

Language Variation and Ethnicity in a Multicultural East London Secondary School

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Abstract

Multicultural London English (MLE) has been described as a new multiethnolect borne out of indirect language contact among ethnically-diverse adolescent friendship groups (Cheshire et al. 2011). Evidence of ethnic stratification was also found: for example, “non-Anglo” boys were more likely to use innovative MLE diphthong variants than other (male and female) participants. However, the data analysed by Cheshire and colleagues has limited ethnographic information and as such the role that ethnicity plays in language change and variation in London remains unclear. This is not dissimilar to other work on multiethnolects, which presents an orientation to a multiethnic identity as more salient than different ethnic identities (e.g. Freywald et al. 2011). This thesis therefore examines language variation in a different MLE-speaking adolescent community to shed light on the dynamics of ethnicity in a multicultural context.

Data were gathered through a 12-month ethnography of a Year Ten (14-15 years old) cohort at Riverton, a multi-ethnic secondary school in Newham, East London, and include field notes and interviews with 27 students (19 girls, 8 boys). A full multivariate analysis of the face and price vowels alongside a quantitative description of individual linguistic repertoires sheds light on MLE’s status as the new London vernacular. Building on the findings of Cheshire et al. (2011), the present study suggests that language variation by ethnicity can have social meaning in multi-ethnic communities. There are apparent ethnolinguistic repertoires: ethnic minority boys use more advanced vowel realisations alongside high rates of DH-stopping, and the more innovative was/were levelling system. By contrast, White British girls have a more “traditional” repertoire, including less innovative vowels and no DH-stopping. These repertoires index their social personae, which are intrinsically linked to gendered, classed, ethnic identities. This study’s insights about social meaning and indexical links assigned to different variables shed light on our understanding of social factors in sound change (Labov 2001).

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1. Introduction

The work on Multicultural London English (MLE) has been pivotal in pushing forward our understanding of English language variation in London and processes of language change in multicultural communities. Building on work by Fox (2007), Cheshire et al. found a new variety of London English, with a long list of linguistic innovations and changes across levels of language (Cheshire et al. 2008, 2011, 2013). What was particularly striking, was the fact that, in inner-city East London, speakers of all ethnic backgrounds used these innovative features. These findings had important theoretical implications. Instead of working-class London children acquiring English from their primary caregivers, Cheshire et al. (2011) posited that children in multicultural East London communities are more likely to learn English from their peers through group second language acquisition. Furthermore, they found that speakers with highly ethnically-diverse friendship networks were more likely to be the innovators, findings that are mirrored in other work in urban centres across Europe (e.g. Nortier 2008; Quist 2008; Svendsen and Røyneland 2008; Wiese 2009).

However, whilst shedding light on recent innovations in London English, further questions emerge. There was evidence in their data of ethnic stratification: ethnic minority boys, particularly Afro-Caribbean boys, were often the leaders in using innovative linguistic features (Cheshire et al. 2011), but overall ethnic variation was not found to be significant and Cheshire et al. (2013) describe MLE as an ethnically-neutral adolescent repertoire. Is it possible, then, for ethnicity to play a role in sound change in London? Developing our understanding of sound change in London may also allow for a different interpretation of the ongoing debate in work on multiethnolects as to how we should define “multiethnolects” and whether we should consider emerging language changes in multicultural communities as new varieties or transient youth styles (see Cheshire et al. 2015).

The present study looks to build on the work of Cheshire et al. (e.g. 2008, 2011, 2013) by examining social and linguistic factors in order to further our understanding of the role of ethnicity in language change in London. This will be done by investigating the following research questions:

1. How is ongoing sound change in MLE shaped by adolescents’ social identities? Does language variation in this community support or challenge previous hypotheses about the sources of language change in MLE? How does this inform our theoretical understanding of language change more broadly?
2. Is the use of innovative linguistic features of MLE in this community better predicted by highly diverse social networks (as in Cheshire et al. 2011), or other factors such as gender, ethnicity, or orientation towards education? How does an intersectional approach develop our understanding of sociolinguistic variation in MLE?
3. Do the findings for questions 1. and 2. shed light on the question of MLE as a typological language variety?

In answering these research questions, this thesis seeks to contribute to our understanding of the relationship between ethnic identity and sound change, by combining an intersectional approach with a variationist approach in an attempt to move the conversation about sound change forward.

Intersectionality theory views social identities as layered and multifaceted such that, rather than each of the layers separately contributing to one's experience, it is the unique ways in which those layers *intersect* through which one experiences the world (Crenshaw 1989, 1991). In other words, for a Black British, middle-class, heterosexual, 20-year-old woman, social identities such as race, class, or age undoubtedly shape her experience, but it is the intersection of all these identities that makes her lived experience different to other Black women, or other middle-class young people, for example. The methodological underpinnings of quantitative variationist sociolinguistics mean that the focus has historically been on the separate layers. As the field has moved towards examining interactions, in this thesis I argue that taking an intersectional approach will complement and enhance analyses of language change.

Chapter 2 provides an overview of the literature that informed this thesis and drives the research questions. There are three key areas that are discussed. First, an overview of the approaches to language and ethnicity in British Sociolinguistics is provided, including a discussion of multiethnolects. Second, I explore theoretical approaches to language and identity, social meaning, and language change. These two areas present a range of theoretical approaches in order to situate the theoretical positions adopted in this thesis. Finally, a brief socio-historical account of East London is provided in order to situate a historical account of dialect change in London over the last 40-50 years. This provides important background for the discussion of the emergence of MLE, including a critique of the theoretical contributions made by, and questions emerging from, the body of work on MLE. In examining these three areas, this chapter identifies some key gaps in the literature, primarily concerned with our understanding of ethnicity and sound change in multicultural contexts.

To answer the core questions of this thesis, I conducted an ethnographic study. Methods and findings are described in Chapter 3. The ethnography was of the Year Ten cohort at Riverton, a secondary school in East London. A description of the field site and the borough in which Riverton was situated is given first. Then, ethnographic findings are presented. This begins with a discussion of the theoretical background that informed methodological decisions of the research. The rest of the chapter contains a detailed description of the social organisation of the participants and their peers, illuminating social practices that will be informative for the analysis of linguistic variation. Conducting ethnographic fieldwork facilitated the collection of speech data whilst gaining a detailed understanding of the social context in which language is used in this particular community. This chapter provides important social contextual information for the quantitative analysis, demonstrating the gendered differences between peer groups, but also how the intersections between gender, ethnicity, social class, and age are highly relevant for peer group organisation and stylistic choices.

Chapter 4 describes the quantitative analysis methods used for the two main variables in this analysis: the FACE and PRICE vowels. There are two main sections. The first section describes how the speech data were prepared for analysis, including transcription, forced alignment, coding, and collecting acoustic measurements. The next section details the statistical modelling procedures, followed by relating sections that describe the social and internal factors included in the multivariate analyses of FACE and PRICE and a section addressing correlation. The chapter ends with a summary.

Chapters 5 and 6 present the analyses of FACE and PRICE respectively. The structure of each chapter is the same. For each vowel, two variables are analysed: vowel onset position and trajectory length (justification for this is discussed in the relevant chapters). For each chapter, a brief discussion of the vowel as it is realised in British and London Englishes is presented. Vowel onset is discussed, with descriptive analyses of social and linguistic factors, followed

by mixed-effects linear regression results. The same is then presented for vowel trajectory. These analysis chapters highlight several key contributions of the thesis, primarily addressing research questions (1) and (2). The FACE vowel shows distinct social differentiation by gender, ethnicity, and peer group, and does not follow the linguistic constraints found by previous research (Fox 2007), whereas the PRICE vowel has less stark contrasts socially and variation is at times better predicted by linguistic constraints noted by Fox (2007). The findings are interpreted as showing two vowels at different stages in sound change: PRICE appears further along and more established, whereas FACE is earlier in the process so has greater social differentiation. In addition, neither vowel is significantly predicted by diversity of friendship network (as in Cheshire et al. 2011), which counters a key finding from the work on MLE in which diversity of friendship network was a significant predictor of variation. In sum, these two chapters begin to illuminate the relationship between linguistic variation and social practice at Riverton, and how we can better understand sound change in London from an intersectional perspective.

To advance the discussion of intersectionality and language variation, Chapter 7 explores adolescent linguistic repertoires at Riverton. Three other variables are examined: *was/were* variation, TH-variation, and DH-variation. For each variable, a brief description is provided, followed by analyses of rates of use. These findings are then presented alongside the results for FACE and PRICE to paint a picture of coherence across linguistic variables that illuminate (ethno)linguistic repertoires in use at Riverton. We do not simply see gender differences or ethnic differences, but classed, gendered, ethnic, age, and peer group differences that shed light on who participates in sound change in London and to what degree. The thesis ends with Chapter 8. In the final discussion, the main findings and contributions of the thesis are summarised in order to illuminate the key theoretical implications: that taking an intersectional approach allows for a level of detail and nuance in understanding (ethnic) identity that enhances macro-level quantitative variationist analyses.

2. Ethnicity and adolescent identities: language variation and change in London

The goals of this thesis are to build on previous descriptions of adolescent language variation in London by advancing our understanding of the layered dynamics of ethnicity in multicultural contexts and enhancing the discussion of the relationship between sound change and social identities by foregrounding an intersectional approach. This chapter synthesises the key work that has informed this thesis. First, I provide an overview of some key pieces of work on language and ethnicity in the UK, followed by an evaluation of the concept of the ‘multiethnolect’. I then unpack the relationship between language change and identity, highlighting how adolescents can have a key role as linguistic innovators. Finally, these two areas are tied together with an overview of recent research in London that variably draws on this literature. By presenting these three areas of literature, this chapter aims to situate the present study theoretically.

2.1 Language and ethnicity in British Sociolinguistics

Britain has seen many waves of immigration over the centuries, particularly from previously-colonised nations in the Caribbean and South Asia. More recently, the population of first generation, British-born ethnic minorities has increased rapidly and since the 1950s become much more established. As different ethnic minority communities in Britain have grown, so has research examining English and ethnic identities in ethnic minority communities. Sociolinguists have begun to tease apart the complexities with which speakers, particularly adolescents, use a range of features from different varieties of English to index a range of social factors such as ethnicity, friendship group, or social network, in addition to utilising “ethnic” features discursively to navigate power dynamics and take oppositional stances in interaction. Variationist sociolinguistic work has sought to draw connections between patterns of variation and change and ethnic background (e.g. Khan 2006; Cheshire et al. 2011; Sharma and Sankaran 2011; Wormald 2016; Drummond 2018), whereas interactional sociolinguistic work has interrogated the ways in which ethnic identities are constructed and emerge in every-day social contexts (Edwards 1986; Sebba 1993; Rampton 1995; Harris 2006; Pichler 2009). In reviewing these two areas of research, I highlight some theoretical drawbacks of a variationist approach. As noted by Sharma (2011: 464), variationist sociolinguistic work increasingly attempts to combine first and third wave approaches to explain sociolinguistic variation (e.g. Sharma 2011; Kirkham 2013; Alam 2015). Building on these approaches, this thesis attempts to demonstrate how intersectionality theory (Crenshaw 1989) could be utilised to more effectively examine ethnicity and identity from a variationist perspective.

For variationist sociolinguists, Communities of Practice (Wenger 1998) is a commonly used theoretical tool for interpreting linguistic variation in adolescent communities (e.g. Eckert 1989; Moore 2006), and it has been used to explain variation within and between ethnic groups. For example, Alam and Stuart-Smith (2011) examined the links between acoustic variation in the stop burst of syllable-initial /t/ and social practices in British-born Pakistani-Muslim Glaswegian high-school girls. As this study focused on British Asians, it was not possible to examine variation between different ethnic groups. However, variation in /t/ realisation demonstrated a consistent effect of Community of Practice, suggesting that /t/ variation was indexical of different localised Asian identities (Alam and Stuart-Smith 2011: 218-219). In his study of a

multi-ethnic Sheffield secondary school, Kirkham (2013) found that Community of Practice and school orientation were better predictors of variation than ethnicity for the adolescents at Ashton Valley secondary school, who were from a range of ethnic backgrounds.

Another way to interpret linguistic variation in these communities would be using intersectionality theory. The ethnographic components of Alam and Stuart-Smith (2011) and Kirkham (2013) illuminate the layered dynamics of adolescent identities. For example, Alam (2015) describes several different types of Asian girl identities in Glasgow, where the blended identity of being “Glaswasian” (Glaswegian and Asian) is an overarching theme that varies depending on things like orientation to Asian heritage, social class, localness, religion, popular fashion, and career aspirations. Furthermore, Alam (2015) models interactions, demonstrating the significance of CofP in predicting linguistic variation. However, it could be argued that the Communities of Practice Alam (2015) discusses are representative of the intersecting identities of her participants. If data were modelled with interactions between social factors and practices that determine CofPs membership, such as orientation to Asian heritage or social class, this could reify that the significance of CofP in this study is a proxy for the significance of *intersecting* social factors and practices. Indeed, it has been shown that that interactions between social factors can predict variation (e.g. Moore 2011). This thesis argues that intersectionality theory is a useful tool for interpreting such complex data.

Interactional, ethnographic work has been important in highlighting the relevance of ethnicity in adolescent language, as ethnically-marked language can be used to take social and political stances, indicate ethnic orientation, navigate hostile inter-racial contexts, or signal solidarity. For example, Edwards (1986) examined Patois usage amongst Black Britons through an analysis of social networks. She found that stronger social networks with other Black adolescents in addition to a negative view of mainstream White British culture were strong determinants in the frequency of the use of features associated with Patois (Edwards 1986: 109). Hewitt (1986) presents a more politically-driven analysis of Black-Caribbean and White adolescents in two areas of South London. These areas had stark contrasts in their socio-historical contexts and therefore race relations. Area A was predominantly White, had relatively low levels of Afro-Caribbean settlement, and had a history of hostility to ethnic minority populations (particularly Asian communities). Area B, on the other hand, was less hostile and had higher rates of settlement by Afro-Caribbeans (although they were still in the minority). As a result, ethnic minority adolescents in Area A took a more oppositional stance to local White communities than those from Area B. By observing inter-racial adolescent friendships in these two areas, Hewitt (1986: 104) describes a linguistic practice for Black adolescents that is akin to code-switching, as it was not uncommon for Black adolescents to use the local (e.g. London or Yorkshire) vernacular in general, but also a creole variety at home or amongst other Black friends. He notes that, although there was evidence of Creole influence on local vernaculars, “it is not the case that *all* adolescent black Londoners speak a variety that shows the impact of creole forms” and it is over inclusive to posit a Black London English due to lack of research (Hewitt 1986: 104). In fact, in later work he suggests that Creole had more symbolic importance, as there was no symbolic value attached to Black London English, if there was one: “it was not the case that the London English of young blacks took on any specialised symbolic meaning of race or ethnicity.” (Hewitt 1989: 139). By examining language within its social context, this work highlights that ethnically-marked linguistic features and language varieties can be used to take a strong political position, or to navigate social contexts marked by complex race relations.

Similarly, Rampton (1995: 160) found that Stylised Asian English was used somewhat antagonistically in adolescent interactions with teachers, but within peer groups signalled solidarity

through non-conformity. These findings have important implications for research in multicultural contexts. Edwards' (1986) findings about social networks are supported by the variationist findings of Cheshire et al. (2011), who describe ethnically-diverse social networks as a determiner of innovative language use in London. Edwards also highlights the importance of ethnic orientation. Hewitt's work provides an important account of how the socio-political context has an effect on linguistic practices, that is not often a focus in the work on multiethnolects.

2.1.1 (Multi-)Ethnolects and ethnolinguistic repertoires

There have been several multiethnolects identified in ethnically-diverse urban centres across Europe, such as *Kiezdeutsch* (neighbourhood German) in Berlin and other cities in Germany (Wiese 2009; Freywald et al. 2011), *rinkebysvenska* (Rinkeby Swedish) in Stockholm, Sweden (Kotsinas 1992), *straattaal* (street language) in the Netherlands (Nortier 2001), *københavnsk multiethnolect* (Copenhagen multiethnolect) in Copenhagen, Denmark (Quist 2008) and of course Multicultural London English (Cheshire et al. 2011). Throughout this work, there have been a range of methodological and theoretical approaches through which different perspectives emerge as to whether linguistic innovations should be described as part of transient youth styles or emerging new varieties. The degree to which these varieties are *multiethnic* is also debated. In this section I discuss these theoretical issues in order to situate the present study.

Much of the work on multiethnolects has taken a structural approach, describing the systematic nature of new linguistic features (e.g. Kotsinas 1992; Quist 2008; Wiese 2009; Cheshire et al. 2011). Another methodological focus has been functional, taking sociopragmatic or interactional approaches looking at the ways in which multiethnolect is used in discourse (e.g. Wiese 2011; Rampton 2006). Combining methodologies is increasingly popular, such as Fox (2007) who combined ethnography with dialectology, or Svendsen and Røyneland (2008) who combine structural and functional approaches using sociopragmatics and dialectology. Predominantly, this work has aimed to highlight that a) these new features are used in a systematic rather than a deficient way, and b) it is not possible to show clear ethnic differences within the users of these features. Within the UK context, it has been shown that the lack of ethnic distinction is due to the fact that ethnic diversity of friendship networks is a more significant predictor of variation (Cheshire et al. 2011).

First, there is the issue as to whether linguistic innovations that emerge in ethnically-diverse contexts should be considered -lects/varieties or transient youth styles. It is beyond the scope of this thesis to examine the relationship between -lects and varieties specifically; the relevant point is that categorising language use into varieties or -lects presents variation as part of a structured system characterised by specific features (Freywald et al. 2011: 49). So, for emerging multiethnolects, some present linguistic innovations as being part of a broader system that varies when compared with other (standard) systems, which suggests that the variation is relatively established in the broader regional community, whereas others consider linguistic innovations to be transient stylistic resources used by adolescent speakers to position themselves and create social meaning in different social contexts.

From the point of view of language as a system, there have been various assertions that linguistic innovations in ethnically-diverse communities should be considered multiethnolects as they are systematic (e.g. Cheshire et al. 2013; Freywald et al. 2011). Others focus on their stylistic use (e.g. Wiese 2009). Although at times presented as oppositional (e.g. Cheshire et al. 2015), the two perspectives are not easily separable. For example, Svendsen and Røyneland (2008) argue that it is important to take a structural/functional approach to examining language variation

in multicultural contexts. They emphasise that there are systematic patterns evidenced in the prosody, grammar, and lexicon of Oslo Norwegian adolescent language that can collectively be described as a new multiethnolect. However, they also recognise the role of acts of identity, crossing, and stylisation. Indeed, they note that “the use of multiethnolect [is] a substantial tool in (re)negotiating identities in interaction within and across traditional social categories...” (Svendsen and Røyneland 2008: 80).

Relatedly, Quist (2008: 49) notes:

“Whether ethnolects are viewed as linguistic varieties or stylistic practices is a question of perspective. Studies that take a variety approach aim to provide a formal description of the speech of immigrant adolescents in relation to a standard, national language. Studies that take a practice approach focus on the ways in which the speech of young immigrants is used as a resource for self-positioning in a social space.”

The discussion about the stylistic use of multiethnolects as youth language connects to a broader debate in linguistics. As highlighted by Benor (2010: 160), there are several theoretical problems with the terms “ethnic language variety” or “ethnolect”, as definitions struggle to account for intragroup variation, intraspeaker variation, out-group use, delineating the ethnic group, and delineating “ethnolect”. For example, not every speaker who identifies with a particular ethnicity will speak the ethnolect associated with their ethnic group, or indeed identify with the ethnic group. These problems are circumvented by ethnolinguistic repertoire; it is not necessary to discuss different varieties or ethnolects as speakers are seen to differentially utilise a “pool of resources” that are ethnically marked (Benor 2010: 162). This relates to the discussion of multiethnolects in the following ways. In the areas in which multiethnolects are spoken, the fact that they are called “multiethno-” implies that speakers of all ethnic backgrounds use the variety. However there are two problems with this implication: it does not account for speakers who do not use the innovative linguistic features, and it does not account for ethnic variation within the multiethnolect. Ethnolinguistic repertoire, then, may be a more suitable descriptor for linguistic innovations in multicultural urban centres.

Of course, a repertoire approach is not without its flaws. It could be questioned as to how a repertoire approach that views speakers as utilising a pool of resources is different to stylistic variation. In that sense, we should describe multiethnolects simply as lects that vary stylistically, thus accounting for identity work and social practices whilst also viewing linguistic innovations as systematic and structured. This perspective is supported by Cheshire et al. (2015: 5). They posit that although the term “multiethnolect” is not without its issues, the fact that these discussions are about innovative language practices in diverse, multicultural, multilingual communities in which there is a shared host language, and use of the local “multiethnolect” is not indicative of ethnicity, “multiethnolect” is currently the most appropriate term. This thesis supports this perspective except for one part: whilst multiethnolects *can* be spoken by speakers with contrasting ethnic backgrounds, the intraspeaker variation, stylistic variation, and acts of identity done with multiethnolect features *are* indicative of ethnicity.

2.2 Adolescent language and social meaning

Adolescence is a life stage that is unique. This is in part because it is a transitional life stage in which children are being prepared for adult roles as productive members of society.

We can therefore view adolescence as a social construct that is an outcome of industrial society in which chronological age serves as an official measure of an individual's place in said society (Eckert 1997: 155). In the UK (as in other Western societies) adolescents are prepared for this role primarily through their education. However, as adolescents are not yet seen as adults in society, they are denied the opportunity to participate in adult roles and they are isolated in institutions of secondary education (Eckert 1997: 162). Simultaneous to the forced participation in a highly regulated educational system, the construction of individual identities becomes key for adolescents as this is when they begin to distance themselves from the family sphere (Eckert 1997: 163). For some adolescents, then, tensions emerge as their desire to explore their identities and sense of self conflict with the socially-imposed path of personal and educational development. In addition, peer groups and social networks within secondary schools become highly important as secondary school institutions force adolescents to socialise together on a daily basis (Kirkham and Moore 2013: 278). The adolescent life stage and the educational context together present an interesting and rich social context well placed for examining social meaning.

Social meaning can be created in a multitude of ways and for an array of reasons. Generally those reasons can be described as sharing the motivation to signal allegiance or differentiation with others. In order to do this, one must find, create, and/or use a semiotic tool that has social consequentiality relative to these 'others' (who might be more immediate, such as peers or the local community, or part of a wider cultural discourse or institution). For adolescents, this often manifests in their need to signal which peer group they belong to (Kirkham 2013) as well as their motivations to indicate allegiance with or opposition to the school as an institution (e.g. Eckert 1989, 2000). Social meaning is not inherent but created and reinforced in social interaction. As such, social meaning can be created or reconstructed through the innovative use of linguistic resources.

There is a wealth of research that examines language variation and social meaning in adolescent communities. Adolescents' social practices have been widely presented as creating, reconstructing, and reifying the social meanings of different semiotic and linguistic resources (e.g. Eckert 2000; Moore 2004; Mendoza-Denton 2008; Kirkham 2013). For example, Mendoza-Denton (2008) studied an adolescent community at a California high school. She found that the Norteña and the Sureña Latina girl gangs created locally salient signs to signal their gang affiliations as well as indicating their opposition to racial stereotypes and nationalistic ideologies. They utilised semiotic tools such as dress and make-up in addition to linguistic features. For example, it was essential for Norteñas to wear black Dickies utility trousers and a white t-shirt that had been ironed with precise creases in specific places, use red lipstick, wear feathered haircuts, listen to Motown, and participate in raising of lax front vowel /ɪ/. This process of recycling semiotic tools has been described as bricolage (as in Hebdige 1979; Eckert 2000), where fashion items, hairstyles, and music tastes of the past are re-used and combined in a new, unique way. In this community, bricolage had the semiotic purpose of signalling gang membership and allegiance with a specific set of ideologies. In addition, their language was an important part of their style; the process of bricolage allowed the gangs to utilise the variable /ɪ/ to create their own social meaning. The raising of /ɪ/ before nasals has been identified as part of the California English dialect (Mendoza-Denton 2008: 237); the Norteña and Sureña varied in their realisation of /ɪ/ as a way to distinguish core group members from those who were more peripheral (Mendoza-Denton 2008: 237). It is also worth noting here the importance of taking an emic approach. If Mendoza-Denton had only used the etic categorisations of ethnicity (Latina), gender (female), and class (lower), it would not have been possible to give such a rich description of the social forces behind the linguistic variation evidenced in this community.

As language does not inherently carry these characteristics, it remains a theoretical and empirical challenge for linguists to investigate how social meaning is assigned to linguistic variables. Ochs (1992) posits that it happens through *indexicality*. She describes how, as opposed to language directly indexing broad social types like gender or class, language is used to signal social stances and personae which then become associated with macro sociodemographic categories. If we take stance to mean “taking up a position with respect to the form or the content of one’s speech” (Jaffe 2009: 3), the use of a particular linguistic feature or type of discourse in interaction may signal the adoption of a stance. When stances are regularly or habitually adopted, personae emerge (Kiesling 2009: 174-5), and together stances and personae can then index macro-level identities. For example, Kiesling (2004) demonstrates how “dude” in North American English can be used to express an interpersonal stance of “cool solidarity”, and that regular use of this term was part of a specific “surfer” or “stoner” persona. Consequently, “dude” came to index a particular type of masculinity.

Silverstein (2003) builds on theories of indexicality by suggesting that there are different *indexical orders* through which indexical links are made, which connect micro and macro-social frames. He describes N -th order indexicality as the basic correlation between linguistic features and meaningful signs. Then, $n+1$ st order is an overlaying meaning that is ideologically associated. So, for example, a variable that has N -th order indexicality as a feature indexing a high social class might then be overlaid and reconstrued as indexing prestige. Eckert (2008) expands indexicality further by suggesting the notion of *indexical fields*. She describes the indexical field as “a constellation of ideologically related meanings, any one of which can be activated in the situated use of the variable” (Eckert 2008: 454). Relatedly, Snell (2010: 650) suggests a cyclical relationship, whereby “meaning flows from local interactional stances to styles, personas, and macro-level identity categories, and then back to local interactional use.” Although the present study does not use interactional analyses, it does take an ethnographic approach to understanding the social context. As such, indexicality will be a useful tool for interpreting either cross-ethnic use of the same linguistic variants (as in Cheshire et al. 2011) or ethnic differentiation.

2.2.1 Identity and language change

Adolescence is a particularly creative time of life, making adolescent language ripe for innovations. This is possibly a reason why a variety of studies have also found adolescents to be leaders in sound change (e.g. Eckert 1989; Cheshire et al. 2011; Lawson 2014). Kirkham and Moore (2013: 291) note that adolescents can be “leaders in sound change, as well as being heavily engaged in processes of constructing social meaning”, which highlights that the relationship between acts of identity and linguistic innovation is not always apparent. Indeed, there is an ongoing debate as to the degree to which individual identities can impact language change (e.g. Trudgill 2008). This section discusses some of the work that has informed our understanding of the role of adolescents in sound change and have therefore informed this thesis.

For variationist sociolinguists, the question of identity is most often of interest to those who use third-wave approaches to examining language variation (Eckert 2005). How to define and operationalise identity remains under debate, however, as there are various perspectives as to how, when, and why identity emerges, is constructed, or even imposed. Some view speakers as social actors who actively use language to construct and modify individual and group positions and relationships (e.g. Le Page and Tabouret-Keller 1985; Bucholtz and Hall 2004; Kiesling 2013). In this sense, identity construction is a dynamic, fluid, and multi-faceted process that

emerges in interaction (Mendoza-Denton 2002; Schilling-Estes 2004). These perspectives relate to sociological approaches, which view identity as on the one hand the self-definition of the individual or group (which includes pairs of people, small communities, and macro census-based groups), but also the social recognition and attribution of characteristics from other individuals or groups in interaction (Schwartz et al. 2011: 2).

However, there is often a critique that work on identity has a tendency to be ‘all encompassing’. Indeed, Brubaker and Cooper (2000: 6-8) note that “identity” is often used with the assumptions that: identity is a fundamental part of the individual or collective self; identity implies a fundamental sameness (across persons or time) within a group or collective phenomenon; identity constitutes a “self-understanding” rather than self-interest; identity as a “collective self-understanding” and show of solidarity is a product of interaction; identity is a fluid, multivalent combination of these. Relatedly, a critique in linguistics is that although a “claim-staking” notion of identity alone is too simplistic, approaches like Bucholtz and Hall (2004) do not account for conflicting identities (Cameron and Kulick 2005: 112-4), as they do not account for contradictions between identity that is stated and identity that is done, nor do they allow for multiple identities to be claimed by an individual. Cameron and Kulick (2005: 113) also suggest that by attempting to encompass so much, the view presented in Bucholtz and Hall (2004) is self-contradictory: Bucholtz and Hall’s definition is not sophisticated enough to fully explain each nuance of identity as it should be conceived and understood. As a result, Cameron and Kulick present the concept of identification as a better alternative, as it allows for conflicting, multiple affiliations in a way that the concept of identity does not (Cameron and Kulick 2005: 114).

However, Bucholtz and Hall critique the work of Kulick for this very same issue and posit that, in separating sexuality and gender identity, his analysis is limited: “If researchers insist that sexuality be analysed in isolation, whether in Europe, North America, Asia, or anywhere else, they run the risk of reading it through a theoretical lens that may be only partially revealing, at best.” (Bucholtz and Hall 2004: 488). To tackle these theoretical shortcomings, they suggest that “tactics of intersubjectivity provide a more precise vocabulary for discussing the relationship between identity and language” (Bucholtz and Hall 2004: 493). The term “intersubjectivity” is chosen over identity in order to emphasise “that identification is inherently relational, not a property of isolated individuals” (Bucholtz and Hall 2004: 494), clearly acknowledging the role of identification that Cameron and Kulick favour. In discussing ‘tactics of intersubjectivity’, it seems that Bucholtz and Hall *do* allow for conflicting, fleeting, and situational identities. For example, they note that: “In identity work, erasure and highlighting often function in tandem to establish interactionally or situationally sufficient alignments and disalignments.” (Bucholtz and Hall 2004: 495). Considering this, it could be argued that the critique presented by Cameron and Kulick over-simplifies Bucholtz and Hall’s position.

Whatever your perspective on the debate, it is clear that language and identity are intrinsically linked. Language is utilised as part of social practice, which is a means of creating the social meaning that permeates an individual’s identity (Eckert 2000). While it is important to try to “pin down” identity as a part of understanding the processes of creating social meaning, throughout these discussions there can be the tendency to assume that identity is the locus of the analysis. As such, some would argue that there may in fact be other processes at work that are more relevant. For example, Trudgill (2008) argues that accommodation is of considerably greater relevance as it is and has been a significant driving force in language change since the 16th century. By examining language varieties that developed from colonial language contact, Trudgill (2008: 251) deduces that “if a common identity is promoted through language, then this happens as a CONSEQUENCE of accommodation” (Trudgill’s emphasis) rather than being what

drives accommodation and therefore language change. Indeed, he notes that “identity is not a powerful enough driving force to account for the emergence of new, mixed dialects by accommodation.” (Trudgill 2008: 251), and that “accommodation is not only a subconscious but also a deeply automatic process” (Trudgill 2008: 252). Although the relevance of accommodation as a motivator for intraspeaker variation is well documented (e.g. Coupland 1980), it is debateable as to whether it can truly be so automatic and separate from identity construction (e.g. Bauer 2008). Indeed, it has been argued that “Trudgill fails to demonstrate that the reasons for the emergence of the forms he cites were not social. He merely describes what emerged and accounts for it by citing dialect mixture as the reason, rather than seeking social explanations.” (Holmes and Kerswill 2008: 274). It could be argued that accommodation is part of the identification process, by which people adopt positions, stances, and personae relative to those around them, and it is this that is a driver of language change.

2.2.2 Levels of identity and intersectionality

Chun (2011: 413) states that “while intersections of race, gender, and class are shaped by socio-historical circumstance, individuals do not always experience social structures and historical events as immediately relevant realities”. This highlights the tension between different levels of identification: how an individual is situated within and shaped by macro social constructs is not necessarily directly connected to or apparent in their every day lived experiences, relationships, and interactions. However, it is first necessary to discuss the different levels of identity in more detail before it is possible to understand how they relate.

Much of the work on language and identity builds on Zimmerman’s (1998) observation that oriented-to and assigned identities are connected to both proximal and distal contexts with local and supra-local meaning. He posits that these connections are best operationalised as three levels of identity: discourse, situated, and transportable (Zimmerman 1998: 90-91). Discourse identities can be seen as specific to the moment of interaction, and can refer to the position that a speaker may adopt, project, or be assigned when engaged in intersubjective communication. This is more commonly referred to as micro-level identity work, which tends to be conceptualised as interaction-based, as being transitional and temporary, and can be based on a position and/or stance adopted in an interaction (Moore and Podesva 2009; Kiesling 2013). As noted by Moore and Podesva (2009), an example of this is found in Eckert’s (1989) seminal work on the Jocks and Burnouts, where Burnouts adopt a rebellious stance which reflects micro-level identity processes.

Meso levels of identity move beyond interactional stances and towards locally and at times only situationally relevant positioning. Some approaches focus on identity construction specific to localised social practices (Bucholtz and Hall 2005), whereas others view meso-level identity work as based on personae that indicate group identities such as peer group membership (Moore and Podesva 2009), or institutionally constructed roles such as being a manager or a mother (Kiesling 2013). For Zimmerman (1998), these are situated identities which are based on discourse identity, but they can then be implemented in the construction and maintenance of a situational agenda. Macro-level identities, then, relate to socio-demographic categories or social types (Eckert 2008; Moore and Podesva 2009). Essentially, these are transportable identities which can be relevant to any interaction that an individual is part of, as transportable identities are visible to others based on “physical or culturally based insignia” and travel with the individual across different situations but are not necessarily always oriented-to (Zimmerman 1998: 91).

The literature on levels of identity highlight the complex, multivalent nature of identity.

However, it can paint a picture of three related but separate conceptualisations of identity, when we know that different aspects of identity are not separate or isolated from one another but rather that they interact. That identity is multifaceted is in a sense borne out of intersectionality theory. Research on intersectionality is grounded in the premise that social phenomena like ethnicity and gender do not exist independently, and therefore it is how these phenomena intersect that truly illuminates social structures and individual identities. By examining identity politics and structural subordination, Crenshaw (1989, 1991) highlights how the focus on one facet of inequality such as race means that we then ignore those who are “multiply-burdened” by class and/or gender in addition to race. As a result, Crenshaw (1989: 1245) asserts that we need to account for “multiple grounds of identity when considering how the social world is constructed”. Intersectionality theory is highly relevant and useful for linguistic work. Chun (2011) suggests that intersections of race, gender, and class can be understood through local images, by examining the embodiments of middle-class white hyper-femininity or working-class black hyper-masculinity and the resultant identities that were constructed (in this instance, prep girl and ghetto boy). This can then illuminate linguistic practices and provide a deeper understanding of how broader sociodemographic categories relate to individual realities, as the intersection of identities is what is locally salient and key to individuals’ social and linguistic practices. This is particularly important when discussing adolescents in multicultural contexts, as will be revealed.

2.3 The emergence of Multicultural London English

2.3.1 The socio-historical context of East London

Geographically, there is a general consensus as to which parts of London are in the “traditional” East End. Situated north of the River Thames, east of Aldgate and the City walls, west of the River Lea, and south of Clapton Common, only the inner-most areas such as Stepney, Mile End, Bethnal Green, Poplar, and Bow were originally part of the East End (Marriott 2011; Fox 2015). This area is highlighted in Figure 2.1, in which the darker area indicates which modern-day boroughs are part of what Fox (2015: 29) calls the “traditional East End.”

London’s East End is an area that has a history of large socio-economic changes, where changes in industry have gone hand-in-hand with rapid population growth and numerous waves of in- and out-migration. For example, during the 17th and 18th century, the East End was a hub for weavers, tailors, and carpenters, and these industries attracted French Huguenots to areas like Spitalfields and Brick Lane. The industrial revolution then instigated a shift from local, small-scale production to maritime and docklands industries such as shipping, rope making, and ship building (Marriott 2011). The shift in industry in the East End impacted the local population: jobs on the docklands were low paid, so the resident bourgeoisie migrated out to west London, replaced by docklands workers which included White working class Londoners as well as Indian and Bengali immigrants recruited as lascars (sailors from the Indian subcontinent) to work for the East India Company. Then, as the docklands industries died out in the 20th century, political factors became a stronger driving force for migration patterns in London and the UK. For example, the British Nationality Act of 1948 expanded the terms of British citizenship to include all territories colonised by the UK as well as Commonwealth countries, resulting in an increase in migration from countries in South Asia and Africa.

Nowadays, as London continues to grow, the East End covers a much wider area. It has spread further east to encompass boroughs that were not even considered part of London back



Figure 2.1: Map of London Boroughs with the traditional East End highlighted

in the 17th and 18th centuries. The boundaries of what constitutes the ‘modern-day’ East End are less clear than the traditional East End, and there is no definitive answer (Marriott 2011: 6). For the purposes of this study, I follow Fox’s (2015) interpretation of the modern-day East End as covering all boroughs east of Aldgate. This is depicted in Figure 2.2; the shaded area highlights the modern-day London boroughs that are now considered part of East London.

The continued growth of East London has not just seen a change in geographical boundaries, but also a range of social and economic changes. There are two key trends that have direct implications for this thesis. First, there has been a high degree of out-migration of White British residents to Essex, a trend that emerged in the 1980s (Rix 1996) and, according to 2011 census data, still continues in the twenty-first century. This direction of change in the White population seems to have had direct linguistic consequences, as the Cockney way of speaking once associated with inner East London seems to be disappearing, but remnants can be found further east in areas like Havering (Cheshire et al. 2011). Second, there are increasing levels of in-migration of ethnic minority, non-UK nationals, specifically to inner East London boroughs like Tower Hamlets and Newham; outer East London boroughs Barking & Dagenham and Redbridge have a lower degree of out- and in-migration, resulting in a fairly stable, predominantly White British population (Rix 1996). More recently, the expansion of the European Union has increased in-migration of non-UK nationals to London from areas such as Central and Eastern Europe, and there is continued migration from West Africa, South Asia, and the Caribbean.



Figure 2.2: Map of London Boroughs with the modern day East End highlighted

The history of social change in London and the recent rapid increases have led to a conception of London as a multicultural, diverse city where ethnic identity is no longer important: everyone is welcome and all are tolerated, regardless of your background. This type of narrative is increasingly popular across Europe. However, it has been argued that this emerges out of a “colourblind” perspective that is increasingly identified as problematic (Valluvan 2013). First, this presents ethnicities and cultures that are different to the mainstream (read: White) culture as a problem that must be tolerated. Second, it suggests that ethnic identity or cultural heritage is diluted or disappears in diverse contexts. Whilst this might be the case on some occasions or for some individuals, there is evidence of alternative outcomes. Ethnic identity and cultural heritage can shift, blend, and be re-imagined to serve ethnic minority diaspora communities that exist in diverse contexts. Rather than existing as unidimensional entities, heritage cultures blend with mainstream culture, resulting in “cultures of hybridity” (Mercer 1994) and “new ethnicities” (Harris 2006).

2.3.2 “The new Cockney”

As East London continues to be an area that is constantly changing socially, sociolinguists have begun to pay closer attention to the way that working-class dialects are changing. Recent research indicates that residents of East London are moving away from the traditional dialects of

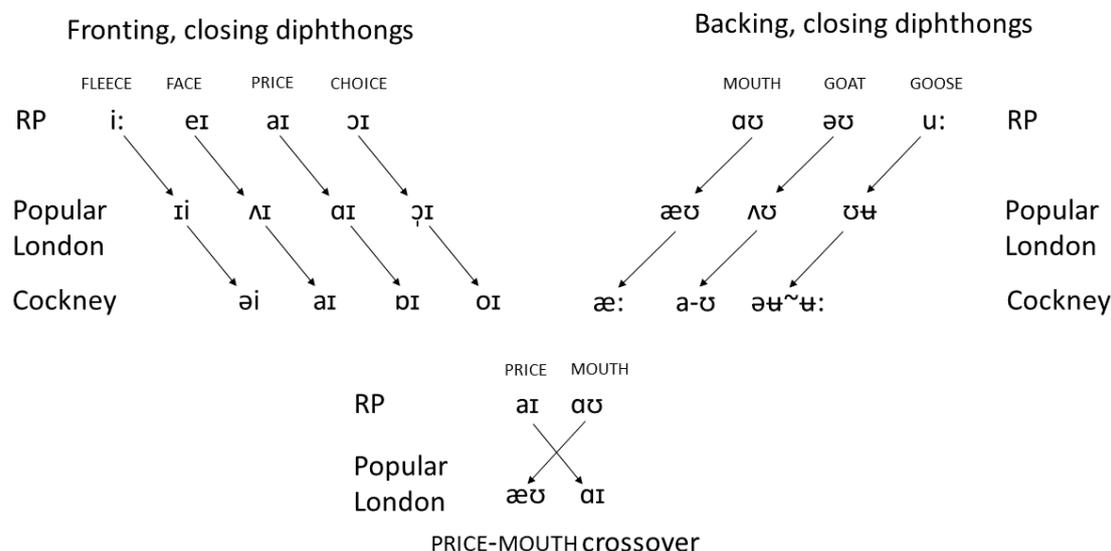


Figure 2.3: Representation of the Diphthong Shift, adapted from Wells (1982b: 308-10)

Cockney and Estuary English (e.g. Fox 2007; Cheshire et al. 2008; Kerswill et al. 2008; Cheshire et al. 2013). Before the trajectory of change can be discussed, though, it is first necessary to outline the linguistic origins.

During the 19th and 20th century, Cockney was the traditional working class variety of London English, with a distinctive vocabulary and pronunciation system. As with other varieties of English, Wells (1982b) still provides the most comprehensive phonological description, and is the primary reference in the literature on London Englishes, though there is other work that can be drawn on (e.g. Hudson and Holloway 1977; Tollfree 1999). Wells (1982b: 305) describes London monophthongs, such as KIT, TRAP, STRUT, and BATH as having similar phonetic quality to RP. London diphthongs, however, are more variable and are a defining feature of Cockney. Wells (1982b) groups the diphthongs as follows: fronting, closing diphthongs (FACE, PRICE, CHOICE), centring diphthongs (NEAR, SQUARE), and backing, closing diphthongs (GOAT, MOUTH, and GOOSE). According to Wells (1982b: 308), what makes these vowels so distinctive in London varieties of English is that the onset positions of London diphthongs underwent a shift, likely a push-chain shift, primarily affecting the starting points of fronting, closing and backing, closing diphthongs. The starting point of fronting, closing diphthongs shifted counter-clockwise in London English and even further in Cockney, so that vowels moved back and down in the vowel space. Backing closing diphthongs, on the other hand, shifted clockwise so that onsets are lower and fronter. These shifts are such that the onsets of PRICE and MOUTH actually crossed over. A visual representation of these shifts is shown in Figure 2.3.

There are consonantal features too. For example, in London word-final /l/ is commonly vocalised, word-initial [h]-dropping is prolific (especially in Cockney), voiceless stops [p, t, k] are subject to glottalling, affrication, and tapping, and fricatives /θ/ and /ð/ are often fronted (for full discussion, see Wells 1982b: 321-29). There are also empirical data that support Wells' description. Hudson and Holloway (1977) and Labov (1994) present data from the 1960s, and

Tollfree (1999) analyses more extensive data from the 1990s. From 1990 to 1994, Tollfree (1999) recorded 90 sociolinguistic interviews. Informants were from a range of working-class and middle-class areas of South East London, including Peckham, Sydenham, Dulwich, and Bromley. She found two varieties of English present: South East London Regional Standard and South East London English. The results of the study reveal two related but distinct London vowel systems, as well as some consonant variation. Importantly, many of the descriptions in this work follow on from Wells' (1982b) description. For example, TH- and DH-fronting are widespread, particularly word medially and word finally, and so is [h]-dropping which is more commonly found amongst younger rather than older speakers. Diphthongs FACE, PRICE, GOAT, and MOUTH align with the diphthong shifted variants described by Wells (1982b).

Despite the sociodemographic changes in London and increasing ethnic minority population, these descriptions of London English seem to focus on the White British population. For example, Wells (1982b) discusses social class but not ethnicity in his descriptions of London English, so the assumption can be made that his description is based on White British speakers. Similarly, Tollfree (1999) does not mention ethnic background of speaker, so the assumption is that the speakers surveyed are White British. Some older variationist descriptions of London English do consider ethnic background, but the focus is on Black Londoners and they suggest that there is little to no difference between Black and White British speakers. Labov (2001: 507) uses anecdotal evidence to assert that in 1980s London, "locally born members of Jamaican families use a dialect that is not clearly distinguishable from that of other working class Londoners" (with the assumption being that "other working class Londoners" are White British working class Londoners). Of course there is other sociolinguistic work that considers ethnic background of speaker. These tend to be qualitative descriptions of language, ethnic identity, and cross cultural communication (e.g. Hewitt 1986; Rampton 1995). This qualitative, interactional work is important (and will be discussed in due course), as it highlights a gap in the variationist descriptions of the London English linguistic system: if there are ethnic minority communities in London that are emerging, shifting, and growing, whose language reflects and constructs their ethnic identities, then surely it is feasible that London English will be impacted by this?

More recent work has begun to uncover these effects. Fox (2007, 2015) collected data for her PhD in 2001-2, the results of which made two important contributions: it was the first substantial description of London phonology that illuminated a sound change in London English not previously documented, and it was the first variationist¹ study to provide a detailed account of the system of linguistic features used by ethnic minority and White British adolescent Londoners. Fox (2015) collected interview data from a youth group in Wapping, Tower Hamlets.² A total of 39 speakers were recorded, who were aged 12-17. There were nine girls and 30 boys in the study. The girls were all White British, and the boys were Bangladeshi (17), White British (11), and mixed race White British/Afro-Caribbean (2), which Fox (2015: 67) describes as representative of the youth group demographics. Through an auditory analysis, Fox (2015) identified a broad range of innovative features in London English, affecting the vowel system (particularly for long vowels and diphthongs), consonants (specifically voiceless plosives /p, t, k/, TH-, and /h/), and morphosyntax (such as the (in)definite article system, negation, past tense BE, pronouns, and the quotative system). Of particular relevance to this thesis are the findings for diphthongs FACE and PRICE. Fox (2015) found that Bangladeshi boys were more likely to use innovative variants, and that both vowels had innovative variants that were monophthongised as well as more raised

¹Although whether or not Fox (2015) is truly variationist has been questioned (see Wagner 2017).

²Although Tower Hamlets is described by Fox as diverse (Fox et al. 2011: 23), census data indicate that this borough is up to 90% Bangladeshi, so is actually ethnically homogeneous.

and front than traditional Cockney vowels.

2.3.3 The linguistic innovators and MLE projects

These findings were expanded by the work on Multicultural London English in two large research projects: the *Linguistic Innovators: the English of adolescents in London* project (2004-7) (Kerswill et al. 2007; Cheshire et al. 2008), and the *Multicultural London English* project (2007-10) (Cheshire et al. 2011, 2013). In the *Linguistic Innovators* project, Cheshire et al. looked explicitly at speakers' ethnic backgrounds and social networks, as they intended to establish the influence of multi-ethnic friendship groups on linguistic practices. They collected data across two sites: Hackney and Havering. Hackney is an inner East London borough that is ethnically diverse: the 2001 census (the most recent census at the time data were collected) indicated that approximately 40% of Hackney residents were non-White British. Havering, on the other hand, is predominantly White British. They also collected data from older speakers from each community to contrast with the younger speakers. In total, they collected data from 100 adolescents (48 from Hackney, 52 from Havering) and 16 older speakers (8 from each area). They state that "around half of our young informants [from Hackney] have a 'white London' background; that is, their families have relatively local roots" (Cheshire et al. 2008: 5). They refer to this group as "Anglo". The other half of the Hackney adolescents are described as descendants of immigrants ("non-Anglo"). Almost all of the adolescents from Havering were "Anglo". For the *Multicultural London English* project (Cheshire et al. 2011, 2013), data collection focused on inner North East London boroughs of Hackney, Islington, and Haringey. Cheshire et al. built on their first project by including younger speakers, sampling approximately 120 speakers from six age groups. The four young age groups were 4-5, 8-9, 12-13, and 16-19. The two older age groups were c. 25 and c. 40, with the latter group including caregivers. All speakers from both studies were working-class, with adolescents being sampled from vocational (as opposed to academic) further education colleges (Cheshire et al. 2011: 157).

Through the two projects, Cheshire et al. uncovered several linguistic innovations. The vowels MOUTH and GOAT had backed onsets, whilst FACE and PRICE had raised and fronted onsets respectively. GOOSE was fronted, and they found some monophthongisation for the FACE, PRICE, and GOAT vowels. There were other innovations in addition to vowels. Word-initial /h/ was dropped less for younger speakers than older speakers; word-initial /k/ was backed when it occurred before low back vowels (e.g. in words like *come* or *cousin*), but only amongst younger speakers; and DH-stopping was more frequent amongst young ethnic minority speakers, particularly the boys. They also noted an expansion in the levelling system of past tense BE, the use of *man* as a new first person pronoun, and the use of *this is + speaker* as a new quotative.

For the vowel innovations, boys were more likely to use the features than girls, particularly ethnic minority or "non-Anglo" boys (e.g. Cheshire et al. 2011: 158, 163). There were also ethnic differences noted for systems of *was/were* levelling (Cheshire et al. 2011: 181-3) and (in)definite article allomorphy (Cheshire et al. 2011: 187-8). Work relating to these projects has also demonstrated ethnic differences in speech rhythm, with ethnic minority speakers being more syllable timed (Torgersen and Szakay 2012), and that perceptions of ethnicity are tied up with notions of localness where Black speakers are perceived as being from inner-city London and White speakers as from more specific urban locales (Torgersen 2012). A key finding, though, was that ethnicity was not as significant a predictor of use of innovative variants as diversity of friendship network. By calculating the percentage of friends that participants had who were of

a different ethnic background to themselves,³ Cheshire et al. (2011) found that speakers with the most diverse friendship networks were consistently the most likely to use innovative MLE features.

As they used contrasting samples of the population, including male and female speakers from inner and outer London, different age groups, and different ethnic backgrounds, Cheshire et al. were able to make several important theoretical contributions. A key “take-away” from their research is that, in London, innovations have emerged out of contact-induced change, but do not fit neatly within traditional typologies due to the multilingual contact context in London: depending on the variable, we see evidence of the adolescent peak, the feature pool, transmission, and maturation. They state that “the set of contact features we call Multicultural London English in the present-day inner city is best seen as the result of group second-language acquisition, and most usefully conceptualised in terms of a feature pool.” (Cheshire et al. 2011: 189), and they posit that ethnically-diverse social networks are a key driver in processes of transmission and diffusion. Another overarching theme in their research is that individual ethnic backgrounds are less important in multicultural contexts, stating that “We see Multicultural London English, then, as an ethnically neutral variable repertoire that contains a core of innovative phonetic, grammatical, and discourse-pragmatic features.” (Cheshire et al. 2013: 3). The importance of ethnically-diverse social networks combined with the description of MLE as “ethnically-neutral” could imply that adolescents in London orient towards a more general multiethnic working-class London identity, but this is not explicitly stated in the literature.

This brief summary of recent work in London demonstrates that there have consistently been links made between innovative language use and speakers’ ethnic background. When we consider this alongside the diverse social context of London described in the previous section, it would not be surprising if language innovations were implicated in creating social meaning relating to ethnic identity. However, the variationist work described here does not provide a discussion of the layered dynamics of ethnicity and its intersections with class, age, gender (for example), so how and why ethnic identity relates to the emergent patterns of variation and change in London English remains elusive. This thesis aims to build on this work by developing our understanding of these issues, through a study of a different multiethnic community in East London.

³This measure is somewhat problematic, so is discussed in more detail in Section 4.3.4.

3. An ethnography of Riverton, an East London secondary school

3.1 Overview

This chapter is the ethnographic description of my time at Riverton. The chapter first presents ethnographic methods, in which I describe my motivations for undertaking ethnographic fieldwork, followed by a brief social history of East London, the area in which the field site is situated. The chapter then details how a field site was chosen, as well as a description of the field site itself (an East London secondary school) including historical and demographic data and how the field site compares to the surrounding area. The sections that follow will provide a description and justification of the ethnographic methods employed, and finally a detailed ethnographic account of my participants and their social norms, practices, and organisation. The ethnographic account uncovers the dynamics within and between peer groups, individuals and the school.

3.2 Situating the methodological approach: the importance of mixed-methods

This study is interested in interrogating the complex social dynamics in a multicultural community in London. As described in Chapter 2, there have been various studies since the 1970s that explore similar communities, such as Hewitt (1986), Sebba (1993), and Pichler (2009). These studies highlight the ways that social class, age, ethnicity, and other social identities intersect and emerge in context. They also demonstrate the importance of taking an ethnographic approach when examining the relationship between language variation and identity. By observing the creation, enactment, and reification of social meaning in context we are able to connect broader, generalisable patterns of language variation with localised, community-specific meanings, rather than taking an essentialist, unidimensional approach to macro social factors (e.g. Bucholtz 2011; Eckert 2000; Mendoza-Denton 2008; Snell 2010).

Variationist approaches are unique in that they are able to illuminate both the broad linguistic patterns within a community as well as important social factors. As discussed in Chapter 2, the literature on MLE uncovered a great many linguistic innovations across levels of language, including changes to the London vowel system, a new pronoun and quotative, and expansion in the systems of past tense BE levelling in use in London. For social factors, they consistently found that the degree of ethnic diversity of social networks was the most significant predictor of language variation (Cheshire et al. 2008: 22; Cheshire et al. 2011: 189; Torgersen and Szakay 2012: 838). There is also evidence in the literature on MLE that variation might be associated with gendered, ethnic, working class identities. In some of their earlier work, Cheshire et al. (2008: 3) state that “It is clear from our work that ethnicity is a crucial determinant for both phonetic and discourse variables in inner London.”, and throughout present a range of variables that have significant ethnic differences, such as GOOSE fronting, GOAT backing and raising, and /h/ dropping. In addition they find significant interactions between ethnic differences and sex differences: for example, non-Anglo male speakers are found to lead changes like the diphthong shift reversal (Cheshire et al. 2008: 12; Cheshire et al. 2011: 158), but Anglo females lead in the fronting of FOOT whilst being traditional in their use of the FACE diphthong (Cheshire et al. 2011: 162).

These findings have a few implications. They suggest that orientation to a multi-ethnic

identity is key rather than ethnic differentiation. It could also be said that the sex differences they found are indicative of socially meaningful intersections between ethnicity and gender that are created and reproduced in adolescents' language. In using an ethnographic approach, the present study aims to unpick the findings of Cheshire et al. and develop a deeper understanding of intersectional identities and social meaning amongst adolescents in a multicultural East London community.

This chapter is the first step in this thesis to build on previous work. By providing an ethnographic account of the community that was studied, this chapter will allow for a nuanced interpretation of the following variationist analysis of social factors and language variation in the context of a secondary school in East London. Cheshire et al.'s work provides an important contribution to our understanding of language variation and change in London. Building on this, this study aims to better understand the relationship is between individual speakers' intersecting social identities and ongoing language change in London by combining ethnography methods with variationist methods. Ethnographic data of language use amongst adolescents that currently live in East London were gathered. Combined with quantitative analysis of linguistic variables, this will allow for a detailed description of the social world of the speech community in question, enabling an emic analysis of the localised construction of social categories through language. This knowledge will enable an in-depth analysis of social factors influencing East London adolescents' every-day language use.

The rest of this chapter provides a detailed description of the field site and surrounding area. I will then describe the ethnographic methods used for data collection before providing a description of the cohort of participants and their social organisation. This will set the scene for following thesis chapters addressing quantitative methods and data analysis.

3.3 Field site location: the East London borough of Newham

The work that has been done on MLE was predominantly conducted in the boroughs of Hackney and Tower Hamlets (e.g. Fox 2007; Cheshire et al. 2008, 2013). These studies were conducted in neighbouring inner-city boroughs, and similar findings emerged with regards to linguistic innovations. There is also substantial evidence to suggest that the same linguistic innovations are not present in outer London borough Havering (Cheshire et al. 2011). This raises the question: what part does geographical location and socio-historical context of these boroughs play in the emergence of MLE? Hackney and Tower Hamlets are boroughs that are historically part of the East End, as they exist within the traditional boundaries depicted in Figure 2.1 as well as modern-day boundaries shown in Figure 2.2. By contrast, Newham and Waltham Forest are inner East London boroughs that are between the traditional East End and modern-day East End boundaries, and do not have the same socio-historical context or historical patterns of migration as Hackney and Tower Hamlets, but are now just as (or in some instances, more) diverse according to the most recent census data (Census 2011). Indeed, Newham is the second most diverse borough in London. Newham is also bordered by inner East London boroughs Hackney, Tower Hamlets, and Waltham Forest, as well as outer London boroughs Redbridge and Barking & Dagenham. The inner boroughs are all ethnically diverse, whereas the outer boroughs are more ethnically homogenous with a much larger White British population. These contrasting socio-demographic characteristics make the borough of Newham is a potentially informative field site.

Although Newham has a different socio-historical context to the boroughs studied previously, there are some important similarities. Cheshire et al. (2011) found that language innovations

in Hackney emerged from a context of high linguistic diversity and group second language acquisition of English. The most recent census data suggests that a similar situation is evident in Newham. This is due in part to high rates of in-migration from foreign nationals, evidenced in Figure 3.1 and Figure 3.2. These figures depict the number of foreign national registrations for National Insurance numbers. It is not possible for residents of the UK to legally work without having a National Insurance number for tax purposes. Therefore, working on the assumption that the majority of recently-arrived adult migrants will be in search of employment, this can be deemed a fairly accurate representation of in-migration as it is a reasonable estimation that the majority migrants will register for a National Insurance number fairly soon after arrival. This, of course, does not account for children and adults who do not work, but these figures still provide a useful estimation of the rates of in-migration; if anything, rates are likely to be higher than is represented here. With that in mind, Figure 3.1 depicts which boroughs have the highest rates of in-migration in 2014-15,¹ and Figure 3.2 demonstrates in-migration rates of all boroughs in East London over the last 15 years. It is clear that not only does Newham have one of the highest rates of in-migration over the last year of all London boroughs (indicated by its dark shading in Figure 3.1: it is the darkest coloured borough in London), but also that this has consistently been the case over the last 15 years.

These figures give a snapshot of the recent and ongoing change occurring in the population of Newham. Other census data shed more light on this. According to the Office of National Statistics, in 2014 51.8% of Newham residents were born abroad, compared with 38.9% in Hackney and 37.8% in Tower Hamlets, and 72.4% of Newham's residents are considered BAME (Black, Asian, and minority ethnic) compared with 45.7% in Hackney and 55.5% in Tower Hamlets. These data suggest that the population in Newham is more diverse as well as more transient than Tower Hamlets or Hackney, which provides a different, and potentially more complex, language contact situation than the one that spawned MLE. Additionally, as the borough does not have a dominant White British population, this could have different implications for the social construction of ethnicities in contrast with the data examined by Cheshire et al. (2011) or Fox (2015). As a result, considering my research questions, Newham appeared a highly suitable locale in which to conduct my research.

3.3.1 Field site selection and gaining access

Before securing a field site, it was necessary to determine what was needed from a field site. The study was to take place in a secondary school in Newham. Additional requirements included: as previous research suggests that MLE is a working-class phenomenon (Cheshire et al. 2011), the student body needed to be predominantly, if not completely, working class, to control for social class; the school needed to be ethnically diverse, but not so diverse that there were no distinct populations from different ethnic groups, to allow for discussion of ethnicity as a variable; the school needed to be co-educational, that is with both male and female students, so that it might be possible to discuss gender as a variable if relevant; and finally, the school had to be equipped to accommodate a researcher, that is to say my presence would not cause any undue stress or inconvenience to teachers, staff, or pupils. This final requirement was difficult to determine without visiting each potential research site in person, so a sense of the school environment was obtained from the schools' most recent Ofsted reports.² If schools were rated as "good" and the

¹This is the most recent data available from <http://data.london.gov.uk/>

²Ofsted is the Office for Standards in Education, Children's Services and Skills. This is the part of the UK government who inspect and regulate services that care for children and young people, and services providing

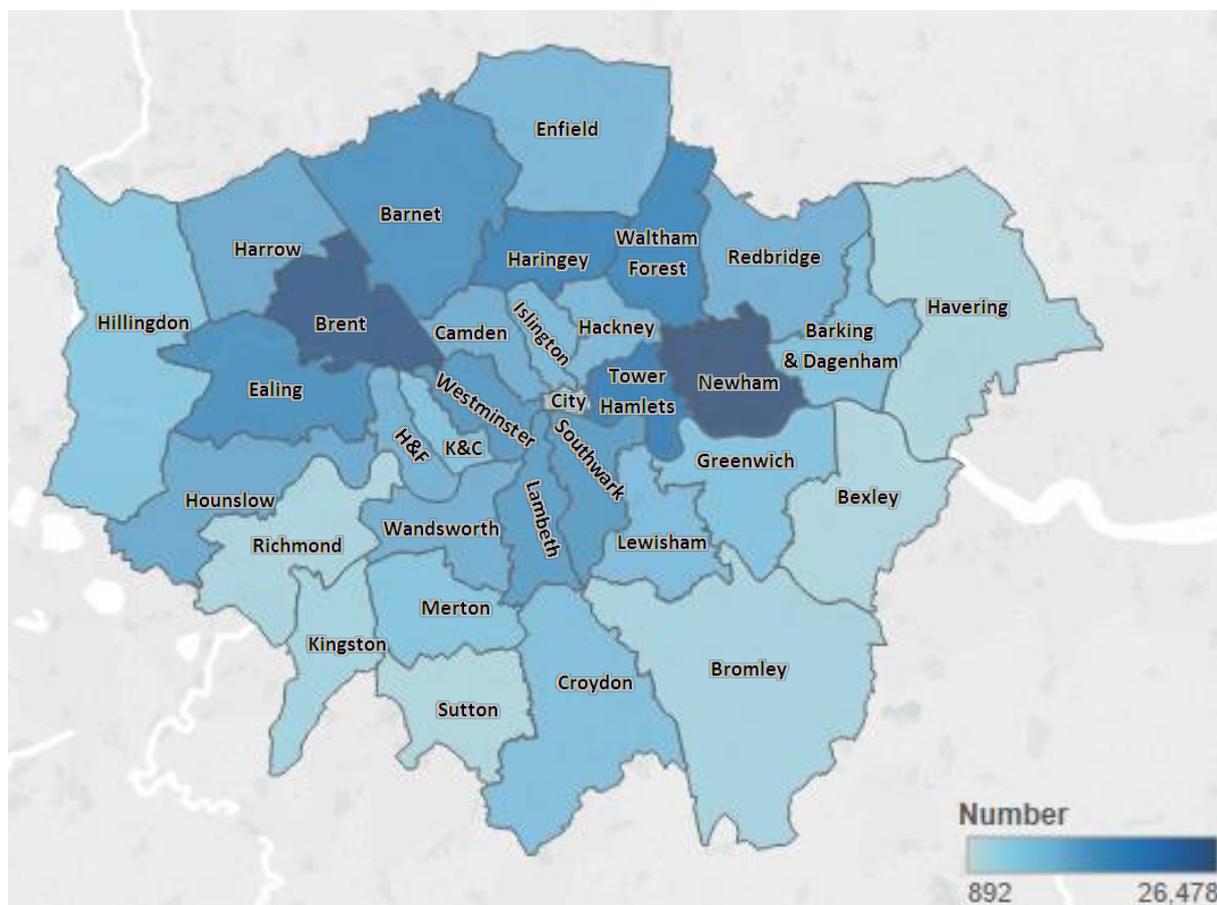


Figure 3.1: National Insurance number registrations of foreign nationals by London borough 2014/15

teachers and student body were assessed as having a generally positive relationship, this was taken as a fair indicator that the school would be equipped to accommodate a researcher. It was hoped that if requirements could all be met, then that would facilitate a successful and thorough ethnography, eliciting data relevant for the research questions of the thesis.

In order to secure a field site, letters were sent to eight schools in the borough of Newham that met the above requirements. Two responded and, following a meeting with the head teacher of each school, Riverton Secondary School³ emerged as the best fit. The teachers at Riverton were very welcoming, and whilst they wanted to be kept informed of the research plans, they also allowed the researcher the freedom to observe many areas of the school almost immediately and with no restrictions other than those in place for all adults for child safeguarding purposes. The other school required an upfront, detailed outline of a complete research schedule for each week of fieldwork. Given the nature of ethnography, it was not possible to provide this, nor did I feel comfortable doing so. It was also felt that this indicated the potential for other restrictions to arise during the fieldwork process. Riverton's flexibility would allow for a more organic and authentic ethnographic approach and was thus the more appropriate field site choice.

education. They do regular (approximately every three years) inspections of schools and rate them according to the standards of care and education they observe. (Office for Standards in Education and Skills. 2016)

³This name, as with all other names of individuals and locations within Newham in this thesis, is a pseudonym.

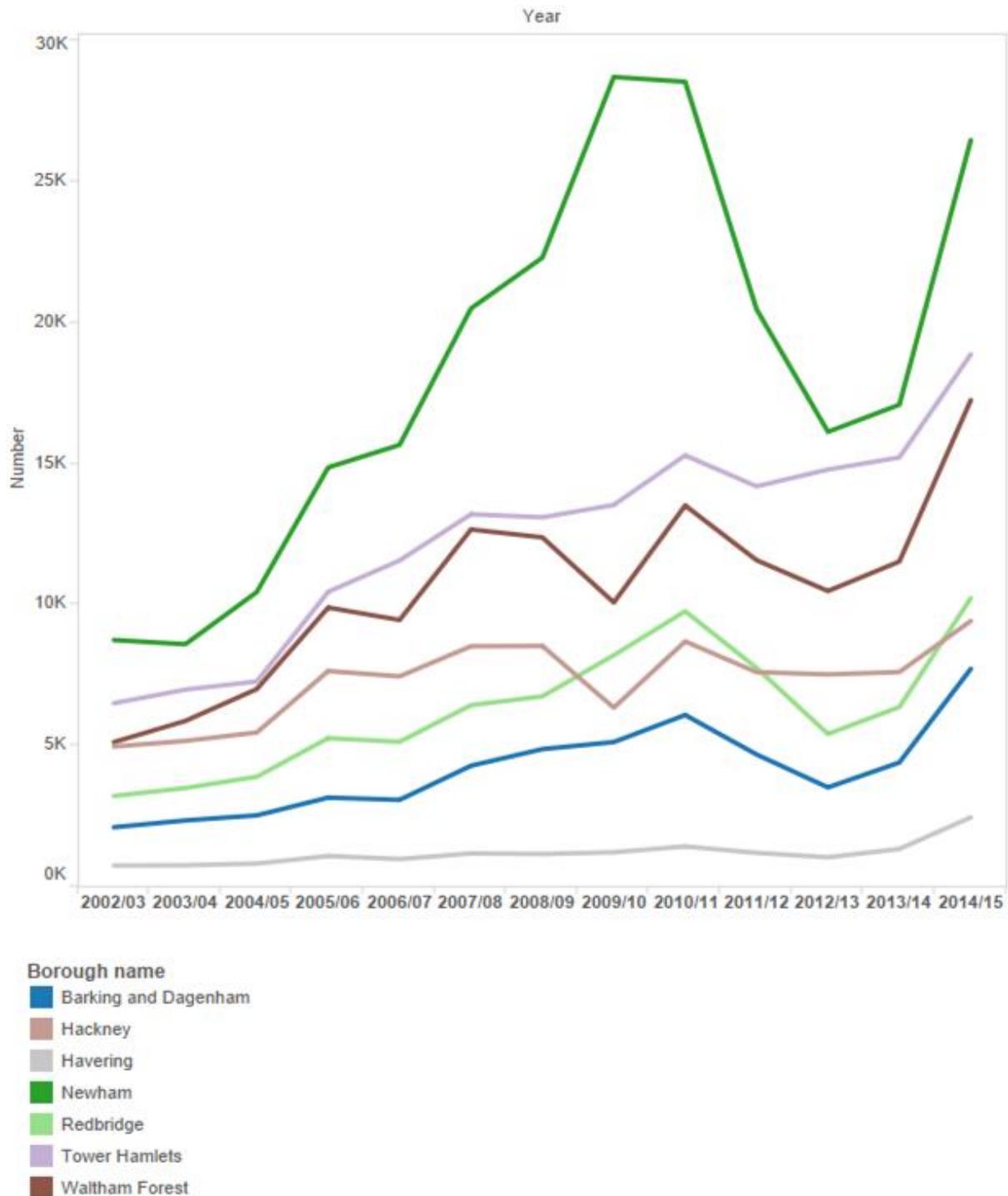


Figure 3.2: Number of National Insurance registrations by borough in East London

Once fieldwork began at Riverton, the initial observations were confirmed. I was affiliated with the English department at the suggestion of the head teacher, and was given free reign to observe any English lesson. After a week or so, once the observation process became more comfortable, I began to use initial connections made with students and teachers in the English classroom to reach out to other teachers and departments to conduct observations across the school. Everybody was very accommodating and the resulting ethnographic data are rich and informative, as will be demonstrated throughout this chapter and the thesis. However, before the data are discussed, it is necessary to “set the scene” by providing more detailed information about the school itself.

3.3.2 Riverton Secondary School

Riverton Secondary School is a comprehensive state secondary school based in the London borough of Newham. The school, as with all other state-run secondary schools in the UK, is organised into different year groups based on pupils’ ages. These year groups run from Year 7 to Year 11 (reception and Years 1-6 are generally part of primary school in the UK), and the students ages range from 11 to 16. At Riverton, each year group had between 150 and 200 students, and the total school population was approximately 850. It was only possible to approximate the total number of students at Riverton as there were frequent changes in the student body. The previous section demonstrated the transient nature of the local population and the high degree of in-migration of non-UK nationals to Newham. This was reflected in the population of Riverton, with the student body changing along with waves of in-migration from outside of the UK into the local community (as will be seen later in this chapter), as well as local students having transient home lives moving between boroughs and schools across London. Indeed, in their most recent Ofsted report from 2013, the school population was over 900, but the internal school data that I gained access to in 2015 indicated that during my fieldwork it was slightly smaller. This Ofsted report also indicated that Riverton is linguistically and ethnically diverse, and so what follows is a description of the data described in the Ofsted report as well as more detailed, current data I acquired from school administrators. I will then use this information to situate Riverton relative to the surrounding neighbourhood and within inner city London.

Language at Riverton

This section will detail the linguistic context of Riverton. Aside from providing context for the school’s linguistic diversity, this will also situate the study in ongoing discussions of how the languages of immigrants influence local varieties of English. Cheshire et al. (2008) highlight the contradictions in previous sociolinguistic research, some of which suggests that immigrant languages have no effect on London Englishes (Sebba 1993), and some of which suggests the opposite (Hewitt 1986). Cheshire et al.’s 2008 results fall somewhere in the middle. While they found some differences between speakers of different ethnic and linguistic backgrounds, they found diversity of social networks to be of greater significance. They also note that while there are some features of MLE that suggest L1 influence (e.g. aspirated [t] for word-initial /θ/), there are also innovative features of which the origins are not so easy to pinpoint. Considering this, it is important to describe the linguistic context of Riverton so that, if relevant, it is possible to highlight potential influences from speakers’ heritage languages.

Riverton’s most recent Ofsted report included various facts and figures about the school’s demographics. For example, it stated that the size of the school population was below average

for a secondary school. It also included the fact that there was an above-average number of students who were categorised as speaking ‘English as an Additional Language’ (EAL). The official Department for Education definition of EAL is as follows:

A pupil’s first language is defined as any language other than English that a child was exposed to during early development and continues to be exposed to in the home or community. If a child was exposed to more than one language (which may include English) during early development, a language other than English should be recorded, irrespective of the child’s proficiency in English.

Ofsted use a simplified version of this:

English as an additional language (EAL) refers to learners whose first language is not English.

Considering that local demographics include high rates of in-migration (noted above) and 51.8% of the local population being born outside of the UK (Census 2011), it was not initially surprising to me that a large proportion of students would be classified as EAL. However, after I had been at the school for a couple of months, my general impression was that the vast majority of students were fluent, and what might be considered “native”, English speakers.⁴ Therefore, I increasingly found this part of the report confusing, and I was left with questions about how a student’s EAL status was ascertained, as it did not seem possible to me that the school could determine this simply through students’ spoken language or through traditional school assessment methods. Consequently, I asked Ms Clarke, an English teacher at Riverton, how the school determined a child’s EAL status. She told me that students’ parents have to fill in a form when their child enrolls at the school and they are asked two questions: what is your child’s first language and what is your child’s home language. There is no guidance or description on the form as to what “first language” or “home language” means — indeed, these terms could be interpreted as the same thing. Nonetheless, it is entirely at parental discretion as to how this is answered. The form allows self-ascribed labels — there are no predetermined categories for parents to select — which obviously allows for a more emic approach but I still found this process somewhat limited and problematic. It is not possible to determine how parents interpreted these terms or how consistent answers are across the student body. For example, do all students answer both questions? Is the home language one that the child speaks at home? Or is it a language spoken at home by family members that the child used to speak, or only has limited, passive understanding of? Nevertheless, this is the most detailed information that it was available to me and, despite these limitations, still sheds light on the degree of linguistic diversity that exists at Riverton.

Interestingly, despite having such a linguistically diverse student body, Riverton did not have a great deal of EAL provisions, with one EAL specialist on staff. It was my impression that it was generally the job of the student themselves and the English department staff to “improve” a child’s written and spoken English skills. There were some students with foreign-accented English in classes designed for high-ability students, but for the most part EAL students who did not have native-like proficiency in spoken English — these were generally students who

⁴I recognise that this is a problematic term that has been shown to be idealistic and empirically inaccurate (e.g. Cook 1999; Davies 2008). In this instance, I use it to refer to students who impressionistically appeared to speak a local dialect of English as their dominant language, with little evidence of an L2 accent, suggesting that they either acquired English from birth or a very young age.

joined Riverton throughout the school year from outside of the UK — were assigned to classes for lower-ability students.

Initial assessment of data from the school’s administration details a total of 38 different “home languages” and 67 different “first languages” spoken at the school. Upon further examination, and bearing in mind that the information provided by parents was not only self-ascribed but also added to the school’s database by different administrative staff, there were some discrepancies in how languages were represented in the data. For example, some labels used hyphens, as in *Akan-Twi*, and others used a full stop, as in *Akan.Twi*. The database was also inconsistent in how it labelled language families, individual languages, and dialects. For example, there was variation in labels including or excluding which dialect of a language was spoken, as in Akan versus Akan Twi Asante or Akan Twi. When these discrepancies occurred, I chose to conflate the categories and label them as one language, e.g. all variations of Akan language dialects are listed below as Akan. While conflating categories like this might be deemed problematic, it does not diminish the linguistic diversity of Riverton; indeed, once I conflated various categories, there were still 33 different “home languages” and 48 different “first languages” listed as spoken at Riverton. Furthermore, for this research only a general picture of the student body’s linguistic diversity was necessary, and it does not hinder the potential to explore L1 origins of features used in Riverton students’ English vernaculars where relevant (as in Cheshire et al. 2008).

The complex language situation at Riverton is detailed in Table 3.1, which lists data gathered from the school’s administration as well as data about the local community taken from the most recent census. The data demonstrate the vast amount of linguistic diversity at the school, especially as a lot of students have different home languages to first languages and these are both different to English. As there are so many languages spoken at Riverton, Table 3.1 displays the languages spoken by the most students from each of the three continents that almost all of the international migrants in Newham originate from: Europe, Asia, and Africa. The languages included in Table 3.1 are each spoken by at least 1% of the student body, either as a first language or home language. Census data for Newham and inner city London is included to demonstrate how Riverton relates to the local area.

The data represented in Table 3.1 were supported by demographic information obtained through a questionnaire and sociolinguistic interviews. Information from interviews also demonstrated further problems with the “first” language and “home” language labels. It could be said that these labels imply that a language is still spoken alongside English. However, although most students said during the interviews that they knew more than one language, most also disclosed that this language was one they could only understand but not speak (with a few exceptions of course, and varying proficiency in understanding). This suggests that it might be the case that the majority of multilingual students at Riverton only have a passive understanding of their L1 — that is, they understand it but they have low proficiency when it comes to production — and unfortunately this is not accounted for in any way by the administrative data acquired from Riverton. It should also be noted that there are potentially community-based differences in heritage language maintenance, and so it is impossible to make generalisations about bilingualism and proficiency with the limited data available. This raises questions about the notion of group second language acquisition discussed by Cheshire et al. (2011). Is it possible to make generalisations when there is potentially a great deal of variation in second language acquisition and bilingualism in East London? And to what extent can first or home language be determined to then have an effect on their L2 of English, especially in the cases where the L1 is rarely spoken if at all? Although these questions will not be directly interrogated in this thesis, they are worth remembering as they could have some bearing on overall conclusions drawn.

Location	Riverton		Newham	Inner City London
Language	First (%)	Home (%)	Main (%)	Main (%)
European				
English	33.1	32.4	56.8	74.8
Portuguese	7.4	7.2	1.4	1.4
Romanian	7.4	NA*	1.6	0.4
Lithuanian	5.5	NA*	2.7	0.4
Bulgarian	3.6	NA*	0.7	0.3
Spanish	2.8	2.7	0.8	1.6
Polish	NA*	1.1	2.0	1.7
African				
Somali	3.2	2.7	1.1	0.8
Akan	2.1	1.6	0.4	0.2
Bantu	1.6	0.9	0.6	0.3
Yoruba	1.3	1.4	0.2	0.2
Asian				
Bengali	11.1	12.4	7.4	2.8
Urdu	2.6	2.9	4.4	0.8
Panjabi	1.1	0.8	1.8	0.3
Filipino	1.1	0.6	0.9	0.4

*NA indicates where a language was not evident in the data, implying there was a zero response rate. Also, 19% of students' home languages and 5% of students' first languages are described as "classification pending", which also implies a zero response rate.

Table 3.1: Languages spoken at Riverton, in the local area, and the city

Another interesting element of the data emerges when we compare the number of students listed as speaking English as their first and home language at Riverton in Table 3.1 (33.1% and 32.4% respectively) with the data from Newham (56.8%) — a significantly lower proportion of students are listed as speaking English than in the borough more widely. Furthermore, the number of students listed as speaking other languages at Riverton are all significantly higher than the numbers within the borough, and the difference is particularly stark when we look at Portuguese (7.4% speakers at Riverton, but only 1.4% in Newham) and Bengali (11.1% speakers at Riverton compared to 7.4% in Newham). There are several potential reasons for these differences. First, as already mentioned, Riverton obtained a lot of new students throughout the year, so many students who spoke languages other than English potentially did not live in Newham. Secondly, it highlights an important distinction between (and potential problem with comparing) the labels "first", "home", and "main". Observations and interviews at Riverton indicated that, while a high proportion of students at Riverton undeniably had additional or first languages that they spoke or are spoken in the home, an equally high proportion did not use those languages as their main or dominant language.

Although the data in Table 3.1 might be regarded as limited in some senses, it still illuminates the linguistic diversity at Riverton and demonstrates that the school was just as, if not

more, diverse as the borough in which it was situated. The next section considers the ethnic backgrounds of students at Riverton and the surrounding area in order to create a more nuanced picture.

Ethnicity at Riverton

Before further discussing the ethnic backgrounds of students Riverton, it is first important to make a note about the labels used. As noted in Chapter 2, previous research in London (e.g. Cheshire et al. 2008, 2011) describes White British adolescents as “Anglo”, and ethnic minority adolescents as “non-Anglo”. Whilst they do ask participants to self-identify and use specific labels like “Black Caribbean” in parts of their analysis, it was confirmed through personal communication that Cheshire et al. opted for the labels “Anglo” and “non-Anglo” in order to signify a distinction between White British adolescents with a British family history of at least two or three generations, and adolescents with recent immigrant backgrounds; it was not intended to represent an ethnic distinction. However, these terms do seem to have connotations of ethnicity, and it is problematic that when discussed collectively, ethnic minority youth are positioned primarily in opposition to Whiteness — in the MLE literature, adolescents are essentially either white or not white.

For this thesis, students were also asked to self-identify with regards to their ethnic identity, and those labels are used throughout. However, at times it is necessary to discuss adolescents who are not White British collectively. When this is the case, the term ethnic minority is used. Of course, using a collective term “ethnic minority” has its own issues, as this conflates the experiences of adolescents with different ethnic backgrounds. However, it is at times necessary to discuss ethnic minority students as a group, and when this is the case it is important to position their own ethnic identities as front and centre rather than just the fact they are not White. In choosing to use the term “ethnic minority”, this thesis is rejecting the term “non-Anglo” rather than accepting the term “ethnic minority” as unproblematic.

As with the data on languages, details of Riverton students’ ethnic backgrounds were mentioned in Riverton’s most recent Ofsted report, as well as being available through the Department for Education (DfE), 2011 Census data, and the school’s own administration. Again, the school’s data is entirely self-reported and there are no predetermined categories. This raises the same pros and cons indicated with the languages data; emic categories that are potentially inaccurate. As an example of how this can be realised, Ms Clarke (an English teacher I asked about Riverton’s administrative data) told me that one student she taught had one black and one white parent, but was in the school system as being White British as that is what his White British mother put on the form when he enrolled. This further highlights the potential for different interpretations of the questions on the enrolment form, and thus the potential for limited answers. Nevertheless, the data available goes some way to demonstrating the ethnic diversity observed during fieldwork and is thus deemed sufficient for this analysis.

Beginning first with the most limited data, Riverton’s 2013 Ofsted report states that the school has above national average numbers of students from “black and minority ethnic backgrounds”. Data from the DfE suggests that this is not unusual in the borough of Newham, as 91.2% of all students are considered “minority ethnic”. DfE data specifically about Riverton suggests that the student body is somewhat reflective of the borough, but also has some differences unique to this school community. For example, there is a high population of Eastern European students (21.6%), much higher than the borough or inner city London. This could be explained by the fact that the school is under-subscribed, and as a result when students arrive

part-way through the year, they are likely to be placed in Riverton. This is also evident in the high numbers of students who have a different admission date to the rest of their year group (292 total students, or 34% of the total student population). Of course this includes students who move within London and the UK from other schools, but this is still an unusually high number and can be viewed as reflective of the changeable population at Riverton in part due to high rates of in-migration in the local community.

The data also show there are a higher than average number of White British students at the school (11.6%). My teacher interviews revealed that a lot of the White British students at Riverton travelled from further afield, such as areas like Rainham in Barking and Dagenham. There are several potential reasons for this. For some students, they initially lived closer to the school but moved away and chose to remain part of Riverton instead of changing schools. For other students, they applied to attend other secondary schools but were placed in Riverton against their wishes as it is under-subscribed.

Finally, if we compare the Riverton data from Table 3.2 with the previous Table 3.1, we can see that it seems common for students of Bangladeshi origin (13.8%) to speak their heritage language Bengali (11.1-12.4%), and students of African descent (9.9%) to speak a heritage language like Akan or Somali (the four most commonly spoken African languages are the first or home language of 6.6-8.2% students). There is also a high proportion of students who are not of White British descent but speak English as their first or home language, demonstrated if we compare the number of White British students (11.6%) with the number of English speaking students (32.4-33.1%). At first this may seem like a large disparity, but this accounts for the fact that not all ethnic minority students are first or second generation, and some will have a non-British variety of English as their heritage language (for example, English is a national language in many African and Caribbean countries).

Thus far this chapter has described the geographical, linguistic, and ethnoracial context of Riverton and the borough in which it is situated. The final part of this section provides the ideological context of the field site, as this is informative as to why the field site may be considered “diverse” and “multicultural”.

School Ethos and Ideologies

The data presented in the preceding sections may be regarded as evidence that Riverton is an ethnically and linguistically diverse school, which is largely a result of the increasing multiculturalism of the surrounding local area, and also East London in general. However, as noted by Lumby and Morrison (2010: 4), concepts of diversity, “the measure of the degree to which one or more persons in a population are perceived to be distant in characteristics from the usually unstated norm of the dominant group,” can be problematic as they are based on cultural distance. Indeed, an inherent problem with definitions of diversity and also multiculturalism is the idea that there is a mainstream cultural norm and everything else is different, “which itself assumes that there is an ‘other’ and that there is something to be tolerated” (Valluvan 2013: 73). When it comes to schools, there are deep-seated ideologies based on such definitions of diversity and multiculturalism, which inevitably impact the school environment and students’ experiences of education. In this section I will provide a brief overview of educational ideologies and policies relating to diversity, race, and ethnicity. It will then be possible to situate Riverton’s ethos in relation to recent cultural narratives regarding diversity and multiculturalism within education and society, shedding light on how racial, ethnic, and linguistic diversity are treated at this school.

As already alluded to, the ideologies regarding diversity at Riverton (or indeed, any ideological stance in general) do not operate within a vacuum. There are common discourses evident throughout educational institutions in the UK, so much so that concepts of diversity and inclusion have become ubiquitous within education (Lumby and Morrison 2010: 3). These wide-spread narratives generally suggest that diversity is to be celebrated and the inclusion of all is highly important. However, while many policies addressing diversity highlight the importance of equality, they fail to provide measures to tackle the systemic, institutional mechanisms that create and reinforce inequality. For example, the Race Relations Act of 2000 states that schools have to maintain a “race equality policy”. However, it is unclear what exactly a “race equality policy” is, or indeed how one should be implemented or its success measured. The government reinforced the diversity and inclusion narrative in 2007, when the Department for Children, School and Families published information about the promotion of community cohesion, and in 2010 with the Equality Act which explicitly prohibits discrimination of pupils based on race, ethnicity, gender, or ability throughout all aspects of education. Again, these policies and legislation do little to provide or facilitate practical solutions.

It has been noted previously that “societal discourses at policy level impact on local discourses at the school level” (Creese 2003: 223), and the impact of the policies and legislation discussed above were undeniable during my time at Riverton. Narratives of diversity and inclusivity were consistently evident throughout many aspects of school life. For example, there were posters around the school (albeit rather dated) to remind staff and pupils of the importance of inclusion; examples of this are shown in Figures 3.3 and 3.4. Considering their prolific nature, these discourses potentially had a great impact both on students’ experiences of schooling, as well as their understanding of society and social norms. Students were highly aware that it was inappropriate to explicitly point out personal differences based on race or culture, always quick to point out any action or comment that might be regarded as “racist”. I also noticed during the fights that I observed in the playground (of which there were few) or classroom arguments, there were no racial slurs thrown around, and any of the fights or arguments that were interracial were not explicitly a result of racial tensions. Furthermore, the school regularly celebrated different cultures represented in the school. For example, the local education authority gave all students in Newham time off from school to celebrate the Islamic holiday Eid, not traditionally celebrated across the UK, as well as the Christian holiday Christmas which is acknowledged at educational institutions across the UK.

Alongside the diversity narratives, since the 1980s there has been an increasing focus on “raising standards” and tackling “under-performance” (Gillborn 2005: 493-4). While this may not at first seem related to diversity and inclusion, one can argue that focusing on performance not only limits attention and resources when it comes to diversity, but actually promotes a highly standardised education system that benefits certain groups over others. For example, with regards to language in schools, the performance narrative has led to prolific promotion of standard language ideology. Standard language ideology is the notion that there is “an overarching, homogeneous standard language”, which often aligns closely with the language of dominant social groups (Lippi-Green 2004: 294). This ideology is overtly evident throughout education policy. For example, the most recent Teachers’ Standards published in 2011 by the UK government’s Department for Education and implemented from 2012, stated explicitly that teachers have to: “... take responsibility for promoting high standards of literacy, articulacy and the correct use of Standard English, whatever the teacher’s specialist subject.” (Department for Education 2011: 11). The responsibility for this at Riverton fell on the English department in particular, and during my time there I regularly observed teachers drawing attention to students’ non-standard

speech. This ranged from the teacher prompting students to use “formal English” to teachers explicitly banning words from the classroom that were deemed inappropriate, such as the word “innit”.

Standard language ideologies are highly related to, and thus raise similar issues as, the diversity narratives highlighted previously. Both are based on the idea of the existence of an “other” that is to be tolerated, included, and appropriately educated. While I did not encounter any overt, intentional discrimination or mistreatment of any student whilst at Riverton, these ideologies also inevitably impact each students’ experience of education, and play a vital role in teaching them how to function and participate in society. Therefore, an understanding of these mechanisms is necessary to provide insight for the results of this study, and will be revisited during the thesis’ analysis.

This section has described the field site, providing socio-demographic information about Riverton, as well as a snapshot into the school environment and ideologies, demonstrating the extent of ethnic and linguistic diversity at the school and also potential tensions between these social characteristics and the school as an institution. The next outlines the ethnographic methods used to obtain the data for this study, followed by a section describing the cohort of participants and a summary of the chapter.

3.4 Ethnographic methods

3.4.1 Linguistic ethnography: what is it and why is it important?

The primary data of this study were obtained through the use of ethnographic methods, specifically linguistic ethnography. Linguistic ethnography is a relatively new area of linguistics in Europe born out of a lack of “institutionalised linguistic anthropology” (unlike the long-standing tradition in the US) and out of a shared interest amongst researchers in interdisciplinary approaches to examining language and culture through a combination of different academic disciplines and/or non-academic institutions (Snell et al. 2015: 2). Work in this field draws on classic theorists such as Hymes, Gumperz, and Goffman from a post-modern perspective, problematising traditional categories of languages, people, and cultures by examining communication in context as a means to understand wider historical, social, political, and cultural structures (Copland and Creese 2015: 25-7). This approach is of particular relevance to the present study as it will allow a detailed description of the field site, leading to a nuanced analysis of the relationship between linguistic practices and social and cultural structures evident in and specific to this particular community. Furthermore, Jaffe (2014: 226) notes that following an ethnographic trajectory in linguistic analysis can enable contextualisation. Having a contextual understanding will allow this study to develop previous descriptions of social factors in language variation and change in London (e.g. Cheshire et al. 2008; Fox 2015) by collecting data that illuminates the “complex nature of context” (Jaffe 2014: 215).

Before we can understand more fully what linguistic ethnography is, it is first necessary to describe ethnography. Generally speaking, traditional anthropological approaches to ethnography seek to examine the “other”, and “make the strange familiar” (Hymes 1996). This often takes the form of a written account of the social practices, norms, and organisation of a particular community previously unknown to the researcher, obtained through prolonged regular contact with said community (Duranti 1997: 85). Modern approaches to ethnography have developed to acknowledge the value of also “making the familiar strange”, examining the social worlds we live in to understand changes to culture and social practices that we are used to and therefore might

not necessarily be aware of (Copland and Creese 2015: 13). Linguists who utilise ethnographic methods view language as an integral tool in constructing and interpreting culture and society. For example, at the core of Hymes' (1972) notion of communicative competence is the idea that we cannot be successful communicators without an understanding of what is situationally, contextually, and culturally appropriate; linguistic competence alone is not enough. Furthermore, through his work on interactional sociolinguistics, Gumperz (1982) championed the importance of examining everyday interactions in order to understand how meaning is conveyed and constructed. Approaches such as these take the view that it is impossible to understand language if we do not also try to understand the cultural context, and so examining language as it occurs in social interactions is essential to examining societies and communities we are part of and familiar with.

The work of Hymes, Duranti, and Gumperz provide the theoretical grounding for marrying the fields of linguistics and ethnography. Despite this, there remain tensions between the standardised empirical procedures and data analysis techniques of linguistics and the all-encompassing, reflexivity of ethnography. Can linguistic analysis be truly linguistic if we go beyond standardised procedure and employ more reflexivity? And what happens to ethnography if we introduce systematic analysis of a particular social behaviour? Rampton et al. (2004: 4) argue that these differences should be embraced and utilised fully, as ethnographic methods "open up" linguistic analysis, while linguistics "ties down" ethnographic insights. This highlights why linguistics and ethnography can be seen as complementary, but it could be argued that while you can maintain the methodological systematicity required for linguistic analysis in linguistic ethnography, the ethnography part of linguistic ethnography is not then able to be a "full" ethnography. As noted, the systematicity required of linguistic methods and analysis does seem to be at odds with the flexibility required for ethnography, particularly if we view "full" ethnography to be the types of ethnography conducted by anthropologists which require the researcher to be fully emersed within the community.

