight girls. Instead, most of the Twilight girls' very tense tokens occur while narrating episodes from various vampire stories and tend to be lexically restricted to the word *really*. These lexical forms could construct stances concerning enthusiasm and excitement, but there are no recurring patterns that point to how these relate to more enduring social characteristics of the individual Twilight girls. This could be because the community-level associations of tense /i/, such as middle-class and pro-school, do not clash with the Twilight girls' persona. Therefore, the Twilight girls do not have to reconstrue the indexicality of this variant in new ways, whereas the Ashton girls' focus on individuality could necessitate stylistic differentiation from other groups who use this variant, at least in terms of its local meanings.

Male speakers

The indexical field for Mohammed's use of word-final /i/ is represented in Figure 7.3. This posits indexical associations of Mohammed's tense /i/ as 'evaluative' and 'critical', which are fairly similar to those identified for the Parkdale, Rebellious and Ashton girls. However, the differences reside in how 'evaluative' and 'critical' stances are ideologically reinterpreted as persona-level associations. Mohammed's stances were generally directed towards a teacher, the school, or a potential opponent in a fight. Ideology mediates the link between critical and evaluative stances and being street, tough, urban, rebellious and anti-school. Mohammed's stances can be interpreted in terms of the Rebellious boys' social practices, such as fighting, urban clothing and music, and rejection of school authority. These practices form a stylistic repertoire in which tough urban masculinity figures strongly and point towards the integration of hyper-tense realisations of /i/ into this style.

An important factor in why the Rebellious boys generally do not use lax /i/ in the way seen by anti-school female communities of practice may be its associations with 'traditional' working-class Yorkshire speech. Previous studies find an association between lax /i/ and White working-class speakers in Sheffield (Beal 2004; Finnegan 2005). The concept of a 'regional accent' often involves erasure of non-White and non-working-class speakers, at least within a British context. When the adolescents in Ashton Valley talked about a Sheffield/Yorkshire accent, they usually pointed to older White working-class speakers as exemplars. While the enregisterment of lax /i/ as 'Yorkshire', 'Sheffield', 'common' and so on is explicitly attested in these data, I would also suggest that laxer realisations may to some degree be marked as 'White'. This is not to say that the use of lax /i/ straightforwardly indexes Whiteness, given that many non-White speakers in these data use this variant. However, those speakers who do use laxer realisations often have at least one White parent and/or experience greater levels of sustained contact with working-class White and White & Black Caribbean adolescents. Furthermore, it is likely that a possible source of hyper-tense /i/ is the Somali boys' heritage language (Somali), which impressionistically has very tense realisations of this vowel. However, as social divisions emerge in Ashton Valley School, this existing variation may take on social meaning, with features such as tense /i/ forming part of the Rebellious boys' style.

Chapter 6 found no significant difference between the male communities of practice, suggesting that they have similar realisations of /i/. However, there was little evidence of tense /i/ being used to index street toughness amongst the Ashton boys. As was the case with the Twilight girls, there was no substantive evidence

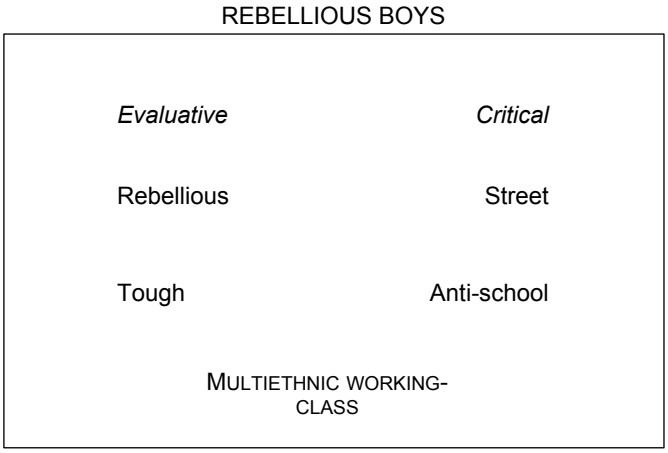

Figure 7.3: Indexical field for tense realisations of /i/ by Rebellious boys. Stances appear in italics, personae in plain text, and social types in small capitals, following Moore and Podesva (2009).

that the Ashton boys used phonetically extreme tokens alongside distinctive identity work in discourse. One possibility is that the more stereotyped associations of /i/-tensing, such as correlations with middle-class speakers, already fit the persona of the Ashton boys. Tense realisations of word-final /i/ may have stronger associations with being White and middle-class, given that these groups are the ethnic majority in the Ashton area of Sheffield. On the other hand, tense realisations of /i/ are commonplace amongst the broader immigrant communities in which most of the Rebellious boys acquired English. This suggests that both groups use of tense /i/ have different origins and, therefore, may have acquired different meanings independently of each other. Neither group is likely to use very lax realisations of /i/ because they have had relatively little opportunity to acquire this feature.

Summary

In summary, the social meanings of /i/ – as defined in terms of the lax-tense extremes – are complex and multiple in Ashton Valley School, evidenced by their use in different stance clusters and how they form part of different group styles. Amongst the girls, laxer realisations are enregistered as 'Sheffield' or 'Yorkshire', which affords differing ideological construals of the indexicality of region. On the other hand, tense /i/ varies in its use as a stylistic marker. The Ashton girls' use of this features indexes a quirky cool persona that is ideologically young and middle-class, which is used to construct distinctions within the female adolescent peer group. The lack of distinctive identity work in the instances in which the Twilight girls produce phonetically

extreme tokens may reflect the ways in which the existing social associations of tense /i/ do not clash with the Twilight girls' persona.

Amongst the boys, there is also a lack of distinctive identity work in the occasions where the Ashton boys use acoustically extreme tokens, which similarly reflects the fact that the middle-class associations of /i/-tensing do not clash with Ashton boys' persona. On the other hand, we see that Mohammed (Rebellious boys) uses tense /i/ in stylistically marked ways in discourse. It occurs in evaluative and critical stances towards teachers and during narratives of street conflict. This facilitates the construction of a tough streetwise persona that is characteristic of the Rebellious boys' social practices. Mohammed's /i/ values were generally tenser than those of the Ashton boys and the other Rebellious boys, which suggests that he may represent one of the more stylistically extreme individuals amongst the boys.

The next section examines a phonetic variable that does not appear to be strongly enregistered in Sheffield English: the affrication of word-initial /t/. This allows me to directly address whether the degree of enregisterment that is attributed to a variable affects how it is used for social meaning and imbued with indexical associations.

7.5 Social meanings of word-initial /t/

7.5.1 Summary of correlational analysis

The results in Chapter 5 find that /t/ realisation patterns with social groups in Ashton Valley School in various ways. Amongst the girls, the Rebellious girls have the most affricated realisations and the Parkdale girls have the least affricated realisations, which suggests that the two anti-school groups differ the most on this feature. The Ashton girls and Twilight girls fall in-between these two extremes. Amongst the boys, there were no significant differences between the Ashton boys and Rebellious boys in terms of /t/ affrication. However, there was a main effect of ethnicity, with Somali and Yemeni boys both having significantly more affricated /t/s than White boys. This suggests that ethnicity may interact with social practice in complex ways in explaining patterns of /t/ realisation.

The following analysis focuses on social meanings of different /t/ realisations. As was the case with the analysis of /i/ in Section 7.4, I divide the analysis into realisations of 'affricated' and 'unaffricated' based on the acoustic-phonetic extremes in the data. The first section focuses on the social meanings of affricated realisations of /t/, examining how similar phonetic realisations can be used to do very different identity work. The second section focuses on audibly and acoustically unaffricated

Table 7.10: Leila's five most affricated productions of word-initial /t/ in terms of peak ZCR. All five tokens were amongst the 10% highest peak ZCR values across all female speakers (female mean: 5468; female range: 1074–10,046). Higher values indicate more affricated realisations.

Peak ZCR	Word	Topic
8529	teachers	some teachers being scared of pupils
8643	teach	supply teachers not teaching them the right thing
8659	tension	tense atmosphere in the school dining room
8932	teaching	the need for (supply) teachers to give respect
8935	teacher	when a supply teacher let them eat in class

realisations of /t/, examining how the Parkdale girls use highly unaffricated realisations alongside oppositional stances. I discuss how radically different phonetic realisations may sometimes be used to construct relatively similar personae amongst the Rebellious and Parkdale girls. I then discuss the indexical fields of different types of /t/ realisation and discuss the relationship between a range of related and separate indexical fields in Ashton Valley School.

7.5.2 Social meanings of affricated /t/

In the following analysis I focus on how affricated /t/ contributes towards the construction of two different personae that relate to classroom and schooling contexts: the *rebellious student* and the *cynical over-achiever*. I primarily focus on Leila (Rebellious girls), Mohammed (Rebellious boys), and Mark (Ashton boys). I do not consider speakers from the Ashton girls and Twilight girls because (i) they produced very few tokens at the acoustic extremes; and (ii) the discourse in which their more extreme tokens occur do not appear alongside distinctive identity work. I discuss the Parkdale girls in the section on unaffricated /t/, because this group did not generally produce affricated realisations.

Street personae and the discursive construction of respect

In this section I focus on Leila (Rebellious girls) and Mohammed (Rebellious boys), both of whom featured in the previous analysis of /i/. I suggest that they use affricated /t/ alongside similar stances in constructing a 'street' persona. However, the specific nature of this persona is manifested differently due to the local dynamics within female and male friendship networks.

Leila had the greatest amount of tokens in the top 10% of ZCR values amongst the female speakers, with a total of twenty-three. Table 7.10 lists the ZCR values of her five most affricated tokens and the word and conversational topic in which they appear. Four of Leila's five most extreme tokens occur in a word with a *teach* lemma. This could represent a phonetic context effect, as all of the statistical models in Chapter 5 found that an increase in vowel frontness (as measured by F2) predicted an increase in peak ZCR. All of Leila's productions of /t/ in *teacher* were highly affricated, but it is also the case that all of her tokens of *teacher* occurred in similar evaluative contexts to those listed in Table 7.10. In addition to this, there were few other words that occurred in which /t/ occurred before a high front vowel, making it difficult to tease apart phonetic context effects and particular agentive uses of variation. However, the tokens of *teacher* in Table 7.10 are considerably more affricated than tokens of *teacher* produced by many of the other students and this section aims to analyse whether Leila's use of these tokens is linked to particular stances.

Fragment 7.6 details the ways in which Leila uses three tokens of highly affricated /t/, two of which are amongst her five most affricated realisations.

(Fragment 7.6)

1	Leila:	they don't teach*[8643] us the right thing.
2		.hhh
3		and I think,
		⇒ ə̃nd ə̩ θĩŋk'
4		some like te-
5		like supply teachers*[7807] I think,
6		they like,
7		if like when they teaching*[8932] us.↓
8		cause they'll give us respect we'll be like,
9		like,
10		people will say ah youse being nice,
		⇒ pɪpɫ̩ʷ wɪɫ se ɑː jəz̥ bijɪ̩n naːs
11		just like,
		⇒ dʒʊst laɪk'
12		he's letting us do stuff just,
13		like
14		do your work something like-
15		people in the class will say that,
16		(1.0)

17 $_1$[hhso:: h]$_1$
18 Saliha: $_1$[yeah]$_1$

Similarly to Fragment 7.2, Leila re-evaluates the normative hierarchical relationship between teachers and pupils in this extract by alluding to the notion of respect (line 8). The idea of teachers having to respect pupils was a widely held belief amongst adolescents of a more anti-school orientation in Ashton Valley School. Students often claimed that they wouldn't mess around if teachers showed them more respect. Leila alludes to this directly in the extract above, explaining that other students in the class will tell others to 'just do your work' (line 11) if a supply teacher shows them respect. As I mentioned in my analysis of Leila's use of /i/, this involves the identity tactics of *distinction* and *erasure* (Irvine and Gal 2000; Bucholtz and Hall 2004). This involves essentialising the category of teachers into two groups (those who show respect versus those who do not) and Leila positions herself in opposition to the latter of these groups. Leila's use of the discourse of respect may be ideologically connected to discourses of 'street life' that are prevalent amongst working-class ethnic minority individuals in urban environments (Anderson 1990). I explore this interpretation further in Section 7.5.4.

In terms of phonetic variation, this extract features two of Leila's most affricated tokens of /t/ in *teach* (line 1) and *teaching* (line 7). These feature alongside stances that evaluate teachers in terms of how they show respect towards pupils. This suggests that affricated productions of /t/ may accrue local social meanings associated with urban youth, such as respect, toughness and being streetwise. There is also a token of /t/ on line 5 with a lower value of 7807, but this is still amongst the top 10% of female ZCR values and much higher than the female mean (5468). In addition to this, a number of prosodic features characterise this episode. For example, Leila's speech sounds more syllable-timed in the above extract than in episodes of non-confrontational discourse and there is also greater modulation in intensity and volume. This more 'animated' speech style characteristic could potentially be linked to the use of the more affricated variant, with speakers using highly affricated productions in order to contribute towards this distinctive narrative style.

Similar relationships between affricated /t/ and stance clusters are also evident amongst some of the Rebellious boys. Mohammed was the Rebellious boy with the highest number of tokens (fifteen) in the top 10% of ZCR values. Table 7.12 lists his five most affricated tokens, alongside the word and conversational topic in which they appear. Table 7.12 shows that all of Mohammed's most affricated productions of /t/ occur in the lexical item *teacher*. As was the case with Leila, this could represent

Table 7.12: Mohammed's five most affricated productions of word-initial /t/ in terms of peak ZCR. All five tokens were amongst the 10% highest peak ZCR values across all male speakers (male mean: 5096; male range: 1121–7923). Higher values indicate more affricated realisations.

Peak ZCR	Word	Topic
7404	teacher	discussing his favourite teacher
7487	teacher	accusing a teacher of watching porn in school
7606	teachers	learning Somali
7835	teacher	being disruptive in lessons; mock voicing
7923	teacher	messing about in class and being punished

a phonetic context effect rather than a stylistic effect. However, as was noted with respect to Leila's data, all of the individuals produced multiple tokens of *teacher* and Mohammed's /t/s in this word still have higher ZCR than those produced by other boys. In order to demonstrate how Mohammed uses these affricated productions, the extract below shows him constructing evaluative stances towards a teacher.

