



The
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Productions and Perceptions of BATH and TRAP Vowels in Cornish English

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ABSTRACT

This thesis examines productions and perceptions of BATH and TRAP variation in Cornwall, England. It first identifies South Western ‘long <a>’ as one of the most salient features of West Cornish English. It then conducts an analysis of the production of the /a:/ variant in BATH and TRAP vowels in Cornwall, taking both a diachronic and synchronic perspective. This sociophonetic analysis considers both vowel quality and duration, comparing a new corpus of early adolescent speakers to the *Survey of English Dialects* (Orton & Dieth 1962) recordings from Cornwall, and a corpus of Received Pronunciation speakers. This shows how these vowels have changes in the years since the *Survey of English Dialects* and, where there have been shifts, demonstrates whether the young speakers are ‘doing RP’, or something different. It then explores the sociolinguistic correlates of variation in the early adolescent corpus, in order to determine how the vowel changes may be socially motivated.

To establish the salient features of West Cornish English, a perception experiment used a new methodology to test the salience of individual features in a guise by asking listeners to ‘click’ whenever they hear something that stood out to them (see Montgomery & Moore 2018). The results of this experiment indicate that lengthened variants of open, fronted vowels in West Cornish English are some of the most salient features of the variety. This is suggested to potentially be due to links between South Western ‘long <a>’ and negative rural stereotypes. The diachronic analysis finds that the majority of West Cornwall early adolescents have retained the fronted BATH vowel. However, both TRAP and fronted variants of BATH have significantly shortened to [a] since the *Survey of English Dialects*. It is suggested that the speakers participating in this shift are responding to a desire to maintain regional distinctiveness, while also avoiding using variants associated with rurality, which have potential to attract stigma. Therefore, in shortening the traditional Cornish English BATH vowel, the acoustic element of the variant with the most negative associations is lost, but it maintains its distinctiveness in comparison to the RP form. The synchronic analysis of these variables supported this hypothesis. In particular, the speakers were shifting *towards* fronted BATH in the most monitored style, but *away* from lengthened variants.

Overall, this thesis contributes to our understanding of an understudied variety of English, and rural varieties more generally. In particular, it demonstrates how rurality, and particularly the stigma that can come with variants associated with rurality, can shape linguistic practices. It also shows how rural adolescents, just like their urban counterparts, can be innovative in their language use. Regarding the implications for sociophonetic research more widely, this thesis demonstrates how vowel duration, like vowel quality, can vary meaningfully on a gradient, phonetic scale.

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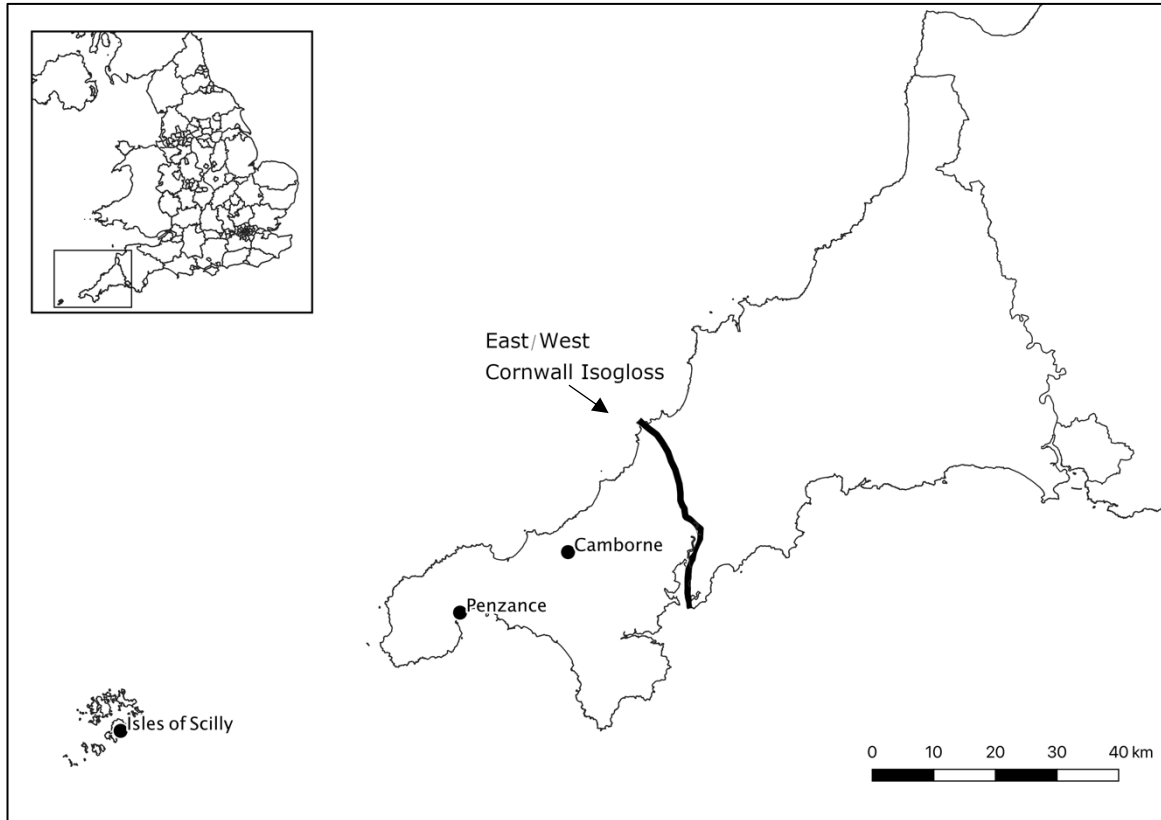
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DECLARATION

I, the author, confirm that the Thesis is my own work. I am aware of the University's Guidance on the Use of Unfair Means (www.sheffield.ac.uk/ssid/unfair-means). This work has not been previously been presented for an award at this, or any other, university.

MAP OF RESEARCH LOCATION



Map showing the location of Cornwall, and Wakelin's (1975: 27) rendering of Ellis' (1889) isogloss. [Contains National Statistics data © Crown copyright and database right 2019. Contains NRS data © Crown copyright and database right 2019. Source: NISRA: Website: www.nisra.gov.uk. Contains OS data © Crown copyright [and database right] 2019.]

CHAPTER 1: INTRODUCTION

1.0 THESIS OVERVIEW AND RESEARCH QUESTIONS

This thesis describes a production and perception study of variation in the BATH and TRAP¹ lexical sets in West Cornish English. The decision to focus on BATH and TRAP followed from a perception experiment (described in Chapter 4), which identified South Western ‘long <a>’ (the /a:/: variant of BATH, TRAP, and PALM) as the most salient feature of West Cornish English, using a tool that tests reactions to stimuli in real time (see Montgomery & Moore 2018). Following Montgomery and Moore (2018), this is suggested to be due to associations between this feature and ‘rurality’. Subsequently, using both a diachronic and synchronic approach, this thesis explores how the salience and social meaning of South Western ‘long <a>’ influences patterns in production for the BATH and TRAP vowels in West Cornwall. This is achieved through a sociophonetic analysis of the speech of 42 West Cornwall schoolchildren aged 11 to 13, stratified by a variety of social factors, and recorded taking part in map tasks and reading word lists. In order to provide a diachronic perspective on BATH and TRAP variation in the region, these speakers are also compared with a corpus of speakers from the *Survey of English Dialects* (SED) (Orton & Dieth 1962), and a corpus of Received Pronunciation (RP) speakers. This situates the adolescents on a continuum between traditional Cornish English and present-day RP.

This thesis has three main research questions:

1. What are the most salient features of West Cornish English?
2. To what extent have vowels in the BATH and TRAP lexical sets in West Cornwall changed in the intervening years since the Survey of English Dialects?
3. What are the sociolinguistic correlates of variation in these vowels?

The analysis provides insight into the understudied language of early adolescents, exploring how they may use language to index place, and the thesis is situated relative

¹ Wells’ (1982a) lexical sets are used throughout this thesis.

to work on these themes in this chapter. It first examines the literature on early adolescent language use, then it explores the importance of language and place in sociolinguistics, before discussing how rurality may shape linguistic practices. Given the importance of place, this chapter also discusses the rural research location that is the backdrop for the present study: West Cornwall. It demonstrates how dramatic social change over the last 60 years, and a resulting strong sense of place-based identity, make Cornwall an ideal site for sociolinguistic investigation.

1.1 EARLY ADOLESCENTS

This thesis explores the language use of a group of early adolescents from West Cornwall, first considering which features may be salient in the region, and then exploring these speakers' usage of the features from both a diachronic and synchronic perspective. In doing this, it provides insight into the social world of early adolescents, examining how their speech may be conditioned by an intersection of the social meaning of the vocalic variants, and the speakers' parental input, gender, social class, and place-based identities.

The language use of early adolescents has often been overlooked in sociolinguistic research. Studies of child and adolescent language in sociolinguistics have often focussed on how and when we acquire the vernacular, either exploring the acquisition of our first-learned vernacular from our primary caregivers as children (see, e.g., Smith & Durham 2019), or researching the language of older adolescents, who are assumed to have diverged from their parents and be at a 'peak' in their use of incoming forms (e.g. Labov 2001; Tagliamonte & D'Arcy 2009; Holmes-Elliott 2016; Denis et al. 2019).

Beginning with the research on older adolescents, in an apparent time analysis of nine phonological sound changes in Philadelphia English, Labov (2001) found that changes in progress were most advanced in the speech of late adolescents. Tagliamonte and D'Arcy (2009) have also found the same effect in an analysis of six morphosyntactic and discourse pragmatic linguistic changes occurring in Toronto, Canada. Across apparent time, a peak in usage of the incoming forms occurred in late adolescence for the majority of the linguistic features. In general, younger speakers appear to align linguistically with their caregivers as children, and at some point before adolescence 'vernacular

reorganisation' (Labov 2001: 415) occurs, and speakers begin to use innovative, incoming forms. As a result, children and post-adolescent speakers tend to lag behind in the use of innovative forms, creating what Labov (2001: 454) terms an 'adolescent peak'.