However, what constitutes ethnography has undoubtedly grown and changed over the years, and so ethnographic approaches now utilise many different types data, and differing degrees and types of contact with a community. It has been suggested that we should therefore distinguish between: a) *doing ethnography*, in terms of a full, long term ethnography as is traditionally found in sociology and anthropology, b) adopting an *ethnographic perspective*, in that ethnography guides the research but is not undertaken in the "full" sense of the word, and c) *using ethnographic tools*, in which the field work techniques involve ethnographic methods (Green and Bloome 2004: 4). To use Green and Bloome's terms, it seems that linguistic ethnography adopts an ethnographic perspective. By doing this, linguistic ethnographers aim to examine language as it is situated in social life by obtaining interactional data of language or what Hymes (1989) calls "ways of speaking". The notion of "ways of speaking" encompasses both the "means of speech", that is the linguistic features that comprise speech styles as well as styles themselves, and "speech economy", which can be interpreted as the linguistic marketplace in which speakers utilise their means of speech (Hymes 1989: 446, see also Johnstone and Marcellino 2010: for review). This approach is necessary because language does not occur in a vacuum. In order to understand the structure that it follows and the variation that occurs, it is also necessary to understand the context in which it occurs and the rules that the context implies. Furthermore, the different levels of interconnectivity between language and society that can be accessed through linguistic ethnography enable us to link "the micro to the macro, the small to the large, the varied to the routine, the individual to the social, the creative to the constraining, and the historical to the present and the future" (Copland and Creese 2015: 26). Similarly, Jaffe (2014) notes that the

contexts of interactions are both material and ideological, so it is important to collect a range of different types of data in order to consider all aspects of the interactional context. Linguistic ethnography is grounded in this approach, and this approach will be adopted in this thesis.

3.4.2 Participant observation and the role of the researcher

In order to obtain substantial contextual data for this linguistic ethnography, participant observation was conducted over a twelve month period with the current Year Ten cohort of students at Riverton, aged 14-15 years old.⁵ To do this, I attended school 3-5 days a week, observing between two and six of their lesson periods per visit as well as break time, lunchtime, and the occasional after school event such as sports matches and drama productions. Year Ten were the focus of this study for two main reasons. Firstly, this was more convenient for the school and its teachers as this was not an especially challenging or important time period in their educational development. Transitional periods of schooling might also have been stressful and so were intentionally avoided, particularly Years 7 and 11 when students were new to or getting ready to leave the school. Secondly, it was felt that by Year Ten the students' friendship groups and social structures would have become fairly consistent (as much as these things ever are), with salient stylistic habits and practices relating to their social organisation that would be recognisable to outsiders (in particular, the researcher).

Observations with Year Ten generally occurred in one of two scenarios: in the classroom or in the playground. In sociolinguistics, many researchers have opted to avoid classroom observations. For example, during Eckert's (1989: 29) seminal research in Detroit, she noted that she found it a necessary measure to avoid classroom observations "in order to avoid being associated with the official functions of the school or with the authority of teachers or administrators". Work by Moore (2006), Mendoza-Denton (2008), and Alam (2015) also focuses on interactions outside of the classroom. Despite this, there is evidence to suggest that classroom observations can be useful. For some researchers, observing students in the classroom might be the initial point of access to participants, which then opens the door either for access to the school or for the ability to conduct observations more widely throughout the school during lunch times and after school (e.g. Bucholtz 2011; Kirkham 2013). Aside from the obvious logistical benefits, classroom observations can also be fruitful sources of interactional data. Indeed, these types of spontaneous interactions have the potential to shed light on important aspects of students' social reality. For example, Rampton's (2006: 34) study focused exclusively on data from the classroom and he notes that "classrooms, language and discourse are all significant sites, indicators and stakes in social contestation, reproduction and change". Furthermore, Creese's (2003) work on bilingual education demonstrates how activities in the classroom were as much a part of ongoing discourses throughout the school relating to diversity and equal opportunities as other contexts such as staff meetings, playground activities, and student-produced texts.

Eckert's assertions that one must avoid association with the school and school teachers seemed an important point, particularly as this can facilitate a position of "young, non-judgemental, interested adult" (Alam 2015: 84) that is beneficial to the fieldwork process (Eckert 2000; Moore 2006). However, the structure of the school day at Riverton (outlined below), which is typical for secondary schools in England, gave limited options for observations not including the classroom (unlike Eckert, whose participants had regular free periods). It was decided that, in order to obtain a complete picture of students at Riverton, it would be necessary to conduct participant observations in as many settings throughout the school day as possible. In addition, adults lo-

⁵It should be noted the students were still in Year Nine during the first few months of my research.

tering in the playground either served a purpose, enforcing school rules and watching students' behaviour, or were viewed as behaving inappropriately if their purpose was not apparent, which had the potential to put the researcher in an awkward position. Once research began, I realised that any efforts made to disassociate myself from the school institution and other teachers were pointless, as one thing continually counted against me that I could not change and was a highly important indicator for the students: my age. I was an adult, aged 27-8 during my fieldwork, and as far as the students were concerned that aligned me with their teachers and positioned me as having a similar level of authority. Interestingly, most were surprised to learn I was "so old" and guessed my age to be closer to (and in some instances, a year or two younger than) 20 years old, which is much closer to the students' ages than I actually was. Nonetheless, that still placed me firmly in the "adult" category. This is demonstrated by the persistence of a label that I initially tried to reject. In English secondary schools, it is considered polite and normal for students to refer to teachers as either "Sir" or "Miss", and so, as I was an adult female at the school, most students defaulted to calling me "Miss". During the first few months of my fieldwork, I went to great efforts to tell students that they should call me by my first name and that I was not a teacher. Some students that I got to know well felt comfortable with this and obliged, but the vast majority either forgot or refused because it felt unnatural to them. As one student put it, "It's just weird!" In the end, I realised that this was not as problematic as I first thought, as the students were more comfortable with what was normal to them, treating me as they would any other adult within the school context.

As previously mentioned, doing research in a school did not allow much room for creativity so far as participant observation went. The school day at state-run educational institutions in the UK are increasingly structured around strict timetabling, pre-determined activities, teacher-led plans for lessons, and rigid expectations of classroom behaviour both for adults and children. Table 3.3 is an example of a typical day for Year Ten students at Riverton. Although the structure of the school day did not allow for many spontaneous interactions, as I noted previously I was allowed to observe students during break and lunchtimes in addition to lessons. This meant I was able to conduct two very different types of participant observation.

In addition to the structured school day, there were also uniform guidelines. Figure 3.5 is a picture from the student handbooks that all students at Riverton were given to plan their homework in. They also included other school rules and guidelines, including uniform rules. These rules were enforced regularly, with senior members of staff standing at the school entrance every day checking students' appearances as they arrived, and sending them to get changed or remove make up before the school day started. This provided a challenge for my observational skills, as I had to pay close attention to smaller nuances in different uniform styles among students. For example, style of trouser or skirt amongst the girls (or lack of style) turned out to be an indicator of peer groups. Hair styles were also very important. There were, on occasion, non-uniform days. These were days in which there were no rules as to what students could wear, and were often in aid of charity (students had to bring a small monetary contribution) or as a treat when going on a out-of-school trip or for the last day of term. Figure 3.6 is an example of a letter sent home to parents regarding such an event. Although these were apparently "non-uniform" days, there were still fairly strict instructions for students, particularly girls, regarding appropriate clothing. The penultimate paragraph in figure 3.6 specifically requests that girls wear "appropriate outfits", and during each non-uniform day that I was present I regularly observed female students being reprimanded for wearing "inappropriate" clothing such as crop tops, spaghetti strap tops, and leggings. This kind of gendered discourse and instruction was common throughout the school.

Ethnic group	Riverton	LEA (Newham)	Inner City London
Population (N)	853	18,505	143,630
White (%)	35.6	17.8	31.6
White British	11.6	7.7	19.7
Irish	0.1	0.2	0.9
Gypsy or Irish Traveller	0.4	0	0.1
Eastern European*	21.6	X	X
Other	1.9	9.7	10.9
Black (%)	28.9	25.9	31.1
African**	9.9	17.8	18.1
- <i>Nigerian</i>	4.7	X	X
- <i>Somali</i>	3.4	X	X
Caribbean	4.7	4.8	10.0
Other	5.9	3.4	3.0
Asian (%)	23.6	43.8	21.0
Bangladeshi	13.8	18.3	11.9
Indian	2.2	9.2	2.6
Pakistani	4.0	12.4	3.1
Chinese	0.2	0.4	0.9
Other	3.4	3.9	2.5
Mixed (%)	6.4	5.9	9.2
White and Black Caribbean	2.0	1.6	3.2
White and Black African	1.2	1.1	1.3
White and Asian	1.3	0.7	0.9
Other	1.9	2.6	3.8

*Census data is limited to the category “White Other”, which includes Eastern Europeans. Contrastingly, data from Riverton provides data on its Eastern European population separately. Given that there is such a high percentage of Eastern Europeans at Riverton, it was deemed necessary to provide this data.

**Census data does not include separate information about African ethnicity into individual countries. However, it was deemed necessary to include the distinctions that were available in Riverton’s data as Africa is not a linguistically or culturally homogeneous continent so any distinctions available are important and useful.

Table 3.2: Ethnic backgrounds of pupils at Riverton compared with other schools in the same Local Education Authority and Inner City London

9.00- 9.50	9.50- 10.40	10.40- 11.00	11.00- 11.50	11.50- 12.40	12.40- 13.00	13.00- 13.55	13.55- 14.45	14.45- 15.35
Drama	Maths	Break	English	English	Mentoring	Lunch	Science	Science

Table 3.3: Typical Year Ten timetable on Mondays at Riverton

Duranti (1997: 10) notes that the participant observation process can vary greatly depending on the community with which a researcher is engaged. For my observations in the classroom I did my best to be as unobtrusive as possible. This meant fitting myself into the classroom in a way that did not draw attention to myself. I did not want to make teachers feel as if I was in the way or disrupting their lesson, and I did not want students to be distracted by me. I was also initially concerned that students would feel strange being observed, but I soon realised that Riverton students were accustomed to the presence of unfamiliar people in the classroom for observational purposes, as the school trained student teachers twice a year as well as having regular guests. In the vast majority of lessons that I observed I sat at the back of the classroom on a desk by myself, and usually to one side. I took notes by hand in a notepad and for the most part did not interrupt or contribute to the lesson. So, in the words of Duranti (1997: 101), I adopted the role of “professional overhearer”. There were exceptions to this, however. There were instances in which I was called upon by the teacher, but these generally made me uncomfortable, and at times I was so absorbed in my observations and note-taking that I barely noticed the teacher’s requests. After I had attended certain lessons with the same teacher on a regular basis (generally once or twice a week) for more than a term, I found I felt comfortable being included, and on some occasions wanted to become involved. I also found the teachers more likely to include me in class discussions too, but this mostly occurred from the end of my second term at school onwards and only with a handful of teachers.

When I was in the playground, the dynamic was completely different. I felt incredibly awkward if I spent more than a few minutes stood in one place not talking to anybody, so I often roamed around to try and find students to talk to. As a result, I was able to strike up relationships with a variety of students from different peer groups and quickly got a feel for the social geography of the school. This part of my fieldwork involved a different kind of participation than the classroom, joining in conversations with Year Tens as part of a group and sometimes chatting to them on a one-to-one basis. The group interactions were a fascinating window into the lives that students lead outside of the classroom, but I found the one-to-one interactions to be particularly informative (and enjoyable) as I got to find out a great deal about different individuals. I also found these events helpful in positioning myself as separate from teachers and other authority figures, and for developing more personal relationships with the students.

3.5 Introducing Year Ten

The methodology described above not only facilitated the collection of detailed ethnographic data of the students but also allowed me to become part of the school community. As a result, I was able to obtain detailed administrative data of the student body. The following tables depict demographic data of Year Ten, juxtaposed with data of the school population as a whole. In Table 3.4 it is evident that the distribution of ethnic backgrounds in Year Ten are almost identical to the distribution across the rest of Riverton’s student body. This means that there is no single dominant racial background: Year Ten is approximately 35% White, 30% Black, and 25% Asian. In addition, Year Ten have a wide variety of ethnic backgrounds, the most common being Black African (predominantly Nigerian and Somali), White Eastern European, Bangladeshi, and White British.

It is also worth noting here that throughout my time at Riverton, there were many instances in which students were quick to claim their ethnic background as important. For example,

Category	Year Ten	Riverton
Population (N)	170	853
White (%)	34.8	35.6
White British	10.6	11.6
Irish	0.6	0.1
Gypsy or Irish Traveller	0.0	0.4
Eastern European	22.4	21.6
Other	1.2	1.9
Black (%)	29.4	28.9
African*	20.0	18.3
- <i>Nigerian</i>	<i>5.9</i>	<i>4.7</i>
- <i>Somali</i>	<i>5.3</i>	<i>3.4</i>
Caribbean	3.5	4.7
Other	5.9	5.9
Asian (%)	24.7	23.6
Bangladeshi	14.7	13.8
Indian	0.6	2.2
Pakistani	4.1	4.0
Filipino	1.8	0.9
Vietnamese	0.6	0.7
Other	2.9	2.0
Mixed (%)	5.4	6.3
White and Black Caribbean	1.2	2.0
White and Black African	1.8	1.2
White and Asian	0.6	1.3
Other	1.8	1.9
Other Ethnicities	5.9	5.6

*The total number of African students in this table are not made up only of students of Nigerian and Somali origin — these are the two African countries with the largest representation, hence why they are included in the table.

Table 3.4: Student ethnic backgrounds in Year Ten and Riverton

during the first month of my fieldwork I observed a mentoring⁶ session during the week of St George's Day. Students had to discuss what it means to be British. One student in particular (who turned out to be Nahida, a member of the Main Squad, a popular girl mixed-ethnicity peer group) was adamant that she was Bengali and not British. As it was a group discussion, I raised my hand to participate and asked her if she could be both British and Bengali, to which she shook her head and turned up her nose. This is something that contradicts the types of hybrid ethnic identities presented by, for example, Harris (2006) or Alam (2015). It is difficult to

⁶As indicated in Table 3.3, mentoring was a daily occurrence for every student at Riverton. During mentoring, a group of around 10-15 students from Years 7-11 gather with an assigned tutor to conduct administrative duties and also discuss themed topics.

Language	Year Ten		Riverton	
	First (%)	Home (%)	First (%)	Home (%)
European				
English	24.1	27.7	33.1	32.4
Portuguese	8.8	8.2	7.4	7.2
Romanian	6.5	NA*	7.4	NA*
Lithuanian	5.3	NA*	5.5	NA*
Bulgarian	3.5	NA*	3.6	NA*
Spanish	2.9	2.9	2.8	2.7
Polish	1.8	1.8	NA*	1.1
African				
Somali	4.7	3.5	3.2	2.7
Akan	2.4	1.2	2.1	1.6
Bantu	1.2	1.2	1.6	0.9
Yoruba	1.2	1.8	1.3	1.4
Asian				
Bengali	12.9	13.5	11.1	12.4
Urdu	2.4	2.4	2.6	2.9
Panjabi	1.2	1.2	1.1	0.8
Filipino	1.8	0.6	1.1	0.6

*NA indicates where a language was not included in the data, implying there was a zero response rate. Also, 21% of students' home languages and 0.7% of students' first languages are described as "classification pending", which also implies a zero response rate.

Table 3.5: Languages spoken at in Year Ten and Riverton

say why Nahida does not orient towards a British-Asian identity. She was not born in the UK, so it possible that this is important to her. However, this type of explicit orientation towards a single, minority ethnic identity also occurred regularly amongst other students. For example, during interviews the majority of ethnic minority students explicitly claimed only their minority heritage, and did not identify as being also English or British. It seems, then, that in this community there is a more general rejection of a multi-ethnic or hybrid identity.

This has some implications. First, this does not align with any descriptions of "blended" or "hybrid" ethnic identities (as in Harris 2006), and highlights that perhaps not all ethnic minority adolescents in London orient towards a multiethnic identity first and foremost (as was found in Cheshire et al. 2011). Also, this is interesting specifically with regards to multivalent Asian identities. For example, in her ethnography of a Glasgow high school, Alam (2015) found a range of complex, hybrid Asian identities that intersected with being Glaswegian in different ways, so it is interesting that similar orientations are not evident in this community. By contrast, it seems that Riverton ethnic minority students are intentionally avoiding these types of identities as a rejection of the dominant narrative of multiculturalism. This was one of the initial indicators during fieldwork that ethnic background might be important to some students at Riverton in a way that did not mirror previous findings in London. Other examples will be discussed as relevant throughout the thesis.

Before socio-demographic factors are discussed any further, it is necessary to describe Year

Ten in greater detail. In the section that follows I will describe and explain how the peer groups are organised as well as explaining the different labels assigned to each peer group. As will be highlighted shortly, gender and ethnicity are driving forces in how these Year Ten peer groups are organised. It will also be necessary to describe and analyse the different social norms, stylistic practices, spatial organisation, and interactional routines that the different peer groups engage in. It should be noted that the peer groups described do not include all members of Year Ten, but rather include the students and friendship groups that were most prominent to me from the outset of my research and whose salience was confirmed by various participants and observations throughout the research process.

3.5.1 Social organisation of Year Ten

Although the general socio-demographic data provide some understanding of Year Ten, they do not provide a complete picture of Year Ten's social organisation. From the early stages of my fieldwork onwards, it was highly apparent that peer groups were of utmost importance to a lot of students, particularly girls. It was also apparent that it was very rare for individual peer groups to include students from different year groups. Occasionally there were pairs of students who were friends from different year groups, or a peripheral associate of a large peer group who was not in the same year group, but other than that peer groups were consistently "year-group insular" so to speak. This is not unusual behaviour for adolescents in secondary schools. However, at Riverton this is of particular interest as the school went to great lengths to encourage friendships and collaboration between year groups. Each student and teacher in the school was a member of one of four "communities", each named after local landmarks and with a specific identifying colour (either red, white, blue, or yellow). Communities were headed by senior members of staff, and each community met once a week during an assembly where student achievements were celebrated, and student misdemeanours such as persistent lateness were reprimanded. Within these communities were six or seven smaller "families", each also headed by a teacher. Each family included students from Years 7 through to 11 and met on a daily basis during mentoring time in an attempt to reduce the age-related social separation students often adhere to. Despite these efforts by the school, it is up for debate whether being part of a "family" or "community" had any great effect on students' relationships with each other. From what I observed, this was just another institutionally enforced obligation that none of the students were particularly invested in, as naturally occurring friendship groups were what they cared about most.

Tables 3.6 and 3.7 detail the most prominent peer groups in Year Ten that will be the focus of this thesis. It is important to note at this point that the peer groups do not include all 170 Year Ten students, and so it is impossible to say whether other students' peer groups (Year Ten or otherwise) are organised in a similar fashion. Indeed, the peer groups listed in Tables 3.6 and 3.7 only account for about a third of Year Ten students. So, for example, although the girls in these particular peer groups appear much more highly organised than the boys, this may not be the case for all Year Ten girls and/or boys. It is only possible for me to describe and draw conclusions about the students who I observed consistently throughout the ethnography and participated in the study. I should also note here that, although I will discuss all of the above peer groups, I did not interview every member of each peer group. I interviewed between two and four members of each group, but the proportion of each peer group did vary. For example, I interviewed two Beauty Squad members, which was the entire group, and two Main Squad members which was only a quarter of the group. Although I tried to control this, the

Group Name	Members	Ethnic identity*	Ethnicity**
Main Squad* (8 members)	Rose	Black African Portuguese	Mixed race
	Autumn	Mixed race (black and white)	Mixed race
	Imarah	Kenyan	Black African
	Jacqueline	Congolese	Black African
	Rosie	Black African Portuguese	Mixed race
	Aaliyah	Mixed race (black and white)	Mixed race
	Nahida	Bengali	South Asian
	Krista	Latvian	White European
White Squad* (7 members)	Amy	White British	White British
	Francesca	White British	White British
	Carly	White British	White British
	Mandy	White British	White British
	Robin	White British	White British
	Mel	Mixed race (St Lucian and White British)	Mixed race
	Hayley	White British	White British
Black Squad* (4 members)	Tosin	Black African (Nigerian)	Black African
	Wendy	Black African (Ghanaian)	Black African
	Natasha	Black African (Ghanaian)	Black African
	Oyin	Black African (Nigerian)	Black African
Asian Squad* (4 members)	Malaika	Bangladeshi	South Asian
	Jemima	Bangladeshi	South Asian
	Foziah	Bangladeshi	South Asian
	Marifa	Bangladeshi	South Asian
Beauty Squad (2 members)	Erika	Romanian	White European
	Rebecca	Black British (Caribbean)	Black British
Rebels (3 members)	Anaya	Pakistani	South Asian
	Shaikha	Kuwaiti Arab	Middle Eastern
	Maria	Somali	Black African
Nerd girls (6 members)	Ruby	Pakistani	South Asian
	Violet	Pakistani	South Asian
	Kadeeja	Somali Black African	
	Rabiya	Bangladeshi	South Asian
	Naylia	Mixed race (White Italian Bangladeshi)	Mixed race
	Elizabeth	Jamaican	Black Caribbean

Students in **bold** are direct participants in this study and discussed in the analysis

*These peer group names and ethnic backgrounds are self-ascribed

**These labels are used throughout the thesis and in the quantitative analysis

Table 3.6: Year Ten female peer groups

Group Name	Members	Ethnic backgrounds*	Ethnicity**
A-side* (8[+3] members)	Adebowale	Black British (Nigerian)	Black British
	Dinh	Vietnamese	South Asian
	Frederick	Congolese & Swedish	Black African
	Dalmar	Somali	Black African
	Rafael	Portuguese	Hispanic
	Aaron	Albanian	White European
	Gazsi	Russian Chinese	Mixed race
	Arif	Bangladeshi	South Asian
	[Jabari]	Black British	Black British
	[Andrius]	Lithuanian	White European
	[Sanjit]	Bangladeshi	South Asian
B-side* (6[+2] members)	John	Black British (Portuguese)	Black British
	Adrian	Kosovan & Somalian	Mixed race
	Jamier	Black Jamaican	Black Caribbean
	Rajesh	British Indian	South Asian
	Omar	Mixed race (black and white)	Mixed race
	Jamal	Bangladeshi	South Asian
	[Matthew]	Black British	Black British
	[Mavi]	Turkish	Middle Eastern
Inbetweeners (2 members)	Anthony	Congolese	Black African
	Teddy	St Lucian & Ghanaian	Black African
White Squad boys (2 members)	Zach	White British	White British
	Lewis	White British	White British

Students in **bold** are direct participants in this study and discussed in the analysis

These peer group names and ethnic backgrounds are self-ascribed.

*These labels are used throughout the thesis and in the quantitative analysis

Numbers in square brackets indicates peripheral members who “float” between groups.

Table 3.7: Year Ten male peer groups

nature of doing ethnography (and sociolinguistic research more generally) is that you are at the mercy of your participants. I could only interview the students who assented and whose parents consented, and I had quite a few students change their minds after initially consenting (particularly from the Main Squad).

At this point it should be reiterated that, as noted in each table, the majority of the names assigned to each peer group are self-ascribed either by the peer group itself or by other Year Ten students. The labels indicating ethnic identity of peer group members were also self-ascribed. However, it is important to note that not all peer groups are as clearly delimited as the table suggests, and of course gender and ethnicity are not social parameters that can be easily disentangled. This highlights the importance of taking an intersectional approach (as in Crenshaw 1989) because, rather than trying to understand gender or ethnicity in this community as separate entities, intersectionality positions the *interaction* between different social identities as key to understanding the lived experiences of different social groups and individuals. For example, for certain girl peer groups, ethnic identity was important in a different way than it was for the

boys. The labels some of the girl peer groups assigned themselves (such as the Asian Squad and the White Squad) and the tendency for the girls' peer groups to be organised into ethnically homogenous groups in a way that none of the boys do begins to illuminate the different intersections in this community, such as working-class White British girls.

Before delving into the descriptions of the social groupings in Year Ten at Riverton, it should be noted that these groups are referred to as peer groups as opposed to Communities of Practice (CoP). Peer group here refers to the social groupings of the Year Ten students in this study, whose members identified each other as the friends who they spent the most time with (which was then confirmed through ethnographic observations). As discussed in Section 4.3.2, the notion of CoP is grounded in the idea that members share and collectively participate in a particular social practice (Eckert and McConnell-Ginet 1992). As will be illuminated in the descriptions that follow, there are various shared practices amongst Year Ten. However, some practices overlap across groups, and some group members do not participate in the practices at all. Whilst some peer groups might be considered communities of practice, this is not a suitable conceptualisation of the social groupings for all of Year Ten, and so the groups are referred to as peer groups throughout the thesis to more accurately reflect the basis of those groupings: who they consider to be their closest peers.

Finally, it should also be noted that the peer groups are listed in order, from prominent to peripheral. For example, the Main Squad is listed first in Table 3.6 as they were the most dominant female peer group. White Squad and Black Squad follow as they are the most closely affiliated. Asian Squad, Beauty Squad, Rebels, and Nerd girls are all more peripheral peer groups. For the boy groups in Table 3.7, A-side and B-side are comparable, and the Inbetweeners are loosely affiliated with the B-side. White Squad Boys are listed last as they are more closely affiliated with the White Squad girl peer group than they are any of the boy peer groups. Similarly, the members of each peer group are listed in order of prominence; those listed at the top of the peer group are the leaders of the group, and those at the end, particularly in the larger peer groups (e.g. Nahida and Krista of Main Squad, or Gazsi and Arif of A-side) are undeniably members of their prospective peer groups but tend to take a more back-seat role, following rather than leading.

3.5.2 Female Peer Groups

I became acquainted with the Main Squad and the White Squad on my seventh day at Riverton. I found it difficult at first to tell which students were in which year group when outside of the classroom, so I decided to use my classroom observations as a segue in to striking up a conversation with a student. I recognised Imarah, a Main Squad member from one of the Year Ten English lessons that I observed, standing with a group of girls. I approached her and asked her some mundane questions about her lessons, which piqued her friends' interests: "Who are you? Why are you here? What's a researcher? I love your hair! Can I touch it?" Jacqueline, another Main Squad member, took it upon herself to be my chaperone, introducing me to people and then linking arms with me to take me along with the rest of the group when they moved to another area of the playground. At this point, I did not know the different peer groups, but in my field notes I observe separation between the groups. The following extract is shortly after Jacqueline decided to chaperone me and had walked me with the group to sit on the playing field, a large grass covered area behind the school that students were allowed to use during the spring and summer months:

"When we get to the field everyone sits in a circle... I sit where I was standing which

puts me between Carly and Hayley, but Jacqueline goes around to the other side of the group between Aaliyah and Imarah. Imarah, Jacqueline, Nahida all group together. The 3 blondies (Francesca, Robin, Mandy) all group together also, and then Rose, Rosie and Autumn sit together also. [field notes, 28 April 2015]

This initial observation is representative of the “together but separate” spatial organisation that I frequently saw amongst the girls during my fieldwork. Upon reflection, this was the first indication of the importance of ethnic homophily, that is orienting to those with the most similar ethnic background to you (McPherson et al. 2001), in this community. The three popular peer groups, Main Squad, White Squad, and Black Squad all regularly associated with each other in school, sitting next to each other outside at break time, working with each other in lessons, and gossiping about each other. And yet, there was always a sense of distance between the groups, and over time I noticed that they never discussed spending time together outside of school. Data from participant questionnaires confirm this: Black Squad only hang out with each other outside of school, Main Squad with other Main Squad members, and the same for White Squad (although they do have a lot of non-school friends who are not White British — an important note that will be returned to later). In addition to the spatial construction of these friendship groups, there were subtle nuances to their clothing, hairstyles, and social practices that indicated their popular status, but also the separation between the groups. For example, the popular girls in these three peer groups all had longer hair, but styles varied by peer group. Black Squad all wore their hair in long box braids or twists; occasionally one would temporarily wear a weave but they all reverted back to long braids or twists as their standard style. White Squad all coloured their hair to enhance their natural hair colour and wore their hair longer than their shoulders and straight. If they did tie it up in a ponytail (which was rare) they used copious amounts of hairspray to make sure their hair lay slick against their scalps. Main Squad members had greater variation in hair textures, and so had more variation in what styles were cool. Indeed, being varied seemed to be what was cool for them: afro puffs, donut buns, chemically straightened, and dip-dyed hair were just some of the styles they wore during my time at Riverton. Other girl peer groups were less concerned with these styles, or actively oriented away from them. The Asian Squad all wore head scarves, and the Nerd Girls did not style their hair in any particular way — I commented to Violet (Nerd Girls) about her ponytail, and she responded in saying it wasn’t a style, but purely functional (to keep her hair out of her face). The following sections explore these types of stylistic differences relative to each peer group in more detail.

The Main Squad

When I first met the Main Squad, they actually introduced themselves to me as the Skittle Squad. When I asked them why that was their name, Jacqueline replied: “’Cause we’re mixed, innit!” However, gradually during the course of the year they re-branded themselves as the Main Squad, as “Skittle Squad is too childish”. This is one of many examples of the ways in which this squad aspired to be *the* trend-setters in Year Ten, and since this is the name they insisted on it is the one I shall use.

The Main Squad had eight members of different ethnic backgrounds. Some of the girls were of mixed heritage, others not, but all were different from each other except Rose and Rosie who were cousins. Within this peer group were different friendship dynamics. Rose and Autumn were very close and spent time alone together discussing boys and romantic encounters. Jacqueline, Imarah, Rosie and Aaliyah were all fun loving and loved blasting music from their phones in the playground, making up dance routines, and generally performing for anyone in the vicinity

who would pay attention. Nahida and Krista were close and spent a lot of time away from the group. This was, in part, driven by various arguments that Krista had with Autumn and Rose: when I first started attending Riverton, Autumn and Krista were best friends but that suddenly changed for reasons that I never completely understood (although the snippets of information I did catch indicated that a boy was involved in some way).

Despite these internal changes, the group itself was tight-knit and shared a lot of stylistic choices and personal motivations. For example, the majority of the group were high achievers and were placed in top sets for a lot of subjects.⁷ I also frequently heard the girls discuss their aspirations to be lawyers and to be successful in their adult lives.

Interestingly, these aspirational qualities were never perceived as being “nerdy” or detrimental to their social status. This was in part, I think, because of their stylistic choices and engagement with various aspects of popular youth culture. For example, on the afore mentioned non-uniform days, the Main Squad members all wore fashionable clothing like high-waisted skinny jeans, crop tops, and Nike Huarache trainers. On a regular school uniform day, they utilised hairstyles as these stylistic clothing choices were unavailable to them, wearing popular hairstyles like afro puffs or top knots with their edges laid.⁸ They also frequently listened to popular music genres like Grime and Hip Hop, using a portable Bluetooth speaker with their smartphones to play music during break times.

The White Squad

The White Squad originally consisted of six girls who were all of White British descent when I began working at Riverton. One member, Francesca, revealed in her interview that her dad was Turkish, but she identified as “full English”, could not speak Turkish and felt no affiliation to Turkey. All of the girls were not only born in the UK, but were born in East London within a few miles of the school. Many of their families were also local, or at least from another part of London. After about six months of field work, Amy informed me that her friend Mel was going to start attending Riverton soon. When Mel arrived, I chatted with Amy about how she knew Mel and what Mel’s background was. I found out that she was a friend from Amy’s neighbourhood, and that she had a St Lucian and a White British parent, although this was not immediately apparent from the way that Mel looked; one might say that she could “pass” as white (Conyers and Kennedy 1963). Indeed, soon after Mel joined the school Amy commented to me that even though you might expect Mel to be in the Main Squad, she would not really fit in with that group.

Stylistically, the White Squad seemed to distance themselves from the other popular peer groups. As part of their school uniform, they all wore skater skirts⁹ with shorts underneath. They all also wore their hair straight and flowing or slicked back in a high ponytail, a hair style not accessible by the Black Squad and most of the Main Squad due to differences in hair texture. At this time, wearing make-up that highlighted the shape of your eyebrows was particularly fashionable, and the White Squad were fully invested in this trend as a group. They all came to school with their eyebrows done, and monitored each other’s eyebrow drawing skills. One break time I noticed Robin re-doing her make-up in the playground, and when I asked her why

⁷In English secondary schools, students are put into sets, i.e. separated into classes based on ability. Thus, most subjects have at least five different ability levels, and core subjects like English and Maths had up to nine.

⁸This is a term commonly used among black women to describe the process of smoothing down short, soft hairs that grow along the hairline (baby hairs); these hairs are fluffy and often stick out if not slicked down with some gel and a toothbrush. This is considered undesirable or as looking unkempt.

⁹A high-waisted, just above knee-length skirt that flares out from the waist

she was doing this she said that Francesca had told her her eyebrows were uneven (something I had not noticed). They all also regularly wore long, pointy acrylic nails in nude pastel colours — it was a regular weekend activity for members of the group to go and get their nails done together. Both of these make-up choices were strictly against the school rules, but they rarely got in trouble for it.

The Black Squad

The Black Squad were the most challenging popular peer group for me to get to know. I tried to talk to them many times, and asked them to participate in my study, but they always seemed quite aloof and disinterested. Through talking to other students, I found out that Oyin was the ringleader, which I realised made sense as they always seemed to follow her around. I decided that getting her on side might be a useful segue into getting the whole group on side, so I spent a couple of break times tracking her down to talk about my study. After a few conversations, she seemed interested, and as a result the group as a whole seemed more accepting of me — prior to this connection they would rarely look in my direction, and responded to any greetings I imparted with a robotic “Hi, Miss.”

Stylistically, this group was unique compared with the other popular peer groups. All four members mostly wore their hair in long, thick braids or twists; occasionally, Oyin wore a weave but she always went back to braids or twists. They chose to wear trousers as part of their school uniform, except for Tosin who was five foot eleven. As a tall woman myself, I suspect this was in part due to the struggle of finding trousers that were long enough. None of the Black Squad wore make up to school, although they did flout the uniform rules on occasion by wearing black trainers which were not allowed, and I observed a couple of occasions when Wendy was reprimanded for wearing trousers that were considered too tight by teachers. Interestingly, Wendy carried a spare skirt in her bag to change into in case she got told off, suggesting that her clothing was a stylistic choice rather than an oppositional stance with the school. I did not initially notice clothing or hairstyles or other social practices that seemed to orient this squad towards popular youth culture. Once I got to know them better, I realised that their orientation towards Black African culture was more important; they were more interested in popular Black African music like Afrobeats and often teased each other for acting or sounding “so Af” (Af being short for African).

Although they were known throughout the year, the Black Squad appeared to be positioned slightly below the White and Main Squads in the social status hierarchy. However, the Black Squad did not seem to care about this and often socialised separately from the other squads. The Black Squad seemed to be closer as a group than the other squads; they never argued between themselves and in their interviews they all cited each other as their best friends and stated how close they were as friends. They also made fun of others who used to be or tried to be part of the group. Notably, previous group members (Rebecca, of the Beauty Squad, and Hortense who was in a peripheral friendship group I did not get to know) were all Black, and there was also a failed membership attempt by Beatrice (friends with Hortense) who was also Black. This is evidence that their group identity as Black girls was more salient than just a coincidental descriptor of the group composition.

The Asian Squad

Malaika, Jamima, Foziah, and Marifa were all Bangladeshi and wore headscarves every day to school. In the first few weeks of my fieldwork I was unaware of this group of friends. In the

classroom, it was difficult for me to tell the difference between any girls who wore headscarves as they all wore black and I always sat at the back of the room. Outside of the classroom I rarely saw any girls wearing headscarves standing around in or as part of groups like the other squads. Citizenship lessons were some of the most interactive lessons I observed, and it was through these lessons that I got to know who was who. Malaika was incredibly talkative and always had an opinion to share. Foziah and Jamima initially came across as more reserved, but once invited to contribute in lessons they always had insightful observations and comments. Marifa was not in any of the lessons I observed, and seemed to be the quietest when I interacted with the squad in the playground, so I never got to know her very well.

Once I knew I remembered all of their names, I approached them in the playground to strike up a conversation. They were shocked that I knew who they were, but were also very receptive to talking to me and had lots of questions about my project. They never invited me to accompany them as they walked around the playground — this was their usual lunchtime activity as opposed to standing in a group in one place like the other squads — but were all very keen to be interviewed and help me with my study. Consequently, my interactions with this peer groups were largely peripheral and in relation to the study, and I was not privy to their outside lives in the same way as I was with other girls. Therefore it seems likely that there were aspects of Asian youth culture in which they engaged that I was unaware of due to not being Asian myself and not having as close a relationship with these girls.

Through their interviews, I found out the the girls were all somewhat conservative in comparison with the other squads. They did not swear, or wear make up (apart from special occasions), or flout school uniform rules. They did not get in trouble in lessons, other than for talking too much which was not seen as a serious offence, and they all considered being a good student as of the utmost importance. Malaika in particular gave an impassioned monologue during her interview about being a good student and not wearing too much make up or revealing clothing. None of the Asian Squad engaged with many popular aspects of youth culture like the other squads or other, less conservative Asian girls. For example, they were not interested in the same music as other squads, and although they were aware that certain trainer styles were popular, they were not concerned with them. They were all also very close with their families; indeed, Foziah told me in her interview that she never wants to leave home because she loves living with her mum. This kind of family bond was not evident for other participants, even though I did ask every interviewee about their families. So for the Asian Squad, it seemed that shared moral and family values was a more important determinant of their friendship than engagement with popular youth culture.

The Beauty Squad

The members of the three main peer groups, Main Squad, White Squad, and Black Squad, were all big characters, drawing attention to themselves inside and outside of the classroom. As a result, it took a few months for me to gradually build a picture of other female peer groups, and it was not until after the summer holidays¹⁰ that I got to know the other girls more closely.

The Beauty Squad¹¹ consisted of Erika, who was of Romanian and Spanish descent, and Rebecca, who self-identified as British (of Caribbean descent). Erika was not proud of her

¹⁰I started my fieldwork in April 2015, and there was a six week break between the summer term (April-July) and the autumn term (September-December).

¹¹This group did not have a self-identified group name. I shall refer to them as the Beauty Squad as this was the aspect of popular youth culture that they most readily engaged with.

Romanian heritage, to the point that she liked to Anglicise the spelling of her name (spelling it with a C instead of a K), but interestingly did not identify as Spanish or British either. By contrast, Rebecca's parents were Black British — both she and her parents were born in the UK — so she was one of the few students I interviewed that did identify as British.

Erika and Rebecca were thick as thieves. They had the kind of unshakeable friendship that did not involve any fights or jealousy, and even as an outsider you could tell that they understood each other in ways that no one else did. Before my time at Riverton Rebecca used to be part of the Black Squad, but fell out with a couple of them and thus became firm friends with Erika. Despite this connection through Rebecca, this duo were not part of any of the popular groups, or even peripheral members. They were, however, all on each others' radars. In my first few months of fieldwork I frequently heard members of the Main Squad refer to Erika and Rebecca as "moist", meaning pathetic, sad, annoying. Contrastingly, when I interviewed Natasha, she lamented the loss of her earlier friendship with Rebecca (Rebecca was an original member of the Black Squad and used to be best friends with Natasha). While Erika and Rebecca did not describe the Main or White Squad girls in the same way, they regularly gossiped about them and their love lives. In addition, they oriented towards similar popular youth culture styles and activities, wearing strong eyebrow make up to school every day, as well as being heavy users of social media. Make up was of particular importance to this group. It was not uncommon for them to spend half of their lunch break in the toilets re-applying their make up, and if they were reprimanded for wearing too much make up by a teacher they were mortified at having to remove it. On the surface, it sometimes appeared as if the Beauty Squad were trying to imitate or orientate towards the popular squads, but once I paid closer attention I realised that the other squads were seen as competition, particularly when it came to male attention; any altercations or disagreements that occurred between the Beauty Squad and the Main Squad in particular were about boys.

The Rebels

Anaya, Shaikha, and Maria were an unusual grouping. Anaya and Shaikha were unlike any of the girls in the other squads that I got to know. They did not share cultural background or any stylistic practices: Shaikha was Arab Kuwaiti, Maria was Somali, and Anaya was of Pakistani descent; Shaikha wore a headscarf daily that was neatly wrapped, Maria wore a loosely draped headscarf always seemed to be falling off, and Anaya did not wear one at all; Shaikha wore trainers that were considered fashionable in Year Ten, but Maria and Anaya did not. With regards to popular youth culture, none of the Rebels seemed to really care about it, although they were all aware of what clothing and music was popular. Like the Beauty Squad, this group did not have a name for themselves, so I called them "the Rebels" for reasons that should become clear from the information that follows.

When it came to other behaviours during and in relation to the school, Anaya and Shaikha were similar. They were impulsive, disruptive in lessons, and regularly pushed the boundaries when it came to authority. Indeed, in her interview with me, Anaya recounts several stories of running away from teachers, being internally excluded¹², and she also notes that some teachers do not like her. Shaikha regularly flouted school uniform rules and got into arguments with the head teacher. She seemed to behave in this way in order to get attention rather than

¹²This is when a student is not allowed to attend regular lessons with their friends, but still have to attend school. As such, they have to complete their school work in isolation in a separate area of the school, supervised by a member of staff.

being completely opposed to the school. For example, whilst Shaikha freely admitted to arguing with the head teacher, she was also of the opinion that they had a good relationship. In addition to being the most rebellious, of the female participants I interviewed these two impressionistically sounded the most MLE.

Maria, on the other hand, very much enjoyed school. She loved reading and being creative, and also enjoyed being somewhat of a social butterfly. Although she considered Anaya and Shaikha her best friends at school, she also told me “I’m just friends with everyone”, and I often saw her flitting between different peer groups in the playground (although never the popular squads). It is important to note that, although I have called this peer group “The Rebels”, this is based primarily on the characteristics of Anaya and Shaikha. It was difficult to find a shared characteristic or practice for this group, and I did not want the peer group name to sound at all derogatory. So although she is part of The Rebels, Maria was anything but.

Nerd Girls

The final girl peer group I shall describe is the Nerd Girls. As noted above, these six peer groups are not the only female peer groups in all of Year Ten, but they are the six from which I got to know members the best and also were the most receptive to participating in this study.

The Nerd Girls consisted of six friends: Ruby and Violet (who I interviewed), and Kadeeja, Rachael, and Naylia. Ruby and Violet were both Pakistani, Kadeeja was Somalian, Rabiya was Bangladeshi, and Naylia was Bangladeshi and Italian. This group were all strongly orientated towards education. They were all in either top set or second set in all of their lessons, which meant they all had a lot of lessons together. Not only this, but they all were fairly quiet during lessons as they paid close attention and diligently completed tasks set by the teacher; they did not seem to get distracted in the same way that other students did. There was also some light competition between this group and some of the boys in A-side, who were high achievers as well. Much of their identity seemed built on being good students, and none of them orientated towards youth culture practices in any way. For example, none of these girls wore make up, and on non-school uniform days they did not wear the fashionable high-waisted skinny jeans that girls from the popular squads wore. They also did not “do” their hair in any particular style; I asked Violet about her ponytail and she clarified to me that hers was not a style, it was purely functional to keep her hair from her face (unlike the White Squad, for example, who all had their hair slicked so that it lay flat against their heads).

3.5.3 Male Peer Groups

In stark contrast to the girls, the boy peer groups were much more difficult to discern. The boys generally treated me with a great deal of caution, and for the most part seemed to avoid engaging with me in any detail. The exceptions to this were two boys: John and Ade. John, a member of B-side, was a robust, six-foot-one, light-skinned black boy whose parents were from Cape Verde and Portugal. He wore his hair in a high-fade, with his small afro carefully combed out. He was in the same English class as Aaliyah (Main Squad) and Hayley (White Squad), and so I knew him for the duration of my fieldwork. On day 7, when I introduced myself to some of the girls, John came over and shook my hand very formally. He let Jacqueline introduce me even though he already knew me, and he said hello but did not make eye contact. John reminded me very much of my own younger brothers, so I ignored his awkwardness and struck up a friendship with him by communicating with him in the same way I would my siblings, finding out about his life and family over the course of the next year. John’s best friend was Adrian and, as far as

I could tell, if they were not together then they were hanging out as part of the large group of about twenty plus Year Ten boys who would stand by the multi-use games area (abbreviated to MUGA, pronounced *moo-gah*) or play football inside it. The other boys were not so receptive to my friendship, so it was not until I interviewed A-side member Adebowale (Ade for short) that I found out there were in fact different peer groups amongst the boys:

“I would consider myself to be on A-side... myself, Dinh, Frederick, Arif, Raheem. There are different links because I chill with Dinh, Dinh chills with Gazsi, Gazsi chills with Rafael, Rafael chills with Aaron, Aaron chills with Jamal, Raheem chills with Jamal, Andrius chills with Gazsi, so that’s how we’re all kind of interlinked. And Jamal and Arif chill with each other. So if you had to separate us out that’s how you separate. Because Rafael chills with Obi, Obi chills with Ikem, Ikem chills with Jabari, so that’s how we’re all interlinked. But Jabari, Matthew, Ikem used to be on A-side but they got moved to B-side. And girls are just really complicated.”

Ironically, rather than clarifying the male peer group organisation, this description seemed to exemplify how complicated the boys were compared with the girls. Despite this, when I pressed Ade further it was possible to discern the groups listed in table 3.7, which in turn allowed me to pay closer attention to the dynamics between the Year Ten boys. I also found out during the same conversation that the boys’ peer group labels were far less creative than the girls’: A-side and B-side referred to their school timetables. Each member of Year Ten had one of two timetables depending on which elective subjects they took (such as Geography or Drama) and which ability level they had in core subjects like English and Maths, and so if you had one timetable you were considered A-side, and if you had the other you were considered B-side.¹³ Ade informed me that the friendship groups had shifted somewhat from the original groupings based on shared lessons, but the labels had stuck.

A-side Boys

A-side boys were a group that more explicitly orientated themselves towards the school and academic achievement. It was common for A-side members to participate in extra curricular activities, such as drama club, the environmental society, and debate club. It was also more common to find A-side members in higher-ability lessons. For example, top-set Year Ten English class included Ade, Dinh, Frederick, and Arif, who were all A-side members (although this is probably in part due to the timetabling distinction discussed above).

Ade was a short, dark-skinned Black British boy with Nigerian parents, and he was the only student that I interviewed who had parents with university degrees. Ade and his friends all enjoyed debating current affairs and discussing technology more so than engaging with aspects of youth culture like music and clothing. None of the A-side members shared a particular hair style like the B-side boys did, and none of them seemed particularly bothered about their clothing. I also discovered that they shared an entrepreneurial streak, buying snacks from the supermarket that were not available in the school canteen, such as chocolate bars, muffins, and packets of biscuits, to sell in the playground for a profit. This was the only evidence of any behaviour from this group that could be considered “anti-institutional”, and the boys justified this behaviour by positioning it as a response to the school’s hypocritical practices. As Ade explains in his interview:

¹³This timetable distinction applied to the whole year group, girls and boys, but only the boys’ friendship groups were based on this division.

“They said we shouldn’t do it, ’cause it goes against the school’s eat healthy policy. But that’s a piece of crap. Because, like, if you go break time, they’ll sell you bacon, bit of toast, and cheese. How healthy is that compared to a bar of KitKat?! Not healthy at all.”

If they were not trying to sell contraband confectionery to their peers, this group could either be found in the MUGA during break times with the B-side boys, stood on some steps by the MUGA crowded around a mobile phone screen, or away from the playground participating in school-related activities like the environmental group “eco-warriors”.

B-side Boys

B-side boys spent the majority of their break times and lunchtimes in the MUGA, so if I had not met John through my first few classroom observations I am not sure that I would have got to know this group at all. John, Adrian, Omar, Jamier were four main members of B-side, all light-skinned boys who were athletic and popular amongst the girls. Indeed, these members of the B-side were considered the most “peng” (attractive) by the popular girls, and there were frequent romances between different B-side members and popular girls. When I first started working at Riverton, Francesca (White Squad) and John were an item, and then Autumn (Main Squad) and John. Rose (Main Squad) and Adrian, John’s best friend who was black and white biracial (Somalian and Kosovan), also seemed quite close at one point but that did not seem to materialise into anything. Jamier, a light-skinned Jamaican boy, was also considered attractive by the girls but there were no obvious romantic relationships between him and any of the girls during my fieldwork. Rajesh and Jamal were also B-side members, who were both Bengali, but their membership in this group seemed to rest more on their relationships with other B-side members than their appeal to the opposite sex.

Stylistically, I noticed that the popular males in B-side all had fade haircuts, a style in which the hair at the nape of the neck is cut so close that it is almost invisible, and the hair is cut in a gradient to the top of the head where it is left much longer. The longer top had to then be styled in an appropriate way for its texture, whether that be a neatly combed out afro or slicked back straight hair. This hairstyle was evident in popular youth culture at the time; once I noticed that this was an intentional style, I started noticing it a lot more out on the streets amongst other teenage boys who also wore trendy trainers and athletic wear. Additionally, B-side boys were also a lot more engaged with music, particularly Grime, an underground genre associated with inner-city youth culture. In fact, John turned me on to a few rappers like J Hus who I had never heard of but who subsequently became more mainstream once my time at Riverton had ended.

Inbetweeners

This group consisted of just two boys, Anthony and Teddy. They did not have a label for themselves, but I named them the Inbetweeners as they seemed to float between the different boy peer groups as well as spending time with the Black Squad. Anthony and Teddy were most closely aligned with B-side out of all of the male peer groups, but as Anthony had an on-off relationship with Wendy (Black Squad) they spent most of their time with the Black Squad.

Anthony, a Congolese boy who had lived in London from the age of one, was very softly spoken and joined Riverton around the same time that I did in April 2015. As a result there was a transitional period of time where he did not really have a peer group and he spent time trying

to navigate the different boundaries. His relationship with Wendy emerged within a couple of months, and this seemed to solidify his peripheral status to the popular male peer groups.

Teddy, a dual-heritage Black boy of St Lucian and Ghanaian descent, had attended Riverton for longer and therefore had a more defined position within the social hierarchy. He was not considered particularly highly by others in Year Ten, and was frequently made fun of. As a result, he created a sense of mystery about himself by randomly bringing in large sums of cash into school and offering people money. I was not witness to this behaviour myself, but was told by several other students from different peer groups. Nobody understood how he got this money — some said it was through social media, others from his parents — or why he would bring it to school. But it did seem to earn him a degree of credibility that he undoubtedly would not have had otherwise.

Neither Anthony or Teddy were particularly cool, or athletic, or academic. Anthony orientated towards popular youth culture to a degree through his music taste, footwear choices, and hairstyle, but he didn't always get it right. One day Anthony arrived at school with his hair cut very close all over instead of his previous fade haircut. He was repeatedly teased by the other boys as well as some of the girls, and so he wore a hat all day out of embarrassment. Contrastingly, Teddy did not seem to have any interest in these things. As a result, it seemed that the Inbetweeners used additional means — relationships (romantic and platonic) with their peers and money — to earn a degree of respect among the popular crowds.

The White Squad Boys

There were also just two White Squad Boys: Zach and Lewis. They were the only two White British boys that I encountered in Year Ten for the duration of my fieldwork. I asked on several different occasions if there was anyone else, and repeatedly got the answer, “Yeah, Jonny Smitherson,” but I never found out who he was. The White Squad Boys were a unique configuration within the Year Ten cohort, as they were the only male peer group who almost exclusively affiliated themselves with a female peer group — the White Squad. Occasionally I would see Zach playing football with the other boys in the MUGA, but for the most part they would sit with the White Squad girls on the steps or in the English corridor. The White Squad Boys did orientate themselves towards popular youth culture from what I could tell, particularly Zach. Both Zach and Lewis wore a fade hair cut with a precise side parting. On non-uniform days they both wore fashionable trainers and athletic wear with obvious branding, and Zach regularly wore an over-sized navy blue North Face coat with a fur-lined hood to school, something I found amusing as I associated North Face with the middle-aged demographic more so than adolescents.

Zach was White British, and his mum and grandad both worked at Riverton: his mum was the PA to the head teacher, and his grandad was some kind of school handyman-cum-playground-attendant from what I could tell. Both his mum and grandad were from East London also. Zach was full of bravado, and spent most of the lessons I observed him in making jokes, talking loudly over people, and generally behaving in a way that teachers found to be very disruptive. Indeed, during my second term at Riverton, Zach was excluded from school and sent to a pupil referral unit (PRU)¹⁴ for a few weeks. After overhearing a conversation between two of the English teachers, I realised that Zach was considered by some to have received favourable treatment because of his mother's role at the school (a lot of students sent to a PRU are not allowed to

¹⁴PRUs are educational establishments set up as an “alternative provision” for students deemed no longer suitable for mainstream education.

return to mainstream education).

Lewis was a bit more an enigma for me. I did not observe him in many lessons, and he always seemed to regard me with a level of distrust. One day, I was watching Raven and Mia apply some make up during break time, and Lewis commented with surprise: “You didn’t snake!”, meaning that he was surprised I had not informed a teacher that they were breaking the school rules. This, however, was not enough to gain his trust and he did not consent to being interviewed. Lewis presented himself as White British, and Zach defined him as such in the questionnaire section about friends. However, when I talked with Francesca and Carly I found out that Lewis’ background was more complex; Carly identified him as “Asian and Spanish” in her questionnaire. Considering this alongside the knowledge that Francesca’s father is Turkish and that Mel’s background is black and white biracial, a more important membership criteria of being in the White Squad seems to be the ability to pass as White British. This is an important observation, as it is the first indication that orientation to Whiteness is a meaningful identity move in this community.

3.6 The process of collecting speech data

After the first term of participant observations, I began collecting speech data. This was at the beginning of Year Ten, once I felt like I had built a rapport with the students but also that they had not yet tired of me and were interested in what I was doing. For most of the students, I found that orienting myself as a university researcher did not really resonate, but telling them that I was “finding things out about teenagers in East London” and then equating the thesis to “writing a book about it” was a concept that they could grasp and generated a level of enthusiasm for participating. In this section, the process of collecting speech data is outlined.

3.6.1 Speech data

Speech data were collected through sociolinguistic interviews. As I had built up a rapport with most of my participants, interviews were conducted on a one-to-one basis. For the participants who were nervous, I interviewed them with a friend (Anthony and Teddy were interviewed together, as were Anaya and Shaikha, and Natasha and Tosin). Interviews were all conducted in the reading room, a small, multi-purpose room that was on the English corridor and used sporadically by the English teachers and teaching assistants for individual assessments and small group activities (among other things).

During the interview, students were first asked to complete a questionnaire whilst being recorded (see Appendix 8.5), which opened up a conversation about their families and friendship groups, and also provided an immediate distraction from the recorder. Interview topics of conversation were then lead by the question module (see Appendix 8.5). The interviews ended with the reading passage (Appendix 8.5) and word list (Appendix 8.5).

Interviews generally took place during lunch, as the students did not want to stay after school, so this limited the interview time to 60 minutes. For some of the less talkative students, interviews were shorter, but they were all at least 45 minutes long. Two of the participants (Amy and Nahida) had a second interview because the lunch break ended before the reading passage and word list could be completed. In total, 23 hours of speech data were collected. For all of the interviews, I used a Marantz PMD661 MK2 recorder with an external omnidirectional lapel microphone (Audio-Technica 803) which I attached to the interviewee’s clothes. Interviews were recorded and stored in uncompressed WAV form (24-bit PCM with a sampling rate of no

less than 44.1 kHz).

3.6.2 Stylistic variation

As research has shown that an analysis of every-day stylistic variation can illuminate identity work in interaction, an initial aim of this project was to collect spontaneous speech data through self-recordings (as in Sharma 2011). However, this proved a challenge of working with this group of teenagers. A few students were given small Zoom h4n recorders and lapel mics to use outside of school, including John of the B-side, Francesca of the White Squad, and Anaya of the Rebels. Initially, students were enthusiastic about using them, but when it came to actually making recordings, the recorders were left under beds, not turned on correctly, or used for a very short period of time. After attempting to get recordings for three months to no avail, it was deemed more time-effective to use the stylistic data collected in interview through traditional Labovian reading passages and word lists.

3.7 Summary

This chapter has provided a brief overview of the field site, the fieldwork process, and data collection, with a focus on the social organisation and stylistic practices of different Year Ten peer groups. It is evident that Year Ten are a diverse group of teenagers, with many different personalities and backgrounds, as well as a complex social hierarchy system. It is also evident that there are several factors in determining friendship group, including gender, ethnicity, and orientation to popular youth culture. Gender was, unsurprisingly, the most obvious parameter of organisation for peer groups amongst Year Ten, and indeed for the student body at Riverton. Friendship groups were rarely mixed gender, and the school itself utilised lots of gendered practices: there were different sports activities for female and male students, and female students' stylistic practices were more likely to be considered "inappropriate" for school.

Furthermore, there seemed to be a gendered dynamic in the degree to which the different peer groups engaged with popular youth culture such as certain styles of music (particularly grime and afrobeats) and clothing trends (e.g. trainers). Or perhaps, more accurately, popular youth culture itself is gendered. Girls had a greater variety of stylistic tools at their disposal than boys to signal their engagement with youth culture, including a greater range of hairstyles, make up, clothing options, and music choices. Consequently, the three popular girl peer groups — Main Squad, White Squad, and Black Squad — all engaged with youth culture in different ways from each other, but still undeniably engaged with youth culture more than the other female peer groups. Black Squad engaged with popular African youth culture, and Main and White Squad both had their own interpretations of popular inner-city youth culture in the UK. There were considerably fewer options available to the Year Ten boys at Riverton.

Finally, ethnic identity seemed particularly salient for Year Ten, and again this applied particularly to the girls. Aside from the obvious semiotic tool of self-ascribed peer group labels, there were frequent references to ethnic identity throughout the fieldwork process, and the girls' stylistic choices (particularly hairstyles) were ethnically marked also. From Table 3.7 it is clear that the popular boys groups are more ethnically diverse than the girls, but it is interesting to note that the White Squad Boys choose to associate closely with the White Squad girl peer group. The name they have been assigned in this thesis represents this affiliation; they are not a completely independent peer group from the White Squad girl peer group, unlike the other girl and boy peer groups where there was little to no inter-group mixing that is not romantic.

In addition to being close to the White Squad girls, they mostly distance themselves from the ethnically-mixed male peer groups, something that was not found in other recent work in London (Cheshire et al. 2011).

This overview only touches on the ethnographic details gathered through fieldwork. Additional ethnographic knowledge will be discussed as it is relevant throughout the rest of the thesis. Furthermore, as Riverton is situated in a diverse borough of London, and is itself a diverse school, it is necessary to discuss social factors in more detail. This will be done in Chapter 4 before presenting the variationist analyses in Chapters 5, 6, and 7. The final chapter will tie together the main findings of the thesis with wider implications.

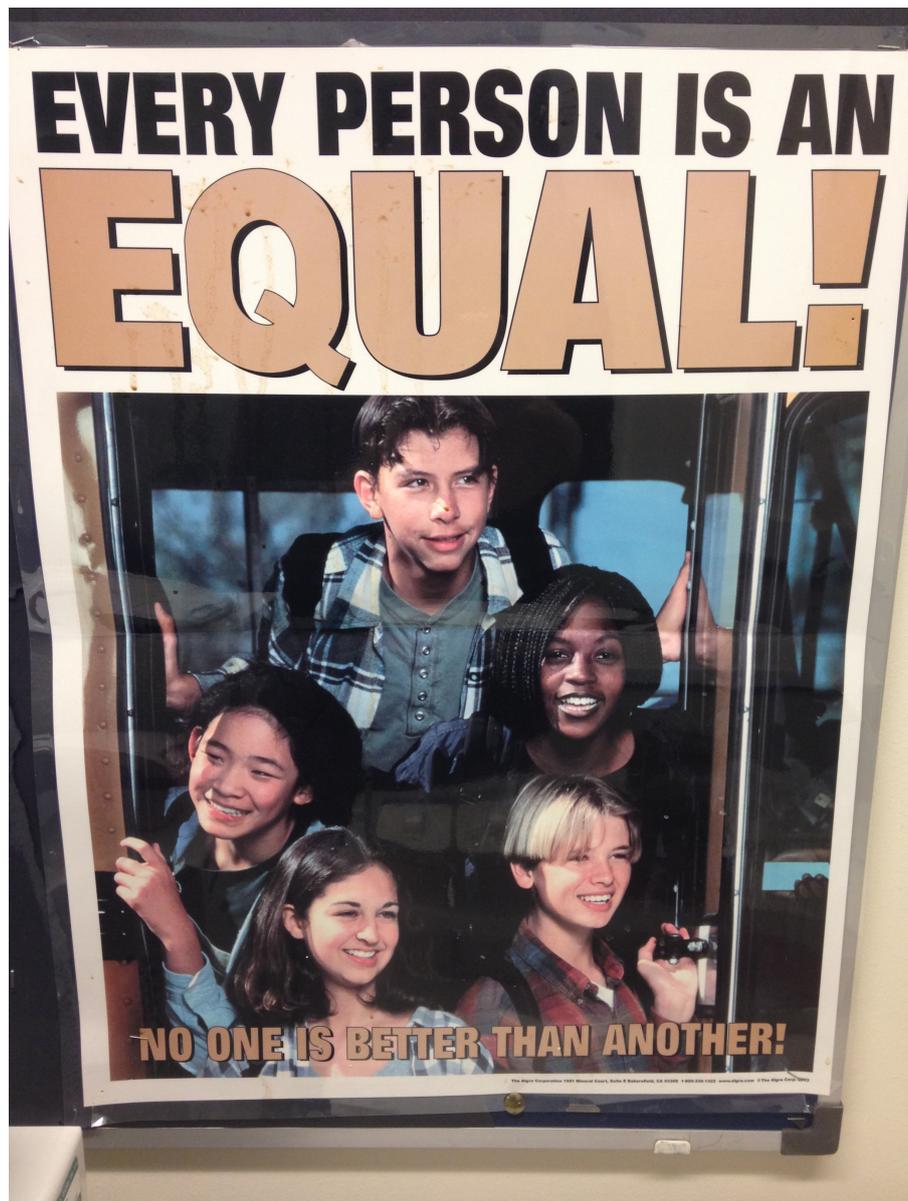


Figure 3.3: A diversity poster from the staffroom



Figure 3.4: A diversity poster from an English classroom

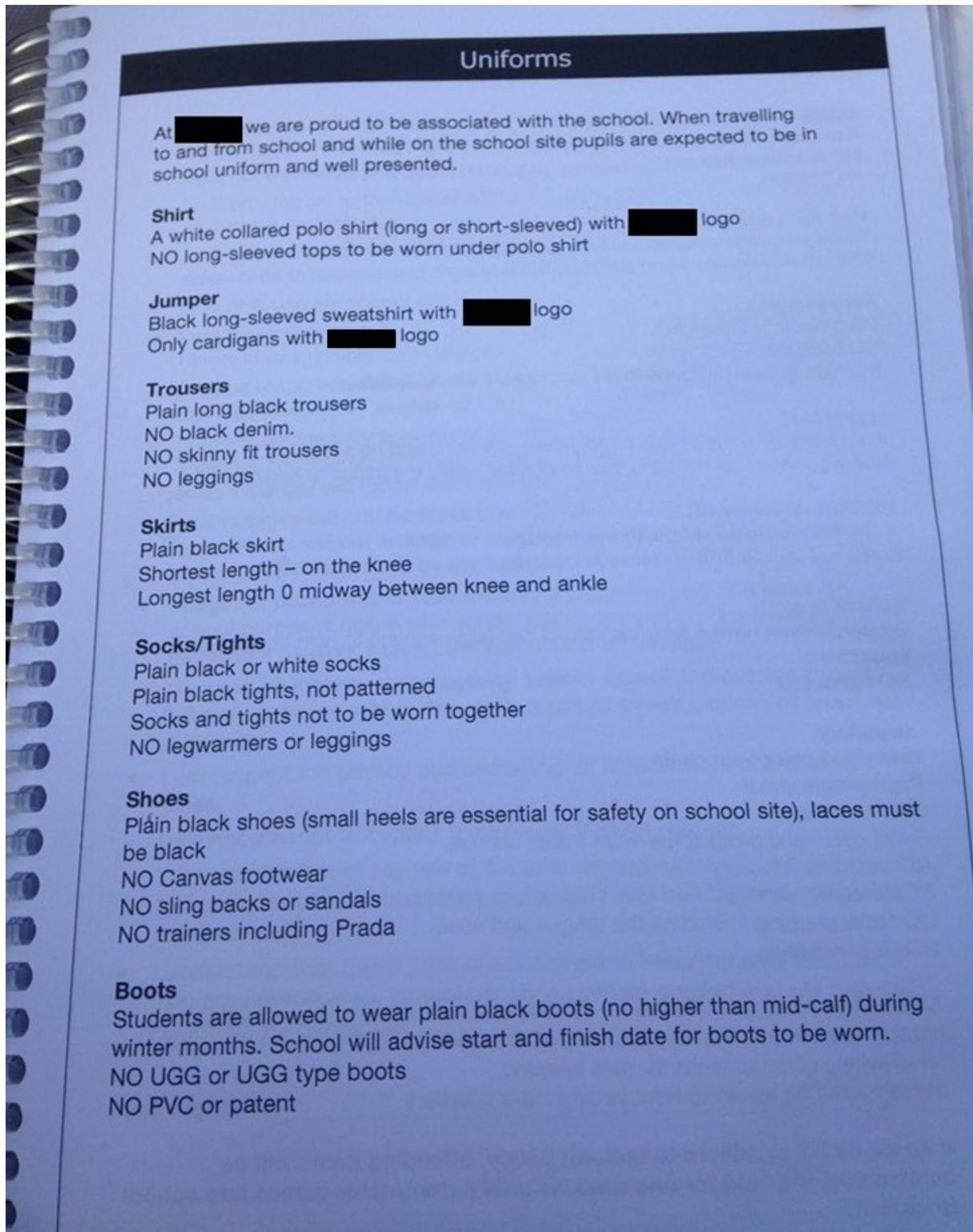


Figure 3.5: School uniform rules in the student handbook

Monday 11th January 2015

Dear Parent/Carer,

I am writing to inform you that on Friday 15th January we will be holding a non-uniform day for students.

This is being held to raise funds for the family of one of our ex-students who has sadly passed away. [REDACTED] left [REDACTED] in July 2015 and was sadly diagnosed with cancer a few months later. The family wish to take [REDACTED] back to [REDACTED] to lay him to rest but the costs involved in this are high.

We are asking that students donate £1 each. The school staff will be donating as much as they wish to put in, as we want to raise as much money as possible to help this family at this sad time. If any family wishes to donate more they can do so in an envelope via their child. This should be given into my PA [REDACTED].

Can I please remind both parents and students that appropriate attire should still be worn on a non-uniform day. Girls in particular are asked to wear appropriate outfits and observe the rules around nail polish, earrings and excessive make up. This is especially true on this non-uniform day given the sombre circumstances.

Any student who arrives to school dressed inappropriately will be sent home to change.

Thank you for your anticipated support and generosity.

Figure 3.6: A letter regarding non-uniform day, with specific instructions for female students

4. Methods for the quantitative analyses

4.1 Preparing the data for acoustic analysis

This chapter outlines the methods used for acoustic analyses of the FACE and PRICE vowels presented in Chapters 5 and 6. Although the analyses of these vowels are presented in separate chapters, the methods are presented together here as the same quantitative methods are used for each variable. The first part of this chapter describes how the data were processed: transcription protocol, forced alignment procedure, and coding. The methods used for acoustic analysis are also discussed in this section, specifically how vowels were measured, and how those measurements were normalised for analysis. The second part of this chapter deals with the statistical modelling. The type of models run in the analysis and issues with correlation are discussed, followed by a description of the social and internal factors that were included in the models.

4.1.1 Transcription

In sociolinguistics, several software options are available for time-aligned transcription, in which “textual representations matches stretches of recorded media” (Nagy and Sharma 2013: 239). These include Praat, Transcriber, and ELAN (for review, see Nagy and Sharma 2013: 248-251). ELAN (ELAN (Version 5.0.0-beta) [computer software] 2017) was found to be the most suitable for the present analysis for several reasons. First, ELAN allows you to create transcription segments of phrases whilst continuously playing the sound file. It is then possible to transcribe segments for all speakers simultaneously, as opposed to one speaker at a time. In addition, ELAN has a “controlled vocabulary” function, which allows users to write a vocabulary (in this instance, a pre-determined coding schema for each variable). These factors together enable a more efficient transcription (and coding) process. Finally, ELAN transcripts can be easily exported and imported into several different formats, such as text files or Praat TextGrids. This meant that ELAN was better from a compatibility perspective; not only was transcription more efficient, but it was then possible to use transcripts in software better suited for phonetic analysis.

4.1.2 Forced alignment

Once complete, the ELAN transcripts were extracted to Praat TextGrids in order to be force aligned. Forced alignment is a method of using an orthographic transcript that has been segmented into phrases to automatically create a time-aligned transcript segmented at the level of the phoneme. The Penn Phonetics Lab Forced Aligner (P2FA, described below) works by using the HTK Speech Recognition Toolkit, Carnegie Mellon’s standard American English pronunciation dictionary (the CMU dictionary), and a set of acoustic models based on a corpus from the United States Supreme Court (SCOTUS). The dictionary has over 134,000 words, and has all possible phonemes typically found for each word. If there is more than one possible realisation, there will be more than one entry for a word. For example, for the word *Thursday*, there are two entries: one has word final [er], and the other word final [ɪ], as these final phonemes are both possible pronunciations in American English. (Potential concerns about use with varieties of British English are addressed below.) Using acoustic parameters, the aligner then selects the most suitable phoneme from the possibilities listed in the dictionary. The aligner creates two

additional tiers, a word tier and a phone tier. On the phone tier, segments are created for each phoneme in a word, which are then aligned with the spectrogram and sound file as accurately as is possible to automate.¹

I used P2FA to force-align my data as this is increasingly the standard method for sociolinguists. It is widely used amongst linguists who study varieties of English (e.g. Labov et al. 2013), and it has also been adapted for other languages like Spanish, Norwegian, and Chinese (e.g. Wilbanks 2015; Young and McGarrah 2017). As P2FA was designed using data from SCOTUS and the CMU dictionary, the aligner was trained to recognise American varieties of English and the dictionary only has American English phonemes as possible transcriptions. It may at first seem problematic to use the aligner for non-American varieties of English. For example, British and American Englishes vary in their low back vowel distinction. According to Wells (1982a), COT, CAUGHT, and CALM are all distinct in British English, but as American English does not have low back vowel /ɒ/, there is no distinction between COT and CALM. Additionally, some varieties merge COT and CAUGHT so there is no distinction between /ɑ:/ and /ɔ/. Consequently, this means that the dictionary labels for the low-back vowel lexical sets in General American English (GAE) are different to those relevant for Standard Southern British English (SSBE). However, for the FACE and PRICE lexical sets, GAE and SSBE do not differ to any great degree and so the dictionary labels are suitable for American and British varieties of English.

It is worth noting here that Mackenzie and Turton (2013) experimented with the aligner. Instead of the CMU dictionary they used BEEP, the standard British English pronunciation dictionary, as it more accurately reflects the phonology of British English. They found that BEEP was not any more accurate at aligning transcripts than the CMU dictionary. It is also noteworthy that, with over 134,000 words, the CMU dictionary is incredibly extensive; it would take a great deal of time (and money) to even begin to develop BEEP to be as extensive as the CMU dictionary. Mackenzie and Turton (2013) therefore concluded that the CMU dictionary was more than sufficient for use with British English varieties as it stands.² Whilst it might be necessary to add words to the dictionary that are specific to a particular data set (such as place names), this is not a problem specific to varieties of British English. It is also worth noting that Mackenzie and Turton tested the dictionaries with other methods of forced alignment, and concluded that P2FA was the most suitable for non-standard British English sociolinguistic data, as well as being the most user-friendly.

I opted to use the aligner as it was designed, with the CMU dictionary. In addition to the above findings by Mackenzie and Turton (2013), Before force-aligning the whole dataset, I checked accuracy with a few test cases. I chose five speakers from my data, three girls and two boys, who had impressionistically different linguistic repertoires from each other. I then hand-checked 10 minutes at the beginning, the middle, and the end of each transcript. Each test alignment required a degree of hand correction, but it was usually to the degree of milliseconds as a result of coarticulation or the spectral ambiguity of approximants that are near-impossible to identify automatically. Once all transcripts were aligned, seven out of twenty-eight transcripts had sections that were entirely incorrect, but these were short passages of ten seconds or less, and the sections were misaligned due to background noise that was impossible to control for, such as other students shouting in the corridor outside of the interview room. Considering this, I found the P2FA aligner and dictionary to be unaffected by the disparity between British English and American English phonology, and used it to force-align all of my interviews.

At the time of conducting the analysis, the online interface for P2FA was no longer main-

¹For more details about forced alignment, see the Penn Phonetics Lab website <http://fave.ling.upenn.edu/>

²Confirmed with Danielle Turton through personal communication in 2016.

tained. It is possible to do a local installation of P2FA, but due to time constraints it made sense to use the aligner that was already installed on the servers at North Carolina State University.³ This of course raises potential ethical concerns with sharing data. These were mitigated in the following ways. Although sound files and transcripts were shared with a research assistant at NCSU, they were uploaded to a secure server at NCSU. Once force alignment was complete, data were deleted from the NCSU servers. Furthermore, any identifying features were removed from files names and transcripts before sharing. Finally, it should be noted that it was not necessary for anyone other than myself to examine sound files or transcripts in any detail to conduct force alignment - the files were simply in a location that was accessible by the forced aligner.

4.1.3 Token selection and coding criteria

For the quantitative analysis, the vowels FACE and PRICE were chosen. These vowels were chosen as Kerswill et al. (2008) found these vowels to be particularly informative with regards to sound change in London. In particular, these two vowels have different sources of change, so a more detailed understand of their variation has the potential to shed light on the sources of change that resulted in the emergence of MLE (see Chapters 5 and 6 for more detailed discussion).

Once force-alignment was complete, the TextGrids were imported into ELAN for coding. As forced alignment is not perfect, it was necessary to check the alignment of the vowel tokens alongside coding in ELAN. To begin with, for each speaker 100 tokens of FACE and 100 tokens of PRICE were selected from the interview, in addition to all tokens of FACE and PRICE elicited in the reading passage and word list. Each token selected was lexically-stressed, from words that carried sentence stress within an utterance. Some tokens were excluded during the analysis due to poor formant measurements (discussed below in Section 4.1.4), and some speakers just had a lower total token count in their interviews. The resulting dataset had an average token count of 100 per vowel per speaker, from the interview, reading passage, and word list combined. Details of the number of tokens per speaker can be found in Table 4.1.

It is not uncommon for linguists to exclude tokens that occur near the beginning or the end of an interview. For this analysis, it was deemed appropriate to include tokens from throughout the interview as the majority of interviews began mid-conversation or after some informal chat whilst setting up the recording equipment. The interview style that was then elicited reflected the informal conversation that began prior to the recording. It should also be noted here that style was coded for in terms of data elicitation method rather than looking at topic-based style shifts or interactional stance as these were not as comparable across speakers. Each token that was coded was at least 60 milliseconds long. This is standard procedure in phonetic analysis as shorter vowels tend to centralise (e.g. Lindblom 1963; Hall-Lew 2009: 132-133).

The linguistic factors that were coded are listed in Table 4.2. Each preceding and following segment was coded at the level of the phoneme, and then collapsed into natural classes for statistical testing. As social factors were the same for each individual speaker and did not change for each token analysed, these details were added to the Excel spreadsheet afterwards. Social factors are discussed in detail in Section 4.3, and summarised in Table 4.3. Linguistic factors are discussed in Section 4.4.

³As I received my MA from NCSU and was still in touch with the department, it made sense for me to utilise these connections. I am indebted to Michael Fox, who was a research assistant at NCSU at the time and was of great assistance in this process.

Girl peer groups	FACE total N	PRICE total N
Asian Squad		
Foziah	123	113
Jamima	123	111
Malaika	119	104
Beauty Squad		
Rebecca	118	106
Erika	122	112
Black Squad		
Natasha	113	112
Tosin	82	79
Wendy	119	113
Oyin	125	113
Main Squad		
Nahida	118	113
Krista	120	110
Nerd Girls		
Ruby	110	98
Violet	122	114
Rebels		
Anaya	116	92
Shaika	114	111
Maria	125	114
White Squad		
Amy	121	107
Francesca	123	109
Carly	121	112
Girls' total	2,234	2,043
Boy peer groups	FACE N	PRICE N
A-side		
Ade	119	114
Sanjit	121	93
Dinh	121	113
B-side		
John	125	113
Rajesh	119	111
Inbetweeners		
Anthony	81	55
Teddy	73	75
WS Boys		
Zach	124	111
Boys' total	883	785
Grand total	3,117	2,828

Table 4.1: Token counts per vowel per speaker

Factor	Levels
Preceding segment	Stops: /p/, /t/, /k/, /ʔ/, /b/, /d/, /g/ Fricatives: /s/, /z/, /f/, /v/, /ʃ/, /ʒ/, /θ/, /ð/, /h/ Nasals: /n/, /m/, /ŋ/ Approximants: /l/, /r/, /w/, /j/ Vowel Pause
Following segment	Stops: /p/, /t/, /k/, /ʔ/, /b/, /d/, /g/ Fricatives: /s/, /z/, /f/, /v/, /ʃ/, /ʒ/, /θ/, /ð/, /h/ Nasals: /n/, /m/, /ŋ/ Approximants: /l/, /r/, /w/, /j/ Vowel Pause
Word position	Initial Medial Final
Lexical Category	Nominal Verb Numeral Functional item
Syllable stress	Stressed Unstressed

Table 4.2: Vowel coding schema for linguistic factors

4.1.4 Acoustic measurement of vowels

Once coded, vowel segments were checked more closely in Praat before measuring. The onset and offset of vowels were determined by looking for robust glottal pulses on the spectrogram (Thomas 2011: 148-54). Whilst forced aligning is largely accurate, there were occasions where coarticulatory effects resulted in mis-aligned segments so hand correction was necessary. Once hand corrected, these tokens were still included in the analysis as this is a common problem of force aligning data, rather than the vowel itself being inappropriate for measurement. The following criteria were used when checking and hand-correcting segments:

- Only stressed tokens;
- in all words, mono and polysyllabic;
- clear marker of periodicity for vowel onset and offset; and
- vowel length of 60ms or longer.

By using the above criteria along with proportional points of measurement (discussed below), the effects of coarticulation were largely mitigated. And, for the most part, vowel segments were accurate and segment boundaries only had to be shifted a few milliseconds if at all.

Vowels were measured using an automated Praat script in the NCSU phonology lab's online script repository (NCSU phonology lab manual,). The script was edited to measure each vowel that had been coded at three points within the vowel that were a percentage of the duration: 0.25, 0.5, and 0.75. Static points in the vowel were analysed to enable direct comparison with recent findings for MLE (Kerswill et al. 2008). When measuring specific points (rather than

conducting a dynamic analysis) there are several options. You can measure at specific time points throughout the vowel, or just at the nucleus (Di Paolo et al. 2011: 91-3). A proportional distance approach was chosen here as it automatically adjusts for the duration of each vowel token, and it allows for better comparison between tokens.

Using the script, measurements of F_1 , F_2 , and F_3 were extracted at these time points. Measuring the first two vowel formants, F_1 and F_2 , is commonplace when examining vowel production (Di Paolo et al. 2011: 93). This is because, in order to determine a vowel's position within the vowel space, it is necessary to conceptualise the tongue position in terms of how front or back in the mouth it is and also in terms of raising or lowering. Measuring F_1 relates to the vertical position in the vowel space, whereby a lower F_1 measurement indicates a raised vowel and a high F_1 shows a lowered vowel. F_2 relates to the horizontal position whereby a lower F_2 measurement indicates a backed vowel, and a higher F_2 measurement indicates a vowel that is more front in the vowel space (Thomas 2011: 48). As F_3 sometimes provides useful additional information about the vowel, and it was a simple addition to the script, it was measured but not ultimately included in the analysis as it mainly provides information about lip position which was not relevant here.

The script added the measurements to a .CSV file, with one row for each vowel token measured. In addition to the proportional formant measurements, the script also captured the start point and end point of the vowel in order to calculate vowel duration (which was automated by the script). The script was then edited to capture other data coded in the transcript, such as word position, lexical category, and stress, and to add columns for social factors and demographic information about the speaker (such as name, peer group, ethnicity).

Before normalising and analysing the data, outliers and unusual-looking measurements were excluded, such as vowels with a drastically different onset or offset measurements to other tokens of the same vowel. To do this, the raw formant measurements of each speaker were plotted using the NORM suite (Thomas and Kendall 2007) (discussed below in Section 4.1.5) and cross-referenced with formant measurements in the .CSV file. Some individual tokens were re-measured by hand, as the formant track on the spectrogram in Praat can be unreliable so the script captured inaccurate measurements. On these occasions, the formant track on the spectrogram was just not clear and consistent enough to measure, even by hand, due to factors like voice quality or background noise. Ten tokens of each vowel were measured by hand per speaker. Once vowels were measured, the data were normalised. The procedures used for this are described in the next section.

4.1.5 Selecting a method for vowel normalisation

According to Thomas (2011: 161), normalisation has four possible goals:

1. Eliminate variation caused by physiological differences among speakers
2. Preserve dialectal/sociolinguistic differences in vowel quality
3. Preserve phonological distinctions between vowels
4. Model cognitive processes involved in speech perception

For sociolinguists concerned with variation, the first two goals are generally considered to be the most important (Thomas 2011: 161). As the speakers in this study are adolescents, not only are there physiological differences between male and female speakers, but also among male speakers; as they are all at different stages in puberty, there is potentially a great deal of variation in vocal tract size. Normalisation attempts to eliminate these differences, so that vowel measurements

are more directly comparable across all speakers. However, it is also important that dialectal/sociolinguistic differences are preserved. Although we want to ensure comparability across speakers, removing too much variation defeats the purpose of variationist analyses. These goals of normalisation are noted throughout the literature (e.g. Thomas 2002; Adank 2003; Fabricius et al. 2009).

In addition to the four goals described by Thomas (2011), there are methodological questions to consider when deciding which normalisation procedure to use:

- *Vowel-intrinsic versus vowel-extrinsic methods* — Vowel-intrinsic methods use formant measurements from a single vowel token, whereas vowel-extrinsic methods compare different tokens. Methodological reviews found vowel-extrinsic methods to be the best for eliminating physiological differences as they most effectively align speakers' vowel spaces (a primary goal for sociophoneticians) (e.g. Adank et al. 2004; Clopper 2009; Fabricius et al. 2009; Flynn 2011).
- *Speaker-intrinsic versus speaker-extrinsic methods* — Speaker-intrinsic methods use data from a single speaker, whereas speaker-extrinsic use more than one speaker's vowels. Both are effective, but speaker-extrinsic methods are more complex and are considered to be better for large data sets (Flynn 2011; Thomas 2011).
- *Formant-intrinsic versus formant-extrinsic methods* — Formant intrinsic methods normalise using information from occurrences of one formant only (such as only occurrences of F_1), whereas formant-extrinsic use information from multiple formants (Flynn 2011: 3). Adank et al. (2004: 3106) found formant-intrinsic methods to be best for use in variationist research as, when combined with vowel-extrinsic methods, they most effectively eliminate anatomical/physiological variation, and any remaining variation in the data is either phonemic or sociolinguistic in nature (the two primary concerns of sociophonetic research).

Many different methods of normalisation have emerged, a handful of which are now favoured by sociolinguists. These methods all aim to eliminate physiological differences whilst retaining dialectal differences, but vary in their methodological approach.

- Lobanov (1971) — vowel-extrinsic, speaker-intrinsic, formant-intrinsic.
- Labov ANAE (Labov et al. 2006) — vowel-extrinsic, speaker-extrinsic, formant-extrinsic.
- Bark difference metric (modified from Syrdal and Gopal 1986) — vowel-intrinsic, speaker-intrinsic, formant-extrinsic.
- Nearey (1977) — vowel-extrinsic, speaker-intrinsic, formant-intrinsic.
- Watt and Fabricius (2002) — vowel-extrinsic, speaker-intrinsic, formant-intrinsic.

Several studies have examined the accuracy of each method. Adank et al. (2004) found that vowel-extrinsic methods worked best for reducing physiological differences. After conducting a multivariate analysis of variation, they found that Lobanov performed best, followed by Nearey. Clopper (2009) had similar findings, also favouring Nearey and Lobanov. In addition, she found Watt & Fabricius to perform as well as Nearey and Lobanov, stating that “given the conceptual similarities between these methods... [the comparable success] is not surprising” (Clopper 2009: 1440). Most recently, Flynn (2011) compared 20 normalisation procedures. He found that vowel-extrinsic, formant-intrinsic, speaker-intrinsic methods performed the best for sociophonetic research (Flynn 2011: 24); the Watt & Fabricius method fits in this category.

However, the original Watt & Fabricius method had a tendency for the normalised lower vowel space to be skewed. Consequently, the method was modified to largely eliminate variance in vowel spaces, improve overlap of vowel polygons, and reproduce relative positions of vowel means within the vowel space compared with raw Hertz data (Fabricius et al. 2009). Fabricius et al. use data sets from two varieties of English (RP and Aberdeen English) to compare their improved normalisation procedure (modified Watt & Fabricius, hereafter mW&F) with existing Lobanov and Nearey methods. They conclude that mW&F performs at least as well as Lobanov and Nearey, and for the RP data set, significantly better than Nearey.

Thomas (2002: 174) notes, “All normalisation techniques have drawbacks, [...] choosing which normalisation technique to use is a matter of deciding which drawbacks are tolerable for the study at hand”. For this analysis, possible drawbacks of mW&F were mitigated or outweighed by the following positives:

- mW&F is effective in reducing physiological differences, whilst maintaining sociolinguistic variation, and it has consistently been found to be as effective as other methods of normalisation in this regard (e.g. Clopper 2009; Flynn 2011).
- It was developed with sociophonetics research in mind.
- Fabricius et al. (2009) developed the method using data from British English.
- It is a more efficient normalisation method due to the economy of data needed: only data from a triangular, peripheral vowel space is required, so it is not necessary to measure tokens from the entire vowel space.

The NORM suite (Thomas and Kendall 2007), an online interface that calculates a range of different normalisation algorithms, was used to normalise the data. Normalised data were then used throughout the quantitative analyses.

4.2 Statistical modelling

This thesis is in part concerned with examining variation in the production of vowels FACE and PRICE, and investigating the relationship between linguistic variation and social factors. One way to do this is to run statistical models to determine if any independent variables (linguistic or social factors) are significant predictors for variation of dependent variables (acoustic vowel measurements). As noted, the analyses for the FACE and PRICE vowels are presented in separate chapters (Chapters 5 and 6 respectively), but as the statistical modelling is the same for each vowel, the modelling method will be outlined here.

The dependent variables of interest for FACE and PRICE are formants F_1 and F_2 . As the formant measurements are frequencies in Hertz, they are continuous variables, and so linear regression modelling will be used (as opposed to logistic regression which is more suited to categorical data). For a continuous dependent variable, linear regression essentially generates an estimate of what a normal distribution of variation is for a given population. The model then tells us how close data points are to a normal distribution, and if any independent variables are able to significantly predict divergence from this distribution.

Importantly, the statistical modelling in this analysis are mixed effects models. Mixed effects models are useful for sociolinguistics, because they account for outliers in a way that fixed effects models cannot. Fixed-effects models assume that a factor (and consequently levels of that factor) is fixed and therefore repeatable. In addition, fixed-effects models do not generalise to all possible values, they just generalise using the observed values included in the model (Baayen 2008: 195).

This is problematic for linguistic data: our values are obtained by observing individuals from a given population, but we can never sample the entire population, or indeed every word that might be spoken. As such, outliers can skew the results of a fixed effects model.

Mixed-effects regression models are useful in tackling this problem, as they include random and fixed effects. The inclusion of random effects allows the model to account for the variation that might exist but is not possible to include in the model (Hay 2011). For linguistic data, using mixed-effects models essentially allows us to tell the model to account for the individual variance of speakers and words (random effects) whilst examining the degree to which variance can be explained by linguistic and/or social factors (fixed effects).⁴

Linear mixed-effects regression models are therefore used in the present analysis, in order to analyse linear relationships in the data whilst accounting for fixed effects and random effects. The computing platform R (R Development Core Team 2017) was used to run statistical models. For the linear mixed-effects regression models, the lme4 package (Bates et al. 2014) was used. For the analyses of FACE and PRICE, the following random and fixed effects were included:

Random effects:

- word, speaker

Fixed effects:

- Social factors: gender, peer group, ethnicity, diversity of friendship group, length of residency, orientation to school, style.
- Linguistic factors: preceding manner, following manner, preceding voicing, following voicing, duration, lexical category, word position

In addition to the obvious benefits for interpreting quantitative data, mixed effects regression modelling also lends itself to examining intersectionality, as it is possible to include interactions in the model. Interactions allow us to model a combination of factors simultaneously, and to test whether the combination of factors is a better predictor than the factors individually, or indeed other interactions. As intersectionality views identity as inherently multifaceted, this would predict that in a statistical model, ethnicity might co-occur with other social factors like gender or peer group. Unfortunately, the data set under analysis here does not allow for interactions to be fit when running the models. This is because there are a low number of speakers in some groups (particularly the White Squad boys, which is not a group as it is one speaker). Furthermore, there is a degree of collinearity in the data (see Section 4.5 for discussion), and there are empty cells for some interactions (for example, there no White European boys in the sample, only White European girls). Possible interactions will be considered in future analysis, but will not be modelled in this thesis.

4.3 Social factors

This section describes the social factors included in the quantitative analyses. Several possible social factors that might predict variation were identified: gender, ethnicity, race, peer group, diversity of friendship group, length of residency, and orientation to school. Gender and ethnicity have been shown to predict linguistic variation amongst adolescents (e.g. Cheshire 1982; Eckert 1989; Mendoza-Denton 2008; Drager 2009; Lawson 2011; Kirkham 2013; Alam 2015). Many of these studies found Communities of Practice to be a significant predictor, but

⁴It is important to note, however, that no model can ever fully account for all possible variation.

Factor	Levels
Gender	Female, Male
Peer groups	
<i>Girl Peer Groups</i>	Asian Squad, Beauty Squad, Black Squad, Main Squad, Nerd Girls, Rebels, White Squad
<i>Boy Peer Groups</i>	A-side, B-side, Inbetweeners, White Squad Boys
Race	Arab, Asian, Black, White
Ethnicity	Black African, Black British, Black European, Middle Eastern, South East Asian, South Asian, White British, White European
Diversity of friendship group	1 = all friends same ethnicity as self 2 = up to 20% different from self 3 = up to 40% different 4 = up to 60% different 5 = up to 80% different
Length of residency (LOR)	Percent of life in the UK (since arrival or birth)
Style	Interview, reading passage, word list

Table 4.3: Social factor levels

(as discussed in Sections 3.5.1 and 4.3.2) peer group is a more useful concept in this community. Race was considered for quantitative analysis because previous work in London indicated that the distinction between Anglo and non-Anglo adolescents was potentially meaningful (Cheshire et al. 2011). Diversity of friendship group was included as this social network measure was found to be a significant predictor of adolescent language variation in London (Cheshire et al. 2008, 2011, 2013). Length of residency can have an effect on language acquisition, but was not tested in the MLE literature despite MLE being described as emerging out of group second language acquisition. Details of factor levels are outlined in Table 4.3, and are discussed in more detail below.

Social class was not included as it was largely controlled for — Riverton Secondary School was located in an economically-deprived area and as such the vast majority of students were working class. There were two participants in this study who could have been considered (lower) middle class: Ade’s (A-side) parents both attended university and his mother was a university lecturer, and Rebecca’s (Beauty Squad) mother was a teacher. However, social class was still not included as a social factor for the following reasons: social class was not an important distinguishing factor for Year Ten peer groups;⁵ ethnographic knowledge alongside descriptive vowel plots of these participants indicate that they linguistically align with their peers.

⁵Although that is not to say that (working) class culture did not shape their social practices in some way — this is discussed briefly in Chapter 7

4.3.1 Gender

Although this study does not focus on the social construction of gender and gendered identities, it is still a social factor that may interact with other social variables in the school environment. It is also important to note the reference to gender rather than sex here. As noted by Zimman (2014: 14), mainstream academic understandings of sex and gender are problematic, as they emphasise a binary relationship in which sex is regarded as a natural state of being, and gender is considered to be the “arbitrary cultural burdens placed on members of these categories”. Zimman (2014) states that it is more useful to consider sex as part of gender rather than in opposition to it, and this is the position adopted in this thesis.