(Fragment 7.7)

1	Mohammed:	do you know?
2		er one of my friends,
3		called Ryan,
4		started messing around with me.
5		started saying,
6		he said that I was racist,
7		he was just joking.
8		I weren't really.
9		he said I were racist,
10		so the teacher*[7923] wrote my name on the board.
11	Abdullah:	@@@ @yeah@
12	Mohammed:	@yeah@.
13	Abdullah:	@ @@
14	Mohammed:	she didn't even,
15		@ and Ryan was just messing about.
16		he was like,
17		ah I was just joking.
18		and then miss just said,
19		s- sh- ((shrugs))

20		she just did that.
21		so what?
22		she wrote my name on the board.
23		she didn't,
24	Abdullah:	[@@]@@@
25	Mohammed:	[she just left it]

Fragment 7.7 represents a narrative episode, with Mohammed narrating his 'messing around' with a friend and then getting into trouble with a teacher (line 10). He explains that Ryan accused him of being racist, but immediately negates this with 'He was just joking. I weren't really' (line 7–8). Immediately following this, Abdullah produces laughter, which positions the narrated incident as humorous, followed by Mohammed's agreement ('yeah' – line 12). Mohammed then explains how Ryan was messing about but the teacher still kept his name on the board. Having your name put on the board represented a punishment system in the school; once a pupil's name had been written on the board three times they had to stay behind after class. Mohammed uses reported speech to represent Ryan's 'I was just joking' (line 17), but then demonstrates the teacher's lack of engagement with this claim. In doing so, Mohammed engages in stance work by positioning the teacher as not being able to take a joke, which was another common theme amongst the anti-school students at Ashton Valley School.

In terms of phonetic variation, Mohammed's production of /t/ in *teacher* (line 10) is highly affricated (ZCR: 7923). This may suggest a relationship between affricated productions of /t/ and the jokey persona that Mohammed constructs in this example. In addition to this, Mohammed's production of word-final /i/ in *really* (line 8) is also auditorily very tense. Section 7.4 suggested that tenser realisations of /i/ are used by Mohammed alongside stances that index an tough street persona. Mohammed may use affricated /t/ and tense /i/ in order to index similar social associations in discourse, both of which appear alongside claims towards anti-establishment values and invoke discourses of respect or streetwise behaviour. As discussed for Leila above, Mohammed's highly affricated /t/s also occur in narrative speech that sounds more syllable-timed and involves greater intensity and a faster speech rate. It is likely that the use of fricated variants are part of a complex set of linguistic and discursive resources that are used to mark this act of identity work as distinctive.

This section shows how Leila's and Mohammed's most affricated productions of /t/ may be used to critically evaluate the behaviour of teachers as overly serious and negative. These phonetic realisations are linked to the construction of multiethnic

street persona by invoking the concept of respect. While the local meaning of respect may be construed in different ways, the discourse of respect pervaded all aspects of life for many of the anti-school adolescents in Ashton Valley School. We see such examples from Leila and Mohammed in Fragments 7.2, 7.6 and 7.7. I discuss this in greater detail in Section 7.5.4, but note here that the reproduction of this discourse may be facilitated by Leila's and Mohammed's engagement in a multicultural urban street style. In turn, this engagement makes it more likely that they will use certain linguistic forms in order to construct local stances that criticise school authority figures for not showing respect and for lacking the ability to 'have a laugh'.

Evaluative stances and the cynical over-achiever persona

The above section demonstrates how affricated /t/ may be used alongside stances that position teachers as not showing respect or being able to take a joke. However, these are not the only possible indexical associations of highly affricated /t/. For example, the following section examines /t/ realisation by one of the Ashton boys, Mark. Mark uses /t/ affrication alongside stances that are somewhat similar to those constructed by Leila and Mohammed, but the resulting social meanings and emergent personae are very different.

Mark was one of the most pro-school and highest achieving of the Ashton boys. He was considered to be a bit of geek by the rest of the group, but this allowed him to reject dominant ideologies of popularity to a greater extent than the rest of the group. One major characteristic of the Ashton boys' interactional style was the use of highly critical and sarcastic remarks, especially directed towards what they saw as pointless school rules. Coming across as overly impressed or enthusiastic about anything was generally shunned by the Ashton boys and Mark was particularly adept at displaying a cynical attitude towards most aspects of daily school life.

Mark produced fifteen tokens in the top 10% of ZCR values, which was more than any other boy except for Mohammed, who also had fifteen tokens in the top 10%. This result is somewhat unexpected because Mark and Mohammed are radically different in terms of their social practices, socioeconomic background and sociocultural orientations. However, they had strikingly similar peak ZCR values for /t/ in terms of mean values (Mark: 6437; Mohammed: 6372), range (Mark: 3722–7569; Mohammed: 3770–7923) and standard deviation (Mark: 910; Mohammed: 928). In order to further unpack this finding, Mark's five most affricated tokens, as well as the word and conversational topic in which they appear, are represented in Table 7.14.

Table 7.14: Mark's five most affricated productions of word-initial /t/ in terms of peak ZCR. All five tokens were amongst the 10% highest peak ZCR values across all male speakers (male mean: 5096; male range: 1121–7923). Higher values indicate more affricated realisations.

Peak ZCR	Word	Topic
7364	ten	expressing surprise at Jon playing an 18-rated computer game when he ten years old
7474	teacher	criticising a teacher as immature
7479	told	disillusionment during work experience
7507	too	condemning a cult classic film as boring
7569	tells	not being too bothered about listening to music

All of the tokens in Table 7.14 occur during disapproving or critical stances towards out-group opinions or behaviours, which reflects my prior impressionistic comments about Mark's broader interactional style and persona. While Mark engaged in similar stances without using tokens of /t/, it is also possible that /t/ affrication does feature as a stylistic resource in the construction of a cynical student persona. Two short extracts are detailed below in which Mark uses a very affricated token of /t/ during clusters of critical evaluative stances towards institutional figures. In the first extract below, Mark talks about a teacher who, on the first day of class, asked him how he would like to be addressed. Mark replied 'I don't mind' and then the teacher proceeded to jokingly call him by this name for the rest of the school year.

(Fragment 7.8)

1	Mark:	I just stopped doing ICT and I could not be happier.
2		because,
3		she asked me a question,
4		what I preferred my name as.
5		and I said I don't mind and,
6		for the rest of the,
7		year she just said,
8		she called my name out as "I don't mind".
9		and I thought that was [so:] immature,
10	Jon:	[↑wha:t]
11	Mark:	and I was just thinking,
12		you're supposed to be a ↑teacher.*[7474]
13		you're not-
14		you can't say stuff like that to student[s]

15 Jon: [th]at's
16 Mark: it just doesn't wor[k]
17 Jon: [th]at's right she-
18 she makes stuff ou- ou- out as
19 (.)
20 well yeah.
21 high and mighty.
22 but really,
23 (.)
24 sh- she treats the class,
25 er.

Mark's utterances in lines 12–14 repeat *you*+(verb) structures that set up a contrastive evaluation of his teacher in terms of Mark's perceptions of normative behaviours for teachers: 'you're supposed to be a teacher [...] you can't say stuff like that to students'. In doing so, Mark positions teachers as being expected to behave maturely ('I thought that was so immature' – line 9), as well as positioning particular kinds of joking as unfunny ('it just doesn't work' – line 16). In this section, Mark produces a lot of phrase-final intonational plateaux (i.e. a lack of rises and falls) and frequently uses nasal voice during the last few syllables of some intonation phrases. While there is no straightforward prosodic correlate of sounding annoyed or sarcastic, these prosodic features often occurred in stretches of talk in which Mark was engaged in critical or sarcastic evaluation of others. His production of *so* in line 9 is also heavily stressed with a lengthened vowel, which suggests an emphatic production. These lexical, stance-based and prosodic features contribute towards Mark's critical evaluation of his teacher as inappropriate and not funny. This contrasts somewhat with the claims of other students who wished their teachers would joke around more often (e.g. see Fragment 7.7). However, it is notable that Mark clearly signals his evaluation of this teacher's attempt at humour as a failure (line 16).

In terms of phonetic variation, Mark uses a single token of word-initial /t/ in the above extract. This token occurs in the word *teacher*, during which he directly criticises the said teacher, and has a very high ZCR value of 7474. This sort of pattern occurs with the other tokens in Table 7.14, where Mark constructs similar critical and evaluative stances towards authority figures, such as his work experience manager, as well as towards mainstream opinions on popular culture. During one of his other productions of highly affricated /t/, Mark explains that a recent application to his

chosen work experience placement (medical doctor) had been rejected because his written statement sounded 'too grown-up sounding' (he had received help from his parents). Instead, the medical placement was allocated to another student who he perceived to be much less able than him, which led him to state, 'I just thought the school system was a bit broken'. Unlike other individuals who lament the lack of respect shown by teachers, Mark's critical stances take on a very different meaning, positioning him as a conscientious and over-achieving student who cares about his education. This was also evidenced on other occasions, such as when Mark said that he wished to leave Ashton Valley School at the end of year eleven in order to attend a different school that had better science and technology facilities.

Mark's and Mohammed's affricated realisations of word-initial /t/ are used in similar speech topics and both orient towards rebellion against authority features in some dimension. This could suggest that Mark and Mohammed are, more or less, doing the same thing in both of these episodes and the persona-level differences identified here are actually broader background characteristics that may be incidental and not relevant to these instances. However, I would suggest that the relationship between stance and persona is fundamentally dialectical, with the social meanings of stances being constrained by the background characteristics of the speaker (Silverstein 2003). While both construct similar stances, it is unlikely that Mark would be able to convincingly construct himself as tough and streetwise, given his other social practices and orientations. Likewise, Mohammed would be unable to convincingly display a cynical over-achieving persona alongside the tough street-smart persona that we see in other episodes of discourse. My evidence for a persona-level interpretation of these stances resides in the discourse content surrounding these tokens of /t/, as well as the fact that other tokens of /t/ appear to cluster in similar ways for these speakers. As discussed above, Mark uses tokens of affricated /t/ when he displays a very cynical attitude towards authority figures, but this attitude is very far from 'anti-school' in the style of Mohammed. If anything, Mark was so pro-school and pro-education that he felt that the school was doing a poor job of rewarding students who tried hard and were high achieving. By contrast, Mohammed's use of affricated /t/ is engaged in a dialectical relationship with the surrounding discourse, perhaps accruing social meanings from the discourse content, but also consolidating those meanings through its repeated use in these contexts.

In summary, there do appear to be some similarities between the stances used by Leila, Mohammed and Mark when producing very affricated realisations of /t/. All of the examples featured here involve critical evaluation of a teacher or the school's institutional authority. It is difficult to claim from these examples alone

that affricated /t/ definitively indexes 'critical, but it is possible to say that this is one of the potential indexical associations of this variant when it appears in particular interactional and stylistic contexts. It is likely that the acoustically extreme status of these tokens patterns with the occasionally extreme stances evidenced in these episodes of discourse (see also Kiesling 2009). To this end, /t/ affrication may accrue particular associations over time as a result of repeatedly being used in the context of such stances, which could lead to more enduring indexical associations at the level of social group. This could explain why Rebellious girls have more affricated /t/s, as they may engage in this kind of social work more than other groups in order to reflect and construct their ideological orientation. Moore and Snell (2011) also find this to be the case in their study of right dislocation, where they suggest that working-class oriented communities are more likely to use forms of right dislocation that are 'more uncompromisingly evaluative than others' (Moore and Snell 2011: 107). This suggests that statistical patterns in the data may be closely tied to the sorts of interactional work being carried out by speakers. In turn, this may be a consequence of the different sociocultural and school orientations in which each individual is engaged, as well how /t/ affrication fits into the co-constitutive nature of different styles that characterise different communities of practice.

7.5.3 Social meanings of unaffricated /t/

The analysis of /t/ presented in Chapter 5 and the previous section on affricated /t/ mainly discuss /t/ in terms of degree of affrication. However, at the other end of the affrication continuum, tokens with an incredibly low peak ZCR value cannot be described as sounding at all affricated and, in many cases, these productions are not even audibly aspirated. This section investigates the stances and social meanings associated with 'unaffricated /t/', which is a term that I use to refer to productions of /t/ with very low ZCR values. The only group that consistently produced low ZCR values across both gender groups was the Parkdale girls. Accordingly, the following section explores the potential social meanings of unaffricated /t/ in this community of practice.

Confrontational stances and the rebellious girl persona

I noted in Chapter 3 that the Parkdale girls were engaged in social practices such as drinking and hanging around with boys. The previous analyses showed that Leila (Rebellious girls) invokes a discourse of respect that positions teachers as equals rather than superiors, which explains why Leila's behaviour is perceived

Table 7.16: Alyssa's five least affricated productions of word-initial /t/ in terms of peak ZCR. All five tokens were amongst the 10% lowest peak ZCR values across all female speakers (female mean: 5468; female range: 1074–10,046). Lower values indicate less affricated realisations.

Peak ZCR	Word	Topic
1074	town	having to avoid a boy in town
1312	talking	getting angry and smashing her phone
1387	time	completely ignoring teachers in lessons
1493	time	making prank calls to a takeaway restaurant
1870	talking	speaking slang to her friends

as rebellious by the teachers, because the institution of the school mandates a hierarchical relationship between students and teachers. However, the Parkdale girls were often outright dismissive of teachers and completely rejected school authority. Alyssa and Jada were the most outspoken and most daring of the Parkdale girls. Both girls identified as 'White and Black Caribbean', with Alyssa specifically responding 'mixed race (White/Jamaican)' on a written questionnaire that asked the students to self-define in terms of ethnicity. Jada lived in a more deprived neighbourhood, whereas Alyssa lived in a neighbourhood with average levels of deprivation for Sheffield. Alyssa and Jada were best friends and they were recorded together.

Alyssa produced the greatest number of tokens in the bottom 10% of ZCR values amongst the female speakers, with a total of twenty-three tokens. While the peak ZCR measurement was originally used in order to capture the aspirated-affricated continuum, Alyssa's values were often incredibly low and her productions sounded auditorily unaspirated. This would explain the very low ZCR values, as it is likely that there is very little high frequency friction noise involved in these productions. Alyssa's five least affricated productions of /t/, alongside the word and conversational topic in which they appear, are listed in Table 7.16.