This adolescent peak in use of incoming forms has been attributed to a teenage desire to differentiate oneself from peers, children, and adults (Kirkham & Moore 2013). As a result, adolescents tend to form clearly defined local social groups (Eckert 2003). As stated by Eckert (2003: 113), '[in adolescence] competition for resources, recognition, and power creates a social hothouse effect, as groups and categories emerge around defining norms and carving out social meaning'. Adolescents are also not subject to the same experiences and pressures as adults, further exaggerating this effect. As summarised by Wagner (2012: 375): 'adolescents have been characterised as relatively free of responsibilities and normative pressures from the linguistic market, and this is assumed to be reflected in the high rates of use of non-standard features'. This effect has been demonstrated in a variety of studies using ethnographic methodologies to explore language use amongst adolescents in relation to local peer group organisation. Most notably, Eckert (2000) explored the social practices of high school students in Detroit and how this influenced their participation in the Northern Cities Vowel Shift. In the school, there were two oppositional social groups, the jocks and the burnouts. Despite the fact that there were speakers from a variety of macro-social demographic categories within these groups, Eckert found that the students tended to use linguistic forms which aligned with these local social groupings, as opposed to the wider, macro-level categories to which they belonged. Following Eckert (2000) there have been a number of studies demonstrating the importance of peer group organisation on adolescent language use, e.g.: variation according to community of practice membership amongst adolescent girls in Bolton (Moore 2003); in relation to girl gang membership amongst Latina youths in California (Mendoza-Denton 2008); amongst adolescent working class males in Glasgow (Lawson 2011); in a multi-ethnic school in Sheffield (Kirkham 2013); or amongst Roma migrants in a Manchester secondary school (Howley 2015).

In earlier childhood, in comparison, children interact most with their primary caregivers, and research into the acquisition of linguistic variation has generally found that as children acquire language, they are also acquiring the norms of the speech community (e.g. Roberts and Labov 1995; Roberts 1997; Smith et al. 2007). Although young children do sometimes acquire changes in progress, this is assumed to be due to the influence of mothers as primary caregivers, as women tend to lead language change (Roberts 1997).

Therefore, we know that children acquire the vernacular from their caregivers from a very young age, and that by late adolescence they are most oriented towards their peer groups' vernacular, and are more advanced than their parents in the use of incoming forms. Labov (2007: 346) suggests that this process begins when children start to move outside of the immediate influence of their caregivers, most likely after the age of five. However, we know little about the relative influence of peers and caregivers in the intermediate stages.

Research into this subject has often examined the speech of children of migrants to a region, exploring the extent to which they acquire (or lead the formation of) local variation. Kerswill and Williams' (2000; 2005) study of new dialect formation in Milton Keynes, a New Town in England, found a significant difference between the linguistic behaviour of children aged four, eight, and twelve. In this case, although the 12 year old children were shown to be leading the formation of the new dialect in the region, in a comparison of each of the age groups with the caregivers' speech, Kerswill and Williams (2005: 1031) find that, '[b]y the age of eight, the children are apparently no longer influenced by their caregiver's pronunciation. In other words, vernacular reorganisation had already begun in between the ages of four and eight.

In comparison, research from Chambers (1992) and Payne (1980) has suggested that caregiver input is paramount in the acquisition of variation and, importantly, it stays with them into adolescence, especially where the internal constraints of a local feature are particularly complex. For example, Payne (1980) found that, amongst the children of in-migrants to Philadelphia, those who moved to the region youngest were able to most effectively acquire the complex Philadelphia 'short *a*' system. However, only

children with local parents were able to *fully* master the internal constraints of this feature.

Research on children and early adolescents has also considered the age at which speakers become aware of, and able to exploit, the social meaning of variation. Returning to the study of new dialect formation in Milton Keynes, Kerswill and Williams (2000: 103) find that the sociolinguistic competence required to consistently style-shift had not yet developed in the speech of four and eight year olds. This finding is in line with other research on the sociolinguistic competence of children. For example, Romaine (1984) observed style-shifting between interview and read speech in children from aged ten in Edinburgh. In slight contrast, Labov (1964) found that, while children began to use the vernacular of their peers at around age five, they did not acquire adult-like patterns of stylistic variation until late adolescence. Recent work from Smith and Durham (2019) provides a more nuanced insight into this process. They found that children begin to style shift according to the formality of a situational context around the age of three years and two months (Smith & Durham 2019: 189). However, they suggest that the children may not yet be orienting to prestige norms, but are simply displaying a sensitivity to the situations in which they should use local or standard forms. Awareness of the social status of certain linguistic features, they suggest, will be learned later (Smith & Durham 2019: 190).

Ethnographic research on the linguistic practices of older children and early adolescents has provided evidence for awareness of the social meaning of linguistic variation in children a few years older than those surveyed by Smith and Durham (2019). For example, Moore (2003; 2011) found that girls between the ages of 12 and 13 were able to exploit the indexical meanings of non-standard *was/were* variation in the construction of a 'rebellious' persona. Similarly, in Teeside, children as young as nine years old were shown by Snell (2010; 2017; 2018) to creatively use local non-standard forms in order to convey complex sociolinguistic stances. For example, Snell (2017) examines how the primary-aged children exploited the social meaning of a local indexical item, 'howay', to convey stances of authority, egalitarianism, and fair play. Therefore, this research has demonstrated that speakers in pre- and early adolescence are able to linguistically orient to local social groupings and implement the creative use of style in identity construction.

Overall, this previous research on children and adolescents has highlighted how the social world of older adolescents is dominated by peer group interaction, and this is reflected in their language use, while younger children generally replicate their (female) caregivers' language. However, the research on the in-between stages is more sparse. We know less about the relative importance of peer group and caregiver input amongst early adolescents, and there is some debate about the age at which full sociolinguistic competence emerges. This thesis provides some insight into the language use of this age group, examining how their language use may be socially constructed, and the extent to which parental input may continue to influence their speech in early adolescence. In particular, it explores how these speakers may use language to index place, which is explored more fully in Section 1.2 below.

1.2 LANGUAGE AND PLACE IN SOCIOLINGUISTICS

This section explores the sociolinguistic research into language, region, and place-based identities. Sociolinguistic conceptualisations of space and place have traditionally followed closely behind directions in human geography (see Britain 2010a; 2010c). Therefore, it is first necessary to outline the development of human geographical perspectives on space, whose 'lurching' shifts in conceptualisation are described by Massey (1985). Before the 1960s, the main interest of human geography was on regional distinctiveness and the uniqueness of places. However, this view was eclipsed by the rise of the quantitative revolution in geography, where 'only the general and the generalisable were scientific' (Massey 1985: 10). As a result, there was no room in geography for the consideration of the individuality and uniqueness of place and social relations. In response to this, the 1970s saw a new dominant position arise: 'that there are no such things as purely spatial processes; there are only particular social processes operating over space' (Massey 1985: 11). Following Entrikin (1991), Johnstone (2004) delineates these two theoretical standpoints as 'place as location' and 'place as meaning', the former being physical, quantifiable and perceived as objective; the latter being socially constructed and perceived as subjective. Massey (1985: 12) critiques both of these approaches, stating that 'space is a social construct - yes. But social relations are also constructed over space, and that makes a difference'. In other words, place is both meaning *and* location and both these factors must be considered in studies of space.

In the run up to the ‘first wave’ of variationist sociolinguistics in the 1960s (see Eckert 2012), early dialectology mirrored human geographic thinking in its preoccupation with regions and uniqueness. Beginning with the work of dialectologists such as Ellis (1889) and Wright’s *English Dialect Dictionary* (1898), there was a great interest in studying and demarking dialect regions within countries. This led to large-scale dialectology studies in the mid-20th Century, such as the *Survey of English Dialects* (Orton & Dieth 1962), and *The Linguistic Atlas of Scotland* (Mather, Speitel & Leslie 1975). At the same time, and often using data from these surveys, attempts were made to draw isoglosses demonstrating patterns of variation across countries and regions. Where many isoglosses appeared to ‘bunch’ together, borders between dialect regions were drawn (e.g. Orton, Sanderson & Widdowson 1978). Given that these early dialectological surveys aimed to act as an historical document, they tended to focus on rural communities, as they were perceived to have the most ‘pure’ and ‘authentic’ speakers (Gordon 2019: 437).

Where space and place were considered in studies of language variation and change at this time, they were usually constrained to objective, quantifiable facts, resting firmly in the view of ‘place as location’ (Johnstone 2004). For example, there was much focus on the development of models of the diffusion of linguistic innovations. Following models of diffusion in human geography (e.g. Hägerstrand 1952), Trudgill (1974a; 1975) developed the *urban hierarchical* model of linguistic diffusion, in which innovations spread from large urban areas to large towns before they reach the smaller, more rural areas in-between. In addition, a number of other models of diffusion which describe the different ways in which innovations can spread have been developed. For example, *wave* or *contagion* models (e.g. Trudgill 1986; Bailey et al. 1993; Blaxter 2017) suggest that innovations spread like a water ripple from a central point, first reaching proximal locations, then diffusing to more distant places.

While these models have been undeniably influential and have greatly increased our understanding of language variation and change, they have since been criticised for a lack of consideration of social factors (Britain 2010a; 2016; Johnstone 2010a). These models assume that speakers are simply passive receptors of language change, governed by the objective physical fact of their location and they ignore the different ways in

which people can relate to place. Britain (2010a) discusses how there may be social constraints on diffusion, such that the adoption of an innovation may, for example, be viewed as a rejection of a strong local identity. This accounts, Britain (2010a: 15) claims, for the ‘fossilised innovations’ of BATH /a:/ and the STRUT-FOOT split in England, which have failed to diffuse beyond Southern England. As discussed in Section 2.4.3 of Chapter 2, Northerners have resisted, in particular, the innovative BATH vowel, with claims being made about it being a ‘denial of their identity’ to adopt salient Southern forms (Wells 1982b: 354).