The ethnographic component of this research has enabled a detailed understanding of the community in question, making it possible to draw conclusions about participants’ gender identities. As described in Chapter 3, peer groups are (for the most part) segregated by gender, and students have strictly defined, gendered norms with regards to clothing and hair styles. The school as an institution reinforces these differences. We also saw in Chapter 3 that, although the school do not stipulate gender in their uniform rules, there are many more rules about what students wear if they wear clothing generally considered to be “female” as opposed to clothing considered to be “male” (as shown in Figures 3.5 and 3.6). Separation by gender was also common throughout the school. For example, girls and boys are not allowed to play organised sports together, which is then reflected in social practices during free time when boys play football and girls stand and watch. These gendered practices were immediately apparent; it was clear early on in the fieldwork process which students oriented to which gender identity, and that all of the students in the study can be considered cis-gendered (in that their gender identity aligns with the gender assigned to them at birth).

Given the strong differences in school experience for girls and boys, from the gendered norms enforced by the school institution to the gendered social practices of the peer groups, alongside the wealth of sociolinguistic data indicating that gender is often a significant social factor in school contexts (e.g. Eckert 1989), it seems fair to hypothesise that gender might be a statistically significant predictor for this dataset also.

4.3.2 Peer group

Peer groups are consistently found to be an important factor in language variation among adolescents, although it is more common to understand adolescent social groups as Communities of Practice (e.g. Drager 2009; Moore 2011; Kirkham 2013; Alam 2015). The first sociolinguists to use this term were Eckert and McConnell-Ginet (1992: 464), who defined a CofP as: “an aggregate of people who come together around mutual engagement in an endeavour”, noting also that “practices emerge in the course of this mutual endeavour.” As this definition of CofP highlights the importance of mutual engagement and social practices, it has been argued that using CofP as a framework for sociolinguistic analysis is useful as we gain a better understanding of the social meaning of language, and it allows us to view speakers in a more complex way than simply as members of a social category (Meyerhoff and Strycharz 2013: 431).

In this study, some of the peer groups did mutually engage in social practices, particularly the girls. At break and lunch times, White Squad sat in the same spot in the playground, gossiping and Snapchatting.⁶ Contrastingly, Asian Squad members spent their social time at

⁶Snapchat is a social media platform that allows its users to send picture to their friends that are only visible for a few seconds, and it at the time of my fieldwork it was incredibly popular among adolescents.

school walking around the playground. These two groups also engaged in distinct aesthetic practices: as noted in Chapter 3, White Squad wore make-up daily, all wore their hair straight, and wore a particular style of skirt, whereas Asian Squad actively opposed wearing make-up to school and they all wore head scarves.

Despite this, there are two reasons why the social groups in this community are not considered to be CofP. First, as noted, shared practices are an important characteristic of a CofP. However, not all social groups in Year Ten did have shared practices. For example, the Rebels did not all engage in rebellious behaviour, or have shared lunchtime activities like the White Squad or Asian Squad did, and not all of the A-side boys played football. Another important characterisation of a CofP noted by Wenger (1998: 125) is that there is consensus within a CofP who the members are. However, this was not consistently the case for each social group in Year Ten at Riverton. For example, after asking several of the boys about their friendship groups and confirming the existence of the two peer groups A-side and B-side, it also emerged that about half of the boys in these groups were considered “floaters” — in other words, membership of A-side and B-side was somewhat variable, and there were inconsistent reports on membership depending on who was reporting and who was being referred to. There were similar inconsistencies with membership descriptions for the Rebels and the Nerd Girls. For this thesis, then, the term peer group is deemed a better descriptor of the social organisation of Year Ten at Riverton.

4.3.3 Race and ethnicity

As discussed in detail in Chapter 2, work on race and ethnicity in British sociolinguistics falls into three camps: interactionist, variationist, and social networks. Of the three, interactionists (e.g. Hewitt 1986; Rampton 1995; Harris 2006) take the most critical approach to examining ethnic identities. Some variationist work also presents nuanced representations of ethnic identities in Britain, particularly in Asian communities (e.g. Sharma 2011; Kirkham 2013; Alam 2015). However, as ethnic minority communities have changed and urban areas have diversified, some variationist work has focused on other social factors. For example, Cheshire et al. (2011) found that diverse social networks and group second language acquisition were statistically better predictors of the use of innovative linguistic variables in London than ethnicity. Although there was evidence of trends relating to ethnicity, particularly with regards to Afro-Caribbean boys, these are not explored in detail. In a study of a multiethnic adolescent community in Manchester, Drummond (2017, 2018) takes a more explicit stance about ethnicity. He asserts that, as the majority of the study participants do not explicitly discuss different ways of speaking in relation to ethnicity, adolescent language in Manchester is ethnically-neutral: “From the outside, the use of ‘you get me’ or ‘ting’ or other particular pronunciations might well index aspects of ethnicity, while on the inside, it simply indexes teenage, or masculinity, or ‘street’.” (Drummond 2017: 18). This position is reiterated with a multivariate analysis of TH-stopping, where Drummond (2018) does not find ethnicity to be statistically significant. He argues that, in this specific context, orientation towards toughness or a “street” culture associated with the music genre Grime is more salient (Drummond 2018: 192).

This thesis seeks to add to these descriptions of adolescents in multiethnic British urban centres by demonstrating the ways in which ethnicity can be important in diverse, multicultural communities. The aim is not to discredit the findings of previous work, but to highlight the complexities of race and ethnicity that may be missed through quantitative variationist analysis. Drummond (2017) does include ethnographic methods, which adds weight to his description of adolescent identities in Manchester as relating to “street” culture rather than ethnicity. However,

his participants do discuss “sounding black” (e.g. Drummond 2017: 16 & 18), which suggests that some linguistic features do index ethnicity in some way. As Drummond is a middle-aged, middle class, White British male, it is possible that in his position as a researcher he was not privvy to the ways in which his participants “did” ethnicity, or that he does not have the same awareness as his participants of the indexical links that are meaningful in relation to ethnicity.

In an attempt to untangle these complexities, the quantitative analysis in this thesis treats race and ethnicity separately. This is because in the UK, there are shared social experiences within racial communities such as the Asian community or the Black community, but also cultural backgrounds and social experiences for ethnic groups within those racial communities that differ. It is possible that ethnic differences are too fine grained to be statistically significant, but the broader category of race may be more informative. Of course, this only further glosses over the complex dynamics of race and ethnicity. It is anticipated that results of the quantitative analysis will bolster the argument that race and ethnicity as social factors are just too complex to be analysed using quantitative methods alone.

Table 4.4 shows the relationship between the self-identified labels that participants used (noted in Chapter 3) and the variable levels used for the quantitative analysis. The term “heritage” is used here to reflect participants’ self-identified ethnic background (the “ethnic background” column in Tables 3.6 and 3.7), which often relate to national heritage (“nationality” was not an accurate term to use as the majority of participants are British citizens by birth). Although heritage is not a factor in statistical models as it has too many levels to hold any statistical power, it is included here to highlight the diversity of ethnic and cultural backgrounds amongst the participants in this study; the heritages noted are the ethnic backgrounds of all participants in this study. The variable “Ethnicity” is the original ethnic categories used for the descriptive statistics and the first round of inferential modelling, based on the participants self-identification. However, there were too many different levels, and too many levels with only one speaker, for this factor to be included in models. Therefore, for statistical modelling, the levels were collapsed into broader categories to create a new variable, “Ethnicity collapsed” (see Section 5.6 for discussion). Race is examined descriptively in this thesis in order to illustrate descriptive interactions that it is not possible to model. Race is omitted from the inferential analysis, as the descriptive analysis alongside preliminary modelling demonstrated that, without an interaction, race was not a useful predictor.

4.3.4 Diversity of friendship networks

Finally, it is necessary to discuss diversity of friendship network. The MLE literature found diversity of friendship networks to be a significant predictor of the use of innovative linguistic variables (Cheshire et al. 2008). Cheshire et al. measured this by giving each participant a “friendship network diversity score”. This was calculated by asking participants how many of their friends were of a different ethnic background from themselves (Cheshire et al. 2008: 7):

- 1 = all friends same ethnicity as self
- 2 = up to 20% of friends of a different ethnicity from self
- 3 = up to 40% of friends of a different ethnicity from self
- 4 = up to 60% of friends of a different ethnicity from self
- 5 = up to 80% of friends of a different ethnicity from self

Cheshire et al. (2008) found that, of their participants from Hackney, none had a friendship diversity score of 1 or 2. In other words, all Hackney speakers in the data had “diverse” friendship

Race	Ethnicity collapsed	Ethnicity	Heritage
Asian	South Asian	South Asian	Bengali Pakistani Indian
		South East Asian Vietnamese	
Arab		Middle Eastern	Kuwaiti
Black	Black African	Black African	Ghanaian Nigerian Congolese Somali
	Black British	Black British	Jamaican Nigerian*
		Black European	Cape Verde/Portuguese
White	White British	White British	English Irish (1)
	White European	White European	Latvian Romanian

*Nigerian is listed as Black African and Black British because one speaker, Ade, self-identified as British whereas the other participants (the girls in the Black Squad, as well as the Inbetweeners boys) self-identified as African.

Table 4.4: Levels of social factors race and ethnicity

networks. They also found that diversity of friendship network was a significant predictor for a range of innovative variants such as diphthong shifted FACE, GOOSE fronting, TH-fronting, DH-stopping, and /k/-backing. In particular, they note that “all the Hackney adolescents use the phonological innovations to some extent. The most extreme innovative variants, for both vowel and consonant variables, are used [...] by non-Anglo speakers in general and specifically by speakers with high multi-ethnic network scores of 4 and 5.” (Cheshire et al. 2008: 19). In the follow-up project, they drew similar conclusions about the importance of multi-ethnic friendship groups in using innovative features (e.g. Cheshire et al. 2011), although there is less detail about the measure of friendship group diversity.

While these findings appear consistent across projects and are undoubtedly important, the diversity of friendship network measure has some limitations. First, the definitions of their measures state that a diversity score of 5 is for those speakers with friends *up to* 80% different from self. But what about speakers with more than 80% of friends with a different ethnic background from self? With Cheshire et al.’s measures, a diversity score of 5 must be used for speakers with 61%-100% of friends with a different ethnic background, which means that scores are not evenly distributed.

In addition, Cheshire et al.’s definitions of “diversity of friendship group” and “diversity” focuses on just one aspect of network information, namely friends that are “different from self” (Cheshire et al. 2008: 7). However, if we understand diversity to mean something akin to heterogeneity, this would mean that an adolescent’s friendship networks should not just be different from themselves but also internally heterogeneous as a group; in other words, their friends should be ethnically different from each other as well. Take these hypothetical examples: Adam is a White-British adolescent who has four friends, who are all of Black-African descent.

Using Cheshire et al.'s measure, Adam would have a score of 5. Another adolescent, Khadija, is Pakistani and has friends of Turkish, Polish, Nigerian, and Vietnamese descent. Khadija would also score a 5 using Cheshire et al.'s measure. While both of these adolescents do indeed primarily have friends who are of different ethnic backgrounds to themselves, Adam actually has a less diverse friendship group than Khadija as the members of his friendship network all have the same ethnic background as each other. Cheshire et al. would categorise these speakers in the same way, even though it is apparent that Adam's friendship group is differently diverse to Khadija's. Consequently, the measure used by Cheshire et al. is problematic, as it does not capture additional aspects of "diversity", and consequently it is not a representative measure that fully captures the complexities of diverse friendship networks in a comparative way.

Considering this, other ways of possibly quantifying diversity of friendship group were explored in addition to using the diversity score devised by Cheshire et al. The fourth column in Table 4.5 gives Cheshire et al.'s diversity measure for each participant. The second and third column list alternative measures of diversity of friendship group: difference from self and diversity of friendship group. These measures are considered separately because combining them would result in the loss of some descriptive power. Difference from self is the proportion of the total number of close friends that have a different ethnic background to the participant (as described by participants on their questionnaires), converted to a maximum of 1. Whilst this is similar to Cheshire et al., presenting a proportion instead of assigning a score is more accurate representation of network difference. The same is done for diversity of ethnic backgrounds within the friendship group. The scores for some speakers are not dissimilar to the measure devised by Cheshire et al. For example, Anthony has a difference score of 1 and a diversity score of 1, and his score based on Cheshire et al.'s proportions is 5; all three scores indicate highly diverse friendship networks. Anaya also scores a 5 using Cheshire et al.'s measure, but her difference and diversity scores (0.8 and 0.6 respectively) tell another story. This is because she has 5 school friends, 4 of whom have different ethnic backgrounds to her, giving a proportional difference score of 0.8, but they are less diverse as a group (there are three different ethnic backgrounds amongst them), giving her a diversity score of 0.6. Using Cheshire et al.'s scoring system, Anaya appears to have highly diverse networks that are comparable with other speakers like Anthony, but her networks are differently diverse networks.

So it seems that, for speakers with either highly hetero- or homogeneous friendship networks, Cheshire et al.'s measure works, but it is more challenging to accurately capture the complexities of friendship networks that are highly different but not very diverse. An additional problem is that none of these measures capture the ethnic make up of different friendship groups. For example, whichever measure you use, John and Ade both have highly diverse and different friendship networks. However, John's friends are of Congolese, Jamaican, and mixed race Kosovan-Somali descent, whereas Ade's friends were Swedish Congolese, Vietnamese, and Bengali. It seems naive to assume that friendship groups this different would have the same effect on language variation and/or change.

Finally, it is important to note that the scores in Table 4.5 were all calculated using friendship network information for participants' school friends. Data on out-of-school networks was also collected through the questionnaire (see Appendix 8.5), and the majority of participants had friends outside of school that they spent most of their time with when not at school — an additional layer of complexity that is not accounted for by any of the measures used here. For example, the White Squad girls' friendship networks at school were majority White British (as noted in Chapter 3, one member of the White Squad is mixed-race), but outside of school their networks were largely non-White. It was of course possible to determine separate difference

Girl peer groups	Difference	Diversity	Cheshire et al.
Asian Squad			
Foziah	0	0	1
Jamima	0	0	1
Malaika	0	0	1
Beauty Squad			
Rebecca	1	0.33	5
Erika	0.67	0.67	4
Black Squad			
Natasha	0	0	1
Tosin	0	0	1
Wendy	0	0	1
Oyin	0	0	1
Main Squad			
Nahida	1	0.71	5
Krista	1	1	5
Nerd Girls			
Ruby	1	0.67	5
Violet	0.8	0.8	5
Rebels			
Anaya	0.8	0.6	5
Shaika	1	0.6	5
Maria	1	0.67	5
White Squad			
Amy	0.17	0.17	2
Francesca	0.17	0.17	2
Carly	0.17	0.17	2
Boy peer groups	Difference	Diversity	Cheshire et al.
A-side			
Ade	1	1	5
Sanjit	0.75	0.75	4
Dinh	1	0.88	5
B-side			
John	1	1	5
Rajesh	1	1	5
Inbetweeners			
Anthony	1	1	5
Teddy	1	1	5
WS Boys			
Zach	0.17	0.17	2

Table 4.5: Friendship group diversity measures

and diversity measures for non-school friends. However, not all participants had friends from outside of school, which would make it impossible to conduct a reliable quantitative analysis of separate friendship networks in and out of school, and combining measures would again conflate the complexities.

A key motivator in including the friendship network diversity score devised by Cheshire et al. was so that results are directly comparable with the previous literature. This section has demonstrated some of the issues with these network measures that were anticipated prior to analysis. Further challenges with Cheshire et al.'s friendship group diversity measure came to light following the quantitative analyses, due to low N for certain levels (for example, there is only one speaker for levels 2 and 4 amongst the boys, and no speakers with level 1). As such, models in that include gender and friendship diversity in the models that follow are interpreted with appropriate caution. Friendship network diversity has already been discussed to a degree in Chapter 3, and so ethnographic knowledge will be drawn on in interpreting the quantitative results in order to develop a nuanced understanding of diversity of friendship networks in this community.

4.3.5 Length of residency

Group second language acquisition was said to be a driving force in the development of MLE (Cheshire et al. 2011). However, factors effecting language acquisition, such as length of residency, were not examined in the MLE projects. It has long been established that age of arrival has an influence on second language acquisition, such that it has been hypothesised that there is a critical period for second language acquisition (Flege 1987). More recently, debates have emerged as to the best way to account for the effects of other factors like length of residency, and its linear relationship with age of arrival and age at testing (e.g. Stevens 2006).

It is beyond the scope of this thesis to examine the relationship between these factors in any detail. It has been argued that age of arrival has a more significant effect than length of residency on language acquisition, so both factors were included at first. However, as all participants were a similar age when tested, length of residency and age of arrival are interdependent. Consequently, results of descriptive statistics for length of residency and age of arrival were identical, and including both factors in linear models did not show an improvement. This is most likely because length of residency and age of arrival have a linear relationship, and as all participants are the same age in this study, length of residency is also representative of age of arrival for these adolescents. To demonstrate, background data for participants is included in Table 4.6. The majority of speakers in this study were born in the UK or moved to the UK before the age of 3. There are three girls who arrived later than this, and two boys, so it is possible that these speakers will have different patterns of variation to their peers.

4.3.6 Stylistic variation

Traditional variationist approaches to stylistic variation state that as speech situations become more formal, speech becomes more standard. For example, it has also been shown that when greater attention is paid to speech, speech also becomes more standard (Labov 1971). Of course, stylistic variation is not only about formality or attention-to-speech. There is a wealth of research examining interlocutor, topic, as well as repertoire approaches that highlight stance and persona as motivators in stylistic variation (e.g. Rickford and McNair-Knox 1994; Schilling-Estes 1998; Sharma 2011). In this study, the data collected primarily varies by attention-to-speech, as the three speech situations recorded were interview, reading passage, and word list. It could be

Girl peer groups	Length of residency (%)	Age of arrival (years)
Asian Squad		
Foziah	100	0
Jamima	100	0
Malaiika	100	0
Beauty Squad		
Rebecca	100	0
Erika	57	6
Black Squad		
Natasha	100	0
Tosin	100	0
Wendy	53	7
Oyin	33	10
Main Squad		
Nahida	93	1
Krista	86	2
Nerd Girls		
Ruby	100	0
Violet	87	2
Rebels		
Anaya	100	0
Shaika	80	3
Maria	100	0
White Squad		
Amy	100	0
Francesca	100	0
Carly	100	0
<hr/>		
Boy peer groups	Length of residency (%)	Age of arrival (years)
A-side		
Ade	100	0
Sanjit	36	9
Dinh	100	0
B-side		
John	100	0
Rajesh	100	0
Inbetweeners		
Anthony	93	1
Teddy	43	6
WS Boys		
Zach	100	0

Table 4.6: Length of residency and age of arrival

suggested that examining different styles within interviews might have been fruitful. However, for the participants in this study, there was little stylistic variation within the interview context; as I had got to know most of them quite well before interviewing, the majority of the interviews were a similarly informal, conversational style.

The reading passage used in this study was an adaptation of Aesop's fable, *The boy who cried wolf*, taken from Deterding (2006). The text was chosen as it was specially designed to facilitate the description of all the consonants and vowels of English, with little repetition of individual lexical items. It also included over 10 tokens of each of the vowels examined in this thesis, FACE and PRICE. The word list was adapted from the list utilised for the MLE projects (Kerswill et al. 2008; Cheshire et al. 2011, 2013), obtained from Sue Fox via personal communication. Dr. Fox was a research associate on the projects, so was able to give insights into the data collection process using the word list. She indicated that participants found the word list a challenge due to its length, so I removed some words whilst ensuring that the word list still had an equal balance of innovative MLE phonetic variables, and that a range of phonetic contexts were also controlled for.

4.4 Internal factors

As noted, this analysis is also interested in contributing to our understanding of language change in London. The MLE projects (summarised in Cheshire et al. 2008, 2011) posit that innovative linguistic features in London are in part a result of group second-language acquisition, and therefore born out of diffusion as opposed to transmission. This is because transmission is defined as the spread of change within a speech community (often from parent to child), whereas diffusion occurs when changes spread across different communities, and often involves a weakening of patterns or loss of structure (Labov 2007). However, for the communities studied for the MLE projects, the linguistic conditions needed for transmission were not present (Cheshire et al. 2011: 191), and there is evidence of the weakening of patterns (e.g. for *was/were* variation).

The quantitative analyses that follow examine two different phonological variables. It has long been established that phonological environment is a predictor of variation (e.g. Labov 1963), and previous research indicates that FACE and PRICE in London English are no different (e.g. Fox 2015). This analysis examines phonological environment, vowel duration, lexical category, and word position. For a summary of the levels of these factors included in the statistical analysis, refer back to Table 4.2.

4.4.1 Phonetic environment and word position

As described in detail by Labov (1994: 457-60), phonetic conditioning is an important internal factor to consider when examining variation and change. Controlling for phonetic factors is particularly important when examining phonetic variables as this allows the social factors to emerge. Therefore, for this analysis, preceding and following phoneme is coded for, as well as word position.

Studies that consider varieties of British English have found phonetic environment to be a significant predictor of variation. For example, following laterals were found to significantly predict variants of FACE in London (Fox 2015). It has also been found that FACE is more likely to be diphthongal when the following phoneme is voiceless in Northern Englishes (Haddican et al. 2013). Word position can also have a significant effect; word finality was found to predict which variant of the FACE vowel was used in a predominantly Bangladeshi community in East

London (Fox 2015).

The possible constraints for FACE and PRICE are discussed in more detail in the background literature sections of Chapters 5 and 6 respectively. For this analysis, preceding and following phonemes were coded for each token of FACE and PRICE. Each phoneme was coded at the level of the phoneme as opposed to collapsing into natural classes for two reasons. First, so that it would be possible to explore the effects of individual phonemes (if necessary), and second so that it was then possible to collapse preceding or following phonemes into larger categories based on natural classes as made sense for the data.

4.4.2 Lexical category

As noted, findings of the MLE projects indicate that there is ongoing sound change in the London diphthong system. However, there are unanswered questions about the origins of ongoing linguistic change in London. As the quantitative analysis of this thesis is concerned with two London diphthongs that have recently undergone (and possibly still undergoing) change, it is necessary to include linguistic factors that can indicate mechanisms of change.

Lexical category is included in this analysis in order to factor in two possible mechanisms of change: lexical diffusion and frequency. It is widely understood that there can be regular sound change, which affects all words equally, or lexical diffusion, in which some words are more likely to be affected than others (Labov 1994). Additionally, lexical diffusion often occurs in the late stages of a sound change, and can be indicative of external motivators (for detailed discussion see Labov 1994: 429-437). Lexical category as a linguistic factor was not included in previous London studies. Therefore, including lexical category in this analysis may shed light on the mechanisms of ongoing change in London.

In addition, high-frequency words are more likely to be affected by sound change at an earlier stage than low-frequency words (Bybee 2002). Frequent words were controlled for in this analysis by having an upper limit of 5 tokens per lexical item when coding. Although this analysis cannot directly examine the effects of frequency, it can still be somewhat accounted for by including lexical category. Function words occur more frequently than content words and numerics, so often behave differently and can be examined via the factor of lexical category.

4.4.3 Duration

Previous literature indicates that FACE and PRICE are monophthongised for some speakers in London (Kerswill et al. 2008). As such, it is necessary to account for duration in the analyses. It is a well-known phonetic phenomenon that the shorter the duration of a vowel, the more likely it is for the realisation of the vowel to be truncated in some way. This is particularly true for diphthongs, as it is often found that the glide of diphthongs with a shorter duration is either reduced or non-existent. In addition, as noted by Thomas (2011: 149), “coarticulatory effects on formant values appear to be magnified for vowels of short duration.” The realisation of vowels is, therefore, inherently linked to duration, and it is important to ensure that, if monophthongisation is present, it is not simply a result of short vowel duration. As noted in Section 4.1.4, this was controlled for by excluding vowel tokens with a duration of less than 60ms. The full procedure for measuring vowels was outlined in Section 4.1.4. Duration of each vowel token was calculated by the same script that collected formant measurements. The script collected the start and end time point of each vowel in addition to the proportional formant measurements, and the difference was calculated and entered as a column in the resulting Excel spreadsheet.

4.5 Testing for correlation

The previous two sections outlined in detail the different social and linguistic factors included in the quantitative analyses of the FACE and PRICE vowels. However, before continuing with the descriptive and inferential statistics, it is necessary to address the issue of correlation. As described above, linear models are used to find out if there are any associations between independent and dependent variables (Johnson 2013). For example, this thesis is interested in seeing if social factors like gender, ethnicity, and peer group, can predict the realisation of diphthongs FACE and PRICE. Independent variables, however, should have limited associations with each other. Whilst one might be able to use independent variables to predict dependent variables, such as girls use a more diphthongal FACE vowel, it should not be possible to predict one independent variable based on another, such as predicting a speaker's peer group membership from their ethnic background and gender. When there are many associations like this within a data set, it is said to be collinear, and a high degree of correlation means that statistical models are unreliable.

It is not problematic for independent variables to interact in some way. Indeed, considering an interaction between two or more independent variables is often found to better predict variation than testing each independent variable separately, and fitting interactions like this could shed light on the relationship between linguistic variation and intersecting identities. For example, in the current data set it could be that, while girls use a more diphthongal FACE than the boys, girls with a White British ethnic background in the peer group White Squad use the most diphthongal FACE vowel. In other words, an interaction between gender, ethnicity, and peer group together better predict vowel realisation than gender alone. However, we run into problems if the relationship between “independent” variables is actually interdependent. In this dataset, there is a subjective sense that independent variables correlate. For example, continuing with the above example, there seem to be some interdependent relationships between peer groups and ethnicity: there are no White British girls in any other peer group; it is possible to predict the peer group of girls with a White British ethnic background; and it is possible to predict the ethnicity of girls in the White Squad peer group. Therefore, it is important to test whether these associations show statistical correlation.

Correlation can be calculated in one of three ways: Pearson's, Spearman's, or Kendall's (for discussion, see Johnson 2013: 304-6). These methods test for different types of relationships in the data. A Pearson correlation is a parametric test that looks for a linear relationship between two variables. Spearman's is a non-parametric test that looks for monotonic relationships and better deals with outliers and non-linear data. Kendall's is also non-parametric, but tests probability. For the present analysis, Pearson's was deemed the most suitable method, as the data are continuous and in linguistics we assume the data follow a normal distribution (Baayen 2008: 91; Johnson 2013: 306).

Pearson's correlation tests were calculated using R. The correlation matrix for social factors⁷ is shown in Table 4.7; an R_2 value greater than 0.7 indicates that two factors correlate highly. In this table, we can see that there is a high degree of correlation between gender and peer group ($r=0.77$). This is not surprising because of the way girl and boy peer groups are made up: all girl peer groups have only female members, and all boy peer groups have only male members, meaning that levels in one factor (peer group) predict or determine the levels in another (gender). There is also a high degree of correlation between ethnicity and race ($r=0.91$), as levels of ethnicity (e.g. Black African, South Asian) are directly associated with levels of race

⁷The social factors included here are described in Section 4.3

Social factors	Gender	Peer group	Ethnicity	Race	Heritage	LOR	Diversity
Gender	X	-	-	-	-	-	-
Peer group	0.77	X	-	-	-	-	-
Ethnicity	0.02	0.20	X	-	-	-	-
Race	0.10	0.37	0.91	X	-	-	-
Heritage	0.05	0.24	0.12	0.15	X	-	-
LOR	-0.03	0.03	0.01	-0.08	-0.09	X	-
Diversity	-0.34	-0.03	-0.08	-0.11	0.38	-0.04	X

Table 4.7: Correlation matrix for social factors in entire data set, with Pearson’s R-squared values

(e.g. Black, Asian).

As these factors are highly correlated, including gender and peer group or race and ethnicity together in a regression model would make results unreliable. To mitigate this, Chapters 5 and 6 will examine girls and boys separately. It would also make sense to exclude either race or ethnicity. Before making a decision about this, it is necessary to test for correlation within each gender group. Results from these correlation tests will then inform a decision about race and ethnicity.

Girls — Social factors	Peer group	Ethnicity	Race	Heritage	LOR	Diversity
Peer group	X	-	-	-	-	-
Ethnicity	0.26	X	-	-	-	-
Race	0.45	0.91	X	-	-	-
Heritage	0.38	0.20	0.21	X	-	-
LOR	0.11	-0.12	-0.19	-0.29	X	-
Diversity	0.48	-0.01	0.03	0.43	-0.09	X

Table 4.8: Correlation matrix for girls’ social factors, with Pearson’s rank R-squared values

Boys — Social factors	Peer group	Ethnicity	Race	Heritage	LOR	Diversity
Peer group	X	-	-	-	-	-
Ethnicity	0.52	X	-	-	-	-
Race	0.66	0.97	X	-	-	-
Heritage	-0.28	-0.13	-0.16	X	-	-
LOR	0.06	0.37	0.22	0.57	X	-
Diversity	-0.28	-0.28	-0.29	0.49	0.25	X

Table 4.9: Correlation matrix for boys’ social factors, with Pearson’s rank R-squared values

The first thing to notice is that, in both the girls in Table 4.8 and the boys in Table 4.9, race and ethnicity again show a high degree of correlation: 0.91 and 0.97 respectively. For the boys, race also correlates relatively highly with peer group, at 0.66. Therefore, race and ethnicity were modelled separately and compared in order to eliminate one of these social factors. Model

comparisons found ethnicity to be a better predictor, so when running the mixed-effects models, race will be excluded. No other factors show a high degree of correlation, although there does appear to be more correlation between different factors (e.g. peer group with ethnicity, or heritage with length of residency and diversity of friendship group) for the boys than the girls. This is likely because the boys have fewer levels in each factor.

Linguistic factors	Preceding manner	Following manner	Preceding voicing	Following voicing	Lexical category	Word position
Preceding manner	X	-	-	-	-	-
Following manner	-0.09	X	-	-	-	-
Preceding voicing	0.38	-0.07	X	-	-	-
Following voicing	-0.1	0.56	-0.16	X	-	-
Lexical category	0.01	0.08	0.01	-0.01	X	-
Word position	-0.2	0.23	-0.27	0.34	0.13	X

Table 4.10: Correlation matrix for linguistic factors of Pearson’s rank R-squared values

Next, correlation between linguistic factors is considered. The correlation matrix is shown in Table 4.10: there are no values above 0.7, indicating that correlation of linguistic factors is low. However, there are still some problems, specifically with preceding voicing and manner, and following voicing and manner. A distinction in voicing, of course, only refers to consonants; other contexts were coded simply as vowel or pause (as noted in section 4.1.3). As a result, these levels of voicing correlated directly with levels of manner, which also has vowel and pause as possible levels, and in turn these are the same segments that would be coded as a vowel or pause for voicing. To resolve this, in the analysis sections, preceding and following environments are collapsed by grouping together voicing and manner. So, for preceding environment, levels analysed are voiced stop, voiceless stop, voiced fricative, voiceless fricative, approximant, lateral, vowel, and zero. The same applies for following environment.

4.6 Summary

This chapter has presented the methods used for the quantitative analysis in this thesis. First, the various tools used to prepare the data for vowel analysis were described, including procedures for transcription, forced aligning, normalisation, coding, and vowel measuring. Then, methods and justification for statistical modelling were outlined, and the different social and linguistic factors and levels included in the models were described in detail.

In sum, there are several issues with correlation in the data. In order to prevent collinearity and therefore erroneous mixed-effects models, the following modelling strategy will be used:

- All data will be modelled together, and then girls and boys will be modelled separately;
- Interactions will be examined descriptively, but will not be fitted in regression models; and
- Preceding and following environment will be collapsed, as will levels for ethnicity, and race will be excluded from the models.

In the next two chapters, the vowel analyses are presented. Chapter 5 presents the analysis of the FACE vowel, and then the PRICE vowel is analysed in Chapter 6. Each chapter follows a similar structure. First, a brief description of the vowel is provided, followed by an analysis of two variable vowel dynamics: onset position and trajectory. For each vowel dynamic, descriptive

statistics of social and linguistic factors are presented, followed by inferential statistical analysis. By conducting a detailed multivariate analysis of different vowel dynamics, some consistent patterns for social and linguistic factors emerge. Although social factors are complex, highlighting how ethnic stratification of linguistic variables intersects with other social factors like gender. In addition, findings for linguistic factors for PRICE are consistent with previous literature (Fox 2015), whereas findings for FACE are less so, suggesting that PRICE is more stable than FACE.

5. Quantitative analysis of the FACE vowel

5.1 Chapter outline

This chapter reports the acoustic analysis of the FACE diphthong. In Chapter 2 we saw that one of the linguistic innovations of MLE is a raised onset for FACE and a shortened trajectory (Kerswill et al. 2008; Fox 2015). We also saw that speakers with ethnically diverse social networks and ethnic minority boys were more likely to use innovative realisations of FACE, and that this realisation was not present in Havering, an outer East London borough. The current analysis focuses on two dimensions of the FACE vowel: vowel onset position and vowel trajectory. To determine the degree to which FACE is raised, the onset of F_1 is analysed. Trajectory will be examined by calculating Euclidean distance between onset and offset (as in Fabricius 2007; Haddican et al. 2013). The chapter begins with a description of FACE in British English, including a summary of recent findings on FACE in London. This is followed by a descriptive analysis of the social and linguistic factors of FACE onset and then a full multivariate analysis using linear mixed-effects regression models. The same is then presented for FACE trajectory. These analyses show evidence of gender and ethnic stratification for both FACE onset and FACE trajectory. The stark social differentiation in some ways aligns with previous findings, as gender and ethnic differences have been apparent throughout the MLE literature. However, this analysis also begins to advance our understanding of the complex intersectional dynamics of ethnicity at Riverton and their relationship with language change. Not all adolescents participate in the sound change to the same degree, and this can be predicted in part by social factors, but ethnographic knowledge provides additional insights not available from statistical analyses alone.

5.2 The FACE vowel in British varieties of English

Although there are various early descriptions of FACE (e.g. Hudson and Holloway 1977), Wells (1982a) represents a key reference in the literature. According to Wells (1982a: 141), words in the FACE lexical set share the vowel cited as /eɪ/ in RP and General American English. Phonetically, it is a front, narrow, closing diphthong, unless it is monophthongal in which case it is front and half close. Wells notes that there are a wide range of variants across the English-speaking world, that generally fall into the categories of monophthongs or wide diphthongs. Monophthongs are typical of northern British Englishes, southern US Englishes, Celtic countries, and the Caribbean, whereas diphthongal variants are expected in southern and midland varieties of British English, northern US Englishes, and southern hemisphere Englishes (Wells 1982a: 142).

In British English, London and Cockney variants of the FACE vowel developed out of the Diphthong Shift. The Diphthong Shift affected fronting, closing diphthongs and backing, closing diphthongs in London Englishes and other local dialects of South East England. Figure 5.1 provides a simplified, schematic representation adapted from Wells (1982a). This chain shift likely originated in London, and it has been suggested that the Diphthong Shift was almost as significant as the Great Vowel Shift (Wells 1982a: 256). For backing, closing diphthongs, there was a clockwise shift in onsets, resulting in more open and possibly fronter GOAT and MOUTH diphthongs. More relevant to the present study is the shift that occurred for fronting, closing diphthongs, which resulted in a “counter-clockwise shift in the starting points of the fronting-

In addition to identifying new variants of the FACE vowel, Fox (2015: 118-120) describes a number of linguistic constraints. With regards to preceding phonological environment, front, narrow variants were most likely preceded by phoneme /l/, with the highest frontest variant favoured after /w/. For following segment, the three innovative variants were most likely to occur when followed by a voiceless obstruent and least likely to occur when followed by a glottal stop. Word finality was the only position to have an effect on FACE, with high front /e₁/ being the most likely variant to occur in word final position. Finally, with regards to social factors, Fox found that boys were more likely to use innovative variants, and of the three ethnic groups in her data set (Bangladeshi, White British, and mixed race White/Afro-Caribbean), speakers of Bangladeshi origin used a greater proportion of innovative variants and almost no local variants.

Similar findings were made by Kerswill et al. (2008) as part of the Linguistic Innovators project. They confirmed that, whilst older speakers in Hackney exhibited diphthong-shifted (that is, traditional London) vowels, adolescents had moved away from this using innovative variants for diphthongs FACE, PRICE, MOUTH, and GOAT. Linguistic constraints were not examined in detail, but preceding and following laterals and nasals were excluded (Kerswill et al. 2008: 466). For the FACE vowel, acoustic analysis illuminated several key findings: for speakers using more innovative variants, the onset of FACE was raised; non-Anglo speakers, particularly boys, were most likely to use innovative diphthongs with shorter trajectories; and for Anglo speakers, there was a slight diphthong-shift reversal for FACE that was greater when speakers had ethnically diverse friendship networks.

The findings of Fox (2015) and Kerswill et al. (2008) both demonstrate a marked shift from diphthong-shifted London English vowels, but historically there was a lack of acoustic analyses of London English phonology (Sebba 1993: 64). Consequently, for the Multicultural London English project, Cheshire et al. (2011) conducted acoustic analyses of real time data. They obtained recordings from Mark Sebba of Afro-Caribbean London adolescents code-switching between Patois and their London vernacular. They found that the onset of FACE was raised when speaking Patois, and much more central when participants were speaking with a White British fieldworker in an interview context (Cheshire et al. 2011: 160-1). By examining speakers of Afro-Caribbean heritage, Cheshire et al. compared their data with Sebba's and found a high degree of correspondence. They then examined their entire dataset, and concluded that this innovation showed little difference among ethnic minorities as a whole, but Anglo (that is to say, White British) participants had a more open onset for FACE (among other things) (Cheshire et al. 2011: 162). They also found an interaction between ethnicity and gender. Anglo females were the most conservative: whilst their FACE vowel had moved away from the traditional diphthong-shift variant, it was also not as raised and fronted or shortened as other speakers. Non-Anglo males were most innovative, with the most raised and fronted FACE and also the shortest trajectories.

Building on previous findings, the analysis that follows uses descriptive and inferential statistics to explore the following questions:

- What social factors (if any) have an effect on the realisation of FACE? Are these the same social factors that were significant in the MLE projects?
- Do realisations of FACE in this community follow the same linguistic constraints found in previous literature?
- What do these findings tell us about the diffusion of the diphthong-shift reversal identified by Kerswill et al. (2008)? Has the reversal diffused or stopped? And how are social factors implicated in ongoing vowel changes in London?

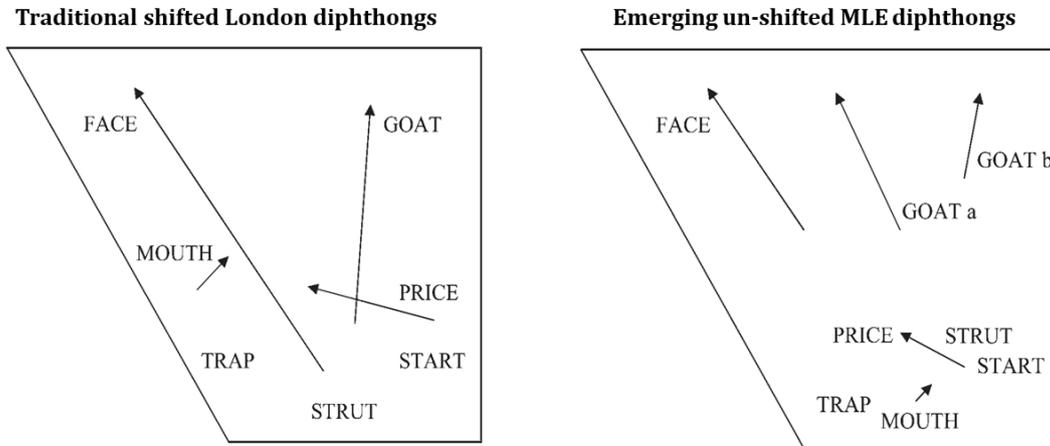


Figure 5.2: Traditional and innovative diphthong plots from Kerswill et al. (2008)

Thus far, in reviewing the literature, the terms “conservative” and “traditional” have both been used to describe older variants. The description of London English(es) diphthongs used in the twentieth century as diphthong-shifted is based on the hypothesis that, prior to this, London dialects existed with un-shifted diphthongs. However, London dialects like this are not part of the social memory, and for speakers nowadays the diphthong-shifted vowels are often seen as canonically London and stereotypical of the speech of (White) working-class East Londoners. Therefore, the analyses that follow will refer to vowels that are closer to diphthong-shifted variants as *traditional*, and vowels that seem to be moving away from the diphthong-shift (whether this is a reversal or something else) will be referred to as *innovative*.

5.3 The FACE vowel at Riverton

Before providing a detailed quantitative analysis of FACE onset and trajectory, it would be useful to have a descriptive picture of the different realisations of FACE found at Riverton, and how this fits within the vowel space. This section includes a series of vowel plots. First, typical London vowel quadrilaterals from Kerswill et al. (2008) are given for context, and then a series of plots showing mean averages of normalised vowel measurements by gender, peer group, and individual speakers are presented.

The plots in Figure 5.2 are from Kerswill et al. (2008), and show the difference between traditional and innovative vowels in London. A typical traditional London vowel space is shown on the left, with diphthongs that have undergone the Diphthong Shift. Looking specifically at FACE, we can see that a traditional London FACE vowel has a central, low onset, and a long trajectory with a high, front offset. On the right, is a typical vowel space for a speaker with emerging, un-shifted diphthongs. Here, FACE has a raised, fronted onset and shorter trajectory. The offset is still high and front.

For the participants in this study, findings for FACE are not dissimilar to the emerging

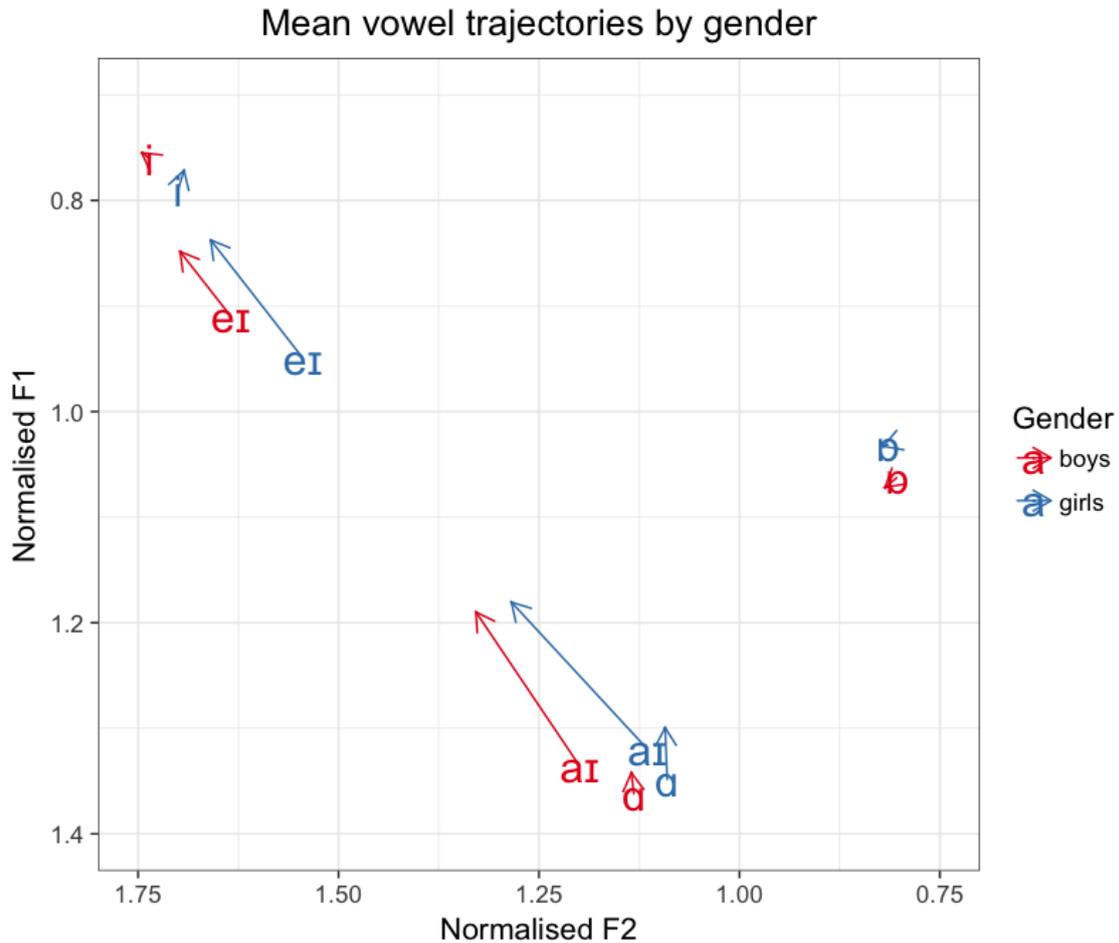


Figure 5.3: Plot of mean, normalised vowel trajectories for FACE, PRICE, and peripheral vowels

diphthongs shown in Figure 5.2. In fact, it seems that the raising and fronting of FACE described in (Kerswill et al. 2008) may have advanced even further. As noted, not all vowels in the vowel space were measured for this study. Figures 5.3, 5.4, and 5.5 show mean, normalised formant measurements for vowels analysed in this thesis (FACE and PRICE) as well as peripheral vowels FLEECE, TRAP, and LOT.¹ All vowels that were measured are plotted in order to provide the most contextual information about the vowel space for the reader, but this chapter and therefore the following description focuses on FACE.

Figure 5.3 shows the means for the speakers in this study separated by gender, with girls shown in blue and boys in red. First, we can see that on the whole, girls' vowels are further back. With regards to FACE specifically, girls have a lower onset and longer trajectory than the boys (although we will see next that this is partly skewed by a subset of the girls whose trajectories are much longer than the majority). Using the trajectories for monophthongs LOT, TRAP, and FLEECE as reference points, the boys' mean FACE dipthong is shorter than the girls, although not a monophthong.

Figures 5.4 and 5.5 show girls and boys separately, as well as the different peer groups. In

¹These vowels were chosen as they are the standard peripheral vowels used for the mW&F normalisation method (Fabricius et al. 2009).

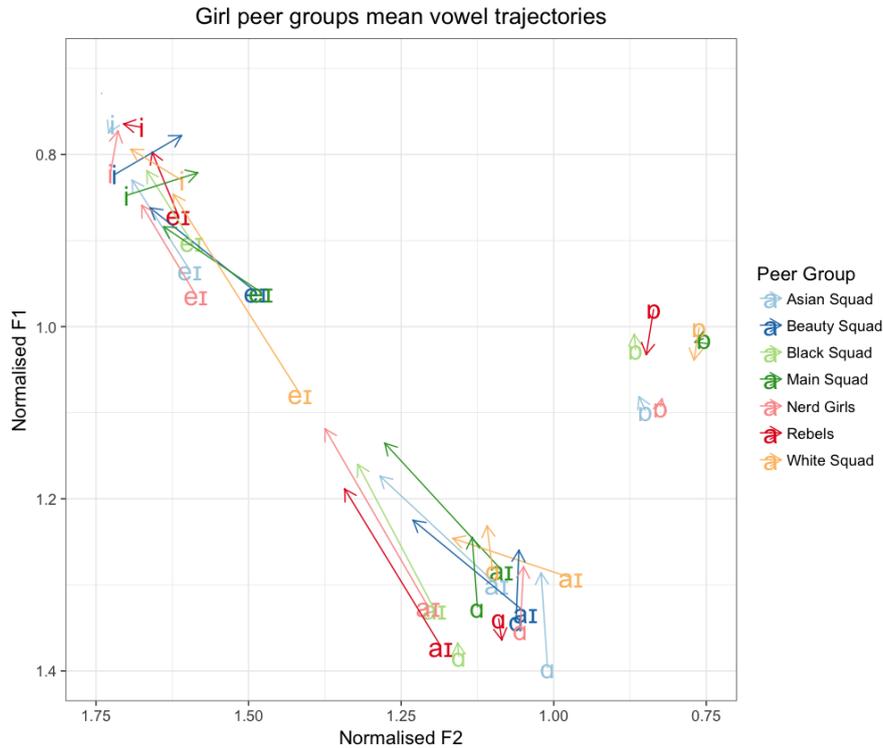


Figure 5.4: Plot of girls’ mean, normalised vowel trajectories for FACE, PRICE, and peripheral vowels

Figure 5.4 we can see some peer group differences amongst the girls, as well as some clustering. White Squad girls have distinctly longer trajectories for FACE than the other girls, as well as a much backer and lower onset. If we think back to the FACE vowel described by Kerswill et al. (2008), shown in Figure 5.2, the White Squad girls FACE could be considered more “traditional”. By contrast, Asian Squad, Black Squad, and Nerd Girls appear to have more innovative FACE vowels, with raised, fronted onsets. The Rebels cluster with these three peer groups, but with such short mean trajectories their FACE vowels seem to have consistently short trajectories that could include some monophthongs. Main Squad and Beauty Squad are somewhere in between the cluster of girl peer groups using innovative FACE and the more traditional White Squad — while they have raised onsets, they are not as front as the innovative cluster and the trajectories are longer.

Boys, on the other hand, are much more similar as a group than the girls. In Figure 5.5, it is apparent that the boys all use innovative variants, as their FACE vowels cluster close to the FLEECE vowel at the top front corner of the vowel space. This reiterates what is shown in Figure 5.3: boys’ realisations of FACE tend to have raised, fronted onsets with short trajectories. For the B-side peer group, FACE trajectory is the shortest, but it is also short for A-side and the White Squad boy.² It is also worth noting that the White Squad boy does not mirror his female peers; although he has the longest trajectory of the boys, it is still relatively short for FACE. If we look back at Figure 5.2, the FACE vowels for the boys in this study appear much shorter FACE trajectories than Kerswill et al. (2008) depicted for emerging MLE diphthongs.

²Although there are two White Squad boys in total, as noted in Table 3.7, only one participated in this study.

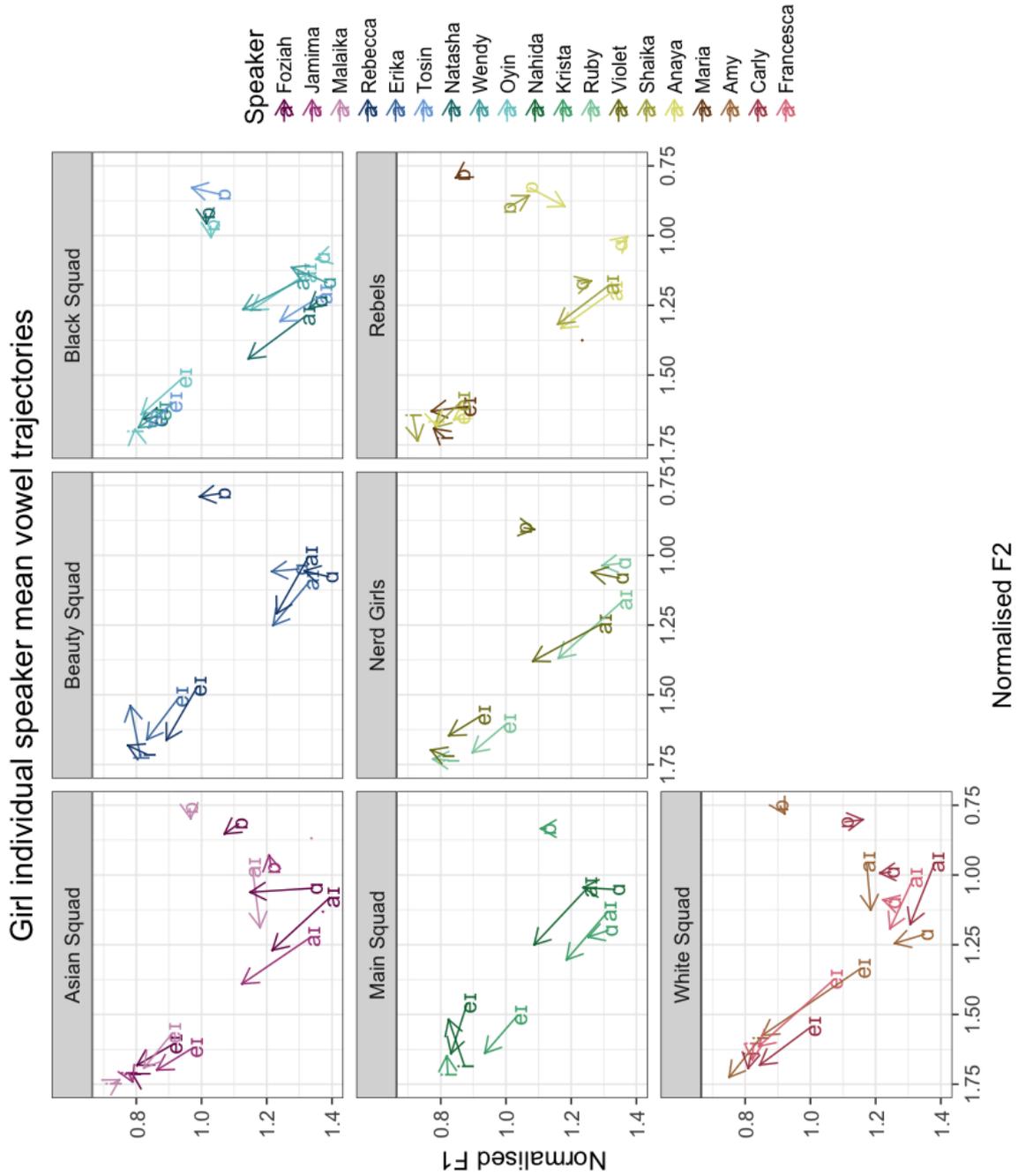


Figure 5.6: Plot of girls' mean, normalised vowel trajectories for individual speakers

popular peer groups Main Squad and White Squad, and they oriented to particularly “feminine” parts of youth culture, namely make-up and fashion more so than music. This perhaps supports the above hypothesis about an enregistered social persona: Erika and Rebecca are of different ethnic backgrounds and have different language backgrounds, it could be that their somewhat innovative raised but diphthongal FACE is in part due to their shared position in the social hierarchy. For the Black Squad, FACE is monophthongal, fronted, and raised for the most part, except for Oyin. It is difficult to say for sure, but this may in part be due to the fact that she only moved to the UK from Nigeria at the age of 10, so her length of residency (33%) was much shorter than the other girls in her peer group (which was 53% for Wendy, and 100% for Tosin and Natasha).

In contrast, Main Squad, White Squad, and Nerd Girls all have a degree of intra-group variation. For the Main Squad, Nahida’s FACE is raised in comparison to Krista, and for the Nerd Girls, Violet’s is raised in comparison to Ruby. As these two peer groups are both quite large (seven and eight members respectively), and the girls who participated in this study were peripheral members, it is difficult to draw conclusions as to what social motivations might explain the variation here. It could be the fact that they are peripheral peer group members, and so they orient less strongly to group norms, or it could be that, as the intra-group differences exhibited here are not huge, the intra-group variation found for Nerd Girls and Main Squad is not socially meaningful.

White Squad all have long diphthong trajectories with lower, backer onsets, but of the three girls Carly’s FACE is closer to the innovative variant. This was surprising because Carly’s friends are largely White British, whereas Francesca had diverse friendship networks outside of school through the youth group she attends with Amy several times a week (although Amy considers herself closer with her White Squad girls, whereas Francesca regards both sets of friends equally). As such, of the White Squad girls who participated in this study, one might have expected that Francesca would exhibit the most innovative variant for FACE rather than Carly. A possible explanation is that while Carly is an integral member of the White Squad, she spends the least amount of time with the other White Squad girls outside of school. She also seems the least concerned with mainstream “girly” youth culture: while she straightened her hair and wore make up, she referred to herself as a tomboy, was the only White Squad girl who played sports (girls’ rugby and trampoline), and out of her peer group she was closest to the White Squad Boys.

Separating by speaker, we can see that for the most part the boys use monophthongal or near-monophthongal variants of the FACE vowel, regardless of peer group. For A-side, Ade and Sanjit are almost identical, whereas Dinh is the most monophthongal. It is worth remembering here the description of the male peer groups in Section 3.5.3, which notes the more blended dynamics of the boy peer groups as there were several (to use the words of Ade) “floating” members who went between both A-side and B-side peer groups. Of the the three participants from the A-side in this study, Dinh could be considered a “floater”, so it is interesting that his realisation of FACE is also the most monophthongal and more closely aligns with the B-side boys. Indeed, the mean trajectories of FACE shown here for Dinh and Rajesh are almost identical, so it could be that this is part of what enables or allows Dinh to be socially flexible.

Another noteworthy observation is regarding Sanjit. Sanjit has the shortest length of residency of the boys, as he has only lived in London since the age of 9 (which equates to 36% of his life). He also impressionistically has foreign-accented English, due to retracted and retroflex consonant production and some non-British English vowels. As such, the fact that Sanjit’s FACE trajectory is almost identical to Ade’s highlights the limitations of using the schematic representation of F_1 and F_2 measurements, as it cannot capture the holistic auditory impression of

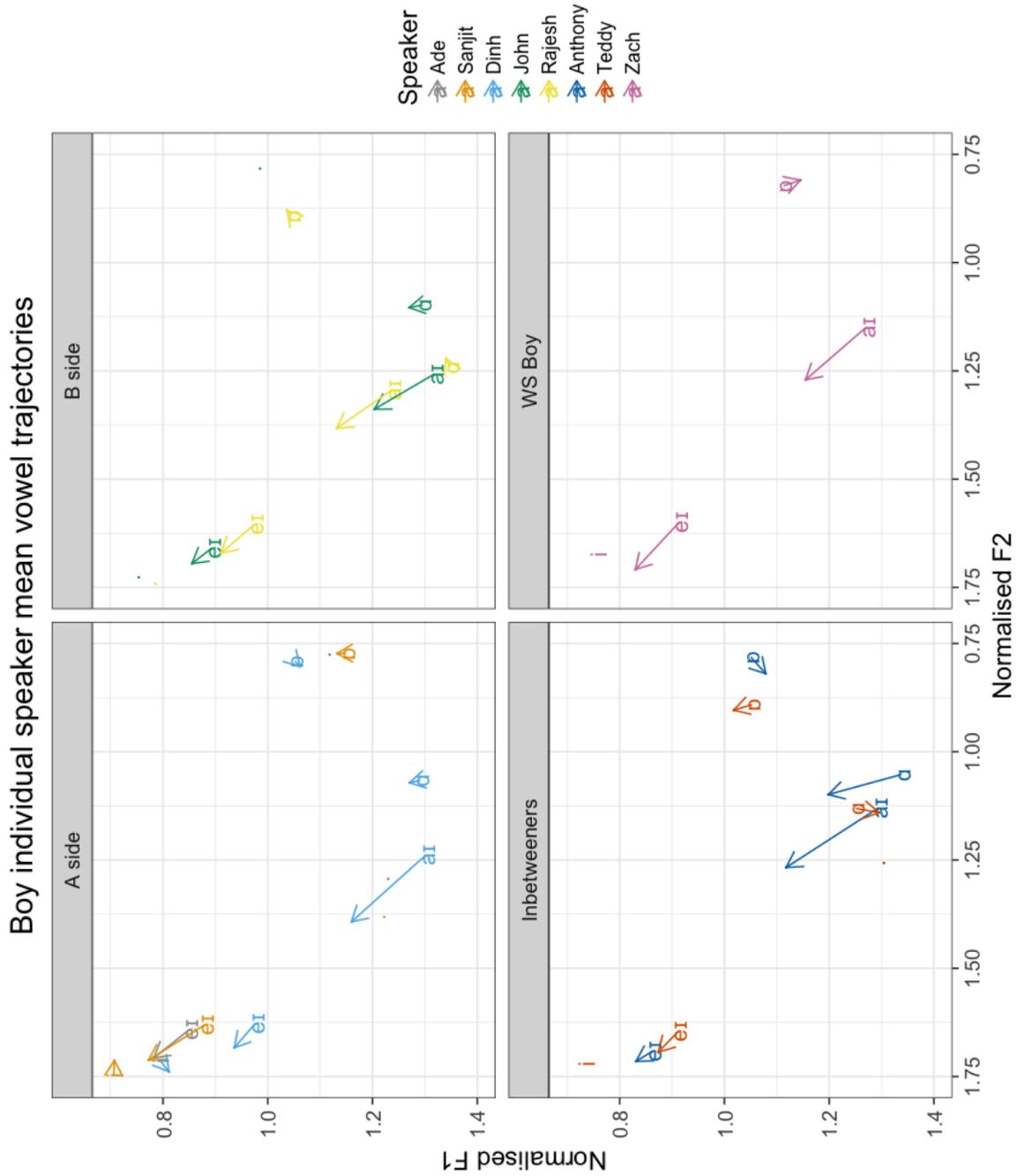


Figure 5.7: Plot of boys' mean, normalised vowel trajectories for individual speakers

the vowel. Despite this, it could be seen as further evidence of language contact as a factor in the development of MLE. Sanjit speaks Bengali and Hindi in addition to English, and speaks Bengali at home with his older sister and parents (but not with his three-year-old brother). So, while at first it may seem surprising that Sanjit so closely maps with his peers for FACE, when we consider the fact that monophthongal FACE is a feature of Bengali it makes sense that the F_1 and F_2 might map onto his peers. As PRICE in MLE is less likely a consequence of language contact, the analysis of PRICE in Chapter 6 might shed more light on this hypothesis.

For B-side and the Inbetweeners, all four boys appear to use monophthongs for FACE. All four boys are ethnic minorities, aligning with Cheshire et al. (2011, 2013), who found that ethnic minority boys were more likely to use innovative variants in MLE. White Squad Boy Zach also has a monophthongised FACE, but appears to have the longest trajectory of all the boys in this study. On the one hand, this could be deemed surprising as he does not have a diverse friendship group at school (the White Squad girls he is friends with are all White British) so it might be expected for Zach to more closely align with his White Squad girl counterparts. On the other hand, Zach has a diverse group of all-male friends outside of school (a different group of outside school friends than the White Squad girls have), and so his speech may more closely align with those friends. Additionally, it is possible that Zach's vernacular is a way of asserting his masculinity. He is a boy with mostly female friends who has to be able to also socially navigate spaces that are heterosexual-male-dominant whilst at school. Being perceived as "girly" or "gay" is a big social taboo for boys, and Zach would perhaps be at risk of one or both of these traits if he aligned more closely with his female friends linguistically.

Thus far, descriptive results seem to show that the majority of participants in this study use innovative variants for the FACE vowel, with raised, fronted onsets and short(er) trajectories, but there are some important differences. Boys exhibit much shorter FACE trajectories than the girls, although when compared with the reference vowels FLEECE, LOT, and TRAP, FACE is clearly not a monophthong. Girls' FACE trajectories are also short, particularly for some speakers such as the Rebels, the Black Squad, and the Nerd Girls. Of particular note is the White Squad, three White British girls whose FACE is completely different to the other girls. Whilst their onset is more raised than the traditional variant shown in Figure 5.2, the White Squad's FACE vowel sounds much closer to a traditional diphthong than other speakers, so much so that it was impressionistically striking during the field work process.

The sections that follow explore these emerging results in more detail, and the statistical analysis in particular will (or will not) confirm these findings. The onset of FACE is examined in Sections 5.4, 5.5 and 5.6, which present the descriptive statistical analysis for social and linguistic factors followed by the results of the regression models. The same structure is followed for the analysis of FACE trajectory in Sections 5.7, 5.8, and 5.9. Inferences and conclusions are then discussed in Section 5.10.

5.4 FACE F1 onset: social factors

The previous section consisted of a preliminary description of the FACE vowel at Riverton. The current section focuses specifically on FACE onset, presenting descriptive statistics for social factors. The F_1 of FACE onset is examined in order to explore the degree to which FACE onset is raised, and the social factors considered here are gender, peer group, ethnicity, diversity of friendship group, and style (as outlined in Chapter 4).

In order to visualise the different distributions for FACE F_1 onset, box plots are used. The centre line represents the median of all values, and the box represents the interquartile range,

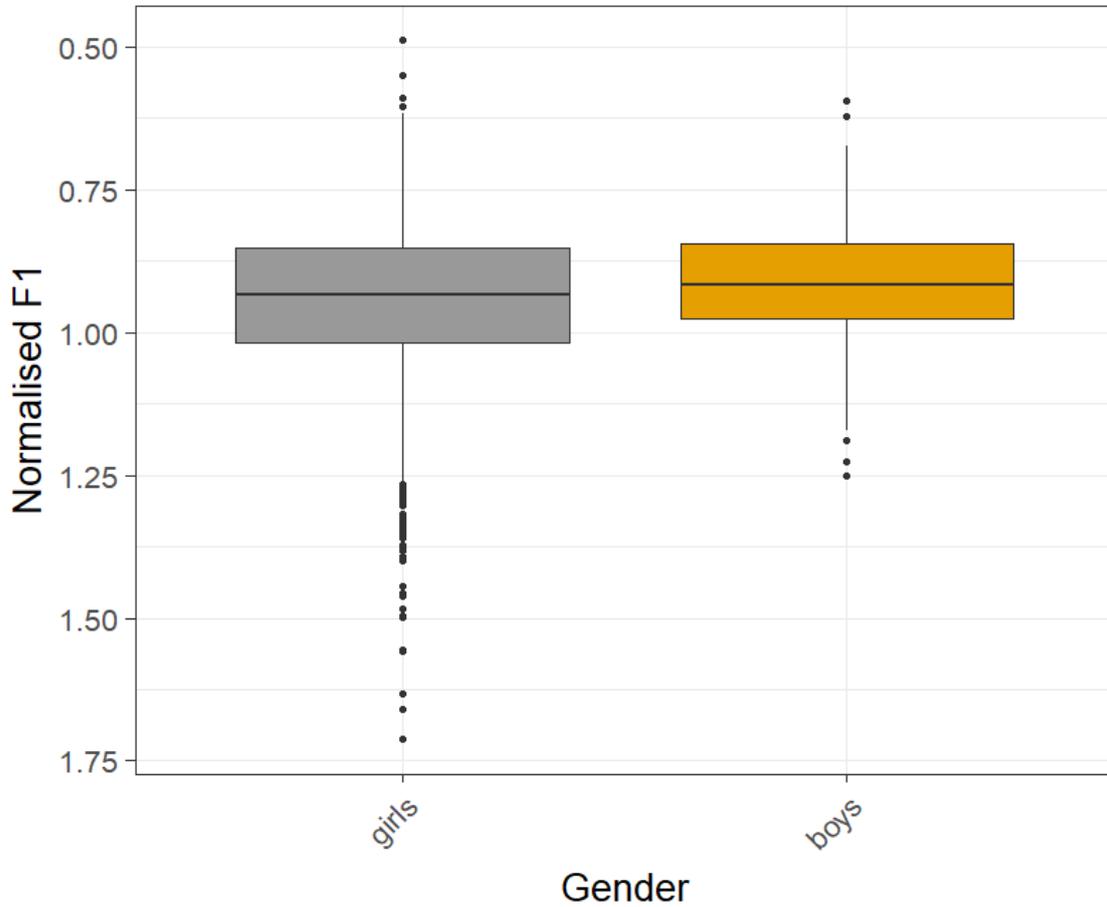


Figure 5.8: FACE F1 onset distributions by gender

with the upper quartile above and lower quartile below the median line. Any dots beyond the whiskers are potential outliers.³ Other plots, such as density models, could also be used to look at distributions. However, box plots were more useful because of the transparency of outliers — something which could be important in this dataset, particularly for the girls. In plots that follow showing normalised F_1 measurements on the y axis, the scale is reversed showing lower normalised F_1 measurements at the top of the scale. This is the convention in sociophonetic data visualisation due to the inverse relationship between F_1 and vowel height: a lower F_1 value means a vowel is raised. As such, a reversed y axis gives a more conceptually appropriate visual representation of vowel height. Finally, it should also be noted that, unless otherwise stated, box plots that follow include data from all three stylistic contexts.

5.4.1 Gender

Previous literature (e.g. Kerswill et al. 2008; Fox 2015) indicates that there are gender differences in vowel production in London, and the descriptive vowel plots discussed in Section 5.3 suggest that this is supported by the current data set. Looking more closely at the linguistic variable F_1 onset, Figure 5.8 shows further gender differences. First looking at median F_1 onset

³See Baayen (2008: 30) for a more detailed discussion of the use of box plots for describing linguistic data.

values, we can see that the median F_1 measurement is lower for boys than girls. This suggests a more raised onset for FACE, in line with raw values plotted in Figure 5.3. It is also apparent that the distribution for girls is broader, as upper and lower quartiles are slightly bigger, and whiskers have a broader span. This is not surprising given the variation shown in Figure 5.6. It is also important to note the number of outliers, particularly for the girls, as this could indicate that the plots are being skewed. If this is the case, it means that although it looks like on average the height of FACE onset for girls is lower, this is possibly only the case for a subset of the girls. Looking back at Figure 5.6, White Squad girls FACE onset appears lower than other girls, so it seems likely that the box plot in Figure 5.8 is being skewed by these girls.

5.4.2 Peer group

Although grouping speakers by gender is somewhat informative, it also masks variation in the data. Figure 5.9 shows results grouped by peer group, with girl peer groups on the left and boys on the right. This is the first look at an interaction in this dataset. Throughout the rest of the thesis, descriptive results will be used to demonstrate the interactions in the data that it is not possible to test inferentially. For the girls, it is apparent that White Squad exhibit the greatest variability of all the girl peer groups. In terms of vowel height, they have the lowest median F_1 onset, as well as the broadest upper and lower quartiles, the longest whiskers, and the most outliers. Combined, this evidence suggests that White Squad girls have the lowest onset for FACE, but that this is highly variable (although at this point it is difficult to tell whether variation is due to intra- or inter-speaker variation). Main Squad also exhibit a fairly broad distribution for F_1 onset compared with the other (non-White Squad) girl peer groups, suggesting there is intra-peer group variation for the Main Squad also. All other female peer groups have more narrow interquartile ranges, suggesting there is less intra-peer group differences for the others. Furthermore, Rebels have the lowest median value for F_1 onset, indicating that in terms of vowel height, they use the most raised variants.

There is less inter- and intra-peer group variability for the boys: median measurements are quite similar across peer groups, and interquartile ranges are all compact. Nevertheless, there are some notable differences. First, B-side have the lowest onset position for FACE F_1 , as well as the most narrow interquartile range, followed by White Squad Boy Zach. The A-side have a similar median onset as the Inbetweeners, but have a broader interquartile range and whiskers extend further into the lower parts of the range. This description alone seems to indicate that A-side and Inbetweeners use a more innovative, raised onset for FACE. On the other hand, it could be that FACE onsets for all boys are innovative, so the difference between peer groups is negligible, or that another social factor is a better predictor of variation.

5.4.3 Ethnicity

Looking now at ethnic background in Figure 5.10, there are apparent contrasts between different ethnicities, particularly when we look at the interaction between ethnicity and gender. For the girls, the above results for peer group indicated that the White Squad girls are different to the rest of the girls. This is mirrored when grouping by ethnicity as the peer group White Squad is directly comparable with the White British ethnic background for girls: all of the White Squad girls that participated in this study are White British, and there are no other White British girls amongst the study participants. As such, White British girls have much lower F_1 onset measurements. There is a similar association between ethnic background Black African and the peer group Black Squad: all members of the Black Squad are Black African, and

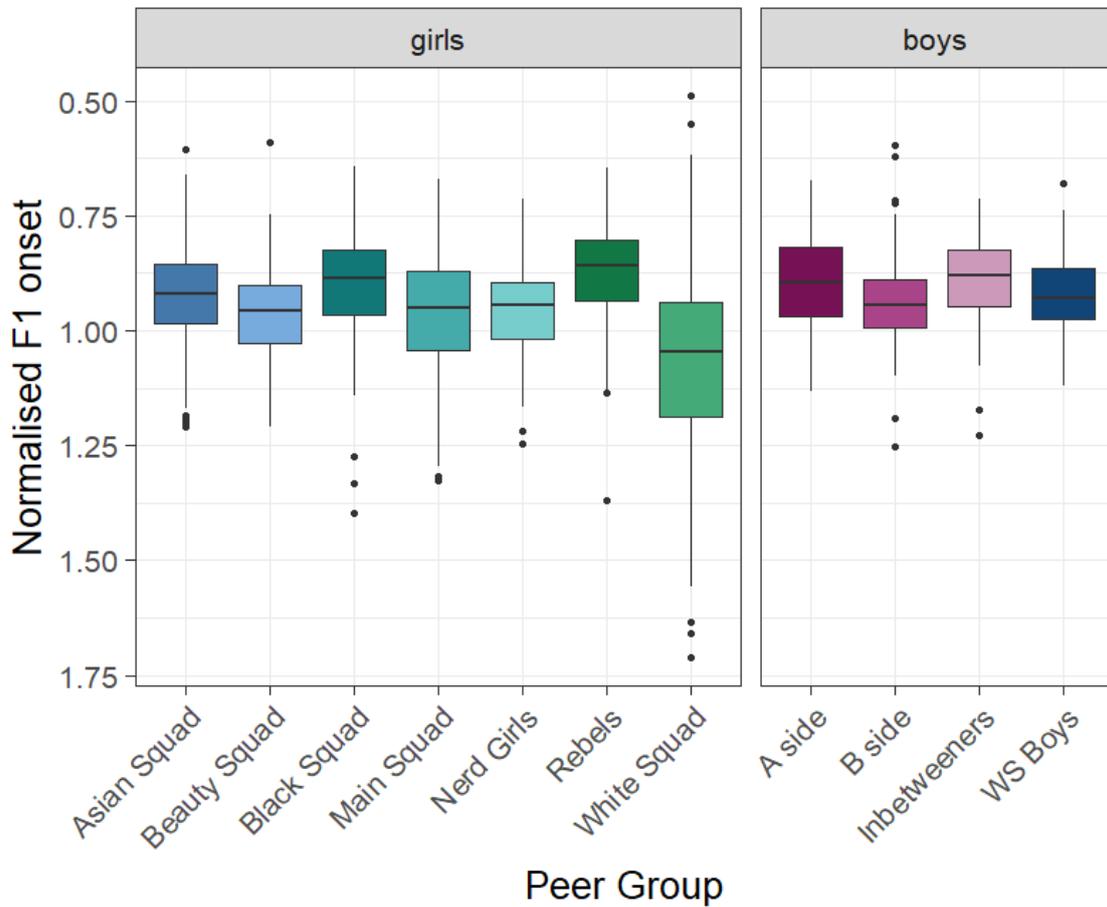


Figure 5.9: FACE F1 onset distributions by peer group and gender

only one other female study participant shares this ethnic background (Maria, who is Somali and in the Rebels). For F₁ onset, Black African girls use a more raised FACE variant, similar to above results for Black Squad.

Different results emerge when looking at ethnic group South Asian. This ethnic group consists of the entire Asian Squad as well as three girls from other peer groups (Nerd Girls, Main Squad, and Rebels). If results for ethnicity in Figure 5.10 are compared with peer group results in Figure 5.9, it seems that grouping by ethnicity masks some individual differences for South Asian girls that may relate to peer group. This is particularly true for Anaya (Rebels), whose FACE onset is innovative and raised, but is masked when we look at all South Asian girls together as on the whole they use a FACE variant with lower onset.

Looking next at the boys, it seems that again ethnic differences are camouflaged when looking at peer groups. Figure 5.10 shows that Black British boys have the most raised onset, and South and South East Asian boys have the lowest. The three members of the A-side are from each of these different ethnic backgrounds, but these ethnic differences are obviously not apparent when looking only at peer group.

Finally, it was not possible to do a peer group/gender comparison, as the peer groups are all homogeneous when it comes to gender, but for ethnicity there are some girls and boys that share ethnic backgrounds. Not all ethnic groups are comparable in this way, as this was not

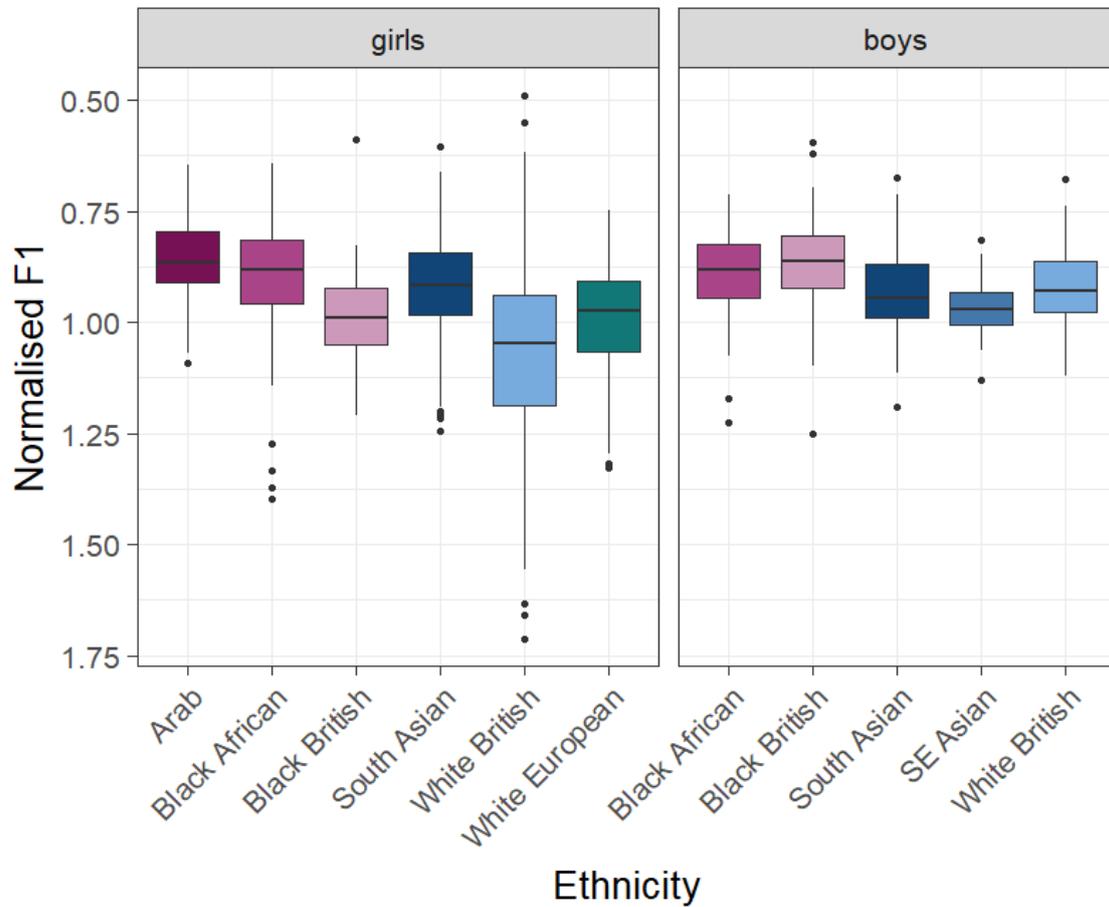


Figure 5.10: FACE F1 onset distributions by ethnic background and gender

controlled for when recruiting participants, but the groups that are comparable suggest that ethnic background operates differently for boys and girls. For example, Black British boys F₁ onset is much more raised than the Black British girl in the study, suggesting that Black British boys use a more innovative FACE variant. Similarly, White British girls appear to use a more traditional variant than the White British boy, with a much lower onset for FACE. Contrastingly, this is not the case for Black African or South Asian participants, as gender differences are minimal for each of these ethnic groups. Black African girls' median values for FACE onset are almost identical to Black African boys, and the same can be said for South Asian girls and boys.

5.4.4 Race

Although the above sections do show a lot of variation by peer group and ethnicity, there are some patterns evident when looking at race as well. In Figure 5.11, we can see that Black boys have the most raised FACE onset, and that the Black boys are similar to the Black girls. This is the only racial group with similarities across gender, however. White girls are on average much lower than the other girls, and the White boy. Asian boys have the lowest onset amongst the boys, whereas the Asian girls are more raised than the Asian boys and are in the middle part of the range for the girls. It could be said that this conflates the differences shown above. However,

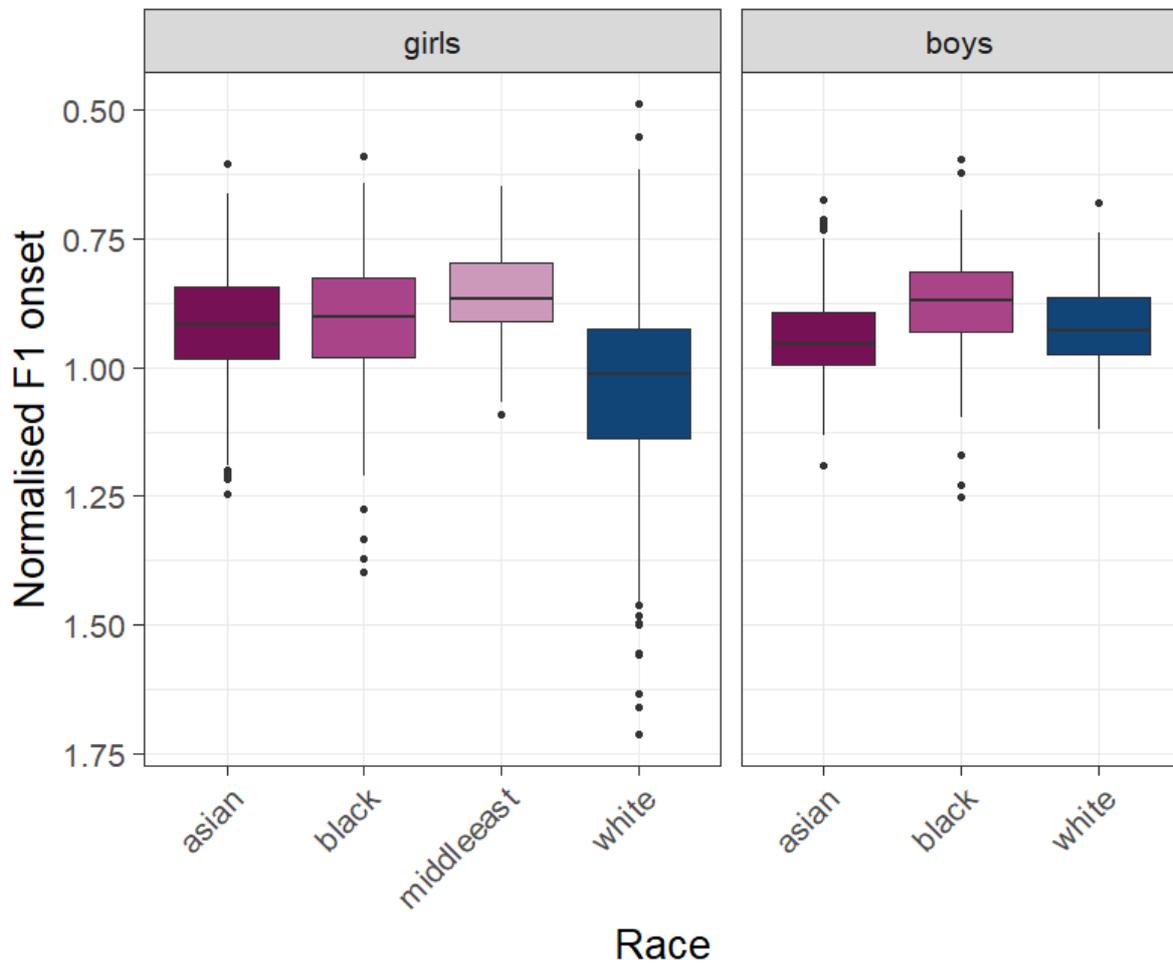


Figure 5.11: FACE F1 onset distributions by race and gender

it is worth noting that, apart from the White girls, the interquartile ranges are not particularly broad and there are no more outliers than when looking at peer group and ethnicity. So it seems that race might have some explanatory power for FACE onset, but it is only possible to provide descriptive evidence of this as it is not possible to include race in the inferential analysis (as discussed previously).

5.4.5 Diversity of friendship group

This part of the analysis looks at the diversity of friendship network score used by Cheshire et al. (2011). As noted in Section 4.3.4, this score indicates the proportion of friends that are of a different ethnic background to the participant, with 1 being the least diverse and 5 being the most. The first thing to note from Figure 5.12 is that although the diversity measure is a five-point scale, not all points on the scale are represented in the current dataset (see also Table 4.5). For the boys, no participant has a score of 1 indicating that no boy has a completely homogeneous friendship group — not surprising given the ethnic make-up of the boy peer groups described back in Table 3.7. It is also worth noting that, for boys and girls, participants either have a peer group that is not very diverse (with a score of 1 or 2) or that is very diverse (with

a score of 4 or 5)—no participants fall in the middle of the scale.

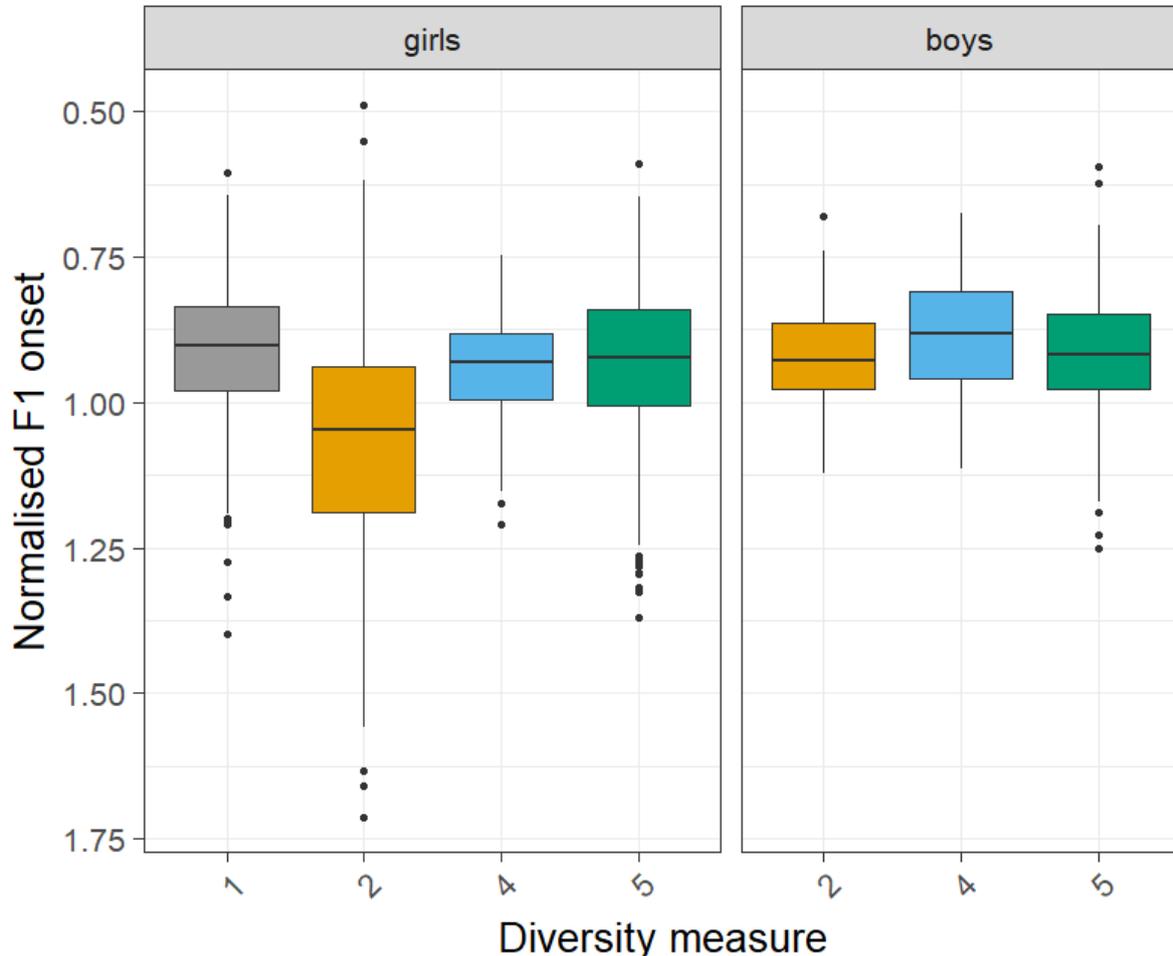


Figure 5.12: FACE F1 onset distributions by friendship diversity measure and gender

The key inference that could be made here is that, contrary to previous literature, a more diverse friendship network might not predict a more innovative FACE vowel, at least when looking at the onset. Given the conclusions of Cheshire et al. (2008) and Cheshire et al. (2011), one might expect participants with a score of 4 or 5 to have a lower average F_1 measurement, indicating a more raised onset for FACE. For the boys, participants with a diversity score of 5 have the most raised onset, but those with a score of 2 or 5 are fairly comparable. For the girls, those with a score of 2 on average have distinctly lower onset for FACE. However, those with a score of 1 are comparable to those with scores of 4 and 5. It is also important to note that girls with a diversity score of 2 are all members of the White Squad, and are all White British. No other girls have this diversity score.

5.4.6 Length of residency

Length of residency could shed light on the effect of heritage languages on linguistic variation at Riverton. It is not a factor that was considered in the previous literature, but could possibly be informative given that there are some speakers in the data who arrived in the UK as adolescents

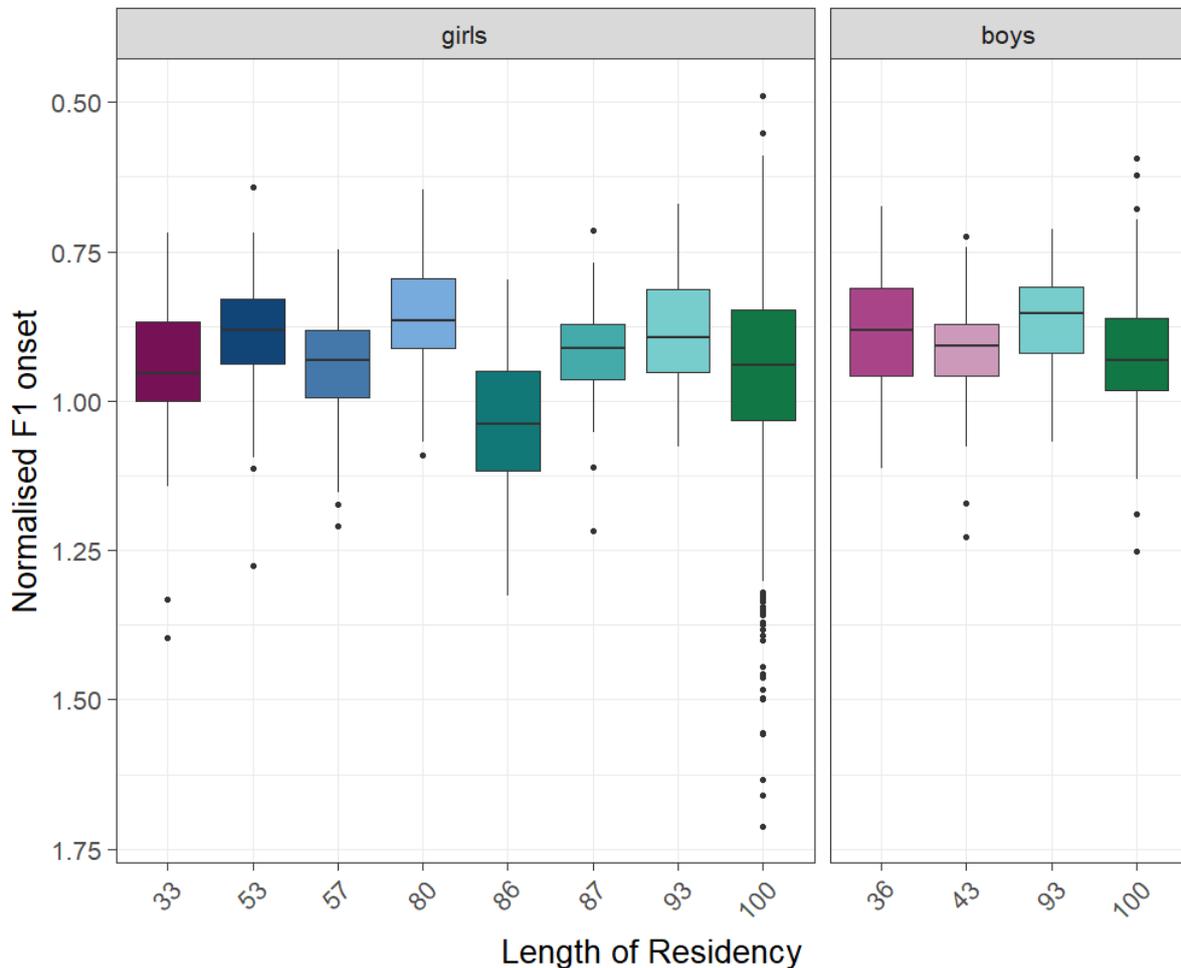


Figure 5.13: FACE F1 onset distributions by length of residency and gender

(see Table 4.6 in Section 4.3.5). Figure 5.13 shows the results for FACE F_1 onset by gender. We still see the gender split described above, where girls have on average a lower onset than the boys. Other than that, there is not a consistent pattern that enables a deeper interpretation of the FACE vowel. Given that there is a clear split between speakers who have lived in the UK most or all of their lives, and speakers who arrived in the UK above the age of 5 or as adolescents, it might have been predicted that these speakers would look different from each other. However, the variation we see in Figure 5.13 can be explained by other social factors. For example, only one girl has a LOR of 86% and that is Krista of the Main Squad. She is more standard in her realisation of FACE in that she has a lower onset than her peers. Shaikha, on the other hand, is the only girl with a LOR of 80%. She is Kuwaiti and a member of the Rebels. The difference between these two speakers, then, can be explained by peer group membership rather than length of residency. In addition, speakers who have a low length of residency are not distinctly different to their peers with longer LORs. For example, Sanjit is the only boy with LOR of 36%, and we can see that his median FACE onset is similar to the other boys. Length of residency, then, does not seem to be informative, at least with regards to FACE onset.