Most of the tokens in Table 7.16 involve Alyssa detailing her involvement in rebellious social practices, such as misbehaving in class, fighting with her sister and smashing her phone, and making prank calls to a takeaway restaurant. One such example is detailed in the extract below, in which Alyssa and Jada talk about how teachers often try to separate them in class due to their disruptive behaviour.

(Fragment 7.9)

1	Alyssa:	if someone tries to split us up,
2		literally in every lesson we're together.
3		like people don't even try it any more.
4		((...brief discussion on ignoring teachers...))
5		basically,
6		we think of it as in,
7		you're immature,
8		so we're just gonna turn*[2356] around,
9		not even,
10		(1.0)
12		↑<u>hear</u> what you've got to say,
13		[just turn around,]
14	Jada:	[@@@]
15	Alyssa:	ignore you cause,
16		you're wasting my time*[1387] [basically.]
17	Jada:	[@@@]

In this extract Alyssa constructs a number of stances that position her and Jada as opposed to the authority of teaching staff at the school. While this was common amongst the students, what is important here is the specific relationship they construct and how this positions teachers and the school's institutional authority. They claim that teachers don't try to split them up anymore (line 3), which refers to a tendency I observed for Alyssa and Jada to become even more disruptive when they were actively separated during a lesson. Alyssa then describes how they just turn around and ignore the teachers who reprimand them because they are 'wasting my time basically'. This suggests that Alyssa views teachers as unnecessary and unworthy of her attention, which contrasts with Leila, Mark and Mohammed, all of whom see teachers who give respect as potential equals. This ties in with the more outrageous style that characterised some of the Parkdale girls, as well as their outright rejection of school culture. In contrast, the rebelliousness of the Rebellious boys and Rebellious girls represents a different kind of identity work in that they wish to participate in school culture, but on their own terms.

The token of /t/ in *time* (line 16) has a very low ZCR value (1387). The token of /t/ in *turn* (line 8) is also amongst the lowest 10% ZCR values for female speakers (2356), despite not being amongst Alyssa's five lowest tokens. In this instance, we see how highly unaffricated realisations of /t/ are used alongside stances that

reject teacher authority and position school as a waste of time. Unlike the examples involving Leila and Mohammed in the previous section, Alyssa doesn't even allude to the concept of respect in this particular interaction, instead dismissing teachers as immature and not worth listening to. This may represent a phonetic manifestation of the major differences between the Parkdale and Rebellious girls'. The Parkdale girls' highly unaffricated /t/s are used alongside stances that represent disengagement from school, whereas the Rebellious girls' highly affricated /t/s are used alongside stances that attempt to renegotiate the teacher-student relationship in terms of 'respect'. Another possibility is that the direction of the extreme is less important and that these results may represent the use of acoustic extremes to create contrast. The Parkdale and Rebellious girls' stances when using extreme tokens of /t/ are similar, even though they can be interpreted in terms of different styles. Kiesling (2009) reports that speakers may use more 'extreme' linguistic variants when taking a strong stance towards something and it could the case that the extreme phonetic productions in these data also mark particular instances of discourse as distinct from other episodes of identity work (see also Love and Walker 2013). It is likely that these results may be a combination of these two explanations, with extreme tokens being used to contribute towards socially 'extreme' acts of of identity work, and the different ends of the acoustic continuum potentially differentiating communities of practice who do similar types of identity work. I discuss these issues further in the following section.

7.5.4 Indexical fields of /t/ realisation

The analysis reported in this section highlights the range of social meanings and stance-taking devices with which different realisations of /t/ co-occur. For some speakers, such as Alyssa (Parkdale girls), Leila (Rebellious girls), Mohammed (Rebellious boys), and Mark (Ashton boys), there appears to be a relationship between particular kinds of stance-work, the acoustic realisation of /t/, and the construction of a persona. This suggests that the acoustic extremes of the affricated/unaffricated continuum may be used for identity work in discourse. As discussed in the /t/ analysis, the indexical fields discussed below are largely derived from interactional analysis of only one or two speakers. As a consequence, they should not be seen as completely representative of the social meanings of /t/ in each community of practice. The indexical associations of other speakers' productions are likely to be similar, but how these are manifested in discourse will inevitably differ. For this reason, I have chosen to focus on a small snapshot of potential indexical meanings in the speech of

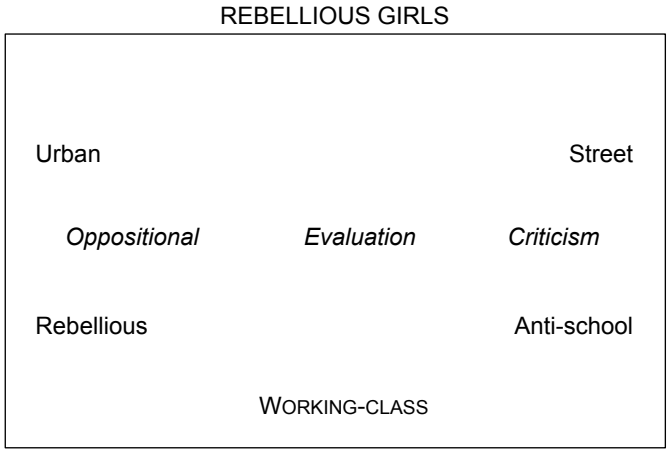

Figure 7.4: Indexical field for affricated /t/ realisation by Rebellious girls. Stances appear in italics, personae in plain text, and social types in small capitals, following Moore and Podesva (2009).

core community of practice members.

Female speakers

Amongst the girls, the Rebellious girls and the Parkdale girls occupied the acoustic extremes on the group level, with the Rebellious girls having the most affricated realisations and the Parkdale girls the least affricated realisations. The discourse analysis found that Leila (Rebellious girls) uses highly affricated realisations of /t/ in order to construct critically evaluative and oppositional stances towards school authority figures. The indexical field for the Rebellious girls' use of affricated /t/ is depicted in Figure 7.4. I suggest that, in combination with other resources, these phonetic realisations may reflect and facilitate the construction of a number of persona-level associations. These include characteristics such as rebellious, urban and street, all of which can be interpreted in terms of a working-class, anti-school and often multiethnic youth style.

The indexical field for the Parkdale girls' use of unaffricated /t/ is depicted in Figure 7.5. There are some similarities with the indexical field for the Rebellious girls' use of affricated /t/, despite these realisations representing opposite ends of the acoustic continuum. For example, both use oppositional and confrontational stances to critically evaluate teachers and establish a rebellious and anti-school persona. However, while there are clear similarities in the indexical fields for the Rebellious girls' affricated /t/s and the Parkdale girls' unaffricated /t/s, there are also subtle differences in how these meanings are operationalised. Alyssa constructs

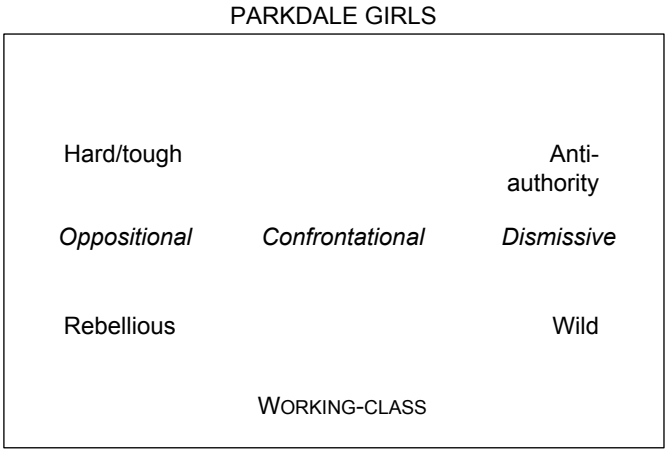

Figure 7.5: Indexical field for unaffricated /t/ realisation by Parkdale girls. Stances appear in italics, personae in plain text, and social types in small capitals, following Moore and Podesva (2009).

highly oppositional and dismissive stances towards teachers, while Leila draws upon discourses of respect in order to position teachers as equals rather than superiors. The notion of respect is ideologically associated with discourses of street life amongst inner-city youth, particularly in the USA (Bourgois 1995). Anderson (1990) describes how maintaining 'respect' is an integral part of life on the streets for working-class and ethnic minority men, with respect frequently being linked to violence and tough masculinity (see also Sanders 2005: 122). Leila assumes stances that are commonly associated with men, but this does not imply that she's trying to 'be male'. Instead, she invokes associations with street life that are not typically associated with normative middle-class femininity, which represents a rejection of the social values embodied by the Ashton and Twilight girls. This discourse of respect surrounding teachers may not be exactly the same sort of respect that may be manifest 'on the street', given that teachers already represent an out-group to most of the anti-school adolescents. Instead, the notion of respect in the teacher-student relationship often entailed teachers being able to 'take a joke' and 'have a laugh'.

In contrast to the notion of 'having a laugh', the Parkdale girls construct much more dismissive and confrontational stances, as depicted in Figure 7.5. I would suggest that these contribute towards a strong anti-authority persona that constructs the Parkdale girls as tougher and more dangerous than the Rebellious girls. The Parkdale girls' personae can be ideologically interpreted as signalling an orientation to working-class cultures by virtue of their rejection of middle-class values. Figure 7.5 is primarily based on tokens produced by Alyssa, whose index of deprivation was comparable to city-level averages. However, despite not being one of the

most socioeconomically deprived students, Alyssa regularly engaged in rejection of middle-class educational ideologies via her transgressive classroom behaviours. For this reason, the social type label 'working-class' appears in their indexical field, because it reflects how they are positioned against the middle-class ethos of the school. In this sense, social class is sociocultural and relational, forming axes of relational differentiation between groups, rather than solely referring to socioeconomic factors.

In summary, the Parkdale and Rebellious girls use very different acoustic realisations in order to do related kinds of social work, albeit with some important differences. If it is the case that /t/ affrication is associated with a multiethnic urban youth style, then the Rebellious girls' engagement with this style may have facilitated their greater use of affricated /t/ and explain how they use this feature alongside evaluative stances and discourses of respect. The Parkdale girls may use highly unaffricated productions in order to construct a similar range of stances but, in doing so, mark themselves in opposition to the Rebellious girls by using very different acoustic realisations. These two groups represent socially distinct entities, but the relationship between group membership and phonetic variation is complex. Both use similarly lax realisations of /i/, because some of its indexical potential fits their personae. On the other hand, the lack of enregisterment for /t/ realisation means that this sort of meaning potential does not exist in the same way, meaning that the two groups can use very different acoustic realisations to do similar social work, yet mark themselves as distinct. As mentioned above, the fact that both groups use acoustic extremes may be more important than the specific direction of the extreme, but it is also the case that these different phonetic realisations appear to index subtly different social associations. This reflects the different kinds of anti-school orientations and social practices in which the Parkdale and Rebellious girls are engaged.

The use of more extreme /t/ realisations by the Ashton and Twilight girls do not appear to occur in stylistically marked interactional moments, as is the case with speakers from the Parkdale and Rebellious girls. In the case of /i/, a lack of such patterns suggested that correlational associations (such as middle-class) may fit the persona of the Twilight girls. However, there are no known enregistered meanings of /t/ affrication in Sheffield, as well as no known correlations between this feature and any macro-sociological categories, such as social class or ethnicity. The lack of enregisterment or stance-based patterns could suggest that /t/ affrication is not used by the Ashton girls and Twilight girls as a stylistic resource, at least not in the data represented here. However, these two communities of practice are likely to differ from each other across other linguistic features and the analysis here only represents

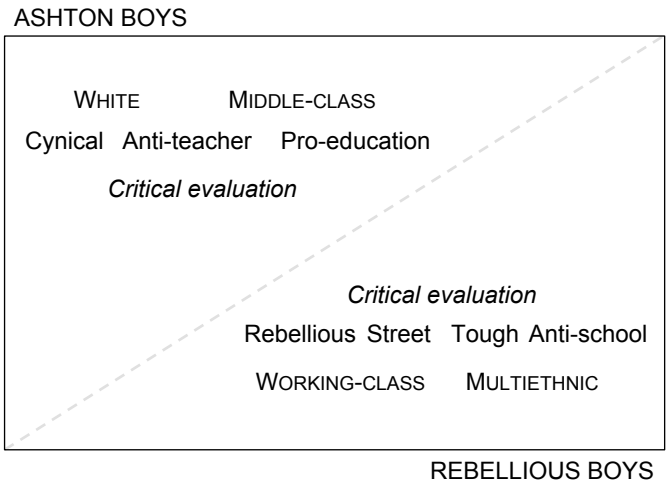

Figure 7.6: Indexical field for affricated /t/ realisation by Rebellious and Ashton boys. Stances appear in italics, personae in plain text, and social types in small capitals, following Moore and Podesva (2009).

a small part of their overall repertoire.

Male speakers

The group-level patterns for the boys revealed no significant differences in degree of affrication. As the group means indicated a relatively high degree of affrication across groups, I decided to focus only upon highly affricated realisations for the boys. Figure 7.6 suggests similar stance-based meanings for affricated /t/ for the Rebellious and Ashton boys, with both speakers using highly affricated realisations of /t/ in critically evaluative stances, often towards teachers or institutional authority figures. However, these stances give rise to very different personae. One social characteristic that Mark constructs using evaluative stances is 'anti-teacher' but it is crucial to note that this is tied up with the other two indexical values listed here: pro-education and cynical. Mark was openly critical of school authority, but not because he felt that teachers didn't respect students or weren't able to have a laugh. Instead, his stances evaluate teachers as immature and position the school as failing to fulfil its role in providing an excellent education for its students. This persona is framed in terms of middle-class discourses surrounding educational excellence and represents a distinctly pro-school – or, more accurately, pro-education – orientation.

In contrast, Mohammed uses affricated /t/ in similar stances to Mark, but instead evaluates teachers as not being able to take a joke (see Figure 7.6). In doing so, he evaluates the teachers using the same norms to which he and his friends orient: streetwise respect and joking around. Willis (1977) observes the classed

nature of 'having a laugh' amongst a group of White working-class 'lads' in a town in the West Midlands. Willis claims that having a laugh is often used as a mechanism to assert hierarchies and ratify particular forms of behaviour. This acts as preparation for the discursive rituals of the working-class jobs that Willis' lads would eventually take up. From a more contemporary perspective, Nayak and Kehily (2001) suggest that 'learning to labour' is no longer the main dimension of having a laugh, instead suggesting that it facilitates boys' socialisation into discourses of male heterosexuality. In this way, Mohammed's invocation of discourses of respect and having a laugh is clearly situated in broader ideologies of working-class heterosexual masculinity in Britain. This suggests that the stances in which /t/ affrication occurs may have meanings that are linked to various persona-level associations. Some of these are detailed in Figure 7.6, such as rebellious, street, tough and anti-school, all of which are ideologically framed by demographic social types, such as working-class and male.