Similarly, Horvath and Horvath (2001) have analysed the adoption of /l/ vocalisation across New Zealand and Australia. Through an analysis of speech from almost all major urban localities in this region, they identify a significant isogloss between New Zealand and Australia and a distinct dialect region in South Australia. Traditional models of diffusion were not sufficient to describe this patterning. Instead, Horvath and Horvath turn to the effects of place on language change, citing the rivalry between New Zealand and Australia, as well as the ‘separate and distinct national identity on the part of New Zealanders’ (2001: 53). This study highlights the way in which space and place are interconnected and how one cannot be considered without the other. This viewpoint is summarised by Horvath and Horvath (2001: 53): ‘space and place operate together in the real world, but their causal importance may vary from context to context’.

The importance of both space and place in language variation has also been considered in other areas of sociolinguistics. Although there are still many studies of a ‘first wave’ nature being carried out to this day, often in urban areas, there has been a recent shift in sociolinguistics in which space is treated as ‘dynamic and conditioned by those who live in it’ (Corrigan & Montgomery 2015: 203). Many of these studies are theoretically grounded in Anderson’s (1991) notion of ‘imagined communities’. Anderson (1991: 6) explores conceptions of nations and nationalism, stating that they are ‘imagined’, as ‘the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion’. This theory has been expanded and applied in recent sociolinguistic work to explore how places may be constructed and understood in terms of how they are

meaningful to their inhabitants. This notion of place as socially constructed and ‘imagined’ has moved more recent sociolinguistic research towards a consideration of ‘place as meaning’ (Johnstone 2004).

One of the most notable ways in which researchers have explored ‘place as meaning’ are in studies of ‘local orientation’. This approach to place has developed in the late 20th Century, but the first consideration of local orientation came from Labov’s (1963) sociolinguistic work on Martha’s Vineyard. Labov (1963: 306) found ‘*orientation towards Martha’s Vineyard*’, determined through qualitative analysis of participants’ talk about the island, to be a significant predictor of phonological variation. In particular, the centralisation of the onsets in the diphthongs in the PRICE and MOUTH lexical sets are suggested to be indexically linked to local identity: ‘it is apparent that the immediate meaning of this phonetic feature is ‘Vineyarder’ (Labov 1963: 304). Participants were divided into groups of either ‘positive’, ‘neutral’ and ‘negative’ orientation towards the island and it was found that this was the best predictor of centralisation of the diphthongs. This appears to be a strong indicator that linguistic forms are linked to place and local identity and that regional identity is an important factor to consider in studies of language variation and change. In addition, this work challenges the homogeneity of rural areas that was presupposed in the early large-scale surveys, highlighting how islanders’ experience of the place conditioned their language use.

With the exception of Labov (1963), work exploring how local identity may influence language change did not become popular in sociolinguistics until the 1990s. While research with nuanced interpretations of space has been carried out in urban localities (e.g. Milroy 1987; Eckert 2000; Johnstone, Andrus & Danielson 2006), much of this work has focussed on rural communities. Indeed, in a review of language variation and change research in rural settings, Gordon (2019: 441) notes that ‘themes of rural people’s signalling of their identities through local speech variants run throughout sociolinguistic literature’. For example, Hazen (2002a) explored how the ‘cultural identity’ of rural speakers in Northern Carolina influenced their use of stigmatised morphosyntactic variants in the region. Specifically, he considered speakers’ orientations to either the local rural community or the urban areas further afield, and categorised them as having either ‘local identity’ or ‘expanded identity’ (Hazen 2002a: 242–243). Hazen found that

speakers with a more local cultural orientation were significantly more likely to use stigmatised morphosyntactic variables than those with 'expanded identity'. While the 'standard' demographic categories did significantly condition variation, cultural identity could better explain interspeaker variation within groups that, at the surface level, appeared to be homogenous. As such, Hazen (2002a: 241) calls for cultural identity to 'become part of the regular litany of nonlinguistic factors assessed in the study of linguistic variation'.

These results have been reproduced in a number of other rural speech communities and across different types of variables (see Section 3.2.3 of Chapter 3 for a review of studies of local orientation quantified using identity questionnaires). For example, local identity in rural regions has been found to condition variation beyond the use of stereotyped, stigmatised variants. Ito and Preston (1998) found that local orientation was also a significant predictor of resistance to participation in the Northern Cities Shift, even though it is below the level of consciousness. Speakers who expressed affiliation with 'small town' life were significantly less likely to produce the innovative variants which are diffusing from urban areas. Although the standard variables such as age, gender and ethnicity, along with objective physical distance from the city, were found to influence participation in this shift, this study also demonstrated the importance of consideration of 'place as meaning' in studies of language change.

More recently, Reed (2018) has explored how lifespan changes in place attachment, or 'rootedness', may influence use of local variants in Appalachia. An interview with one Appalachian local was compared with a recording of her at high school. In the intervening 20 years, she had moved to the broader South, but outside Appalachia, and become highly educated. Between the two recordings, she had shifted from using an almost categorical monophthongal PRICE vowel, to an almost categorical diphthongal pronunciation. Reed suggests that this was due to a shift in her orientation to the region, as when she was in school, the local region was more important to her identity. In addition, the social meaning of monophthongal PRICE may not be the same in the new context of her professional career. While local features may have a positive index of localness in her home town, they may index 'the more negative meanings of Appalachia' in a professional context (Reed 2018: 421). This demonstrates the way in which

orientation to region may shift in an individual across different life stages, as well as how features which index localness may be interpreted differently outside of the region.

Research from Dyer (2002) and Burland (2017) has demonstrated how these processes may not behave in a uniform manner across generations. In an exploration of the formation of a new dialect in Corby, Northamptonshire as a result of Scottish migration, Dyer (2002) demonstrated how the social meaning of incoming Scottish forms shifted over three generations. Over time, Scottish variants in Corby became de-linked from associations with Scottish ethnicity, and now index a local, Corby identity. As a result, the youngest speakers in the study, who did not identify as Scottish, used the features to project local identity. Similarly, Burland (2017) found that local forms of FACE and GOAT in Royston, a township in Barnsley, South Yorkshire, have resisted levelling over two generations of local speakers. However, the social meaning of these forms appeared to have shifted, with older speakers associating the features with the town's linguistic history of migration from the Black Country and Derby, while the younger speakers associated the same features with 'the unique character of the township' (Burland 2017: 254). It was this new index of 'localness', claimed Burland (2017: 254), that had helped these highly local variants to resist dialect levelling.

The research discussed above indicates that a strong sense of local identity in a region may help variants associated with that place resist levelling, particularly in rural localities. However, research from Smith and Durham (2011; 2012) in a peripheral and rural community in Shetland, northern Scotland has provided evidence for rapid dialect attrition. They found that while the older generations were relatively homogenous in their use of local form, there was a sharp stratification amongst the younger speakers. For some of the younger speakers, the local dialect had been almost entirely replaced by a standard variety, while others still had very high rates of local forms. However, they could find no one factor that seemed to condition this split. Notably, the amount of time the speakers had spent away from the island, and the degree of their affiliation to the region had no consistent effect. Smith and Durham (2012) conducted follow-up recordings with the same younger speakers, exploring style shifting patterns according to interlocutor. They found that, while the standard speakers did not style shift, those who still used local forms were bidialectal. This further supported the suggestion that

the local dialect in Shetland was moving towards obsolescence. This research demonstrates how a strong sense of local identity in a rural community will not always be effective in a local variety's resistance to dialect attrition.

Finally, there have been a number of studies exploring how place identity can be emergent through language use. In an ethnographic study of white speakers in New York's Lower East Side, Becker (2009) found that her participants would increase their usage of non-rhoticity, a salient local feature, when discussing 'neighbourhood topics'. This, Becker (2009) claimed, reflected the speakers' desire to present themselves as authentic residents of the neighbourhood in the face of increasing demographic change and gentrification. Nycz (2018) presented similar results in a study of language use amongst Canadian migrants in New York and Washington DC. When expressing negative affective stances towards the USA, speakers would shift towards more Canadian pronunciations, and the speakers in New York would use more local features when expressing positive affective stances towards the city. Similarly, Leach (2018) demonstrated how a more generally vernacular variable, /h/-dropping, could be used for locally-relevant identity practices amongst pottery workers in Stoke-on-Trent. She found that, although most of the speakers could broadly be considered to be working class, non-factory floor roles were more locally- prestigious. As such, speakers who worked within these roles used /h/-retention more when discussing work topics, distancing themselves from their peers with more industrial roles. These studies demonstrate how both mobile and non-mobile speakers are able to meaningfully exploit locally salient place-based indexical meanings in speech, as well as more generally vernacular features, to construct more locally-relevant meanings.

Overall, the wealth of linguistic research on language and place has demonstrated the great importance of place and place identity on language variation and change. Speakers' orientation to a region, or 'rootedness' (Reed 2018), plays an important role in determining either usage of a local, stigmatised form, or resistance to innovations diffusing from urban locales. These studies have demonstrated the way in which regional varieties do not simply exist due to geographical location, but due to speakers' experience and expression of place-based identities. Within the rural context, where the local vernacular is often particularly subject to overt stigma (see Hall-Lew & Stephens

2012), consideration of the ‘rootedness’ of individual speakers is potentially even more important. Section 1.3 below will further explore the interplay between rurality and linguistic practices.