5.4.7 Stylistic variation

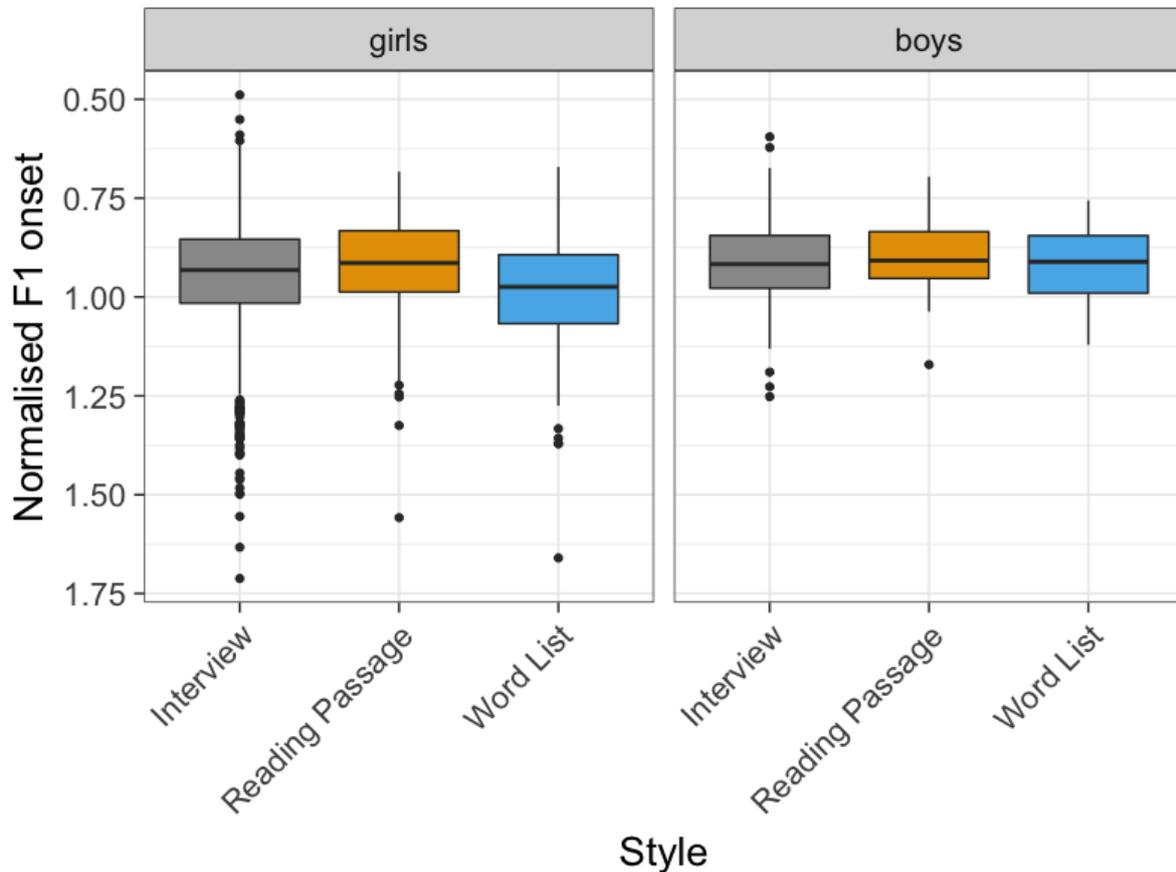


Figure 5.14: FACE F1 onset distributions by stylistic context and gender

As noted, the data was coded for three stylistic contexts: interview, reading passage, and word list. According to Labov’s attention-to-speech model (Labov 1972: see Section 4.3.6 for discussion), the sociolinguistic interview is intended to be a relaxed context, eliciting un-self-conscious speech, and reading passages and word lists are used to elicit speech that is increasingly careful and self-conscious and therefore considered more standard or formal. The MLE projects found a raised onset and shorter trajectory for FACE to be innovative, and many of the participants in this study appear to use a more innovative MLE FACE vowel. So, if findings here align with Labov’s predictions, one might expect the following: the casual interview context will elicit the most raised F_1 onsets; the reading passage will have a greater number of lower onset tokens; and the word list, being the most careful speech, will have the most standard variants with the lowest onset measurements for F_1 .

Looking at stylistic variation in this way also has the potential to shed light on the ongoing debate as to whether MLE should be considered a youth style or a linguistic repertoire (Cheshire et al. 2015). If there is a distinct difference in the FACE vowel between the interview context and the reading passage and word list, this could indicate that there is a FACE variant that is specific to a particular linguistic style, supporting the hypothesis that MLE is a youth style. However, if there is less variation between styles this could indicate that the raised variant of FACE has

diffused and become part of the East London English dialect.

The box plot in Figure 5.14 shows median values of normalised F_1 onset measurements of each stylistic context, separated by gender. For the girls, the word list context appears to elicit the highest median normalised F_1 value, indicating that on average FACE onset is lower. As the word list is the context in which speakers are most likely to pay greatest attention to their speech, this suggests that a lower FACE onset is more likely in careful speech for the girls. The difference in median values between stylistic contexts is, however, very small and so may not be meaningful. Indeed, for the boys there is very little difference between contexts.

Next, in order to shed light on these findings, style by gender and peer group differences are examined. Figure 5.15 shows the distribution of normalised F_1 onset by peer group. Looking first at the boys, it is apparent that most peer groups show some stylistic variation. However, as has been found previously (e.g. Milroy 1980; Coupland 2007; Stuart-Smith et al. 2007), the patterns of stylistic variation do not follow the Labovian style model. The interview does not always elicit the most relaxed speech for these participants. The A-side, Inbetweeners, and White Squad Boys have a lower onset in the word list than the reading passage or interview, suggesting that these peer groups adopt a more careful speech style in that context. Contrastingly, for the B-side, while each stylistic context varies in interquartile range, median values are almost identical, suggesting that stylistic variation is minimal for the boys in this peer group. Furthermore, whilst the word list does seem to elicit a more careful speech style for most of the boy peer groups, the reading passage does not. In fact, for the A-side and Inbetweeners, F_1 onset is actually more raised during the reading passage than the interview, suggesting that the most informal or unconscious style is *not* the interview context for these peer groups. This is consistent with the overall distribution for boys shown in Figure 5.14.

Findings are similar for the girls. Most girl peer groups (Asian Squad, Black Squad, Nerd Girls, White Squad) produce lowered F_1 in the word list, suggesting most careful speech is used in this context. But for the others (Beauty Squad, Rebels) there are only minimal differences between interview, reading passage, and word list contexts. As with the boys, there are several instances of the most raised onsets occurring during the reading passage (Asian Squad, Main Squad, Nerd Girls, and White Squad), suggesting that speech is least conscious or least formal in this context.

Looking lastly at ethnicity, there are some similar findings with regards to gender. Figure 5.16 shows that for most boys and most girls, word list elicits the lowest onset. However, for Black British boys, and for black British and Arab girls this is not the case: FACE onset is most raised during the word list for these speakers. We also see, again, that for some the reading passage elicits the most raised onset. This is true for boys (Black African, South Asian, and South East Asian) and girls (South Asian, White British, and White European). It is also informative that, if we take the reading passage context out of the equation, interview still does not always elicit more raised FACE onsets than the word list style.

So, when looking at peer group and ethnicity, it seems fairly common for the reading passage to elicit the most raised onset for FACE, which suggests that the style participants use in this context is less formal. This mirrors previous work, which has shown adolescents produce more non-standard variants in read contexts (Milroy 1980; Stuart-Smith et al. 2007). Given that participants are reading, it could also be posited that they have a “reading voice” that is more exaggerated or intentional in a way that elicits a raised FACE onset. Whilst it may seem odd to draw this conclusion from a single aspect of one vowel, similar patterns emerge later for PRICE in Chapter 6. Furthermore, as much of the participant observation in the ethnography took place in the classroom, particularly the English classroom, I witnessed a lot of reading aloud

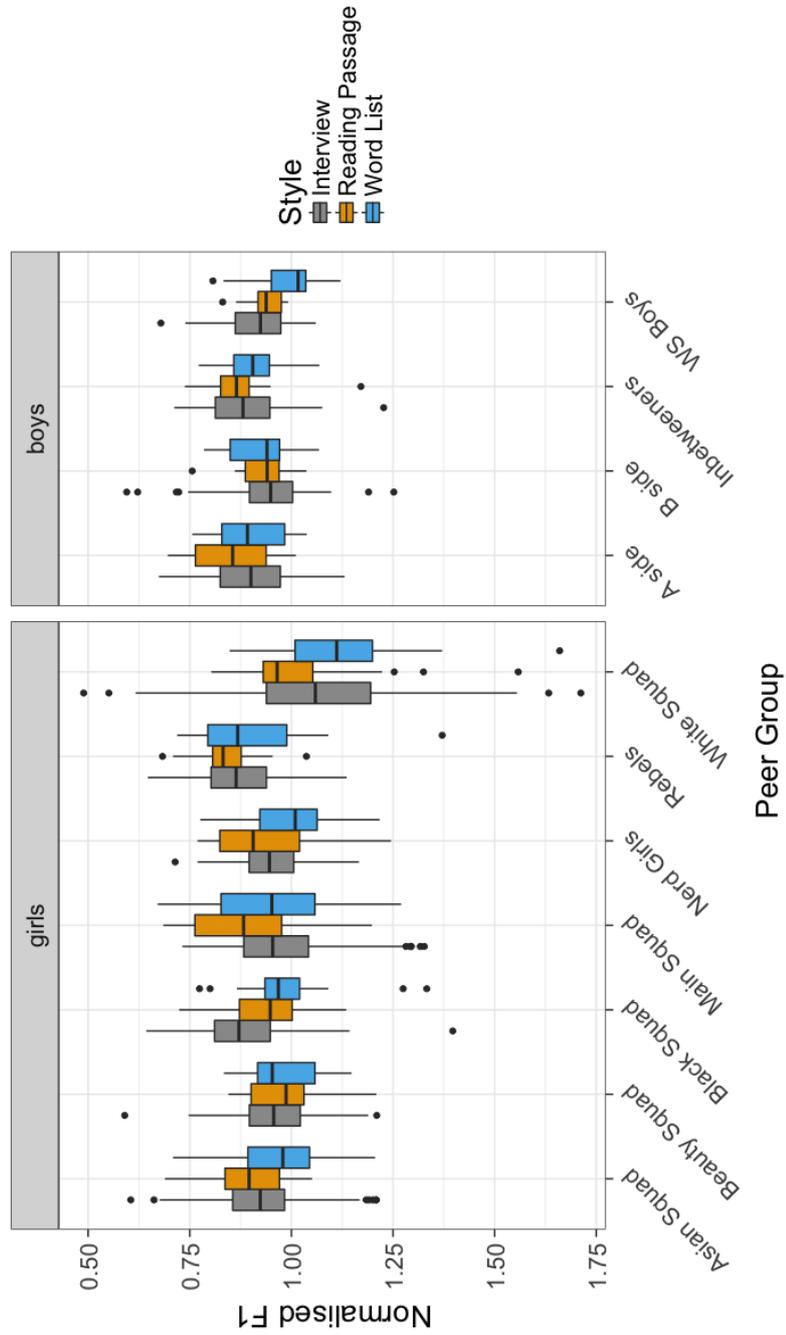


Figure 5.15: FACE F1 onset distributions by stylistic context, peer group, and gender

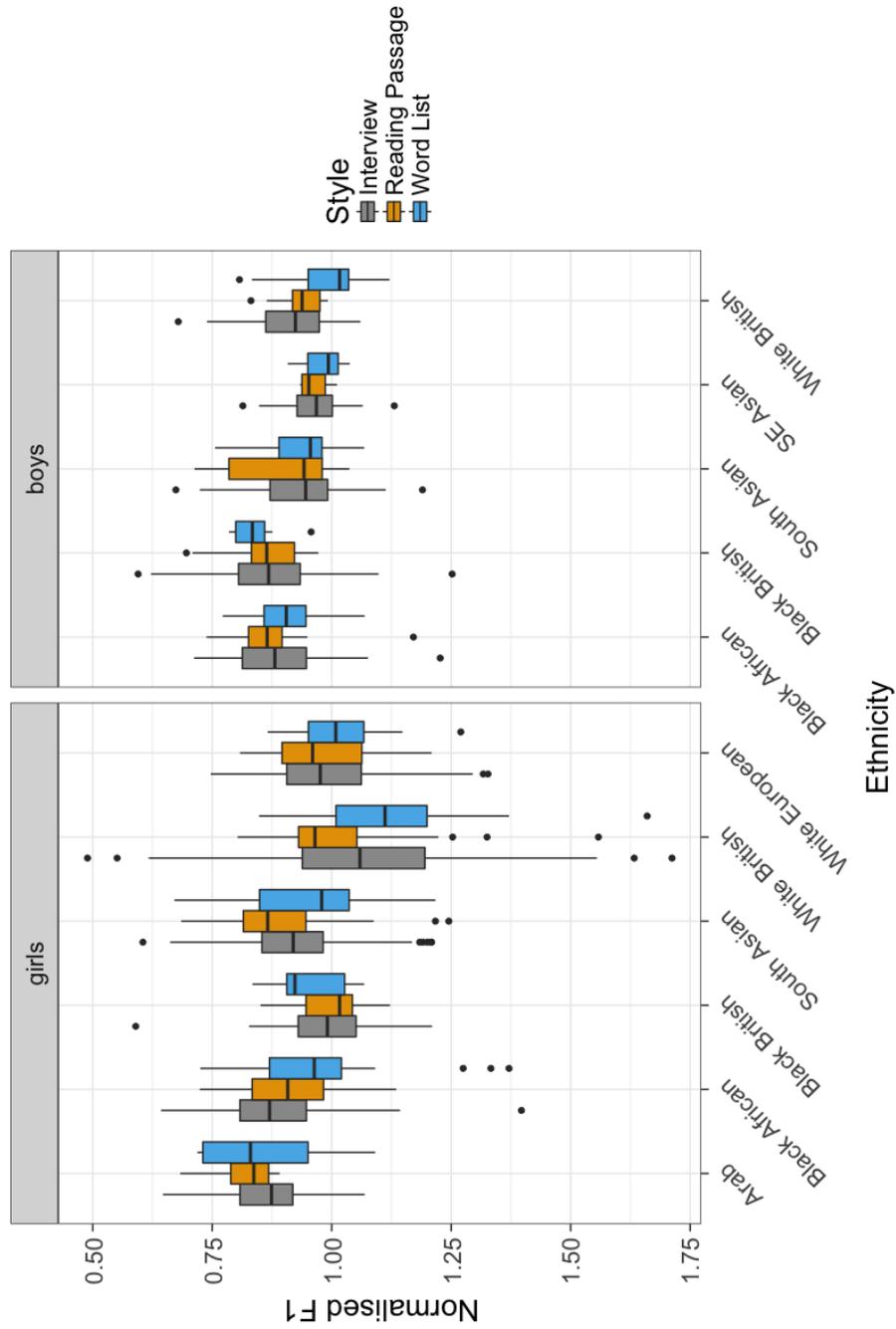


Figure 5.16: FACE F1 onset distributions by stylistic context, ethnicity, and gender

and observed that many Year Ten students adopted a particular way of speaking when reading that was not necessarily more formal but was certainly different to their spontaneous speech. So, as the adolescents in this study are in school and are used to reading aloud as part of their lessons, it is possible that the reading passage task was familiar to them and they used their “reading voice” for this task.

5.4.8 Summary of FACE onset social factors

Looking at social factors and FACE onset, the descriptive analysis begins to illuminate the following trends:

- On average, boys’ FACE onsets are more raised.
- Gender differences are more pronounced when looking at the interaction with peer group and ethnicity.
- Ethnic minority girls use more innovative, raised onsets, whereas White British girls have a more traditional, lower onset.
- Peer group differences mask ethnic differences, and there are greater contrasts and more consistent patterns between ethnic groups than peer groups.
- Patterns found for the reading passage when looking at stylistic variation do not follow predictions of the attention-to-speech model. However, this does reflect the findings of other work (e.g. Milroy 1980), and it could be explained as speakers using a different “reading voice” that does not correlate with formality or standardness.

The single factors examined here will be tested statistically in Section 5.6. For now, through descriptive analysis of the interaction of social factors, some important findings seem to be emerging. Black British and Black African boys are the most innovative in their realisation of FACE onset, using the most raised onset. The ethnography revealed that the majority of these boys were very engaged with popular urban youth culture, and there is a great deal of work in the UK that have illuminated the salience of ethnically-marked (often Black) adolescent male social types (e.g. Hewitt 1986; O’Donnell and Sharpe 2000; Sewell 1997). Therefore, these findings could suggest that there is a particular type of Black “urban male” persona that these boys orient to socially and linguistically. There is also evidence emerging for a very different White British girl identity that is reflected and constructed linguistically. The White British girls have a much lower FACE onset than their peers, which could indicate an orientation away from a more “ethnic” (as in ethnic minority) way of speaking. These hypotheses will be returned to throughout the analyses of FACE and PRICE. The next section examines the linguistic constraints of F₁ onset, followed by a discussion of possible theoretical implications for language change.

5.5 FACE F1 onset: linguistic factors

In order to explore the effect of linguistic factors on the onset of FACE, this analysis will examine phonological environment, word position, lexical category, and duration. As a reminder, several linguistic factors have been identified by previous research. Fox (2015) found that front, narrow variants were most likely preceded by /l/, and innovative FACE variants were most likely followed by a voiceless obstruent or occur in word final position. The current analysis does not look at discrete variants in the same way as Fox, but findings thus far indicate that some participants produce FACE with a more raised onset. These findings align with the innovative

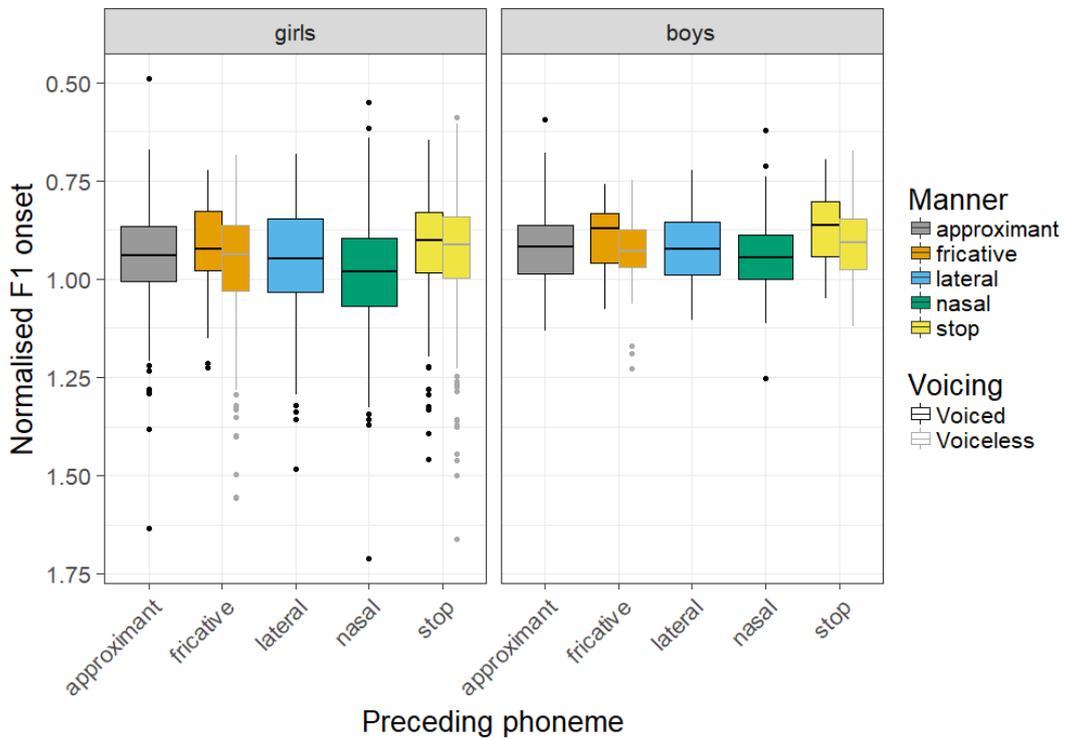


Figure 5.18: FACE F1 onset distributions preceding environment by gender

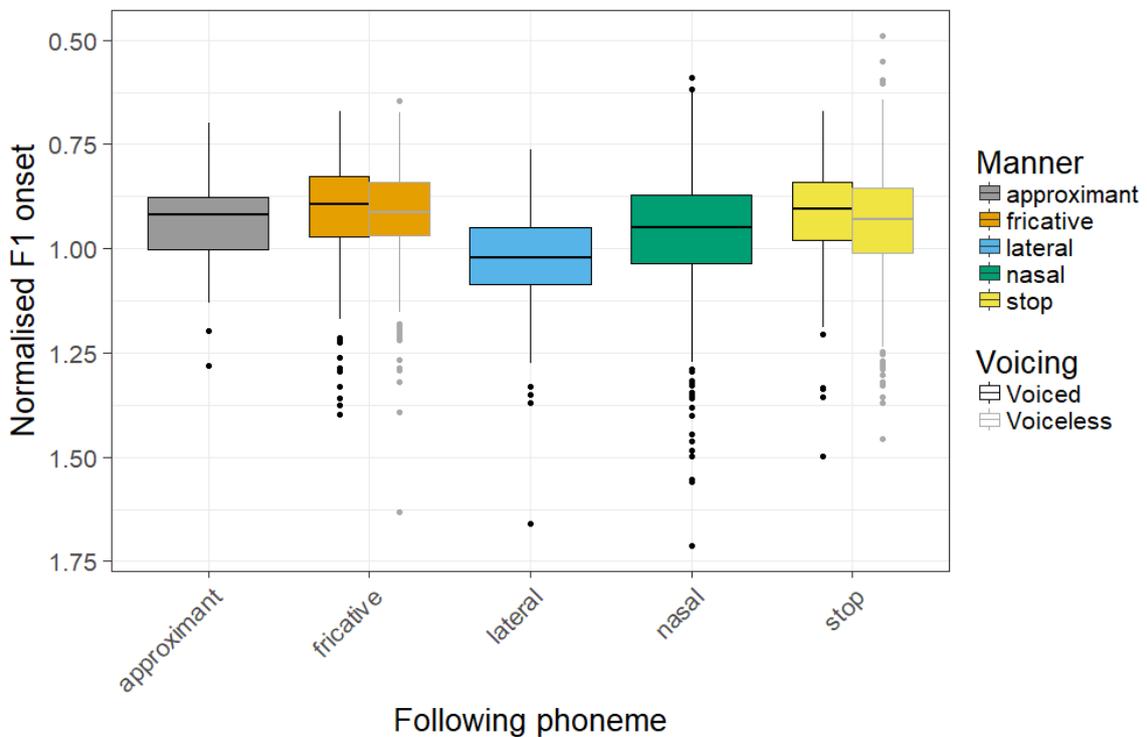


Figure 5.19: FACE F1 onset distributions following environment

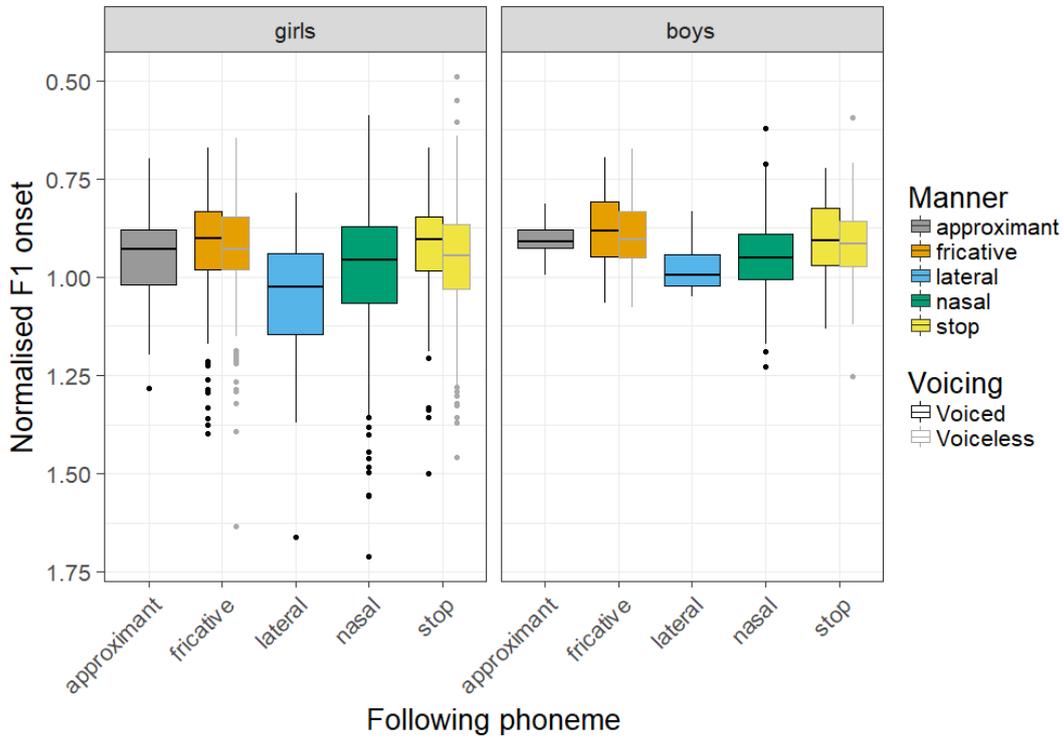


Figure 5.20: FACE F1 onset distributions following environment by gender

potential effect. This hypothesis will be confirmed by the analysis of FACE trajectory: if a long trajectory is not predicted by following laterals and nasals, then the lowering of F_1 by laterals and nasals is due to coarticulation.

When separated by gender, findings are again consistent: Figure 5.20 confirms that following laterals lower the median F_1 substantially for both boys and girls, as does following nasal to a degree. However, when looking at voicing, following voiced obstruents seem to have a more distinct effect for girls, who follow the general pattern noted above, than boys, who do not appear to have a voicing distinction. These findings also contradict Fox (2015), as she noted that voiceless obstruents favoured innovative raised FACE variants. In this data, there does not seem to be an outright following environment that favours a raised onset, but rather that coarticulatory effects create a lower than average FACE onset. These findings add weight to the hypothesis made above, that there are different variants of FACE in use at Riverton than those described by Fox (2015). The implications of this hypothesis are discussed in more detail at the end of the chapter.

5.5.2 Word position

Previous literature suggests that innovative FACE variants are more likely to occur in word final position (Fox 2015: 120). In the context of the data for the current analysis of F_1 onset, one might predict that in word final position the median F_1 value will be greater. In Figure 5.21, we can see median values and interquartile range of FACE onset for all speakers separated by word position. There is very little difference between the three word positions. Word medial onsets showing the most variation and outliers, which is not surprising as the majority of tokens

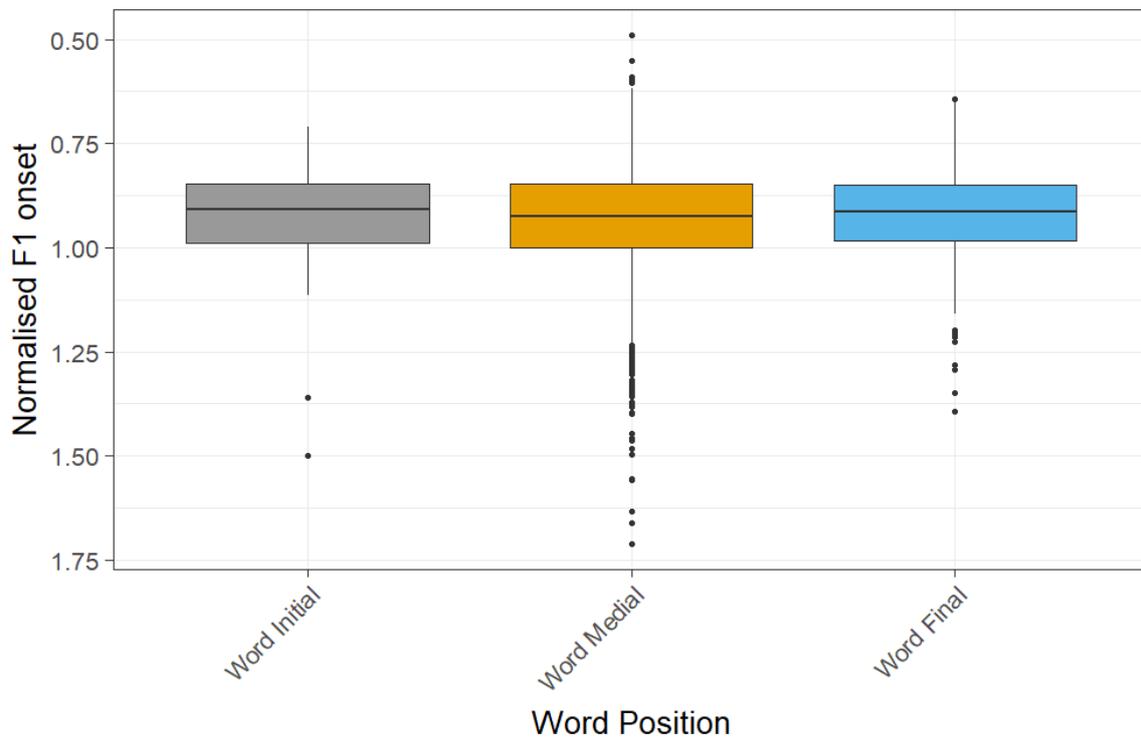


Figure 5.21: FACE F1 onset distributions by word position

fall in this category. Word initial onsets have a slightly broader interquartile range than word final, but median values are almost identical.

Separating by gender does not provide much more detail (see Appendix B.1 Figure B.1), but looking at peer group and ethnicity sheds much more light on the effect of word position. In Figure 5.22 it is apparent that, for each of the boy peer groups, F₁ onset is more raised when FACE occurs in word initial position. Contrastingly, the only girl peer group that follows this pattern is the Asian Squad. All other girl peer group have a more raised onset when FACE occurs word finally. These findings are mirrored when grouping by ethnicity, as in Figure 5.23. Boys all have more raised onset in word initial position, regardless of ethnic background, and South Asian girls, which includes all of the Asian Squad as well as a Nerd Girl and a Main Squad member, align with the boys' pattern. For the rest of the girls, word final FACE onset is more raised. However, in some cases only one participant identifies with the ethnic background shown (for example, only one girl identifies as Arab, and only one boy is White British) and so findings are somewhat skewed.

5.5.3 Lexical Category

Lexical category is included as more frequent words are often leaders when it comes to sound change. As this thesis does not examine word frequency directly, lexical categories are explored, as function words are higher frequency and therefore could indicate that change is ongoing or incomplete. Several lexical categories were coded for (as noted in Section 4.4.2), but there was little variation between them. Box plots are included in Appendix B.1 Figure B.2 for reference. The box plot examined here shows content, function, and numeric words split by gender.

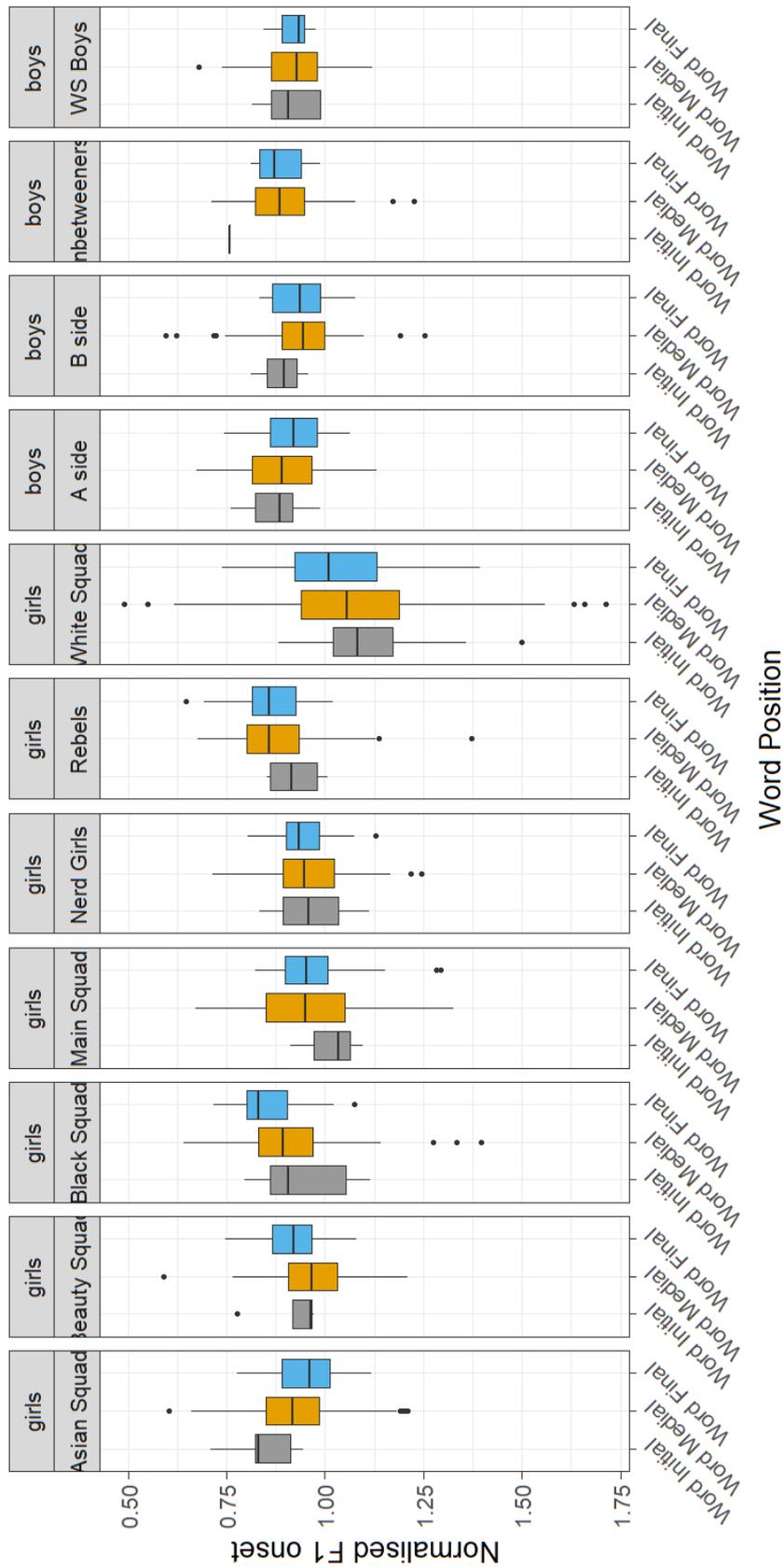


Figure 5.22: FACE F1 onset distributions by word position, peer group, and gender

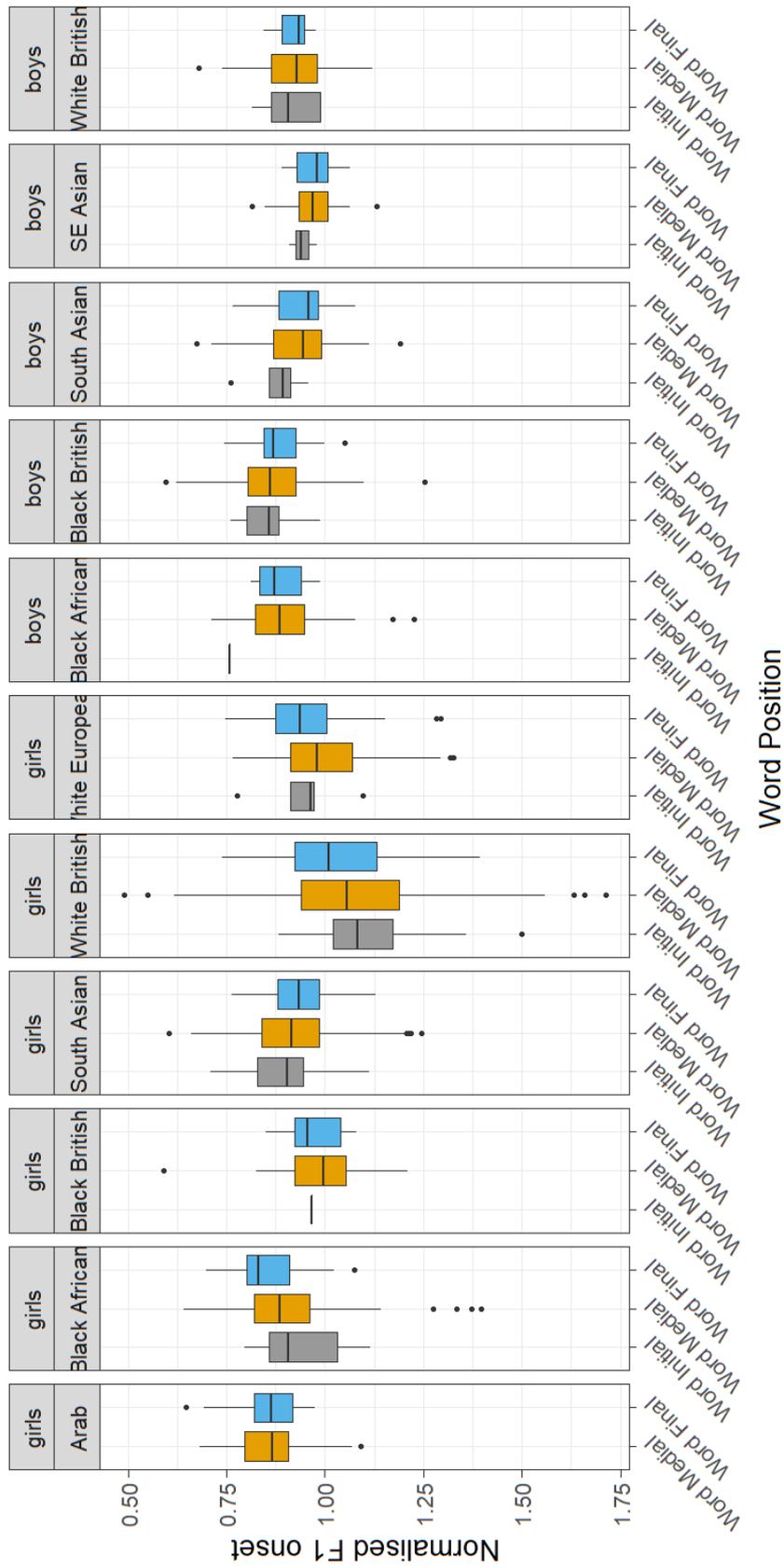


Figure 5.23: FACE F1 onset distributions by word position, ethnicity, and gender

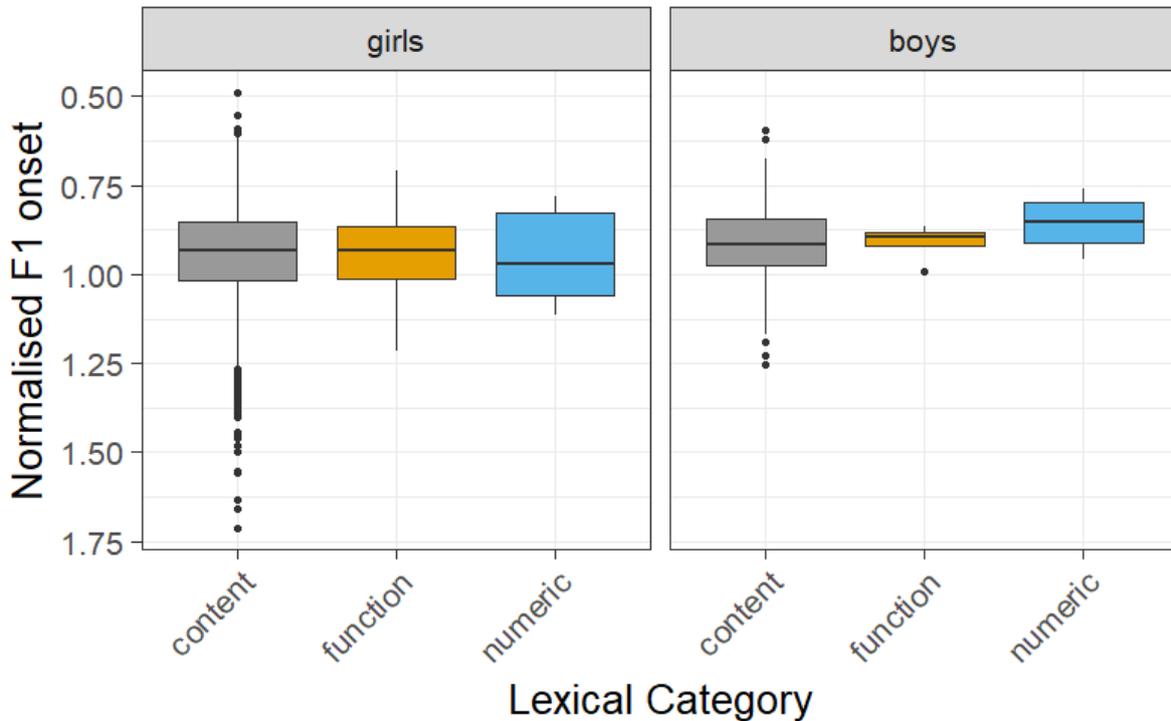


Figure 5.24: FACE F1 onset distributions by lexical category and gender

Figure 5.24 shows the boys on the left and the girls on the right. Looking first at medians, there is little difference between content and function words for the girls or the boys. Content words have a broader spread, likely because there is a higher quantity of content words than function words or numeric words. What would have been informative here is if function words had a lower normalised F_1 value on average, which would have indicated a more raised onset in function words, but this is not the case. Numeric words are different for girls and boys, with girls having a lower median and boys a higher median. This is possibly evidence that numerics should be treated differently to other lexical categories, or excluded altogether (as in Levon and Fox 2014). Findings here do not suggest any effect of word category, but this will be confirmed by including this linguistic factor in the regression analysis in Section 5.6.

5.5.4 Duration

The final linguistic factor to consider is duration. Unlike previous factors, duration is examined using a scatter plot with a line of best fit with a confidence interval. The confidence interval indicates where a linear model would predict tokens to be, so it is possible to examine the degree to which this dataset aligns with linear model predictions. Figure 5.25 indicates both boys and girls have a high degree of variability when it comes to FACE onset position. For girls, the fact that the line slopes down as duration increases indicates that the onset of F_1 is more raised during shorter vowels. The boys, on the other hand, have much shorter FACE vowels in general, and there does not seem to be much difference in onset by duration.

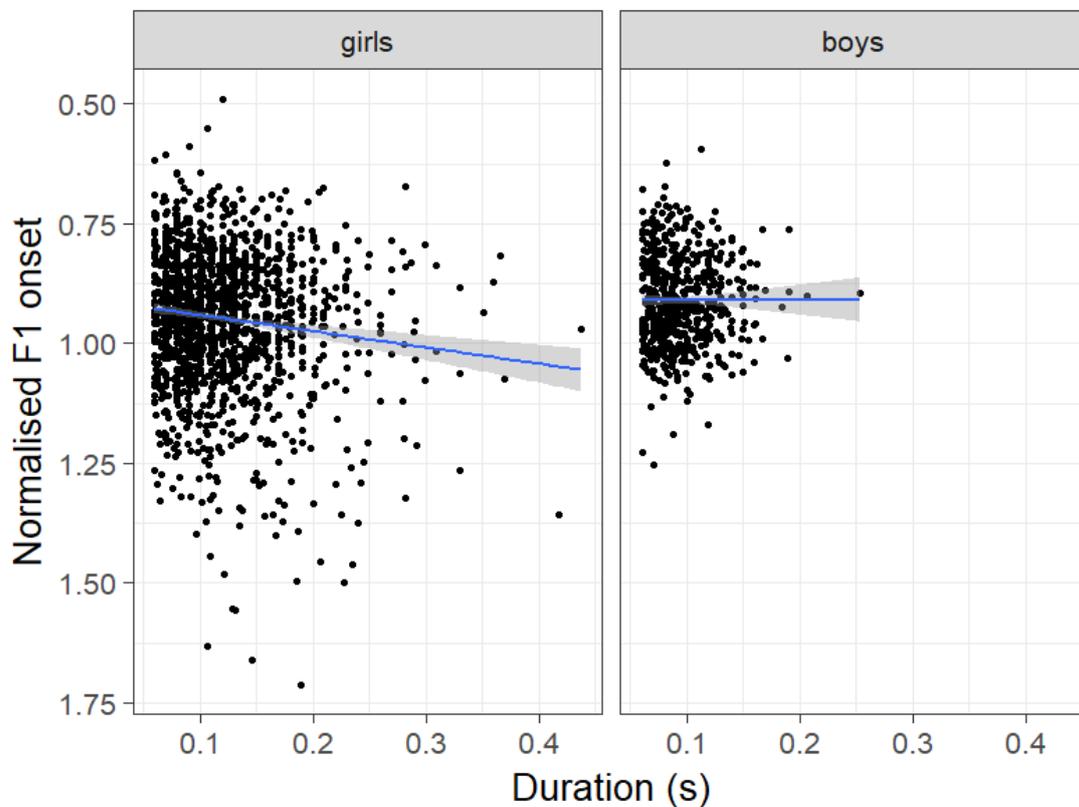


Figure 5.25: FACE F1 onset by duration and gender

5.5.5 Summary of FACE onset linguistic factors

As with social factors, the descriptive analysis of linguistic factors and FACE onset presents some emerging trends that will (for individual factors) be examined inferentially. The descriptive findings suggest that:

- For preceding phonological context, onset is most raised when preceded by voiced obstruents consistently across genders.
- For following phonological context, following laterals and nasal lower F₁ onset for all speakers.
- There is a gender difference for word position. Most girls follow the pattern noted by Fox (2015) in which word final FACE is most raised, whereas boys are most likely to have a raised onset in the word initial position. This is consistent when looking at peer groups and ethnic groups.
- Duration does have an effect on the raising of FACE, but only for the girls. This is likely because girls have a greater number of FACE tokens with longer duration.

This section demonstrates that although girls and boys have quite different realisations of FACE onset when looking at social factors, but they follow similar linguistic constraints. These constraints are different to what was found by Fox (2015), which suggests that MLE might have advanced since 2001. There is also evidence to suggest that FACE is stabilising and is used as part of gendered, ethnic linguistic styles. Results seem to show a contrast between White British

girls and their ethnic minority peers, but the fact that White British girls also follow the same linguistic constraints indicates that they may not be using a different variety of London English, but rather an ethnically-marked style that is less advanced than their ethnic minority peers. This is surprising, as they impressionistically sounded very different to their peers so that one might have expected that they did not follow the same linguistic constraints. If constraints are consistent for all speakers for the other vowel variables examined in this thesis, this could be evidence that ethnic minority speakers are the leaders of change in the capital. This hypothesis could be a different explanation for the findings of Cheshire et al. (2011). They found that White British speakers with ethnically-diverse networks spoke the same way as their ethnic minority peers, which indicated that MLE was ethnically-neutral. However, it could be that MLE is ethnically-marked and White British speakers with diverse networks and who are in a definite minority in their community orient towards the “cool” ethnic way of speaking — a common phenomenon in White-dominant western cultures (e.g. Rose 1994: 5) that has time and again been shown in linguistic studies (e.g. Hewitt 1986; Rampton 1995; Cutler 1999).

5.6 FACE F₁ onset: multivariate analysis

The final part of the analysis of FACE F₁ onset uses inferential statistics to assess the relative contributions of linguistic and social factors. Literature on recent linguistic innovations in London consistently found that ethnic minority boys were the leaders when it came to using innovative features, which included a raised FACE with a shortened trajectory (Kerswill et al. 2008). Thus far, in the present analysis descriptive results indicate that similar innovative variants are used at Riverton, but that different social factors and linguistic constraints are at play. Inferential statistics will shed light on the findings thus far, confirming which factors are the best predictors of variation for these speakers. To do this, the full data set will be modelled first, followed by two separate models for data from the girls and data from the boys.

Methods for statistical analysis and factor levels were discussed in detail in Chapter 4. To recap, the multivariate analysis presented here uses linear mixed-effects regression modelling. Mixed-effects models include fixed and random effects, which are in this instance internal and extra-linguistic factors. The dependent variable is FACE F₁ onset, in order to explore the degree to which FACE is raised. Independent variables are linguistic and social factors.

Linguistic factors included in the models were: preceding and following phoneme (which were then collapsed into categories based on voicing and manner of production), word position, lexical category, and duration. For social factors that are of interest in this thesis are gender, peer group, ethnicity, diversity of friendship networks, length of residency, and style. However, there were two problems with the data that meant running a full mixed-effects linear regression was not possible with the full dataset. First, there was an issue with correlation between gender and peer group (see Section 4.5 in Chapter 4 for detailed discussion). There were also issues with some factors having too many levels with, and too many levels only having one or two speakers. For example, in this data set there is only one Black British girl, and only one White British boy in the White Squad boys. To deal with the issue of correlation, data from the girls and data from the boys were modelled separately (as noted). To deal with the issue of too many levels, two factors were collapsed. As noted in Section 4.3.3, ethnicity originally had seven levels which were collapsed as shown in Table 5.1 (a duplicate of Table 4.4 from Section 4.3.3).

Peer groups were also regrouped for statistical analysis. This was done for two reasons. First, in Chapter 3 we saw how orientation to school was a common identifier for each peer group. Orientation towards school has been found to be an important factor in other studies of

Race (N)	Ethnicity collapsed (N)	Ethnicity (N)	Heritage (N)
Asian (10)	South Asian (11)	South Asian(9)	Bengali (5) Pakistani (3) Indian (1)
		South East Asian (1)	Vietnamese (1)
Arab (1)		Middle Eastern (1)	Kuwaiti (1)
Black (10)	Black African (7)	Black African (7)	Ghanaian (3) Nigerian (2) Congolese (1) Somali (1)
	Black British (3)	Black British (2)	Jamaican (1) Nigerian (1)
	Black European (1)	Cape Verde/Portuguese (1)	
White (6)	White British (4)	White British (4)	English (3) Irish (1)
	White European (2)	White European (2)	Latvian (1) Romanian (1)

*As noted in Table 4.4, Nigerian is listed as Black African and Black British because one speaker, Ade, self-identified as British whereas the other participants (the girls in the Black Squad, as well as the Inbetweener boys) self-identified as African.

Table 5.1: Duplicate of Table 3.1 in Section 4.4 showing levels of social factors race and ethnicity with number of speakers

adolescent peer groups (e.g. Eckert 1989; Moore 2006), and was important part of peer group and individual identity at Riverton. Furthermore, previous work has found similar stance-based groupings useful when data were a challenge to model statistically (Drager 2009). For the students in this study, some were academic high achievers, participating in extra-curricular activities, and co-operating with teachers was important, whereas others were staunchly opposed to school life and openly broke the rules. This led to the distinction of anti-school and pro-school. However, not all groups fitted neatly into this two-way distinction. A three way distinction was then made — those who were not anti- or pro-school were considered neutral. This was not satisfactory either because, within the neutral group, some students were more engaged with school than others. This led to the distinction of pro-neutral and anti-neutral: the peer groups that were fairly studious, or engaged in some extra-curricular activities, but not as actively involved in the educational side of school life as the pro-school students, were considered pro-neutral; and the students that were disengaged with school and did not engage academically, but also tried to stay out of trouble and did not take an actively rebellious stance in the way that the anti-school students did, were considered anti-neutral.

This contrast was particularly stark for the boys, with only one peer group being pro-school: the A-side were all highly engaged in the academics of school, overtly competing with each other for the highest grades and being actively engaged in activities like student council. The others were distinctly anti-school, except when it came to sports. For the girls, there were more of the subtle distinctions described above. For example, Beauty Squad flouted uniform rules but not so much that they were punished, and they wanted to do well academically (pro-neutral). White Squad on the other hand pushed the boundaries with teachers and did not particularly

engage with lessons; for some this meant getting reprimanded, but as a whole the group were not considered “trouble makers” (anti-neutral) in the way that the Rebels were (anti-school).

Peer groups (N)	Peer group orientation (N)
Girls	
Asian Squad (3)	Pro-school (5)
Nerd Girls (2)	
Beauty Squad (2)	Pro-neutral (8)
Main Squad (2)	
Black Squad (4)	
White Squad (3)	Anti-neutral (3)
Rebels (3)	Anti-school (3)
Boys	
A-side (3)	Pro-school (3)
B-side (2)	Anti-school (5)
Inbetweeners (2)	
WS Boys (1)	

Table 5.2: Number of speakers in original peer groups and stance-based groups

As noted, similar re-grouping has been done previously (Drager 2009), as this makes sense statistically. When running regression models, it becomes difficult to interpret more than four or five levels within a factor. Having orientation to school as a social factor as a proxy for peer group made it possible to model peer group, and also test the effects of a particularly important identifier for the peer groups. Therefore, boy and girl peer groups were collapsed and recategorised, as is shown in Table 5.2. A quick test for correlation revealed that gender did not correlate highly with orientation ($r=0.16$) or the collapsed ethnicity category ($r=0.02$), so gender could also be included in the model. Given that the results of the descriptive analysis alongside ethnographic knowledge indicate that ethnicity might be a significant factor that operates differently for girls and boys, separate models for girls and boys were run in addition to a full model. The usual approach would be to model an interaction between gender and ethnicity, an approach that would be particularly useful in this study as it would confirm the significance of interactions demonstrated in the descriptive analysis, but also provide statistical evidence for intersectionality. However, including ethnicity as a factor in a full model makes the model rank deficient. This is also the case for diversity and length of residency, and any interactions between ethnicity, diversity, or LOR, and gender. When it is not possible to include all factors in a model, one can perform separate multivariate analyses and then compare the variance of each model to determine which model is the best fit (Walker 2013: 453). Therefore, three separate models were fitted for ethnicity, length of residency, and diversity of friendship group, and then compared for the full dataset. The same is then done separately for data from the girls and the boys.

5.6.1 Regression models for FACE onset

The model results that follow include all linguistic factors. As explained above, social factors gender, peer group orientation, and style were included in every model, but ethnicity, network diversity, and length of residency were modelled separately. It should be noted here that it would

have been possible to fit an interaction between style and gender, and this will be explored in future analyses. The variables that were modelled are summarised below:

Dependent variable: Normalised F₁ onset of the FACE vowel

Random effects: speaker, word

Fixed effects:[ethnicity/diversity of friendship network/length of residency], gender, peer group orientation, style, preceding phoneme, following phoneme, word position, lexical category, duration

In the interests of space, regression model results will be displayed as follows. A model comparison is presented first in Table 5.3, and then the best fit model is shown in full in Table 5.4.⁴ The structure of the current section is mirrored in parallel sections of the analyses that follow for FACE trajectory, and PRICE onset and trajectory.

	AIC	BIC
Ethnicity	-3419.6	-3242.6
Diversity of friendship network	-3417.6	-3246.4
Length of residency	-3416.2	-3210.7

Table 5.3: Model comparisons for FACE onset

A model comparison for FACE onset is shown in Table 5.3. As noted, three models are compared with different social factors included: ethnicity, diversity of friendship group, and length of residency. To compare model fit, we look at Akaike information criterion (AIC) and Bayesian information criterion (BIC). Both AIC and BIC are indicators of goodness of fit. These measures estimate how much variance a given model accounts for: for both AIC and BIC, a lower value is better as this indicates that less information is lost when running the model. In Table 5.3, AICs and BICs for all models are close in value. Ethnicity has the lowest AIC (-3419.559), which could indicate a better fit model, but this is only slightly lower than diversity of friendship network's AIC (-3417.6). Diversity of friendship network has the lowest BIC (-3246.4), and the difference between each model's BIC is larger than AIC. The fact that AIC and BIC results do not have the same model preference indicates that the models are quite similar. As BIC more strongly favours the model with diversity of friendship network, this could be considered the best model. However, looking at the full model results, for the diversity of friendship model, peer group orientation is highly significant but no level of diversity of friendship group is significant. However, for the model including ethnicity, ethnicity as a social factor does work in the model as well as peer group orientation: both are significant. This model does have a better AIC, and these results are what we would expect based on the distributions described in Section 5.4. Therefore, this is considered the best model and is presented in Table 5.4.

The full best fit model results are shown in Table 5.4. The linguistic factors shown for this model were the same in each of the models, and the same levels come out as significant. The intercept (that is, the reference levels) for preceding and following context are approximant, content words for lexical category, and word initial for word position.

In Table 5.4 we can see that no level of lexical category or word position is significantly different to the intercept. This supports the descriptive analysis, which did not have consistent

⁴This table was modified from the *stargazer* package in R (Hlavac 2018).

	FACE F ₁ onset
	Estimate (Standard Error)
<i>Intercept</i>	0.861*** (0.037)
Gender	
Girls	−0.015 (0.025)
Ethnicity	
Black British	0.012 (0.032)
South Asian	0.025 (0.028)
White British	0.047 (0.049)
White European	0.091* (0.036)
Orientation	
Anti-neutral	0.152* (0.056)
Pro-neutral	0.033 (0.030)
Pro-school	0.026 (0.025)
Style	
Reading passage	−0.010 (0.009)
Word list	0.018 (0.012)
Preceding context	
Lateral	0.006 (0.013)
Nasal	0.022 . (0.012)
Voiceless stop	−0.022* (0.010)
Voiced stop	−0.032** (0.012)
Voiceless fricative	−0.004 (0.011)
Voiced fricative	−0.020 (0.018)
Following context	
Lateral	0.084*** (0.025)
Nasal	0.038 . (0.020)
Voiceless stop	0.004 (0.020)
Voiced stop	−0.022 (0.021)
Voiceless fricative	−0.013 (0.019)
Voiced fricative	−0.022 (0.020)
Lexical category	
Function	−0.004 (0.027)
Numeric	−0.013 (0.035)
Word position	
Medial	−0.009 (0.019)
Final	0.005 (0.021)
Duration	0.346*** (0.058)
AIC	−3,419.559
BIC	−3,242.612

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 5.4: Best fit linear regression model for FACE onset including ethnicity.

findings for these factors. Duration, on the other hand, is highly significant ($p < 0.001$). Looking back at Figure 5.25, the descriptive scatter plot showed raised F_1 occurred more when duration was shorter. Linear regression results confirm that a shorter duration predicts a raised F_1 onset. This could be for phonetic reasons: if a vowel is shorter, it becomes truncated, which for FACE could mean a raised onset. This is unlikely, however, as a reduced glide for FACE generally means that the second part of the diphthong is elided or completely eliminated (Thomas 2011), which would not effect the onset. Another hypothesis is that a shorter duration for FACE correlates with a shorter trajectory, so the discussion of duration will be returned to in the analysis of FACE trajectory.

For preceding context, nasals, voiceless stops, and voiced stops are significantly different to the intercept. The estimate for nasals is positive whereas the estimates for voiceless and voiced stops are negative, indicating that preceding nasals favour a significantly lower FACE onset than preceding approximants, and preceding stops (voiced and voiceless) elicit significantly more raised onsets. For following context, laterals and nasals both favour a lower onset for FACE. These findings mirror the descriptive findings in Section 5.5, confirming that the linguistic constraints for FACE are different to those found in previous literature. Fox (2015) found that raised, fronted FACE was more likely to occur when preceded by /l/ and followed by voiceless obstruents or in word final position, but a raised FACE onset is favoured by different preceding and following environments in the current analysis. Word position is also not significant, unlike Fox's 2015 findings that a raised FACE was favoured in word final position. This could indicate that the changes in London diphthongs are still ongoing. When a linguistic change is in progress, different constraints can be found for different variants (e.g. Milroy and Milroy 1985). Fox (2015) found six discrete variants of FACE, and the three more innovative (front and/or raised) variants followed different constraints to the three more conservative variants. The current analysis examines FACE as continuous rather than discrete so it is not possible to make a direct comparison, but it could be that the FACE vowel found at Riverton is more advanced and so follows different linguistic constraints. This idea will be returned to in the full chapter discussion.

For social factors, the intercepts are boys, Black African, anti-school, and interview. For gender, the girls do not come out as significantly different from the boys for FACE onset. On the one hand this is surprising, as girls and boys did seem to have quite different realisations of FACE descriptively. On the other hand, this finding suggests that it is not gender alone, but the intersection of gender with other social factors that is important, as was shown in the descriptive analysis. Style also does not come out as significant, which suggests that the nuances of stylistic variation shown in the descriptive analysis are lost when included in a full model. This is possibly due to the fact that, of approximately 100 tokens of FACE per speaker, only 20 are from the reading passage and word list combined. It is also possible that stylistic variation is more informative when an interaction is considered with other social factors like gender or peer group (which will be considered in future analysis).

For ethnicity, White European is significantly different to the intercept. White Europeans are likely significant because this ethnic group is only girls, and their FACE onsets are lower than Black African girls and boys. White British do not come out as significantly different as this group is skewed by the White British boy who has a much more raised onset than White British girls. When all other ethnic groups are not separated by gender, they average out to have similarly raised onsets that the model demonstrates are not significantly different to each other. This confirms that it will be necessary to model girls and boys separately to uncover ethnicity differences.

For peer group orientation, anti-neutral comes out as significantly different, that is with lower

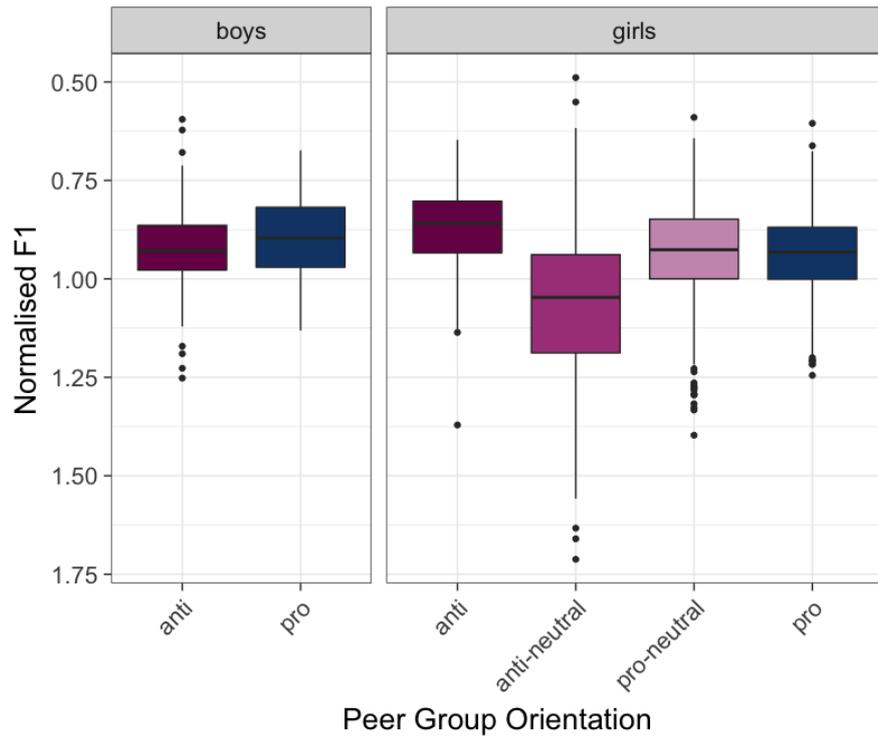


Figure 5.26: Box plot of mean, normalised onset measurements for FACE by gender and peer group orientation

onsets, than the intercept, the anti-school peer groups. This is not surprising, as the descriptive analysis showed all of the peer groups with an anti-school orientation (Rebels for the girls, and for the boys B-side, Inbetweeners, and White Squad boys) had the most raised onsets, whereas the only anti-neutral peer group, White Squad girls, had the least raised FACE onset. This is shown in Figure 5.26 In future work, all possible pairwise comparisons between levels of the factors will be tested, either by releveling, or by using posthoc pairwise comparison tests.

5.6.2 Regression models for girls' FACE onset

Table 5.5 shows model comparisons for the girls. As the models have less data than the full model, modelling orientation to school with other social factors results in rank deficiency, so will be modelled separately. Again, the model including ethnicity has a lower AIC, whereas the model including peer group orientation has a lower BIC. As with the full models, the difference between BIC is bigger than the difference between AIC values, suggesting that peer group orientation is a better model. All models find the same linguistic factors significant, so these will be discussed below in reference to the best model.

Social factors show that anti-neutral, pro-neutral, and pro-school girl peer groups all have a significantly lower F_1 onset than the intercept, anti-school. Anti-neutral peer groups have the lowest onset, followed by pro-school, and then pro-neutral. These findings mirror the descriptive findings, where we saw that the anti-neutral White Squad had much lower onsets than their ethnic-minority counterparts. The significance of this difference is evidence that, contrary to previous findings (e.g. Cheshire et al. 2011) there may be a distinct White ethnic style or variety

	AIC	BIC
Ethnicity	-2261.9	-2116.1
Diversity of friendship network	-2256.4	-2116.0
Length of residency	-2239.8	-2077.8
Peer group orientation to school	-2261.3	-2120.8

Table 5.5: Model comparisons for girls' FACE onset

	FACE F ₁ onset
	Estimate (Standard Error)
<i>Intercept</i>	0.844*** (0.046)
Orientation	
Anti-neutral	0.210*** (0.038)
Pro-neutral	0.072* (0.032)
Pro-school	0.078* (0.034)
Preceding context	
Nasal	0.027 . (0.015)
Voiceless stop	-0.023 . (0.012)
Following context	
Lateral	0.098** (0.033)
Duration	0.349*** (0.066)

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 5.6: Significant regression results for girls' FACE onset

of MLE.

Linguistic constraints largely mirror the full model: preceding nasal and following lateral favour a lower F₁ onset, and preceding voiceless stop favour a more raised F₁ onset. The constraints for a lower F₁ can be explained by coarticulation: neighbouring nasals and lateral environments were excluded from the analysis in Kerswill et al. (2008) for this reason. Duration is also significant for the girls, with a longer duration favouring a lower onset. This might in part be due to the White Squad girls, who have longer trajectories and so are more likely to produce FACE with a longer duration on average.

5.6.3 Regression models for boys' FACE onset

As with the girls, keeping peer group orientation to school in the model with other social factors made models unreliable as the dataset is smaller when separating by gender. Therefore, separate models were run for ethnicity, diversity of friendship network, length of residency, and peer group orientation. AIC results are close in value, but the ethnicity model has the lowest. For BIC, the values are not as close together, and peer group orientation has the lowest. Of the four models, the only one that shows any social factors to be significant is the ethnicity model.

	AIC	BIC
Ethnicity	-1274.1	-1160.3
Diversity of friendship network	-1271.3	-1161.9
Length of residency	-1271.2	-1157.4
Peer group orientation	-1273.0	-1167.9

Table 5.7: Model comparisons for boys' FACE onset

<i>Dependent variable:</i>	
Estimate (Standard Error)	
Intercept	0.887*** (0.043)
Ethnicity	
South Asian	0.055 . (0.029)
Preceding context	
Voiceless stop	-0.028* (0.011)
Voiced stop	-0.049*** (0.012)
Voiced fricative	-0.039* (0.019)
Following context	
Lateral	0.064* (0.032)
Nasal	0.049 . (0.028)

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 5.8: Best model significant regression results for boys' FACE onset

No levels of diversity of friendship network, length of residency, or peer group orientation are significant in their respective models, although the same linguistic factors are significant in each model. As the ethnicity model also has the lowest AIC, this model is selected as the best model.

Regression results are shown in Table 5.8. We can see that South Asian boys have significantly lower onsets than the intercept, Black African boys. No other ethnic group is significantly different to the intercept, and the significance level is low. Taken with the lack of significance of other social factors, these results confirm that FACE onset position is less variable by social factors for the boys than it is for the girls. Although the descriptive results suggested that boys' FACE onsets were raised compared with the girls, regression results did not find the difference between genders significant. Furthermore, FACE onset does not have different intra-gender social meaning for different boy peer groups or ethnic backgrounds like it does for girl peer groups and ethnic identities.

For linguistic factors, Table 5.8 shows that following lateral significantly lowers FACE onset, which aligns with the results for the girls, and as noted is likely consistent due to co-articulatory effects. Table 5.8 also shows that there are some consistencies between the boys' and girls' linguistic constraints. For the boys, preceding voiceless stop, voiced stop, and voiced fricatives significantly raise FACE onset, and preceding voiceless stop was also a significant predictor of a raised FACE for the girls. As preceding voiceless stop is a consistent predictor across the data,

this is firm evidence that different constraints are in operation for FACE onset in this community than were found previously by Fox (2015).

5.6.4 Summary of FACE onset results

The regression results for FACE onset are interesting for the following reasons. The consistency of preceding stops as a predictor of a raised onset for FACE in the full model for the entire dataset and then also when separating by gender confirms that, for this community, a raised FACE onset follows different constraints to those noted by Fox (2015). This suggests that FACE has advanced further, so that if FACE were presented as discrete variants in this analysis as was done by Fox (2015), we would see different, more raised variants.

The descriptive analysis of FACE onset showed a gender difference in FACE onset position, but this was not confirmed by inferential statistics. However, we have seen variation within the boys and within the girls. For example, there are additional linguistic constraints for the boys that are more significant than preceding voiceless stops. This could perhaps be evidence that FACE is stabilising or has stabilised. Labov's Principle II states that women use fewer stigmatised variants than men for stable linguistic variables (Labov 2001: 266). The girls in this community have closer social networks than the boys, such that the boys can be viewed as more socially fluid. This complicates the theoretical stance of previous studies, where close-knit social network ties are a significant factor in women leading linguistic change (Labov 2001; Milroy 1980). This does not seem to be the case in this community.

Labov's model of language change predicts that women lead change when it is below the level of consciousness, and then they lead in prestige norms. So this finding could indicate that this variable is more socially salient now, and so boys are the leaders in using the more advanced form. Examining the constraints for FACE trajectory will shed light on these suggestions. If the linguistic constraints favouring a short trajectory are the same as those favouring a raised onset, this will give more weight to these hypotheses.

5.7 FACE trajectory: social factors

Some interesting social and linguistic patterns have emerged for FACE onset: linguistic factors are consistent, but different to those found previously by Fox (2015), and social factors are difficult to separate as factors like peer group, gender, and ethnic identity all intersect. It is hypothesised that the variables FACE onset and FACE trajectory are associated, as previous literature indicates that a raised onset *and* a short trajectory is innovative for the FACE vowel. In the section that follows, FACE trajectory will be examined to shed light on this association and possibly further illuminate the complexities of social factors. It should be noted that, although collapsed categorisations for ethnicity and peer group will be used for inferential statistics (as with FACE onset), peer group and ethnicity will not be collapsed for the descriptive statistics that come first.

Trajectory was calculated by using Euclidean distance. Euclidean distance was calculated using the square root of the difference between F_1 onset and offset squared, minus the difference between F_2 onset and offset squared. The lower the value for Euclidean distance, the shorter the distance between F_1 - F_2 onset and F_1 - F_2 offset. It is important to note here that trajectory length does not take duration into consideration; it is simply a way of representing the distance of movement from onset to offset for the vowel, regardless of how slowly or quickly it is produced.

The box plots that follow present the distribution of Euclidean distance relative to different

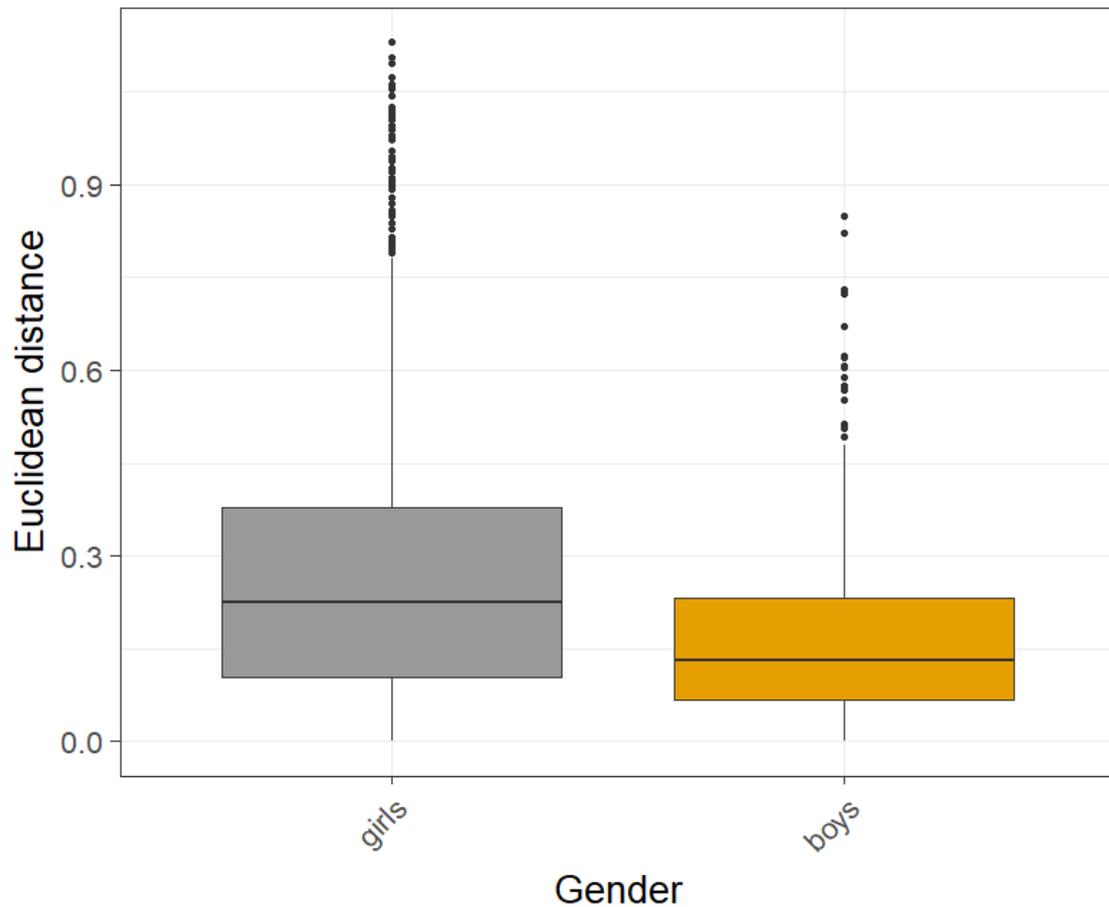


Figure 5.27: FACE trajectory distributions by gender

social factors. Euclidean distance is shown on the y axis and social factors on the x axis. The higher the median value is on the y axis, the greater the Euclidean distance and the longer the average trajectory is for FACE. Interquartile range and whiskers can be seen as representative of variation; for example, a low median with narrow interquartile range suggests a consistently short trajectory. As with F_1 onset, the social factors considered here are gender, peer group, ethnicity and diversity of friendship group, and box plots include data from all stylistic contexts.

5.7.1 Gender

The box plot in Figure 5.27 shows Euclidean distance and gender. The boys' box plot on the left has a relatively low median, whereas the girls' on the right have a higher median Euclidean distance, as well as a more broad interquartile range, longer upper whiskers and more upper outliers. This suggests that, on average, boys have a smaller Euclidean distance, and therefore shorter FACE trajectories, than the girls. As a shorter trajectory is considered more innovative (Kerswill et al. 2008), this seems to align with the findings presented in 5.4 that, on average, boys use a more innovative FACE variant with more raised onset and shorter trajectory. However, as with FACE onset in Figure 5.8, the girls' box plot presented here in Figure 5.27 appears to be skewed by outliers. This means that the median and distribution shown here may

be camouflaging some intra-gender variation.

5.7.2 Peer Group

Figure 5.28 shows median Euclidean distances and distributions of each gender, split by peer group. At first glance, this plot appears to confirm that girls have longer trajectories than boy peer groups: median Euclidean distances for girl peer groups are generally higher than the boys. This is not the case for all girls, however. Rebels are similar to boy peer groups, with low median Euclidean distance and small interquartile range, and they appear to have the shortest FACE trajectories of the girls. It is also apparent that White Squad girls may have skewed the box plots in Figure 5.27. They have by far the broadest overall distribution for FACE trajectory, and also exhibit a broader interquartile range and much higher median. This means that, on average, White Squad girls have longer FACE trajectories, which reflects the descriptive vowel plot shown previously in Figure 5.6.

Whilst the White Squad girls do seem to be skewing the data, there are similarities amongst the other girl peer groups. On average, the other girl peer groups still have a broader distribution (both just within the interquartile range and when whiskers are included) and higher median Euclidean distance, that is to say longer FACE trajectories, than the boy peer groups. Main Squad have a similar median value to Asian Squad, Black Squad, and Nerd Girls, but have a broader overall distribution and interquartile range. Beauty Squad also have a broad interquartile range, but have the highest median value after White Squad, meaning that their trajectories are relatively long. The one exception to this is the Rebels, who (as noted above) align more closely with the boys in terms of FACE trajectory.

There are also similarities amongst the boy peer groups, as they all have relatively short trajectories. White Squad Boy, Zach, has the highest median Euclidean distance, as well as the broadest distribution of all the boys, which indicates the longest trajectory for FACE of all the boys in the data. Zach is closely followed by A-side, who have the next highest median Euclidean distance, as well as broad upper interquartile range and upper whiskers. There are quite a few outliers for the boys in the upper parts of the distribution, meaning that there are occasions when boys produce longer trajectories for FACE. However, for the most part, boys' outliers are within the upper range for the girls' whiskers. These features all indicate that boys' trajectories are generally shorter than the girls. Finally, as the data presented in this box plot includes tokens from all stylistic contexts, results could also indicate that girls are more stylistically variable than the boys.

5.7.3 Ethnicity

Looking next at ethnicity, Figure 5.29 shows median Euclidean distance and distributions for FACE trajectory by ethnic background. First, it is apparent that, as with FACE onset, there are greater intra-gender contrasts when looking at ethnicity. The box plots for boys on the left shows that South Asian boys have the highest median Euclidean distance, and that Black African and South East Asian boys have more narrow interquartile ranges as well as lower median Euclidean distance — a difference that is hidden when grouping by peer group. Dinh (A-side) is the only South East Asian boy in this study. Although when examining F_1 onset he seemed to be less innovative (his onset was relatively low), his trajectory in Figure 5.29 appears one of the shortest as he has the smallest median Euclidean distance. This suggests that his FACE vowel has the shortest trajectory of all of the boys, which would perhaps be unexpected given the distribution and median Euclidean distance of A-side as a whole.

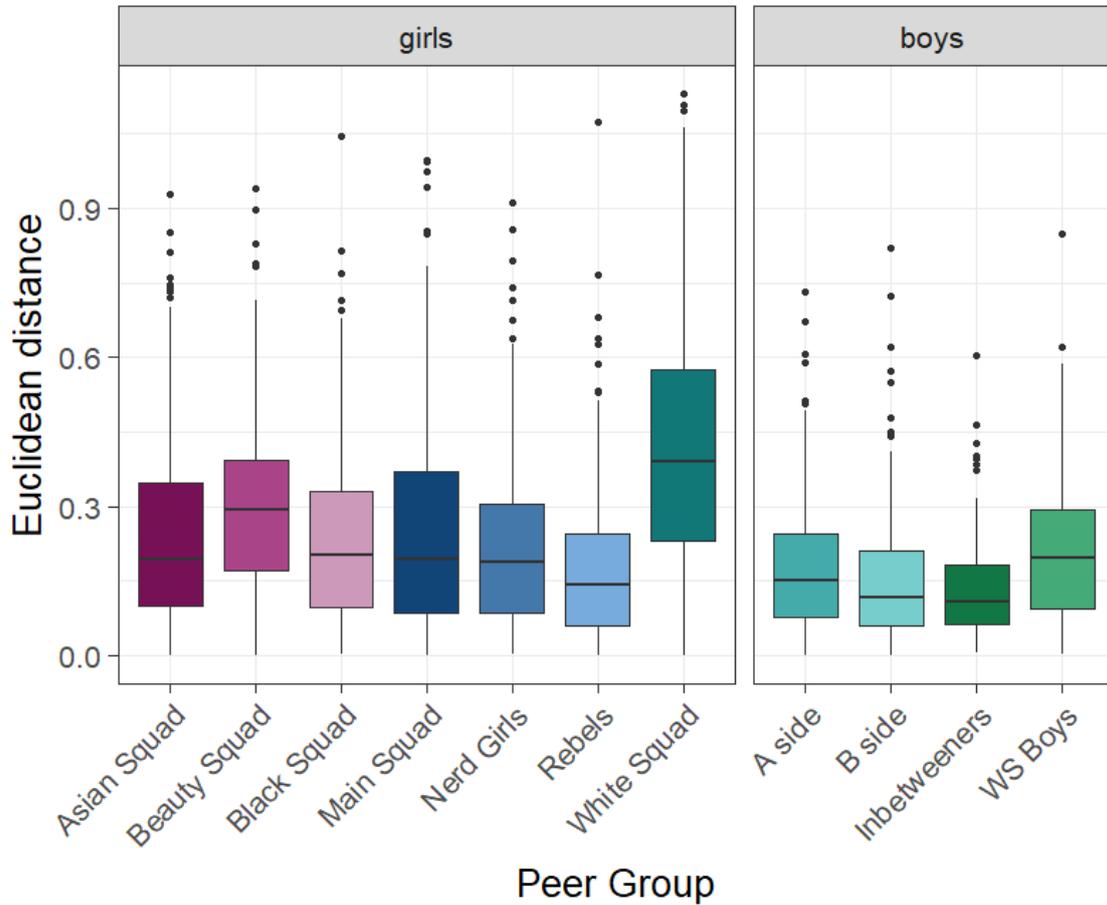


Figure 5.28: FACE trajectory distributions by peer group and gender

Looking at the girls on the right of Figure 5.29, White British girls have longer trajectories that are highly variable, indicated by higher median Euclidean distance and the broad interquartile ranges, mirroring the peer group results in Figure 5.28. However, there are also differences that were hidden in the box plots split by peer group. Whilst the median Euclidean distance for peer group Black Squad is in the middle of the range for girls when looking at peer group, Black African girls (a group that includes all Black Squad members plus one Nerd Girl) have one of the lower median values in Figure 5.29.

There are other intra-peer group/individual differences that are masked when grouping by peer group too. For example, Rebecca, who is the only Black British girl, has a longer median Euclidean distance (i.e. longer trajectory) and broader interquartile range than the other member of her peer group, the Beauty Squad. Findings are similar for the Main Squad. There are two participants from Main Squad in this study; one is Bengali, and one is White European. However, these ethnic groups have different median values and interquartile ranges in Figure 5.29, something that is not apparent when looking at peer groups.

As with FACE onset, it is not possible to compare genders across peer groups, but it is potentially informative to look at ethnicity across genders for FACE trajectory. In general, within ethnic groups, girls use more conservative FACE variants with longer trajectories. For example, Black British boys have a much more narrow interquartile range for Euclidean distance

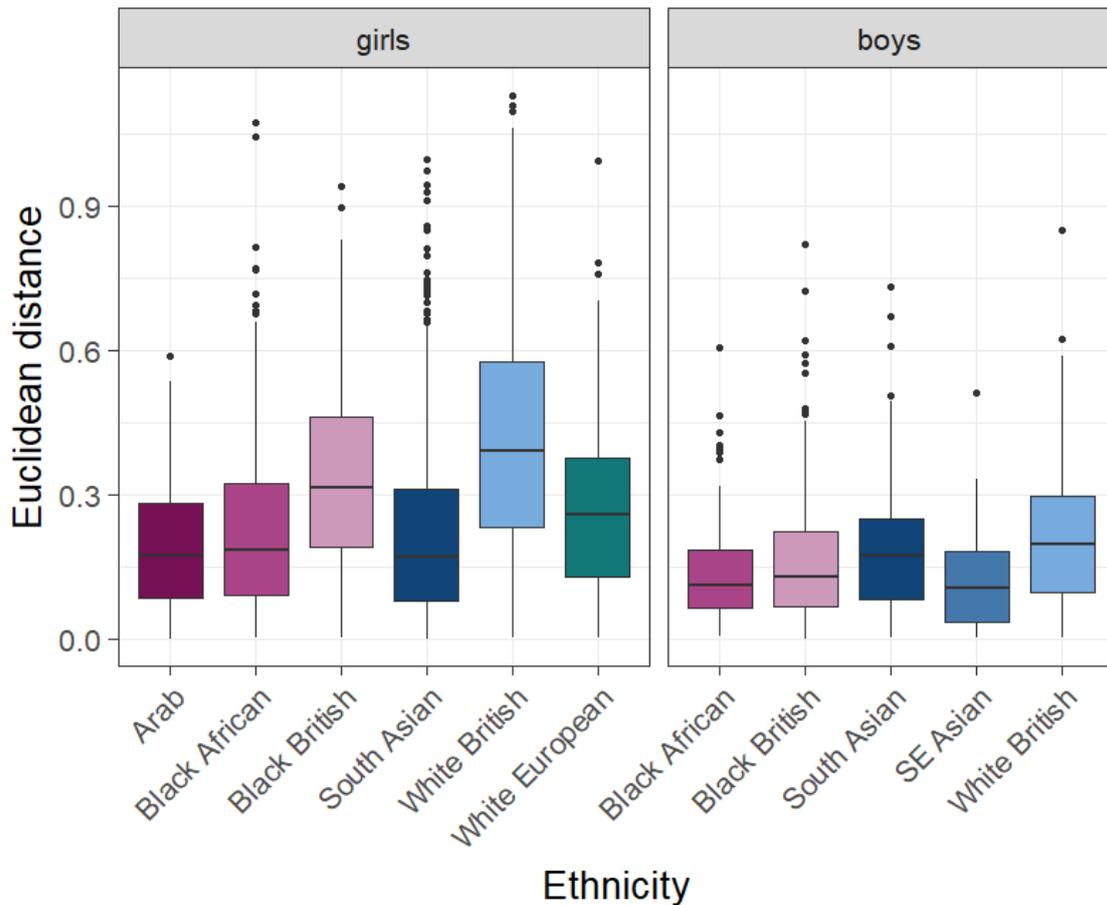


Figure 5.29: FACE trajectory distributions by ethnic background and gender

than Rebecca, the Black British girl. Similar results can be found when comparing White British participants. White British girls have a much longer trajectory than the White British boy, Zach. This supports results for FACE onset that indicate White British girls use a more traditional FACE variant, not only amongst the girls but also when compared with their male White British counterpart. Finally, Black African girls have a broader interquartile range for Euclidean distance and median value are higher, indicating that they use a more diphthongal FACE variant than the boys. This is not the case for South Asian girls, however, whose median Euclidean distance is almost identical to South Asian boys, suggesting that there is a minimal gender difference for this ethnic minority group, at least when it comes to FACE trajectory.

5.7.4 Race

Figure 5.30 shows the results for FACE trajectory split by race and gender. These findings reify the ethnicity differences noted above. For both boys and girls, White British speakers have a longer median Euclidean distance than their ethnic minority peers, which indicates that they have a longer FACE trajectory on average. Asian, black, and middle eastern girls are all quite similar, although black girls do have a slightly longer average trajectory. The opposite is true for the boys, as black boys have the shortest average trajectory. On the one hand, this figure

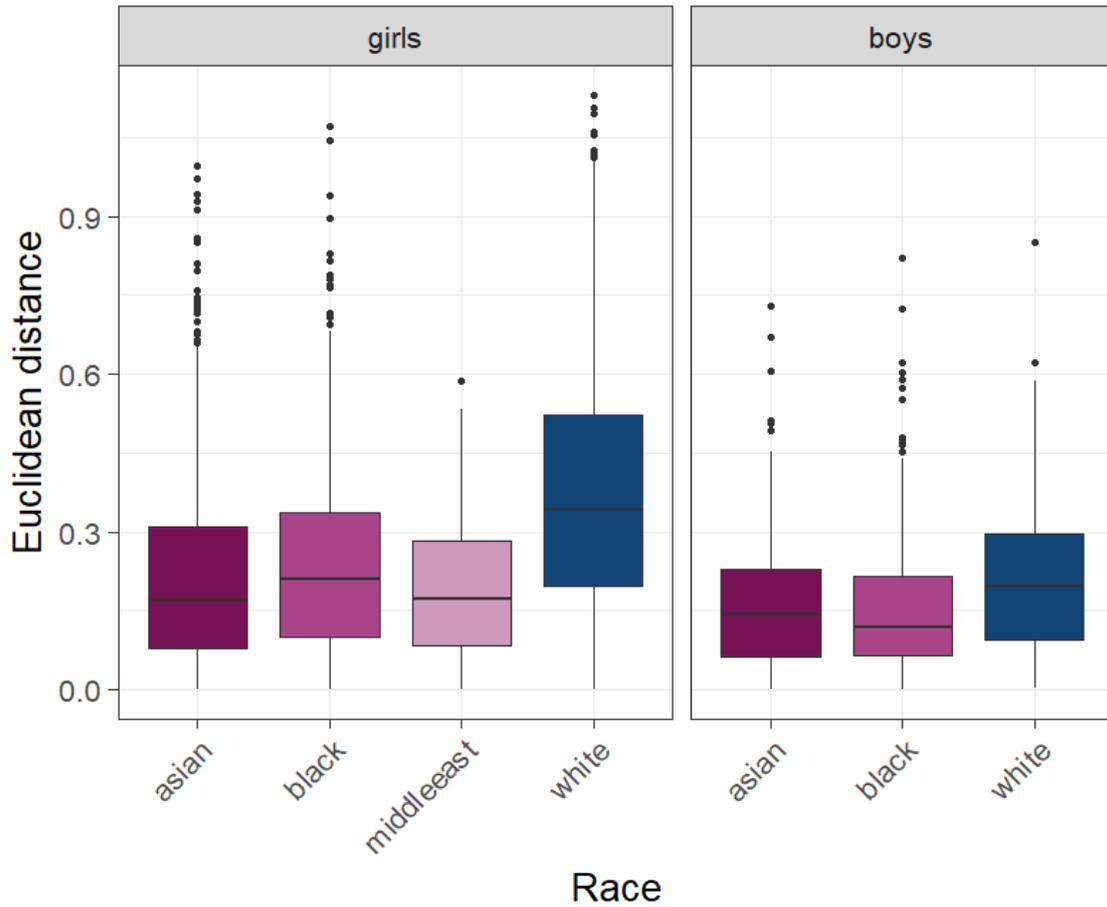


Figure 5.30: FACE trajectory distributions by race and gender

conflates some ethnic differences that were shown above. For example, Black British and Black African girls were quite different, and this is masked in Figure 5.30. However, it does emphasize the difference between White British speakers and their ethnic minority peers across genders.