The analysis of how the boys use affricated /t/ demonstrates how similar acoustic realisations can be used to construct different personae as a function of the broader stylistic repertoire in which they are embedded. This contrasts with the girls, who use very different acoustic realisations to construct relatively similar stances. Mohammed uses highly affricated /t/ alongside oppositional stances towards teachers and discourses of respect, which build up to index an urban multiethnic street persona. On the other hand, Mark uses comparably affricated productions of /t/ alongside critically evaluative stances, but the result of this is more of a cynical student persona, who values education but is suspicious of the school's ability to properly provide the best education. Leila, Mohammed and Mark all engage with teachers as equals rather than as superiors, whereas Alyssa dismisses teachers outright. I suggest that this is due to differing orientations towards school. Alyssa and the Parkdale girls reject school as inadequate and pointless, whereas the Rebellious boys and Rebellious girls wish to participate in school culture but on a set of terms that are more favourable to them. Mark and the Ashton boys project a similar orientation, but their set of terms involves the school being less like 'the streets' and instead concerns the promotion of middle-class educational values of excellence, hard-work and reward.

Summary

In summary, the social meanings of /t/ are complex and highly dependent on the styles in which particular tokens occur. The Rebellious girls and Parkdale girls use

phonetic realisations that occupy different ends of the acoustic continuum, yet the indexical associations of these realisations bear some similarities, as well as some important differences. Amongst the boys, the Ashton boys and Rebellious boys have very similar acoustic realisations, but these are used in stances that construct very different personae. For the Rebellious boys, /t/ affrication may be associated with an urban multiethnic street style, whereas for the Ashton boys it appears to be associated with a cynical but very pro-school student persona.

7.6 Discussion

This section discusses the findings of this analysis and identifies key points and areas for future investigation. The discussion is framed broadly in terms of this chapter's four research questions outlined in Section 7.1.2, which are reproduced below.

1. Is phonetic variation used as a resource for constructing identities through discourse and, if so, how is this operationalised?
2. Does the degree to which a variant is enregistered affect the types and levels of social meaning that can be attributed to it?
3. What is the relationship between supralocal, geographically-specific, and local social meanings of variation and how are they indexed through discourse?
4. To what extent is social meaning in discourse co-constitutive?

7.6.1 Variation, identity and distinction

The analysis in this chapter shows that group-level differences in phonetic realisation are used to construct stances and personae in discourse. The sorts of identity work evidenced in these interactions may explain the quantitative patterns found in Chapters 5 and 6 in the sense that statistical patterns represent an accumulation of single instances of stance-taking and persona construction. In some instances, extreme and non-extreme forms may share similar functions within a community of practice, but this fundamentally depends on the other resources with which they are combined. Different combinations of resources are bound up with the broader social practices that characterise the different communities of practice.

Chapter 6 showed that the four communities of practice clustered into two broad groups in terms of word-final /i/ realisation. The anti-school groups – the Rebellious girls and the Parkdale girls – produced laxer realisations, while the pro-school groups

– the Ashton girls and the Twilight girls – produced tenser realisations. Previous research suggests a correlation between /i/ laxing and working-class White speakers in Sheffield (Beal 2004; Finnegan 2005). To this end, the Parkdale and Rebellious girls' engagement with White working-class networks within and outside the school may have facilitated their acquisition of the laxer variant, as well as its enregistered associations. It could also be the case that the regional associations of lax variants, as evidenced in discourse, fit the personae of the anti-school girls better. Kasey and Leila's use of laxer tokens position them in opposition to the Ashton and Twilight girls, but the personae that emerge are distinct. Both Leila and Kasey draw upon the enregisterment of lax /i/ as Sheffield or Yorkshire, but Kasey invokes associations between regional accents and honesty and authenticity, whereas Leila invokes more anti-establishment and rebellious associations. While the Rebellious girls and Parkdale girls share similar realisations of /i/, they occupy different ends of the phonetic continuum for word-initial /t/. Here, the Rebellious girls have the most affricated productions and the Parkdale girls the least affricated productions. Both construct critical and evaluative stances alongside these realisations of /t/, but there are subtle differences in emergent meaning: Leila positions teachers as equals in terms of discourse of respect, whereas Alyssa displays a more dismissive attitude towards teachers and evaluates them as inferior.

Toni and Nikki of the Ashton girls use tense /i/ to construct a quirky cool persona that is framed in terms of discourses of cultural omnivorousness that are characteristic of the young and middle class (Ollivier 2008; Savage and Gayo 2011). In doing so, the Ashton girls construct themselves as different from the Twilight girls, who also use similarly tense variants. However, the Twilight girls' use of tense /i/ does not occur in episodes of discourse that feature distinctive identity work. The Ashton girls use tense /i/ to construct a persona that depends on high levels of cultural and economic capital, which distinguishes them from the Twilight girls, who do not have access to such capital. However, it is not certain what the Twilight girls' use of tense /i/ might index. It is likely that their tense realisations of /i/ originate in heritage language influence, but there are no clear indications that 'ethnicity' is a relevant index here. It may be the case that the Twilight girls use tense /i/ in order to distinguish themselves from anti-school communities of practice and instead use other types of variation in order to distinguish themselves from the Ashton girls.

On the interactional level, there are differences in how the Ashton and Rebellious boys use variation, which contrasts with the lack of statistical differences between the two communities of practice. Eckert (1989) suggests that girls are more likely to use variation to distinguish themselves from other girls, whereas boys more

often distinguish themselves via displays of physical ability and other physical symbols. However, this analysis reveals differences in *how* variation is used to construct social meanings amongst the boys. Mark and Mohammed both construct critical and evaluative stances towards teachers, which positions teachers as potential equals rather than as superiors. However, the nature of this evaluation differs, with Mohammed drawing upon discourses of respect, whereas Mark positions some teachers as immature and not doing their job properly. These different associations of affricated /t/ could represent an effect of the wider styles in which they are produced, with Ashton and Rebellious boys' styles cuing different associations (Eckert 2000, 2012; Moore 2012). A related explanation could be the differing contexts of acquisition. The Ashton boys may have acquired tense /i/ through their engagement in White middle-class networks (Beal 2004; Finnegan 2005), whereas the Rebellious boys may have acquired tenser variants through their engagement in multiethnic networks. My own impressions suggest that very tense /i/ is prevalent in L2 English speakers from Pakistan and Somalia and it is likely that this phonetic feature forms part of a pool of resources that is available to ethnic minority speakers within the school (Cheshire et al. 2011). These different contexts of acquisition may to some extent facilitate the different meanings that emerge from these data.

The degree of social contact between individuals such as Mark and Mohammed was incredibly limited. The Ashton boys and Rebellious boys often occupied different physical spaces in the school and would only come into contact when playing football during break (an activity that Mark never participated in, incidentally). They were also rarely in classes together, as they usually occupied different ends of the school's ability scale. This lack of social contact makes it difficult to claim that phonetic variation plays a significant role in marking social distinctions. An alternative explanation is that oppositions between male groups may be constructed indirectly via the mediating construct of the school. Eckert (1989, 2000) vividly demonstrates this in her study of a Detroit high school, in which the major distinction between the jocks and the burnouts was how they displayed an orientation towards school authority. In this way, the Ashton and Rebellious boys position themselves relative to institutional authority and evaluate the school using different ideological frames. This situates them in an ideological landscape in which they are diametrically opposed to each other by virtue of their relationship with the school. I discuss this line of inquiry further in Section 8.2.3.

This analysis places considerable weight on agentive uses of variation for the purposes of stylistic differentiation and identity construction. One potential barrier to interpreting the data in this way could be differences in phonetic ranges between

Table 7.18: Range of acoustic values for /t/ and /i/ across female and male communities of practice. Values for /t/ represent peak zero-crossings per second and values for /i/ represent F2–F1 at peak F2 (Bark).

Community of practice	Mean range /t/	Mean range /i/
Ashton girls	3812	3.61
Twilight girls	5562	6.04
Parkdale girls	4490	6.21
Rebellious girls	5395	5.99
Ashton boys	3537	5.05
Rebellious boys	4274	4.56

different speakers. For instance, a speaker might produce acoustically extreme tokens in particularly 'identity-laden' episodes of discourse. However, if that speaker has a very small range then it may be difficult to claim that their productions are stylistically meaningful, because they are highly unlikely to produce alternate realisations. In these data, almost all of the speakers had a range that was larger than any of the differences between group means, which suggests that all speakers do have some degree of flexibility for adapting phonetic variants. However, it is worth examining individuals with a particularly small or large range for the purposes of elucidating the relationship between range, acoustic extremes and identity work in more detail. Group-level ranges for both /t/ and /i/ are presented in Table 7.18.

The Twilight, Parkdale and Rebellious girls all had similar ranges for both /t/ and /i/, whereas the Ashton girls had a substantially smaller range for both variables. The very wide range for the Twilight girls may appear at odds with the fact that the Twilight girls do not appear to use the acoustic extremes of these variables in distinctive stylistic ways. However, having a large range does not necessitate such stylistic uses and it is also possible that my analysis was not able to detect some of the more interactional-specific indexicality amongst this group.

In terms of individuals, the speaker with the smallest range for both /t/ and /i/ amongst the girls was Zara, a Bangladeshi member of the Rebellious girls. She had a range of 2907 zcr for /t/ and 2.6 Bark for /i/, compared to the average ranges for female speakers of 4815 zcr and 5.46 Bark. Zara was one of the more peripheral members of the Rebellious girls and she consistently produced tokens of both /t/ and /i/ that were further away from the Rebellious girls' group mean than any other speaker. Amongst the boys, the speaker with the smallest range for both variables was an Ashton boy: Callum for /t/ (2508 zcr) and Neil for /i/ (2.52 Bark). Despite having the smallest range

for /t/, Callum actually had the largest range of all the boys for /i/ (7.1 Bark). However, there were no obvious stylistically-marked differences in his uses of extreme tokens of /i/, which suggests that there is not a straightforward relationship between acoustic-phonetic ranges and the use of acoustic extremes for doing distinctive identity work in interaction.

In summary, this analysis suggests that phonetic variation is used as a resource for constructing stances and personae in discourse. Phonetic variants acquire social meaning when they are regularly embedded in clusters of stances that come to be recognised as styles (Eckert 2000, 2012; Podesva 2007; Moore and Podesva 2009). While correlational analyses can tell us a great deal about sociolinguistic patterns within a community, the specific social meanings attributed to that variation are highly variable and interactionally-specific. An implication of this is that meaning does not necessarily reside in the variable itself, but resides in linguistic and stylistic clusters (Eckert 2012). This raises issues over what we mean by 'the social meaning of variation'. If meaning emerges from the interaction of a range of forms, then it becomes increasingly difficult to talk about the meaning of a particular form, given its inseparability from a context. I return to this issue in greater detail in Section 7.6.4.

7.6.2 Enregisterment and levels of social meaning

The analysis in this chapter considered the social meanings of two phonetic variables – one that is enregistered as indexing region and class (/i/ laxing or tensing), and one that does not appear to be strongly enregistered in the local community (degree of affrication in /t/). The differences between /t/ and /i/ in terms of their meaning in discourse appears to be affected by their enregisterment, or lack thereof. Given the enregisterment of lax /i/ as Sheffield, Yorkshire, working-class, common, White, and so on, there is little flexibility to use it for constructing radically different meanings. This may be why we see the laxest realisations of /i/ used in metalinguistic discourse about Sheffield and Yorkshire accents. However, as I discuss above, it is important to stress that these meanings are not always identical as Kasey and Leila operationalise the regional indexicality of lax /i/ in different ways. While enregisterment provides more enduring meaning potentials that influence and constrain interactionally-specific meanings, it is still the case that this meaning can be adapted by speakers.

In contrast to lax /i/, affricated and unaffricated /t/ are not enregistered in this community. The correlations in Chapter 5 are likely to represent socially-structured variation emerging out of a wide pool of synchronic variation due to coarticulation (Ohala 1989). It may be the case that this fine-grained sociolinguistic patterning is

specific to Ashton Valley School or it could be much more widespread but goes unnoticed. Either way, the greater degree of supra-interactional indeterminacy means that /t/ can be used more flexibly for meaning making. This is evidenced in the use of /t/ by the Parkdale and Rebellious girls. Both groups occupy different acoustic extremes for /t/, with the Parkdale girls using very unaffricated realisations and the Rebellious girls using very affricated realisations. However, an examination of these tokens in discourse suggest that both groups appear to use these very different realisations in order to index related social meanings in discourse. While the personae that emerge differ between the two groups, both construct broadly oppositional and critical stances towards teachers. In contrast, the Rebellious and Ashton boys use acoustically similar productions, but construct very different personae, with Mohammed adopting a multiethnic street persona and Mark adopting a cynical student persona. All realisations of /t/ appear to be used to do critical evaluation towards teachers, but the nature of this relationship and the style in which an individual is engaged impacts upon the construction of identities in discourse. I suggest that the wider range of indexical values for /t/ is a consequence of its lack of enregisterment. If one variant of /t/ was highly enregistered then it is unlikely that its acoustic opposite could be used for related social meanings, as is the case with Alyssa and Leila. It is also likely that the lack of enregisterment can facilitate the construction of very different personae via the use of the same feature, as is the case with Mohammed and Mark.

These findings suggest that variables do differ with respect to processes of social meaning depending on the degree of enregisterment. Tense and lax /i/ do not have similar social meanings because enregisterment constrains the indexical possibilities available to speakers for each variant. For example, the tense/lax distinction could represent a broad middle-class/working-class distinction, facilitating the attribution of similar binary oppositions onto tenseness and laxness. However, it is an oversimplification to imply that tensing/laxing have completely opposite meanings. In this way, it may be better to talk of these variants having *oppositional* rather than opposite meanings (Campbell-Kibler 2011b). The quirky cool persona evidenced by the Ashton girls through their use of tense /i/ is clearly not the opposite of the rebellious anti-school persona constructed by the Rebellious girls through their use of lax /i/. However, these groups exist in close contact within Ashton Valley School and remain socially and phonetically distinct. As a consequence, these meanings and personae are oppositional in the sense that they represent an attempt to carve out distinctive identities in relation to other communities of practice (Eckert 2000; Irvine 2001).