1.3 RURALITY, CORNWALL, AND LINGUISTIC VARIATION

The present study explores the effect of four key speaker attributes on language use in Cornwall: parental birthplace, gender, social class, and orientation to Cornwall. The following section considers how rurality may condition linguistic practices amongst early adolescents, given the region’s distinct geographical and cultural make-up. This provides insight into locally-specific variation according to these speaker attributes, while additionally adding to our understanding of language variation and change in the understudied rural context.

In sociolinguistics, Britain (2009a; 2012; 2017a) has argued convincingly against the ‘fetishisation’ of the urban. Since the birth of variationist sociolinguistics, researchers have tended to focus on urban areas, as this is assumed to be where the most ‘innovative’ language use is occurring (Britain 2017a: 180).² However, as stated by Britain (2012: 25), ‘[u]rbanisation... has (only) a contingent effect on sociolinguistic practices – it has created the context for contact’. In other words, the reason why rapid language change and innovative linguistic practices occur in cities is the ample opportunity for *contact*. Drawing from the wealth of research in rural geography and sociology he argues that, in this way, urban and rural regions are not dissimilar: ‘while contact may well be most obviously and vividly felt and observed in cities, it is not confined sociologically or epistemologically to an urban context’ (Britain 2012: 25). As demonstrated in Section 1.4.1 below, the dramatic demographic changes that have occurred in Cornwall over the past 60 years exemplify this argument. In the present study, the effects of these demographic changes are explored with both a diachronic and synchronic analysis of language use in the region. First, Chapter 6 provides a diachronic comparison of language use amongst present-day speakers, and those recorded for the SED in the 1960s, just as these changes were beginning to take effect. Subsequently, Chapter 7

² Although, note that Labov’s (1963) first work was with a rural community in Martha’s Vineyard.

considers how the linguistic practices of present-day speakers differ according to parental birthplace, which provides further insight into how in-migration may be shaping Cornish English.

Research in human geography has also highlighted how traditional gender roles have been particularly important to rural communities, with women generally being excluded from, or their work being undervalued in, more 'masculine' employment. As summarised by Little and Panelli (2003: 284): 'traditional ideas of femininity, particularly women's roles as mothers... were central to the dominant cultural constructions of rurality'. As such, with women's exclusion from 'masculine' employment stereotypically being at the heart of rural life, rural identities are inherently gendered (Campbell 2000; Little & Jones 2000). In addition, research from Brandth and Haugen (2011) has shown that the loss of traditional industry and need for agricultural communities to diversify into tourism has, in some cases, served to further reproduce these gendered identities. Rural farming families who had diversified their business to host tourists were found to reproduce traditional gender roles in order to appeal to visitors' expectations of 'authenticity'.

In sociolinguistics, Moore and Carter (2017) have explored how these gendered experiences of rural life are reflected in language variation on the Isles of Scilly. They found that, in addition to an increased pressure to conform to standard language norms, for women in the community, there were 'limitations on the kind of Scillonian identities available to them' (Moore & Carter 2017: 276). This is reflected in the patterning of variation in the community, with the most local forms being used by men associated with working class life. Similarly, Ladegaard (1998) explored language attitudes and usage amongst adolescents in rural Denmark. He found a stark difference in the language use amongst boys and girls in the region, with boys using four times more non-standard forms than girls. Ladegaard suggests that this could be explained by gender differentiation of place-based attitudes amongst these speakers. The boys rarely had any aspirations to leave the area, stating that they would like to work as 'farmers, fishermen, lorry-drivers or manual labourers' (Ladegaard 1998: 13). In contrast, the girls tended to have educational and career aspirations that would take them out of the community. As a result of these aspirations, the girls were more sensitive to standard

language norms, and this was reflected in their language use. Ladegaard (1998: 19) argues that this is a reflection of the social structure of the rural area in which they live: ‘the teenage boys and girls in this community have *internalised* the gender-specific speech pattern current in the area and... they are developing gendered identities in accordance with prevailing social patterns’ (emphasis in original). These patterns have endured into recent years, as Monka et al. (2020) have found very similar results in the same region, with the added nuance of an *index of local attachment*. They found that, although both boys and girls who scored highly on the index were more likely to use local feature, boys generally scored much higher. As such, they conclude that ‘boys may have “more to gain” by signalling local orientation by the use of local features, and the local might hold more status among boys than girls’ (Monka et al. 2020: 196).

Given the age of the contemporary speakers in this study, it is important to consider how early adolescents specifically experience place and rurality. For example, research in rural human geography has demonstrated how the evaluation of rural places amongst adolescents is often in direct opposition to adult constructions of the ‘rural idyll’ (see Matthews et al 2000). This is often linked to the lack of opportunities for educational and career progression (Looker and Naylor 2009). However, the contemporary speakers in this study were in *early* adolescence, aged 11 to 13. They were yet to experience the job market, and were unlikely to have yet begun seriously considering their post-school aspirations. Indeed, Matthews et al. (2000: 148) suggest that dissatisfaction with rural life generally begins to emerge around age 13. In addition, Cornwall is a peninsular, bordering only one other county, and the closest large, culturally significant urban centre is Bristol, a four hour train journey from Penzance. The pull of this ‘big city’ may not be as strong for young people in the region. Indeed, as shown in Section 5.1 of Chapter 5, the young people in the corpus generally positively associated with the region. However, while their *lived experiences* of Cornwall may be generally positive, this is not to say that they won’t be aware of the stereotypical negative *ideologies* linked to rurality (see, for example, Vanderbeck and Dunkley 2003).

Finally, where rurality *reinforces* traditional gender roles, rurality and peripherality may serve to *decrease* the linguistic effects of class stratification amongst school-aged children. In sociolinguistics, social class has been repeatedly demonstrated to be

important in studies of language variation and change, with the most non-standard language being traditionally the domain of the working classes (e.g. Labov 1972a; Trudgill 1974b; Snell 2018). Researchers such as Snell (2010) have highlighted how class-based language practices are reproduced by school catchment areas, with certain schools taking in students from predominantly working class neighbourhoods. While there is, of course, considerable inequality in Cornwall (Payne et al. 1996), school catchment areas are much wider than those in more urban locales (cornwall.gov.uk 2019). In addition, there are very few private schools in Cornwall (Independent Schools Council 2019). As a result, rurality in Cornwall may produce less class-based variation amongst schoolchildren.

1.4 AN INTRODUCTION TO THE RESEARCH LOCATION: CORNWALL

The previous sections have discussed research on language and place in variationist sociolinguistics, with a focus on how rurality conditions linguistic practice. This thesis explores how these themes influence language use in one specific research location: Cornwall. The following sections provide an historical, sociocultural and linguistic contextualisation of Cornwall. First, Section 1.4.1 is an exploration of the demographic make-up of the county, with a focus on how this is conditioned by its industrial and Celtic history. The subsequent section gives a brief linguistic overview of Cornwall, demonstrating how West Cornish English is situated within the wider context of accent variation within the UK (Section 1.4.2).

1.4.1 HISTORY AND DEMOGRAPHICS OF CORNWALL

Cornwall is a county characterised by its idyllic scenery, industrial past, and Celtic connections (see, e.g. Visit Cornwall 2019). The following section explores these factors, with a focus on how they combine to create a sense of ‘otherness’ and ‘difference’ amongst the inhabitants of the county. Cornwall has an estimated population of 549,404 (Population.City 2019), which makes it the county with the eighth lowest population density in England (Country Digest 2017). Cornwall is also geographically peripheral in England, situated on the furthest South Western peninsular. It borders only one other county, Devon, and is surrounded by the Irish sea to the North, and the English Channel to the South. Along with the majority of the wider South West,

Cornwall is also a largely rural region, with no large urban centres (Commission for Rural Communities 2008: 8). Within West Cornwall, which is the focus of the present study, the largest towns are Penzance and Camborne, with populations of 21,200 and 21,600, respectively (Country Digest 2017).

Within Cornwall, it has been argued that there is a distinct sense of ‘difference’ from the rest of England. For instance, Husk and Williams (2012: 250), state that there has long been ‘an internally recognised and legitimate distinct Cornish identity’. This is underpinned by factors such as the Tamar river running most of the way along the Cornwall-Devon border, which is considered by some to make Cornwall ‘almost an island’ (Hayward & Fleury 2019); the prevalence of the Cornish flag (St. Piran’s Cross) in the county (Payton 2004: 262–263); and the importance of the Cornish rugby team (Porter 2014). Following the establishment of the Institute of Cornish Studies in 1971 and the *Cornish Studies* journal (University of Exeter no date), there has also been a large amount of academic research on Cornwall’s history, culture and distinctiveness. In 2014, this identity became externally legitimised, when ‘Cornish’ joined Welsh, Scottish, and Irish as a recognised ‘national minority’ (Gov.uk 2014). Despite the fact that the 2011 census was administered before the official recognition of Cornish ethnicity, and it had no designated ‘tick box’ on the form, 82,802 people claimed to have (at least in part) Cornish national identity (Office for National Statistics 2015).

The recognition of the Cornish as a national minority alongside the other Celtic nations speaks to Cornwall’s Celtic connections, which are argued by Husk and Williams (2012) to play a large role in the development of a distinct Cornish identity. Most notably, Cornwall lays claim to one of three Brythonic languages, along with Welsh and Breton. The Cornish language was widely spoken in the county until it was entirely replaced by English in the 18th Century, with the last monolingual Cornish speaker dying in 1777 (Payton 2004: 175–176). However, the Cornish language could (and still can) be found in place names, particularly in the West of the county where English was adopted latest (Wakelin 1975: 74–77). Since the late 19th Century, a group of Cornish language revivalists have worked to codify the language and reconstruct its phonology (e.g. Jenner 1874; Nance 1952). Efforts to revive and promote the Cornish language have been reasonably successful, with initiatives such as the implementation of bilingual English

and Cornish street signs (Planning and Sustainable Development Service 2019: 4). However, as noted by Sayers (2018: 34), present-day usage of the Cornish language is generally symbolic, as opposed to fluent day-to-day usage. In addition to the Cornish language, Cornwall's Celtic connections are also prominent in the numerous local festivals and traditions, which often have roots in Celtic and pagan folklore (see, e.g. Trower 2009; Semmens 2010; Harris 2016).