5.7.5 Diversity of friendship group

Diversity of friendship group and FACE trajectory is shown in Figure 5.31. As noted in the results for F_1 onset, not all points on the diversity scale are represented in this data set. For the girls it is apparent that those with a score of 2 are very different to the rest of the girls. Given what has been shown in the preceding two sections looking at peer group (Figure 5.28) and ethnicity (Figure 5.29), this is not surprising, as girls with a score of 2 are all White Squad girls; members of the other peer groups either have a score of 1 (Asian Squad, Black Squad), or 4/5 (Rebels, Main Squad, Beauty Squad). Girls with a friendship diversity score of 5, in other words the greatest proportion of friends with a different ethnic background to themselves, have the lowest median Euclidean distance. This means, on average, their FACE trajectories are shorter, which aligns with Cheshire et al. (2011). However, girls with a diversity score of 1 also have a low median Euclidean distance that is comparable with girls that have a score of 5 and lower than the girls with a diversity score of 4. This contradicts the findings of Cheshire et al. (2011)

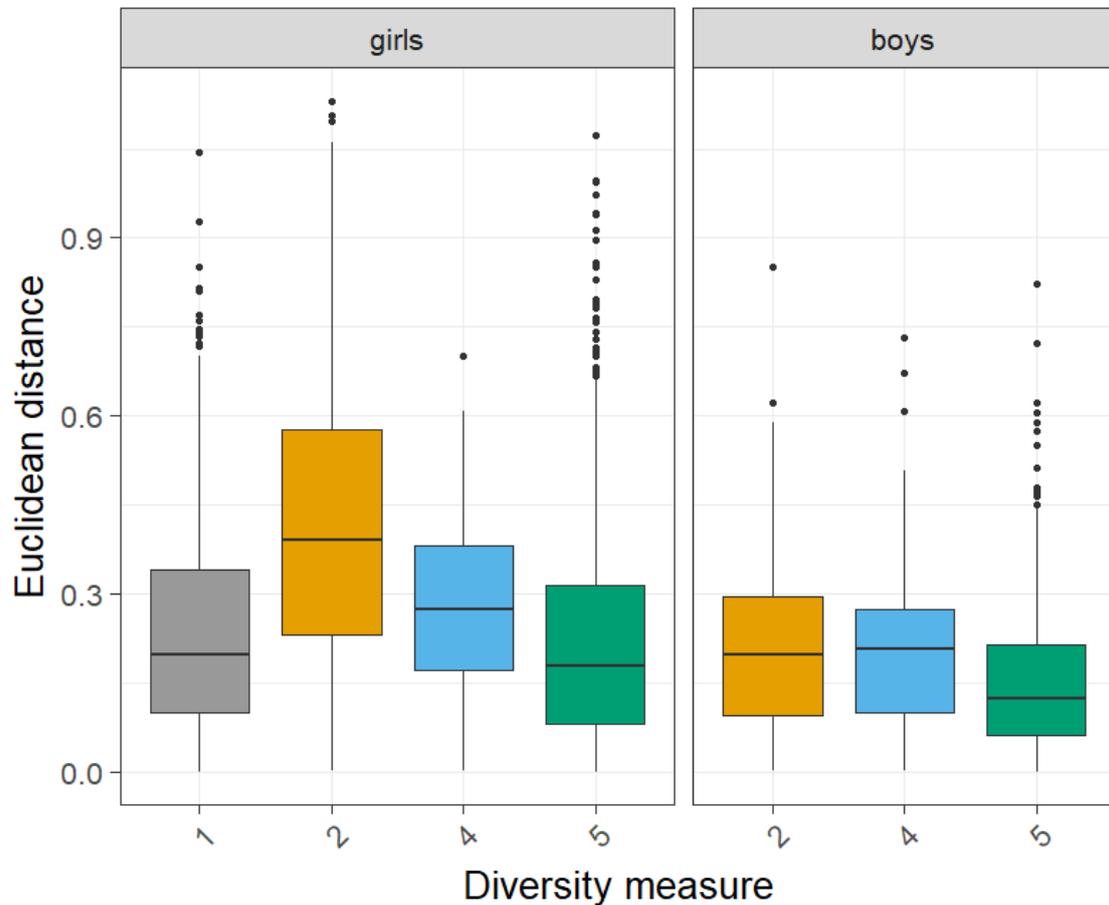


Figure 5.31: FACE trajectory distributions by diversity of friendship group measure and gender

— a shorter FACE trajectory is seen as innovative and was more common amongst speakers with more diverse friendship networks.

For the boys on the right of Figure 5.31, only one participant has a friendship diversity score of 2, and that is Zach (White Squad boy); all other boys in this study have a friendship diversity score of either 4 or 5. The boys with the most diverse friendship networks (a score of 5) have the lowest median Euclidean distance, suggesting that this group has the shortest FACE trajectory. However, not only is the median Euclidean distance for boys with a diversity score of 4 is higher than those with a 5, but also the diversity score of 2. This is not surprising, given that Zach is the only boy with a score of 2, and his FACE is more monophthongal than some of the other boys. So, even though the pattern with diversity scores 4 and 5 follow Cheshire et al. (2011), Zach’s results are somewhat contradictory. This is consistent with the pattern found for FACE onset. As Zach is only one speaker this may not be a generalisable pattern for the boys. On the other hand, as White British girls seem to have such different linguistic patterns to other girls, it could be the case that Zach should be considered separately to the other boys (although of course it is difficult to say conclusively at this point in the analysis). The findings here for boys and girls do not support the conclusion that diversity of friendship network is a predictor of vowel realisation, which is consistent with the results for FACE F_1 onset shown in Section 5.4.

5.7.6 Length of residency

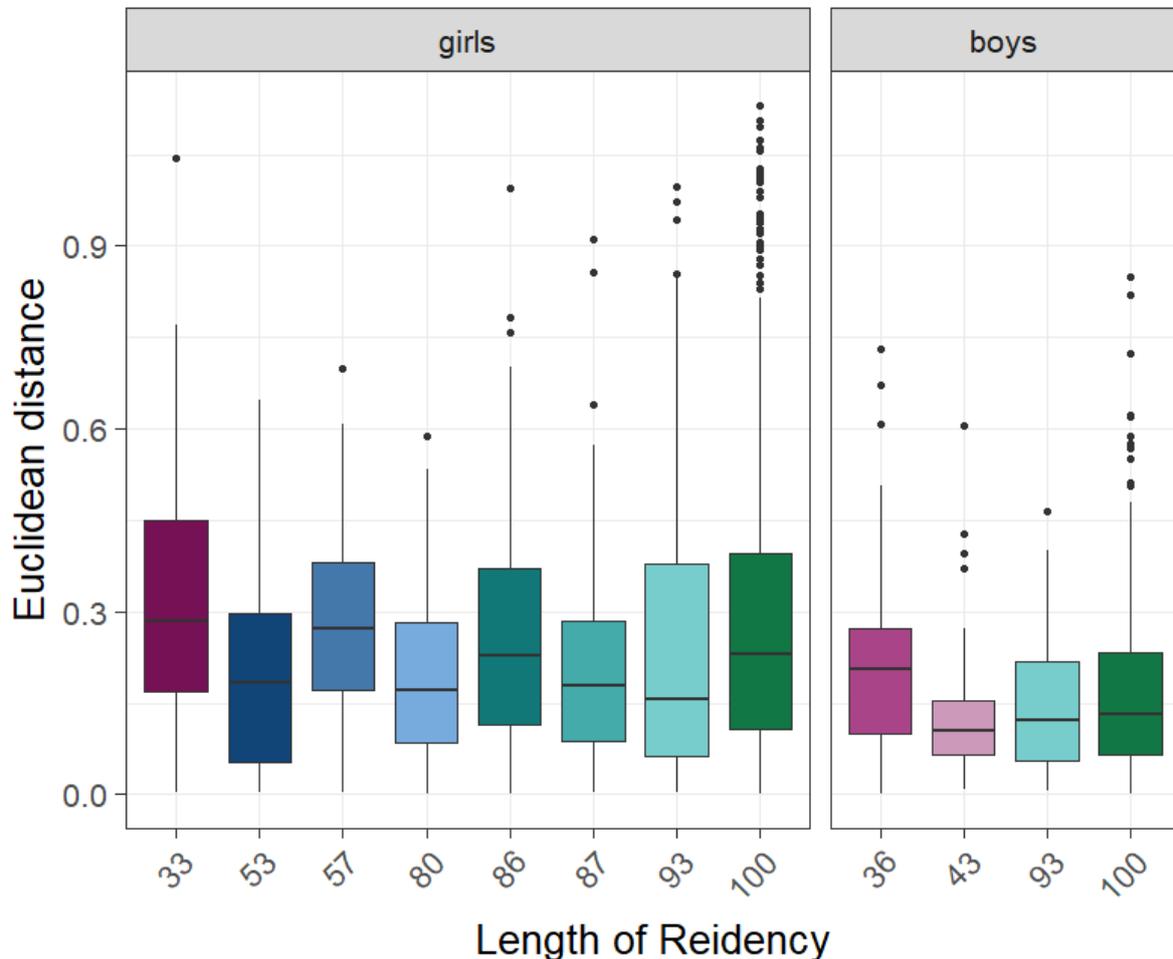


Figure 5.32: FACE trajectory distributions by length of residency and gender

Unlike for FACE onset, length of residency does shed some light on FACE trajectory. In Figure 5.32, we can see that both girls and boys with the lowest LOR (33% and 36% respectively) also have the highest median Euclidean distance, indicating that they have the longest average FACE trajectories. Other participants with low LOR do not consistently follow the same pattern, but the LOR for these participants is over 40%. This suggests that those who arrived most recently have yet to acquire the shorter trajectory that is characteristic of FACE in this community. This is an interesting finding; it may or may not support the argument that the raising of FACE onset is in part due to language contact. Oyin of the Black Squad is Nigerian and Sanjit from the A-side is Bangladeshi, both of whom have heritage languages with a monophthongised FACE. Their trajectories are not as short as their peers. However, they are by no means long, so it is perhaps the case that the trajectories of FACE in their input language are not as short as is found in this community but are still not full glides as in other varieties of British English.

5.7.7 Stylistic variation

Figure 5.33 shows the distribution for Euclidean distance of each stylistic context by gender. Results thus far have demonstrated that there are differences between genders: boys, on average, have a lower median Euclidean distance as their FACE vowels are more monophthongal, and this pattern is still evident in Figure 5.33. It is also apparent that, for boys and girls, the median Euclidean distance is higher in the word list context than in the interviews or during read speech. This suggests that on average, trajectory of FACE is longer during the word list. As with results for F_1 onset, this could indicate that participants use their most careful speech in word list context, as would be expected based on Labov's 1971 attention-to-speech model. However, as with FACE onset, results for read speech seem to more closely mirror the findings of other studies (such as Milroy 1980; Stuart-Smith et al. 2007) in that the median Euclidean distance for boys and girls during the reading passage is shorter than the word list and the interview, which could be evidence that most casual speech is used during the reading passage. The difference is small, though, so it is possible that there simply is not a meaningful stylistic difference between the reading passage and the interview contexts. Another interpretation might be that, given how interquartile ranges of both linguistic variables overlap in interview and read speech, there is stylistic variability for individual speakers that is masked when looking at box plot distributions split by gender.

The general pattern found when looking only at gender is largely replicated when looking at peer group. Figure 5.34 shows that, for most peer groups, the word list elicits the highest median Euclidean distance, suggesting that longer trajectories are used in this context. Interview and reading passage seem to either elicit similar median Euclidean distance, or a lower median Euclidean distance in the reading passage. However, on the whole, interquartile ranges are much broader when looking at peer groups. This is likely because there is a degree of intra-peer group variability, so the median values should be viewed tentatively.

For the boys, there seem to be two patterns evident. For B-side and Inbetweeners, the difference in median values between the three stylistic contexts is small, whereas the A-side and White Squad boy have much higher median Euclidean distances during the word list. As the difference between styles is minimal for B-side and Inbetweeners, it may not be meaningful, but it is worth noting that the median Euclidean distance for the reading passage is the most different for both of these peer groups. B-side reading passage elicits a higher median Euclidean distance than the other two stylistic contexts, whereas Inbetweeners have a lower median in the reading passage. Contrastingly, as noted, the A-side and White Squad boy have a stark contrast between the word list and the other two contexts, with a higher median Euclidean distances during the word list, and near identical medians for interview and reading passage. B-side and Inbetweeners also have lower medians overall for Euclidean distance, indicating that these two peer groups have shorter average trajectories for FACE than the other two peer groups. So, it is possible that boy speakers who are more monophthongal are also less stylistically variable.

For the girls, most peer groups have longer median FACE Euclidean distance during the word list, and for Asian Squad, Beauty Squad, and White Squad in particular, the contrast between the word list and the other two contexts seems quite stark. There one quite obvious exception to this pattern: Main Squad. For them, the word list and interview context have similar median Euclidean distance and interquartile range. However, median Euclidean distance for the reading passage is higher, indicating that average trajectory is longer in the reading passage for the Main Squad girls. Four of the seven peer groups follow the pattern described above in which the reading passage elicits a shorter Euclidean distance than the interview: Beauty Squad, Nerd

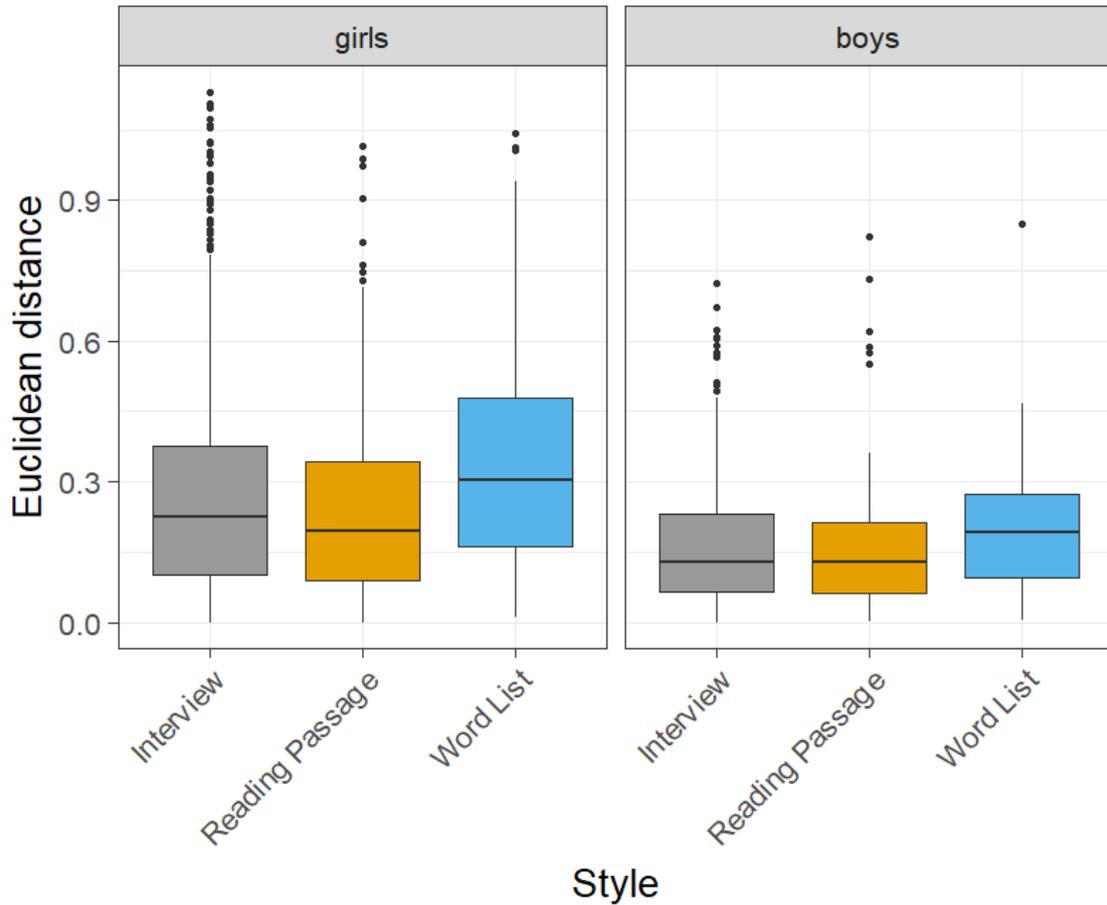


Figure 5.33: FACE trajectory distributions by stylistic context and gender

Girls, Rebels, and White Squad. For the Black Squad, there is not much difference in median Euclidean distance between the three stylistic contexts, but the interquartile range in word list is skewed towards the upper parts of the range indicating there may be some stylistic variation for this group, just less of a contrast.

Finally, looking at ethnicity, we see some variation in the patterns found thus far. First, stylistic variation amongst the boys is more apparent. All five ethnic groups show longer Euclidean distances in the word list (although the difference is small for Black African and South Asian boys). The difference in median Euclidean distance between interview and reading passage is very minimal for all boy ethnic groups. Interquartile range does show some variation, but on the whole the interview context has a broader interquartile range and longer whiskers, indicating that the interview context has more variability for each ethnicity. Findings are similar for the girls. For each ethnic group, median Euclidean distance is almost identical in interview and reading passage. Although there is some variation when it comes to interquartile range, there is a high degree of overlap, and on the whole interquartile range and whiskers have a broader span for the interview context than the reading passage, indicating that FACE in the interview context is more variable for all girl speakers.

Considering the results for peer group shown in Figure 5.34 and ethnicity shown in Figure 5.35, it could be argued that findings for ethnicity are more convincing. Findings for peer group

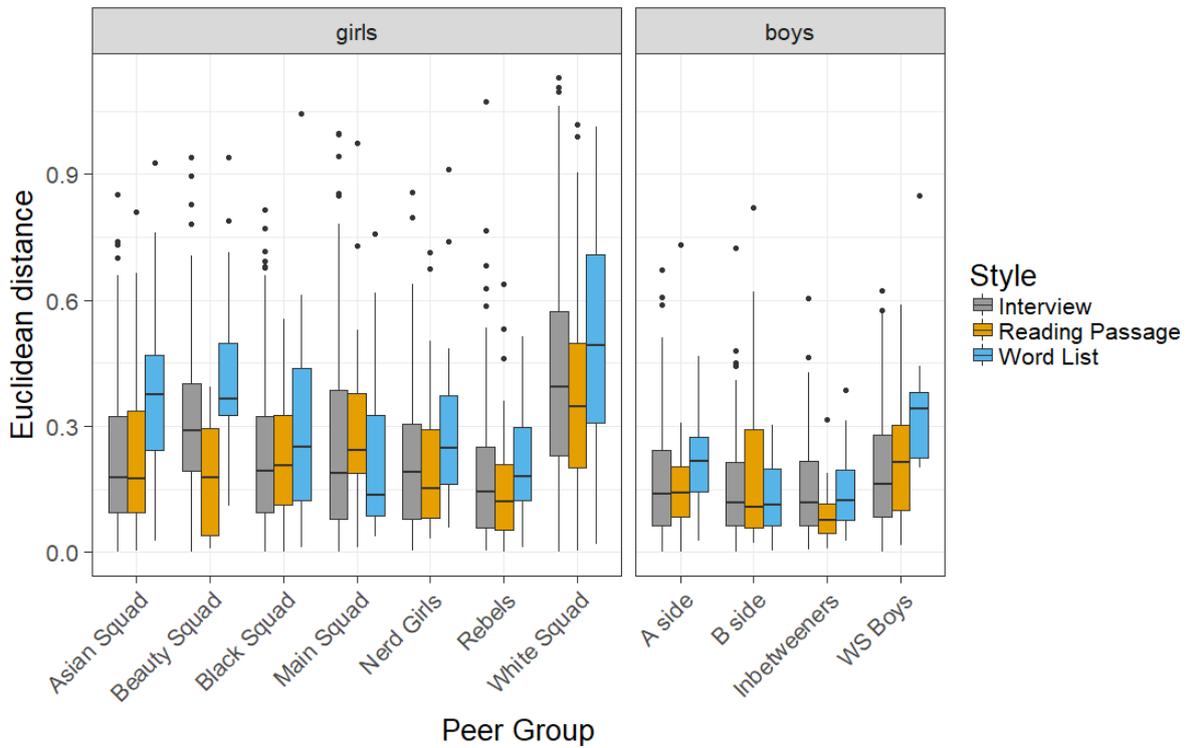


Figure 5.34: FACE trajectory distributions by stylistic context, peer group, and gender

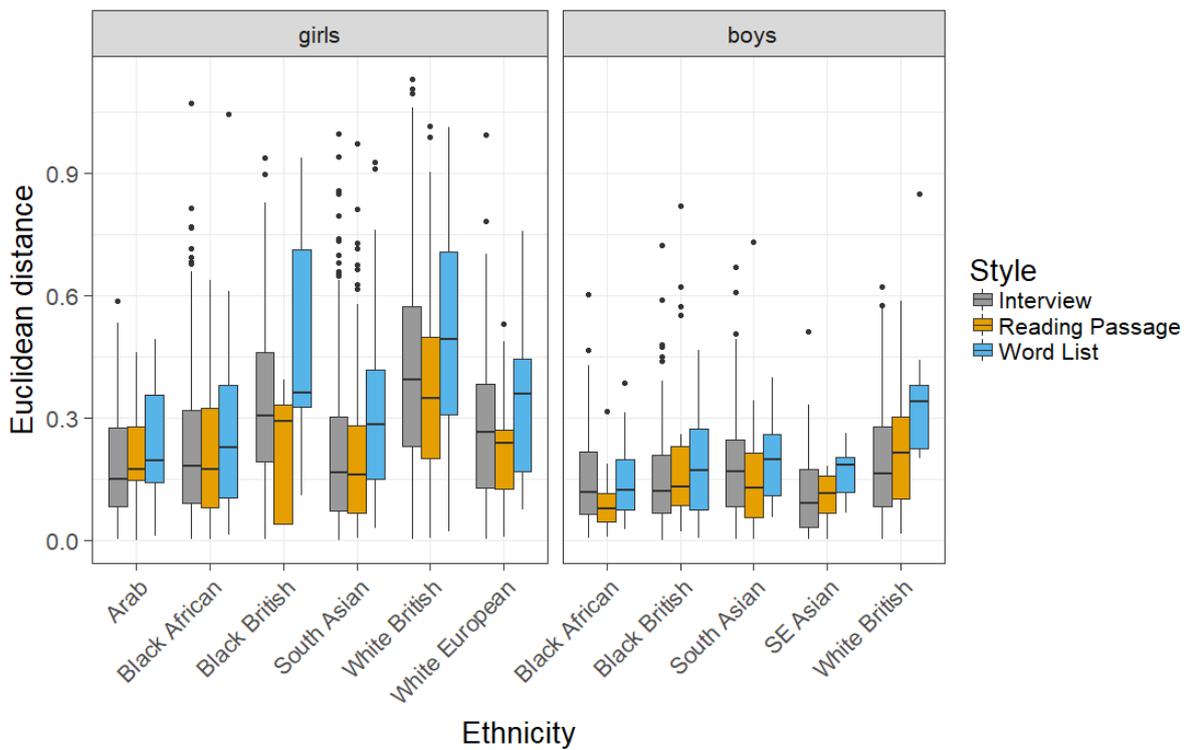


Figure 5.35: FACE trajectory distributions by stylistic context, ethnicity, and gender

are somewhat inconsistent, and do not always align with the stylistic variation patterns we might based on Labov's 1971 hypotheses. When looking at ethnicity, however, there is little variation between interview and reading passage across the board for boys and girls, but a longer FACE trajectory during the word list. So it seems that when grouping by peer group, intra-peer group ethnic patterns of stylistic variation are masked.

5.7.8 Summary of FACE trajectory social factors

The findings for FACE trajectory social factors can be summarised as follows:

- On average, girls have longer Euclidean distances than the boys for the FACE vowel, indicating that boys have shorter trajectories than the girls.
- When grouping by peer group and ethnicity, the girl categories generally have broader interquartile ranges, indicating that they have more inter-speaker variation for trajectory than the boys.
- Patterns for diversity of friendship group and trajectory align with the findings for FACE onset: there is not a linear relationship between increased diversity of friendship networks and a shorter FACE trajectory or a more raised onset. This provides further support in contradiction to the findings of Cheshire et al. (2011), who found social network diversity to be a significant predictor of use of innovative variants in MLE.
- Stylistic variation patterns are unclear when looking at gender and peer group. When grouped by ethnicity, interview and reading passage contexts seem to be stylistically similar, but the word list elicits a longer FACE trajectory, which is the more conservative production for FACE in London.

Distributions of FACE trajectory suggest that for the FACE vowel, boys and ethnic minorities are the leaders in the use of innovative variants, supporting the findings for FACE onset. This adds weight to the argument that a more advanced FACE vowel is part of a particular MLE style that indexes ethnic minority identity and a particular type of masculinity. The White British girls use a much longer trajectory than the other girl, providing weight to the argument that there is a White MLE realisation of the FACE vowel, which is perhaps part of a larger White MLE way of speaking. This is also further evidence that the innovative FACE variant, with a raised onset and short trajectory, has stabilised, supported by Labov's theory of gender and language change that women are less likely to use a stigmatised variant when a variable is stable in a given community (Labov 2001: 266).

5.8 FACE trajectory: linguistic factors

5.8.1 Phonological context

First, overall results for preceding phonological context and FACE Euclidean distance are shown in Figure 5.36. Preceding voiceless obstruents (fricatives and stops) have the lowest median Euclidean distance for FACE, indicating that a shorter FACE trajectory is most common when preceded by voiceless obstruents. However, the difference between contexts is very small. Preceding approximants and laterals do seem to favour a longer trajectory, as the median Euclidean distance is slightly higher. It could be that, on average, FACE trajectory is short across the board, unless preceded by laterals or approximants. When we look at gender separately in Figure 5.37, the findings are somewhat consistent. Girls' preceding approximants and laterals

favour a longer Euclidean distance, but a shorter Euclidean distance is not obviously favoured by one preceding context. Voiced and voiceless stops seem to have a slightly lower median, but voiceless fricatives and nasals are also low. For boys' FACE vowels, Euclidean distance is shorter when preceded by voiced fricatives, and also voiced and voiceless stops. Again, laterals and approximants have the highest median, indicating that Euclidean distance is longest in those contexts.

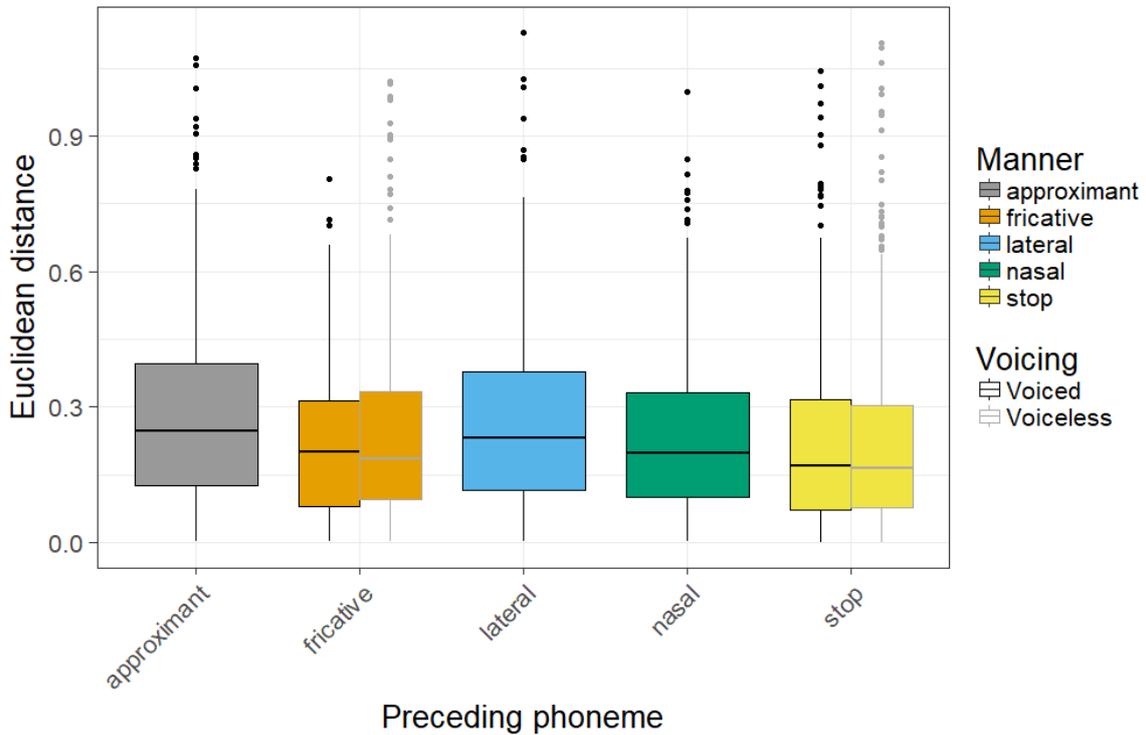


Figure 5.36: FACE Euclidean distance by preceding phonological context

These results support findings for F_1 onset to a degree. In Section 5.5, it emerged that the onset of FACE was most raised when preceded by voiced obstruents. Voiced obstruents do favour a shorter trajectory here, but not much more than voiceless obstruents or nasals. If there was a direct relationship between raising of FACE and trajectory length, then we would expect constraints for preceding context to be the same. It seems, though, that preceding context is not a meaningful predictor of FACE trajectory length for these speakers. Given that we saw such stark contrast socially, this suggests that social factors might be a better predictor of FACE trajectory than linguistic factors.

Findings are similar when examining following phoneme. Figure 5.38 shows that, as with preceding phoneme, differences between contexts is small. Following voiced fricative favours a shorter Euclidean distance, but the median is not much lower than following laterals, nasals, and stops. We see more distinct contrasts when separating by gender. Figure 5.39 shows that, for girls, the medians are quite similar, but it can be discerned that following approximant and voiceless fricatives favour a longer trajectory and voiced fricatives a shorter trajectory. The differences for boys are much smaller, but voiced fricatives still seem to predict a shorter FACE trajectory. In contrast with the findings for preceding context, findings for following context complement results for F_1 onset. Section 5.5 showed following voiced obstruents elicit

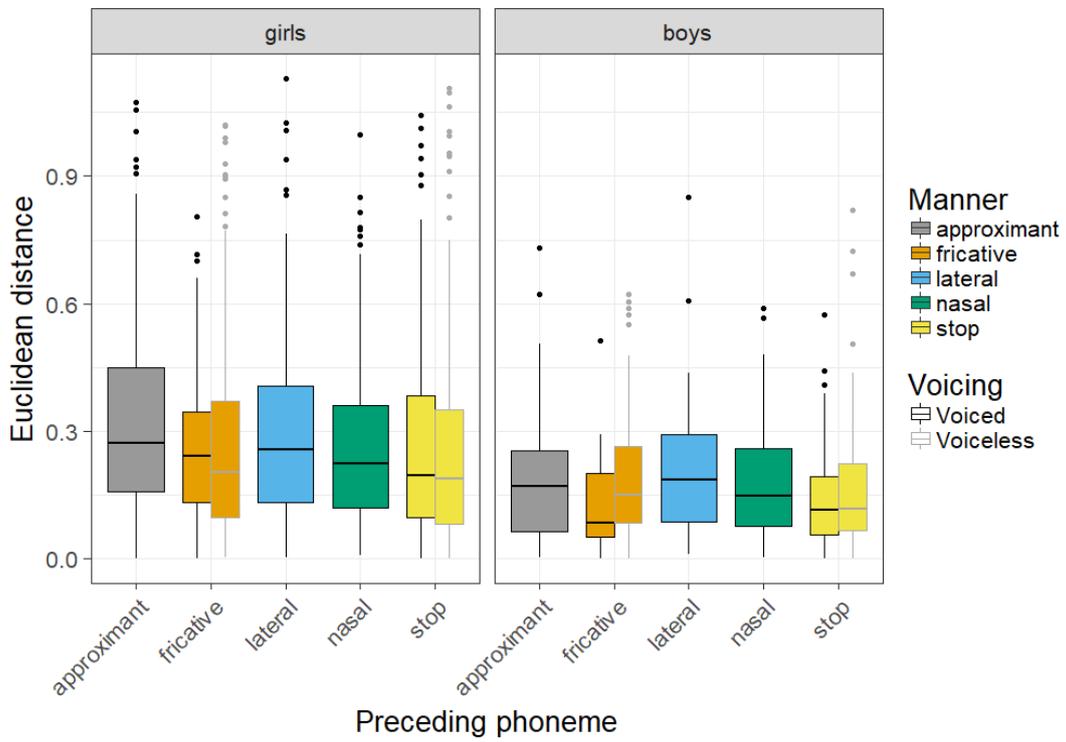


Figure 5.37: FACE Euclidean distance by preceding phonological context and gender

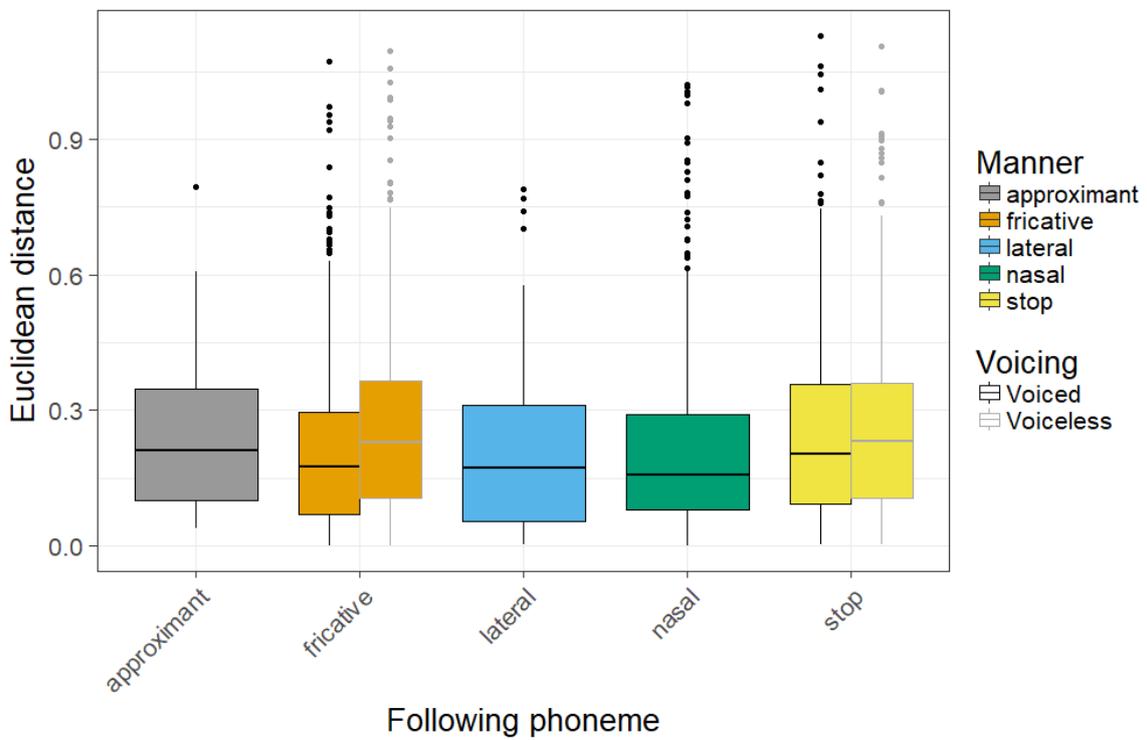


Figure 5.38: FACE Euclidean distance by following phonological context

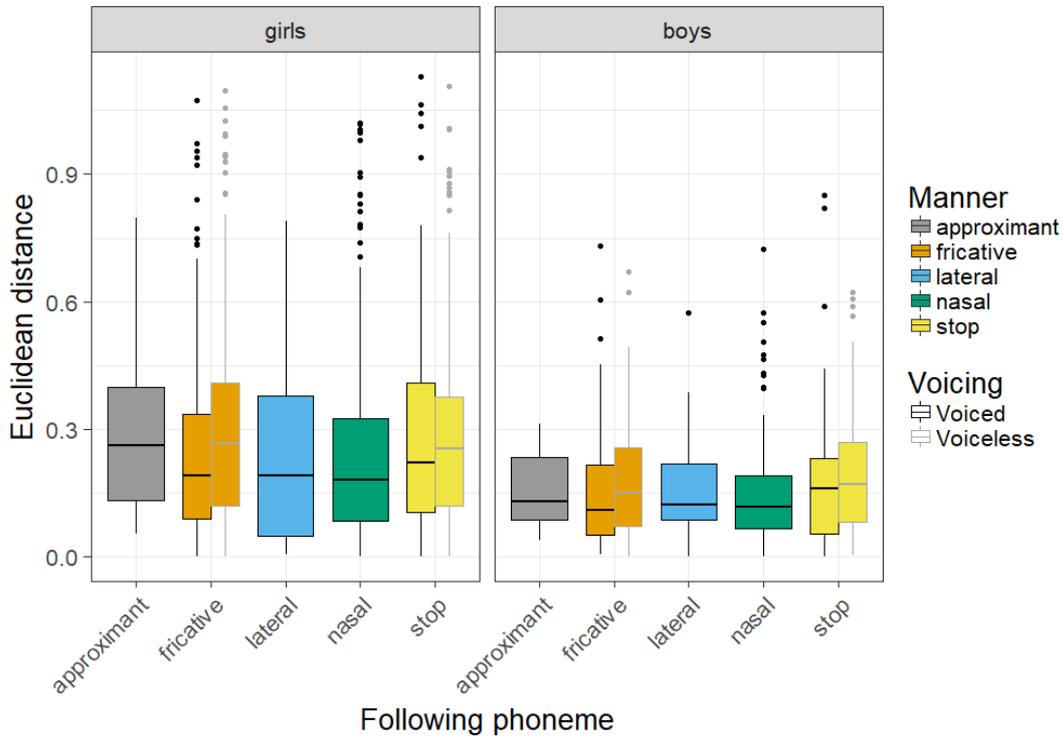


Figure 5.39: FACE Euclidean distance by following phonological context and gender

a more raised onset, and here voiced fricatives also favour a shorter FACE trajectory. So, a raised, shortened FACE is most likely when followed by voiced fricatives. This contradicts the linguistic constraints noted by Fox (2015), who found that following voiceless obstruents favoured innovative variants of FACE. These findings bolster the claim made in Section 5.5 that the different linguistic constraints evident in this dataset suggest that there are more advanced variants of FACE in use than were found by Fox (2015).

5.8.2 Word position

In addition to constraints of preceding and following phonological context, Fox (2015) found that innovative FACE variants were more likely to occur in word finally. For FACE trajectory that would mean that a shorter Euclidean distance was more likely word finally. However, given that linguistic have thus far not been consistent, this may not be the case in this dataset. Figure 5.40 shows median Euclidean distance for all speakers, separated by word position. The median Euclidean distance is very similar for all positions, although it is slightly higher in word initial position. Word medial and word final position have a similar median and interquartile range, but word medial position has many more outliers, which indicates that there is less variability in trajectory length word finally.

When we look at gender in Figure 5.41, we see more variability for the girls than the boys. The girls' word medial and word final FACE have similar median Euclidean distance, whereas word initial FACE has a longer trajectory. Boys, on the other hand, are similar across the board: FACE has a short trajectory in all contexts, but word final position does have a slightly lower median suggesting that this context favours a shorter FACE trajectory. Considering the results

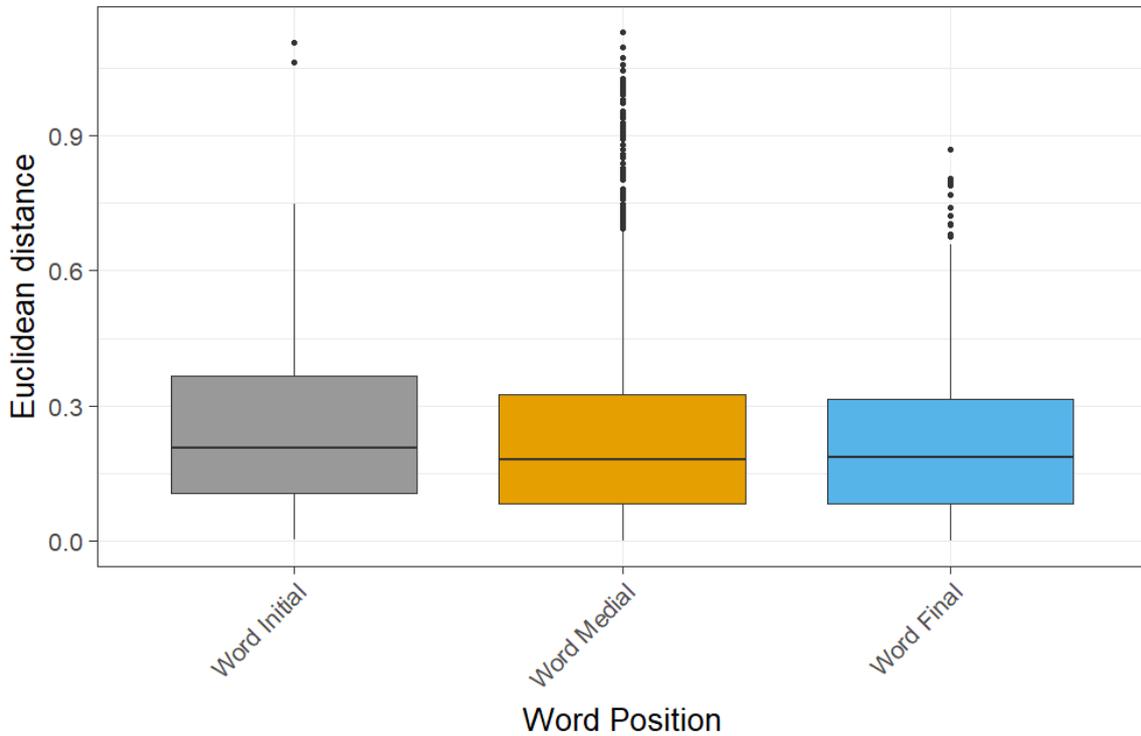


Figure 5.40: FACE Euclidean distance by word position

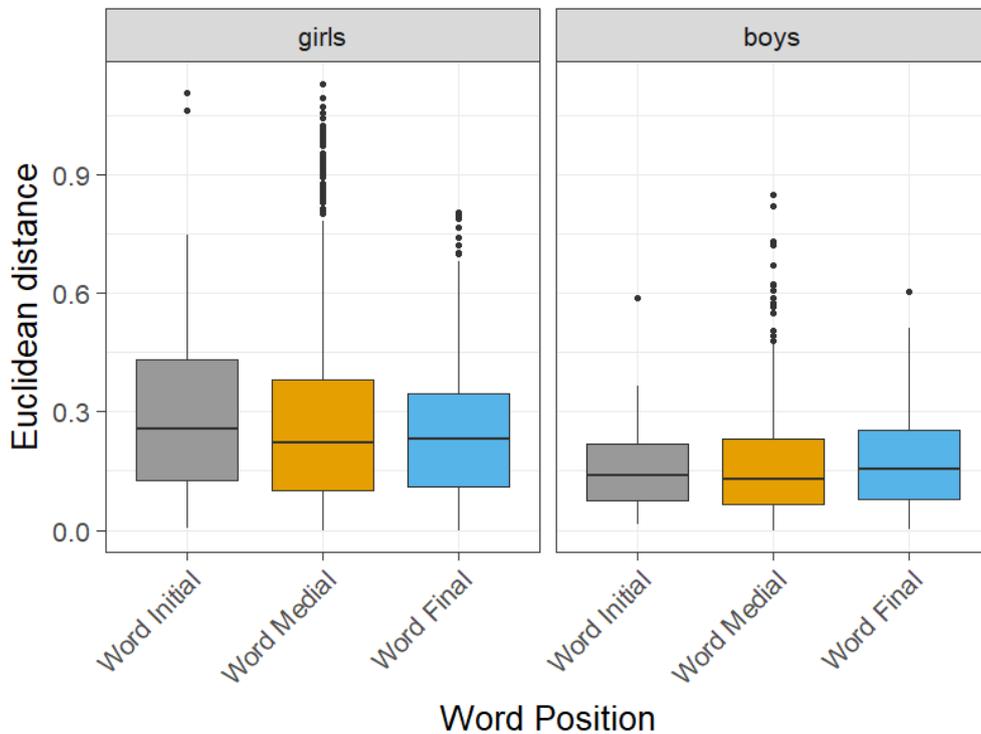


Figure 5.41: FACE Euclidean distance by word position and gender

for FACE onset (on average, girls had a more raised FACE onset in word final position, but for boys this occurred word initially), there are two key findings here. For girls, FACE is most likely to have a raised onset and a shorter FACE trajectory in word final position. This aligns with the linguistic constraints noted by Fox (2015). However, boys are inconsistent. Whilst the results for Euclidean distance results indicate that shorter, monophthogised variants occur word finally, innovative raised FACE tokens are more likely to occur word initially.

5.8.3 Lexical category

For lexical category, we see more variation in Euclidean distance. Lexical categories were initially broken down in too more categories, but it was possible to collapse adjectives, nouns, and verbs, into content words as the findings were the same for these three word classes. Figure 5.42 shows little difference between contexts. Content and function words have a similar median Euclidean distance, but the distribution of Euclidean distance for function words is weighted towards the lower parts of the range, indicating that shorter trajectories are more common for function words.

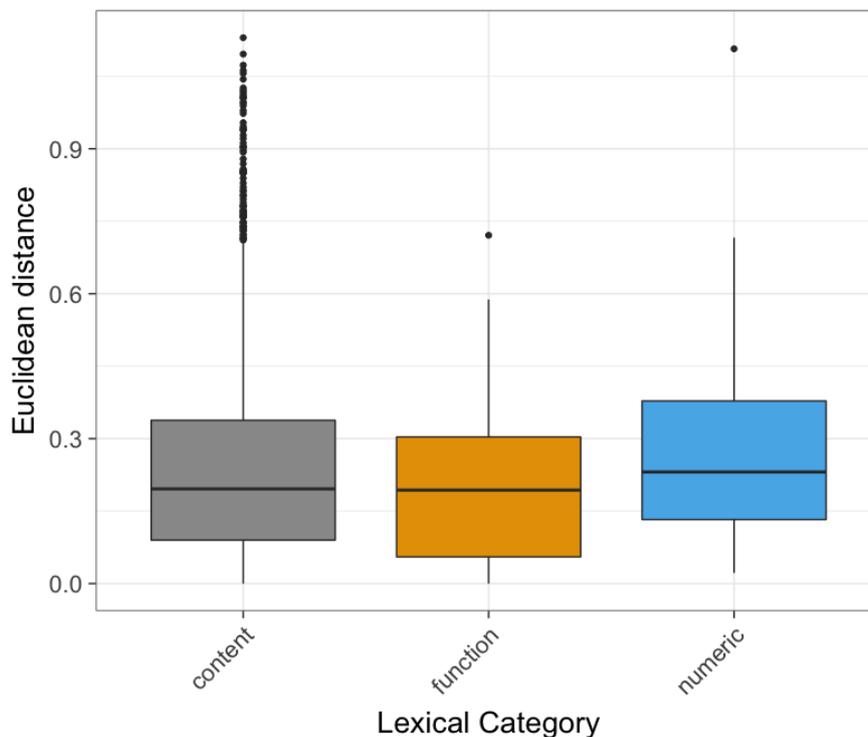


Figure 5.42: FACE Euclidean distance by lexical category

Looking next at gender in Figure 5.43, we can see a similar pattern for the girls but not the boys. Further exploration revealed that boys' function words have a very low N (4) compared with content words (580), and one token of stressed indefinite article “a” has a long trajectory that is skewing the box plot for function words.

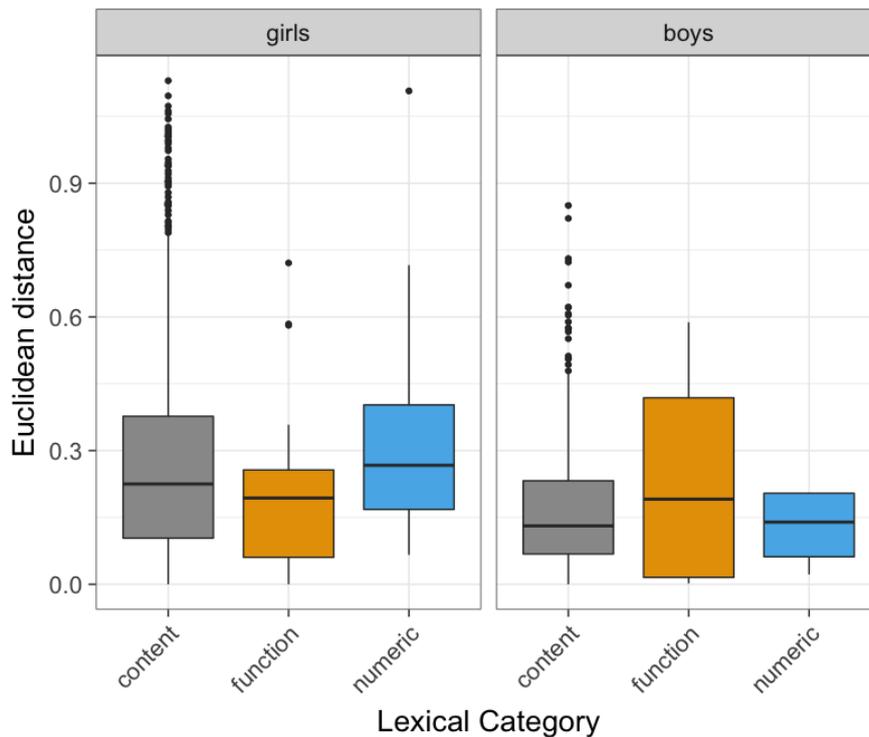


Figure 5.43: FACE Euclidean distance by lexical category and gender

5.8.4 Duration

As with F_1 onset, results for duration are presented using a scatter plot with a line of best fit and confidence interval. Figure 5.44 shows that Euclidean distance increases as duration increases. The relationship between these two factors appears to be stronger for the girls, as the slope is steeper than the boys. Unlike findings for onset, where the boys' onset was not predicted by duration, boys do show a relationship between Euclidean distance and duration that mirrors the girls. This is likely because a shorter Euclidean distance indicates trajectory reduction, and FACE with a reduced trajectory is more likely to have a shorter duration (Torgersen and Szakay 2012).

5.8.5 Summary of FACE trajectory linguistic factors

The findings for linguistic factors can be summarised as follows:

- Preceding stops and fricatives and following voiced stops predict a shorter FACE trajectory for boys and girls. A shorter trajectory seems to be the norm for the boys.
- For word position, it seems that FACE tokens in word final position are more likely to be short for the girls, but for the boys this is more likely word initially. This aligns with findings for FACE onset, such that girls are more likely to use innovative raised, reduced trajectory FACE in word final position.
- Duration shows a relationship with trajectory, as longer duration favours a longer trajectory.

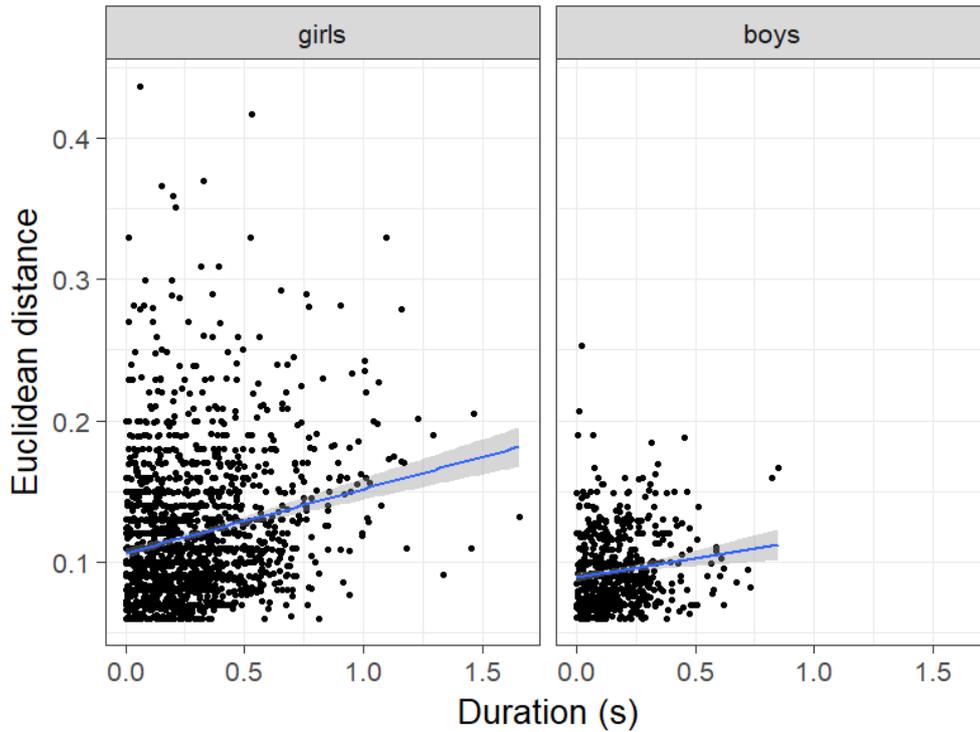


Figure 5.44: FACE Euclidean distance by duration and gender

Findings for FACE onset indicated that preceding voiced stops and fricatives favoured a more raised onset. This aligns with the constraints found for FACE trajectory, indicating that the most innovative realisation of FACE, with a raised onset and short trajectory, is most likely when preceded by voiced stops and voiced fricatives. This provides support for the argument made in Section 5.5, that FACE has advanced further since the descriptions of Fox (2015) and Kerswill et al. (2008). These studies noted a raised FACE that had a shortened trajectory. Given that there is evidence of consistently shortened trajectories in addition to raising at Riverton and different linguistic constraints have emerged, when we consider the descriptive findings and linguistic constraints of FACE onset and trajectory together it seems that FACE may have advanced, which could in turn suggest that different variants are in use in this community than those described by Fox (2015). That FACE has advanced further could also mean that this vowel is stabilising, as constraints are consistent across the community and for both FACE variables.

5.9 FACE trajectory: multivariate analysis

As with FACE onset, the multivariate analysis presented here uses linear mixed-effects regression modelling. The dependent variable is FACE trajectory, in order to explore predictors of FACE trajectory length. Independent variables are linguistic and social factors. Linguistic factors included in the models were: preceding and following phoneme (which were then collapsed into categories based on voicing and manner of production), word position, lexical category, and duration. Social factors were peer group orientation to school, ethnicity, diversity of friendship group, length of residency, and stylistic variation.

For FACE trajectory, it was hypothesised that results for social factors would be similar to

FACE onset, as FACE onset and trajectory seem to be associated. Previous literature indicates that White British girls would likely be more conservative for this variable in that they would have longer trajectories, and ethnic minority boys would be more likely to have innovative, shorter trajectories (Kerswill et al. 2008). As with F_1 onset, the entire data set is modelled first, and then split by gender. Due to correlation in the data as well as having a small dataset, a series of model comparisons are run on the gender subsets for social factors peer group orientation, ethnicity, diversity of friendship group, and length of residency.

5.9.1 Regression models for FACE trajectory

An example of the baseline model used on the entire dataset for FACE trajectory is below. Each model contains the same linguistic factors: preceding phoneme, following phoneme, word position, lexical category, and duration. Social factors gender, peer group (collapsed by orientation to school), and style are included in each model, and ethnicity, diversity of friendship group, and length of residency are modelled separately:

Example model

Dependent variable: Euclidean distance

Random effects: speaker, word

Fixed effects: [ethnicity/diversity of friendship group/length of residency], gender, peer group orientation, style, preceding phoneme, following phoneme, word position, lexical category, duration

Table 5.9 shows model comparison results. Length of residency is a less effective predictor than ethnicity or diversity of friendship group, as AIC and BIC are smallest for this model. Models for ethnicity and diversity of friendship group are similar: AIC is almost identical. However, diversity of friendship group has the lowest AIC value by 0.5, and BIC by 6.2, so is considered the best model in this instance.

	AIC	BIC
Ethnicity	-1025.1	-848.2
Diversity of friendship network	-1025.6	-854.4
Length of residency	-1014.3	-808.8

Table 5.9: Model comparisons for FACE trajectory

Full model results including diversity of friendship group are shown in Table 5.10. The intercept is not significant, which means that the mean value for the default level is not significantly different from zero (Baayen 2008: 103). On the one hand, the lack of significance is not important as we are more interested in which levels are significantly different to the intercept than the intercept being significantly different to zero. However, this lack of significance is also an indication that, on the whole, FACE trajectories are short, as the mean Euclidean distance is not significantly different to zero.

For linguistic factors, all preceding contexts except lateral (so, nasal, stops (voiced and voiceless), and fricatives (voiced and voiceless)) have significantly shorter trajectories than the intercept, approximant. By proxy, then, preceding lateral and preceding approximant favour a

	<i>Dependent variable:</i>
	Estimate (Standard Error)
<i>Intercept</i>	0.090 (0.058)
Gender	
Girls	0.035 (0.026)
Friendship Diversity	
Score 2	0.107 . (0.057)
Score 4	0.046 (0.038)
Score 5	0.024 (0.025)
Orientation	
Anti-neutral	0.155* (0.058)
Pro-neutral	0.090** (0.030)
Pro-school	0.041 (0.026)
Style	
Reading passage	0.006 (0.013)
Word list	0.034* (0.016)
Preceding context	
Lateral	-0.027 (0.018)
Nasal	-0.031* (0.015)
Voiceless stop	-0.064*** (0.013)
Voiced stop	-0.057*** (0.015)
Voiceless fricative	-0.041** (0.015)
Voiced fricative	-0.049* (0.022)
Following context	
Lateral	-0.041 (0.041)
Nasal	-0.042 (0.034)
Voiceless stop	-0.019 (0.034)
Voiced stop	-0.015 (0.034)
Voiceless fricative	-0.007 (0.033)
Voiced fricative	-0.060 . (0.034)
Lexical category	
Function	-0.034 (0.039)
Numeric	0.033 (0.052)
Word position	
Medial	-0.0004 (0.030)
Final	-0.010 (0.031)
Duration	0.949*** (0.098)
AIC	-1,025.621
BIC	-854.382

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 5.10: Full linear regression model for FACE trajectory including diversity of friendship group.

longer trajectory, as preceding lateral is not significantly different to the intercept (approximant). Indeed, if the reference level is changed to voiceless fricative, the only preceding context that is significant is preceding approximant ($p < 0.05^*$). These results confirm that preceding environment predicts trajectory length. Following voiced fricative is the only following environment that favours a shorter trajectory, as this environment is the only one that is significantly different to the intercept, but the significance level is small ($p < 0.1$). All following contexts, though, have shorter Euclidean distances than the intercept. These results confirm the descriptive findings in Section 5.8, which indicated that trajectory length might be predicted by preceding and following environment. Duration is also significant; the positive estimate indicates that longer duration predicts longer trajectory. On the one hand, this is to be expected as shorter vowels are often truncated and have less movement (Thomas 2011). However, findings of Torgersen and Szakay (2012) demonstrate that shorter duration and trajectory length is the norm for FACE amongst ethnic minority adolescents in inner-city London, so the findings for duration here are not incidental.

Moving on to social factors, a diversity score of 2 has a significantly longer trajectory than diversity score of 1. No other diversity score is significantly different to the intercept. The only speakers with a diversity score of 2 are the White Squad girls and White Squad boy. Therefore, it seems that diversity of friendship group is a proxy for ethnicity and peer group. No other level of diversity of friendship group is significant, and the significance level for diversity of friendship group is not as high as peer group orientation. As the White Squad girls have much longer trajectories than other speakers, it seems incidental that diversity of friendship group is a predictor of trajectory length. Contrastingly, anti-neutral and pro-neutral are different to the intercept, anti-school, and results are highly significant. The estimates are positive, which tells us that the trajectories of the anti-neutral and pro-neutral peer groups are significantly longer than the anti-school peer groups. Pro-school peer groups are longer too, just not significantly so. Considering the findings for friendship group diversity and peer group orientation to school together, orientation to school is a much better predictor of trajectory length.

Interestingly, unlike FACE onset, we see a style effect. The trajectory of FACE is significantly longer during the word list than in the interview context and during read speech. Given that the results here show a relationship between duration and trajectory length, this is possibly because word list elicits slower speech and therefore FACE has a longer trajectory. This hypothesis is supported by previous findings that there is a relationship between diphthong duration and articulation rate in MLE (Torgersen and Szakay 2012).

These results have some parallels with the results for FACE onset. The anti-neutral peer group, White Squad, have a significantly lower onset and longer trajectory than other peer groups. Preceding stops (voiced and voiceless) predict a more raised onset and shorter trajectory, further evidence that the constraints noted by Fox (2015) are not found in this dataset. Following contexts vary for onset and trajectory, confirming the finding that FACE onset is lowered by following laterals and nasals due to co-articulatory effects. Longer duration predicts a lower onset and longer trajectory. As we also know that White British girls in White Squad have lower FACE onset and longer trajectories, it is possible that these speakers' FACE vowels are also longer in duration on average. This supports findings of Torgersen and Szakay (2012) that a raised FACE onset corresponds with shorter vowel duration and shorter trajectory, and that FACE duration is shorter for ethnic minority speakers than White British speakers from Hackney, likely because ethnic minority inner-Londoners are more syllable-timed than their White British counterparts and outer-London speakers. It is also possible that FACE F_1 onset correlates with trajectory — this will be tested in future analyses

5.9.2 Regression models for girls' FACE trajectory

In Table 5.5 we can see that, for the girls, peer group orientation is the best model. We know this because both AIC and BIC are furthest from zero in this model. Significant results for this model are shown in Table 5.12.

	AIC	BIC
Ethnicity	-474.0	-328.1
Diversity of friendship network	-468.6	-328.2
Length of residency	-446.7	-284.7
Peer group orientation	-474.3	-333.9

Table 5.11: Model comparisons for girls' FACE trajectory

	FACE trajectory
	Estimate (Standard Error)
<i>Intercept</i>	0.163* (0.067)
Peer Group Orientation	
Anti-neutral	0.251*** (0.042)
Pro-neutral	0.095* (0.035)
Style	
Word list	0.047* (0.021)
Preceding context	
Lateral	-0.038 . (0.022)
Nasal	-0.042* (0.019)
Voiceless stop	-0.073*** (0.017)
Voiced stop	-0.057** (0.019)
Voiceless fricative	-0.054** (0.018)
Following context	
Voiced fricative	-0.072 . (0.043)
Duration	0.942*** (0.113)
AIC	-474.305
BIC	-333.873

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 5.12: Best model for girls' FACE trajectory

For linguistic factors, results mirror the full model, so this bolsters the conclusion that, for the most part the norm is a short FACE trajectory. It should also be noted that, preceding stops (voiced and voiceless) and preceding voiceless fricative are more highly significant than preceding nasals and laterals, which aligns with the descriptive findings that these preceding contexts predict a shorter FACE trajectory. Social factors shed more light on the variation of FACE

trajectory amongst the girls. Both anti-neutral and pro-neutral peer groups are significantly different to the intercept, anti-school peer groups. Anti-neutral peer group, the White Squad, has a longer trajectory than the anti-school peer group, the Rebels, and this is highly significant. Pro-neutral peer groups, Main Squad, Black Squad, and Beauty Squad, all also have significantly longer trajectories than the anti-school peer group, but this difference is less significant. These findings are very similar to the findings for FACE onset in Section 5.6, where the anti-neutral White Squad also have a significantly lower onset than the anti-school Rebels. Given that the White Squad girls are significantly different to their peers for both FACE variables, onset and trajectory, and that ethnographic knowledge demonstrated the importance of ethnic identity as part of their peer group personae, this seems to be firm evidence that FACE is a linguistic variable that is used as part of a distinctly White British girl style of speaking. Interestingly, the pro-school peer groups, Asian Squad and Nerd Girls, do not have significantly longer FACE trajectories. This is additional evidence of the relevance of ethnicity, as the three peer groups that are pro- and anti-school are predominantly South Asian.

In addition, the word list style is significantly different to the intercept, interview. This was not significant when looking at the whole dataset, which suggests that the girls vary more than the boys stylistically. The estimate is positive, which indicates that the word list context elicits a longer FACE trajectory than the contexts of the interview or reading passage, supporting descriptive findings in Section 5.7. There are two related interpretations that could be made from this finding. First, innovative shortened FACE may have stabilised for the girls as the default in their vernacular, so that when more attention is paid to speech and they use a more “standard” variant, this has a longer trajectory. Second, that the FACE vowel for girls may not have advanced as much as the boys because the most raised and shortened variant indexes a working-class urban youth masculinity that is possibly ethnically-marked, and so girls opt for a less advanced FACE vowel as this is less marked and therefore holds more social prestige beyond the immediate community (as in Labov 2001). The section that follows examining the boys’ data will further illuminate these possibilities.

5.9.3 Regression models for boys’ FACE trajectory

Model comparisons for the boys are shown in Table 5.13. Results show that the model including diversity of friendship group is the best model. We know this because AIC and BIC are lowest for this model. However, results shall be interpreted with caution, as only one speaker in the boys had a diversity measure of 2 so the model is compromised.

	AIC	BIC
Ethnicity	-696.4	-582.6
Diversity of friendship network	-701.0	-591.6
Length of residency	-694.1	-580.3
Peer group orientation	-694.9	-589.8

Table 5.13: Model comparisons for boys’ FACE trajectory

Unlike the girls, we do not see stylistic variation for the boys, suggesting that FACE has a short trajectory most of the time regardless of attention paid to speech. The regression results

	FACE trajectory
	Estimate (Standard Error)
<i>Intercept</i>	0.134* (0.065)
Diversity	
Score 5	-0.066* (0.020)
Preceding context	
Voiceless stop	-0.038 . (0.023)
Voiced stop	-0.051* (0.025)
Voiced fricative	-0.082* (0.039)
Duration	0.825*** (0.220)
AIC	-701.021
BIC	-591.602

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 5.14: Best model for boys' FACE trajectory

suggest that the best social predictor of FACE trajectory length is friendship diversity score, as boys with a diversity score of 5 have significantly shorter trajectories than the intercept (diversity score 2). The only boy with a score of 2 is the White Squad boy, Zach, which at first seems to be skewed, but the total number of boys is only 8. On the one hand, these results could be seen as supporting the findings of Cheshire et al. (2011), who found diversity of friendship group was a predictor of use of innovative MLE features. However, there are clear ethnolinguistic differences in this community, so this result highlights a significant difference between White British boy Zach and his ethnic minority counterparts in realisation of the FACE vowel.

The linguistic constraints we see for the boys shed light on the constraints for the girls. Preceding stops (voiceless and voiced) and voiced fricatives significantly predict a shorter trajectory. Although almost all preceding environments were significant for the girls', these three levels were the most significant. So it seems that although FACE trajectory is short for most speakers, it is the shortest when preceded by voiced and voiceless stops, and voiced fricatives. These constraints contradict Fox (2015), and add weight to the argument that different, more advanced FACE variants are in use in this community.

5.9.4 Summary of FACE trajectory multivariate analysis

As with FACE onset, not all of the trends observed in the descriptive analysis are confirmed by inferential statistics. FACE trajectory shows no significant effect for gender, but there are significant within gender differences. For social factors, girls' peer group orientation is the most significant, as anti-neutral peer group the White Squad have significantly longer trajectories than Anti-school Rebels. Ethnicity was not found to be significant, but it is difficult to completely separate these factors as ethnicity is a determining factor for membership in girl peer groups, and it is also implicated in their orientation towards school. The anti-neutral orientation towards school adopted by the White Squad girls is part of their White British working-class identities: Archer et al. (2007) describe how these facets of identity go hand in hand for working class girls. Although ethnicity is not a significant social factor, the fact that peer group is significant could

actually be seen to indicate that ethnicity is also important as these factors correlate. For the boys, diversity of friendship group comes out as the most significant social factor, with White British boy, Zach, using a significantly longer trajectory (although it should be noted that his diphthong trajectory is still shorter than most of the girls). The inferential results should be taken with caution, due to the model being compromised, but they do support the descriptive findings.

Preceding context, following context, and duration are statistically significant factors. Preceding stops (voiced and voiceless) consistently come out as significant predictors of a shorter FACE trajectory, and following voiced fricatives were significant for the girls. These results mirror the linguistic constraints found for FACE onset in this study, but contradict Fox (2015) who noted that preceding laterals and approximant /w/ and following voiceless obstruents favoured innovative variants. Previous work did not consider duration, but girls' results indicate that longer duration is a significant predictor of more diphthongal realisation. Duration is not significant for the boys, likely because there is little variation in trajectory length: they all have similarly shortened FACE trajectories.

5.10 Summary of the FACE vowel at Riverton and further implications

Combined, the results for FACE onset and trajectory have some key findings. First, linguistic constraints are consistent across FACE onset and trajectory, and these constraints are different to those described by Fox (2015). This suggests that FACE has advanced further than was described by the MLE literature, and different variants are in use at Riverton than those described by Fox (2015). It is also noteworthy that diversity of friendship networks is not a significant factor (except for boys' trajectory where the model was compromised) as was found in Cheshire et al. (2011).

The complex gendered and ethnic social dynamics in this community are reflected by linguistic practices. Importantly, there is no significant difference between girls and boys when modelling gender as part of the full dataset, because gender interacts with other social factors. As it was not possible to model interactions, the descriptive analysis along with the separate regression models for girls and boys are where we see the effects of the interactions with gender. For the girls, a consistent finding of social factors for FACE onset and trajectory is that White British White Squad girls are significantly different to their peers in their production of FACE. They use a longer trajectory for FACE that has a much lower onset than the other girls. Differences between other girl peer groups and ethnicities are not statistically significant, but descriptive statistics show that Black African and Arab girls have shorter trajectories and more raised onsets than South Asian girls, for example (as in Figures 5.10 and 5.29). For the boys, social factors also largely lack significance. Ethnicity as a social factor is significant for both FACE onset and FACE trajectory. However, there is no significant difference between levels of ethnicity, other than for FACE trajectory where White British boy Zach has significantly longer trajectory. Ethnographic knowledge indicated that the boys' peer groups were less cohesive than the girls', and the findings here support this. While there is some variation amongst the boys, for the most part their FACE vowels have reduced trajectories with raised onsets, and any differences between peer groups or ethnic groups are insignificant.

The findings of the descriptive and multivariate analyses shed light on the social meaning of MLE and processes of sound change. Descriptive results showed girls to lag behind the boys, possibly opting for less marked variants, as Labov (2001) would predict, but inferential results did not find this to be a significant difference, highlighting that in this community gender alone

is not a meaningful social factor. Boys seem more advanced in their realisation of FACE, and although there are minimal ethnic differences for the boys, White British boy Zach does lag behind his ethnic minority peers. Low numbers mean findings for ethnicity are not significant, but ethnographic knowledge of youth culture at Riverton indicates that MLE, or at least a raised FACE with a shortened trajectory, could index a particular type of working-class, ethnic minority masculinity. Within the girls, we see ethnic differentiation as noted above. As FACE has advanced further along the trajectory of change noted by Kerswill et al. (2008), the social differentiation we see suggests that this variable still has not stabilised as there are competing indexicalities.

The findings of this chapter also provide some important contributions to the debate as to whether MLE should be considered a language variety or a variable linguistic repertoire. The data in this study were collected ten years after the first MLE project in Hackney (Kerswill et al. 2007), and fourteen years after Sue Fox's study in Tower Hamlets (Fox 2007). The theory that group second language acquisition and diverse language contact has been a driving force in the emergence of MLE is reified by this dataset. In some ways, social forces like peer group and gender do not override language contact: all of the ethnic minority speakers in this dataset use raised FACE with a shortened trajectory, even the conservative Asian Squad girls and the school-oriented A-side boys. The findings here also suggest that, what was once a variable repertoire might have developed into a stable language variety. We see little stylistic variation, particularly for raising of FACE, and while linguistic constraints do not follow (Fox 2015), there is consistency throughout the dataset.

Finally, this analysis demonstrates how ethnographic knowledge of a given community enhances and extends the interpretation of quantitative results, particularly when it comes to ethnicity in multicultural contexts. For example, although there are some similarities across peer groups for South Asian girls, the ethnography showed that there are different ways to be an Asian girl at Riverton (as was found by Alam (2015)) Because of this, there will be different motivations for using innovative variants of FACE for South Asian girls. Similarly for Black girls, being Black British is a different kind of blackness to being Black African. Peer group is important in the sense that these groups are representations of orientation towards the school institution, education, popular youth culture, and gendered and raced identities. So even though it is not always a significant predictor of linguistic variation, these social forces undoubtedly play a part in the social meaning of the FACE vowel. These findings and interpretations will be discussed in more detail in Chapter 7, but for now we move on to the analysis of the PRICE vowel.

6. Quantitative analysis of the PRICE vowel

6.1 Chapter outline

This chapter reports the acoustic analysis of the PRICE diphthong. As with FACE, two dimensions are examined: onset position and vowel trajectory. For PRICE, previous work has found the onset to be fronted and/or lowered (Cheshire et al. 2011; Kerswill et al. 2008). In this analysis, fronting is examined as preliminary analysis found this to be more variable for these speakers. To determine the degree to which PRICE onset is raised, F_2 will be examined. For some speakers, shortening of the PRICE trajectory was also found (Cheshire et al. 2011). So, as with FACE, PRICE trajectory will be examined by calculating Euclidean distance between onset and offset (as in Fabricius 2007; Haddican et al. 2013). The structure of this chapter mirrors Chapter 5: it will begin with a description of PRICE in British English, including a summary of recent findings on PRICE in London, followed by an analysis of onset and trajectory using descriptive and inferential statistics. The chapter ends with a summary and discussion of the findings for PRICE.

In the previous chapter, there were several important observations. First, FACE seems to have advanced from previous descriptions to be more monophthongal and more raised than was found previously. Second, distinct social differentiation for both dimensions of the FACE vowel was evident. In particular, there were no apparent gender differences, but within genders we saw ethnic and peer group differences, particularly relating to peer group orientation. For example, within the girls, Asian and Black girls were more advanced than White British girls who lagged behind. Combined, these findings have linguistic and social implications. The FACE vowel seems to still be undergoing change so we see different paths of diffusion, but we also see that predicted paths of diffusion can be overridden by social forces — the Asian Nerd Girls, for example, are not as advanced as the other Asian girls. For the PRICE vowel, then, there are two possible outcomes. We could see that PRICE has also advanced from previous descriptions, with different linguistic constraints and similar evidence of social differentiation. This would suggest that the London diphthong system is still in flux. An alternative outcome could be that the PRICE vowel more closely mirrors previous findings and follows the linguistic constraints noted by Fox (2015), and that there is less apparent social differentiation. In this instance, this would suggest that the vowels in the London diphthong system are at different stages of sound change, and that PRICE has stabilised and is established across the community. In the current analysis, evidence appears to point to the second hypothesis.

6.2 The PRICE vowel in British varieties of English

The vowel in the PRICE lexical set is cited as the stressed vowel /aɪ/ in RP and General American English (Wells 1982a: 149). Phonetically, it is a wide diphthong, with an open, central onset and a glide in the direction of [i]. Wells noted that there are four main ways in which the PRICE vowel varies: degree of fronting of the onset, degree of raising of the onset, the quality of the second element, and the ‘speed’ of the diphthong (Wells 1982a: 149). Variants include fronted onsets in Northern England and raised onsets in rural Southern England. Outside of the U.K., it is common to find a voicing distinction: in South Carolina, Virginia, and Canada, PRICE is typically a more narrow diphthong pre-voiceless consonants, and wider pre-voiced consonants

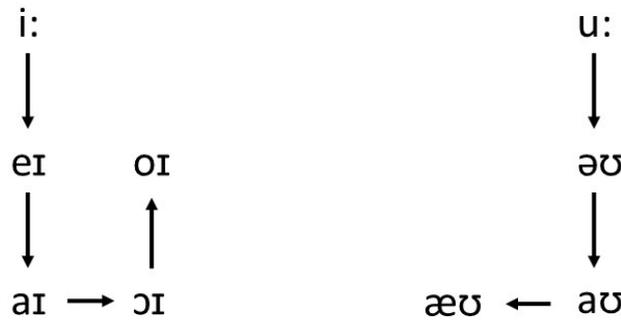


Figure 6.1: Schematic representation of the Diphthong Shift, adapted from Wells (1982a, 256)

(Wells 1982a: 149). Of particular importance for this study is the observation that “very back starting points, [aɪ ~ ɔɪ], are characteristic of the urban south of England”, and that diphthongs with a weakened second element are found in London (Wells 1982a: 149-50). The work on MLE suggests that PRICE is no longer “very back”, so the first part of this chapter will provide an important contribution to knowledge regarding this.

The Diphthong Shift described in Section 5.2 is relevant here also, as PRICE was implemented in this shift. As a reminder, the Diphthong Shift was a chain shift affecting fronting, closing diphthongs and backing, closing diphthongs in London Englishes and other local dialects of South East England. Backing, closing diphthongs will not be discussed again here, but for ease of reference, Figure 6.1 includes the same schematic representation used in Section 5.2. Wells suggested that the Diphthong Shift was possibly a push chain shift, so that as fronting, closing diphthong FACE opened, PRICE had to shift backwards (Wells 1982b: 308). In Figure 6.1, we can see how, as part of this shift, the onset of PRICE is backed.

Wells (1982b: 308) notes that, following this shift, London English PRICE can be considered more back than RP, such that the London variant can be transcribed as /aɪ/, and RP as /aɪ/. Hudson and Holloway’s (1977: 5) description of PRICE is more detailed, suggesting that whilst there are backed variants such as [aɪ], there are also centralised variants, [æɪ], [ɪɪ], [äɪ], [eɪ], and variants with a reduced second element: [eː], [äː], [äː]. In Labov’s (1994) London data from 1968, there is more convincing evidence of PRICE backing. As noted in Section 5.2, Labov examined data from two speakers: a 39-year-old female speaker from Milwall (Marie) and a 23-year-old male speaker from Chelsea (John). For Marie, her PRICE vowel was backed and also raised to mid-back position so that it was higher than /ow/. John, on the other hand, was not as advanced as Marie, but still had upward movement for /ay/ (Labov 1994: 169, 209-10). Finally, Wells (1982b: 317) also notes some linguistic constraints for PRICE that are specific to Cockney, but not found in other London Englishes: pre-/l/ neutralisation can occur, meaning that words like *child’s* and *Charles*, or even *pal*, *pale*, *foul*, *snarl*, and *pile*, are merged to [-æɹ].

As described in Section 5.2, a comparison of work in London since the 1970s indicates that the London Diphthong Shift is reversing, (e.g. Hudson and Holloway 1977; Kerswill et al. 2008; Tollfree 1999). It is also evident that there are specific linguistic constraints for innovative variants of PRICE (Fox 2015). Therefore, the current chapter aims to expand our understanding of PRICE in London by presenting acoustic and multivariate analyses of PRICE. Specifically, the analysis focuses on onset and trajectory. This is because recent studies have found that these

dynamics have shifted as part of ongoing linguistic innovation in London.

For example, in data collected in the inner east London borough Tower Hamlets in 2001, Fox (2015) found six realisations for PRICE. Three of these variants had backed first elements, aligning with Well's (1982b) description: [q], [ɑɪ], [ɑ:]. However, combined these variants were only used 43% of the time. Fox (2015: 83-4) also found evidence of new, fronted variants, [æ] (overlapping with TRAP), [aɪ], and [eɪ], which were more commonly used amongst her adolescent participants. Specifically, [eɪ] and [aɪ] are used 27 and 25 per cent of the time respectively. Fox (2015: 83) notes that these two variants can have monophthongal qualities at times as the second element can be reduced, bringing them closer to the [æ] variant.

Fox (2015: 84-109) then explores linguistic constraints and social factors, and findings can be summarised as follows. With regards to preceding phonological environment, the fronted, narrow variants were found most often when preceded by voiceless stops. Preceding fricatives and affricates also favoured these variants. Contrastingly, more traditional, backed variants were more likely to be preceded by voiced stops. For following phonological context, voiced stops, fricatives, and nasals all favour the use of the three fronted variants, and traditional variants were more likely to be followed by /l/. Word position did not appear to have any effect on realisation of PRICE. With regards to social factors, Fox found that ethnicity was a key predictor for PRICE. Bangladeshi boys predominantly used the newer variant [aɪ], whereas White British speakers favoured the traditional, backer variant [ɑɪ], and mixed-ethnicity speakers of Black Caribbean/White British origin favoured the advancing variant [q]. This aligns with the findings for FACE, in which Bangladeshi speakers were also more likely to use a greater proportion of innovative variants. It is also noteworthy that, of the White British speakers, the boys who were friends with Bangladeshi boys had a greater proportion of the newer variant than the White British girls.

The Linguistic Innovators project reported similar findings (Kerswill et al. 2008). They confirmed that, whilst older speakers in Hackney exhibited more traditional (that is, diphthong-shifted) vowels, adolescents used a more innovative variant for PRICE, as well as diphthongs FACE, MOUTH, and GOAT. After excluding preceding and following laterals and nasals (Kerswill et al. 2008: 466), their acoustic analysis illuminated three key findings: there is no significant sex effect, but younger speakers are significantly more likely to use a fronted, lowered PRICE variant, and “non-Anglo” speakers have a more fronted, more open onset (Kerswill et al. 2008: 467-8). They note that these findings align with Fox (2007), which were reported in Fox (2015).

The findings of Fox (2015) and (Kerswill et al. 2008) create a picture of how PRICE has changed over recent years. Cheshire et al. (2011) build on this by examining real time data. Through an acoustic analysis of Mark Sebba's data (outlined in Section 5.2), Cheshire et al. (2011: 160-1) found that, for Afro-Caribbean speakers in the 1980s, PRICE was fronted and lowered when using a Patois-style but not when speaking a more general London English in interview context. These results were compared with the MLE data collected 25 years later, and (as with FACE) the PRICE variant used by “non-Anglo” adolescents was found to correlate more closely with the Patois style of the 1980s, with a lowered, fronted onset. Contrastingly, Anglo (that is to say, White British) speakers had a mid-back onset for PRICE (Cheshire et al. 2011: 165).

The studies discussed above undoubtedly show changes in the realisation of PRICE in London. Building on those findings, the current analysis seeks to investigate the same questions used for FACE:

- What social factors (if any) have an effect on the realisation of PRICE? Are these the same

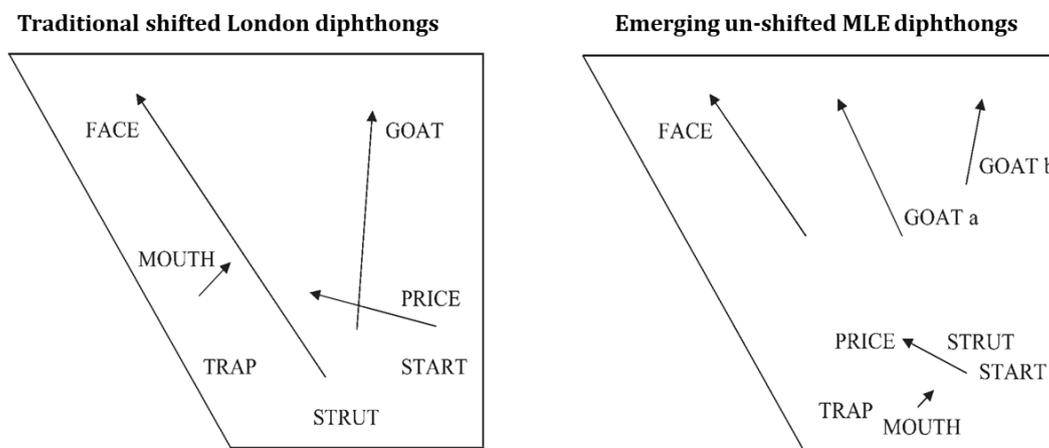


Figure 6.2: Traditional and innovative diphthong plots from Kerswill et al. (2008).

social factors that were significant in the MLE projects?

- Do realisations of PRICE in this community follow the same linguistic constraints found in previous literature?
- What do these findings tell us about the diffusion of the diphthong-shift reversal identified by Kerswill et al. (2008)? Has the reversal diffused or stopped? And how are social factors implicated in ongoing vowel changes in London?

The two analyses will then be considered together for more detailed interpretation in Section 6.10.

6.3 The PRICE vowel at Riverton

Now that an overview of possible realisations of PRICE have been outlined, this section will present an acoustic description of PRICE at Riverton. This will set the scene for the following quantitative analysis. In the previous chapter on FACE, descriptive plots from Kerswill et al. (2008) were used for a visual representation of the different vowel spaces found in London. For ease of reference, they are provided again here in Figure 6.2. Looking specifically at PRICE, we can see in the left vowel quadrilateral that a traditional London realisation has a backed, raised onset, and a long trajectory that raises and fronts. However, for the emerging PRICE vowel shown in the right quadrilateral, the onset is lowered and fronted so that it is in front of START, as well as having a shorter trajectory.

Chapter 5 also included descriptive vowel plots for the current dataset. Again, for ease of reference, some plots are included again here. First, Figures 6.3 and 6.4 separate girls and boys, and show mean, normalised formant measurements for vowels analysed in this thesis (FACE and PRICE) as well as peripheral vowels KIT, TRAP, and LOT. In these plots we can see that, for the participants in this study, PRICE is not dissimilar to those shown in Figure 6.2. In fact,

the fronting and lowering of PRICE described in (Kerswill et al. 2008) seems to have advanced even further, with the onset of PRICE overlapping with TRAP, and in some instances advancing forward of TRAP.

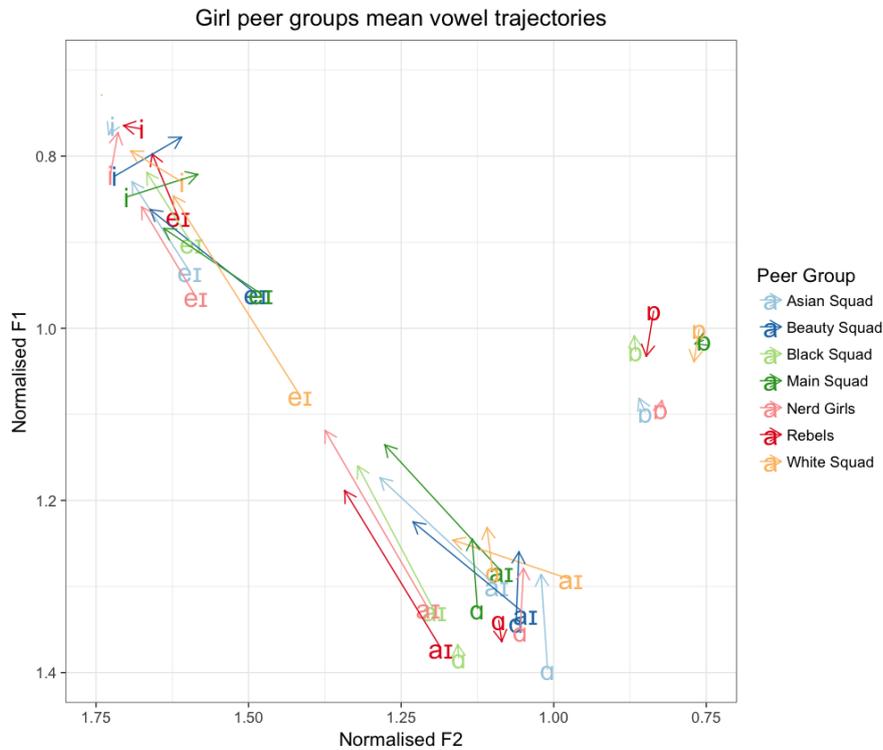


Figure 6.3: Plot of girls' mean, normalised vowel trajectories for FACE, PRICE, and peripheral vowels

As these plots separate genders and peer groups, we can see gender and peer group differences. Looking at gender first, the boys' PRICE onsets tend to be fronted in comparison to the girls, and their trajectories are shorter. For peer groups, amongst the girls Main Squad, Nerd Girls, and Rebels all have more front realisations of PRICE than their peers, whereas the White Squad's PRICE onset is the most back. Although not fully mid-back, in comparison to their peer the White Squad girls' PRICE could be seen to align with the traditional variant rather than the innovative one. Another interpretation might be that this is evidence of levelling for this variable. For boy peer groups, there is more inter-group variation for PRICE than for FACE. The B side are by far the most front, and the White Squad boy seems the most back (although he is very close to the Inbetweeners). Whilst PRICE trajectories are not as short as FACE, there does seem to be some trajectory reduction for most speakers, except maybe the A side who have the longest PRICE trajectory of the boy peer groups.

Figures 6.5 and 6.6 further illuminate variation in the data, as they plot individual speaker means separated by peer group. Figure 6.5 presents the girls. First, it is apparent that the onset of PRICE consistently overlaps with or is in front of TRAP. This indicates two things: that PRICE is consistently fronted amongst the girls, in line with the findings of Kerswill et al. (2008), and also that TRAP seems to be centralising (Levon and Holmes-Elliott 2017). The only exception seems to be the White Squad, where TRAP and PRICE are close, but PRICE onset is still clearly behind TRAP.

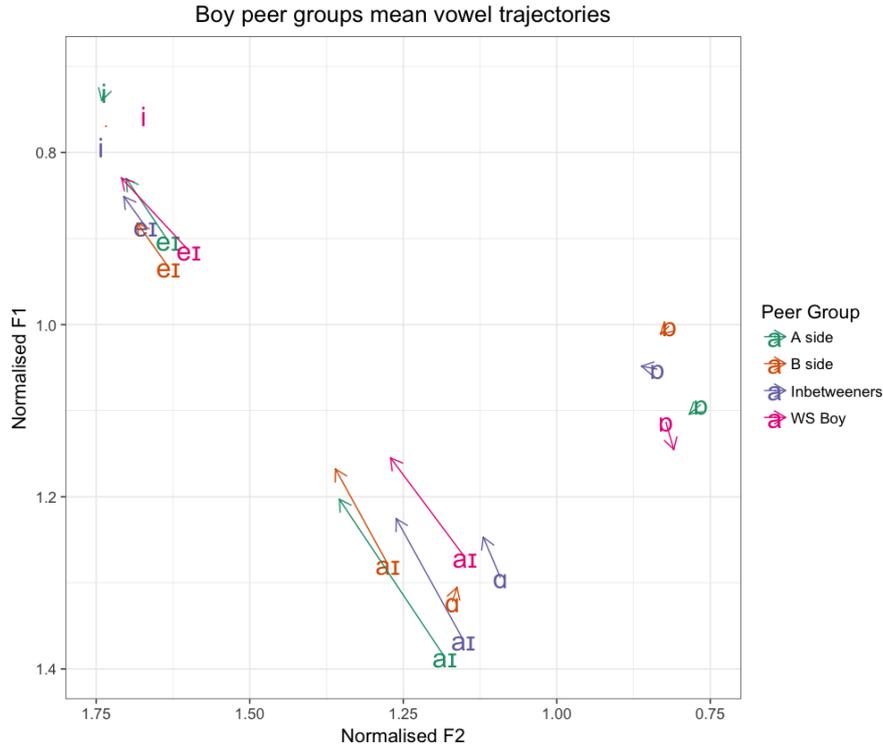


Figure 6.4: Plot of boys’ mean, normalised vowel trajectories for FACE, PRICE, and peripheral vowels

There is some clustering within some of the girl peer groups, but not for all. For example, Beauty Squad, Black Squad, Rebels, and Nerd Girls show intra-group similarities for onset position and trajectory length. Black Squad, Rebels, and Nerd Girls are all fairly fronted, with a normalised F_2 of 1.2, whereas Beauty Squad are less front with a normalised F_2 of 1.05. Beauty Squad, however, seem to have slightly shorter trajectories. White Squad have the shortest trajectories that also seem to be somewhat flat in comparison to the other girls, and their backed onset is closer to 0.9 normalised F_2 . By contrast, Asian Squad and Main Squad, have greater intragroup variability. For the Asian Squad, Malaika has a relatively backed onset of 1.0, whereas Foziah and Jamima’s onsets are more front with a normalised F_2 of 1.15 and 1.25 respectively. For the Main Squad, Nahida has the more backed onset, with a normalised F_2 of 1.1, whereas Krista’s is closer to 1.2. On the whole, then, there seems to be less variation for PRICE between girl peer groups and individuals than for FACE, as differences in onset position are quite small and there is less variation in trajectory length.