7.6.3 Local meanings of a supralocal feature

In Section 7.2.2 I discussed research on the California Vowel Shift that demonstrates how geographically-specific sound changes may be used in interactionally-specific ways to construct personae (Podesva 2011b). The ways in which geographic meanings can be reinterpreted for more local social meanings has been less frequently studied in UK contexts. Instead, explanations for language change phenomena, such as regional dialect levelling, often explain young people's use of supralocal features in terms of their orientation towards large urban centres from which those features are thought to originate, such as London (e.g. Watt 1998; Kerswill 2003). However, Stuart-Smith et al. (2007) find that increasingly supralocal features, such as TH-fronting, L-vocalisation and labiodental /r/, exist in the speech of young working-class Glaswegian males, who are socially and geographically isolated from the southeast of England. They suggest that this pattern is not likely to represent an orientation towards London, but that 'supralocal' features may instead be used by working-class males in order to differentiate themselves from the middle-class speakers whom they regard as posh.

In this chapter, I investigated the local discourse-level meanings associated with a variable that is known to be undergoing a change-in-progress in Britain: word-final /i/-tensing, which is sometimes called happʏ-tensing (Wells 1982; Finnegan 2005; Harrington 2006). /i/-tensing is rarely mentioned as a 'torchbearer' of geographical diffusion in the way that /t/-glottaling, L-vocalisation and TH-fronting are (Kerswill 2003: 231), but Wells (1997) does identify /i/-tensing as part of the same set of features, all of which are claimed to have emerged in the second half of the twentieth-century. However, /i/-tensing is less likely to be stigmatised than, for example, /t/-glottaling, because younger speakers may intuitively feel that the word-final /i/ vowel is most closely associated with the FLEECE lexical set rather than KIT (Wells 1982: 256). For example, Polly (Rebellious girls) claimed that the chavs 'don't say '[pʰɒɬi] they say [pʰɒɬɛ]', which suggests that she views [i] as the 'correct' realisation and that laxer productions may have undesirable social associations. In the context of Ashton Valley School, laxer realisations appear to be more overtly marked and subjected to metalinguistic commentary.

In contrast, /i/-tensing appears to be less overtly stigmatised in Ashton Valley School and lacks some of the more established indexical meanings that are characteristic of laxer realisations. Despite its status as a supralocal sound change originating in the southeast, there is no evidence that the Ashton girls' use of tense /i/ involves an orientation towards London. Instead, it is used for locally-specific

identity work that positions them as different from other groups in the school. Their quirky cool persona is ethnographically-specific, but it is also characteristic of types of young middle-class people beyond Ashton Valley School. At the same time, Mohammed (Rebellious boys) uses very tense realisations of /i/ alongside stances of tough masculinity that are linked to an urban street style. While it is possible to suggest that the cultural omnivorousness of the Ashton girls and the urban street style of Mohammed originated in, or were popularised by, London as a cultural centre, there is little evidence that this is a relevant orientation for these speakers in this context. Even if this feature is considered to originate from the southeast of England, it is unlikely that its usage reflects any such orientation.

These sorts of patterns suggest that speakers may use supralocal sound changes in order to do local identity work within a community. The diffusion of the tenser variant makes it more widely available, but this does not ensure that everyone will take on this sound change or that they will use it categorically. Instead, a range of social factors influence an individual's likelihood to take on this phonetic realisation, which include home language and dialect background, as well as the social practices in which that individual is engaged. In this sense, /i/-tensing is one resource that may be used for mobilising social meanings in the context of a variety that traditionally also has very lax realisations. This problematises the idea of a supralocal meaning for a supralocal accent feature, confirming previous accounts of supralocal features being used for local identity work (Stuart-Smith et al. 2007).

7.6.4 To what extent is social meaning co-constitutive?

This analysis aimed to consider the relationship between phonetic tokens and discourse-level meanings in order to assess the degree to which social meaning is co-constitutive in discourse. A co-constitutive and dialectical view of social meaning proposes that meaning is created via a combination of resources, meaning that similar phonetic variants could be used to do different things when combined with different resources. Viewing social meaning in this way also allows us to account for moments in which variation does not appear to mean anything, because a variant may not have occurred with the 'right' resources for constructing a particular meaning, or other resources may be occupying this meaning-making role instead. This approach can also account for occasions in which very different phonetic realisations are used for similar identity work, as this may be the outcome of different combinations of resources and their embedding in different styles.

A clear example of the co-constitutive nature of social meaning comes from

Fragment 7.1, in which Kasey used a very lax token of /i/ during metalinguistic discourse where she claimed to be an authentic Yorkshire speaker. However, there was also a relatively tense token during the same extract, which problematised a clear link between vowel realisation and a persona. However, in Kasey's case, she uses other resources alongside this unusually tense /i/, such as explicit identity claims regarding regional working-class social types, as well as a very lax realisation of /i/ later in the interaction. This could suggest that Kasey's use of a tense token of /i/ in this interaction does not necessarily detract from the overall social meaning here. Associations such as middle-class and pro-school need to be contextually primed and it is highly unlikely that these associations will be triggered in the speech of a working-class anti-school girl who is engaged in metalinguistic discourse about having an 'authentic' Sheffield accent. This is an example of how the combination of the resources is more important than a simple mapping between form and meaning and suggests that other resources can override variation in constructing social meaning in some instances.

A co-constitutive view on discourse-level social meaning is a powerful tool for explaining the ways in which variation indexes meaning, but also shows that variation is only one possible resource and that many other interactional features play a role. However, one possibility is that the co-occurrence of phonetic variation and particular stances could be coincidental. Take the example of Mohammed (Rebellious boys), for whom very tense realisations of word-final /i/ and similar stances appear to pattern together (see Table 7.8). Most of these stances involve constructing Mohammed as a tough streetwise male who is opposed to school authority, but this was something that Mohammed talked about all the time. For example, Mohammed does use less extreme phonetic tokens in other extracts of discourse on the topic, and he also constructs himself in similar ways in moments where no tokens of word-final /i/ occur. This could suggest that Mohammed's realisation of /i/ and his stance-work are not co-constituting, but separate elements that comprise part of his overall style.

An alternative view is that the relationship between variation, stance and persona is fundamentally dialectical, with each of these concepts being highly intertwined and co-constitutive (Silverstein 2003). The occurrence of very tense tokens of /i/ in stances that construct a tough street persona may accrue meaning to these phonetic realisations, which consolidates the construction of such a persona. Mohammed is not required to use a token of /i/ in order to construct this stance, given that the occurrence of a phonetic variant is dependent on using a word in which it can appear. However, if such a token does occur then it is more likely to be realised in a very tense manner in order to construct and consolidate the meanings evidenced in this analysis.

This again supports a co-constitutive view of style, because Mohammed does not have to use very tense /i/ in order to construct a particular persona, but it is one resource than *can* be used in the right context.

This brief discussion suggests that social meaning may be co-constitutive in discourse, at least in some instances. It appears that a combination of linguistic and interactional resources, contextualised in terms of a style, contribute to discourse-level social meaning. This is supported by previous work on style and sociolinguistic meaning (Eckert 2008a; Mendoza-Denton 2008; Moore and Podesva 2009). I return to this issue again in Section 8.4, where I discuss the theoretical and practical implications of these findings for work on social meaning, as well as for conceptions of the sociolinguistic variable.

7.7 Summary

One of the main findings of this chapter is that the degree of enregisterment of a phonetic variant can constrain the range of potential social meanings that it can index. Laxer variants of word-final /i/ are strongly enregistered as indexing regional identities and, potentially, social class orientations. This not only places constraints on meaning, but also means that some speakers may avoid these variants due to a desire to avoid their social associations. Word-initial /t/ is not enregistered in this community and does not appear to be subject to conscious noticing. This means that it has a wider range of indexical meanings and that similar phonetic realisations can be used to do differing identity work, and vice versa. These results suggest that social meaning is inherently indeterminate and context-bound, but that enregisterment and sociolinguistic correlations in the broader community can affect the ways in which variation is imbued with social meaning in specific discourse moments (Silverstein 2003; Coupland 2007; Eckert 2008a). A second main finding is that social meaning in discourse is co-constitutive, with different combinations of linguistic and interactional resources lending differential weight to the importance of variation in making meaning. The next chapter discusses these issues in terms of the overall results of this dissertation and addresses their implications for the study of sociolinguistic variation and social meaning.

Chapter 8

Discussion and conclusions

8.1 Overview

8.1.1 Summary

This chapter discusses the major findings of this dissertation and their implications for the study of sociophonetic variation and social meaning. I begin by providing a brief re-cap of the major findings and implications of this dissertation, before structuring the rest of the discussion around the research questions laid out in Chapter 1. These questions are reproduced below.

1. Is phonetic variation used as a resource for constructing identities and, if so, how is this variation used to index different levels of identity, such as demographic categories and communities of practice?

2. How does the degree of indeterminacy or enregisterment attributed to phonetic features affect the ways in which they can be used for social meaning?

3. To what extent is social meaning co-constitutive?

Section 8.2 addresses research question (1) by claiming that the patterns evidenced in this dissertation are likely to represent social differences rather than, for example, physiological or phonetic-context effects. Based on the premise that human actions are meaningful and meaning-creating (Sacks 1995), the variation described here may therefore be used to signal and construct social distinctions in this

community. Section 8.3 then addresses research question (2) by discussing the role of enregisterment in facilitating and constraining social meanings. Section 8.4 addresses research question (3) by discussing the co-constitutive nature of social meaning and its implications for conceptions of the sociolinguistic variable. Section 8.5 concludes this chapter by summarising the key points of this discussion and outlines areas for future research.

8.1.2 Summary of main findings

The ethnography in Chapter 3 demonstrated a strict gender split between female and male communities of practice, as well as differences in the make-up of female and male peer groups. The girls clustered into four tight-knit and well-defined communities of practice. The four female CoPs can also be grouped in terms of school orientation, with the Ashton and Twilight girls being more pro-school and the Rebellious and Parkdale girls being more anti-school. There was a relatively high degree of inter-ethnic mixing amongst the girls, which confirms findings from previous research (Reay et al. 2007; Hollingworth and Williams 2010). The girls were much more likely to engage in discourse about social mixing than the boys, and they commonly talked about topics such as racism and multiculturalism. In contrast, the boys' communities of practice are larger and more loose-knit. The Ashton boys and Rebellious boys are strongly stratified in terms of ethnicity and school orientation: the Ashton boys are exclusively White and pro-school, whereas the Rebellious boys are primarily ethnic minority and anti-school. There was very little social contact between the boys, with each group instead projecting cultural stereotypes of 'gangsters' and 'nerds' onto each other.

Chapters 5 and 6 found that phonetic variation closely patterns with communities of practice amongst the girls, with variation being used to signal local identity distinctions. The axis of differentiation varies between the two phonetic variables, with word-final /i/ distinguishing pro-school and anti-school girls, whereas word-initial /t/ shows more fine-grained distinctions between the Parkdale and Rebellious girls, both of whom were anti-school. I suggest that the differences between these two variables is a consequence of the enregisterment of /i/ and the lack of enregisterment for /t/. Lax /i/ is enregistered as indexing regional affiliations, such as 'working-class', 'Sheffield' and 'Yorkshire'. While there is still some flexibility in how these meanings are adapted by different speakers, there is a 'kernel of similarity' in terms of social meanings (Podesva 2008: 3), which may be a consequence of this variant's more enduring indexical potential (Kiesling 2009). On the other hand, realisations of /t/

are highly indeterminate with respect to supra-interactional meaning and, therefore, exhibit greater flexibility in terms of social meaning.

Community of practice was not a significant predictor amongst the boys for either variable, but there were effects of ethnicity for both /t/ and /i/. Somali boys were consistently different from White boys in their use of the two variables, and Pakistani and Yemeni speakers also exhibited some phonetic differences from White speakers. I suggest that these results can be explained with reference to the ways in which ethnicity intersects with social practice, as well as the phonetics of the boys' heritage languages. This problematises simplistic correlations between ethnicity and language variation.

While correlations between social groups and phonetic variables can be indicative of broad social meanings, Chapter 7 takes the view that a more nuanced account of social meaning requires an analysis of how variation is used in discourse (Coupland 2007; Podesva 2007; Eckert 2012). Acoustically extreme tokens are often used in episodes of discourse that feature distinctive stance-based identity work. This confirms previous findings that phonetically extreme tokens may represent sites of social meaning (Podesva 2011a). Using discourse analysis, I further examined the degree to which enregisterment affects the local social meaning of variables in discourse. The analysis shows that the enregisterment of lax /i/ places constraints on the social meanings that can be attributed to it, with associations such as 'Yorkshire', 'Sheffield' and 'common' influencing the more specific meanings manifested in interaction. In contrast, the lack of enregisterment and greater indeterminacy for /t/ facilitates much greater flexibility for adapting different social meanings. For instance, there may be very different indexical fields for the 'same' dimension of phonetic variation, as well as similar indexical fields for different dimensions. There is also evidence that social meaning in discourse is co-constitutive, residing in clusters of linguistic and interactional features rather than in isolated phonetic variants. These results foreground the context-specific nature of language variation and social meaning in Ashton Valley School. The next sections discuss the theoretical implications of these results.

8.2 Variation, social practice and ethnicity

This section addresses the relationship between phonetic variation, social practice and social meaning in terms of three different areas. I first address a number of phonetic issues that should be accounted for prior to developing a socially-motivated interpretation of the data. I do so in order to assess the extent to which the

results could be explained with reference to other factors, such as anatomy and physiology, or linguistic-phonetic contexts. The second area then discusses the relationship between ethnicity, social practice and phonetic variation in terms of previous research in this area. The third area addresses the role of gender dynamics and social differentiation in accounting for sociolinguistic patterns in the data.

8.2.1 Cross-language influence and linguistic-phonetic factors

Before addressing the sociolinguistic interpretation of my results, I first discuss the extent to which these results can be considered social differences, rather than the result of linguistic-phonetic context effects. Some context effects were consistent across speakers and corroborate previous findings. For example, /t/ was always more affricated when the following vowel has higher F2 and when /t/ was longer in duration, which supports previous results (Buizza and Plug 2012). Other context effects were group specific, such as Somali boys producing tenser /i/ in preceding /l/ contexts. However, these findings do not invalidate a social interpretation of the results. The regression models in Chapters 5 and 6 accounted for the effects of phonetic contexts, such as preceding segment and nuclear accented syllables, which suggests that any remaining results cannot simply be a consequence of some speakers producing all of their tokens in a single phonetic context.