The Cornish sense of 'difference' from the rest of England can also be linked to its industrial past. The county was once characterised by the traditional industries of farming, fishing and mining. However, there has been a slow decline of Cornwall's traditional industries since the beginning of the 20th Century (Wakelin 1975: 44; Payton 2004: 182–186, 222–224). In a discussion of the history of Cornwall's mining industry, Orange (2012: 57–58) describes how the demand for the metals mined in Cornwall was high in the post-war period, with the International Tin Council (ITC) maintaining high selling prices. However, the ITC collapsed in 1985, halving tin prices and, as a result, all of Cornwall's mines closed over the following 13 years. This caused a great deal of social change in the region and a new reliance on the tourist industry: 'deindustrialisation coincided with... the re-invention of the region as a centre for tourism' (Orange 2012: 66). In recent years, Cornwall's former industrial sites have also become commodified as part of the heritage tourism industry (Kennedy & Kingcome 1998; Hale 2001; Coupland & Coupland 2014; Zwegers 2018), demonstrating the region's pride in its industrial past.

However, heritage tourism is only one small factor that draws visitors to Cornwall. As discussed by Williams and Shaw (1993: 85), following the arrival of the railway in Cornwall in the mid-19th Century, the region has been marketed to holidaymakers as 'Britain's "Mediterranean"' and the 'Riviera'. But it wasn't until the post-war period that 'mass tourism' arrived in Cornwall, with a 50% increase in visitors between 1954 and 1964 (Williams & Shaw 1993: 87). This has continued into the 21st Century, and there are now around 270,000 visitors to Cornwall every year (Mawby, Boakye & Jones 2015: 381). Recent research from the Office for National Statistics calculated the ratio of tourist expenditure to the total outputs from all industries in each UK region, providing insight into the relative contribution of tourism to their economies (Office for National

Statistics 2016a: 3–5). These results can be seen in Figure 1.1 below, where Cornwall and the Isles of Scilly are, by quite a large margin, the most reliant on a tourist economy of any of the UK regions.

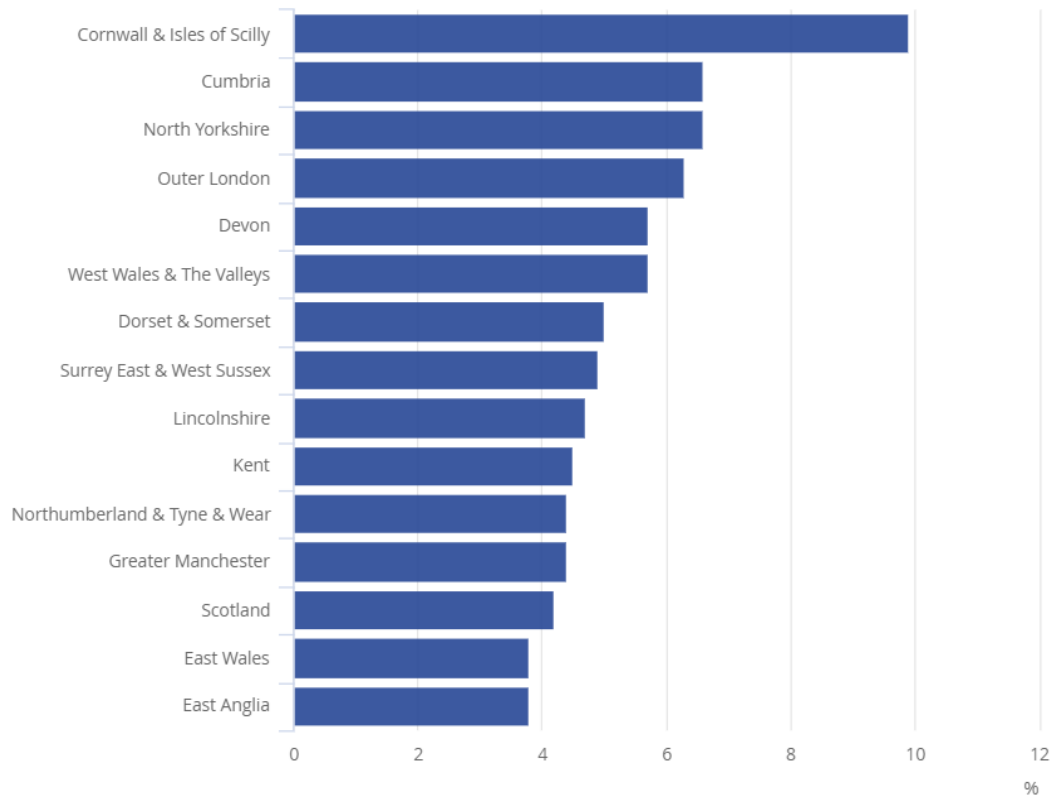


Figure 1.1: Tourism ratios in the highest-scoring 15 NUTS 2 regions³ in the UK in 2013 (Office for National Statistics 2016a: 4).

In tandem with the growth of the tourist industry in the county, Cornwall has also seen a significant increase in in-migration since the 1960s, with young parents and retirees in particular moving in search of ‘rural idyll’ (Perry 1993; Williams 2003). More recently, statistics show that this trend has continued and, as a percentage of its population, Cornwall has seen some of the highest rates of in-migration within the UK (Commission for Rural Communities 2008; Office for National Statistics 2016b). In line with a general trend in counterurbanisation within the UK (e.g. Champion 2001), the majority of in-migrants moving to Cornwall are from the urban South East (Dean et al. 1984; Williams 2003: 61). As a result, estimates suggest that more than half of Cornwall’s current

³ This refers to regional subdivisions used by EU member states for statistical purposes.

residents were not born there (Deacon 2013: 21). In addition, considering that a large proportion of Cornwall's in-migrants are of 'child-bearing age' (Deacon 2013: 21), many of those born in the county are likely to have parents born elsewhere. However, together with the large volume of in-migrants, levels of out-migration from Cornwall are also high. A large proportion of these out-migrants are 'young people from non-manual classes', who leave Cornwall to gain skills (such as university education) and subsequently do not return (Williams 2003: 58; see also Stockdale 2006).

Despite the attractiveness of Cornwall to tourists and in-migrants, the county has faced significant economic hardship. Cornwall is one of the most deprived rural regions in the UK (Fecht et al. 2018), and has the second lowest GDP (after west Wales) in Northern Europe (Eurostat 2011). Much of Cornwall's deprivation can be traced back to deindustrialisation, with the closure of the mines and decline of the fishing industry (Perry 1993). This is exemplified in Figure 1.2 below, where the graffiti outside South Crofty (the final tin mine to close in Cornwall) reads: 'Cornish lads are fishermen and Cornish lads are miners too. But when the fish and tin are gone, what are the Cornish boys to do?'. In this way, the post-war social changes in Cornwall mirrored those that were occurring in communities in Northern England following industrial collapse. These similarities are reflected in the Town and Country Planning Association's (1987) conceptualisation of the North-South divide, which placed Cornwall and Devon in the North (see Figure 1.3 below). They suggest that there is an important dividing line in the UK between the post-industrialised regions of the North and far South West, and the centralised economic power in the South East: 'at the end of the day North-South is not so much of a geographical concept as a state of mind, brought about by a rapid and catastrophic polarisation of the British economy.' (Town and Country Planning Association 1987: 5).



Figure 1.2: Photo of South Crofty tin mine following its closure in 1998. The graffiti on the wall outside reads: ‘Cornish lads are fishermen and Cornish lads are miners too. But when the fish and tin are gone, what are the Cornish boys to do?’⁴



Figure 1.3: Map showing the Town and Country Planning Association’s North-South divide (Town and Country Planning Association 1987: 8)

⁴ This photo is from <http://www.cornwallcam.co.uk/bestofinland/scrofty2.htm>.

The rapid increases in tourism and in-migration following deindustrialisation in Cornwall have also contributed to the county's economic hardship. Although the tourist industry has since become the main contributor to Cornwall's economy (see Figure 1.1 above), employment in this sector is often unskilled, low paid, and seasonal, meaning unemployment figures rise in the winter months (Payne et al. 1996; Beatty, Fothergill & Wilson 2008; Select Committee on Regenerating Seaside Towns and Communities 2019). Similarly, while the large-scale in-migration would be expected to be beneficial to the region (e.g. Bosworth 2006), it has had the opposite effect in Cornwall. As demonstrated by Williams (2003) and Burley (2007), in-migrants tend to both become poorer when they move to Cornwall, and fail to stimulate the local economy. In other words, 'Cornwall got the population without the growth' (Williams 2003: 67).

The combination of deprivation, in-migration and mass tourism has been argued to increase a sense of Cornish identity amongst locals. Much of Cornwall's distinct identity is underpinned by a feeling of being overlooked and misunderstood by the government, in what Payton (2004: 270) describes as an 'anti-metropolitan' bias in Cornish politics. This has resulted in a push for a separate Cornish state and the formation of a 'Cornish nationalist' political party, Mebyon Kernow (The Party for Cornwall) (e.g. Willett & Tredinnick-Rowe 2016).

Feelings of being side-lined and ignored by those in power, and the strong sense of local identity that can be born out of this discontentment, are not unique to Cornwall. Similarly, the desire for regional distinctiveness can be found almost anywhere. Indeed, other English regions such as Yorkshire and the North-East have made similar claims to a 'separateness' from the rest of the country (e.g. Willett & Giovannini 2014; Giovannini 2016). However, Cornwall's connections to its Celtic and industrial past, and the commodification of this history for the benefit of the tourist industry that now sustains its economy, set it apart (see Husk & Williams 2012). This sentiment has been best summarised in Hobsbawm's (1992: 178) often-cited statement: '[t]he Cornish are fortunate to be able to paint their regional discontents in the attractive colours of the Celtic traditions, which makes them so much more viable... [Cornwall can] blow a national trumpet'.