For the boys, we again see fronting of PRICE for the majority of speakers. Looking at the onset position of PRICE in Figure 6.6, it is apparent that it consistently overlaps with or is front of TRAP. The only exception to this is White Squad boy, Zach, whose TRAP is still slightly front of PRICE. This mirrors the findings for the girls, suggesting that PRICE is consistently fronted in this community, particularly amongst ethnic minority speakers, and TRAP is also being centralised across the board. Although TRAP is not examined in this thesis, this is an interesting finding in line with recent observations that there are ongoing changes in the short vowel system in London (Levon and Holmes-Elliott 2017).

We also see that, in comparison with FACE, PRICE consistently has a longer trajectory

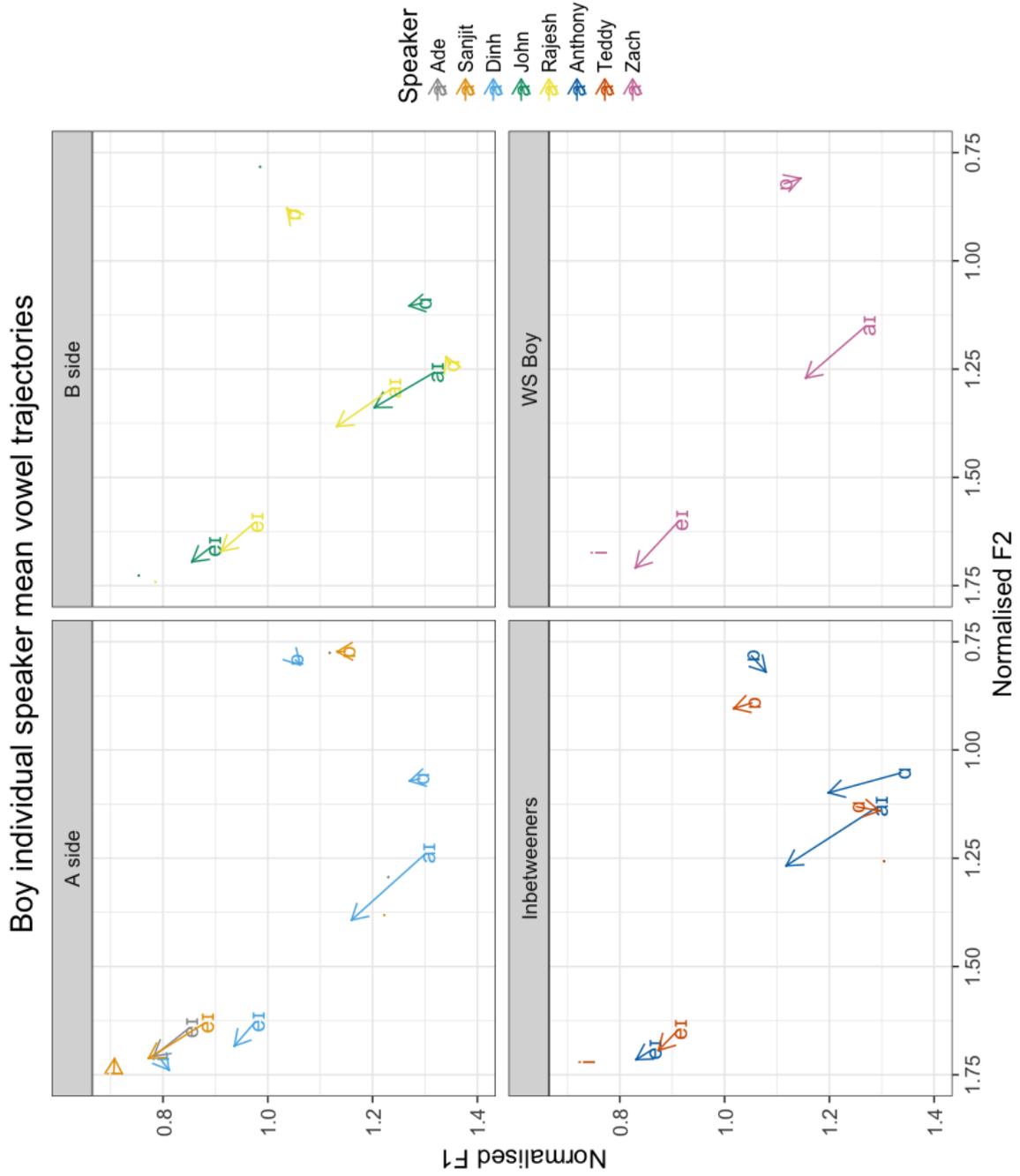


Figure 6.6: Plot of boys' mean, normalised vowel trajectories for individual speakers

amongst the boys. This is particularly true for the A side, whose trajectories look considerably longer than their FACE trajectories. For the Inbetweeners and the B side, trajectories are also longer, but the contrast is less stark. White Squad Boy, Zach, seems to have a fairly comparable trajectory for FACE and PRICE. As Zach's FACE vowel is monophthongised, it seems that his PRICE vowel is at least reduced if not monophthongised.

These descriptions are in line with innovations observed in previous literature (Fox 2015; Kerswill et al. 2008). However, there also seems to be less interspeaker variation for PRICE than was found for FACE in Chapter 5. This seems to support the hypothesis described in Section 6.1 that FACE is still in flux and is therefore more socially differentiated than PRICE. An additional factor could be the effects of language contact, which might operate differently for FACE and PRICE. Some Asian heritage languages have monophthongal FACE but not PRICE, but there are similarities with Jamaican Patois for both FACE and PRICE. Therefore, FACE innovations might be further along or are following a different path of diffusion than PRICE innovations. Third, the FACE and PRICE vowels of course operate as part of a system, so looking at them in isolation can only be partly informative. Indeed, White Squad girls seem to have different FACE and PRICE vowels to their peers, which supports impressionistic findings that suggest they use a different linguistic repertoire to their non-White peers.

6.4 PRICE F₂ onset: social factors

This section examines the social factors affecting PRICE F₂ onset: gender, peer group, race, ethnicity and diversity of friendship group. As with FACE, box plots are used to explore the distribution of F₂ onset. The centre line represents the median of all values, and the box represents the upper and lower interquartile range. Any dots beyond the whiskers are potential outliers. As F₂ measures vowel fronting or backing, the plots that follow show normalised F₂ measurements on the x axis in order to better conceptualise F₂ visually. A higher F₂ value means a vowel is fronted, and a lower value means it is backed, so the x axis is reversed. Finally, the box plots that follow include data from all three stylistic contexts unless otherwise stated.

6.4.1 Gender

As with FACE, previous studies found gender differences in the production of PRICE in London (e.g. Kerswill et al. 2008; Fox 2015). These findings appear to be mirrored in the descriptive findings of the current dataset shown in Section 6.3, and this is supported by Figure 6.7. First looking at median F₂ onset, girls have a lower median F₂ measurement than boys. This indicates that, on average, girls' PRICE is backer than the boys, in line with raw values plotted in Figure 5.3. Girls also have longer whiskers and more outliers. When we consider this alongside the plots shown in Figure 6.5, it seems that, as with FACE, there is more variation amongst the girls. There is also the possibility, given the higher number of outliers for the girls, that the plots are being skewed: Figure 6.5 showed that the White Squad girls have backer PRICE than their peers, although this contrast is not as stark as the contrast was for FACE.

6.4.2 Peer group

Although there are gender differences, it is also beginning to emerge that this is only part of the PRICE story. Looking now at Figure 6.8, results are grouped by gender and peer group. For the girls, this plot confirms that White Squad girls have a backer PRICE onset than their peers. It is also interesting to note that there is less variation for the White Squad's PRICE onset than

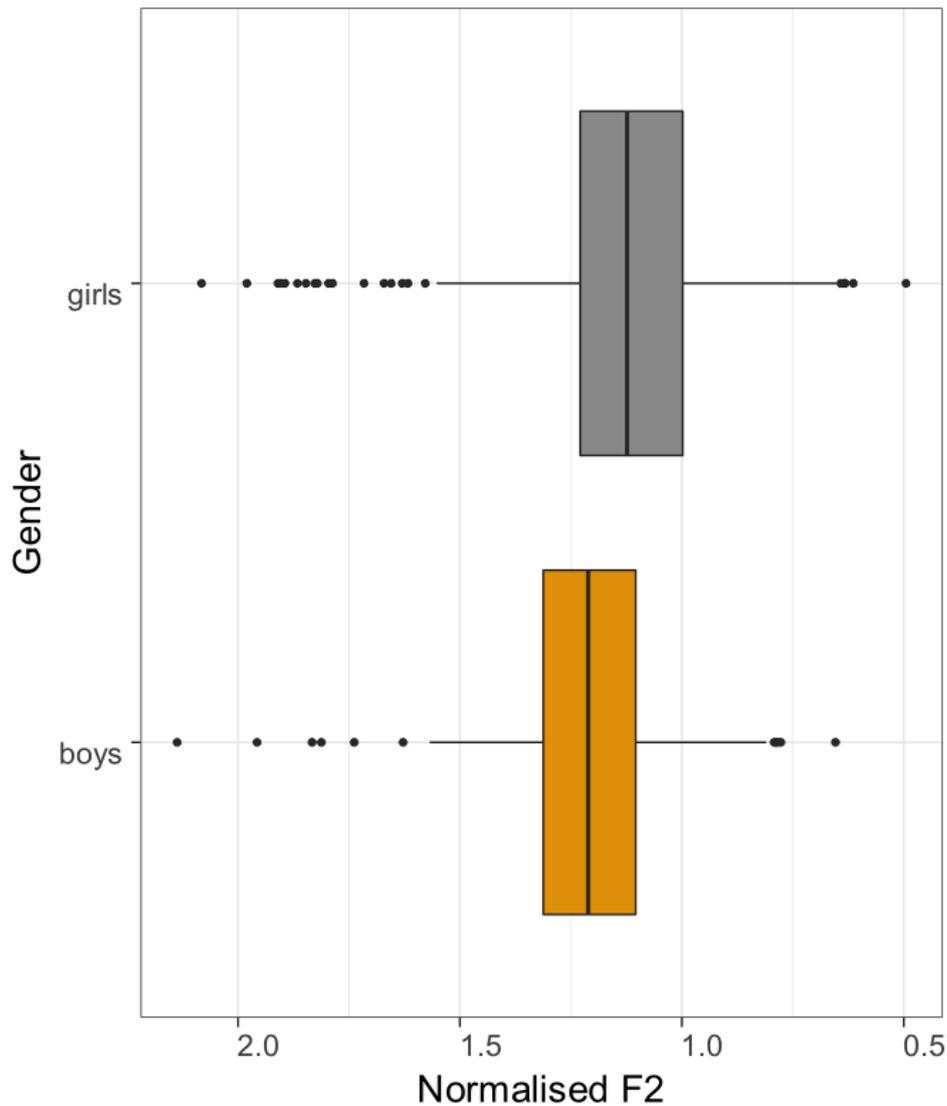


Figure 6.7: PRICE F2 onset distributions by gender

there was for FACE onset. In fact, this seems to apply for most of the girl peer groups, except the Asian Squad who have the most broad interquartile range and the longest whiskers, suggesting that there is more intraspeaker variability for the Asian Squad than other girl peer groups.

The girl peer groups with the most fronted PRICE onset are the Rebels, the Black Squad, and the Nerd Girls. These peer groups are all Black African, Arab, or South Asian. It is particularly interesting to note that the Nerd Girls and the Rebels who are South Asian are all Pakistani, so Figure 6.8 seems to indicate they use more fronted PRICE. Contrastingly, the Asian Squad girls and the Main Squad member who is South Asian are all Bangladeshi, and they seem to have a backer onset for PRICE. The same pattern was not evident for either FACE variable. It is difficult to say here why this might be, but it could be that Bengali girls have a greater input from heritage language than the Pakistani girls — this will be explored further in Section 6.10.

For the boys, there is more variation for PRICE onset than there was for FACE. B side have

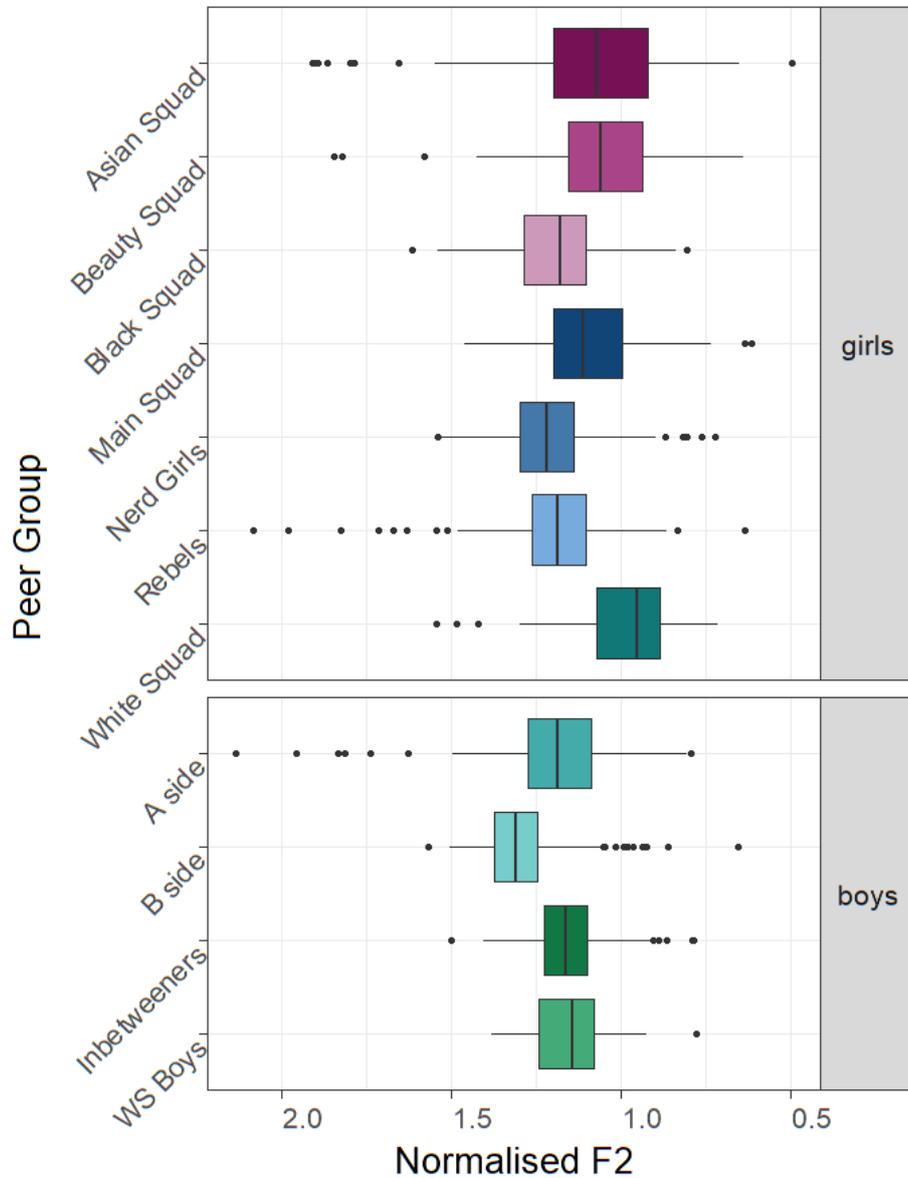


Figure 6.8: PRICE F2 onset distributions by gender and peer group

the most front onset for PRICE F₂ and a narrow interquartile range. Considering this alongside the previously discussed results for FACE, it seems that the B side are innovative across the board, as their FACE onset was the most raised and monophthongal, and their PRICE onset is the most fronted. It will therefore be interesting to see if they are also innovative in their PRICE trajectory in Section 6.7. Median PRICE onset is similar for the rest of the boys, but White Squad Boy Zach and the A side have a broader interquartile range than the Inbetweeners. In addition, A side have much longer whiskers and more outliers, suggesting that there is more intragroup variation for the A side than the other boys. It is also worth noting that, when compared with the girls, all of the boy peer groups could be considered innovative, as the boys' most back median onset aligns with the girls most front median onset.

6.4.3 Ethnicity

Figure 6.9 shows median PRICE onset by ethnic group, boys at the top and girls at the bottom. For the girls, above results for peer group indicated that the White Squad girls have the most back onset for PRICE. This is mirrored when grouped by ethnicity: all of the White Squad are White British, and Figure 6.9 shows that White British girls still have the backest F_2 onset measurements when girls are split by ethnicity. Black British girl, Rebecca, has a slightly fronter median onset than the White British girls, and then median values for Arab, Black African, South Asian, and White European girls are quite similar. There is, however, variation in the distribution of PRICE onset for these four ethnic groups when we look at the interquartile ranges of the boxes. In particular, the South Asian girls have a fronter median but a much broader interquartile range, longer whiskers, and more outliers than any other ethnic group. This is unsurprising, given the peer group findings which highlight differences between Pakistani and Bengali girls — this is confirmed in Appendix B.2 Figure B.3 that shows distinct differences between Pakistani and Bengali girls. Contrastingly, Black African girls have a more narrow interquartile range, suggesting that there is less variation for this ethnic group, even though not all Black African girls are in the same peer group (Maria is Somali and a member of the Rebels).

Looking at the boys' ethnic backgrounds, we see more differences than we saw when looking at peer groups. Figure 6.9 shows that South East Asian boy, Dinh, and South Asian boys, Sanjit and Rajesh, all have the most fronted PRICE onset, whilst White British boy, Zach, has the most backed onset, and Black British and Black African boys are in the middle. So for PRICE F_2 onset it seems that, for the boys, there is possibly some kind of racial distinction of Asian, Black, and White, in addition to the ethnic differences.

Finally, it is also possible to compare genders for some ethnic groups. White British girls and boys are more similar when it comes to PRICE onset than they were for FACE, but the girls still use a more traditional, backer onset. Contrastingly, Black British boys have a more front PRICE onset than Black British girls, which mirrors the findings for FACE. The median for Black African boys and girls is similar, but Black African girls have a broader interquartile range. Similarly, South Asian boys have a more front onset than South Asian girls, and again girls also have a more broad interquartile range. Given that for FACE, these ethnic groups were similar across genders, this suggests that the gender difference for PRICE onset might be more pronounced.

6.4.4 Race

The racial distinction that emerged above when looking at boys' ethnicity is confirmed here in Figure 6.10. It is clear that Asian boys, on average, have a more front PRICE onset, followed by Black boys, and the White boys. The pattern for girls is similar, but there is less distinction between the girls when grouped by race. In Figure 6.10, White girls seem to have backer onsets (unsurprising given the results for peer group and ethnicity). On the one hand, grouping by race conflates a lot of the variation shown when looking at peer group and ethnicity: Asian, Black, and Middle Eastern girls all have similar medians for PRICE onset, with Middle Eastern girls only slightly fronter. On the other hand, it is interesting that the interquartile ranges are not so broad, and also that there are some similarities across genders (such as Black girls and boys). This suggests that, on average, there may be more similarities within different racial groups than there are differences when it comes to PRICE F_2 onset.

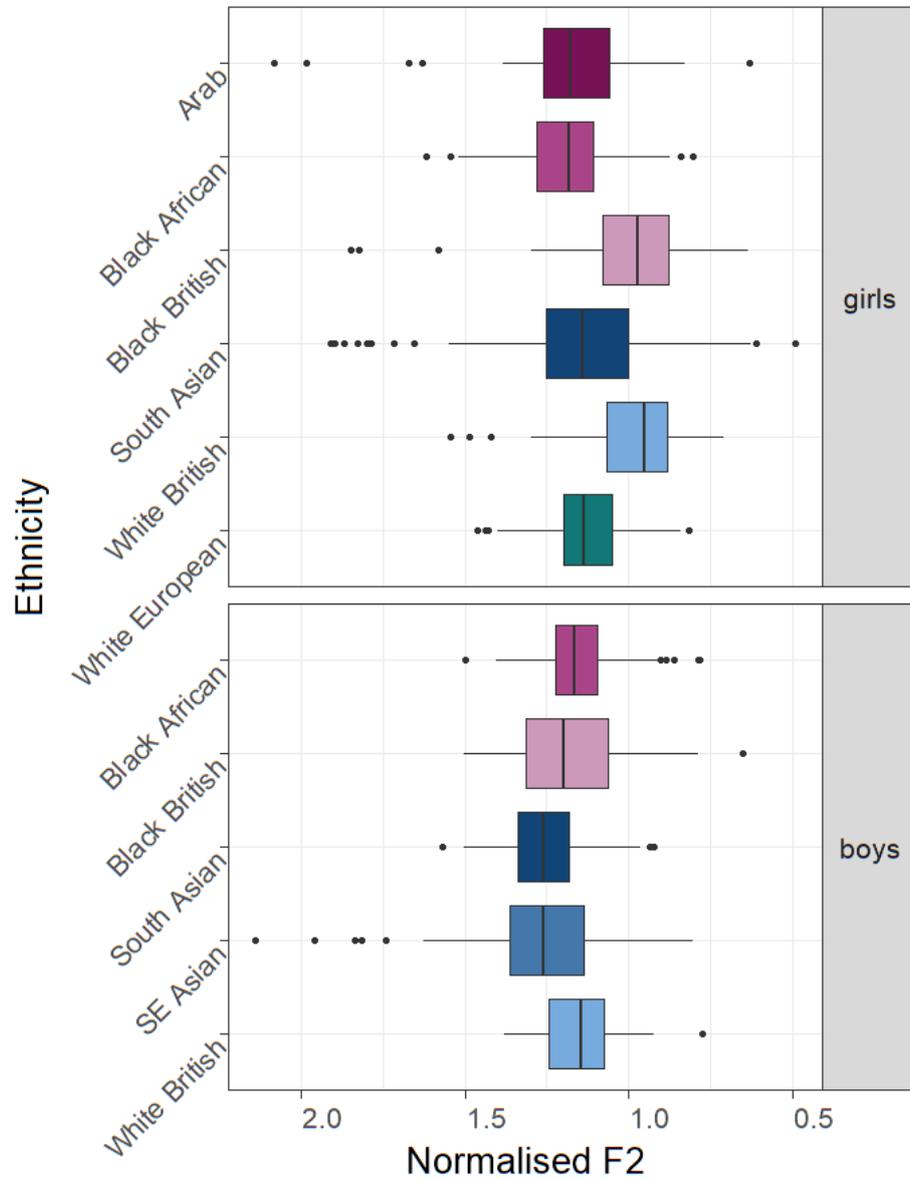


Figure 6.9: PRICE F2 onset distributions by gender and ethnic background

6.4.5 Diversity of friendship group

As with FACE, the friendship network diversity score used by Cheshire et al. (2011) is also examined for PRICE (see Section 4.3.4 for review). As a reminder, this score indicates the proportion of friends that are of a different ethnic background to the participant, with 1 being the least diverse and 5 being the most, but not all points on the scale are represented in the current dataset (see also Table 4.5). For example, as noted in Section 5.4, no boy has a score of 1, indicating that none of the boys has a completely homogeneous friendship group.

The findings for PRICE onset in part support the previous literature. For the boys, a more diverse friendship network score of 5 *does* seem to predict a more innovative PRICE onset, as boys with a score of 5 have more fronted F₂ on average. These boys are followed by the boys

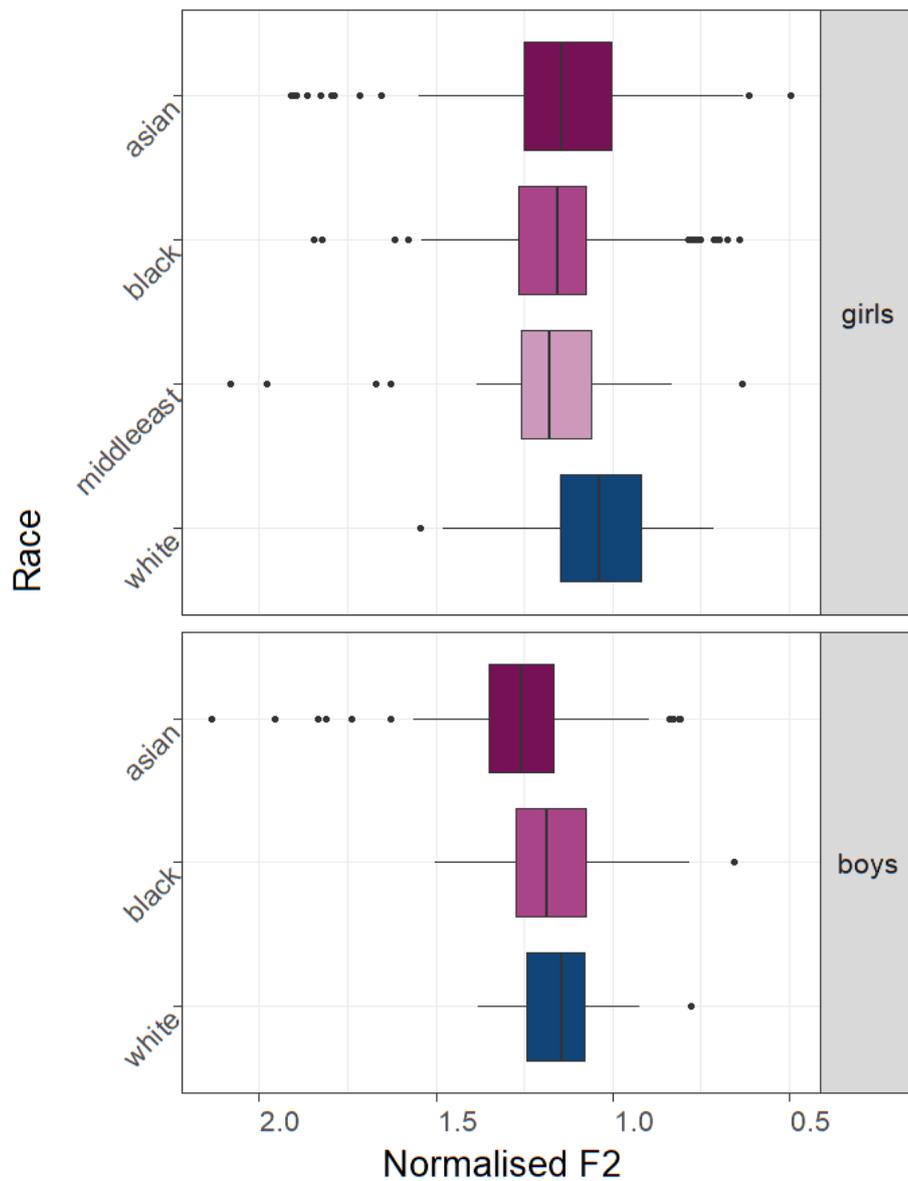


Figure 6.10: PRICE F2 onset distributions by gender and race

with a score of 4 and then 2. Therefore, the boys production of PRICE does seem to follow the findings of Cheshire et al. (2011). This is, in part, mirrored when looking at the girls. Girls with a score of 5 do have a more front PRICE onset. However, girls with a score of 1 and 4 are fairly similar — only girls with a score of 2 have a noticeably backer onset.¹ So, girls with more diverse networks do seem to use a fronter PRICE onset, but they are not that dissimilar to girls with homogeneous networks. When it comes to friendship diversity, then, it seems that boys are more likely follow the pattern suggested by Cheshire et al. (2008) and Cheshire et al. (2011), as their PRICE onset is more raised as their diversity measure increases.

¹The girls with a score of 2 are all White Squad girls.

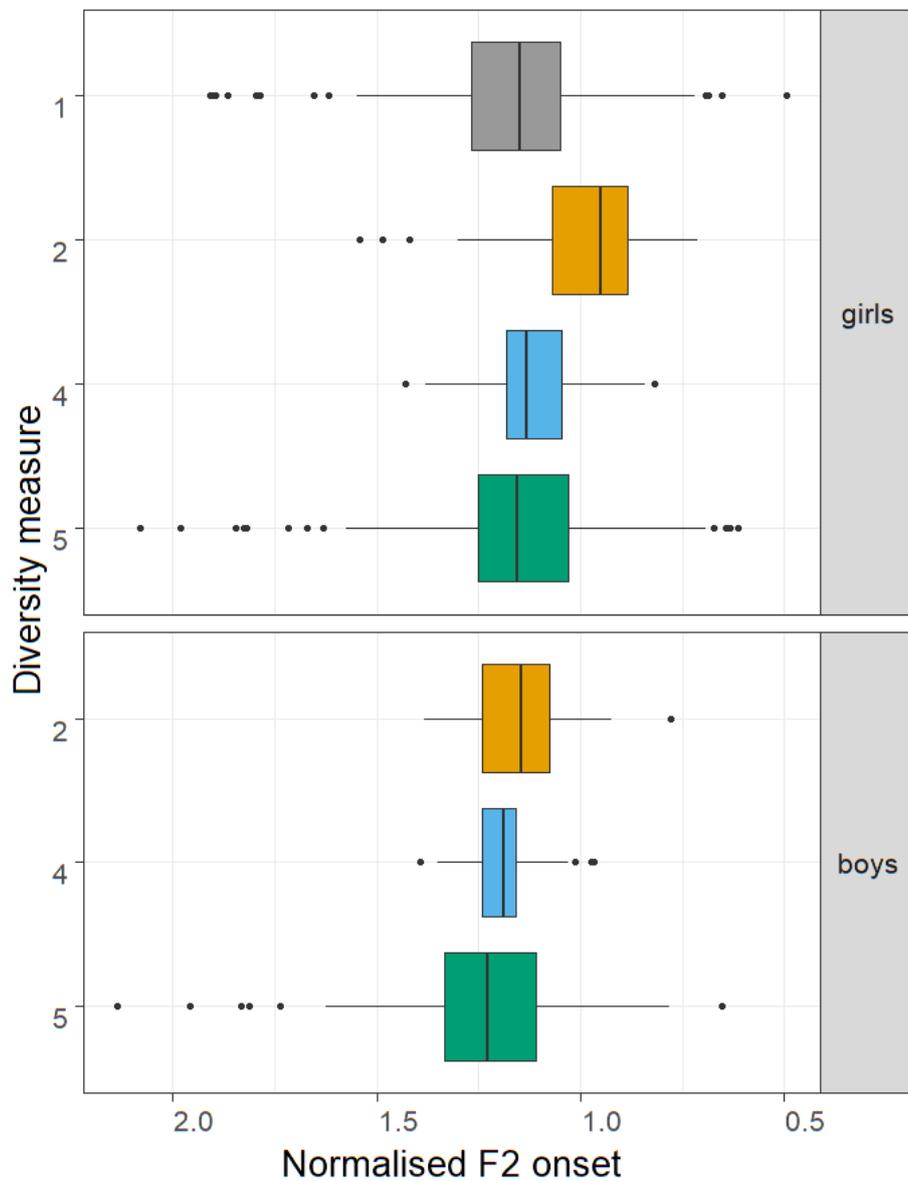


Figure 6.11: PRICE F2 onset distributions by gender and friendship diversity measure

6.4.6 Length of residency

Figure 6.12 shows the distribution of PRICE onset by length of residency, split by gender, and there are some patterns worth noting. First, most of the girls with a LOR of 80% or more have a more fronted PRICE than those with a shorter LOR. We see a similar pattern for the boys, although Anthony (the only boy with a LOR of 93%) is skewing the pattern slightly. This could provide weight to the argument that PRICE is a local innovation that is not borne out of language contact, as those speakers with a longer length of residency have the most fronted PRICE. This is complicated by the girls with 93 and 100% residency, but this is likely due to the stronger effect of other social factors like peer group orientation: Nahida is the only girl with a 93% LOR and her peer group (Main Squad) is pro-school. She is also South Asian (Bengali),

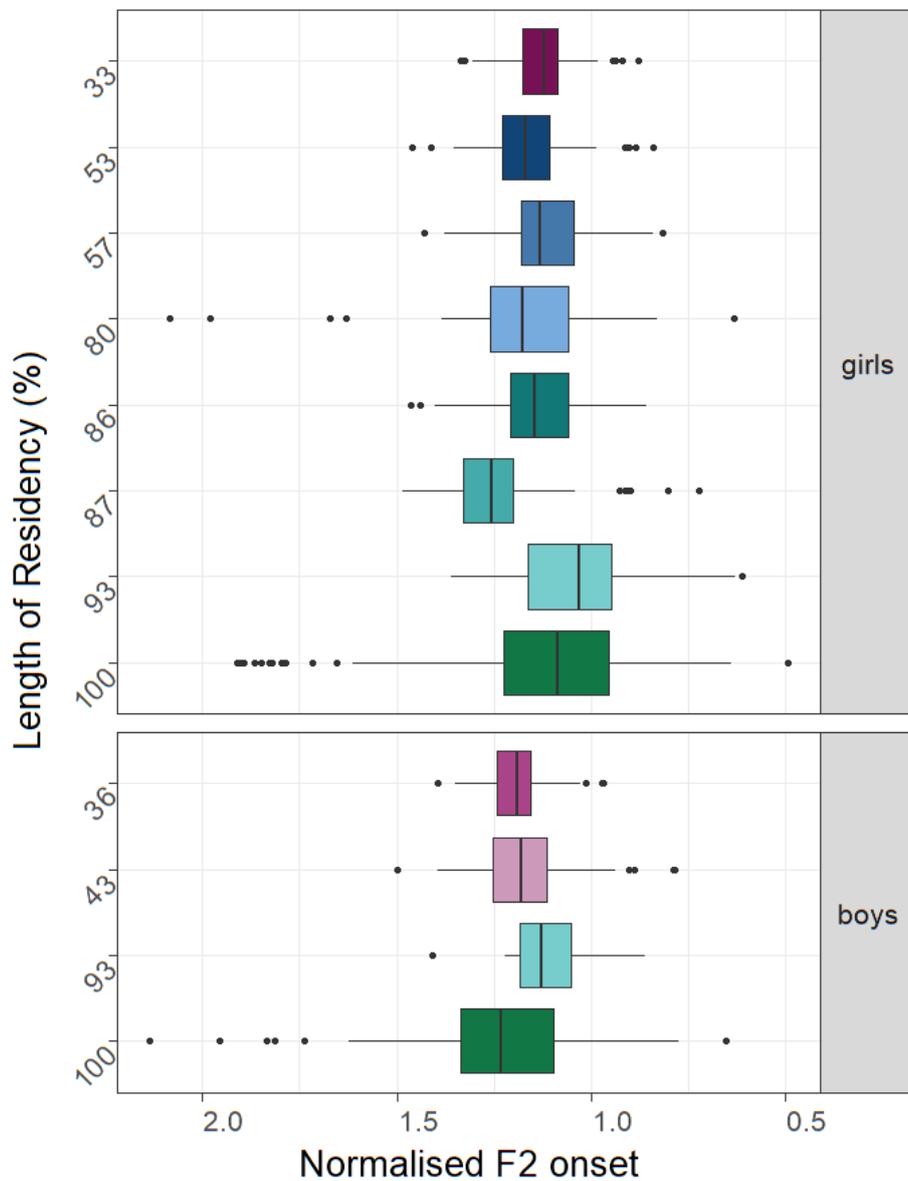


Figure 6.12: PRICE F2 onset distributions by gender and length of residency

but does not orient to Asian culture in the way the other Asian girls do: for example, she is the only Asian girl in the study who wore make up to school every day — not unlike the Moderns in Alam (2015), but with a less affluent background. So, for Nahida, her stance towards school but away from Asianness could explain her lack of fronting, despite having a long LOR.

6.4.7 Stylistic variation

This section examines the onset of PRICE by gender for three stylistic contexts: interview, reading passage, and word list. The sociolinguistic interview was the most relaxed context, eliciting un-self-conscious speech, and reading passages and word lists were used to elicit speech that was increasingly careful and self-conscious and therefore considered more standard or formal

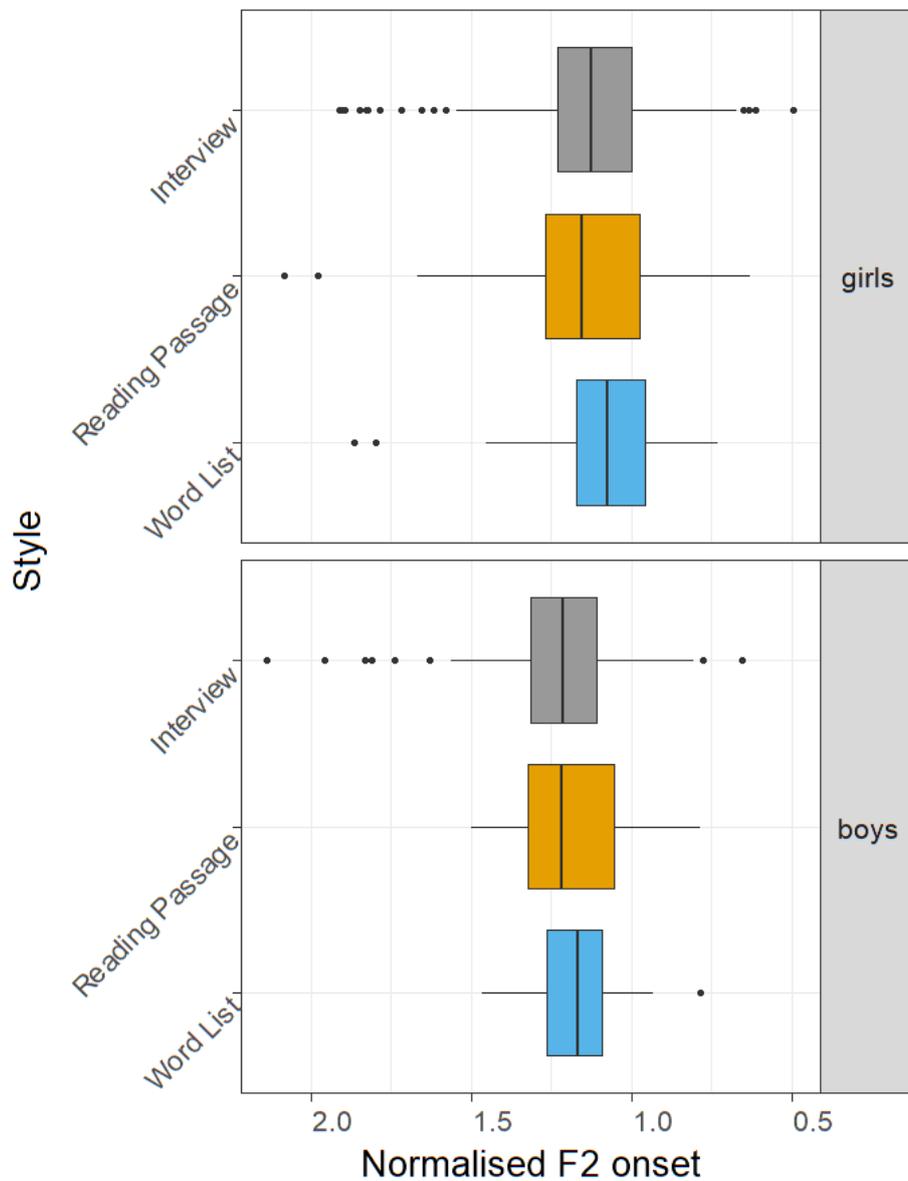


Figure 6.13: PRICE F2 onset distributions by stylistic context and gender

(as in Labov’s attention-to-speech model). In the MLE projects, a more front onset and shorter trajectory for PRICE was the more innovative realisation, and in the current dataset we have evidence of fronted PRICE onsets. So, if findings reflect attention-to-speech, then the casual interview context will elicit the most fronted F₂ onsets, the reading passage will have a greater number of backed onset tokens; and the word list, being the most careful speech, will have the most standard variants with the backest onset measurements for F₂.

The box plot in Figure 6.13 shows median values of normalised F₂ onset measurements for each stylistic context. Both boys’ and girls’ word list context appears to elicit the lowest median F₂, indicating that on average PRICE onset is backer in the word list context, suggesting that more careful speech elicits a more traditional realisation. For the boys, interview and reading

passage are quite similar, but for the girls, the reading passage seems to elicit a more front onset for PRICE. However, this may just be because interspeaker variation is being conflated.

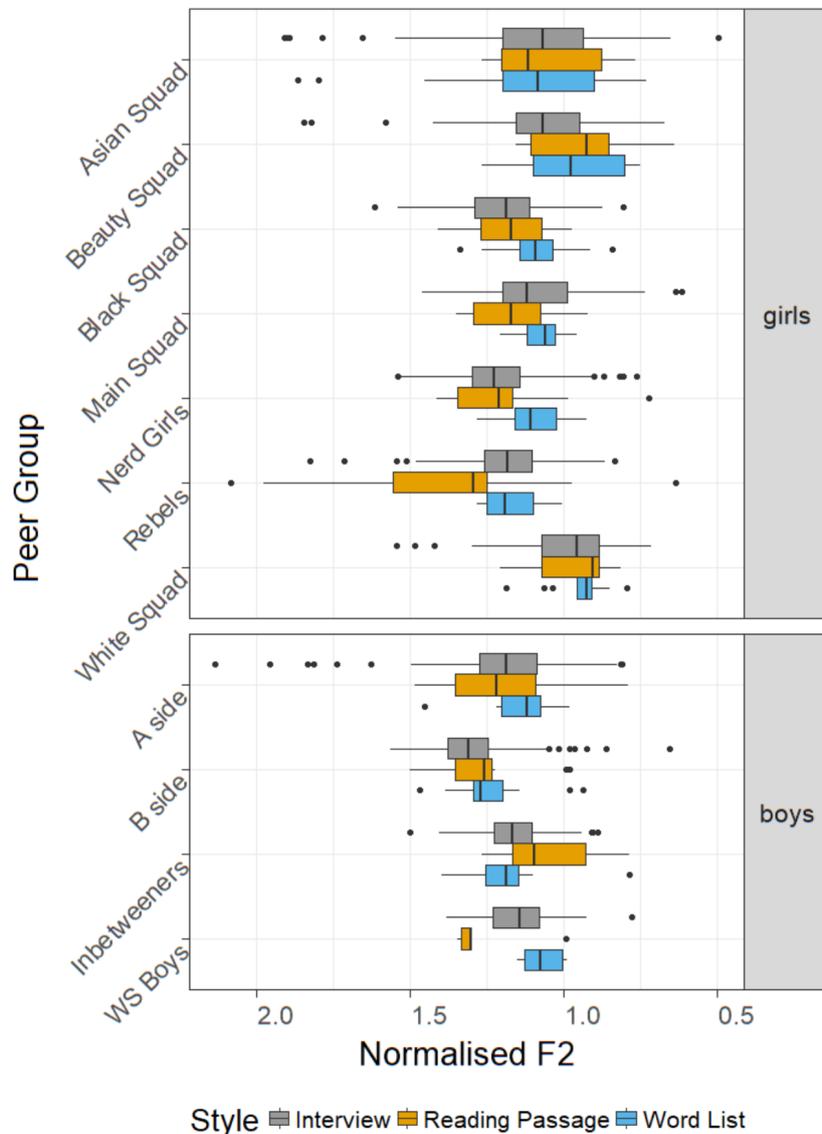


Figure 6.14: PRICE F₂ onset distributions by stylistic context, gender, and peer group

To shed light on this, peer group differences are examined. Figure 6.14 shows the distribution of normalised F₂ onset in different stylistic contexts by peer group. As with FACE, the reading passage context appears somewhat unpredictable for both boys and girls. However, there is a fairly consistent pattern when looking at the interview and word list contexts. For most of the girl and boy peer groups, the interview context shows a higher normalised F₂ than the word list context. This suggests that for the majority of speakers, the more casual context elicits a more front PRICE onset than the context where more attention is paid to speech. This mirrors the findings for FACE in which most speakers had a more raised onset in the more casual interview

setting. This is not the case for all peer groups, however. The Inbetweeners (boys) have a higher median F_2 in the word list context than in the interview, and the Asian Squad, Rebels, and White Squad show very little stylistic variation when comparing interview context with word list.

For the reading passage, there does not seem to be any consistent patterning. For some (Beauty Squad, Black Squad, Nerd Girls), F_2 median for reading passage falls in between the medians for interview and word list. Contrastingly, the reading passage context elicits the highest median normalised F_2 for A side, White Squad Boys, Asian Squad, Main Squad, Rebels, and for others (the Inbetweeners, B side, and White Squad) the reading passage shows the lowest median normalised F_2 . There is also a lot more variability within peer groups for the reading passage, indicated by the broader interquartile range (such as the Rebels or the Inbetweeners). Therefore, as with FACE, it is unclear what style these speakers are using for the reading passage. This provides further evidence for the hypothesis that, as teenagers are required to read prose aloud regularly in lessons, they have their own “reading voice” that does not align with the formality continuum suggested by Labov.

The patterns that emerge when looking at peer group and stylistic variation are confirmed when we examine ethnicity. In Figure 6.15, it again seems that whilst the interview context and word list follow Labov’s attention-to-speech predictions, the reading passage is inconsistent. For both boys and girls, the majority of ethnicities have a higher F_2 in the interview context than the word list, indicating that PRICE onset is more front in the more casual speech context. This is particularly pronounced for South East Asian boys and Black British girls, but less so for White European girls, White British girls, and South Asian boys. Black African boys are the only boys who do not follow this pattern, with a higher normalised F_2 in the word list context. However, it should also be noted that the difference between interview and word list for these boys is small.

To conclude, although there is some variation by ethnic group and peer group, there are fairly consistent patterns across the dataset. Whether looking at gender, peer group, or ethnicity, speakers produce a higher F_2 onset in the interview context than the word list context, indicating that PRICE onset is more front in the more relaxed speech situation. As with FACE onset, PRICE onset is inconsistent in the reading passage.

6.4.8 Summary of PRICE onset social factors

For PRICE onset, it has been possible to discern the following patterns for social factors:

- On average, boys’ PRICE onsets seem more fronted.
- Gender differences are more pronounced when looking at the interaction with peer group and ethnicity.
- Ethnic minority girls use more innovative, fronted onsets, whereas White British girls have a more traditional, backer onset.
- Peer group differences mask ethnic differences.
- Patterns found when looking at stylistic variation follow predictions of the attention-to-speech model to a degree, as PRICE onset position in interview speech is frontier, i.e. more casual, than word list speech. Reading passage speech does not appear to follow the model, possibly because speakers have a different reading style that does not relate to formality/casualness.
- Overall, patterns for social factors and PRICE onset are very similar to the patterns found for FACE onset, but are less distinct.

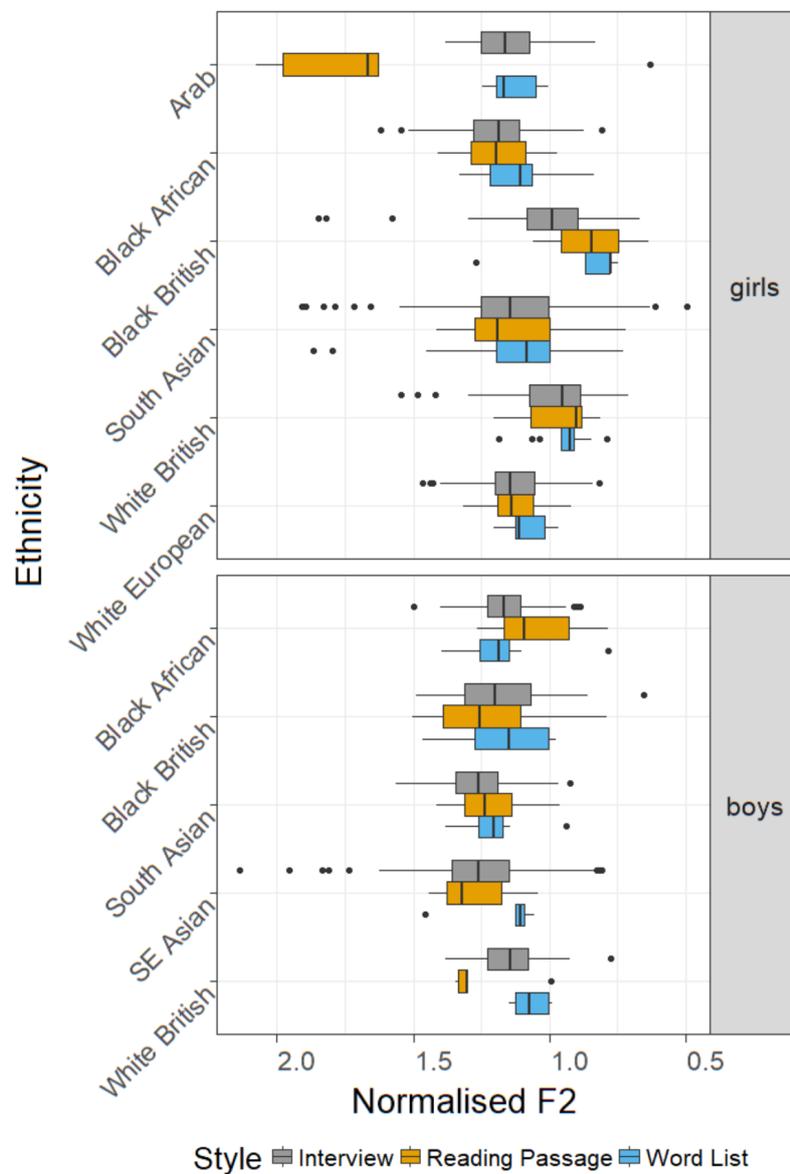


Figure 6.15: PRICE F2 onset distributions by stylistic context, gender, and ethnicity

That MLE might not be ethnically-neutral was first hinted at during the analysis of FACE, and emerging results for PRICE onset may support this hypothesis. In Figure 6.7 we saw that, descriptively speaking, boys seem more advanced in their realisation of PRICE onset in the same way that they were for FACE onset and trajectory. However, as the gender difference for FACE was not statistically significant, this may be the case for PRICE also. Results for FACE did show evidence of interactions between gender and other social factors, though, so the descriptive findings for PRICE provide further evidence of these interactions. This means that the hypothesis that more advanced MLE vowels are used as part of a linguistic style that indexes a particular type of cool, urban, ethnic minority, masculinity is still a possibility. The descriptive findings also suggest that White British girls' PRICE onset may lag behind their ethnic minority peers, which

supports the findings for the FACE vowel where anti-neutral girls (made up of the White British girls) lagged significantly behind their peers. This is not surprising because, as noted previously, they impressionistically sound very different to the other girls and boys in their year. If these descriptive findings are confirmed by the inferential analysis, and similar patterns are found in the analysis of PRICE trajectory, it would appear that White British girls are using a different diphthong system, constructing a White British MLE style that avoids aligning too closely with their ethnic minority peers. It should be reiterated that the impressionistic difference between these girls' vowels and the other participants in this study is not subtle. Their accents were explicitly commented on by other participants in the study and picked out as "different" and sounding "Essex", so it could be argued that these speakers are making an intentional choice to sound White. This will be discussed more in Section 8.

6.5 PRICE F₂ onset: linguistic factors

In order to explore the effect of linguistic factors on the onset of PRICE, this analysis will examine phonological environment, word position, lexical category, and duration. As a reminder, several linguistic factors have been identified by previous research. Fox (2015) highlights that innovative fronted variants were most likely preceded by voiceless stops, and followed by voiced stops, fricatives or nasals. Traditional, backed variants, on the other hand, were favoured by preceding voiced stops and following /l/. The present analysis has already demonstrated that PRICE is fronted for most speakers, aligning with the innovative variants Fox found (which were reviewed in Section 6.2). As such, similar linguistic constraints might be expected.

6.5.1 Phonological context

For preceding segment, Figure 6.16 shows the distribution of F₂ onset measurements in the entire dataset. The interquartile range is quite similar across the different preceding contexts, so the median of the distribution is the focus here. The difference between preceding environments is small, but there does seem to be a preference. The median of the distribution for PRICE onset appears most fronted when preceded by voiceless stops, and then by laterals. This, in part, aligns with Fox's (2015) findings, who also found a preference for preceding voiceless stops with innovative variants. Figure 6.16 also shows that PRICE is most backed when preceded by voiced and voiceless fricatives, which do not follow the constraints described by Fox (2015).

Figure 6.17 shows preceding context separated by gender and, to a degree, these findings are consistent. At the top of the graph is the distribution of F₂ onset for girls. The median values indicate that voiceless stops followed by laterals prefer a fronted onset (in line with the overall pattern), but voiced fricatives followed by approximants favour a backed onset. For the boys at the bottom, when looking at the median of the distribution, laterals followed by voiceless stops favour a more front onset. This is the opposite to the pattern of distribution found when looking at the entire dataset in Figure 6.16. By contrast, voiced and voiceless fricatives seem to favour a more backed onset, which aligns with the broader pattern of distribution. Although separating by gender shows some variation in the constraints, findings still largely go against Fox's (2015) constraints.

For following segment, Figure 6.18 shows that there is very little difference in the distribution of F₂ onset, but following nasals, voiced stops, and voiceless fricatives elicit a slightly higher median F₂ onset for PRICE. This is very similar to the constraints found by Fox, who noted that the innovative variants were favoured by voiced stops, fricatives, or nasals. Additionally,

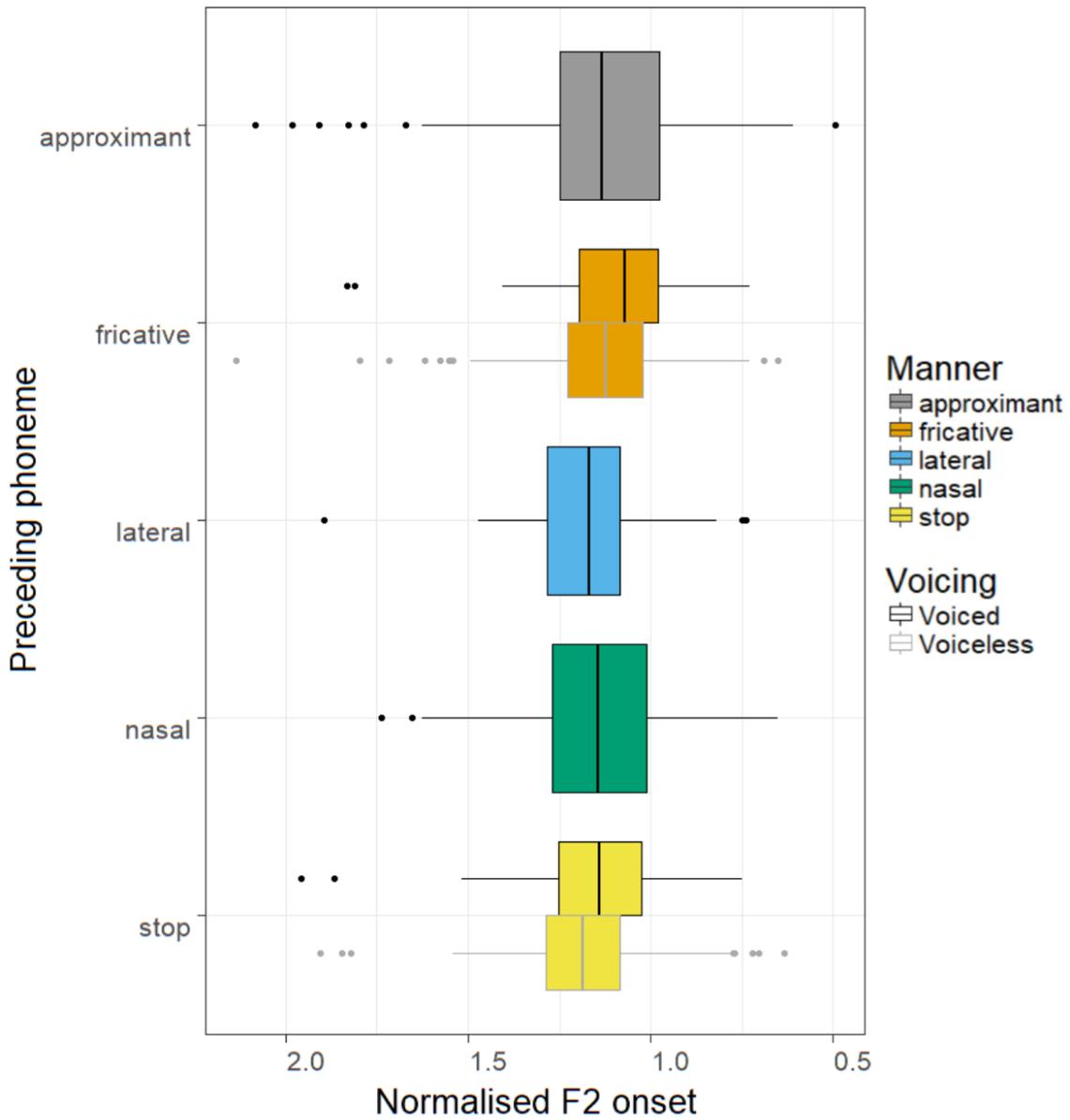


Figure 6.16: PRICE F2 onset distributions preceding environment

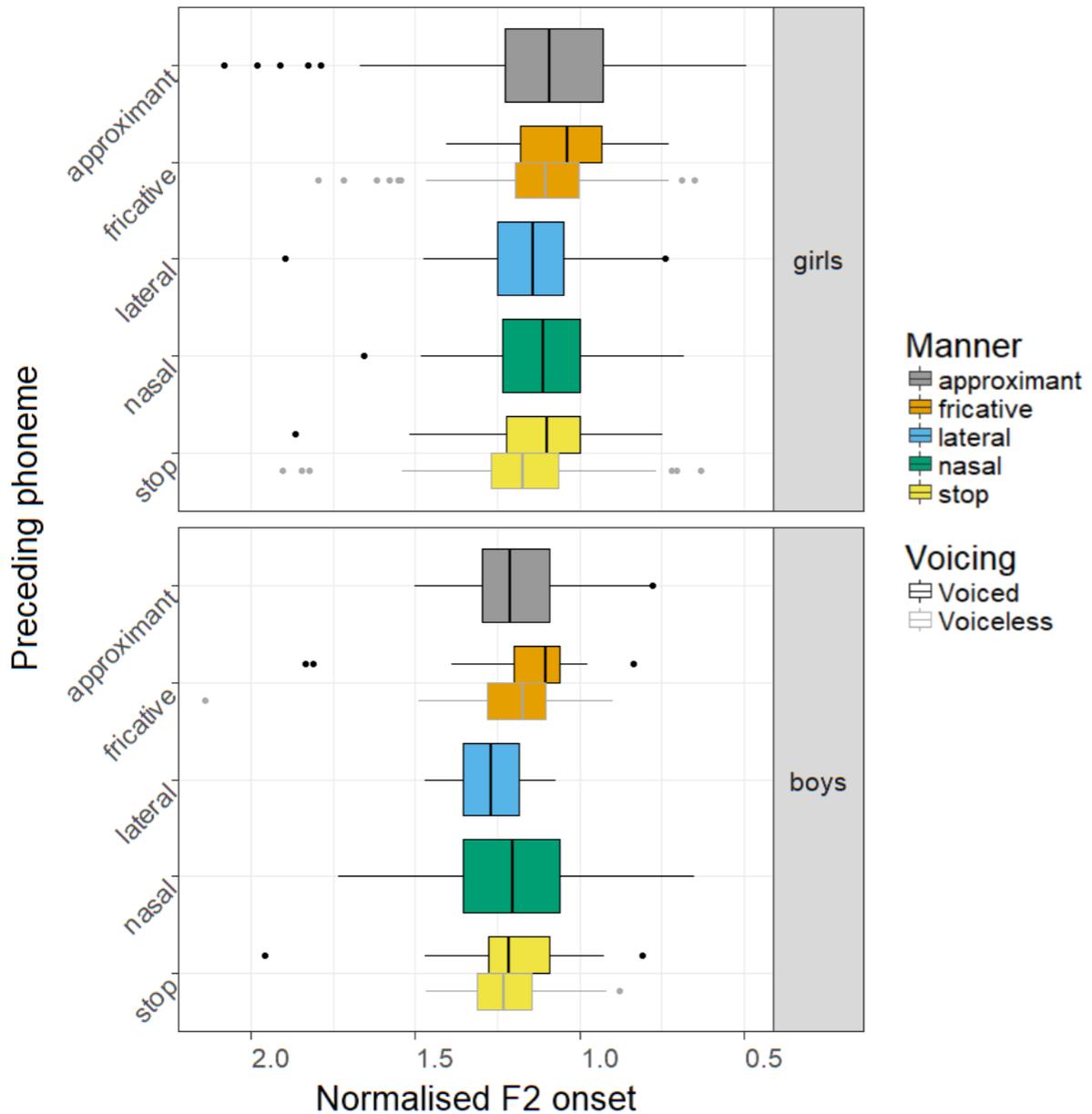


Figure 6.17: PRICE F2 onset distributions by preceding environment and gender

following lateral clearly favours a more backed variant, as the median F_2 is much lower for following laterals, also aligning with the constraints found by Fox.

These findings are consistent when separated by gender. In Figure 6.19 it is apparent that, for boys and girls, following laterals lower the median F_2 substantially and so backed onsets are more likely followed by /l/. Constraints for fronting are also somewhat consistent. For the boys, voiced stops, voiced nasals, and voiceless fricatives have near identical median F_2 onset that is higher than other following contexts. For the girls, nasals and voiceless fricatives have a higher median F_2 onset than stops, so only these two following contexts seem to favour a fronted PRICE

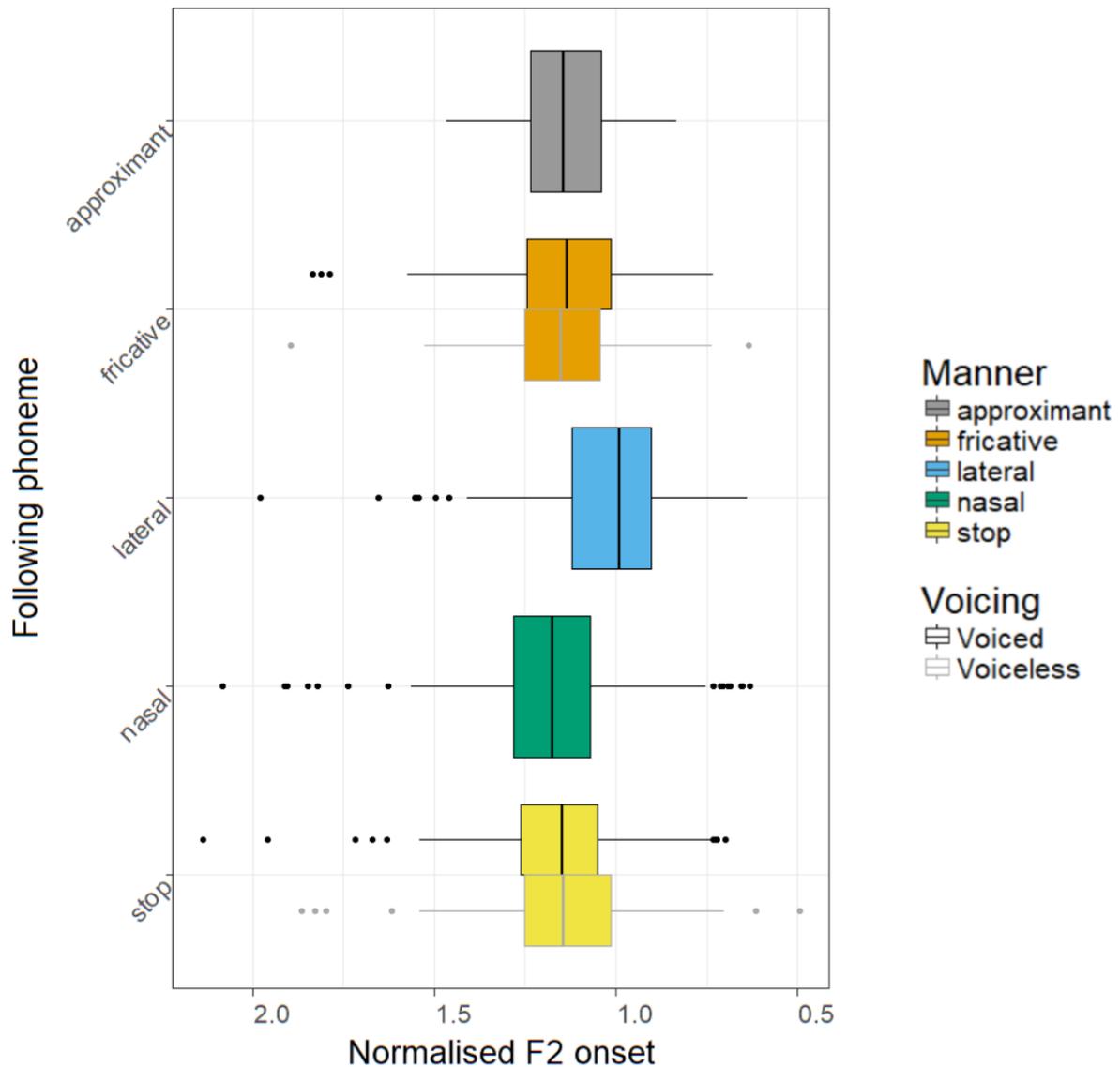


Figure 6.18: PRICE F2 onset distributions by following environment

onset for the girls. So, for preceding and following environment of PRICE onset, it seems that linguistic constraints mirror those found by Fox (2015). From this, it could be inferred that PRICE is more stable than FACE, as FACE largely did not follow Fox’s constraints. However, more evidence is needed to make this hypothesis more robust, so this notion will be returned to in Section 6.8.

6.5.2 Word position

Previous literature did not find any word position constraints for PRICE (Fox 2015). Given that PRICE has thus far been show to follow the linguistic constraints outlined by Fox to a degree, it could be predicted that there will be no effect for word position here either. In Figure 6.20,

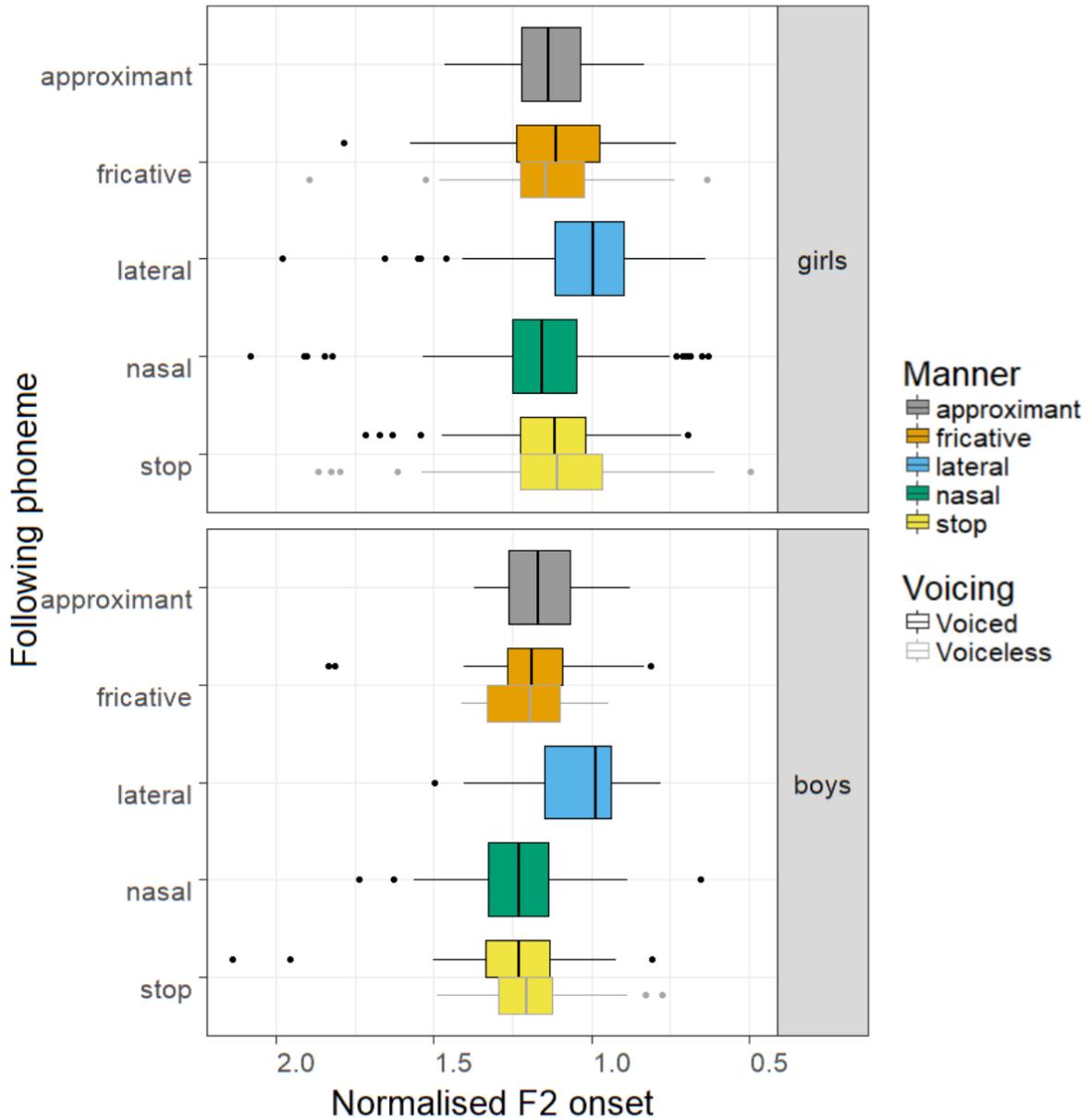


Figure 6.19: PRICE F2 onset distributions by following environment and gender

we can see median values and interquartile range of PRICE onset for all speakers, separated by word position. There is very little difference between the three word positions, but word medial onsets do seem to favour a more fronted onset as the median F_2 is higher than word initial or word final position. Word medial onsets also show the most variation and outliers, which is not surprising as the majority of tokens fall in this category. Word initial onsets have a slightly broader interquartile range than word final, but median values are almost identical.

These findings are mirrored when separating by gender, as shown in Figure 6.21). In this figure we can see that median F_2 onset is higher in word medial position for both boys and girls,

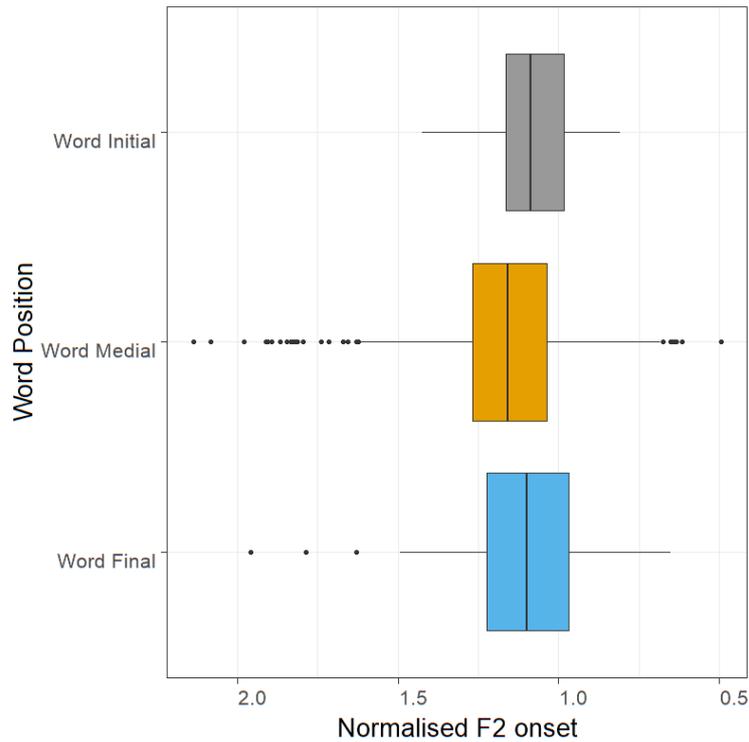


Figure 6.20: PRICE F2 onset distributions by word position

which seems to confirm that a fronted PRICE onset is favoured word medially. It also emerges that, for the boys, median F₂ is lowest in word initial position, suggesting that a more backed realisation of PRICE is more likely word initially. For the girls, however, there is not much difference in median F₂ between word initial and word final position. Grouping by peer group and ethnicity do not shed much more light on this constraint, other than confirming that word medial onset is more likely to be fronted (see Appendix B.3 Figures B.4 and B.5).

6.5.3 Lexical category

As noted in the analysis for FACE, lexical category is included as more frequent words are often ahead when it comes to sound change. As this thesis does not examine word frequency, lexical categories are explored as function words are higher frequency, and therefore may indicate that change is ongoing or incomplete. Several lexical categories were coded for (as noted in Section 4.4.2), but there was little variation between them. Box plots are included in the Appendix for reference. The box plot examined here shows content, function, and numeric words split by gender.

In Figure 6.22, we can see that lexical category does not seem to have a big effect. For the girls, the median F₂ onset is slightly front for function words. Content words and numerics have a broader interquartile range and content words have quite a few outliers, suggesting that there is greater variability for content and numeric words. A similar pattern is evident for the boys. This could indicate that the change is more advanced for function words as they are higher frequency. It is difficult to be conclusive when the differences are so small; statistical modelling in Section 6.6 will shed further light on this.

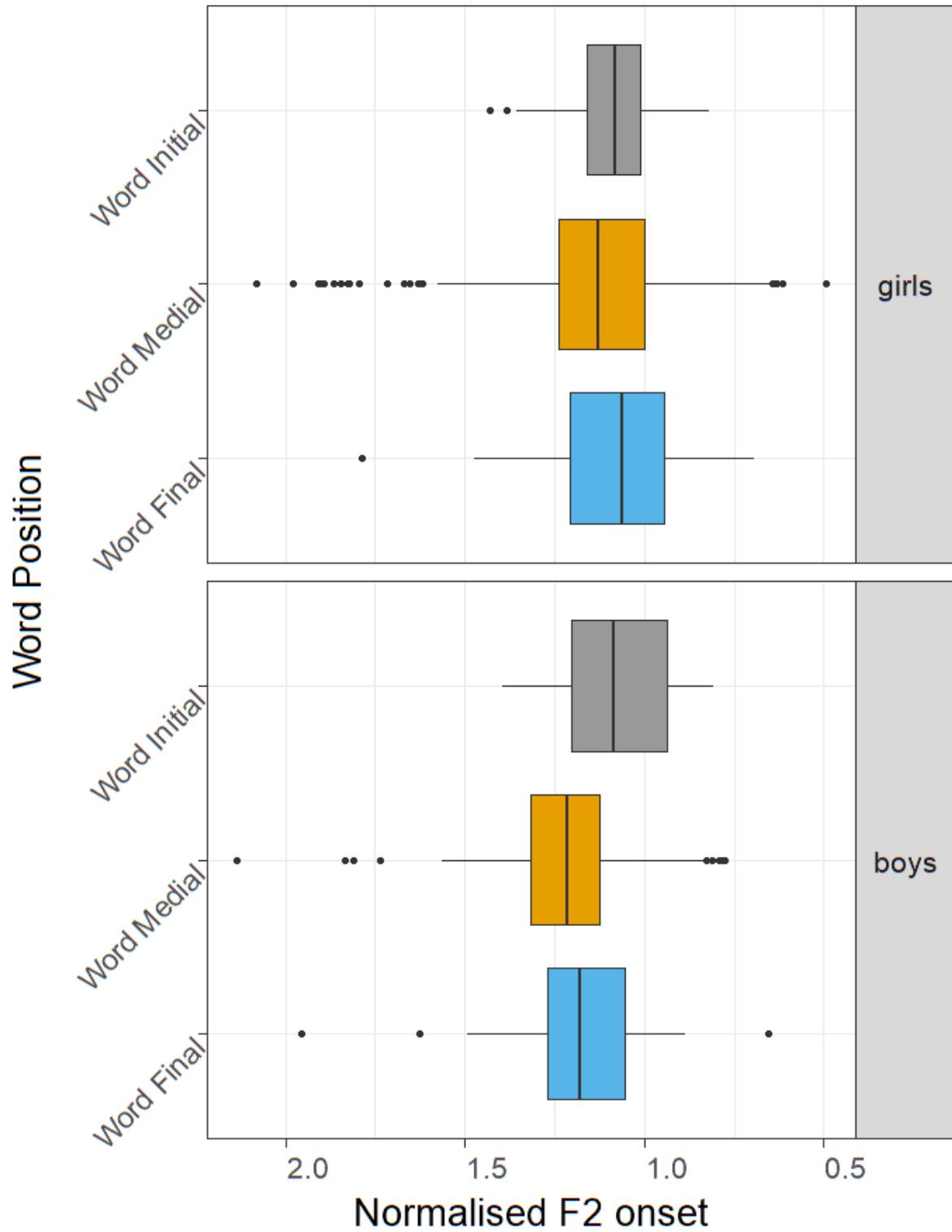


Figure 6.21: PRICE F2 onset distributions by word position and gender

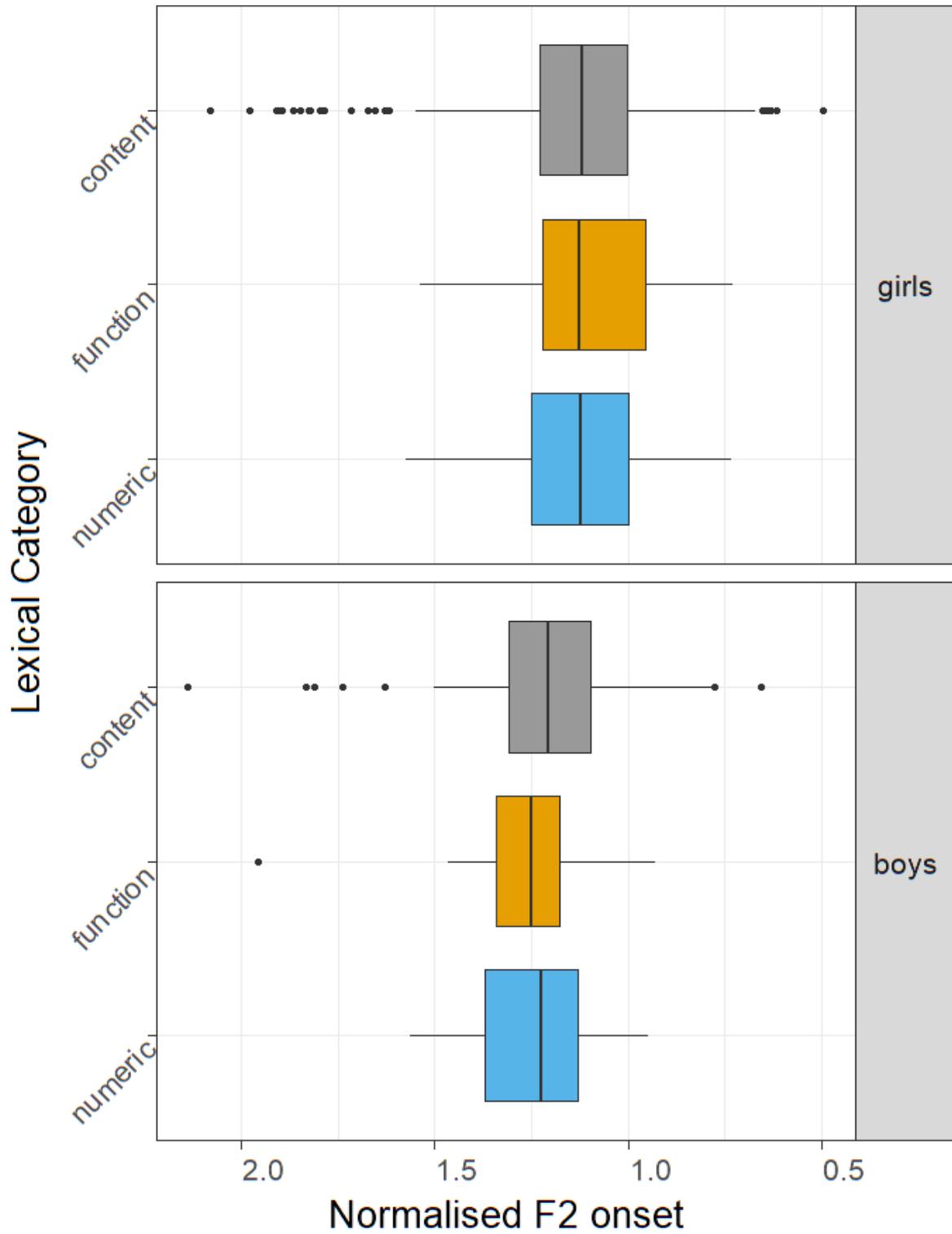


Figure 6.22: PRICE F2 onset distributions by lexical category and gender

6.5.4 Duration

Finally, duration is considered. Results for boys and girls are presented separately using a scatter plot, which includes a line of best fit with a confidence interval. Duration is on the x axis, and normalised F_2 onset on the y axis. A higher normalised F_2 value correlates with frontness, and so data points visually higher on the plot are fronter than points lower on the plot. The confidence interval shows where a linear model would predict tokens to be, so it is possible to examine the degree to which this dataset aligns with linear model predictions.

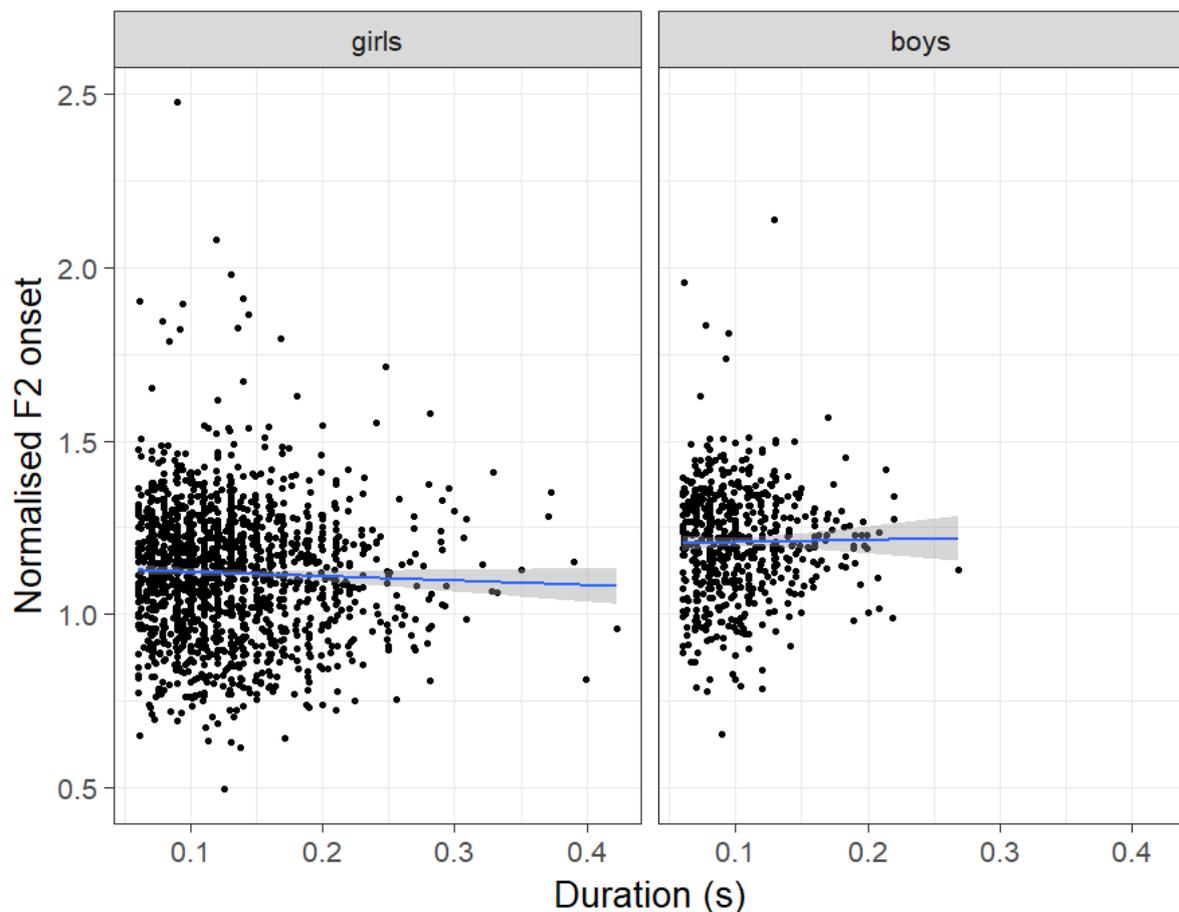


Figure 6.23: PRICE F_2 onset duration by gender

In Figure 6.23, there are two key observations to make: first, boys' PRICE trajectories are shorter in duration than the girls; and second, that neither boys or girls have much of a slope, suggesting that duration has minimal effect on onset position. Girls do have a slight decline as duration increases, indicating that PRICE onset is slightly backer when the vowel is longer. The boys, on the other hand, have much shorter PRICE vowels in general, and there does not seem to be much difference in onset by duration.

6.5.5 Summary of PRICE onset linguistic factors

The descriptive findings presented here can be summarised as follows:

- For preceding phonological context, onset is most fronted when preceded by voiceless stops and laterals, and backed when preceded by fricatives. Only one of these constraints aligns with Fox (2015), who noted that innovative variants were preceded by voiceless stops and fricatives, and traditional variants by voiced stops.
- For following phonological context, nasals, voiced stops, and voiceless fricatives favour a fronted realisation and following laterals were found to favour a backed F₂ onset for all speakers. This more closely aligns with the constraints noted by Fox (2015).
- Word position was not found to have an effect by previous literature, but in this dataset it seems that word medial tokens are more likely to be fronted.
- Lexical category has not been explored in the MLE literature, and results here suggest that there is little effect on PRICE.
- Duration also has little effect on PRICE, although girls may be more likely to back PRICE onset when the vowel is longer in duration.

For FACE we saw a different set of linguistic constraints than was found in the previous literature, and these constraints were mostly consistent across genders and for both variables. It was hypothesised, then, that FACE had advanced further than the variants described in Fox (2015) (whose data were from 2001-2). For PRICE, however, there seems to be something different going on. Linguistic constraints are not as consistent as they were for FACE, but the girls' constraints do align with those suggested by Fox (2015). This provides support for the hypothesis that PRICE has not advanced further in the way that FACE has, and that the realisations of PRICE in this community are similar to the variants observed by Fox (2015). This in turn could indicate that innovations in the FACE vowel are at a different point of change to the PRICE vowel. Previous work has discussed these diphthongs as having developed out of a chain shift reversal (Kerswill et al. 2008). The findings here could be evidence that there are different motivations for this shift, as a monophthongized FACE could have diffused and advanced due to language contact with South Asian and African languages, whereas this is not a possible origin for PRICE. These hypotheses will be tested next in the inferential analysis.

6.6 PRICE F₂ onset: multivariate analysis

The final part of the analysis of PRICE F₂ onset uses inferential statistics to examine linguistic and social factors. As noted, research in London has consistently found that innovative linguistic features were most likely to be used by ethnic minority boys, including fronted, monophthongised PRICE (Kerswill et al. 2008). Thus far, fronted PRICE is evident at Riverton and to a degree social factors and linguistic constraints align with the findings of previous literature (as in Fox 2015). There are clear gender differences for PRICE onset, as well as some ethnic differences: ethnic minority boys and girls seem to be the leaders in using a fronted PRICE onset as with Kerswill et al. (2008). For linguistic factors, preceding and following phonological context seem to predict the degree to which PRICE onset is fronted. Therefore, it was hypothesised that preceding and following context would be a significant predictor of PRICE realisation, as would ethnicity, but these factors would operate differently for girls and boys. Inferential statistics will be used to further examine which factors are the best predictors of variation for these speakers.

As a reminder, methods for statistical analysis and factor levels were discussed in detail in Chapter 4. The models for this part of the analysis are run using statistical computing software R (R Development Core Team 2017), mirroring the analyses of FACE onset in Section 5.6 and FACE trajectory in Section 5.9. For ease of reference the approach is outlined again here. The

dependent variable for this part of the data is PRICE F_2 onset, in order to explore the degree to which the onset of PRICE is fronted. Independent variables are linguistic and social factors, and these are included in the model as fixed effects. Linguistic factors were: preceding and following phoneme, word position, lexical category, and duration. Social factors included in the models were gender, peer group, ethnicity, diversity of friendship networks, length of residency, and stylistic context. Word and speaker were included as random effects. As with analyses of FACE, peer group was modelled as orientation to school, ethnicity was collapsed into five levels, and gender was tested in separate mixed-effects models (see Section 5.6 for discussion).

6.6.1 Regression models for PRICE onset

Each set of model results presented in the sections that follow include all linguistic factors. Social factors gender, peer group orientation, and style were included in every model, and ethnicity, diversity of friendship group, and length of residency were modelled separately as follows:

Example model

Dependent variable: Normalised F_2 onset of the PRICE vowel

Random effects: speaker, word

Fixed effects: [ethnicity/diversity of friendship network/length of residency], gender, peer group orientation, style, preceding phoneme, following phoneme, word position, lexical category, duration

In Table 6.1 we see AIC and BIC values for the different models for PRICE. No social factors are significant for any model. Using AIC and BIC as indicators of goodness of fit, it is clear that the model that includes diversity of friendship group is the better model, as AIC and BIC are both lower for this model.

	AIC	BIC
Ethnicity	-2038.8	-1863.2
Diversity of friendship network	-2039.4	-1869.5
Length of residency	-2033.6	-1829.8

Table 6.1: Model comparisons for PRICE onset

Table 6.2 shows regression results for the model including diversity of friendship group. The only social factor that is significantly different to the intercept is word list.² The negative estimate value indicates that PRICE in the word list context is significantly backer than in the interview context. Other social factors mirror descriptive findings, for example that girls' PRICE is backer than the intercept (boys), and that all peer groups have a backer PRICE onset than the intercept (anti-school), but none of these findings are significant.

For linguistic factors, preceding phonological context does not have any significant effect on PRICE onset position. Following context shows that all contexts other than voiced stops are significantly backer than the intercept (approximant). No other linguistic factor is significant.

²Modelling an interaction between style and gender would have shed more light on this, and will therefore be tested in future analysis.

	PRICE F ₂ onset
	Estimate (Standard Error)
<i>Intercept</i>	1.272*** (0.065)
Gender	
Girls	-0.047 (0.040)
Diversity	
2	-0.112 (0.089)
4	-0.036 (0.060)
5	-0.032 (0.040)
Orientation	
Anti-neutral	-0.126 (0.091)
Pro-neutral	-0.062 (0.047)
Pro-school	-0.058 (0.042)
Style	
Reading passage	0.020 (0.019)
Word list	-0.051** (0.018)
Preceding context	
Lateral	0.026 (0.021)
Nasal	0.032 (0.019)
Voiceless stop	0.032 (0.021)
Voiced stop	0.021 (0.024)
Voiceless fricative	-0.009 (0.018)
Voiced fricative	-0.027 (0.025)
Following context	
Lateral	-0.109*** (0.030)
Nasal	-0.054* (0.026)
Voiceless stop	-0.048 . (0.026)
Voiced stop	-0.031 (0.026)
Voiceless fricative	-0.058* (0.028)
Voiced fricative	-0.049 . (0.027)
Lexical category	
Function	-0.017 (0.015)
Numeric	0.026 (0.025)
Word position	
Medial	0.042 (0.026)
Final	0.027 (0.032)
Duration	-0.025 (0.074)
AIC	-2,039.354
BIC	-1,869.494

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 6.2: Full linear regression model for PRICE onset including diversity of friendship group.

These constraints (or lack of) do not align with the constraints noted by Fox (2015), who found that fronted, narrow variants of PRICE were favoured by preceding voiceless stops, fricatives, and affricates, as well as following voiced stops, fricatives, and nasals.

This is possibly evidence that innovative variants of PRICE have emerged in MLE as a result of different processes than FACE. Labov (2007) describes the process of transmission as language change that is internal to a speech community as a result of child language acquisition through caregivers, and diffusion as language change resulting from language contact between adult speakers of different language varieties. Relevant to the present study is the observation that diffusion does not lend itself to the transfer of structural features. The findings here, then, support the hypotheses of Cheshire et al. (2011), who describe MLE as emerging from group second language acquisition, and so innovations of MLE are likely to have in part emerged through diffusion from a broad selection of heritage languages. The lack of significance in this model for social factors other than style is surprising given that the descriptive findings showed inter-speaker and inter-group variation for PRICE onset position. However this is likely because, as with FACE, the significant variation is within genders rather than between. This could be additional evidence that PRICE is further along its trajectory of change than FACE and has stabilised, so inter-speaker variation is not significant as social differentiation is less distinct.