Some phonetic context effects are likely to be sociolinguistic in nature. This is particularly marked in the case of word-final /i/, for which the Twilight girls and Somali boys produced tenser realisations of /i/ when preceded by /l/. This contrasted with the results for the other groups, most of whom produced laxer realisations of /i/ when preceded by /l/. I suggest that this variation can be explained with reference to differences in liquid systems between communities of practice amongst the girls, and between ethnic groups amongst the boys. The Twilight girls and Somali boys generally produced audibly clear /l/s rather than the dark /l/s typical of many other speakers. This phenomenon is predicted by previous accounts of Pakistani speakers in the UK (Heselwood and McChrystal 2000; Stuart-Smith et al. 2011) and is also likely to be the case with Somali speakers too. To this end, clearer realisations of /l/ are likely to be part of a 'feature pool' of variants that are accessible to adolescents engaged in anti-school and/or ethnic minority networks (Mufwene 2001; Cheshire et al. 2011). In contrast, adolescents who are not engaged in these networks and do not speak a second language with clearer realisations of /l/ are not likely to have access to these features. I address the sociolinguistic interpretations of such a result in Section 8.2, but I mention this now in order to demonstrate that variation in phonetic context also

has social correlates.

The impact of physiology was reduced in this study by analysing female and male speakers separately. However, it is still possible that physiology may have influenced the results to some degree. It is well known that vocal tract shape and size varies within same-gender groups (Lammert et al. 2013), as does the size and shape of the palate (Brunner et al. 2009). Sociophonetic studies often use mathematical procedures in order to normalise for physiological differences between speakers (Fabricius et al. 2009; Flynn 2011; Watt et al. 2011). These were not used here because it is not known how effectively procedures designed for vowels apply to stop consonant noise, and the F2–F1 measurement for /i/ represents a relative measure of the distance between formants, rendering comparison of absolute formant values redundant. While the influence of physiological factors may have an unknown effect in these data, previous research does suggest that speakers are able to exercise considerable variability beyond strict predictions based on physiology alone. It is also highly unlikely that membership in a particular community of practice is strongly correlated with vocal tract morphology. This suggests that the results cannot be explained solely with reference to physiology or anatomy.

Coarticulation, heritage language influence and contexts of acquisition all represent different potential origins for variation, but the potential source of variation does not straightforwardly tell us how that variation acquires social meaning, or what such meanings are likely to be (Eckert 2008b). While phonetic change may arise through a waning of perceptual compensation, social factors have a role in explaining who is most likely to take up this variation. It could be the case that perceptual compensation is socially stratified, with previous studies finding differences between younger and older speakers of a variety (Harrington et al. 2008). Alternatively, other individuals may resist new phonetic variants due to a desire to avoid any social associations with those variants. It could also be the case that different speakers, especially those with heritage language backgrounds, may perceive some types of phonetic variation in different ways, which could lead to different patterns of adoption. Without controlled perception experiments it is difficult to disentangle these different explanations, but it is likely that the process of transforming coarticulatory variation into socially-meaningful variation involves multiple factors.

A related explanation could be the mapping of existing phonetic differences on to emerging social distinctions. It is likely that some of the phonetic differences evidenced in word-initial /t/ and word-final /i/ were already present amongst different groups of speakers, albeit more variably, as a result of coarticulation or cross-

language influence. This could particularly be the case with word-final /i/ for Somali boys and Twilight girls, especially when /i/ is preceded by /l/. However, linguistic differences may become socially meaningful when they can be tacked on to social differences that emerge in a community (Eckert 2000). As this variation acquires social meaning, variation may become much more tightly structured as it becomes tied to indexical fields (Eckert 2008a; Podesva 2011b). It is also likely that production/perception relationships shift as social dynamics shift. For example, /t/ affrication could be a coarticulatory outcome in the speech of particular speakers, but when those speakers begin to cluster into particular communities of practice, this coarticulatory variation may be interpreted as an identity marker. This interpretation could lead to more fine-grained social patterning of /t/ affrication and, consequently, strengthen its use as an identity marker. This represents one way in which variation arising from coarticulation or aerodynamics could acquire social meaning, as social relations between groups may place constraints on the interpretation and reconstruction of phonetic detail.

8.2.2 Ethnicity, social practice and phonetic variation

Chapter 3 showed that, while demographic categories may influence the communities of practice to which an individual is likely to belong, this is not deterministic. Instead, speakers can move beyond the boundaries of ethnic and classed demographic groups, if they have opportunity and motivation to do so (Moore 2010). Such motivations can include engagement in social practices that are not associated with other members of one's demographic group, as well as other individual characteristics, such as the degree to which a person identities with religious practices. In this dissertation I aimed to capture the ways in which these factors intersect by identifying a number of communities of practice. These were defined in terms of a group of individuals who produce distinctive ways of doing things through engagement in a shared endeavour (Lave and Wenger 1991; Eckert 2000).

Previous research suggests that the local meaning of ethnicity may reside in communities of practice (Alam 2007; Eckert 2008b; Mendoza-Denton 2008; Alam and Stuart-Smith 2011). This is also evidenced in my data, at least to an extent. In order to model the effect of demographic conceptions of ethnicity, I also used a more crude implementation of ethnicity in the statistical analyses by using self-reported census categories. However, the interpretation of these categories is grounded in social theory (Hoffman and Walker 2010: 40), which in this case is a theory of social and stylistic practice (Eckert 2000).

Ethnicity did not emerge as a significant predictor amongst the girls in any of the statistical models, whereas amongst the boys there were some effects of ethnicity. I suggest that explaining these results is not simple or straightforward, but that there is a complex interplay between ethnicity and social practice. First, there was much greater mixing between White and non-White students amongst the girls, whereas the Ashton boys and Rebellious boys were highly segregated, with no ethnic minority individuals amongst the Ashton boys and only a single White individual amongst the Rebellious boys. This greater *relative* degree of social mixing amongst the girls may explain why ethnicity is not a significant predictor of variation for them, because the correlation between ethnicity and community of practice membership is much weaker. In contrast, the lack of social mixing amongst the boys means that the correlation between ethnicity and community of practice is stronger in their peer group.

Another explanation for the effect of ethnicity amongst the boys resides in the differences between some of the Rebellious boys. The Somali boys in this sample were jointly engaged in other communities of practice outside of the school, which took place in different locations, such as the Somali community centre and Islamic school. These Somali boys participate in social practices at these locations as a consequence of their family's sociocultural and ethnic backgrounds; for example, only individuals who identified as Somali and whose family actively oriented towards the local Somali community attended homework club at the Somali community centre. What is notable is that these individuals were not necessarily engaged in vastly different social practices from other Rebellious boys within the school, despite being somewhat more rebellious and transgressive than many of the others. However, as Moore (2010) finds in her study of adolescent girls in Bolton, it could be the case that communities of practice in which individuals are engaged outside the school may explain their linguistic behaviour within the school. In this sense, it is not necessarily 'ethnicity' that is the explanatory factor, but a complex relationship between ethnicity and social practice (Eckert 2008b). It is well known that some ethnic minority speakers have very broad repertoires that cannot be captured by a single context (Sharma 2011) and an analysis of the Rebellious boys' use of variation outside of the school may better inform how these patterns fit into their overall repertoire.

8.2.3 Gendered dynamics and social differentiation

An important dimension in explaining why community of practice significantly predicts variation amongst the girls but not the boys is the concept of shared social

spaces and the role of language in carving out distinctiveness (Irvine 2001). Amongst the girls, social oppositions are clearly multi-dimensional. We see that pro-school and anti-school groups differentiate themselves in terms of /i/ realisation, but also that two anti-school groups – Rebellious and Parkdale girls – differentiate themselves in terms of /t/ realisation. This may be a consequence of the girls sharing social and ideological space. The Rebellious and Parkdale girls were in regular contact with each other in the sense that they shared classes and often hung around in similar parts of the school. Both were also in competition for similar ideological space: anti-schoolness and rebelliousness. Chapter 7 showed that both groups use very different realisations of word-initial /t/ and, while there are clear differences in meaning, there are also some similarities in how both groups use /t/ for stance work. This suggests that, although both groups may engage in similar types of social work, they have distinctive ways of doing them.

The Twilight girls' social differentiation from the Rebellious and Parkdale girls could be seen as a rejection of the dominant ideologies of the 'heterosexual marketplace' in which other communities of practice are engaged. Eckert (1996) explains that pre-adolescence and adolescence transform relations between girls and boys from being primarily asexual towards normatively heterosexual. This often results in increased gender differentiation and segregation, as well as the emergence of girlfriends and boyfriends. Eckert suggests that girls play a more active role in this marketplace, as they move away from participating in activities that become symbolically dominated by boys, such as sports. However, not everybody participates in the heterosexual marketplace equally. In Ashton Valley, Muslim girls' public participation in heterosexuality is sometimes more restricted than is the case with non-Muslims. For example, the Twilight girls, who were exclusively Muslim, would talk about boys that they found attractive, but would generally shun public displays of heterosexuality, such as having a boyfriend or dressing in overtly feminine ways.

One possible reason for this is the existence of gendered and religious ideologies which prescribe appropriate behaviour for Muslim women (Jacobson 2013). The Twilight girls had very few male friends and no male Muslim friends. They often explained to me that they would be in serious trouble if they were caught hanging around with boys outside school unsupervised. They said that their parents considered it inappropriate for them to have a boyfriend 'at this age', whereas girls from other communities of practice were less subject to parental pressure on this matter and, indeed, experienced considerable peer pressure to engage in displays of heterosexuality (Eckert 1996). This represents one instance in which ethnicity and religion intersect with social practice (Alam 2007). However, this relationship is far

from deterministic. As the case of Leila (Rebellious girls) demonstrates, those who belong to a particular demographic group, such as Pakistani or Muslim, may not engage in the same social practices or orient towards the same values as those with shared demographic backgrounds. While Leila was not necessarily engaged in overt displays of heterosexuality, she was more prone to 'break the rules' in a way that the Twilight girls were not, which was reflective of the community of practice to which she belonged.

As the above discussion shows, gender dynamics strongly influence the dynamics of social mixing and social practice (Eckert 1989; Archer et al. 2007). A different set of dynamics was evident amongst the boys. For instance, the Ashton boys and Rebellious boys represented the most stylistically distinct groups in the school, given their strikingly different orientations towards school and various forms of popular culture. However, there were few phonetic differences between these groups for the variables analysed here. One explanation for this resides in the notions of shared social space and social contact. The two communities of practice hardly ever came into contact in the school. They generally attended different lessons, with the Ashton boys attending higher ability classes than the Rebellious boys. They also occupied different physical spaces in the school, with the Rebellious boys hanging out on the basketball court, whereas the Ashton boys played football or stayed indoors. Despite their lack of social contact, the Ashton and Rebellious boys were acutely aware of the social spaces that each other occupied and they were easily able to characterise and stereotype each other. The Ashton boys perceived the Rebellious boys to be 'wannabe gangsters' and 'chavs', whereas the Rebellious boys perceived the Ashton boys to be 'posh nerds' and 'swots'. This attribution of social characteristics could be grounded in occasional interactions with members of the other group. However, it is also likely that a great deal of this outgroup positioning involves projecting 'imagined communities' onto the other group (Anderson 1983), based on widespread social sterotypes of nerds, swots, chavs, and gangsters.

The fact that the Ashton and Rebellious boys rarely come into contact with each other means that they also rarely speak to each other. As a consequence, phonetic variation may not have the same utility in marking distinctions as it does for the girls. It could instead be the case that the boys use other more visible stylistic resources in order to mark these distinctions. These could include clothing, hairstyles, or broader orientations towards schooling (Willis 1977; Eckert 1989; Mendoza-Denton 2008). The Ashton boys wore hooded sweatshirts and jeans with little branding, whereas the Rebellious boys were more likely to wear tracksuits and hoodies with popular urban brands, such as G-Star Raw and Superdry. If the members of these two communities

of practice are always identifiable through their appearance, then what role does phonetic variation have to play? I would suggest that linguistic variation is still likely to act as a resource for social differentiation, but that this analysis did not focus on the variables that serve these purposes. One area in which distinctions are more evident is lexis. For example, the Ashton boys often commented upon how the Rebellious boys would 'make up stupid slang words that aren't even language' (Dom, Ashton boys) and it is true that the Rebellious boys were often the originators of short-lived 'slang' words that populated certain kinds of discourse in the school. It is also likely that other phonetic resources distinguish these groups better, such as the use of rhythm. For example, I perceived the Rebellious boys' speech to have more of a syllable-timed rhythm than the Ashton boys. This observation was also somewhat true of the Parkdale girls, who potentially have a more syllable-timed rhythm than the other female communities of practice (see Torgersen and Szakay 2012 for further research on ethnicity and rhythm in London English).

While there were few statistical differences between the Ashton and Rebellious boys for word-initial /t/ and word-final /i/, Chapter 7 suggests that these two groups are distinct in the social meanings of this variation. For example, Mohammed (Rebellious boys) and Mark (Ashton boys) both used extremely affricated /t/s to construct negative evaluative stances, but Mohammed's were used to construct a tough street persona, whereas Mark's constitute a cynical student persona that is highly critical of incompetence (of students and teachers alike). Both types of stances generally occurred in talk about the school, particularly teachers, which could represent Mohammed and Mark constructing oppositions between the two male groups by projecting differing relationships with the school as an institution. It is unlikely, however, that different social meanings of similar phonetic realisations would adequately distinguish groups that rarely come into contact, given how interactionally-specific these meanings are. This could instead represent more of an indirect opposition across interactions, with an individual's projected relationship with school authority serving to differentiate them from others within the broader social matrix of Ashton Valley. Nance (2013) finds that adolescent speakers in a Scottish Gaelic medium school use the Gaelic language in stylistically distinct ways that correlate with community of practice, despite the fact that Gaelic is never used as a peer group language. She hypothesises that individuals are instead constructing identities relative to institutional ideologies of the school, which indirectly positions different groups of adolescents as distinct from each other. This may be similar to what is happening amongst the boys in Ashton Valley School, in the sense that attitudes towards the school institution may represent an indirect mechanism

through which the Ashton and Rebellious boys mediate their distinctiveness.