In addition, as opposed to diluting a sense of Cornish identity, increased contact with ‘outsiders’ as a result of tourism and in-migration has bolstered perceptions of ‘separateness’ amongst the Cornish. In spite of the importance of tourism to the Cornish economy, many locals have pinned Cornwall’s social problems following deindustrialisation on the rise of the tourist industry (Perry 1993). As a result, Husk and Williams (2012: 256) state that the rise of a tourist economy in Cornwall has ‘fuelled a more vigorous rhetoric of “Cornishness”’. This desire to distinguish oneself from the incomers is reflected linguistically in the widespread use of the pejorative term ‘emmet’, which derives from the Old English word for ‘ant’, to describe holidaymakers (Sandow 2019). Similarly, the arrival of in-migrants in Cornwall was considered to be a direct threat to Cornish culture and traditions, particularly given that they were seen to be taking all the jobs and affordable homes and pushing Cornish-born residents out of the desirable seaside towns. As summarised by Perry (1993: 54), the English in-migrants were ‘said to take the better jobs, buy-up the choicer properties and destroy the Cornish identity’. However, this is not to say that there are clear dividing lines between in-migrants and those with long family histories in the region. In a summary of evidence from both Census data and surveys of schoolchildren in Cornwall, Deacon (2013) finds that as the numbers of locally-born residents decreased, the proportion of people who identify as Cornish has risen. This suggests that some of the in-migrant population must be defining themselves as Cornish.

To summarise, the county of Cornwall has seen dramatic social changes in the past 60 years. Following deindustrialisation, the demographics of Cornwall shifted significantly, with large amounts of in- and out-migration. The tourist industry became the backbone of Cornwall’s economy, and the region became characterised as an idealistic and picturesque retreat from city life. However, while tourism and in-migration are generally beneficial to rural economies, Cornwall has instead become one of the most deprived rural areas in the UK. This combination of deprivation and high levels of contact with ‘incomers’ presents the possibility that there continues to be a distinct Cornish identity as a response to this, which has been further legitimised by the region’s Celtic roots.

1.4.2 WEST CORNISH ENGLISH

West Cornish English is one of the varieties of English spoken in the South West of England (Wakelin 1986: 1). West Cornwall is defined as the region to the west of the isogloss drawn by Ellis (1889), and further supported by Wakelin's (1975) more recent analysis of phonological variation in the SED (as shown in Figure 1.4 below). The South Western varieties of English are generally under researched, although there are exceptions to this (see, for example, Piercy 2011; Moore & Carter 2015; 2018; Blaxter & Coates 2019). As such, the most comprehensive descriptions of phonological variation in the South West derive from large-scale dialect surveys, such as Ellis (1889) and Wakelin's (1975; 1986) analysis of SED recordings. These analyses find that South Western Englishes share a variety of vocalic features, including unrounding of the LOT and CHOICE vowels (Wakelin 1986: 23, 28), a centralised and/or retracted PRICE onset (Wakelin 1986: 27–28), and 'sporadic lowering' of the KIT vowel to /ɛ/ (Wakelin 1986: 21). Importantly for the present study, the BATH, PALM, START, and TRAP lexical sets are all traditionally merged as (variably) lengthened, low, front vowels (Wakelin 1975: 112–122; Wakelin 1986: 26) (see Section 2.4 of Chapter 2 for a full review of the literature on variation in these lexical sets). Finally, these varieties are characterised most often by their maintenance of non-pre-vocalic /r/, or rhoticity (e.g. Wells 1982a: 76; Altendorf & Watt 2008: 127), such that this is considered an 'iconic' feature of South Western Englishes (Maguire et al. 2010: 97; Britain 2017a: 175; Montgomery & Moore 2018: 651).

However, there are key dialect differences between the different regions of the South West. Figure 1.4 below shows Wakelin's (1975: 27) rendering of the traditional South Western dialect districts described by Ellis (1889). This shows a distinct boundary between the traditional varieties of English spoken in West and East Cornwall. Following auditory analysis of the SED data from Cornwall (as well as some supplementary recordings), Wakelin (1975) concluded that these dialect differences across the county were due to the later adoption of English in the west. Considering historical accounts of Standard English, he found that the phonological features of West Cornish English were more similar to a later variety of Standard English, while the traditional varieties spoken in East Cornwall and other regions of the South West have

fossilised features of an older iteration of Standard English. He suggested that Cornish language speakers in West Cornwall acquired a later version of English through education, leading to a bundle of isoglosses between the East and west of the county (see Wakelin 1975: Ch. 5). Due to the sparsity of research on South Western varieties since the SED, the extent to which these dialect divisions still remain in Cornwall is as yet unknown. However, it is notable that Trudgill's (1990: 32) 'Traditional Dialect areas' (see Figure 1.5, left) do not include West Cornwall, as English was acquired too late, and 'Traditional Dialects have not therefore had time to develop'. In comparison, his 'Modern Dialect areas' include West Cornwall in the wider 'Lower Southwest' group (see Figure 1.5, right), although he later acknowledges that there may be further distinctions between Devon, East Cornwall, and West Cornwall (Trudgill 1990: 73).

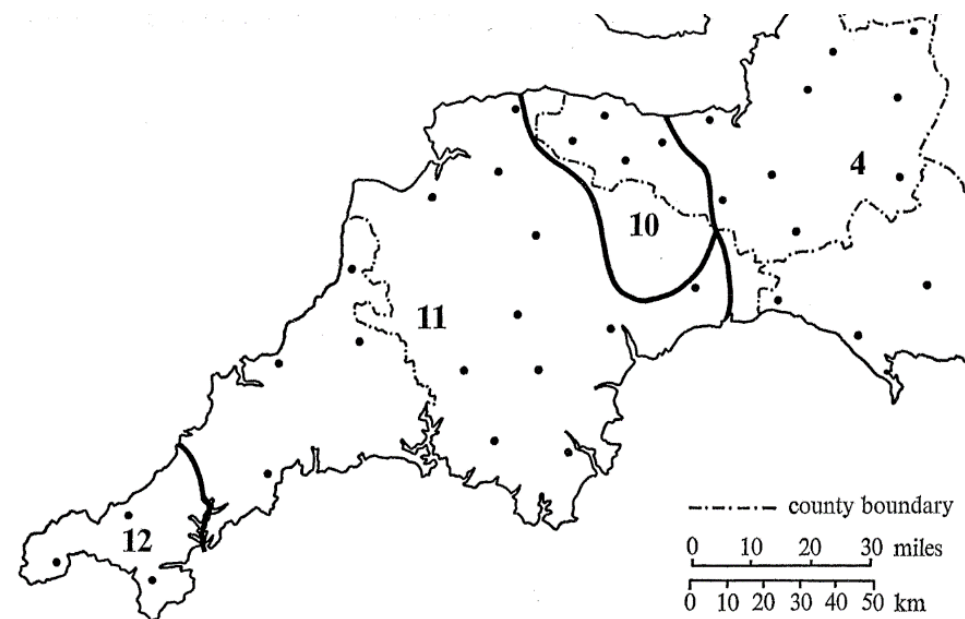


Figure 1.4: Map showing the traditional dialect districts in the South West, as defined by Ellis (1889), from Wakelin (1975: 27). The dots represent SED localities.

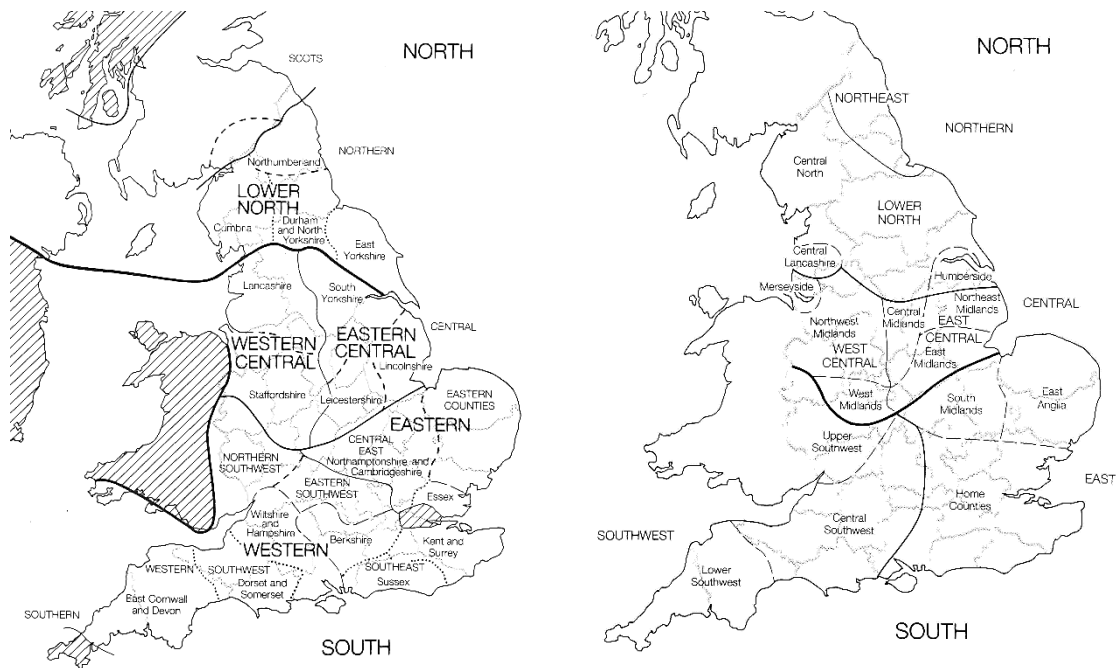


Figure 1.5: Trudgill’s ‘Traditional Dialect areas’ (left) and ‘Modern Dialect areas’ (right), from Trudgill (1990: 33) and Trudgill (1990: 63), respectively. The line type represents the strength of a dialect division.