6.6.2 Regression models for girls' PRICE onset

	AIC	BIC
Ethnicity	-1373.2	-1228.9
Diversity of friendship network	-1369.4	-1230.4
Length of residency	-1355.3	-1195.0
Peer group orientation	-1370.4	-1231.4

Table 6.3: Model comparisons for girls' PRICE onset

Model comparisons for girls' PRICE onset are shown in Table 6.3. AIC and BIC comparison results do not conclusively prefer the same model. The model that includes ethnicity has the lowest AIC, but not the lowest BIC. The model including peer group orientation has the lowest BIC, and second lowest AIC. As the AIC for the peer group model is better than the BIC for the ethnicity model, the model including peer group is selected as the best model.

Table 6.4 show model results for the girls' PRICE onset. For social factors, the anti-neutral peer group have a significantly lower estimate for PRICE onset than the intercept, anti-school peer groups. This means that the anti-neutral peer group, White Squad, have a significantly backer PRICE onset than their anti-school peers the Rebels. There is some significant stylistic variation too, as the word list context elicits a significantly more backed PRICE onset than the interview context.

We see different results for linguistic constraints than we saw for the full model of all speakers. Preceding context was not significant in the full model, but here we see that voiceless stops favour a more fronted PRICE. This mirrors the findings of Fox (2015), who also found that fronted, narrow variants of PRICE were most likely when preceded by voiceless stops. We also see again that all following contexts are significantly more backed than the intercept (approximant),

	Girls' PRICE F ₂ onset
	Estimate (Standard Error)
<i>Intercept</i>	1.229*** (0.060)
Peer Group Orientation	
Anti-neutral	-0.218** (0.063)
Style	
Word list	-0.058** (0.021)
Preceding context	
Voiceless stop	0.048* (0.022)
Following context	
Lateral	-0.142*** (0.035)
Nasal	-0.066* (0.032)
Voiceless stop	-0.067* (0.031)
Voiced stop	-0.054 . (0.031)
Voiceless fricative	-0.069* (0.034)
Voiced fricative	-0.063 . (0.032)
AIC	-1,370.390
BIC	-1,231.444

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 6.4: Best fit regression model for girls' PRICE onset.

although only following laterals are highly significant. This also aligns with the findings of Fox (2015), who noted that more traditional PRICE variants were most likely when followed by /l/. Neither lexical category, word position, or duration are significant.

These findings are interesting because they support the notion that linguistic constraints for PRICE onset mirror previous work (as in Fox 2015), unlike the linguistic constraints for FACE onset and trajectory. This supports two interpretations that have been emerging in this thesis: first, that within girls and boys there are different prestige norms, and second that PRICE is a more mature linguistic variable that has stabilised. The inferential analysis for the boys' data will shed more light on this.

6.6.3 Regression models for boys' PRICE onset

Model selection is a more clear-cut process for the boys than it was for the girls. Table 6.5 shows that the model including peer group orientation has the lowest AIC and BIC, so this model was selected as the best model. Significant regression results are shown in Table 6.7.

The boys have very different results to the girls, and also different results to the full model. No social factors are significant: ethnicity and stylistic context do not significantly predict a more front or back PRICE onset. For linguistic factors, preceding lateral has a significantly more front onset than the intercept (preceding approximant). Neither following environment or duration significantly predict a more front or back PRICE onset, but lexical category and word position do. For lexical category, numeric words have a significantly higher estimate than the intercept (content words), indicating that numeric words tend to have a more front onset for

	AIC	BIC
Ethnicity	-623.6	-510.2
Diversity of friendship network	-623.0	-514.0
Length of residency	-621.8	-508.4
Peer group orientation	-624.3	-519.7

Table 6.5: Model comparisons for boys' PRICE onset

Table 6.6

Boys' PRICE F ₂ onset	
	Estimate (Standard Error)
<i>Intercept</i>	1.092*** (0.069)
Preceding context	
Lateral	0.082* (0.035)
Lexical category	
Numeric	0.069 . (0.036)
Word position	
Medial	0.111* (0.045)
Final	0.090 . (0.051)
AIC	-624.341
BIC	-519.670

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 6.7: Best fit regression model for boys' PRICE onset.

PRICE. Word medial and word final position also favour a more front onset position for PRICE. It should be noted, though, that significance for lexical category and word position is low, so may not be meaningful.

6.6.4 Summary of PRICE onset results

There is little significance for social factors in the regression results. However, on the whole, results for PRICE onset still have potentially important implications. We see again that anti-neutral White British girls have a different realisation than their peers, and that ethnic minority boys have the most advanced (that is, the most fronted) PRICE vowel (as in Cheshire et al. 2011). This provides weight to the argument that there are gendered, ethnic MLE styles. That the social factors mirror findings for FACE, but PRICE does not seem to have advanced in the same way that FACE has over the last decade could indicate that the PRICE described by Fox (2015) has stabilised. If the changes are a reversal of the chain shift hypothesised by Wells (1982a) and Labov (1994), then this could be evidence that the reversal is operating as a push chain shift, where PRICE lowering and fronting has “pushed” the other front closing diphthongs up and front.

There is also evidence to suggest that London short vowels are on the move and centralising, such that TRAP and the onset of PRICE have crossed over (Levon and Holmes-Elliott 2017), so this could even be part of a larger shift in the entire London vowel system where short vowels centralise to stay distinct from fronting, raising, monophthongising diphthongs.

6.7 PRICE trajectory: social factors

Next, PRICE trajectory is discussed. As noted, trajectory is measured by calculating the Euclidean distance.³ The lower the Euclidean distance, the shorter the trajectory between F₁-F₂ onset and F₁-F₂ offset. As with FACE, the analysis of PRICE trajectory does not take duration into consideration; it is simply a way of representing the distance of movement from onset to offset for the vowel, regardless of how slowly or quickly it is produced.

The box plots that follow present the distribution of Euclidean distance relative to different social factors. Euclidean distance is shown on the y axis and social factors on the x axis. The higher the median Euclidean distance is on the y axis, the longer the average trajectory is for PRICE. Interquartile range and whiskers are indicative of intergroup variability. As with F₂ onset, the social factors considered here are gender, peer group, ethnicity, race, and diversity of friendship group. Box plots include data from all stylistic contexts, apart from the plots examining style in which different speech contexts are examined separately.

6.7.1 Gender

Figure 6.24 shows the median Euclidean distance for each gender in this dataset. The boys' box plot on the left has a lower median than the girls', who have a higher median Euclidean distance, as well as a more broad interquartile range, longer upper whiskers and more upper outliers. This suggests that, on average, boys have a slightly smaller Euclidean distance, and therefore shorter PRICE trajectories, than the girls. Use of a shorter trajectory for the PRICE diphthong was an innovation in London discovered by Kerswill et al. (2008), who also noted that boys were more likely to use monophthongal variants. So, if confirmed by inferential statistics in Section 6.9, the results here align with the findings of Kerswill et al. (2008) as well as with the findings for PRICE onset. Descriptive results seem to show that boys not only have a more fronted onset for PRICE, but they also appear to have shorter trajectories. It should, however, be noted that on the whole, PRICE appears to be more diphthongal than FACE for all speakers, and the gender difference is much smaller for PRICE than it was for FACE. The median Euclidean distance for FACE for the boys was 1.4, and for the girls it was 2.2. For PRICE, however, boys' median Euclidean distance is 2.45, and girls' median is 2.55. As the gender difference is small, other social factors will now be explored in order to shed more light on this variable. Results will then be tested statistically.

6.7.2 Peer Group

The distribution of and median Euclidean distances by peer group are shown in Figure 6.25. The first thing to notice here is that, for the boys, A side have a much higher median Euclidean distance than the other boys. This suggests that the findings discussed above for Figure 6.8 were skewed slightly by the A side, as each other boy peer group has a lower median

³As noted, this is the square root of the difference between F₁ onset and offset squared, minus the difference between F₂ onset and offset squared.

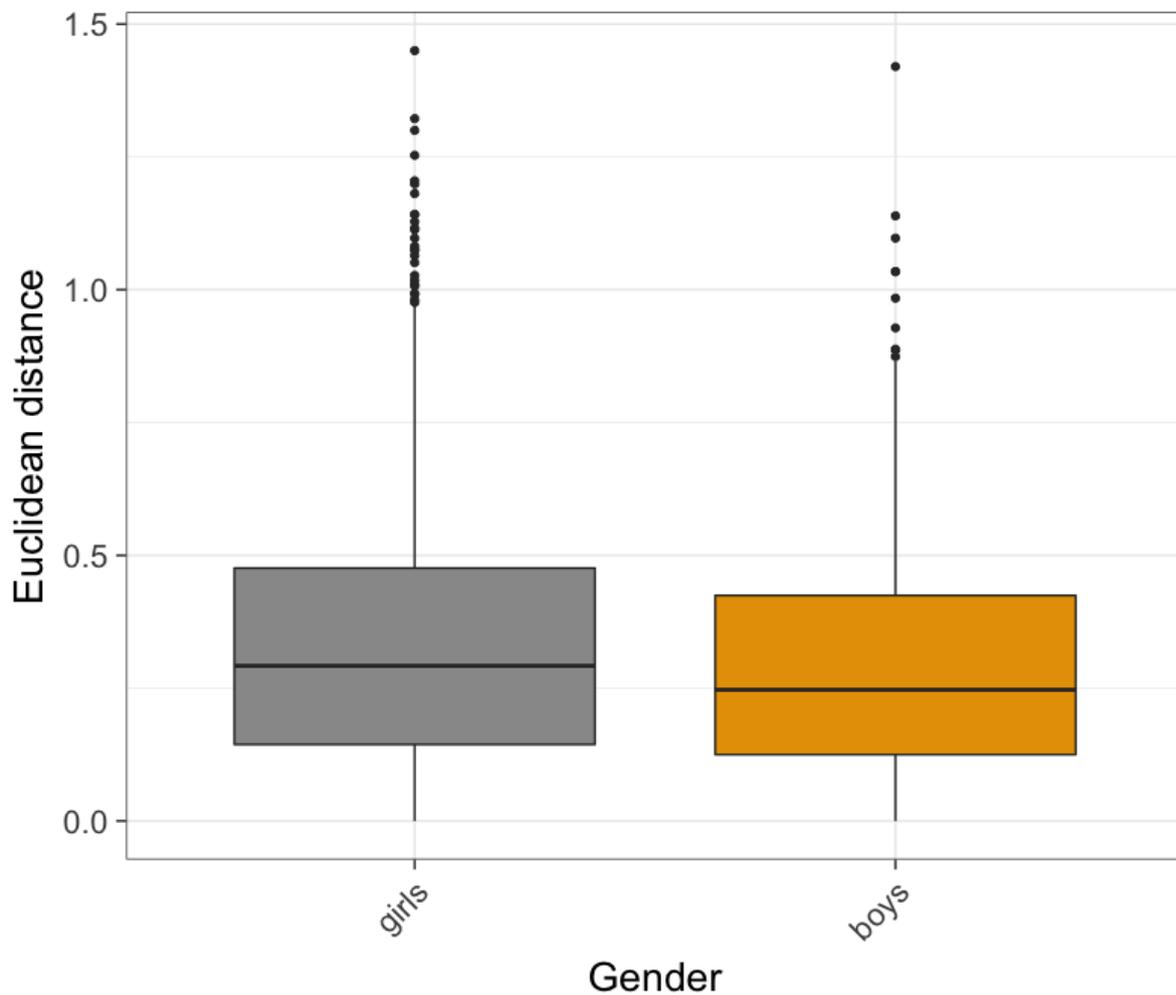


Figure 6.24: PRICE trajectory distributions for gender

Euclidean distance, and therefore a shorter average PRICE trajectory. In addition, A side have a much broader interquartile range than the other boy peer groups, suggesting that there is more intragroup variation for the A side than other boy peer groups. B side, on the other hand, have the most narrow interquartile range as well as the lowest median Euclidean distance, indicating that they have the shortest trajectories and that both participants in this group are quite similar. Inbetweeners and White Squad boys have broader interquartile ranges and also longer whiskers. For the Inbetweeners, this suggests that there is some intragroup variation. However, White Squad boys are only represented by one speaker in this dataset, so there seems to be some intraspeaker variation evident here as well — this seems more feasible when we consider the fact that this plot includes data from three different stylistic contexts.

For the girls, the differences are less stark. Nerd Girls have the highest median Euclidean distance, followed by the Main Squad and the Rebels. White Squad girls, Black Squad, and Beauty Squad are all on the lower end of the spectrum, but this is still higher than all of the boys (except A side). This indicates that, although there is some variation amongst the girls, on the whole they have longer PRICE trajectories for the boys. Furthermore, the similarity in

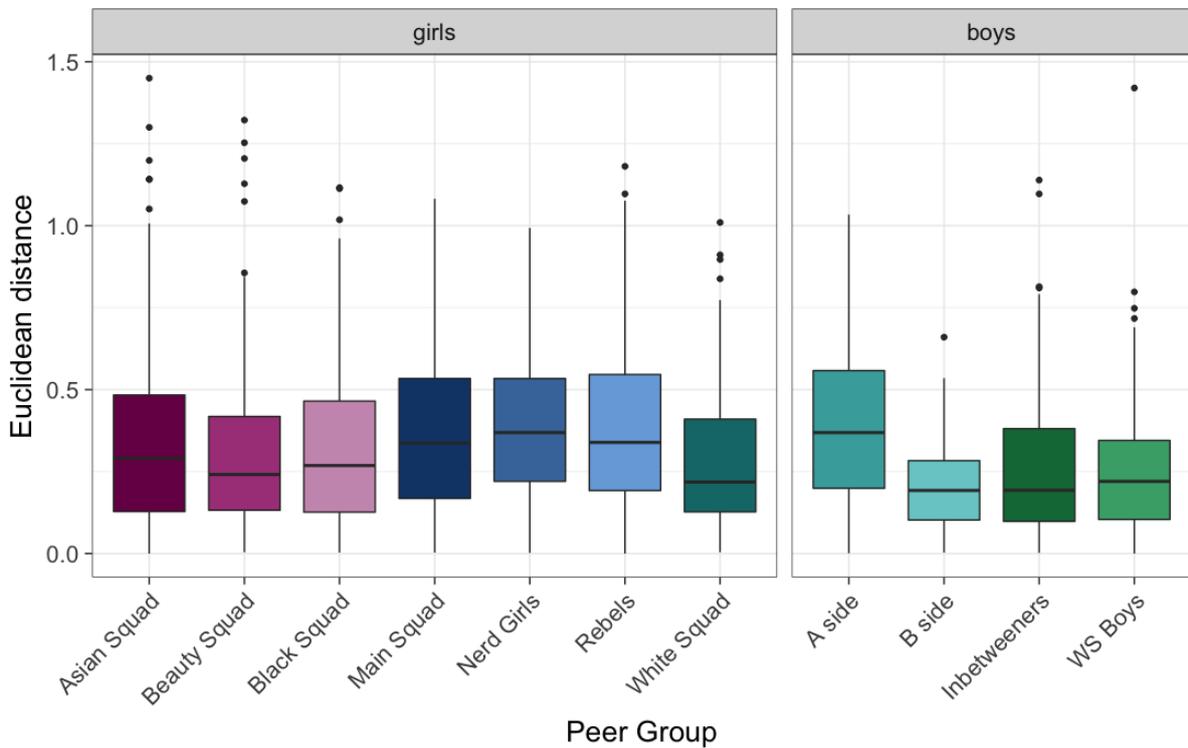


Figure 6.25: PRICE trajectory distributions by gender and peer groups

interquartile ranges for the girls suggests that there is not as much variation between peer groups and also within peer groups for the girls. It is also interesting to note that this is a different story to FACE. White Squad girls were distinctly different to the other girls when it came to trajectory of FACE, and there was quite a bit of intergroup variation, but this is not the case for PRICE. It is difficult to say why at this point in the analysis, but it is possible that PRICE is a more stable variable than FACE — this hypothesis will be returned to in due course.

6.7.3 Ethnicity

Figure 6.26 shows median Euclidean distance and distributions for PRICE trajectory by ethnic background. At first glance, it seems that intragroup variation for the boys and the girls is less apparent when grouped by ethnicity. There are some differences worth noting, though, and also some patterns emerge across genders for some ethnic groups.

For the boys, Black British boys have the highest median Euclidean distance, followed closely by South Asian boys. When grouped by ethnicity, the boys have similar interquartile ranges, meaning that intragroup variation is comparable for each ethnic background. White British and Black African boys have the lowest median Euclidean distance, suggesting that they have the shortest trajectories for PRICE. However, the difference is so small it is possible that this difference is not meaningful.

For the girls, South Asian girls have the highest median Euclidean distance, indicating that they have the longest trajectories. White British and Black British girls have the lowest median, which suggests that on average their trajectories are shorter. However, as with the boys, the differences are small here, so may not be meaningful. In addition, there are also some similarities

within ethnic groups across genders. South Asian girls and boys have higher median Euclidean distances than most of their peers, suggesting that South Asians tend to have longer trajectories across the board. White British speakers all have lower medians, suggesting that on the whole White British speakers' trajectories are shorter.

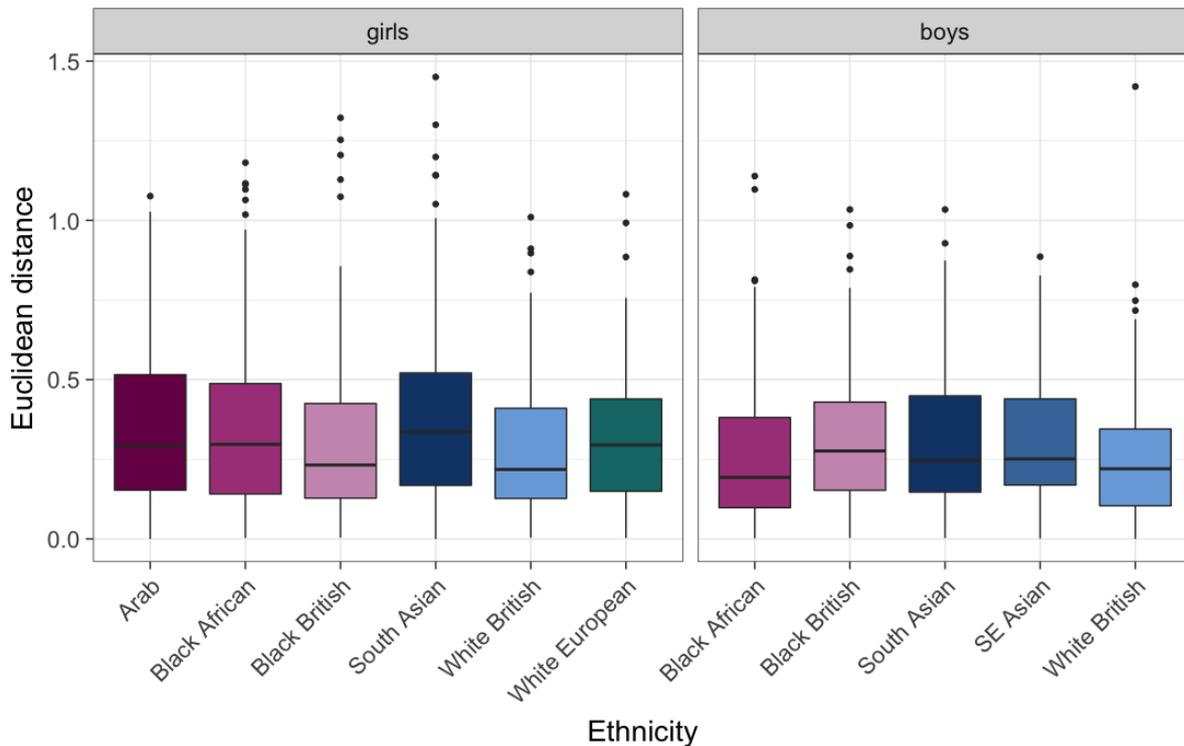


Figure 6.26: PRICE trajectory distributions for gender and ethnic background

Although there does appear to be some variation by ethnic group, if we look back at the vowel plot Figures 6.3 and 6.5 in Section 6.1, we can see that PRICE trajectory looks pretty similar for most girls, and on the whole looks more like a diphthong than FACE. This is also the case for the boys. Results here are interesting for two reasons. First, the pattern that emerges for PRICE is the opposite to what was found for FACE. For FACE, White British speakers had longer trajectories than their peers, whereas for PRICE they have the shortest. Second, overall there seems to be much less variation between ethnic groups for PRICE than was found for PRICE. This provides further support for the hypothesis that PRICE is a more stable variable, and also suggests that variation that does exist for PRICE is less socially meaningful.

6.7.4 Race

In Figure 6.27, we can see median and distribution of Euclidean distance for PRICE, split by race. Separating the boys and girls in this way produces more pronounced intragroup differences within the boys and within the girls, as well as more consistent patterns across genders. For both boys and girls, White speakers have the lowest median Euclidean distance, but also have the more narrow interquartile range. For the boys, this is not surprising as this group still represents only one speaker. But for the girls, this group includes White British and White European girls, so this suggests that there is less variation between these ethnic groups than

others. Asian girls have the highest median Euclidean distance on average, but also have the most broad interquartile range, suggesting that there is more intragroup variation for Asian girls. For interquartile range, the same pattern is evident for Asian boys, but contrastingly their median Euclidean distance is not much different to Black boys.

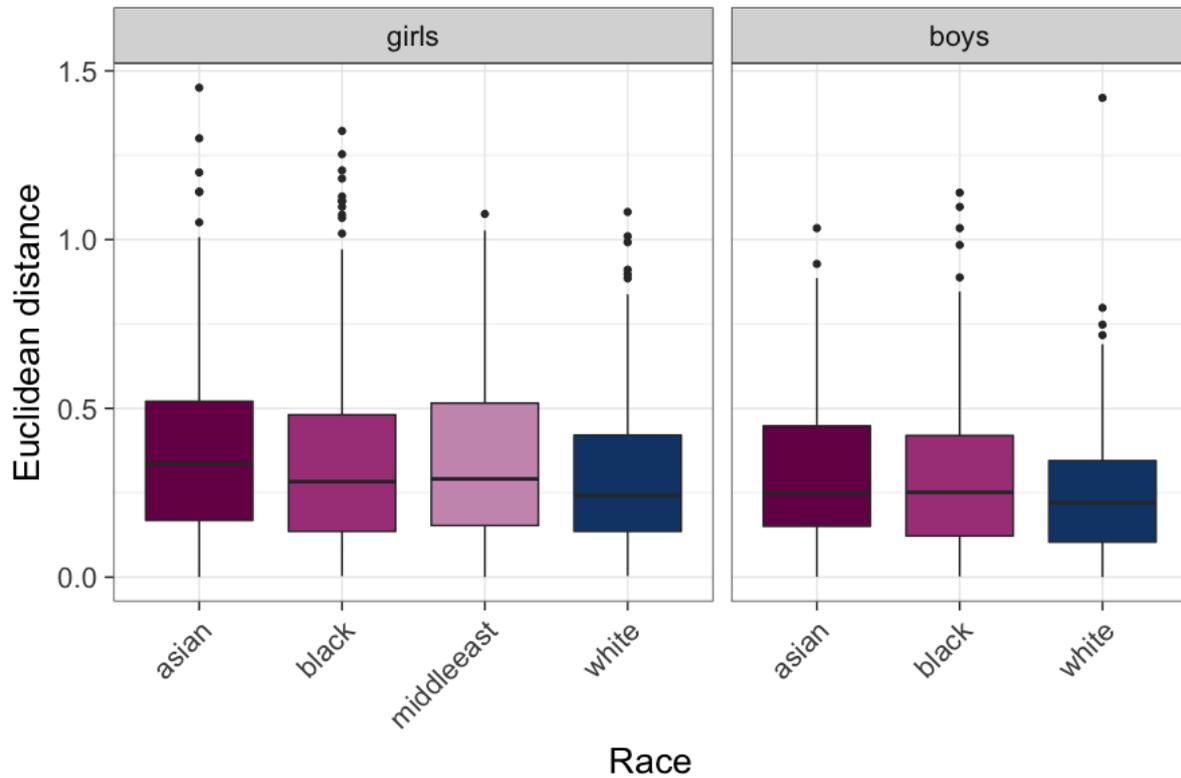


Figure 6.27: PRICE trajectory distributions by gender and race

When compared with results for PRICE onset shown in Figure 6.10, another pattern emerges: Asian girls not only have longer trajectories, but also more fronted onsets; White girls and boys have shorter trajectories but also backer onsets. Interestingly, this pattern is different to the one found for FACE. For FACE, a shorter trajectory was more likely for groups/speakers that had a more raised onset. However, for PRICE it seems that a more fronted onset aligns with a longer trajectory.

6.7.5 Diversity of friendship group

Diversity of friendship group and PRICE trajectory is shown in Figure 6.28. For the girls, the pattern that has emerged thus far, that a longer PRICE trajectory occurs for speakers whose onset is more fronted, is evident here also. Girls with a diversity score of 5 and 1 have the largest median Euclidean distance, indicating that these speakers on average produce longer trajectories for PRICE. Results here are also similar to other social factors in that there is not much difference amongst the girls when separating by diversity of friendship group. Not only are their median Euclidean distances similar, but also interquartile ranges. There are more outliers for girls with a score of 1 and 5, but this is likely because there are more girls who fall into these groups who are from different peer groups and ethnic backgrounds. For example, girls in the

Asian Squad and the Black Squad all have a diversity score of 1, but there is some difference between these groups (as shown in Figure 6.25).

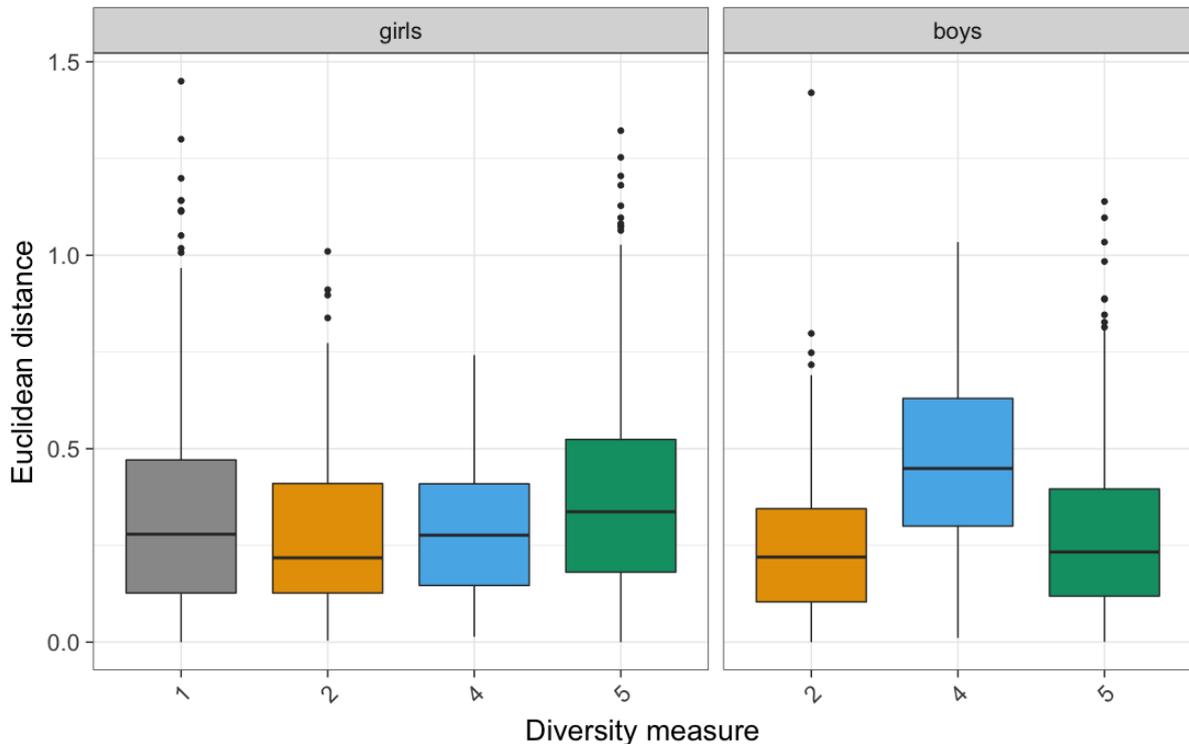


Figure 6.28: PRICE trajectory distributions by gender and diversity of friendship group measure

The difference between the girls is much less stark when compared with the boys. Boys who have a diversity score of 4 also have, on average, much longer trajectories than the other boys, indicated by the median Euclidean distance being much higher. However, the majority of the boys have a diversity score of 5: Sanjit (who is South Asian and a member of the A side) is the only boy with a diversity score of 4, and Zach (White British and the only White Squad boy here) is the only boy with a score of 2. From this plot, then, it seems that it is individual speaker differences we are seeing, rather than a pattern relating to diversity of friendship group. In addition, these results provide further evidence that the friendship network diversity measure used by Cheshire et al. (2011) is not always a good predictor of variation, at least amongst the adolescents at Riverton.

6.7.6 Length of residency

Figure 6.29 shows the median Euclidean distance of PRICE by length of residency. For the girls, there does not seem to be any discernible pattern. There is little variation in PRICE trajectory length by length of residency for them, which is not surprising given the lack of variation when examining other social factors. For the boys, however, we see a stronger pattern which mirrors the findings for PRICE onset. The boy with the shortest length of residency, Sanjit, also has the longest PRICE trajectory on average. This again suggests that an innovative PRICE (that is, fronted with a shorter trajectory) could be a feature that is diffused via dialect contact rather than language contact from heritage languages. However, as this finding is only specific

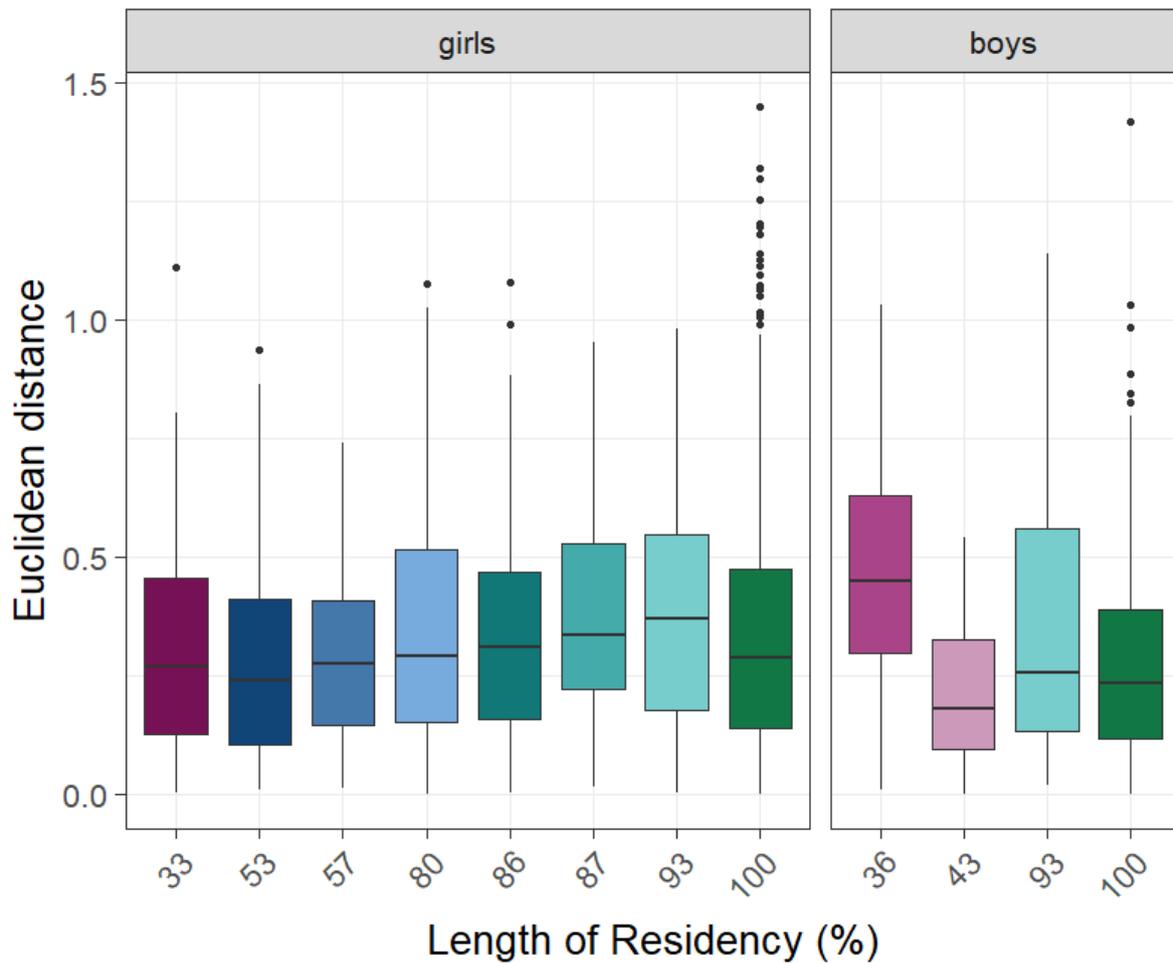


Figure 6.29: PRICE trajectory by gender and length of residency

to one speaker, this must be taken tentatively.

6.7.7 Stylistic variation

For the final social factor in this analysis, we now look at stylistic variation. Figure 6.30 shows the distribution for Euclidean distance of each stylistic context by gender. Thus far, this analysis has found some differences between the girls and boys: boys tend to have a lower median Euclidean distance as their PRICE trajectories are slightly shorter, but not monophthongal in the way that FACE trajectories are. Looking at Figure 5.33, this difference is still apparent. There is a clear difference between stylistic contexts, with the word list eliciting much higher Euclidean distances (and therefore longer trajectories) for boys and girls. It is also notable that the results for PRICE Euclidean distance are the only results that follow Labov's (1971) attention-to-speech model for all three stylistic contexts: for both boys and girls, on average, the smallest Euclidean distances occur in the casual interview context, followed by the reading passage, with the word list eliciting the largest Euclidean distance.

To a degree, this pattern is replicated when looking at peer group. Figure 6.31 shows that, for three of the four boy peer groups and four of the seven girl peer groups, results for Euclidean

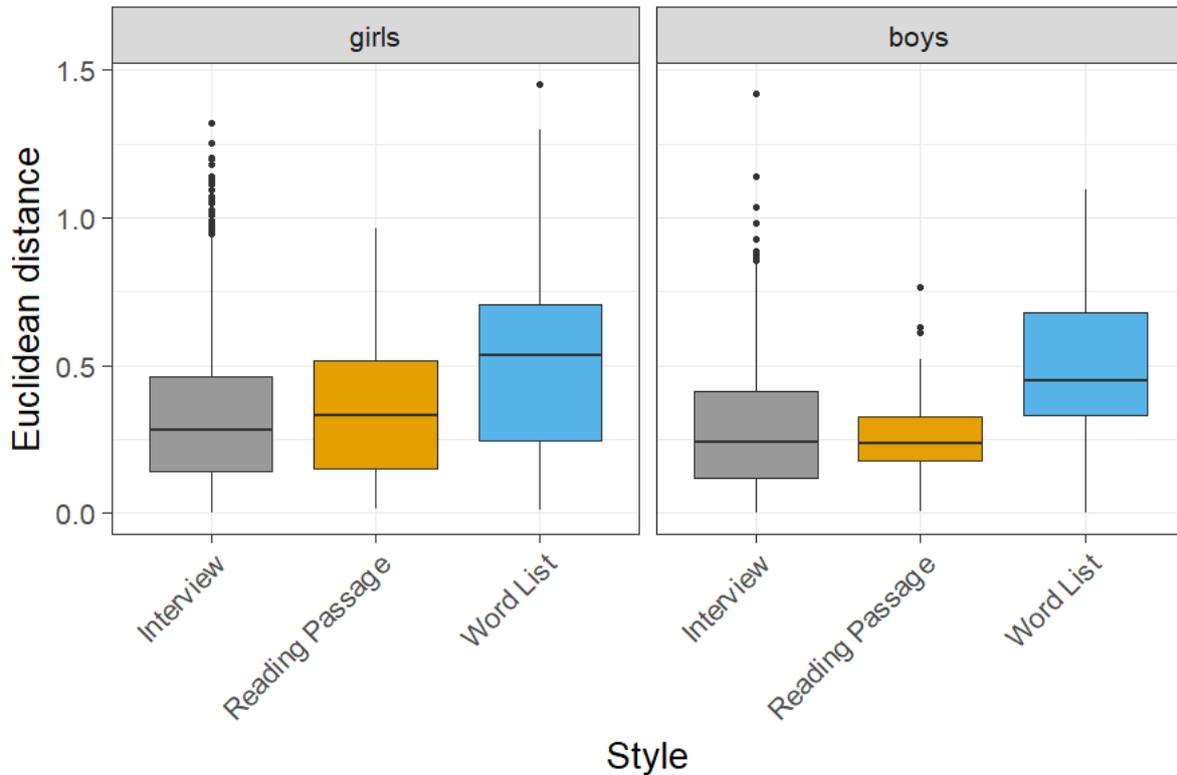


Figure 6.30: Stylistic variation of PRICE trajectory by gender

distance of PRICE follow the attention-to-speech model. Interview elicits the shortest trajectory, followed by the reading passage and then word list. Although not every peer group follows this model for all three stylistic contexts, almost all follow the model for interview and word list: for every peer group (except the White Squad), the median Euclidean distance is lower in the interview context than it is during the word list, indicating that trajectories are on average shorter in the interview context. That the reading passage style is inconsistent across groups aligns with the previous findings for FACE, and as well as previous work (Milroy 1980; Stuart-Smith et al. 2007). Furthermore, for most peer groups, the difference between interview and reading passage is much smaller than the difference between reading passage and word list. In other words, the interview and reading passage might not be that different stylistically for this variable, but the word list is distinctly different to both the reading passage and interview. This is not the case, however, for B side and White Squad. The median Euclidean distance and interquartile ranges are very close across stylistic contexts for both peer groups, suggesting that these peer groups vary the least stylistically.

Looking lastly at Figure 6.32, these patterns are largely mirrored when looking at ethnicity, which is not surprising given the overlap between ethnic background and peer group. All ethnic groups except White British girls have a higher Euclidean distance in the word list context than in the interview. Again, results for reading passage are inconsistent, but a slightly different pattern emerges. For the boys, the reading passage median Euclidean distance is either the same as or higher than the interview for all ethnic groups. In other words, boys' PRICE trajectory gets longer as attention-to-speech increases, which suggests that the boys more consistently follow the

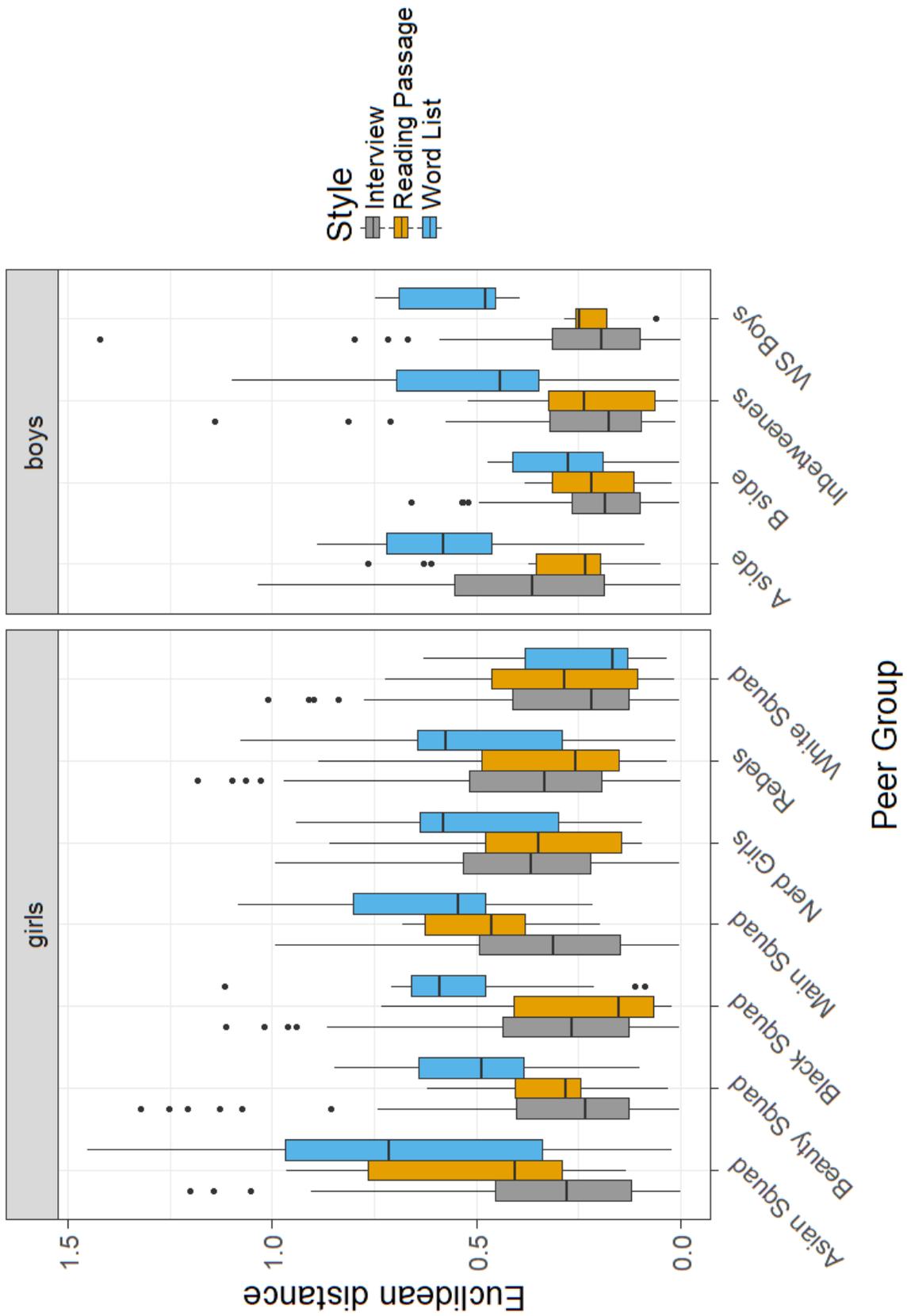


Figure 6.31: Stylistic variation of PRICE trajectory by gender and peer group

attention-to-speech model for all three contexts when separated by ethnicity. For the girls, we see that the reading passage elicits a longer PRICE trajectory than the interview for most groups: Black British, South Asian, White European, and White British have higher median Euclidean distance in the reading passage than the interview, but Arab and Black African do not. It should be noted, though, that White British girls do not seem to be following the attention-to-speech model, as the median Euclidean distance for word list is comparable with the interview, and interquartile range is similar for all three contexts. As was suggested by the peer group results, these girls seem to have little stylistic variation when it comes to PRICE trajectory. So, only three of the ethnic groups amongst the girls seem to align with Labov's predictions.

When compared with the findings for PRICE onset, there a greater degree of stylistic variation for PRICE trajectory, and results more consistently align with Labov's attention-to-speech model. The median Euclidean distance for PRICE is much higher during the word list than the other stylistic contexts, which possibly implies that a long PRICE trajectory is more socially meaningful than a fronted PRICE onset position.

6.7.8 Summary of PRICE trajectory social factors

Apart from stylistic variation, descriptive results being to illuminate less interspeaker variation for PRICE trajectory than PRICE onset when it comes to social factors. Nevertheless, there are some noteworthy findings:

- There seems to be evidence of a reduced PRICE trajectory for some speakers. The girls have longer Euclidean distances than the boys for the PRICE vowel, although the difference is small, so will likely follow the results for FACE and not be significant.
- When looking at peer groups and ethnicity, girls generally have broader interquartile ranges, indicating that there is more variation in trajectory lengths within the girls than the boys.
- Patterns for diversity of friendship group appear to contradict the work of Cheshire et al. (2011): descriptive results do not show a linear relationship between increased diversity of friendship networks and a shorter PRICE trajectory. This aligns with the findings for FACE as well as findings for PRICE onset.
- Stylistic variation patterns follow the attention-to-speech model fairly consistently. When looking at gender separately, the peer group and ethnicity, the interview context elicits the shortest trajectory, followed by reading passage and then word list.
- Overall, PRICE trajectory is shortened for some speakers but not to the extent that FACE trajectory is, and on the whole there is less interspeaker variation.

Thus far, results for FACE onset and trajectory, and PRICE trajectory have indicated gendered, ethnically-marked MLE styles in this community. However, the descriptive findings for PRICE trajectory suggest less distinct social differences. This could indicate that a monophthongised PRICE is not ethnically-marked in the way that a monophthongised FACE is and thus varies less between speakers. Findings also add weight to the argument that PRICE has stabilised — there seems to be a fronted PRICE vowel with a shortened trajectory still in use in East London, as has been found previously by Fox (2007), Kerswill et al. (2008). That there is less social differentiation for PRICE onset and trajectory could suggest that PRICE is now a marker of working-class East London English, so is more readily used throughout the community. These hypotheses will be returned to in the sections on PRICE trajectory linguistic factors and then

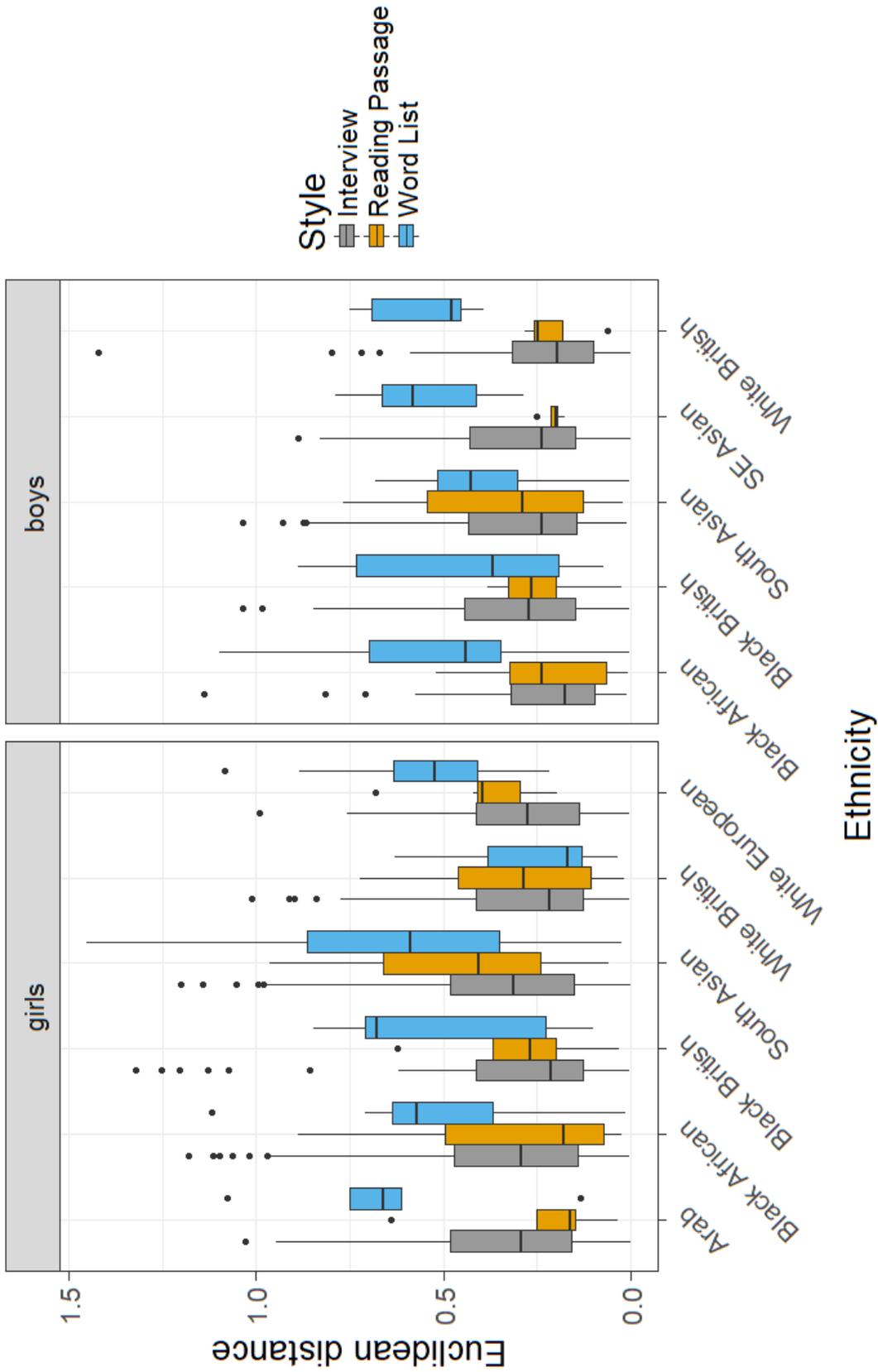


Figure 6.32: Stylistic variation of PRICE trajectory by gender and ethnic background

tested in the inferential analysis, before being brought together in the chapter summary in Section 6.10.

6.8 PRICE trajectory: linguistic factors

In addition to social factors, the analysis of PRICE trajectory also necessarily considers linguistic factors. As with the previous analysis sections, the following linguistic factors will be examined: preceding and following phonological environment, word position, lexical category, and duration. In analysis Section 6.5, linguistic constraints did seem to predict degree of fronting: onsets were more front when preceded by voiceless stops and laterals, and followed by nasals, voiced stops, and voiceless fricatives. As shorter PRICE trajectories are also innovative, the analysis that follows will investigate these constraints further.

6.8.1 Phonological context

Figure 6.33 is a box plot showing Euclidean distance on the y axis — the lower the Euclidean distance, the more reduced the trajectory. Preceding phonological context is on the x axis, voiced phonemes outlined in black, and voiceless in grey. Looking first at the lower Euclidean distances, as these measurements indicate a leaning towards the more innovative, shorter trajectory, we can see that preceding voiceless stops have the lowest median Euclidean distance, followed by nasals. At the other end of the spectrum, voiced fricatives have a higher median Euclidean distance, indicating a preference for longer PRICE trajectory.

Figure 6.34 shows preceding context by gender, and results indicate that constraints are consistent when separating by gender: for both boys and girls, preceding voiceless stops have the lowest median F_2 for PRICE, and voiced fricatives have the highest. These constraints are led by the boys, as the differences in median F_2 by preceding context are quite stark in comparison to the girls; whilst the boys' medians are quite distinct, the girls' are much closer together, indicating an interaction between gender and preceding phonological context. Preceding voiceless stops do still have the lowest median Euclidean distance for the girls, but it is only slightly lower than nasals and approximants. Preceding voiced and voiceless fricatives as well as laterals all have higher medians, but again the difference is very small. So it seems that there might not be a consistent constraint to predict a longer trajectory, but shorter PRICE trajectory seems to be favoured by preceding voiceless stops.

These results align with findings for F_2 onset. In Section 6.5, Figure 6.17 showed that the median normalised F_2 for PRICE was most front when preceded by voiceless stops, and farthest back when preceded by voiced fricatives. The findings for preceding environment of PRICE onset and trajectory suggest that a shorter, more front PRICE vowel occurs when preceded by voiceless stops. In addition, this provides further evidence that the realisations of PRICE found in this dataset, particularly for the boys, follow the constraints noted by Fox (2015), where innovative variants were preceded by voiceless stops.

For following phoneme, Figure 6.35 shows that lowest median Euclidean distance is for following laterals, and the highest is for approximants and voiced stops. There is, however, a high degree of variation for following approximants, indicated by the broad interquartile range, and so this constraint might not be consistent.

Separating by gender sheds more light on this. Looking at Figure 6.36, we can see that for the boys, the lowest median Euclidean distances are for following voiceless fricative, laterals, and nasals, and the highest median Euclidean distance is for voiced fricatives. For the girls,

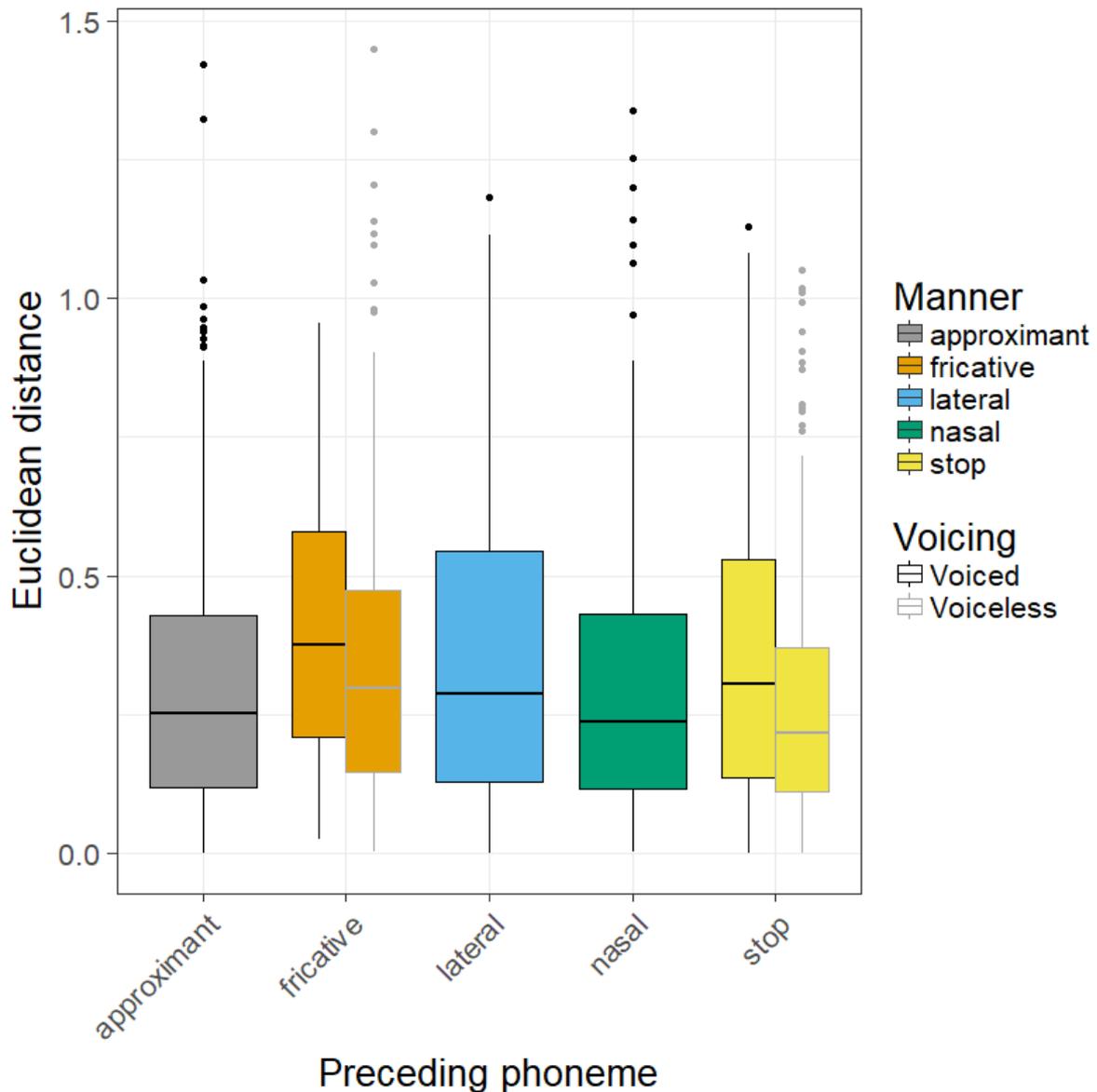


Figure 6.33: PRICE Euclidean distance by preceding phonological context

following laterals also have the lowest median Euclidean distance, but following voiced stops and approximants have the highest. This again demonstrates an interaction, this time between gender and following phonological context. However, we again see a broad interquartile range for approximants, indicating a high degree of variability for Euclidean distance when followed by an approximant.

The constraints found for PRICE trajectory by looking at following environment do not seem to support findings for PRICE onset or the findings of Fox (2015). In Section 6.5 it was demonstrated that in this dataset, the more innovative, fronted PRICE onset was favoured by following nasals and voiced stops, and a more traditional backed onset was favoured by following laterals, which aligned with the findings of Fox (2015). However, the results in Figure 6.36 show

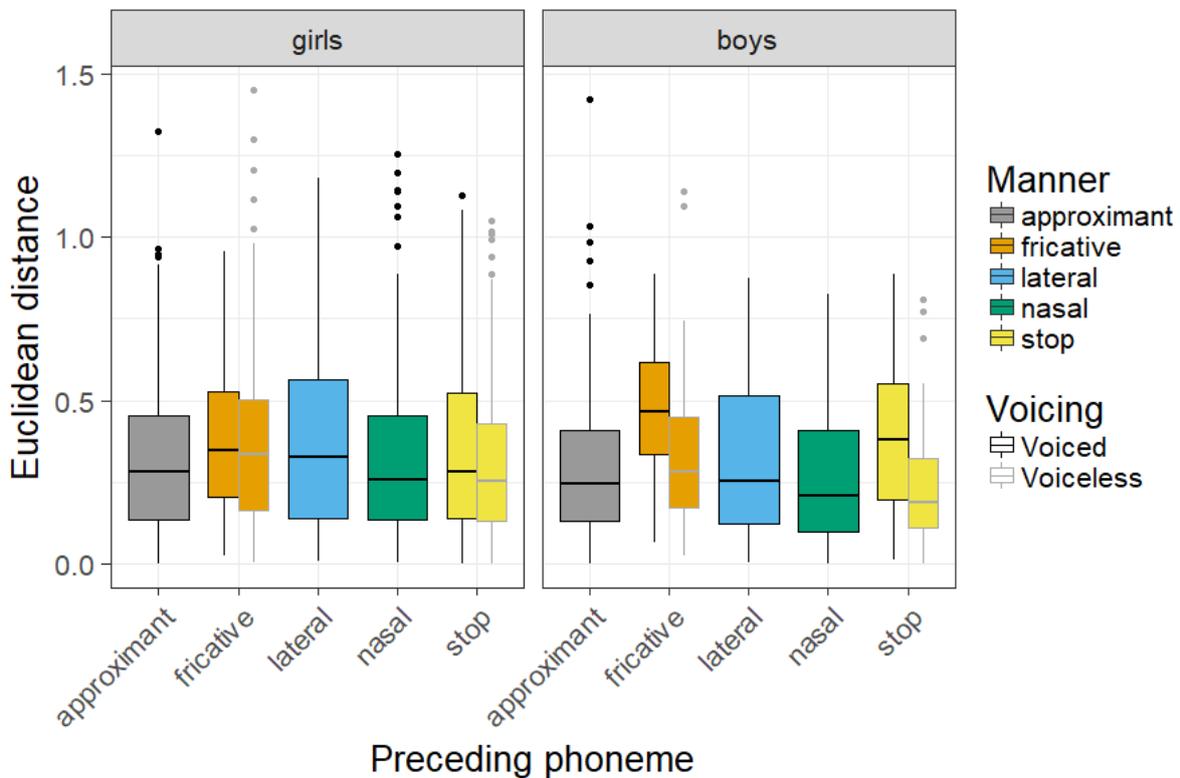


Figure 6.34: PRICE Euclidean distance by preceding phonological context and gender

the opposite: an innovative shorter trajectory is favoured by following laterals, and a traditional longer trajectory is favoured by voiced fricatives (for the boys) and voiced stops (for the girls).

In sum, there are two key findings here. First, preceding environment as a linguistic constraint of PRICE realisation seems pretty consistent across the current dataset and with the previous literature, for both PRICE onset and PRICE trajectory. On the other hand, following environment seems to be a less robust predictor: constraints for PRICE onset align with Fox (2015), but constraints for PRICE trajectory do not.

6.8.2 Word position

Moving on to word position, above findings for PRICE onset suggested that innovative fronted realisations were more common word medially. Fox (2015), on the other hand, found no effect for word position. For Euclidean distance, then, there may be no effect for word position as found by Fox (2015), or results might align with the findings for PRICE onset in the current dataset, with shorter Euclidean distance being favoured in word medial position.

Figure 6.37 shows the distribution of Euclidean distance across the entire dataset. Results indicate that, as found by Fox (2015), there seems to be little to no effect for word position. Median Euclidean distance is slightly lower in word final position, but the difference is so small it is hard to know whether this is meaningful.

Looking next at boys and girls separately in Figure 6.38, there seem to be two different patterns at play. Boys' Euclidean distance is shortest word initially, and longest word finally, whereas girls' Euclidean distance is shorter word finally, and longest word medially. Neither of

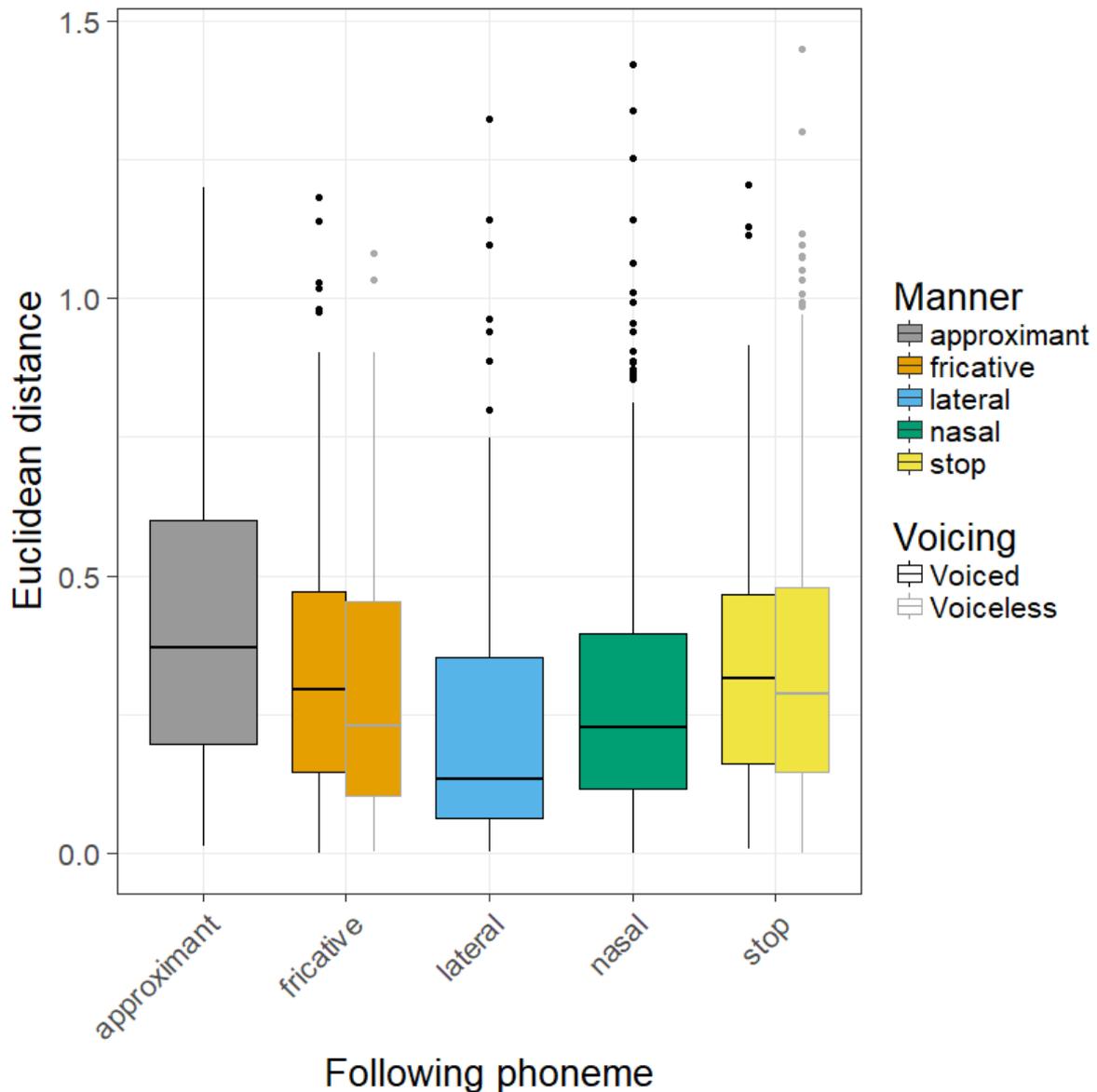


Figure 6.35: PRICE Euclidean distance by following phonological context

these patterns follow previous constraints noted by Fox (2015) or those noted above for PRICE onset, so it seems likely that these findings are inconclusive, but they will be investigated further as part of the multivariate analysis in Section 6.9.

6.8.3 Lexical category

Figure 6.39 shows variation of PRICE trajectory by lexical category across the entire dataset. Box plots are quite similar, but function words have a slightly lower median Euclidean distance, indicating a shorter trajectory. This pattern is mirrored when split by gender. In Figure 6.40 it is apparent that for both boys and girls, function words have a lower median Euclidean distance.

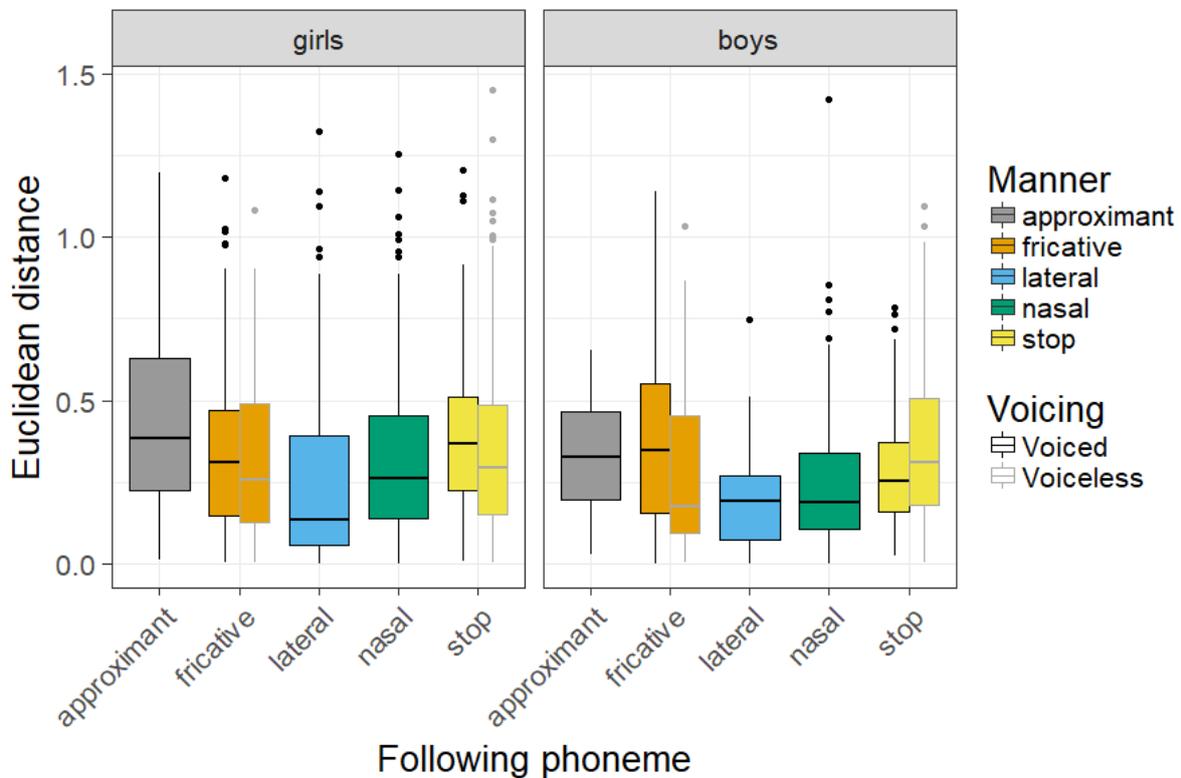


Figure 6.36: PRICE Euclidean distance by following phonological context and gender

6.8.4 Duration

Finally, duration is examined. As with PRICE F_2 onset, results are presented using a scatter plot with a line of best fit and confidence interval. Figure 6.41 shows that, for both boys and girls, Euclidean distance increases as duration increases. The steep slope indicates that the relationship between these two variables is strong. This suggests that, unlike FACE, monophthongisation of PRICE is impacted by vowel duration for both boys and girls.

6.8.5 Summary of PRICE trajectory linguistic factors

The findings for linguistic factors can be summarised as follows:

- The overall linguistic constraints that emerge for a shorter PRICE trajectory are: preceding voiceless stops and nasals, following laterals and nasals, function words, word final position. This means that words like *tile*, or *kind*, *pie*, or *why* are more likely to have a shorter PRICE trajectory.
- There seems to be little to no effect of word position on PRICE trajectory.
- Functional items also elicit a shorter trajectory for boys and girls.
- A longer duration predicts a longer PRICE trajectory.

The linguistic constraints found for PRICE trajectory align with the descriptive findings for PRICE F_2 onset. Although regression results for PRICE onset did not come out as significant, there seems to be an association between a fronted PRICE onset and shortened trajectory. These constraints

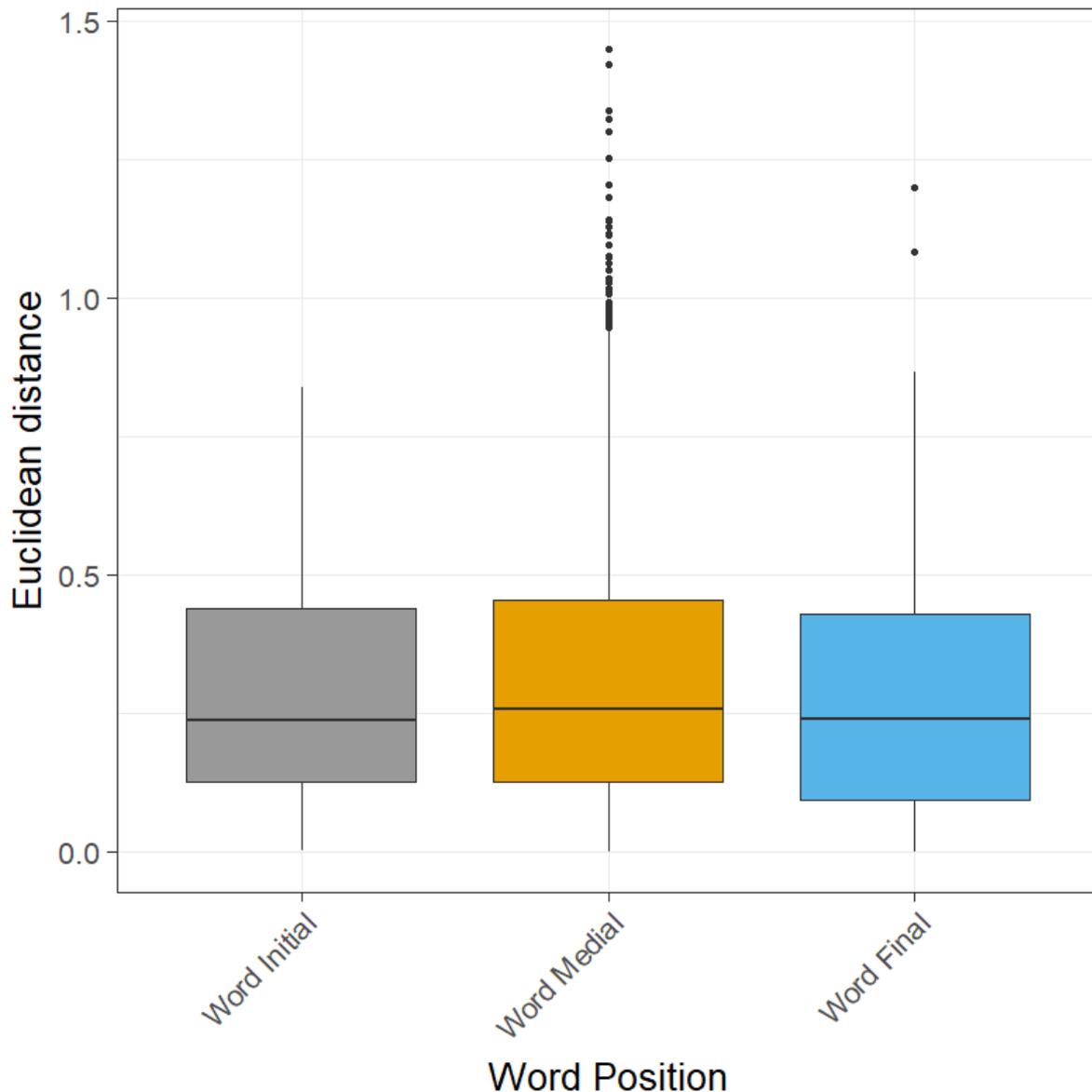


Figure 6.37: PRICE Euclidean distance by word position

also support the findings of Fox (2015), who found innovative variants of PRICE were favoured by preceding voiceless stops and following fricative, nasal, or voiced stop. Interestingly, Fox (2015) described three innovative variants of PRICE, one of which was monophthongal. However, the findings of this chapter indicate that whilst the trajectory is short, monophthongised PRICE is not present at Riverton. This could be further evidence that the sources of innovations for FACE and PRICE are different. Above it was hypothesised that FACE has advanced further in part due to language contact. Language contact is less likely to be a factor in the shifts for PRICE, so uptake of the innovative variant outside of Hackney and Tower Hamlets would have to come purely through peer-to-peer diffusion. It is possible that, whilst still undergoing change, there were monophthongal realisations (as in Fox 2015), but now it has stabilised a monophthongal

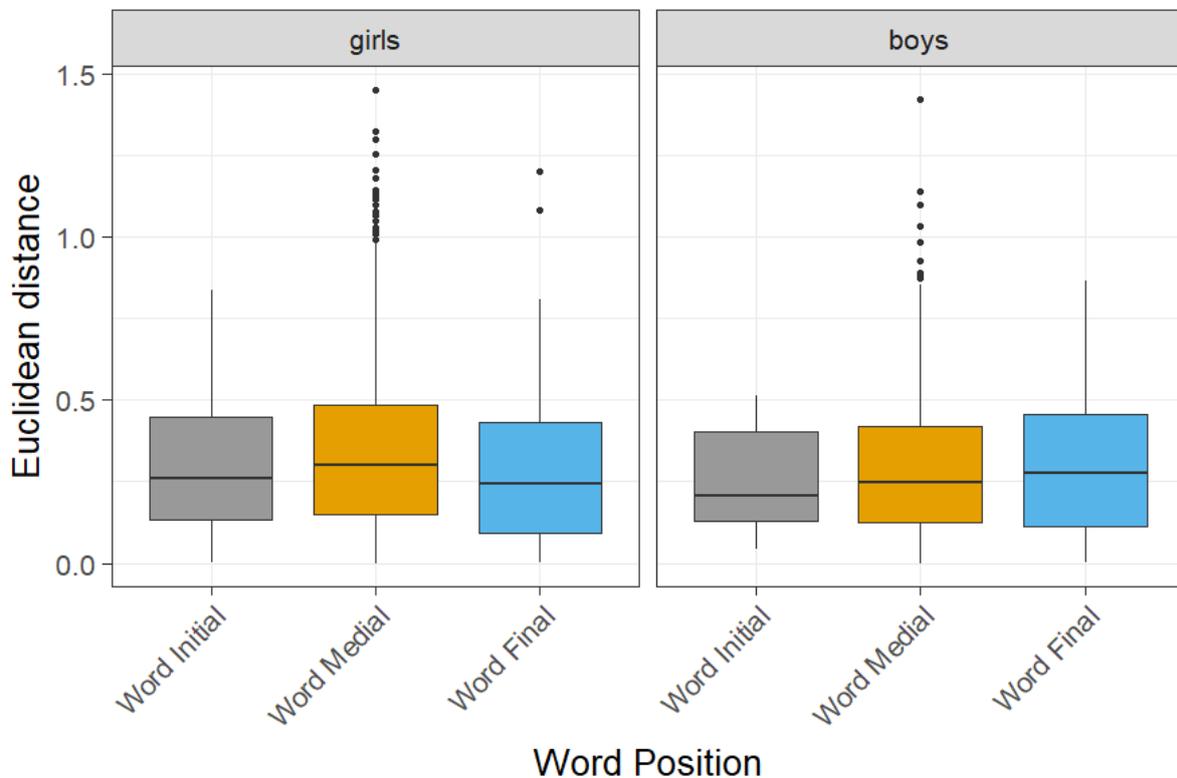


Figure 6.38: PRICE Euclidean distance by word position and gender

PRICE has fallen out of favour for a less marked shortened trajectory.

6.9 PRICE trajectory: multivariate analysis

For the final multivariate analysis, regression models include PRICE trajectory as the dependent variable, in order to explore the degree to which PRICE is monophthongised. As with previous regression models, independent variables are linguistic and social factors. Linguistic factors included in the models mirror the linguistic factors described above. Social factors included in the models were peer group orientation to school, ethnicity, length of residency, diversity of friendship group, stylistic context. Previous literature (e.g. Kerswill et al. 2008) and descriptive findings in this thesis indicate that White British girls would likely be more conservative for this variable in that they would have longer trajectories, and ethnic minority boys would be more likely to have innovative, shorter trajectories. The entire data set is modelled first, and a series of model comparisons are run for social factors. Girls and boys are then examined separately.

6.9.1 Regression models for PRICE trajectory

As with F_2 onset, a baseline model was run with different social factors. An example of the model is below. Each model contained the same linguistic factors: preceding phoneme, following phoneme, word position, lexical category, and duration. Social factors in each model were gender, peer group orientation, and style, ethnicity, race, or diversity of friendship group.

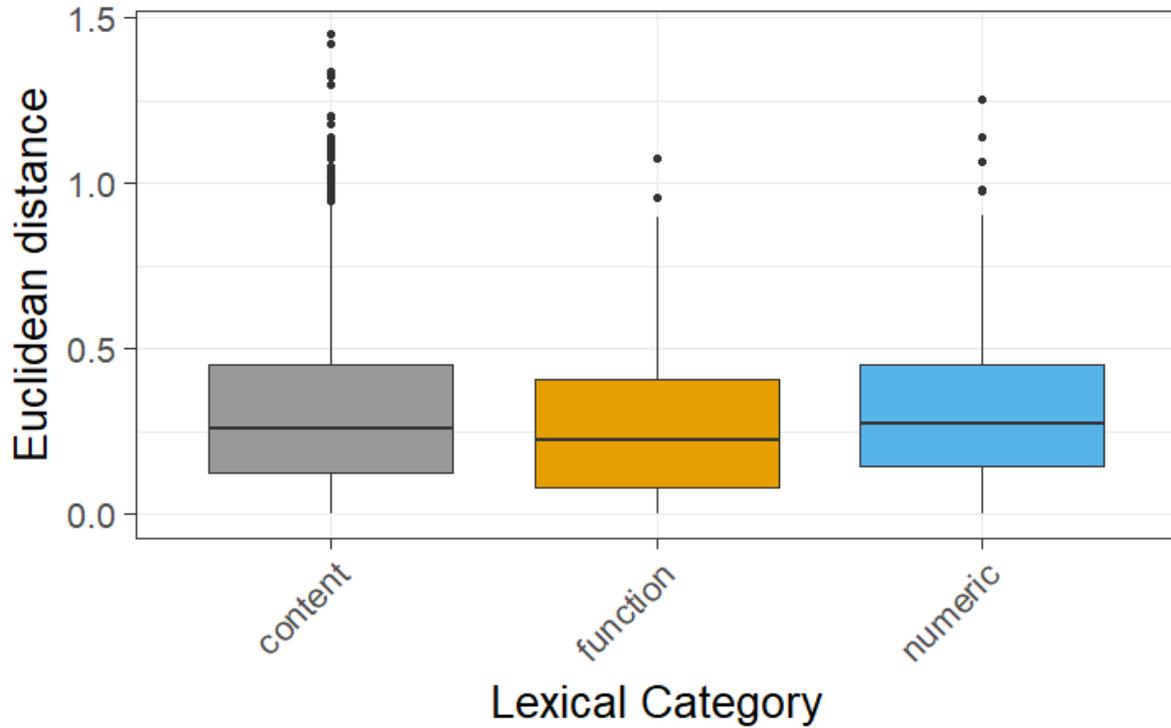


Figure 6.39: PRICE Euclidean distance by lexical category

Example model

Dependent variable: Euclidean distance

Random effects: speaker, word

Fixed effects: gender, peer group orientation, [ethnicity/length of residency/diversity of friendship group], stylistic context, preceding phoneme, following phoneme, word position, lexical category, duration

Table 6.8 presents model comparison results. Diversity of friendship group comes out as the best model, with the lowest AIC (-786.2) and BIC (-616.3). This is surprising as this social factor has been largely insignificant throughout this thesis, but it could just be reflective of the fact that social factors are less clear when looking at the dataset as a whole.

	AIC	BIC
Ethnicity	-782.7	-607.2
Diversity of friendship network	-786.2	-616.3
Length of residency	-781.4	-577.6

Table 6.8: Model comparisons for PRICE trajectory

Table 6.9 shows linear mixed-effects regression results for PRICE trajectory. Gender is not significant, which mirrors the findings for FACE and confirms descriptive findings for PRICE that while boys and girls have short trajectories and there are differences, these differences are

	PRICE trajectory
	Estimate (Standard Error)
<i>Intercept</i>	0.101 . (0.058)
Gender	
Girls	0.019 (0.028)
Diversity	
2	0.036 (0.062)
4	0.090* (0.042)
5	0.020 (0.027)
Orientation	
Anti-neutral	-0.094 (0.063)
Pro-neutral	0.001 (0.033)
Pro-school	0.074* (0.029)
Style	
Reading passage	0.007 (0.025)
Word list	0.088*** (0.024)
Preceding context	
Lateral	0.016 (0.026)
Nasal	-0.013 (0.023)
Voiceless stop	0.00001 (0.026)
Voiced stop	-0.039 (0.028)
Voiceless fricative	-0.015 (0.021)
Voiced fricative	0.014 (0.032)
Following context	
Lateral	-0.142*** (0.039)
Nasal	-0.111** (0.034)
Voiceless stop	-0.054 (0.034)
Voiced stop	-0.050 (0.035)
Voiceless fricative	-0.104** (0.037)
Voiced fricative	-0.086* (0.035)
Lexical category	
Function	-0.040* (0.020)
Numeric	-0.018 (0.031)
Word position	
Medial	0.015 (0.032)
Final	0.013 (0.039)
Duration	2.153*** (0.099)
AIC	-786.173
BIC	-616.313

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 6.9: Full linear regression model for PRICE trajectory including diversity of friendship network.

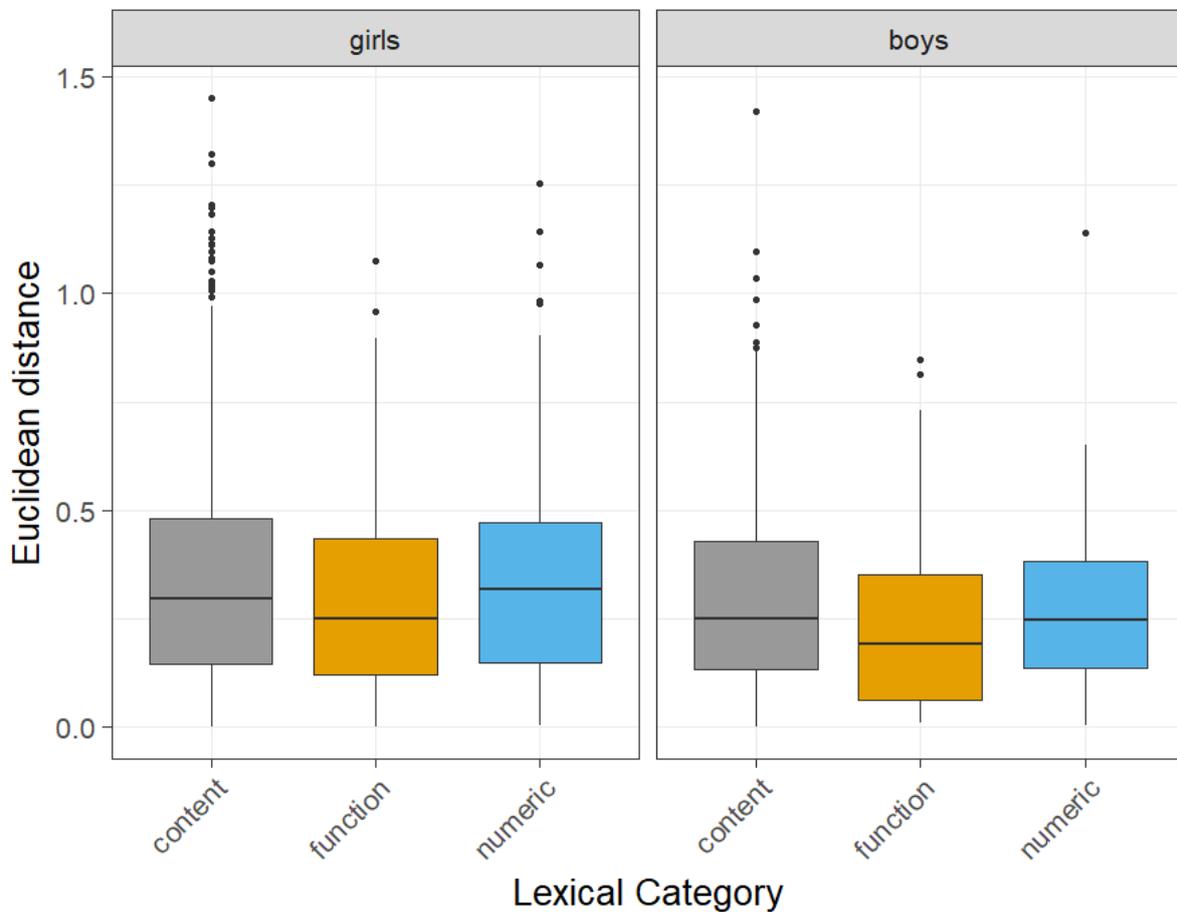


Figure 6.40: PRICE Euclidean distance by lexical category and gender

small. For diversity of friendship group, speakers with a friendship diversity measure of 4 have significantly longer trajectories. This is unexpected given the findings of Cheshire et al. (2011) that a diverse friendship group makes a speaker more likely to use innovative features. Given the lack of significance of this factor elsewhere in this data, this confirms that the work that diversity of friendship group is doing in the model is a false effect that is likely a result of modelling the entire dataset.

Peer group orientation to school is a more convincing result. Pro-school peer groups, that is A side for the boys and Asian Squad and Nerd Girls for the girls, have significantly longer trajectories than the intercept, anti-school peer groups B side, Inbetweeners, White Squad boys, and Rebels. We also see an effect for stylistic context, as the word list elicits a significantly longer trajectory than the intercept (interview contexts). With regards to linguistic factors, preceding environment does not do any work in the model. For following context, however, we see some significant effects. Fricatives, nasals, and laterals all predict a significantly shorter trajectory for PRICE, with following laterals the most significant. Function words also predict a shorter trajectory, and duration is a highly significant predictor of a longer PRICE trajectory.

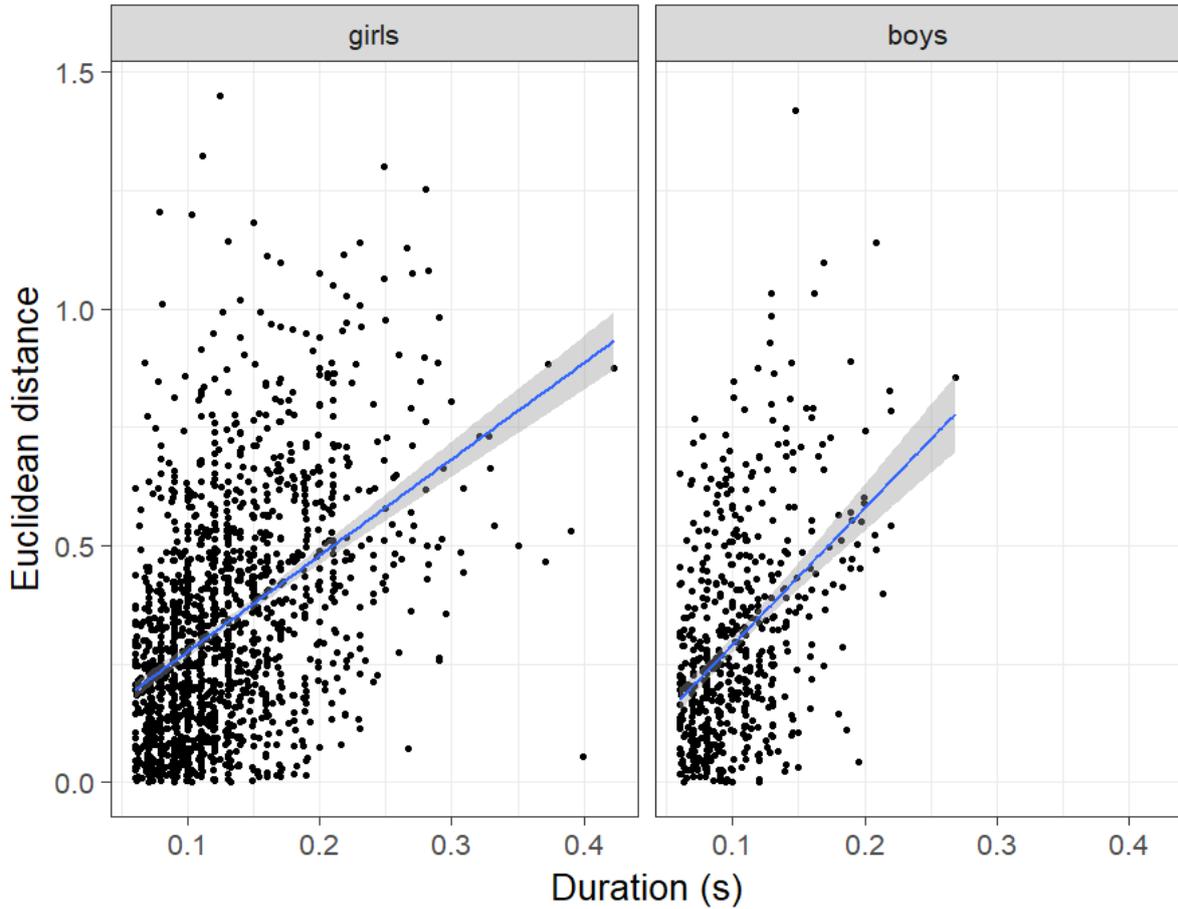


Figure 6.41: PRICE Euclidean distance by duration and gender

6.9.2 Regression models for girls' PRICE trajectory

As with the other multivariate analyses presented in this thesis, data are modelled separately for boys and girls. A model comparison for the girls' data is shown in Table 6.10. Peer group orientation emerges as the best model, with the lowest AIC (-447.7) and BIC (-308.8).

	AIC	BIC
Ethnicity	-443.7	-299.4
Diversity of friendship network	-445.1	-306.1
Length of residency	-429.9	-269.6
Peer group orientation	-447.7	-308.8

Table 6.10: Model comparisons for girls' PRICE trajectory

Table 6.11 presents significant regression results for the girls' PRICE trajectory. For social factors, the anti-neutral peer group White Squad girls have a significantly shorter trajectory

	Girls' PRICE trajectory
	Estimate (Standard Error)
<i>Intercept</i>	0.196*** (0.057)
Orientation	
Anti-neutral	-0.106** (0.036)
Style	
Word list	0.079** (0.028)
Following context	
Lateral	-0.175*** (0.047)
Nasal	-0.137** (0.042)
Voiceless stop	-0.096* (0.041)
Voiceless fricative	-0.141** (0.045)
Voiced fricative	-0.126** (0.043)
Lexical category	
Function	-0.046* (0.022)
Duration	2.033*** (0.110)
AIC	-447.703
BIC	-308.757

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 6.11: Significant regression results for girls' PRICE trajectory including peer group orientation.

than the intercept, anti-school peer group Rebels. On the one hand, this is surprising as this peer group were the least innovative for FACE. I would argue that this result is not meaningful given the lack of variation we saw in the descriptive findings, and the fact that all girls have a relatively short trajectory for PRICE.

We see similar results for linguistic factors as we saw in the full model. No preceding contexts are significant, but almost all following contexts predict a significantly shorter PRICE trajectory. This indicates that the intercept, following approximant, has a longer trajectory than other contexts, and that other contexts elicit similarly short trajectories. Function words have significantly shorter trajectories than the intercept, content words, indicating that innovative PRICE is more likely in more frequent words. Finally we see again that a longer duration predicts a longer trajectory.