In summary, variation is more directly oppositional amongst the girls, whereas oppositions may be more indirect amongst the boys. This has also been found to be the case in previous work; for example, Eckert (2000) suggests that girls distinguish themselves through variation, whereas boys depend on displays of physical ability and strength. This may be the case in my data and it is likely that the boys use other stylistic markers, such as appearance, in order to mark distinctions between communities of practice. This suggests that direct phonetic oppositions between communities of practice in Ashton Valley School may be related the degree to which those communities of practice share social, physical and ideological space.

8.3 Enregisterment, supralocality and indeterminacy

8.3.1 Degrees of enregisterment and social meaning

One of the major aims of this dissertation was to empirically investigate the indexicality of enregistered and unenregistered sociolinguistic variation, with a particular focus on how differing levels of enregisterment affect the types of social meanings that variation can take on. The results suggest that the indexicality of enregistered variants, such as lax /i/, may work differently from the indexicality of unregistered variants, such as affricated /t/.

Lax /i/ is highly marked and enregistered as Sheffield/Yorkshire, both within Ashton Valley School and Sheffield more broadly (Finnegan 2005; Beal 2006). The discourse analysis shows that very lax realisations occur in stylistically marked episodes of discourse for both Leila (Rebellious girls) and Kasey (Parkdale girls). Both speakers draw upon enregistered meanings of Yorkshire and Sheffield, which allows the girls to discursively enregister regional accents as authentic and working-class. This suggests that lax /i/ has a degree of indexical potential that transcends specific interactional moments, which Kiesling (2009: 177) calls *exterior indexicality*. This contrasts with indexicality that is specific to a single interaction, which he calls *interior indexicality*. This is a useful distinction, but it may be better to talk of a variable having stronger or weaker *enregistered indexical potentials* that can flow across interactions. I use this term because indexicality is never truly 'exterior', given that meanings are always implemented in interactionally and stylistically specific ways (Silverstein 2003). This view suggests that enregistered meanings

are actually under-specified meaning potentials that trail behind a variable across social and stylistic space. In this sense, indexicality is dialectical, being both contextually-specific and context-creating (Silverstein 2003; Coupland 2007). The notion of indexical potentials highlights the fact that indexicality is not deterministic: the indexicality of a lax production of /i/ may be constrained by its enregistered indexical potentials, but there is room for adaptation and modification. To this end, a variant's embedding in different styles and interactional moments will influence the extent to which enregistered meanings are emergent or subdued.

In the case of affricated and unaffricated /t/, enregistered indexical potentials do not appear to be available to speakers. There have been no previous studies of affricated /t/ in Sheffield, but it appears that there are no overt social associations with this linguistic form. This suggests that /t/ has a very high degree of indeterminacy, whereby meanings do not necessarily share indexical similarity across different interactions. While /t/ lacks the enregistered indexical potentials of /i/, we do see some similarity in terms of the stances used alongside different realisations of /t/. Phonetically extreme variants of /t/ tend to occur in evaluative speech acts and this is true of both very affricated and very unaffricated tokens. This patterning may be linked to the fact that evaluative speech acts tend to position the speaker and other individuals in very explicit ways. Evaluation is often a rather explicit form of identity work in which overt claims about people are made. It could be the case that acoustically extreme tokens of /t/ are used during such speech acts in order to signal that there is something distinctive about the social work undertaken in the interaction. In this way, acoustically extreme tokens may take on social associations through their use in evaluative contexts. In turn, these associations may accrete into more enduring meanings that become attached to a particular social characteristic or group (Rauniomaa 2003). Most of the the extreme tokens in Chapter 7 were also used by iconic members of communities of practice. While iconic members are rarely representative, previous studies find that iconicity plays a significant role in defining the core values and meanings of community resources (Eckert 2000; Irvine 2001).

The above discussion points towards a 'kernel of similarity' (Podesva 2008: 3) with respect to the ways in which extreme tokens of /t/ occur in evaluative stances. However, the specific instantiation of evaluation often gives rise to very different indexical fields. For example, Mohammed (Rebellious) and Mark (Ashton boys) both use affricated /t/ to evaluate teachers as equals rather than superiors, but Mohammed constructs teachers as not showing street-style respect, whereas Mark positions teachers as immature and upholding mediocracy rather than excellence. These stances represent very different personae, despite featuring similar phonetic

variants, similar evaluative stances, and similar conversational topics.

This discussion illustrates the importance of a number of different contextual levels in accounting for the indexicality of linguistic forms (Bucholtz and Hall 2005). First, the specific interactional moment provides a context-providing frame in which stances, personae and other positionings are enacted in real time (Coupland 2007). The 'same' phonetic realisation may not always mean the same thing, even when used by the same speaker. Other linguistic and interactional resources may affect how social meanings are realised in concrete interactional moments, which foregrounds the contextualising nature of specific episodes of discourse. I address this point further in my discussion of social meaning in Section 8.4. Second, indexical fields are situated in terms of styles, with the 'same' phonetic realisation potentially taking on different meanings when it occurs in different semiotic clusters (Campbell-Kibler et al. 2006; Eckert 2012; Moore 2012). It is likely the tense /i/ connotes middle-class and pro-school amongst the girls, but the specific meaning of these associations varies according to the different styles of the Ashton girls and Twilight girls. Third, social types, such as social class, ethnicity and gender, intersect with styles and social practices in various ways (Eckert 2000; Moore 2010). It is tempting to see concepts such as style and community of practice as a replacement for these crude and deterministic forms of categorisation. However, it is important to consider the ways in which different forms of social categorisation interact, given that levels of identification may vary across contexts.

8.3.2 Local meanings and the limitations of correlation

The findings from Chapter 7 suggests that correlations between linguistic forms and social categories are not always sufficient evidence for making conclusions about indexicality. Different groups may use similar phonetic realisations, but the indexicality of those realisations may differ radically. A good example is the use of affricated /t/ by the Ashton and Rebellious boys: both use it to construct evaluative stances that position teachers as equals, but the outcomes of this vary, with Mohammed's tough street persona and Mark's cynical good student persona. This foregrounds the importance of attending to the local meanings of social categories, such as ethnicity, when accounting for the local meanings of variation (Eckert 2000, 2008b; Alam and Stuart-Smith 2011; Podesva 2011a). It also demonstrates the indeterminacy of phonetic variation outside of interaction and shows the utility of examining how and when variation is used to contribute towards social meaning in discourse (Coupland 2007).

Correlational approaches that focus on enregistered variables often make fairly simplistic assumptions about their indexical values. One example of this could be claiming that the use of lax /i/ indexes a 'Sheffield identity'. However, the discourse analysis reveals a number of meanings that go beyond what can be predicted from ethnographically-informed statistical analysis. This is evident in the social meanings of tense /i/, which has previously been described as a supralocal phonetic variant that originated in the southeast of England (Wells 1982; Hughes et al. 2005; Harrington 2006; Flynn 2010). Finnegan (2005) suggests that the use of tense /i/ in Sheffield represents dialect levelling, with the more 'traditional' lax variant being used less frequently. However, Stuart-Smith et al. (2007) convincingly demonstrate that the use of a supralocal feature may not necessarily indicate an orientation towards supralocality.

The idea that supralocal features may serve more local ends could apply to tense /i/ in the Ashton Valley data. The Ashton girls' use of tense /i/ is likely to have been acquired due to their engagement in White middle-class networks in which this variant dominates. However, while their use of /i/ patterns with broader demographic trends in Sheffield, Chapter 7 shows that Toni and Nikki use very tense realisations of /i/ alongside stances that construct a quirky cool persona and an opposition to the Rebellious and Parkdale girls. There is little evidence of orientations towards other cultural centres such as London. Instead, this quirky cool persona is framed by gendered and classed ideologies relating to discourses of cultural omnivorousness, as well as individuals' access to social and cultural capital (Bourdieu 1984; Peterson 1992; Ollivier 2008; Savage and Gayo 2011).

Similar to the Ashton girls and boys, the Rebellious boys and Twilight girls also use tense /i/. However, this could represent a variant that emerges from cross-language influence, given that these groups speak heritage languages such as Somali, Panjabi and Urdu. As I mentioned above, the use of ethnically-linked variation does not always index ethnicity (Lambert et al. 2007; Eckert 2008b; Sharma and Sankaran 2011) but this discussion points to multiple possible origins for tense /i/, such a multiethnic feature pool or a middle-class supralocal trend. While these potential origins and broad community-wide patterns do frame the social meanings of variation within Ashton Valley, they are not deterministic and speakers demonstrate considerable indexical flexibility. This flexibility depends upon how speakers engage with ideologies that facilitate links between linguistic forms and social meanings (Moore and Podesva 2009: 479).

8.4 The construction of social meaning in discourse

8.4.1 Social meaning as co-constitutive

Concepts such as stance accretion usefully identify some of the ways in which a variant could acquire more enduring meanings by being used in similar ways over a number of interactions (Rauniomaa 2003). However, if features with a greater level of indeterminacy, such as /t/ affrication, acquire all of their meaning by association with particular discourse-level activities, then can we really say that the feature itself indexes particular social meanings, when meanings cannot be discussed independently of very specific discourse contexts? Theories of indexicality locate the meanings of variation in discourse (Silverstein 2003; Bucholtz and Hall 2005; Coupland 2007) and it is likely that the co-constitutive view of social meaning can be extended to its manifestation in single episodes of interaction. In this view, a co-constitutive perspective would suggest that the social meaning of variation might be better conceptualised as the social meanings of particular clusters in which a variant is likely to – but does not always – occur.

Chapter 7 showed that the same interactional and meaning-related work could potentially occur both with and without the presence of a particular variant. Studies that demonstrate the ways in which variation indexes social meaning in discourse rarely account for how similar meanings are constructed *without* using those particular phonetic variants, or when similar meanings emerge alongside completely different variants. This may be a consequence of analysts typically starting with variables rather than starting with meanings (Coupland 2007) The Rebellious and Parkdale girls use different ends of the acoustic continuum for /t/ affrication, but appear to construct similar stances and indexical associations when using these tokens. A co-constitutive view of social meaning helps to explain these instances, as well as others. For example, in one particular interaction, Kasey (Rebellious girls) used a very lax token of /i/ shortly after a tense token of /i/, despite no apparent differences in the specific stances and meaning evidenced around these two instances. It could instead be the case that particular contextual frames prime particular associations for some realisations, but block other associations. This is supported in previous research that suggests variation is both context-creating and context-consituting (Silverstein 2003; Coupland 2007).

A somewhat parallel finding is reported by Pharao et al. (2014), who find that young middle-class White men in Copenhagen are perceived as feminine when they use a fronted realisation of /s/. However, the use of fronted /s/ by their multiethnic

urban peers appears to make no difference in how listeners perceive this group. The existing associations of multiethnic urban youth, such as tough and heterosexual, prohibit the attribution of social characteristics, such as feminine and gay, onto such speakers. Similar factors could also influence the patterns in my data. For instance, it is likely that the social associations of tense /i/ are related to being middle-class in the broader Sheffield context. This means that the Rebellious boys are more likely to adapt the social meanings of tense /i/ away from these community-level associations towards meanings that better suit their persona, whereas the Twilight girls do not need to do so. Discourse-level meaning could work in a similar way, with the interactional frame and other linguistic devices making some meanings accessible but downplaying others. This further supports the idea that social meanings emerge from combinations of linguistic and interactional resources, rather than linguistic variants in isolation (Campbell-Kibler et al. 2006). It also highlights the possibility that individual variants do not always have to mean something. Detecting when and where variants are likely to contribute towards meaning will depend upon our ability to mediate between different levels of social and interactional structure.

A co-constitutive perspective problematises the idea that social meaning resides solely in variants and instead proposes that social meaning emerges from clusters of resources in interaction. It also problematises the idea that different variants of the sociolinguistic variable have related meanings. Campbell-Kibler (2011b) addresses this in her perception study of (ING), finding that the [ɪn] and [ɪŋ] variants may index meanings that are not necessarily related. As she points out, this is not a trivial issue when we consider that third-wave variationists treat the sociolinguistic variable as cognitively real. It is worth asking whether the achievement of some social meaning in discourse could still have happened if that particular feature had not occurred, or if it had occurred with a very different acoustic value? One view would be that variation holds no meaning at all outside of discourse and, therefore, that we should instead treat 'meaning' as a variable, looking at the different linguistic resources that are used to construct similar meanings. This might mean that some features may be relevant in some instances, but not others. This is likely to be a highly informative line of inquiry, but it remains the case that people *are* able to make associations between linguistic forms and social meanings in experimental contexts (Campbell-Kibler 2008; Drager 2009). This suggests that particular variants can prime particular associations somewhat independently of context and lends support to the idea that some variants do have a degree of social and psychological reality for speakers and listeners. In particular, this is likely to be the case for enregistered features, with their enduring enregistered associations coming about via processes

of stance accretion and ideological crystallisation (Rauniomaa 2003; Coupland 2007). However, the influence of enregisterment is only relevant if speakers and listeners are aware of it and engage with ideologies that facilitates the form-meaning link (Moore and Podesva 2009: 479). Some social groups may not engage in the sorts of social practices that facilitate awareness of this enregisterment, which may lead them to interpret an 'enregistered' variant as potentially socially meaningless. This suggests that when we use terms such as 'enregistered' or 'social meaning' it is worth asking exactly who is likely to experience the variation in such ways. Further uncovering the mechanisms through which listeners perceive and process variation and social meaning is an important step in better understanding how meaning is occasioned both in and beyond discourse

In summary, the co-constitutive view of social meaning provides a useful framework for charting the ways in which indeterminate linguistic forms are used in socially meaningful ways, as well as the instances in which variation doesn't appear to mean anything. In this view, style is composed of interrelated levels (Bucholtz and Hall 2005; Coupland 2007). On the micro level, multiple linguistic and interactional features work together to carry out social actions in discourse, whereas on the meso level, personal and group styles frame specific instances of discourse. This perspective has serious implications for the study of variation. Should we retain a focus on analysing single variables quantitatively across a community if social meaning resides in clusters of interactional forms rather than isolated variables? Coupland (2007) suggests that it may be more effective to start with clusters of meaning and then examine the linguistic and other semiotic resources that occur at those sites of meaning. It is likely that a combination of approaches will be most effective, perhaps starting with some pre-determined variables, but also focusing on particular types of discourse and analysing the kinds of variation that occur there. Moving back and forth between these different levels of meaning should facilitate a richer account of the role of variation in facilitating social meaning across various dimensions.