In the present study, I have specifically gathered new data from West Cornwall. This is contrasted with SED data from across the whole of the county, as well as with RP speakers. As such, this study explores contemporary language use in West Cornwall, as well as providing an acoustic phonetic perspective on similarities and differences between East and West Cornish English, and RP.

1.5 THESIS STRUCTURE

This chapter has provided an introduction to the thematic focus of this thesis. It has discussed sociolinguistic approaches to the study of language and place, and the importance of place-based identity as a factor in linguistic variation. Specifically, it has explored the importance of place-based identities in rural localities, and how rurality may influence linguistic practices. Finally, a sociocultural and linguistic overview of Cornwall, the rural research location in the present study, demonstrated how this is an interesting site for investigating the connections between language, place, and rurality.

The structure of the remainder of this thesis is as follows:

Chapter 2 provides a more in-depth review of the previous linguistic research underpinning this study. It first sets out to define the key theoretical concepts in this thesis, namely the importance of ‘awareness’ and ‘social meaning’ in processes of language variation and change. It then explores the benefits of combining production and perception methodologies in sociolinguistic research, before reviewing the previous research on accessing social meaning through speech perception methodologies. Finally, this chapter reviews the literature on the variables of interest in this study, BATH and TRAP. First tracing their historical trajectory in RP and Cornish English, this review then develops a picture of the social meaning of the potential variants of BATH and TRAP in present-day West Cornwall.

Chapter 3 describes the methodologies used to carry out both the perception and production strands of this study. It starts by setting out the motivations behind the use of a real time methodology in the speech perception test, before describing the experimental design. It then describes the selection of informants and data collection techniques used to create the corpus of recordings of West Cornwall schoolchildren. After discussing the motivations for using the SED and RP corpora, this chapter concludes with an overview of the sociophonetic and statistical techniques used to analyse the spoken data in this study.

Chapter 4 presents the results of the perception experiment. This identifies the features of West Cornish English that are most salient, which are then carried forwards to explore in the production analysis in Chapters 5, 6, and 7. However, the results of this experiment also provide insight into the social meaning of a selection of other local phonological features.

Chapters 5, 6, and 7 describe the results of the diachronic and synchronic analysis of BATH and TRAP variation in West Cornwall. First, Chapter 5 provides an overview of each of the corpora used in the analysis, describing the demographic details of the speakers, and a breakdown of the vowel tokens in each linguistic context. Chapter 6 details the diachronic analysis, situating the corpora of schoolchildren on a continuum from traditional Cornish English to RP. Chapter 7 presents a synchronic analysis of these variables within the corpus of schoolchildren, exploring how they pattern according to

a selection of social and stylistic factors. These chapters analyse both the duration and quality of the BATH and TRAP vowels separately, using statistical models.

Finally, Chapter 8 brings all these results together to provide a detailed overview of the status of BATH and TRAP in West Cornwall. In addition, it describes the contribution of this thesis to the fields of variationist sociolinguistics, dialectology, and speech perception. This chapter concludes with a discussion of the limitations of the methodologies used in this study, as well as suggestions for future research directions.

CHAPTER 2: LITERATURE REVIEW

2.0 INTRODUCTION

The following chapter contextualises the present study with reference to sociolinguistic theory and relevant previous research in the field. As this thesis is concerned with the relationship between social meaning and patterns of language variation and change, this review begins with a discussion of three interconnected concepts: indexicality, enregisterment, and salience (Section 2.1). Subsequently, Section 2.2 discusses the benefits of combining production and perception methodologies in variationist research in order to explore how these concepts operate. This establishes the motivation for the dual methodologies in this thesis. The next Section, 2.3, hones in on research in speech perception, in order to consider how these approaches can contribute to our understanding of the social meaning of linguistic variation. Section 2.4 then moves on to consider the specific features analysed in this study, vowels in the BATH and TRAP lexical sets, exploring their historical trajectory, social meaning, and current status in England. Finally, Section 2.5 considers some of the key ideologies linked to the social meaning of these features, providing insight into how this may influence their patterning in the production data.

2.1 INDEXICALITY, ENREGISTERMENT, AND SALIENCE

Sociolinguists have long acknowledged the importance of some kind of ‘awareness’ as a motivating force behind language variation and change. For example, Labov’s (1972a) notion of *markers*, *indicators*, and *stereotypes* suggested that variables which are higher in a person’s consciousness are more likely to be subject to overt stylistic manipulation. Similarly, in Trudgill’s seminal work *Dialects in Contact*, he highlights the role of ‘salience’ in contact-induced change: ‘in contact with speakers with other language varieties, speakers modify those features of their own varieties of which they are most aware’ (Trudgill 1986: 11). In addition, the importance of *social meaning* as a motivating factor in language variation and change has been highlighted in much recent work in sociolinguistics (e.g. Johnstone, Andrus & Danielson 2006; Zhang 2008; Podesva 2011;

Moore 2011; Eckert 2012). This approach to language variation assumes that linguistic features can be associated with societal groups or characteristics, and can be used by speakers in 'tailoring linguistic styles in ongoing and lifelong projects of self-construction and differentiation' (Eckert 2012: 98).

Recent theoretical developments in sociolinguistics have been born out of this interest in awareness and social meaning. Most notably, researchers have explored how awareness contributes to the social indexation of linguistic features (Silverstein 2003; Johnstone, Andrus & Danielson 2006), and how groups of features become enregistered as belonging to a particular style (Agha 2003; Beal 2009a).

The theory of *indexicality* has explored how social meaning is attached to linguistic forms (Silverstein 1976; 1985; 2003). This theory posits that when use of a feature is correlated with a social group, attributes ascribed to that social group can become attached to the linguistic feature. For example, a feature which is used by working class speakers may come to be ideologically interpreted by listeners as an *index* of traditionally working class characteristics, such as toughness. Speakers may then use that feature to convey a particularly 'tough' stance in interaction (see, e.g. Bucholtz & Hall 2005). As such, a sociolinguistic variable can become socially meaningful (see Campbell-Kibler 2010a).

Moving beyond the social meaning of individual variants, the theory of *enregisterment*, proposed by Agha (2003; 2006), describes how different indexically-linked linguistic forms can become recognised as a 'register', which is essentially a way of speaking linked to a social identity. In variationist sociolinguistics, the notion of enregisterment is particularly relevant to the study of regional varieties, as it provides insight into place-based linguistic variation. The work of Johnstone and her colleagues (e.g. Johnstone, Andrus & Danielson 2006) has described how a selection of linguistic features have become enregistered as a dialect known as 'Pittsburghese' in Pittsburgh, Pennsylvania. This comes about through a variety of 'discursive practices', such as online chat (Johnstone & Baumgardt 2004) or commodification (Johnstone 2009).

The role of commodification in the enregisterment of linguistic varieties has been further explored in the work of Beal (2009a). Beal finds that the degree of enregisterment of a variety can be measured according to its commodification in artefacts such as folk dialect dictionaries and glossaries. The creation of dialect dictionaries indicates ‘an interest in, and awareness of, the local dialect’ (Beal 2009a: 140–141), simultaneously demonstrating that a variety is enregistered, and contributing to its enregisterment. Beal (2009a) and Johnstone (2009) state that mobility and contact is a precondition for a variety to emerge as enregistered and available for commodification. Contact with outsiders highlights the distinctiveness of a regional variety, providing the means to signal local affiliation in speech.

Central to the theories of indexicality and enregisterment is the notion of *salience*, as the attachment of social meaning to linguistic feature presupposes some kind of metalinguistic *awareness*. However, despite this recognition of the importance of salience in language use, the notion of salience in sociolinguistics notoriously lacks consistent definition. Most commonly, sociolinguistic literature tends to consider linguistic features to be salient if they are in some way ‘recognised’ (Rącz 2013: 4). However, this definition does not account for the variability in non-linguists’ ability to describe variation (Preston 1996) and the influence of context on perceptions (e.g. Peleg, Giora and Fein 2001; Hay and Drager 2010; Montgomery and Moore 2018).

In a review of a number of different attempts to account for the salience of certain linguistic features over others, Kerswill and Williams (2002) find that salience has been attributed to a number of different, and often contradictory, factors. They conclude that there is no exact set of conditions in which salience arises, aside from the obvious: ‘differences between its presence and absence must be noticeable in a psychoacoustic sense’ (Kerswill and Williams 2002: 105).

More recently, Drager and Kirtley (2016) have conducted a review of the treatment of salience in sociolinguistic research. They find that salience is tied to ‘noticeability and awareness’ in sociolinguistics, which can be influenced by a number of factors, but they note one overriding theme: ‘the degree to which something stands out relative to other, neighbouring items’ (Drager and Kirtley 2016: 12). In contrast to Kerswill and Williams’

(2002) definition, this accounts for previous research which has demonstrated the malleability of speech perception and recognises the nature of salience as dynamic and context-specific.

In exploring the notion of salience in sociolinguistics, Rącz (2013) brings together sociolinguistic understanding of the term and related research in cognitive psychology, with a particular focus on salience in visual perception. Rącz (2013: 13) posits a distinction between 'social salience', in which a feature must be 'used to carry social indexation' and 'cognitive salience', which is 'an attribute of variation that allows language users to pick up on it'. Features which have sociolinguistic salience must always have cognitive salience, but not necessarily vice versa. In accounting for why some segments may be more carry more cognitive salience, Rącz (2013: 37) states that they must have 'a large *surprisal value* when compared to an array of language input' (emphasis added). In other words, salience arises when a feature occurs in a context in which it is unexpected. This accounts for the process by which variants can come to carry social indexation. In this view, a variable will become available for social indexation if it 'is different enough from the norm (or another dialect) to be surprising for the language user' (Rącz 2013: 43).