6.9.3 Regression models for boys' PRICE trajectory

For the boys, orientation of peer group is also the better model. Table 6.12 shows model comparison results, and orientation to school has the lowest AIC (-353.1) and BIC (-248.5).

Regression results for the boys indicate that boys in the pro-school peer group the A side have significantly longer PRICE trajectories than their anti-school peers. We also see that, like the girls, word list stylistic context elicits a significantly longer trajectory. There are few linguistic factors that come out as significant, however. Preceding voiced stop predicts a shorter trajectory than the intercept, as does a following lateral. Duration significantly predicts a longer trajectory

	AIC	BIC
Ethnicity	-343.8	-230.4
Diversity of friendship network	-350.1	-241.0
Length of residency	-352.2	-238.8
Peer group orientation	-353.1	-248.5

Table 6.12: Model comparisons for boy’s PRICE trajectory

Boys’ PRICE trajectory	
	Estimate (Standard Error)
<i>Intercept</i>	0.055 (0.082)
Orientation	
Pro-school	0.134* (0.045)
Style	
Word list	0.099** (0.036)
Preceding context	
Voiced stop	-0.078 . (0.041)
Following context	
Lateral	-0.116* (0.063)
Duration	2.761*** (0.226)
AIC	-353.148
BIC	-248.477

Significance codes: . p<0.1; *p<0.05; **p<0.01; ***p<0.001

Table 6.13: Significant regression results for boys’ PRICE trajectory including peer group orientation.

also. The linguistic constraints contradict the findings of Fox (2015), which could suggest that boys are using a monophthongal variant that is different to the girls (and the variants noted by Fox (2015)) and therefore follows different linguistic constraints.

6.9.4 Summary of PRICE trajectory multivariate analysis

PRICE trajectory is less variable than FACE trajectory, and (unlike FACE) it also follows some of the linguistic constraints noted by Fox (2015). Although not modelled, there are clear interactions between gender and other social factors. For the girls, the anti-neutral orientation to school significantly predicts a longer trajectory. There is also variation within the boys, such that pro-school boys more likely to produce a shorter trajectory. These findings suggest that there are different social meanings at play for PRICE. Whilst a shorter, raised FACE could be a marker of ethnic minority masculinity and a longer, lower FACE marks a White British girl identity, the social differentiation for PRICE trajectory seems to be more subtle. There are undoubtedly differences within genders, and the statistical significance of stylistic variation

suggests that PRICE trajectory length is socially salient. This indicates that PRICE may be a stable marker of East London English. All participants in the study use a shortened trajectory, and there is less social differentiation between ethnic groups and peer groups, but almost all students use a longer trajectory in the word list context when more attention is paid to speech.

6.10 Summary of the PRICE vowel at Riverton and further implications

Together, the findings presented in this chapter suggest that PRICE is at a different point of change than FACE. We see less social differentiation for PRICE onset and trajectory than we saw for FACE onset and trajectory, which further supports the hypothesis that PRICE is a more stable linguistic variable in East London. Descriptively, we see that for PRICE, as with FACE, boys are the most advanced in their realisation, which could suggest that they are the leaders of change in the London diphthong system. In the discussion of FACE onset it was posited that the patterns of variation in this community may follow Labov's Principle II, where women use fewer stigmatised linguistic variants than men (Labov 2001). That the girls are not as innovative for any of the four variables discussed descriptively — FACE onset and trajectory, and PRICE onset and trajectory — provides weight to this hypothesis, but inferential testing failed to confirm this.

Despite the lack of statistical significance for social factors affecting PRICE onset and trajectory, we still see some consistent patterns with regards to ethnolinguistic orientation. A shorter, raised FACE and a fronted, shortened PRICE both seem to be markers of ethnic minority masculinity, and a longer, lower FACE and less fronted PRICE both seem to mark a White British girl identity. The analysis of PRICE, therefore, expands our understanding of the relationship between intersectional identities and language variation and change at Riverton when considered alongside the FACE vowel. However, if PRICE had been examined in isolation, this coherence between variables would not have emerged and it might not have been possible to discern the ethnolinguistic differences that exist in this community.

The analysis of FACE in Section 5.10 also noted some contributions to the debate on MLE's status as a language variety that shall be returned to here. Cheshire et al. (2015: 15-16) argue that there are four factors in the emergence of multiethnolects, one of which being language contact which directly impacts phonetic features. They note these features then acquire social meaning, "marking group identity". It is not clear, however, if this applies to PRICE. A monophthongised, raised FACE vowel can be traced back to a number of heritage languages present in London, but this is less true for PRICE. Furthermore, the findings in this thesis indicate that different realisations of FACE can index different social meanings with regards to gender, social class, and ethnicity, whereas social differentiation for PRICE is less distinct. It has been hypothesised in this thesis that perhaps PRICE shifted and therefore stabilised first, whereas FACE is still undergoing change. Looking at the findings for PRICE trajectory along with findings for PRICE onset and the FACE vowel, we have seen consistent support for this hypothesis.

7. Linguistic repertoires at Riverton

7.1 A segue: from variation and change to repertoire

The multivariate vowel analyses presented in Chapters 5 and 6 facilitated a discussion of theoretical implications for language change as well as emerging ethnolinguistic repertoires in East London. Descriptive findings lend some support to Labov's Principle II whereby women orient away from stigmatised variants. There was also evidence to suggest that the FACE vowel and the PRICE vowel are at different stages of sound change, and as such have differing social differentiation. The social differentiation we saw for the FACE vowel in particular then sheds light on the mechanisms of change: as with Cheshire et al. (2011) ethnic minority boys lead the change, particularly those who orient towards a particular type of cool, urban, adolescent masculinity that engages strongly with popular youth culture and away from school and education. The consistency in patterns of social differentiation across both vowels also indicated that there might be ethnolinguistic repertoires at Riverton that variably engage with MLE innovations. This chapter will examine three more variables present a broader picture of linguistic variation at Riverton.

Thus far it has been apparent that realisations of the FACE and PRICE vowels do not show significant gender differences. However, there are intra-gender differences and interactions with other social factors, which relate to different personae and intersecting identities. Feminine and masculine identities¹ intersect with ethnic, classed identities and peer group personae, and this is reflected in the linguistic variation we have seen so far. The members of the White Squad socially and linguistically construct a White, working-class, girl peer group persona, simultaneously participating in, yet distancing themselves from, dominant popular multicultural youth culture. We see contrasting Asian identities, from the more conservative, traditional, obedient Asian Squad, to the defiant, mischievous Rebel, Anaya. And we see Black African girls, who selectively engage with African parts of popular youth culture, and who produce innovative vowels but are not the leaders of ongoing change. For the boys we see a masculine peer group structure that is fluid and at times difficult to delineate, with different personae associated with orientation to the school institution more so than peer group participation as we found with the girls. This fluidity is reflected in their linguistic practices as leaders of ongoing change at Riverton.

However, an analysis of two vowels is only a partial picture of the complex linguistic repertoires found in London. Therefore, to further investigate linguistic and social practices at Riverton, this chapter presents descriptive quantitative analyses of three variables: *was/were* variation, TH-variation, and DH-variation. As noted in Chapter 2, previous work on MLE found innovations and change across different levels of language. Features included a reduction in /h/-dropping (Cheshire et al. 2008), wide-spread use of TH-fronting (Cheshire et al. 2013), the development of an innovative pronoun, *man* (Cheshire 2013), and the emergence of an alternate system for *was/were* variation Cheshire and Fox (2009). By looking at three of these variables, the current chapter presents a fuller picture of the linguistic repertoires used by adolescents at Riverton. The variables *was/were* variation, TH-variation, and DH-variation were chosen because, when combined with the findings for FACE and PRICE, they shed light on the relationship between social and linguistic practices at Riverton as all three variables have been

¹While I acknowledge that gender is not a binary concept, this is how gender is largely constructed in school institutions in the UK, and the adolescents at Riverton adhere to this norm.

shown to have a degree of ethnic stratification. Variation in past tense forms of *be* is common across varieties of English, with three possible levelling systems (discussed below). In London, the system of levelling speakers use has been shown to vary by ethnic background of speaker (Cheshire and Fox 2009). For TH-variation, fronting of [θ] to [f] is common and found across the South East of England (and beyond). Rates of TH-fronting were found to vary by ethnicity, with White British speakers using the fronted variant more (Cheshire et al. 2008). There is also some evidence of TH-stopping in London, and it has been suggested that this feature is part of a broader multicultural British English variety (Drummond 2018). Finally, DH-variation has been examined less, but can also be fronted or stopped; Fox (2015: 221) suggests that use of the stopped variant has increased in London as a result of language contact, although it has been noted in traditional London dialects like Cockney (Wells 1982b).

In the following analyses, each section provides a brief overview of the linguistic feature, a brief discussion of methods, followed by results. The chapter ends with a summary of linguistic repertoires at Riverton, and a discussion of broader implications. In addition to shedding light on social practices and linguistic repertoires at Riverton, the analyses of three variables shed further light on ethnolinguistic variation. Impressionistic observations indicated that there were stark contrasts in the linguistic repertoires used by these adolescents, and this was somewhat reified by the vowel analyses in Chapters 5 and 6. By examining a collection of variables, the current chapter will demonstrate the work that these variables do together as part of different socially meaningful (ethno)linguistic repertoires.

7.2 *Was/were* variation - a brief overview

Variation in past tense BE forms is a common linguistic feature of many varieties of English, in the UK and beyond. Indeed, Cheshire and Fox (2009: 1) highlight that it is only standardised varieties of English that have a stable system. The standardised system uses different forms to indicate number, with singular (*was*) and plural (*were*), and polarity, with negative contexts marked with the *-n't* suffix. This is complicated by grammatical person, where second person pronoun *you* takes the verb form *were*, regardless of number or polarity. For varieties of English that do not have a stable system, there tends to be two patterns. Cheshire and Fox (2009: 2) note that the most common is levelling across polarity, person, and number to *was/wasn't*. This is most likely a widespread phenomenon due to analogical levelling: BE is the only verb form in English to make a past tense person/number distinction, and analogy is a factor in language change and language acquisition processes (Chambers 1995; Cheshire and Fox 2009; Schilling-Estes and Wolfram 1994).

In British varieties of English, there is substantial evidence for levelling by polarity, so that all positive contexts use *was* regardless of person or number, and all negative contexts use *weren't*. This pattern has been found across the south of England. For example, Anderwald's 2001 study of the British National Corpus found levelling by polarity to *was/weren't* to be most common in the Southwest and East Anglia. These findings are supported by Britain (2002) who found levelling to *was/weren't* in the Fens, and Levey (2007) who had similar findings in outer London. Research has largely focused on regional variation, but there is evidence that there is variation by other social factors. In Birmingham (Khan 2006) and York (Tagliamonte 1998) there is evidence of age-grading, where use of levelled *was* is in decline, but levelled *weren't* is increasing. In London, there is variation by ethnicity: Bangladeshi speakers tend to use the standard system, whereas Black Caribbean speakers use the first system of analogous levelling to *was/wasn't*, and White British speakers use the second system of levelling by polarity to

was/weren't (Cheshire and Fox 2009). In the sections that follow, a description of the systems of levelling present at Riverton is provided, where patterns in use of the *was/were* levelling systems are similar to those found by Cheshire and Fox (2009). Combined with analyses of TH- and DH-variation, this will allow us to develop an understanding of the linguistic repertoires found at Riverton.

7.2.1 Methods

Based on the previous literature described above, the data were coded according to grammatical gender, polarity, and number. Tokens of *was/were* were found by performing a search in ELAN on the same time-aligned transcriptions used for vowel analysis. As past tense BE forms are not as frequent as phonological variables, every token was coded per speaker. Table 7.1 shows the token counts for each speaker. The speakers with the lowest number of tokens were Teddy and Anthony (the Inbetweeners), with 13 and 18 tokens respectively, and Wendy (Black Squad) had by far the most with 211 tokens. The mean token count was 60 tokens per speaker — Teddy, Anthony, and Wendy were definite outliers.

The categorisations used in this chapter for the systems of *was/were* variation are summarised in Table 7.2. The systems are based on the descriptions provided by (Cheshire and Fox 2009): System 1 is the standardised system, System 2 is the most common system of levelling to *was* in all contexts, and System 3 refers to the pattern of levelling by polarity to *was* and *weren't*.

7.2.2 Systems of *was/were* variation at Riverton

Table 7.3 summarises the systems used by each speaker, separated by peer group. Information about speaker ethnic background is also included. The third and fourth column state the system used by each speaker and a summary of evidence from the data.

All three systems are present in this dataset. About half of speakers seem to use System 1, the standardised system: 10 out of 19 girls, and 3 out of 8 boys. This is largely made up of South Asian speakers: 6 out of 10 girls and 2 out of 3 boys who use System 1 are South Asian. Importantly, the majority of the South Asian speakers are Bangladeshi (Rajesh is Indian, and Anaya and Violet are Pakistani), which aligns with the findings of Cheshire and Fox (2009) in which Bangladeshi speakers were more likely to use the standardised system. The data could also indicate that this is a norm for South Asian speakers more generally.

For the other two systems, there are a few patterns worth noting. First, White British speakers (boys and girls) all use System 3, levelling by polarity. The only other speaker who uses System 3 is Shaikha, who is a member of the Rebels and of Arabic origin. For other speakers, findings are mostly inconsistent. Erika (White European/Beauty Squad) and Tosin (Black African/Black Squad) use System 2, levelling to *was/wasn't*. For everyone else, it is unclear what system they are using as levelling largely only occurs for *was* in positive polarity contexts.

There are two comparisons to be drawn from these results. First, they contradict the findings in York and Birmingham noted above. In these cities, levelling in positive contexts was in decline, but the opposite seems to be true in this community. Second, results are similar to those found by Cheshire and Fox (2009): although frequencies are not shown here, levelling is not very frequent, and levelling in positive contexts is more common than levelling in negative contexts.

There are a few possible explanations for the patterns of *was/were* variation found in this dataset. Schilling-Estes and Wolfram (1994) note that, whilst levelling is a linguistic process, the direction of levelling can be explained through social processes. They found levelling to

Girl peer groups	<i>was/were</i> total N
Asian Squad	
Foziah	82
Jamima	58
Malaika	62
Beauty Squad	
Rebecca	97
Erika	28
Black Squad	
Natasha	39
Tosin	90
Wendy	211
Oyin	48
Main Squad	
Nahida	72
Krista	44
Nerd Girls	
Ruby	30
Violet	50
Rebels	
Anaya	27
Shaika	53
Maria	61
White Squad	
Amy	112
Francesca	52
Carly	82
Girls' total	1298
Boy peer groups	<i>was/were</i> total N
A-side	
Ade	99
Sanjit	37
Dinh	61
B-side	
John	63
Rajesh	24
Inbetweeners	
Anthony	18
Teddy	13
WS Boys	
Zach	73
Boys' total	388
Grand total	1686

Table 7.1: Token counts for *was/were* per speaker

System 1		
	Singular	Plural
First person	I was	We were
	I wasn't	We weren't
Second person	You were	You were
	You weren't	You weren't
Third person	He/she/it was	They were
	He/she/it wasn't	They weren't

System 2		
	Singular	Plural
First person	I was	<i>We was</i>
	I wasn't	<i>We wasn't</i>
Second person	<i>You was</i>	<i>You was</i>
	<i>You wasn't</i>	<i>You wasn't</i>
Third person	He/she/it was	<i>They was</i>
	He/she/it wasn't	<i>They wasn't</i>

System 3		
	Singular	Plural
First person	I was	We was
	<i>I weren't</i>	We weren't
Second person	<i>You was</i>	<i>You was</i>
	You weren't	You weren't
Third person	He/she/it was	<i>They was</i>
	<i>He/she/it weren't</i>	They weren't

Forms in *italics* are the forms that are levelled and therefore contrast with the standard system.

Table 7.2: Patterns of *Was/were* variation.

negative *was* to be less stigmatised than levelling to negative *were*, which was seen as a marker of local identity. At Riverton, then, it could be that levelling in negative polarity contexts is more socially marked, and so variation in past tense forms in this community is more likely to occur in positive contexts. It is also possible that System 2 (levelling to *was* in all contexts) is being used by most speakers, but due to the lack of levelling in negative contexts there is not enough evidence to confirm this. Speakers might be exposed to System 2 most often as this is the dominant system that has developed out of the group second language acquisition and language contact processes described by Cheshire et al. (2011), but they only level to *was* in positive contexts because of the social stigma for levelling to *wasn't* in negative contexts noted by Cheshire and Fox (2009). If this is the case, then it might be expected that speakers who use more innovative vowels will also be the users of System 2 as part of their MLE linguistic repertoire. This will be explored in more detail at the end of this chapter, where a summary of participants' repertoires is presented. For now, we moved on to discuss TH- and DH-variation.

Girls	Ethnicity	System	Evidence
Asian Squad			
Foziah	South Asian	1	Standardised forms
Jamima	South Asian	1	Standardised forms
Malaika	South Asian	1	Standardised forms
Beauty Squad			
Rebecca	Black British	?	Mixed levelling in negative contexts only
Erika	White European	2	Levelling to <i>was</i> and <i>wasn't</i>
Black Squad			
Natasha	Black African	1	Standardised forms
Tosin	Black African	2	Levelling to <i>wasn't</i>
Wendy	Black African	1	Standardised forms
Oyin	Black African	2 or 3	Levelling to <i>was</i>
Main Squad			
Nahida	South Asian	2 or 3	Levelling to <i>was</i>
Krista	White European	1	Standardised forms
Nerd Girls			
Ruby	South Asian	1	Standardised forms
Violet	South Asian	1	Standardised forms
Rebels			
Anaya	South Asian	1	Standardised forms
Shaikha	Arab	3	Levelling to <i>was</i> and <i>weren't</i>
Maria	Black African	2 or 3	Levelling to <i>was</i>
White Squad			
Amy	White British	3	Levelling to <i>was</i> and <i>weren't</i>
Carly	White British	?	Mixed levelling in positive contexts only
Francesca	White British	1	Standardised forms
Boys	Ethnicity	System	Evidence
A-side			
Ade	Black British	2 or 3	Levelling to <i>was</i>
Dinh	SE Asian	2 or 3	Levelling to <i>was</i>
Sanjit	South Asian	1	Standardised forms
B-side			
John	Black British	?	Levelling to <i>were</i>
Rajesh	South Asian	1	Standardised forms
Inbetweeners			
Anthony	Black African	1	Standardised forms
Teddy	Black African	2 or 3	Levelling to <i>was</i>
WS boys			
Zach	White British	3	Levelling to <i>was</i> and <i>weren't</i>

Table 7.3: *Was/were* variation summary by individual speaker.

7.3 TH-variation - a brief synopsis

This section examines TH variation, or variation in the voiceless interdental fricative /θ/. Theta variation is widespread throughout South East England, and is fast diffusing across the rest of the country (Kerswill 2003). The most common variant of /θ/ is the fronted labiodental [f], found in various cities such as London (Sivertsen 1960; Wells 1982b), Milton Keynes and Reading (Kerswill 2002), Manchester (Baranowski and Turton 2015), Edinburgh (Schleef and Ramsammy 2013), and Glasgow (Stuart-Smith et al. 2007; Lawson 2014). Levon and Fox (2014: 187) note that, as TH-fronting is so widespread, rather than being a marker of a particular region, it tends to be socially stratified in terms of age (young people) and social class (working class speakers).

There is also evidence of stopping in London, where the interdental fricative becomes alveolar plosive [t]. This can occur in any position (word initially, medially, or finally). This is most characteristic of Liverpoolian English, where it likely descends from Irish Englishes (Watson 2007), but is present in other varieties of British English too. It is not as wide spread as TH-fronting: when TH-stopping is observed it is often infrequent (e.g. Baranowski and Turton 2015; Cheshire et al. 2011). It is also more socially-marked than TH-fronting. As noted by Drummond (2018: 172-3), TH-stopping has a long-standing association with Black language and culture, and its presence in Southern varieties of British English is considered a result of language contact with Caribbean Creoles (e.g. Sebba 1993).

As this thesis is interested in investigating the relevance of ethnicity for language variation and change in London, an analysis of TH-variation could be informative in two ways. Previous research on TH-fronting suggests that it is a marker of working-class youth language. The present analysis investigates rates of use in order to see if this is truly a community-wide phenomenon, or whether there is stratification evident amongst adolescents. For TH-stopping, research has shown that this variant is more likely to be more ethnically-marked than TH-fronting. If TH-stopping is present in the current dataset for only some speakers, or there are different rates of use of TH-stopping, this could be further evidence that TH-stopping indexes ethnic identity in some way. By investigating TH-variation, this section attempts to uncover further evidence in support of ethnolinguistic repertoires at Riverton.

7.3.1 Methods

So as to not have an imbalanced data set, 30 tokens were counted per speaker. This was from the entire interview only: read speech was excluded. There was quite a bit of variation between speakers in the total number of instances of /θ/, mostly relating to overall quantity of speech data, so the lowest total was used as a baseline for counting tokens. No more than three instances of the same word were counted, in order to try and prevent skewing of the data from highly frequent words. Tokens were included from word initial, word medial, and word final position, but were excluded if the token occurred in a context where /θ/ is often reduced due to assimilation, for example in the word *months*. It should also be noted that this analysis is brief as it is intended to inform the repertoire analysis at the end of the chapter rather than be a detailed analysis of linguistic constraints.

7.3.2 General patterns of TH-variation

In Figure 7.1, we can see the percentage of use for the different variants of /θ/ by gender. As the previous literature indicates that rates of TH-fronting are high in London, it is not surprising

that [f] is the most common variant. It is also apparent that there is a gender difference here, with boys using [f] 73% of the time compared with the girls' rate of 60%.

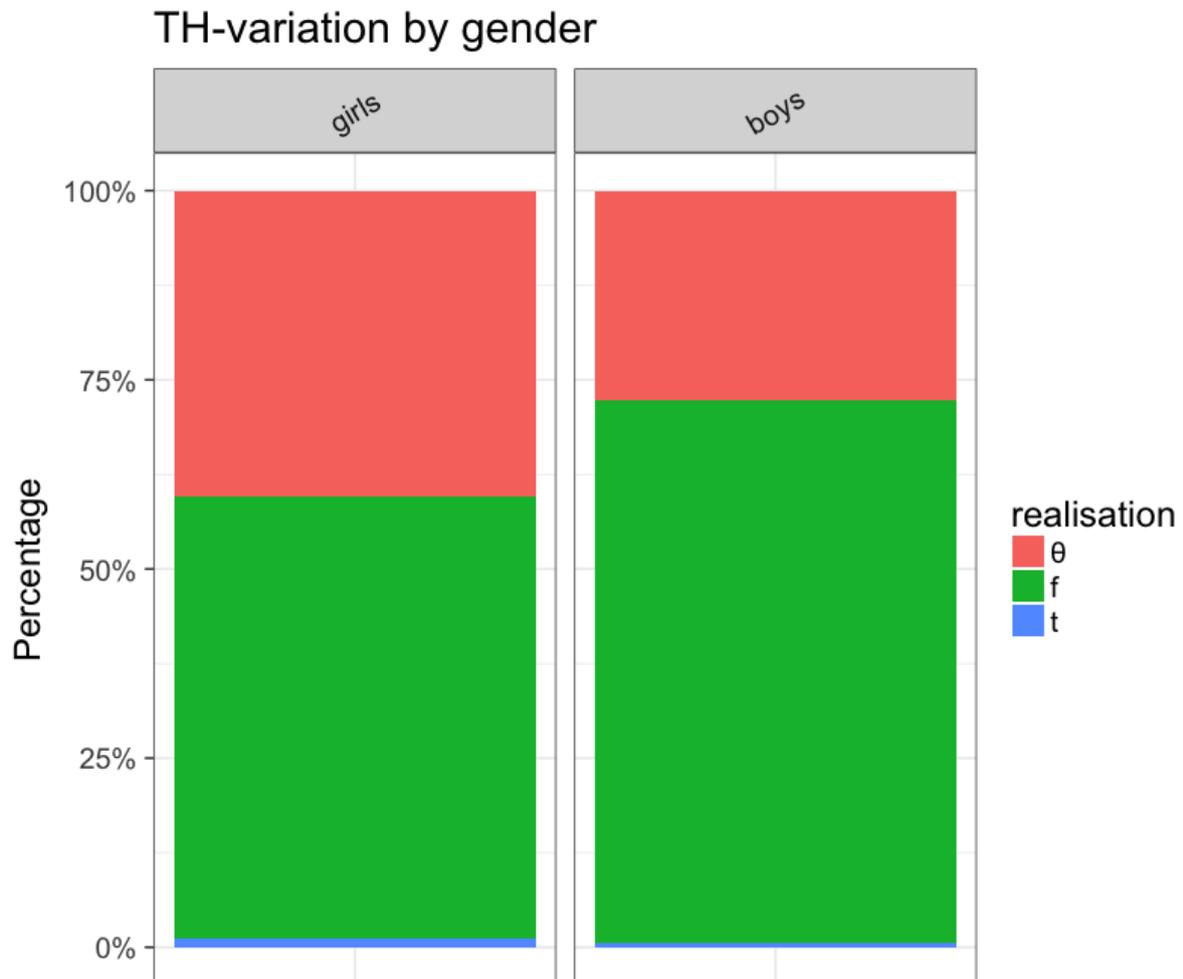


Figure 7.1: Histogram of TH-variation by gender

Next we look at TH-variation by peer group and gender in Figure 7.2, which shows girl peer groups on the left and boy peer groups on the right. Looking at use of [f], there are stark intra-gender contrasts between peer groups. For the girls, there are three patterns. Three peer groups, Beauty Squad, Black Squad, and White Squad, have very high rates of TH-fronting at over 85%. The Rebels do not have a clear preference, using [f] and [θ] almost equally. Then we have Asian Squad, Main Squad, and Nerds girls, who predominantly use the standard variant [θ] and only TH-front 30% of the time or less. For the boys, who on the whole use a higher proportion of [f] than the girls, we see either a clear preference for TH-fronting or a greater use of standard [θ]. B-side and White Squad boys all TH-front categorically, and Inbetweeners are not far behind with a rate of 95%. A-side, on the other hand, use far more of the standard variant, and only TH-front 33% of the time. The similarity in patterns between the boys and girls can in part be explained if we group peer groups by orientation to school as was done for FACE and PRICE analyses. Asian Squad, Nerd Girls, and A-side are all pro-school and all have

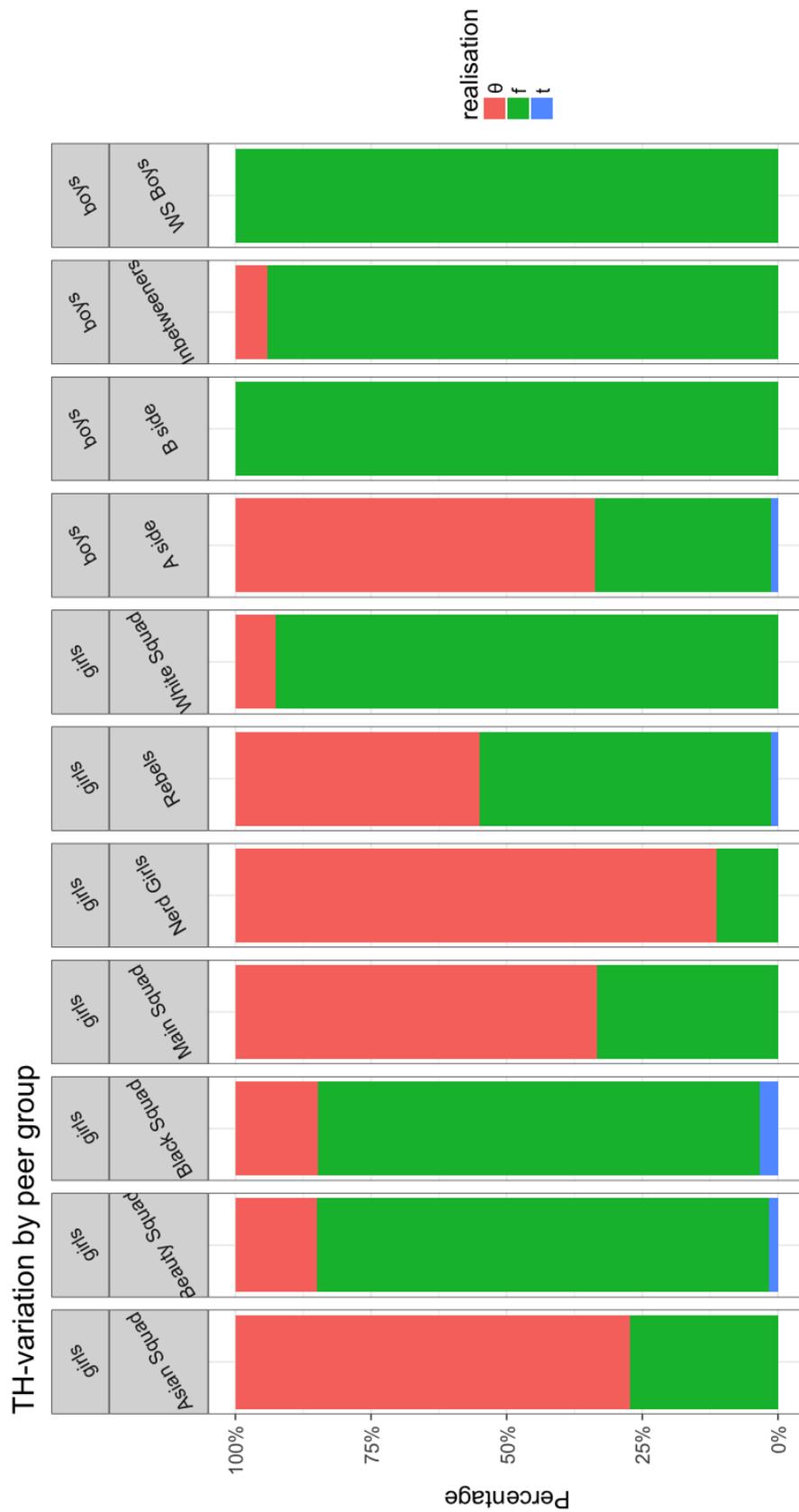


Figure 7.2: Histogram of TH-variation by peer group and gender

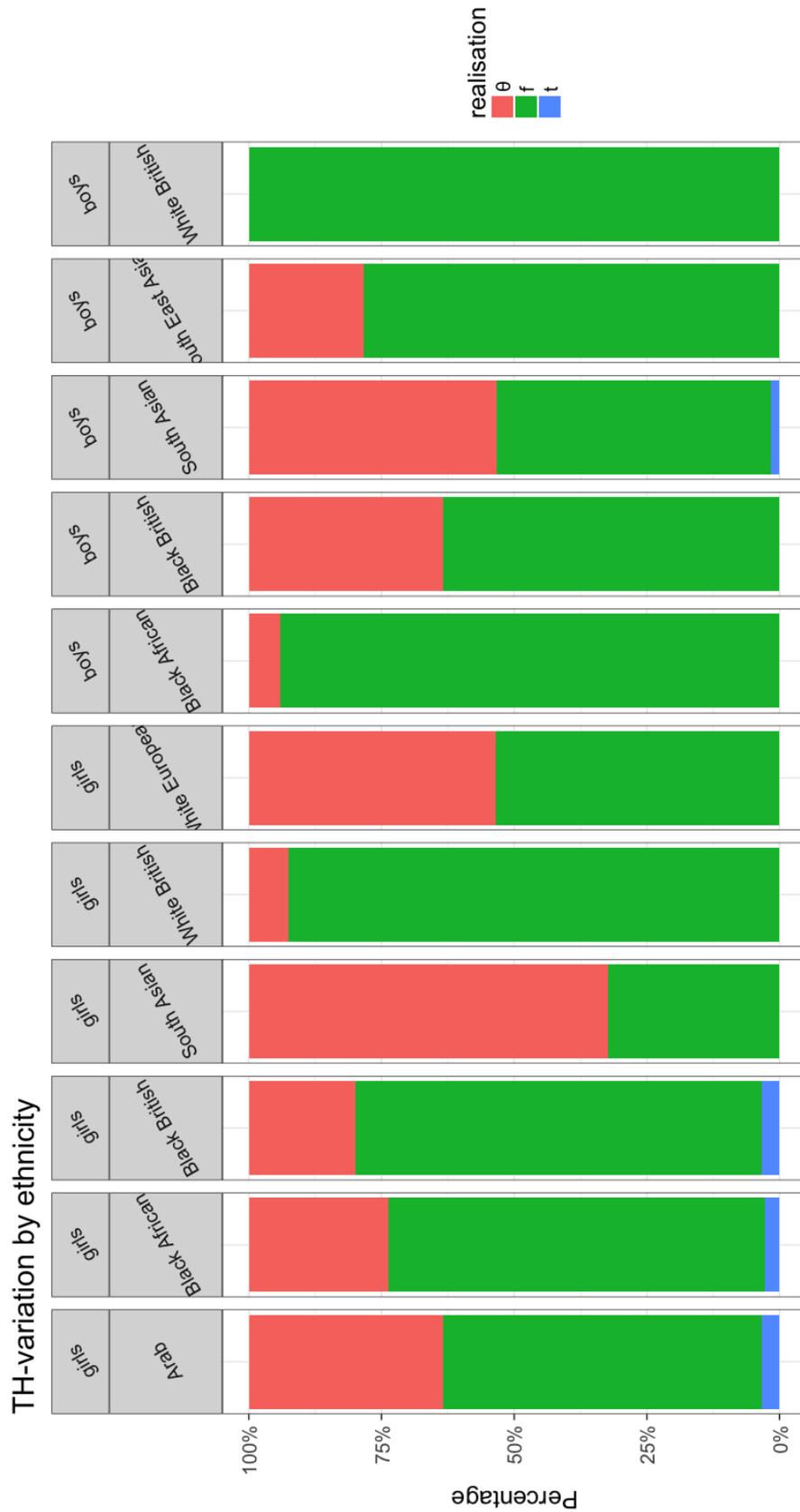


Figure 7.3: Histogram of TH-variation by ethnicity and gender

low rates of TH-fronting. However, this does not explain all of the patterns.

Figure 7.3 shows the interaction between ethnicity and gender. White British girls have high rates of TH-fronting, which mirrors the peer group results as all White British girls are in the White Squad. For Black African girls, the average use of [f] is lower than was found for the Black Squad, as there is a Black African girl in the Rebels who has a lower rate of TH-fronting and therefore pulls down the average. We also see that South Asian girls' Th-fronting is slightly higher than it was for just the Asian Squad, as there are South Asian girls in the Main Squad and the Rebels who pull the average up. It also emerges that TH-stopping is only used by Black girls (African and British), and the one Arab girl Shaikha. For the boys, Black British and South Asians use the variant [f] at least half of the time, whereas Black African boys are near-categorical. At first glance this might seem unexpected, but it is best understood in comparison with Figure 7.2. Peer groups A-side and B-side both have members that are of Black British and South Asian ethnicity. So, whilst the proportion of fronting seems similar for Black British and South Asian boys in Figure 7.3, this is likely a consequence of, and therefore masking, the stark peer group contrasts shown in Figure 7.2. Contrastingly, members of the Inbetweeners are both Black African, and White Squad boy Zach is the only White British boy in the study, so these results are the same whether looking at peer group or ethnicity.

There are a few possible explanations for the different patterns. As Lawson (2014) has shown how variants of TH can have competing social meanings within a community, it may even be the case that these explanations are all operating to a degree. For the South Asian girls there are some intra-ethnic differences in the rates of TH-fronting. Two of the peer groups with South Asian members, Nerd Girls and Asian Squad, are both pro-school, adhering towards mainstream school ideologies and valuing school achievements highly. However, the Asian Squad girls also more strongly identify with Asian Muslim cultural norms, such as wearing hijab, and so the Asian Squad members might linguistically orient more towards a British Asian linguistic repertoire than the Nerd Girls. It is also interesting to note that the only use of TH-stopping is by Arab, Black African, and Black British girls. These are also the ethnic minority girls with the highest proportion of fronting. This pattern is not, however, mirrored by the White British girls. They have the highest proportion of TH-fronting, but do not TH-stop at all. So, it could be that TH-stopping is used to assert a Black or non-White ethnic identity in a way that TH-fronting cannot, as it is too wide spread. For the boys, it seems that orientation to school is a more dominant factor. Boys who are anti-school, those in B-side, Inbetweeners, and WS boys, use much higher rates of TH-fronting than those who are pro-school (the A-side). This seems to be a much clearer pattern than any ethnic variation.

7.4 DH-variation - a brief synopsis

Variation of DH has also long been part of London Englishes, with both fronting and stopping being prevalent. For this variable, stopping is when the voiced interdental fricative /ð/ is realised as voiced alveolar stop [d], and fronting is when it is realised as the labiodental fricative [v]. In traditional Cockney varieties, fronting typically occurs in word medial or word final position, but there is also evidence of fronting in word initial position (Tollfree 1999: 172). DH-stopping, on the other hand, occurs primarily in word initial or word medial position in Cockney (Hudson and Holloway 1977; Wells 1982b).

Recently, there has been an increase in the use of DH-stopping, such that Kerswill et al. (2008) found a significant difference between young and old speakers in their use of fronted and stopped DH. They also found that ethnic minority speakers were significantly more likely to

DH-stop, but all inner-city adolescents use this feature much more than outer London counterparts. If we find ethnic differentiation of DH-stopping in this community, there are two possible implications. First, DH-stopping could be seen as a marker of ethnic identity, and secondly, if there is coherent patterning of DH-stopping that aligns with other variables then we have firm evidence of ethnolinguistic repertoires.

7.4.1 Methods

The methodology for DH-variation mirrors the methods described above for TH-variation. Thirty tokens were coded per speaker from the interview data (read speech was excluded). No more than three tokens per word were counted, and tokens were counted from all word contexts. Of course, it would be informative to examine the effects of word position, but this is beyond the scope of this analysis. Tokens were collected equally from word initial, word medial, and word final position. Percentage of use for all variants are presented together to get a sense of how much or little speakers use non-standard variants. This will then inform the repertoire analysis at the end of the chapter; as with TH-variation, it is not intended to be a detailed analysis of linguistic constraints.

7.4.2 General patterns of DH-variation

In Figure 7.4 there are two key things to note. First, as with the other variables examined in this thesis, we can see a clear gender contrast, with girls using the standard [ð] variant 60% of the time, compared with boys' 35%.

For the girls we see a similar pattern as we saw for TH-variation. Asian Squad, Main Squad, and Nerd Girls are all mostly standard, each with over 75% of DH realised as the standard [ð]. Interestingly, though, we also see that the White Squad is mostly standard. For TH, the White Squad were almost categorical fronters, but for DH they do not use the stopped variant [d] at all. For DH-fronting, there is less variation. Asian Squad, Main Squad, and Nerd Girls have the lowest rates, between 10 and 15%, whereas for the other peer groups we see rates of 20-30%. These findings are mirrored in Figure 7.6. White British girls do not DH-stop, and all the girls still have similar rates of DH-fronting. For the boys, we can also see a similar pattern to what we saw for TH-variation. A-side boys use the standard variant [ð] over 50% of the time, and DH-stop the least at only 15%. The other boys are much less standard. B-side and Inbetweeners use standard [ð] less than 15% of the time, and use the stopped variant [d] at a rate of about 50%. White Squad boy, Zach, is over 45% of the time.

These results have two implications. First, DH-stopping seems to be ethnically marked for the girls, as this feature is used by all ethnic minority girls, including those who are pro-school, but not the White Squad. Secondly, DH-stopping seems ethnically marked in the context of use of other linguistic variables. For example, Black girls have high rates of TH-fronting, high rates of DH-stopping, use more innovative FACE and PRICE vowels, and there is evidence of System 2 for *was/were* variation, which was previously found for ethnic minority speakers in the MLE studies. For the boys, we see a pattern of variation that can be predicated by peer group, and specifically orientation to school. The A-side boys, who are pro-school, use much less DH-stopping than their peers. This interpretation also explains the lower rate of DH-stopping shown in Figure 7.6 for South East Asian boy, Dinh, who is in the A-side. These interpretations are explored in more detail below.

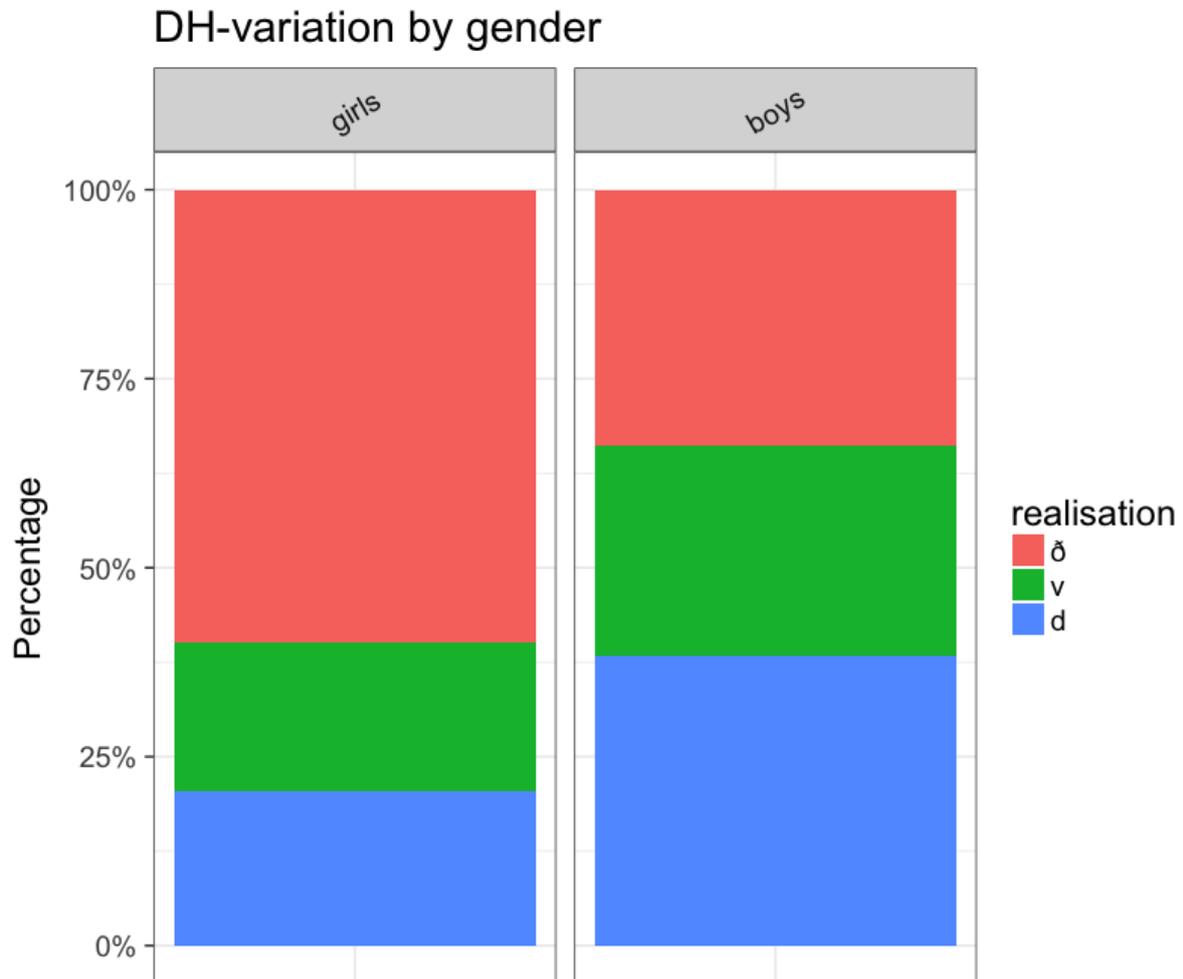


Figure 7.4: Histogram of DH-variation by gender

7.5 The Big Picture

Throughout this thesis we have seen that, for each of the five variables, there are patterns of variation that can be predicted primarily by gender, ethnicity, and peer group membership. Looking at each variable separately has been informative, but this of course is not how linguistic features are used by speakers (e.g. Gumperz 1964; Fought 2006; Benor 2010; Sharma 2011). Therefore, this section explores the coherence between the variables analysed. To visualise this, results are summarised in Figure 7.7.

The first column lists speakers grouped by gender with girls at the top and boys at the bottom. They are then grouped by alphabetised peer groups in column two. Variables are ordered from left to right in the same order as they were presented in this thesis. For FACE and PRICE, onset and trajectory are presented. As these variables were analysed as continuous, they were grouped into discrete levels. Whilst grouping FACE and PRICE this way does not easily map onto the quantitative results shown thus far in this thesis, this representation is intended to facilitate a qualitative picture of the linguistic repertoires at Riverton that requires statistical testing in future analysis. For the onsets, they are considered either advanced MLE

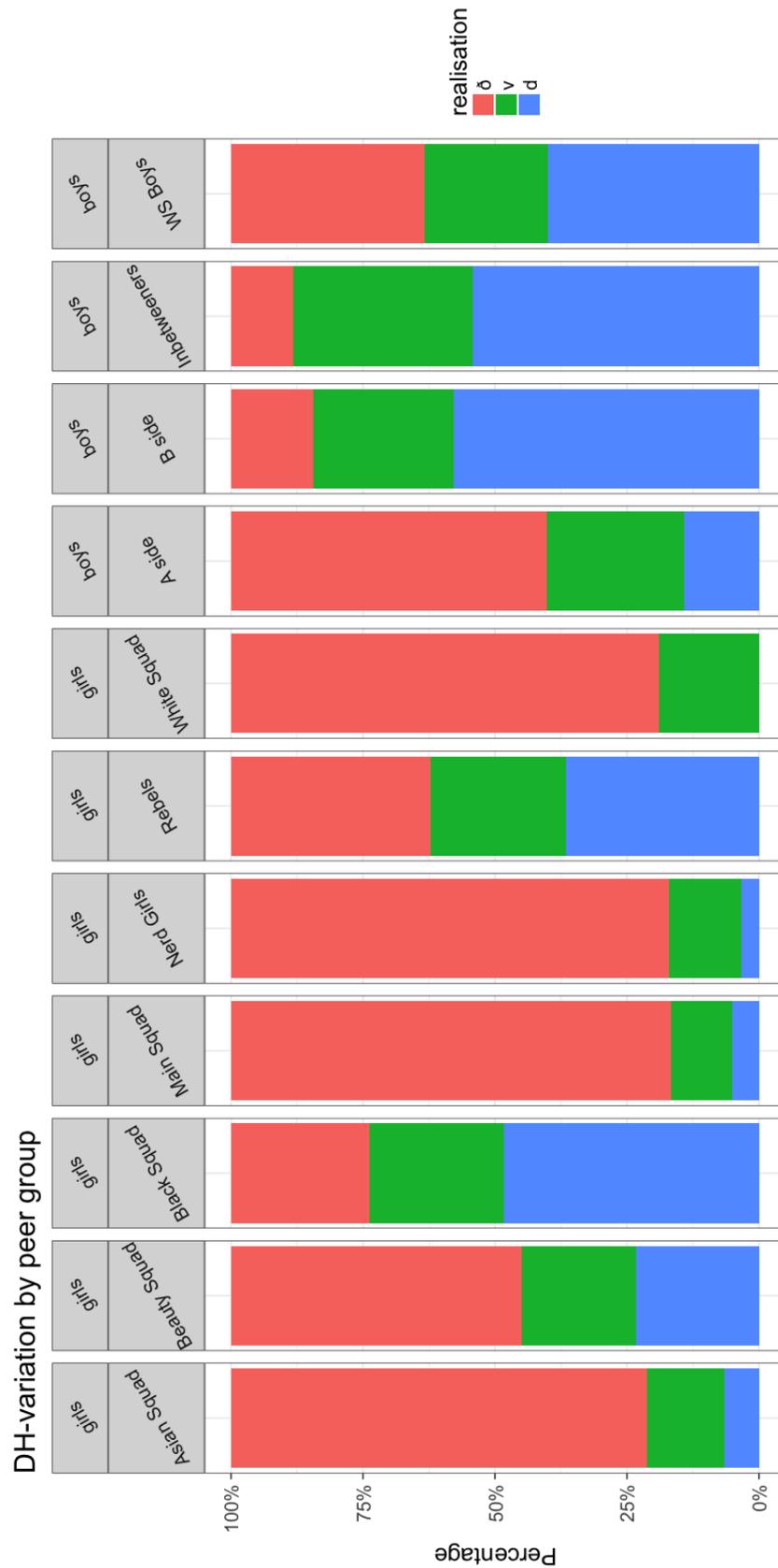


Figure 7.5: Histogram of DH-variation for by peer group and gender

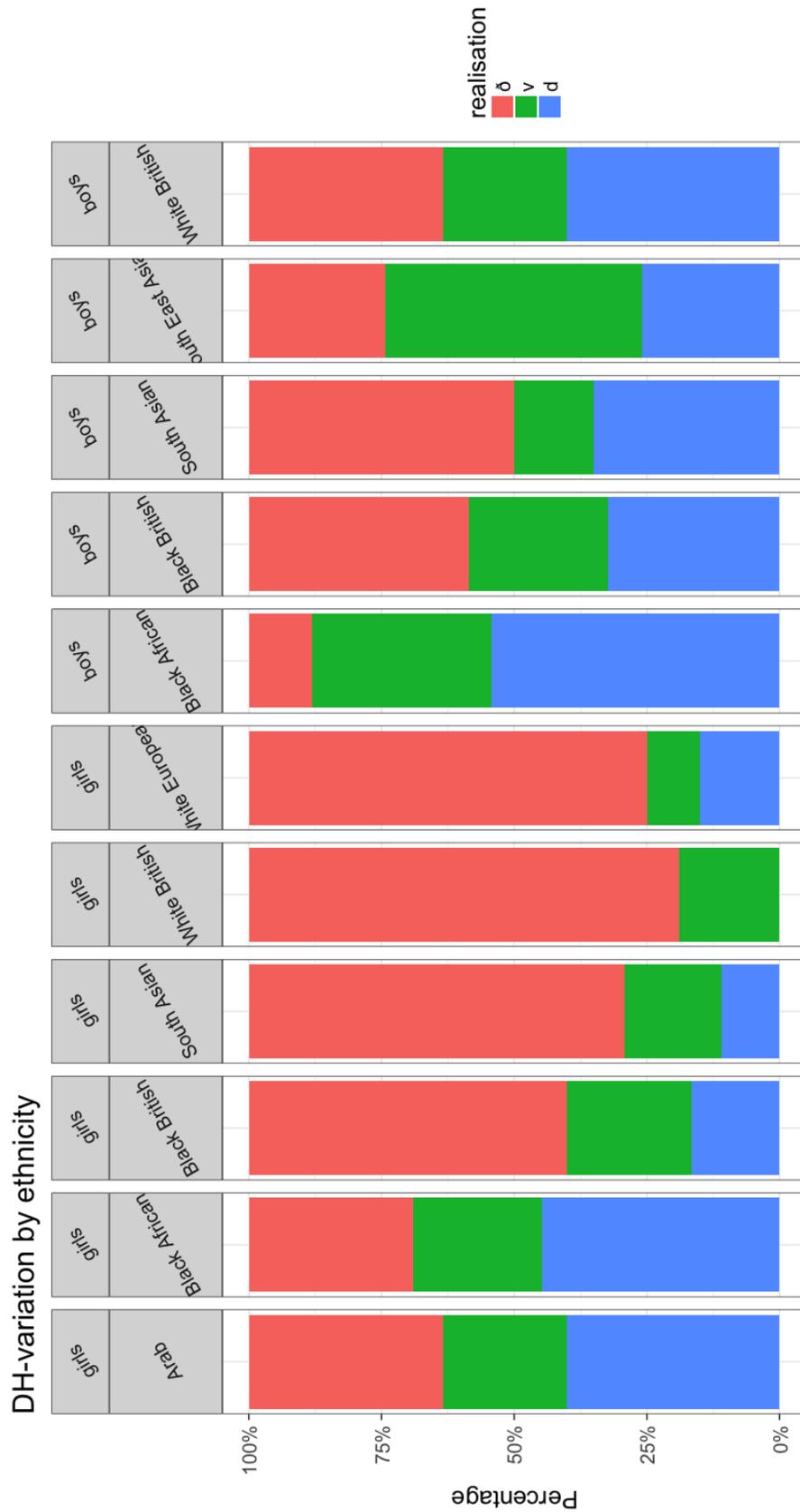


Figure 7.6: Histogram of DH-variation by ethnicity and gender

CHAPTER 7. LINGUISTIC REPERTOIRES AT RIVERTON

Speaker	Peer Group	FACE		PRICE		Was/ were	TH-variation (%)			DH-variation (%)		
		F1	Traj.	F2	Traj.		[f]	[t]	[θ]	[d]	[v]	[ð]
Foziah	Asian Squad	M	S	M	F	1	52	0	48	8	27	65
Jamima	Asian Squad	M	S	A	F	1	20	0	80	2	9	89
Malaika	Asian Squad	M	S	C	F	1	9	0	91	5	10	85
Erika	Beauty Squad	M	F	M	F	2	92	0	8	28	22	50
Rebecca	Beauty Squad	M	F	C	F	ns	80	3	17	13	20	67
Natasha	Black Squad	A	VS	A	F	1	74	3	23	45	27	28
Tosin	Black Squad	A	S	A	S	2	94	0	6	50	27	23
Oyin	Black Squad	M	S	M	S	2/3	85	8	7	50	20	30
Wendy	Black Squad	A	S	M	S	1	92	0	8	50	22	23
Nahida	Main Squad	A	S	M	F	2/3	53	0	47	10	23	67
Krista	Main Squad	C	S	M	F	1	10	0	90	0	0	100
Ruby	Nerd Girls	M	S	M	F	1	28	0	72	2	25	73
Violet	Nerd Girls	M	S	A	F	1	0	0	100	2	0	98
Anaya	Rebels	A	VS	M	S	1	80	0	20	38	35	27
Shaikha	Rebels	A	S	M	F	3	69	3	28	39	24	37
Maria	Rebels	A	S	M	F	2/3	30	0	70	28	22	50
Amy	White squad	C	F	C	S	3	90	0	10	0	18	92
Carly	White Squad	C	S	C	F	ns	98	0	2	0	18	82
Francesca	White Squad	C	F	C	S	1	92	0	8	0	23	77
Ade	A side	A	S	M	F	2/3	27	0	73	5	25	70
Dinh	A side	M	VS	A	S	2/3	78	0	22	25	48	27
Sanjit	A side	A	S	A	F	1	4	3	93	10	5	85
John	B side	A	VS	A	S	ns	100	0	0	57	23	20
Rajesh	B side	M	S	A	S	1	100	0	0	60	19	21
Anthony	Inbetweeners	A	VS	M	S	1	97	0	3	50	30	20
Teddy	Inbetweeners	M	VS	M	S	2/3	96	0	4	59	38	3
Zach	WS boys	M	S	M	S	3	100	0	0	39	24	37

Figure 7.7: Summary of speakers' use of all five linguistic variables

(A), MLE (M), or conservative (C). Onset of FACE was considered advanced (that is, most raised), if F_1 was below 0.9 normalised measure, MLE (somewhat raised) if between 0.9 and 1.0, and conservative (least raised) if F_1 was greater than 1.0. Onset of PRICE was considered advanced (most fronted) if F_2 was above 1.2, MLE (somewhat front) if between 1.05 and 1.2, and conservative (least fronted) if F_2 was below 1.05. For FACE and PRICE trajectory, the degree of movement from the nucleus to the glide is used as a measure of monophthongisation (as in Fridland 2003: 286). Using the same categorisations as Fridland (2003), a full glide has more than 300 hertz movement, a short glide has between 100-300 hertz movement, and a very short glide has less than 100 hertz movement. These are coded as F, S, and VS respectively. The other three variables were already analysed as categorical, so the data presented in the previous three sections are summarised here. *Was/were* variation is represented by the systems described above in Table 7.3, with System 1 being the standardised system, System 2 levelling to *was* in all contexts, and System 3 levelling by polarity. The notation *ns* indicates that no clear system was in use due to low numbers. The final six columns on the right present the frequencies of the different TH- and DH- variants as percentages.

There are several patterns to note in the table, three of which are highlighted in orange, blue, and green. These patterns are particularly noteworthy as they most clearly convey the main findings of the thesis. First, we have primarily seen throughout this thesis that the White Squad girls lag behind in their production of the FACE and PRICE vowels. This table confirms that all three speakers have conservative mean onsets across the board for FACE and PRICE, and have either full or short trajectories for these vowels. When a non-standard system is used for *was/were* it is System 3, the traditional non-standard London system. They also have near-categorical rates of TH-fronting, and zero DH-stopping. Then we have the Black Squad. These girls have mostly advanced, short or very short FACE and PRICE. There is evidence of System 2 for *was/were*, and they have an average rate of 86% TH-fronting (the second highest average after the White Squad) and 49% DH-stopping (the highest of all of the girls). When contrasted with the White Squad, it is very clear that there are very different linguistic repertoires being used here. Both the Black Squad and the White Squad impressionistically “sound London”, but there are undoubtedly different ways to do this. For example, an analysis on prosodic variation may shed light on this (as in Pharaoh et al. 2014).

The boys are more cohesive across peer groups, but there are clearly different linguistic repertoires available for the boys. All boys are mostly advanced and short or very short for the FACE and PRICE vowels. However, the B-side and the Inbetweeners, also have very high rates of TH-fronting and DH-stopping, whereas the A-side tend to be much more standard for these variables. Throughout this thesis, the patterns of linguistic variation found for each of the five features have suggested that White Squad boy, Zach, uses the same linguistic repertoire as his ethnic minority peers in the B-side and the Inbetweeners. However, when looking at all five features together, it seems he is using a different repertoire. Neither his FACE or PRICE vowel is advanced, whereas all of the other boys have at least one advanced vowel, he is the only boy who uses System 3 for *was/were*, and although his rates of TH-fronting match the B-side and Inbetweeners, his rates of DH-stopping do not.

The different linguistic repertoires that have emerged at Riverton have some important theoretical implications. First, there are implications for our understanding as linguists of ethnicity in multicultural contexts. As noted throughout this thesis, linguistic research on language change in diverse urban areas has tended to focus on the similarities between speakers of different ethnic backgrounds (e.g. Quist 2008; Svendsen and Røyneland 2008; Wiese 2009; Cheshire et al. 2013). However, in the community studied here, we have seen salient linguistic differences between

speakers of different ethnic groups. The ethnographic findings discussed in Chapter 3 support the notion that these differences are not incidental, and that young people at Riverton, particularly the girls, intentionally organise their peer groups based on shared ethnic background, such as the Black Squad who are all of African heritage and all engaged with elements of youth culture with explicit African influences. This is a phenomenon known as ethnic homophily, a common practice amongst adolescents where friendship groups are based primarily on having the same ethnicity (e.g. McPherson et al. 2001; Quillian and Campbell 2003; Mouw and Entwisle 2006; Smith et al. 2014). So it seems that, in a context where there are enough numbers of a particular ethnic group for a friendship group to form, it can and does happen.

However, as has been shown throughout this thesis, the boys do not group together in the same way as the girls. The concept of propinquity is perhaps more relevant here, whereby shared social situation is the basis of friendship (Quillian and Campbell 2003: 541) because for the boys, ethnicity is still important but in different ways. The B-side and Inbetweeners boys are all minority ethnic, whose aspirations do not align with those promoted by the school, and who orient strongly towards popular “cool” urban youth culture over academic achievement. (They are also grouped together into the anti-school peer group orientation social factor.) Recent research on London youth subcultures has shown that counter-school youth subcultures can produce a particular type of Black working-class masculinity, but the boys who engage in these subcultures are ethnic minorities but not necessarily Black (e.g. Hollingworth 2015).

These findings also add weight to the argument for an intersectional approach (Crenshaw 1989). Looking at ethnic background alone would not necessarily have illuminated the ethno-linguistic repertoires described in this thesis. Importantly, it is the intersection between ethnic, class, gender, and age, combined with orientation to school and peer group identification that helps us explain and understand linguistic variation within this community. As has been shown by Alam (2015), Asian girls do not all do the same thing, and neither do Black girls. The same applies for Black and Asian boys. But when we look more closely at intersecting identities we see different types of coherence across the linguistic system for different groups of speakers.

8. Discussion and conclusion

8.1 Overview

This thesis set out to present an ethnographic, variationist analysis of a multicultural, adolescent speech community in London. By presenting an ethnographic description of the community, alongside detailed quantitative analyses of five linguistic variables, I have attempted to answer the following research questions:

- Is the use of innovative linguistic features of MLE in this community predicted by highly diverse social networks (as in Cheshire et al. 2011), or are other factors such as gender, ethnicity, or orientation towards education better predictors? Is there any evidence of ethnic variation in MLE?
- How is ongoing sound change in London shaped by adolescents' social identities? Does language variation in this community support or challenge previous hypotheses about the sources of language change in London?
- Do these findings shed light on the question of MLE as a typological language variety?

This chapter synthesises the key findings of the thesis in relation to these research questions, and presents wider implications and future directions.

8.2 Language variation at Riverton: the main findings

The analyses presented in this thesis reveal a number of important findings. Chapter 3 highlights the complex social dynamics at Riverton. The Year Ten cohort were an ethnically diverse group with highly mixed language backgrounds. We saw very different social organisation between the girls and the boys, such that the girls were highly organised into clearly delineated peer groups, whereas the boys were more socially fluid. This gendered difference is not dissimilar to the findings of other school studies like Kirkham (2013), and was not surprising given that the study was conducted in a secondary school and schools are often found to contribute to gender divides (e.g. Thorne 1993). In addition to gender segregation, we also saw sharp ethnic segregation amongst the girls. Some self-labelled their peer groups to refer to their ethnic backgrounds: Black Squad, Asian Squad, White Squad, and Main Squad (who were originally the Skittle Squad to refer to their mixed heritages), and group membership was very much dependent on shared ethnic identity (although, interestingly, peer group and ethnicity were not completely synonymous). This was the first indication that ethnic identity might be a salient social category. This also demonstrated the relevance of homophily, where those who have similar cultural background group together. In highly mixed schools, this has been shown to be a useful way to conceptualise the way adolescents form peer groups (Hollingworth and Mansaray 2012), and is undoubtedly relevant here for both the gendered peer groups and the explicit connections to ethnic identity for the girls.

Chapters 5 and 6 presented detailed descriptive and inferential statistical analyses of two dimensions of two vowels: FACE and PRICE onset and trajectory. For both vowels we saw a continuation of the trajectory of change described by Kerswill et al. (2008), in which the Diphthong

Shift described by Wells (1982a) was reversing. In particular, FACE seems to have advanced the reversal further with a greater degree of raising for the boys' onsets, and prolific shifting towards monophthongisation whereas PRICE seemed more in line with previous descriptions (Fox 2015; Kerswill et al. 2008). Although there were not any significant gender differences, we saw clear interactions between gender, peer group, and ethnic differences for both vowels' onset position and trajectory length. White British girls' FACE vowel was not as raised as their peers and had a much longer trajectory. Similarly, their PRICE vowel was not as fronted as their peers, indicating that the White British girls' diphthong system lagged behind their ethnic minority girl peers. Anti-school girls and boys were the most advanced for both vowels, and within the girls we saw ethnic differences between Black African girls and South Asian girls, although this was complicated by peer group membership and orientation to school. However, diversity of friendship group (Cheshire et al. 2011: as in) was not consistently a significant predictor.

Of course, correlations between individual linguistic variables and social categories only tell us so much. Chapter 7 therefore provides complementary descriptive quantitative analysis of *was/were* variation, TH-variation, and DH-variation, followed by a description of individual linguistic repertoires. This chapter uses these supplementary analyses to tie together the findings of the previous three chapters. Considering the FACE and PRICE vowels alongside linguistic variables from other levels of language demonstrates how these vowels operate within a sociolinguistic system. There is coherence between variables, which construct ethnically-marked linguistic repertoires, particularly for the White British girls, Black African girls, and ethnic minority anti-school boys. It has been suggested that MLE emerged in part because young working class Londoners have such a diverse feature pool (Mufwene 2001), which allows greater scope for innovation (Cheshire et al. 2011: 177). Continuing with this model, while age and class might predict the use of innovative MLE variables, this chapter demonstrates that ethnicity, gender, and orientation to school affects the degree to which different variables might be utilised to construct different peer group identities and personae.

Together, the findings of Chapters 5, 6, and 7 shed light on the dynamics of language change discussed by Cheshire et al. in their various papers (e.g. Cheshire et al. 2011, 2013; Kerswill et al. 2008).

8.3 Language change in a multicultural metropolis

First, this thesis has implications for our understanding of sound change in ethnically-diverse urban areas. It is widely understood that internal factors influence sound change such that it is possible to predict the direction of change. Labov (1994: 115-224) considers vowels as being part of a system, which consists of different subsystems such as long vowels (e.g., FLEECE, START, NURSE) and short vowels (e.g., KIT, TRAP, LOT). He describes four principles of language change based on these subsystems:

PRINCIPLE I: In chain shifts, long vowels rise.

PRINCIPLE II: In chain shifts, short vowels fall.

PRINCIPLE IIA: In chain shifts, the nuclei of upgliding diphthongs fall.

PRINCIPLE III: In chain shifts, back vowels move to the front.

Labov discusses several examples of sound change that align with these principles, such as the Northern Cities Shift in the USA (e.g. Labov 1994: 177-200). In a discussion of Labov's principles as they relate to sound change in London, Kerswill et al. (2008: 452-3) note that

although Labov acknowledges external factors' effect on sound change can result in a reversal of a shift or a change that does not follow the principles, his account of social factors is limited. Kerswill et al. then use their description of sound change in London diphthongs to add detail to our understanding of social forces. They identify four scales by which the realisations of vowels GOAT, PRICE, MOUTH, and FACE correlate with: speaker ethnicity, friendship group ethnicity, gender, and geographical location (inner or outer London). They then posit that dialect contact with non-British varieties of English, language contact, and contact with L2 Englishes have led to innovation and divergence in the London vowel system (Kerswill et al. 2008: 484). Kerswill et al. (2008: 486) conclude that their findings demonstrate how nonlinguistic factors can override linguistic constraints.

The findings in this thesis strongly support these claims, but also push forward our understanding of localised social forces on language change. First, that the FACE vowel has advanced further but PRICE has not supports the claim that language and dialect contact are at work in London, as a monophthongised FACE is more commonly found in non-British varieties of English; going forward, it would be interesting to investigate this relationship with statistical testing. Furthermore, while there is some indication that ethnic minority males are the most innovative speakers, a consistent finding is that White British girls lag behind their peers for both vowels. With regards to ethnic minority boys, descriptive results indicated that not all ethnic minority boys were equally advanced in their realisation of FACE and PRICE. The B-side boys and the Inbetweeners were the most advanced, and were also prolific users of TH-fronting, DH-stopping, and alternative systems of *was/were* levelling. The ethnographic component of this thesis facilitated further elucidation. These were the “cool” boys who were anti-school, and engaged in stereotypically masculine activities sports and music but were very disengaged with the academic-side of school. They were also heavily engaged with popular youth culture, listening to local rappers on the internet and wearing only specific styles of trainers (e.g. Nike Huaraches). This suggests that participating in this sound change has acquired social meaning, and indexes a particular type of cool, urban, ethnic minority male youth identity. With regards to White British girls, it seems that resistance to innovations does ethnic identity work for this group. White British as an ethnic identity has been overlooked in the MLE literature, as often White British speakers are in the minority and therefore align with their ethnic minority friends. However, in the current study it has been demonstrated that, even when White British speakers have ethnically-diverse networks, the need to orient towards a shared ethnic identity with White British peers (as in homophily (McPherson et al. 2001)) overrides any need to fit in with the wider community. In sum, this thesis demonstrates that while dialect and language contact is a linguistic reality in London, the extent to which this has an effect on London English is influenced by individual speakers' ethnic and social identities.

8.4 Adolescent linguistic repertoires and intersectional identities

Whilst providing a contribution to knowledge of language change in London, this thesis also illuminates the complexities of adolescent identities, and the importance of an intersectional (Crenshaw 1989) understanding of adolescent identities. Ethnicity undoubtedly has social salience in this community. However, how that looks depends on many other components of individual and group identities such as gender, class, orientation to school, and engagement with popular youth culture. This is then reflected in and constructed by adolescent linguistic practices.

For the White British girls, we saw a coherent repertoire of features that actively distance

this group from their ethnic minority peers. The conclusion that they are distancing themselves as opposed to merely lagging behind is drawn from a number of contextual details that indicate their linguistic and social practices actively mark their identities as White British working-class East London girls. Stylistically, the ethnography showed that this group actively engaged in popular youth culture with their clothing and hairstyle choices, but also that there were subtle differences that marked them as popular but different. For the boys we saw an emergent cool, urban, Black boy identity, for which orientation away from the school was key but also their status as ethnic minorities. The stylistic practices and linguistic repertoires at Riverton are all imbued in the creation of intersectional identities that are grounded in ethnic background.

8.5 Future directions

This thesis has provided a window into the linguistic repertoires at Riverton Secondary School. From a sociophonetic perspective, this thesis opens the door for several further analyses. The statistical analysis in this thesis represents the first stage in ongoing work: future analyses will include inferential analysis of race, fitting interactions between style and other social factors, as well as examining all possible pairwise comparisons. Furthermore, in order to make more robust conclusions about the diphthong system, it would be necessary to expand the vowel analysis to include all of the diphthongs. It would also be informative to conduct an analysis of the entire vowel space. Levon and Holmes-Elliott (2017) have indicated that the short vowel system in London is centralising, so it would be interesting to see how the diphthong system fits in with that. It would also be informative to conduct a dynamic analysis of London diphthongs. Thus far, analyses of London (Kerswill et al. 2008: e.g.) and this thesis have provided information about specific points within the vowel, but to truly understand the movement going on within London vowels it would be informative to conduct an analysis that better captures this (Wormald 2016: as in). With the detailed ethnographic knowledge of this community already available, it would then be possible to be more conclusive about processes of sound change in London and how they relate to identity.

A. Fieldwork materials

A.1 Question modules

School life

1. Do you like school? Why/why not?
2. Have you ever got into trouble at school? Tell me about it
3. What's been the best/worst thing to happen (to you) at school?
4. What's the most embarrassing thing that's happened to you or someone else at school?
5. Do different groups act/dress differently? How?
6. What does it mean to be "cool" at Riverton? Is it the same at other schools or different?
7. Is your community/mentor group important to you/others? Why/why not?
8. Do you have a good relationship with your teachers? Why/why not?

Friendships

1. Who's your best friend? How long have you known them? Have you always been best friends? What makes them a good friend?
2. Who do you hang out with most at school? What about outside school? What do you do when you hang out outside of school?
3. Is there someone in your group of friends that everybody listens to? How come? What makes them the leader?
4. Have your friends changed over the years? How/why? What happened?
5. How do you use social media with your friends? Which platform do you use the most? Do you use it with some friends more than others? Are you friends with anyone *only* on social media?

Aspirations

1. Do you do any other activities at school other than going to lessons? If so, what? Do you enjoy it/them? If not, why not?
2. Who do you admire most? This can be anyone, famous or not. What do you admire about them?
3. If you could be any celebrity, who would it be and why?
4. What do you want to do/be when you grow up? What do your parents think about this?
5. What do you see yourself doing 5 years from now?
6. Do you like reading? What's your favourite book/author?

Family

1. Who do you live with? What is it like? Do you spend a lot of time together?
2. What's the worst argument you've ever had with your mum/dad?
3. What's the worst argument you've ever had with your brother/sister?
4. Do you have any siblings or parents that you don't live with? How often do you talk to them/see them? What are they like?
5. Where are your parents from? Do they go back there? Have you ever visited?
6. Do you have any cousins, aunts/uncles, grandparents that live nearby? How often do you see them? What are they like?

Living in Newham

1. What do you think about living in Newham? Is it a good place to live? Why/why not?
2. Are some parts of Newham more posh than others? How so?
3. What are (kids from) other schools round here like compared to Riverton? Are some kid/schools more or less posh?
4. Have you ever been to (visited or attended) another school? What was it like? Was it different to this school?
5. What's more important, the school you go to or where you live?
6. Can you tell when people your age are from a different part of London? Or Newham? How can you tell?

Identity

1. How would your friends describe you? How would you describe yourself? Are most of your friends similar to you or different? How so?
2. Where are you from? Is this the same as your parents? The rest of your family? Is there another place you feel like you're from/is important to you? Is one place more important than the other? Why/why not?
3. If you're watching an international sports event like the World Cup or the Olympics, which country do you support? Do you support more than one? Does it depend on the sport? What about the rest of your family?
4. Have you ever had a romantic relationship? If yes, tell me about it. If not, what would you look for?

Language

1. How would you describe the way you talk? Do you think you have an accent? How do you feel about this?
2. Do you speak more than one language? When do you use them/who with? Do you prefer one language over the other? How well do you speak each language?
3. Do you speak differently with different people? How so?
4. Do you have a special way of speaking with your friends? How so?
5. Do young people in Newham have their own way of speaking? Can you describe it?

Style

1. What's a cool hairstyle right now? Is this cool for all kids or only some? If only some, who? Is that how you wear your hair? Why/why not?
2. Describe a cool outfit that someone might wear outside of school/non-uniform day. Is that something you would wear? Why/why not?
3. What about (opposite gender)? What things do they like wearing/doing to their hair? Do they all do this or only some? If only some, who?
4. Describe the style of an uncool person – you don't have to tell me about a specific person, just describe what they would look like/wear.

A.2 Reading passage

There was once a poor shepherd boy who used to watch his flocks in the fields next to a dark forest near the foot of a mountain. One hot afternoon, he thought up a good plan to get some company for himself and also have a little fun. Raising his fist in the air, he ran down to the village shouting 'Wolf, Wolf.' As soon as they heard him, the villagers all rushed from their homes, full of concern for his safety, and two of his cousins even stayed with him for a short while. This gave the boy so much pleasure that a few days later he tried exactly the same trick again, and once more he was successful. However, not long after, a wolf that had just escaped from the zoo was looking for a change from its usual diet of chicken and duck. So, overcoming its fear of being shot, it actually did come out from the forest and began to threaten the sheep. Racing down to the village, the boy of course cried out even louder than before. Unfortunately, as all the villagers were convinced that he was trying to fool them a third time, they told him, 'Go away and don't bother us again.' And so the wolf had a feast.

The recordings involved a reading of the Wolf passage, a text that has been specially designed to facilitate the description of all the consonants and vowels of English (Deterding. 2006a. "The North Wind versus a Wolf": short texts for the description and measurement of English pronunciation', Journal of the International Phonetic Association, 36: 187–196.)

A.3 Word list

tea	Europe	hair
poor	cake	shirt
kit	fuss	this
choice	coke	butter
theft	pierce	money
scooter	fill	spark
better	through	kind
put	house	father
staff	peace	battered
thick	bird	ship
ruler	pure	there
fetch	happy	boot
duck	new	later
girl	bottle	paw
cat	goalie	down
blades	Paul	moist
taxi	mouth	took
roll	bit	those
bell	snaked	foot
chew	Paul's	sad

fight	safe	cook
peck	tower	bike
cousin	gas	thought
beer	pick	set
start	book	here
good	fam	paper
fire	keep	south
Peter	buy	pack
tooth	share	home
sock	come	baby
tar	goth	soap
like	bath	calm
fool	hurt	sugar
copy	boy	high
day	off	pool
last	now	model
count	feel	pause
both	smile	sure
watches	horse	pot
bare	cut	tail

A.4 Participant questionnaire

[IMPORTANT: everything on this form is completely private, I will not share it with anyone]

General info

1. Name

2. Age/DOB

3. Gender

4. Race/ethnicity (can be more than one)

5. What languages do you speak?

6. Place of birth (town or city/country)
 - a. If not East London, how long have you lived in East London?

 - b. If not UK, how long have you lived in the UK?

7. Other places lived (town or city/country, e.g. New York, USA)

8. Current place of residence (area/postcode, e.g. Leyton, E10)

9. How long have you lived in this place?

Family info

10. Where were your parents born? (town or city/country)
Mother:
Father:

11. How long in the UK?
Mother:
Father:

12. How long in London?
Mother:
Father:

13. Parents' occupation
Mother:
Father:

APPENDIX A. FIELDWORK MATERIALS

14. Parents' occupation before coming to the UK (if applicable)

Mother:

Father:

15. Highest education level (e.g. GCSEs, university)

Mother:

Father:

16. Languages spoken

Mother:

Father:

17. Tell me about your siblings

<i>Age</i>	<i>Gender</i>	<i>Languages spoken</i>

18. Do you all have the same parents?

a. If not, which parent do you share (if any)?

19. Who do you live with?

20. Who do your siblings live with?

Friends info

1. Who are your best friends in school? (Write them in order, 1 = best, 2 = next best...)

<i>Rank</i>	<i>Name</i>	<i>Age</i>	<i>Gender</i>	<i>Ethnicity</i>

2. Who are your best friends out of school? (Write them in order, 1 = best, 2 = next best...)

<i>Rank</i>	<i>Name</i>	<i>Age</i>	<i>Gender</i>	<i>Ethnicity</i>

3. Who is your best friend overall?

4. Who do you spend the most time with?

Interests

1. What music do you like?

2. List your top five music artists:

- a. ...
- b. ...
- c. ...
- d. ...
- e. ...

3. Who do you follow on Instagram/SnapChat? (general categories, e.g. sports players, actors, celebrities)

4. List your top five favourite Instagrammers/SnapChatters:

- a. ...
- b. ...
- c. ...
- d. ...
- e. ...

5. What's your favourite shoe brand?

6. List your top five shoe styles

- a. ...
- b. ...
- c. ...
- d. ...
- e. ...

B. Additional plots and graphs

B.1 FACE onset: linguistic factors

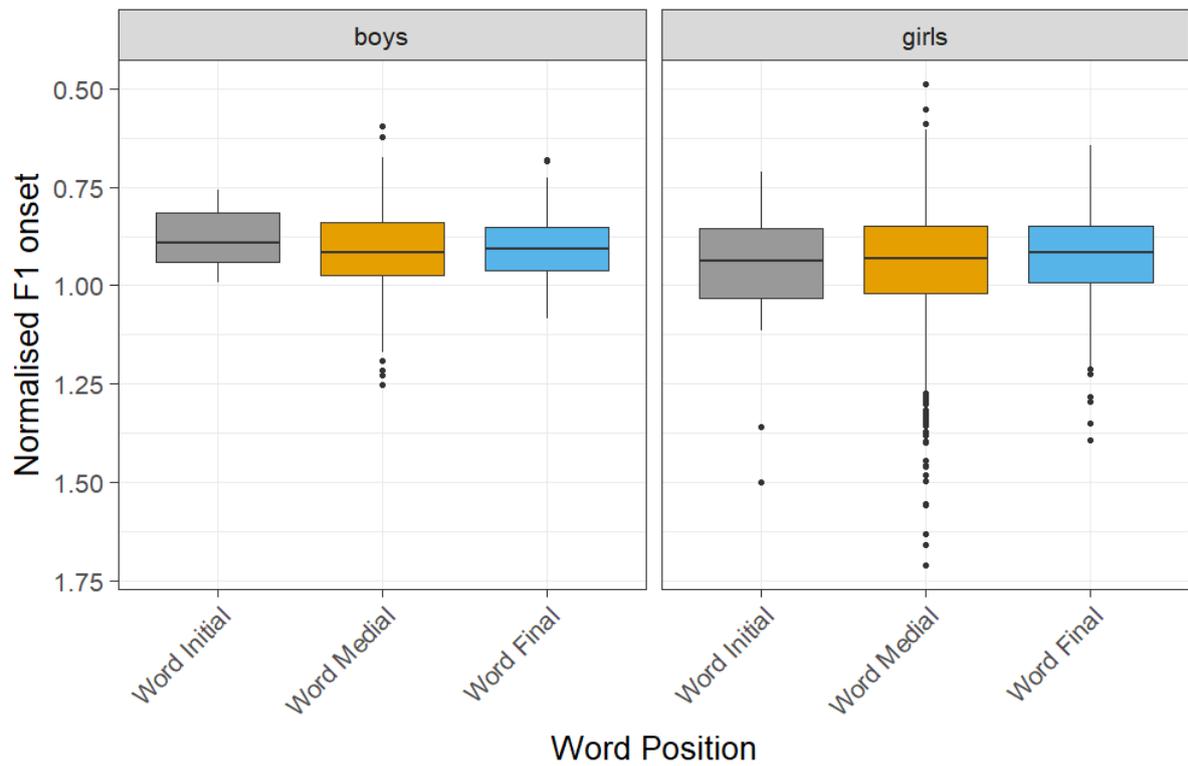


Figure B.1: FACE F1 onset by word position and gender

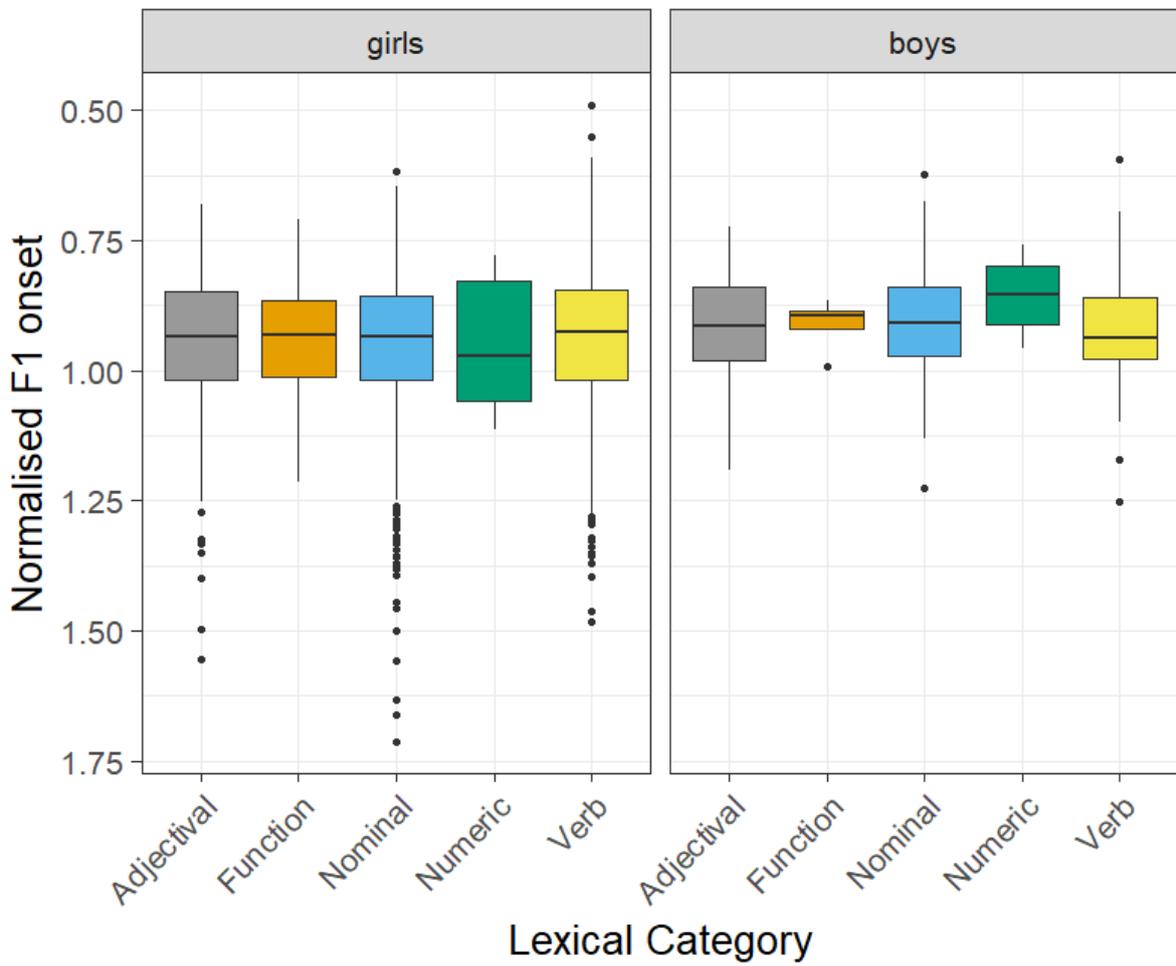


Figure B.2: FACE F1 onset by lexical category

B.2 PRICE onset: social factors

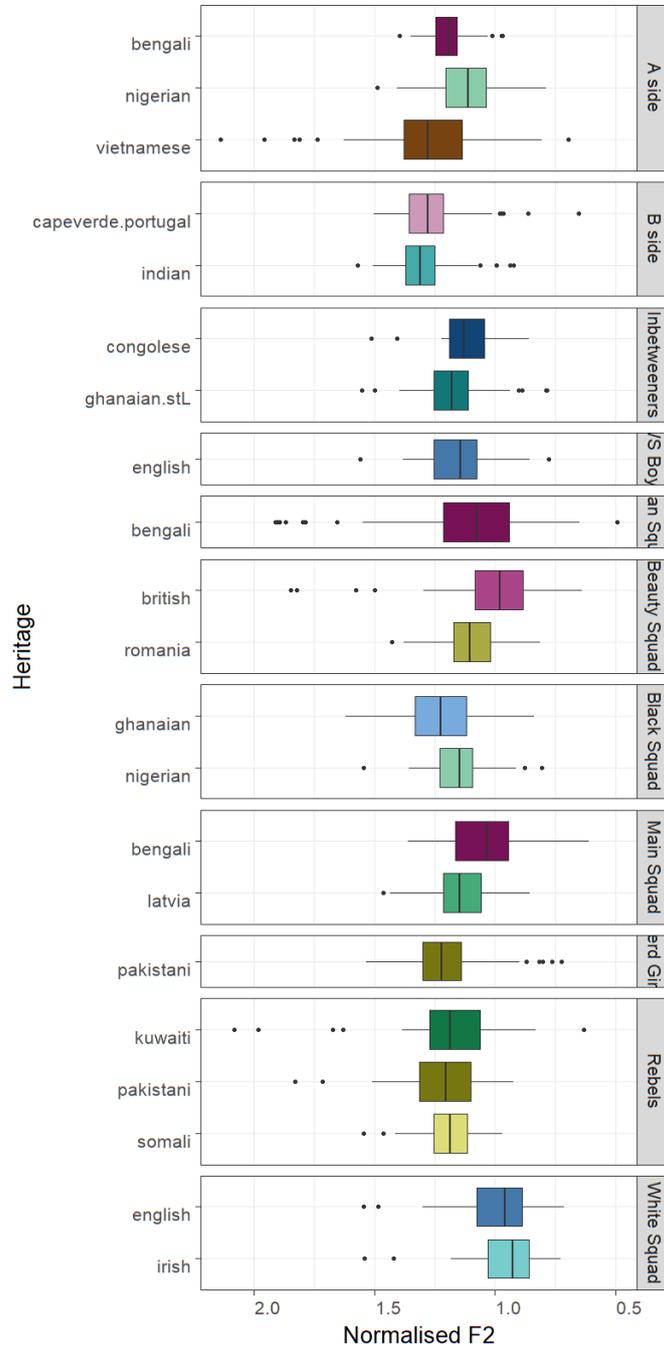


Figure B.3: PRICE F2 onset by peer group and heritage

B.3 PRICE onset linguistics factors

APPENDIX B. ADDITIONAL PLOTS AND GRAPHS

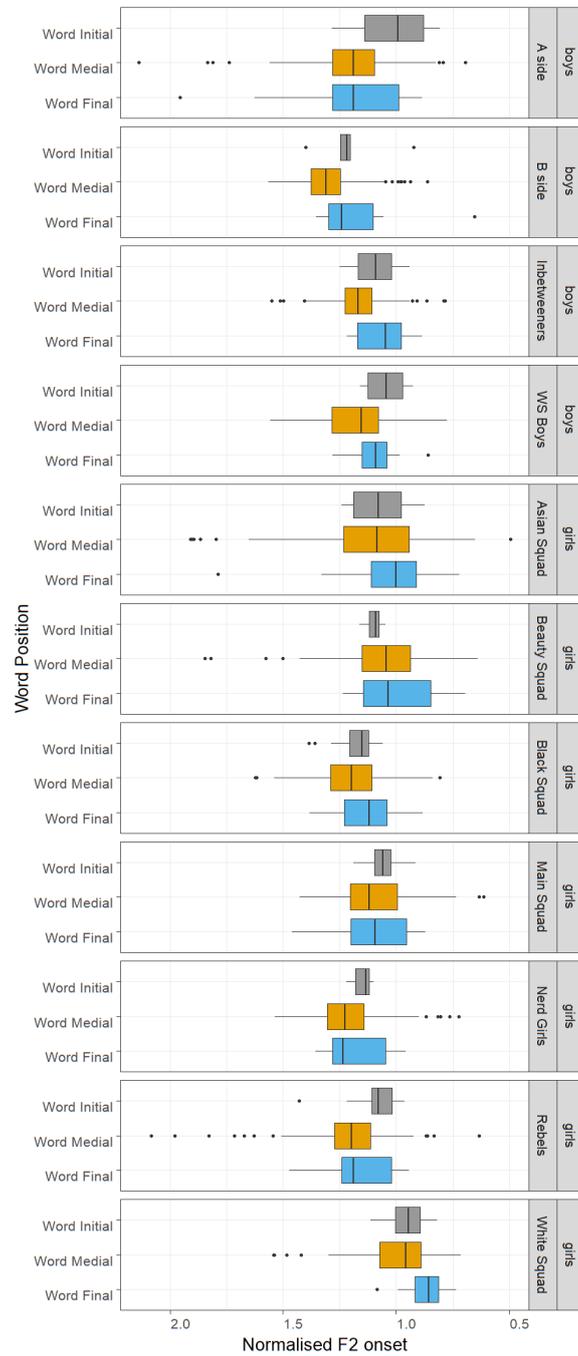


Figure B.4: PRICE F2 onset by word position and peer group

APPENDIX B. ADDITIONAL PLOTS AND GRAPHS

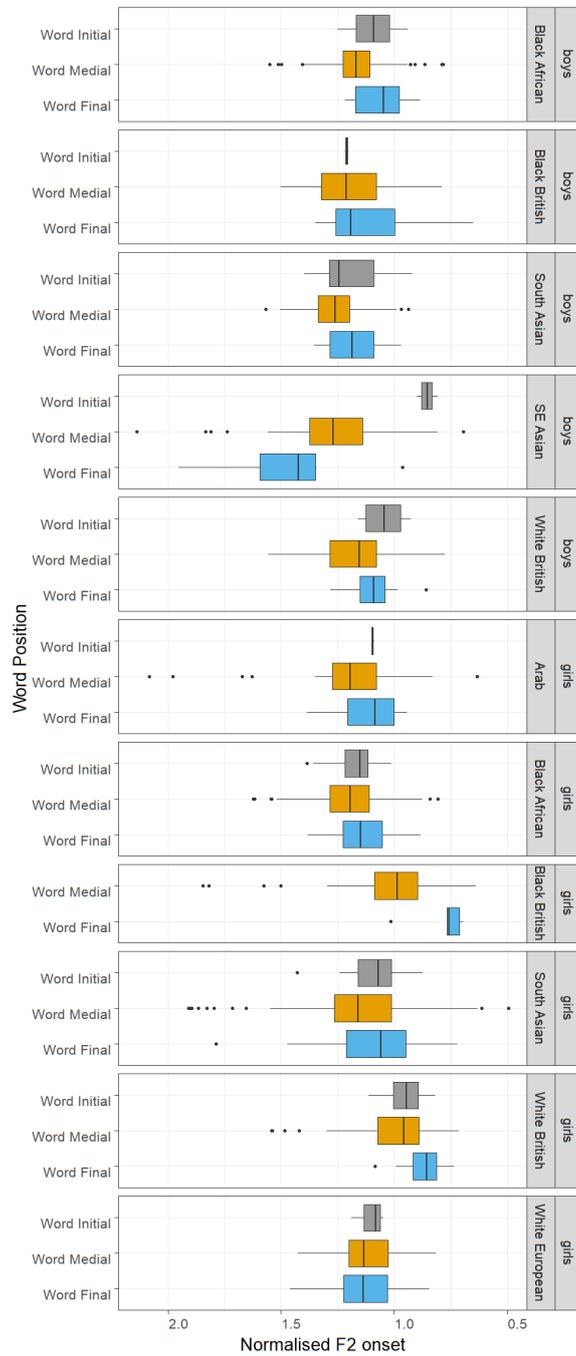


Figure B.5: PRICE F2 onset by word position and ethnicity

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