8.5 Conclusion

8.5.1 Summary

This discussion identified three major theoretical areas that concern the study of sociolinguistic meaning. The first section discussed the relationship between ethnicity, social practice and identity. I suggest that different types of phonetic variation are used to index different levels of social distinction amongst the girls at

Ashton Valley School, such as community of practice and school orientation. It is likely that the different distributions of word-initial /t/ and word-final /i/ amongst the girls are influenced by the enregisterment of /i/ and the lack of enregisterment for /t/ in this community. Amongst the boys, community of practice was not a significant predictor in any of the analyses, but I suggest that this may because the Ashton and Rebellious boys are not competing for similar social space within the school. These two groups very rarely come into contact and, as a consequence, it seems unlikely that phonetic variation would be the primary resource for marking distinctions. There are some ethnic differences amongst the boys, but these appear to represent differences in social practice within the Rebellious boys, as well as participation in communities of practice outside of the school. The major distinction amongst the boys is evident in the discourse analysis in Chapter 7, with the two groups constructing their relationship with the school's institutional authority in different ways.

The second section addressed the role of enregisterment, supralocality and indeterminacy in constructing social meaning. Kiesling (2009) suggests that the degree of enregisterment may affect the flexibility with which meanings can be attributed to a variant. The analysis presented in this dissertation provides empirical evidence of the differences between enregistered and unenregistered variants with respect to social meaning. Variants with greater enregisterment can invoke particular social meanings rather clearly, but opposite ends of the acoustic continuum do not necessarily index opposite meanings (Campbell-Kibler 2011b). The enduring indexical potentials that accompany enregistered variants place constraints on how these meanings can be exploited in interaction. On the other hand, variants that have no known social associations may have a much greater array of meanings and can be used in the construction of very different personae, depending on the styles in which they occur. However, while enregistered variants have stronger supra-interactional indexical potential, this is not deterministic and social meanings vary according to the individual involved and the interactional work being carried out. This is also the case for the 'supralocal' tense variant of word-final /i/, which has interactional meanings that index distinctions amongst the adolescent peer group, rather than index an orientation to supralocality.

The final area covered in this discussion is the co-constitutive nature of social meaning. The data show some cases in which phonetically opposing variants are used side-by-side in the construction of the same persona. This problematises a straightforward relationship between linguistic form and social meaning. Instead, I suggest that variation is one resource in the construction of social meaning

(Campbell-Kibler et al. 2006) and that the interactional impact of a particular linguistic token may depend upon the other interactional resources that are used in discourse. The precise nature of how stylistic meaning is co-constitutive is still far from obvious and determining exactly how variants are perceived as salient for listeners requires different methods, such as perceptual experiments. However, my analysis shows that examining acoustically extreme tokens in stylistically marked episodes of discourse provides one way of observing the construction of social meaning in discourse.

8.5.2 Directions for future research

While this research advances an account of social meaning that builds upon existing work in the field, a number of issues and questions remain. First, Ashton Valley School is not a statistically 'representative' school. I did not treat it as such throughout this dissertation and its uniqueness within Sheffield instead provided one of the focal points of this study. It is clear that the communities of practice within the school are a consequence of how school admissions policies and demographics intersect with individual agency. One interesting line of inquiry would be to study the participants at an earlier age, during which they generally attended much more ethnically homogeneous schools. This move from from an ethnically homogeneous to an ethnically heterogeneous school is likely to have a considerable impact on an individual's sense of identification. Speakers are also exposed to a different kind of variation when they move to a secondary school, given differing demographic compositions, which has consequences for the local meanings of variation. The trend for children to attend non-local schools is increasing in Britain (Allen 2007), thus providing ample opportunities for studying the sociolinguistic dynamics that accompany changes in the social composition of schools.

The analysis presented in Chapter 7 identified social meanings in acoustic extremes, following previous studies by Podesva (2007, 2011a). Podesva (2011a: 254) proposes that '[i]f an axis of phonetic variation indexes a particular social meaning, then outliers on that axis can be understood as the strongest indicators of meaning'. My analysis further demonstrates the utility of examining acoustic extremes, but the precise relationship between acoustic values and the strength of social meanings remains unclear. The results suggest that this may be dependent on the linguistic feature under study and whether or not it is enregistered. My focus on acoustic extremes provides only a limited view and future research could involve a similar analysis across the acoustic continuum, perhaps within the speech of a single individual. This would allow us to test whether acoustically extreme tokens

are stylistically unique, or whether similar social work occurs alongside non-extreme tokens. If the latter was found to be true, this would not invalidate the findings of this study, because I suggest that social meaning lies in the cluster of interactional and semiotic resources used at a particular instance in discourse. Indeed, it could be the case that an extreme phonetic variant contributes to a particular stance in one instance, but a different resource contributes towards a similar stance in a different instance, which compensates for the occurrence of a less extreme variant. There is considerable space for development in this area and future research should attend further to the interactional uses of variation.

In this dissertation, I extended the perspective of style and the co-constitutive nature of social meaning to the discourse level. The discourse analysis suggests that similar stances and personae can emerge whether or not a particular phonetic variant is used. This is not surprising, because there is not always the opportunity to produce a particular phonetic variant in every utterance. Producing a lax token of word-final /i/ first of all requires that a word containing word-final /i/ occurs in discourse, which is not the case in every single interactional episode. Presumably, speakers select words based on how they fit into a broader interactional goal, rather than selecting words that include phonetic variants that are relevant to the analysis. It must be the case that the same interactional work can be achieved whether or not a particular linguistic feature occurs. This suggests that social meaning is co-constitutive in the sense that it is necessarily composed of a number of semiotic resources, of which phonetic variation is just one (Campbell-Kibler et al. 2006). The previous discussion on acoustic extremes poses the intriguing possibility that a phonetic variant may mean one thing in one instance, but then a different thing in another, due to the differing resources used alongside it.

The above point has serious implications for the study of social meaning of variation, as it means that starting with single variables and searching for their social meanings may limit our focus too narrowly. To this end, Coupland (2007) suggests that we start with social meanings and distinctive stylistic practices, after which we can then examine how variation contributes towards them. Future research would do well to better integrate approaches that start with variables and those that start with meanings. The analysis in Chapter 7, as well as recent work by Podesva (2007, 2011a), suggests some ways in which this might be carried out, but there exists considerable scope for development. For example, investigating the social meaning of variation may require a re-thinking of what we mean by 'the sociolinguistic variable'. If we define the variable as the social meaning itself, then an analyst could code all occurrences of particular meanings and personae in discourse and examine whether

similar linguistic resources occur at these sites. However, quantitative analysis necessarily involves abstraction and averaging, so a continued focus on specific uses of variation in single episodes of interaction will be important in grounding any account of social meaning in terms of interaction – the place where social meanings take their effect in the world.

Another implication of this dissertation is that variation does not always appear to index social meanings, at least not in a way that is apparent to an analyst. A view of social meaning as co-constitutive handles this finding elegantly, but how do we identify when variation does and does not carry meaning? With the exception of some conversation analytic approaches, discourse analysis inherently privileges the perspective of the analyst. While we can make inferences about how speakers interpret meanings based upon their interactional orientations in discourse, there is more to be learned. Perceptual experimentation is likely to be a key part in further unpacking the relationship between variation, discourse and social meaning. Research that carries out perceptual experiments in ecologically valid contexts, such as Drager's (2009) use of experiments on ethnographic participants, is a promising step forward in understanding the social meanings of variation in terms of a community's local dynamics. However, there is also scope within a discourse analysis of phonetic variation to better integrate a focus on participant orientations and how these are demonstrated through talk (see Local 2003 and Walker 2013 for an overview of relevant research in this area).

8.5.3 Final words

In summary, this dissertation finds that the relationship between ethnicity, social practice and phonetic variation is complex and context-dependent. While correlations point towards possible social meanings, discourse analysis reveals a more detailed account and illustrates the ways in which enregisterment influences social meaning. Enregistered features appear to be more constrained in how their meanings are subject to negotiation in discourse. Unenregistered features exhibit greater flexibility, to the extent that very similar phonetic realisations can index very different meanings, and vice versa. Finally, the analysis reveals that social meaning is often co-constitutive, not only in terms of group styles but also in single interactional moments. That is to say, different combinations of linguistic and interactional resources yield different social meanings, which suggests that the social meaning of variation is dependent upon clusters of resources within and beyond discourse (Eckert 2012).

Recent work in sociolinguistics has called for greater attention to the social meanings and stylistic functions of linguistic variation (Eckert 2008a; Kiesling 2009; Eckert 2012; Moore 2012). The research reported in this dissertation aims to advance the study of sociolinguistic variation by elucidating the roles of enregisterment, indeterminacy and co-constitutivity in constructing social meaning, both in terms of quantitative distributions and discourse-level usage. These findings point towards a number of intriguing patterns that have serious implications for the study of language variation and change, but also raise a number of new questions that will need be addressed in future research. Developing a more comprehensive account of the social meaning of linguistic variation will depend upon our ability to model the relationship between different levels of social, linguistic and ideological structure in a socially-sensitive and community-specific way.

Appendix A

Transcription conventions

- Each line represents a single intonation unit.
- Spelling has been largely standardised, but some basic aspects of pronunciation are represented, such as contractions (e.g. *wanna* as a contraction of 'want to').
- Narrow phonetic transcriptions are included in cases where they are deemed to be highly relevant to the analysis in question.
- A list of symbols and their associated meanings are provided in Table A.1.

Table A.1: Transcription conventions. Adapted from Bucholtz (2011: xiii).

Symbol	Description
.	end of intonation unit; falling intonation
,	end of intonation unit; fall-rise intonation
?	end of intonation unit; rising intonation
!	raised pitch and volume through the intonation unit
↑	rising pitch accent
↓	falling pitch accent
underline	emphatic stress; usually higher amplitude
:	lengthening
=	latching; no pause between intonation units
-	self-interruption
(.)	pause of 0.5 seconds of less
(n.n)	pause of specified duration in seconds
@	laughter; each token marks one pulse of laughter
h	outbreath; each token marks one pulse of outbreath
.h	inbreath; each token marks one pulse of inbreath
[ ]	overlapping speech
$_1$[ ]$_1$	overlapping speech in proximity to another overlap
( )	uncertain transcription
(( ))	transcriber comment
...	omitted material
⇒	narrow phonetic transcription of the previous line

Appendix B

Information sheet for participants

University of Sheffield

Participant Information Sheet

Research Project Title: Language in Sheffield

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

1. What is the project's purpose?

This project aims to understand how young people in Sheffield speak and how they feel about living in Sheffield.

2. Why have I been chosen?

You have been chosen because you are a student at [NAME OF SCHOOL REMOVED], where this research is taking place. You are suitable for this research because you are a young person living in Sheffield.

3. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. You can still withdraw at any time and you do not have to give a reason.

4. What will happen to me if I take part?

If you decide to take part then you and another student will participate in a 55-minute interview with me. We will talk about your hobbies and what you like to do, as well as how you feel about Sheffield. You may also be asked to read a short list of words in English at the end of the interview. This will take no longer than 5 minutes. If you speak any languages other than English, then I might ask you some questions about when and where you use that language. I might also ask you to translate some words from English into your chosen language if you feel comfortable with this.

5. Will my taking part in this project be kept confidential?

All the information collected about you during the course of the research will be kept strictly confidential. Any identifying information, such as names and personal characteristics, will be anonymised in the written report of this research. You will not be able to be identified in any reports or publications.

6. What will happen to the results of the research project?

Upon completion of this research project, the results will be written up and handed in to the University of Sheffield, where it will be examined for my PhD degree. The results may be published in the future and the data may also be used for future research. All participants involved in the project are entitled to full access to any published materials arising from this research project.

7. Who is organising and funding the research?

This research is funded by the Arts & Humanities Research Council, which is one of the seven government-funded research councils in the United Kingdom.

8. Who has ethically reviewed the project?

This project has undergone ethical review with the University of Sheffield's Research Ethics Committee in order to ensure the maximum safety and well-being of all people involved in the project.

9. Contact for further information

If you would like any further information, or would like to ask any questions about this project, then you can contact the project leader Sam Kirkham, or the project supervisor Emma Moore.

Sam Kirkham
School of English Literature, Language and Linguistics
University of Sheffield
Jessop West, 1 Upper Hanover Street
Sheffield S3 7RA
Email: s.kirkham@sheffield.ac.uk

Emma Moore
School of English Literature, Language and Linguistics
University of Sheffield
Jessop West, 1 Upper Hanover Street
Sheffield S3 7RA
Email: e.moore@sheffield.ac.uk
Telephone: 0114-222-0232

Thank you for considering your participation in this project.

Date: 07/03/2011
Name of Applicant: Sam Kirkham

Appendix C

Consent form for participants

University of Sheffield

Participant Consent Form

Title of Research Project: *Language in Sheffield*

Name of Researcher: *Sam Kirkham*

Participant Identification Number for this project: **Please initial box**

1. I confirm that I have read and understand the information sheet explaining the above research project and I have had the opportunity to ask questions about the project. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. ☐
3. I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research. ☐
4. I agree for the data collected from me to be used in future research ☐
5. I agree to take part in the above research project. ☐

Name of Participant	Date	Signature
Sam Kirkham Lead Researcher	Date	Signature

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be placed in the project's main record (e.g. a site file), which must be kept in a secure location.

Date: 07/03/11
Name of Applicant: Sam Kirkham

Appendix D

Demographic questionnaire

Language in Sheffield study

Name:

Gender:

Ethnicity:

Date of birth:

Place of birth (city/country):

>>> If not Sheffield, years resident in Sheffield:

>>> If not UK, years resident in UK:

Mother's birth place (city/country):

Father's birth place (city/country):

Grandfather's birth place (mother) (city/country):

Grandmother's birth place (mother) (city/country):

Grandfather's birth place (father) (city/country):

Grandmother's birth place (father) (city/country):

Mother's occupation:

Father's occupation:

Mother's occupation before coming to UK (if applicable):

Father's occupation before coming to UK (if applicable):

Postcode:

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