To give an example of the effect of surprisal on salience, Hay et al. (2018) found that listeners with limited prior experience with r-sandhi were more likely to attend to its presence in a perception task. As such, Hay et al.'s (2018: 365) definition of salience is in line with Rącz (2013): 'the increased attention that results from a lack of experience with a variable'. However, conversely, research has shown that listeners' own usage of a feature, or experience with speakers who use it, can *ease* processing in perception (Clopper & Pisoni 2006; Sumner & Samuel 2009; Kendall & Fridland 2010). Therefore, while listeners may attend to features they do not expect in speech perception, they may also be more readily able to process feature that are not novel to them.

In comparison to this more cognitive approach to salience, research on the enregisterment of linguistic features has considered how features are salient due to social indexation. For example, researchers used speech perception methodologies to determine the most enregistered features of individual varieties. One strand of speech

perception research has used voice placement tasks to diagnose which features are most associated with a region. For example, Leach, Watson and Gnevsheva (2016) considered how well listeners could identify speakers from five locales in Northern England from a variety of audio stimuli including traditional accent features from each region. They found that the phonological cues in certain stimuli improved listeners' guesses, suggesting that some features were more enregistered as being from that region than others. Similarly, in an attempt to determine which features are most effective at determining a speaker's geographical location, Clopper and Pisoni (2007) played participants 66 different voice samples of regional US speech and asked them to guess where they were from. They found that four features, including 'r-fullness', were particularly effective as acoustic cues to determine the geographical location of a speaker. Other researchers have taken a more qualitative approach to this question. In an attempt to explore which features best characterise the rural, Southern US variety known as 'Country Talk', Hall-Lew and Stephens (2012) analysed metalinguistic comments about the variety from a corpus of sociolinguistic interviews. As a result, they were able to identify the most salient phonological, morphosyntactic, and lexical features of the variety.

In summary, the notions of indexicality, enregisterment, and salience are interconnected concepts which have been used to explain speakers' awareness of, and attachment of social meaning to, linguistic variation. Of these concepts, salience is a particularly ill-defined term in sociolinguistics. While there are those who adhere to a strict 'cognitive' definition, conceptualise salience as arising from 'surprisal', other researchers are more concerned with salience arising due to social indexation. In particular, variationist sociolinguists have been concerned with (social) salience as a precondition for enregisterment, as where a salient variant (or set of variants) becomes associated with a particular social group, such as speakers from a specific region, it may become enregistered (e.g. Johnstone, Andrus & Danielson 2006).

Of these varied approaches to the study of salience, the present study subscribes to a fairly wide definition, as outlined by Drager and Kirtley (2016: 12): 'the degree to which something stands out relative to other, neighbouring items'. As such, where a feature stands out in a specific context, it is salient. However, it also recognised that salience

may arise due to more cognitive factors (i.e. surprisal), or due to social indexation (i.e. enregisterment), despite the difficulties in disentangling these effects (Rącz 2013: 37).

2.2 COMBINING PRODUCTION AND PERCEPTION

In tandem with the growing interest in awareness and the social meaning of linguistic variation in speech production, there has also been increasing use of speech perception methodologies to explore the indexical links between linguistic features and social attributes. For example, Campbell-Kibler (2006; 2007) used matched-guise techniques to gain insight into the social meaning of the variable <ing>, and researchers such as Hay and Drager (2010) and Niedzielski (1999) have demonstrated how social information can influence perceptions of speech (see Section 2.3 below for a full review of this research).

However, these perceptual and production methods are rarely combined in linguistic research. For example, with the exception of ethnographic approaches to the study of speech production (e.g. Eckert 2000), sociolinguistic research generally necessitates the selection of variables of interest *before* beginning data collection. This is particularly the case when recording sociolinguistic interviews, which require the design of structured elicitation tasks (e.g. Di Paolo & Yaeger-Dror 2011; Schilling 2013: 69–77). Where there is little previous research on a variety, researchers must often base the selection of variables on their intuitions about what may be important to those in the speech community. This issue is highlighted by Babel (2016: xix) in her introduction to an edited volume on the topic of awareness in sociolinguistics:

‘Although scholars often refer to awareness casually or impressionistically as a side-note to other types of analysis, the practice of systematically investigating and reporting on participants’ awareness of a sociolinguistic feature should be as routine as reporting on its distribution in a community of speakers.’

In recent years, there are examples of sociolinguists considering both dimensions in variationist research. For example, Johnstone and Kiesling (2008) explored the relationship between production and perception of /aw/-monophthongisation in Pittsburgh. They found that listeners who associated this feature with the local variety were less likely to have it in their speech. Similarly, those who *did* use this feature were

not found to necessarily perceive it as an index of Pittsburgh identity. As such, the combination of production and perception methodologies in this study provided a more nuanced insight into the indexical meaning of this variable than could be gained from using either of these approaches individually.

Further to this, there is a small body of sociolinguistic work exploring how individual experience with, and production of, a linguistic variant influences perception of the same feature. For example, in a study of the real time changes in the production and perception of Northern and Southern accents amongst UK university students, Evans and Iverson (2007) found that listeners with a Southern accent could better identify Southern vowels in noise. Similarly, in a series of lexical decision tasks, Sumner and Samuel (2009) found that listeners with more experience of New York City English (an /r/-less variety) could better process words produced with non-rhotic final <r>. This effect was present regardless of whether the New York City residents had this feature in their own speech, demonstrating the importance of *experience* alongside individual production. Finally, research from Fridland and Kendall (2012) has also examined how individual speakers' degree of participation in either the Northern Cities or Southern Vowel Shift mapped onto their perception of one of the shifting vowels. Following Sumner and Samuel (2009), regarding the relative importance of speaker experience and production on speech perception, they found that processing is influenced by, 'both what you say and what others around you say' (Fridland & Kendall 2012: 792). Together, these studies demonstrate the influence of individuals' production and experience on perceptual processing.

More recently, using the same real time methodology as the present study (see Section 3.1 of Chapter 3), Moore and Carter (2018) explored how perceptions of MOUTH and PRICE on the Isles of Scilly can provide insight into their patterning in production. They found that the raised PRICE vowel was more salient than the raised MOUTH vowel, and was associated with the wider social meaning of 'South Western farmer'. As a result, the PRICE vowel was much more advanced in the loss of the allophonic raising pattern, while this same pattern in the MOUTH vowel had remained available for locally-relevant identity practices. Conversely, Juskan (2018) tested the salience of individual features of Liverpool English by employing Labov's (1972a) notion of *indicators, markers,*

and *stereotypes*, and considering speakers' stylistic shifts. He then tested how the relative salience of a feature affected the influence of priming on speech perception, finding that primes were much more effective for the more salient features. Taken together, these studies provide further support for the benefits of considering awareness of individual linguistic features in both production and perception research.

In sum, sociolinguists have long highlighted the importance of awareness in processes of language variation and change (see Section 2.1 above). In addition, recent methodological developments have allowed researchers to empirically explore the social meaning and awareness of linguistic variation in speech perception experiments. Despite this, production research and perception research have generally remained separate. Where researchers have combined perception and production methodologies, they have found rich and nuanced insights into the social meaning of individual features (e.g. Johnstone & Kiesling 2008; Moore & Carter 2018). Following Babel's (2016: xix) call for consideration of awareness of linguistic variation alongside analysis of production patterns, the present study first analyses perceptions of West Cornish English in real time to identify the most salient features of the variety. This identifies South Western 'long <a>' as the feature about which listeners are most aware. Subsequently, this feature is examined in production data. This two-pronged approach is particularly appropriate in this study, given the lack of up-to-date research on the status and social meaning of variation in South Western Englishes (see Section 1.4.2 of Chapter 1).

2.3 SPEECH PERCEPTION

Research on speech perception in sociolinguistics can be divided into two general categories: consideration of how social information about a speaker affects perceptions of their speech, and consideration of how the use of different linguistic features affect evaluations of the speaker. Both of these approaches have been used to explore the different social attributes that have been attached to linguistic features, as well as examination of the social meaning of language varieties as a whole.

2.3.1 SOCIAL MEANING IN SPEECH PERCEPTION

There has been a wealth of research which demonstrates that the context in which a guise is presented can influence listener perceptions; contexts examined include the biographical information provided about the speaker, the content of the guise, or the environment in which the listener completes the task. For example, Niedzielski (1999) presented listeners with a set of computer-resynthesised vowels and asked them to choose the one they thought matched a vowel produced in a speech sample. Participants were divided into two groups, with one being told that the speaker was a fellow Detroit, and the other being told that they were hearing a Canadian. Those in the Canadian condition were more likely to choose a stereotypically Canadian raised diphthong than those in the Detroit condition, irrespective of the vowel they had actually heard.

Using a similar methodology, Hay, Nolan and Drager (2006) divided participants from New Zealand into two groups and asked them to match synthesised vowels to target words in speech samples. However, in comparison to Niedzielski (1999), information about the speaker's origin was more subtly presented, and one group had the words 'New Zealander' at the top of their answer sheet, while the other had 'Australian'. They found that each group chose vowels closer to that of the variety associated with the nationality on the sheet. In a follow-up study, this effect was even found when the only difference between conditions was the presence of a stuffed toy representing each nationality (Hay & Drager 2010). However, it should be noted that a replication of this study in an Australian context did not find a significant effect for the same regional primes (Walker, Szakay & Cox 2019).

This kind of research has also explored how other types of social information influence speech perception. Regarding the effect of perceived age on speech perception, Koops, Gentry and Pantos (2008) tested perception of the PIN and PEN words in Houston, Texas, where an 'unmerger' is in progress amongst younger speakers. Listeners responded to a forced choice word identification task with a variety of unmerged PIN and PEN words, while their gaze was tracked using a head-mounted eye-tracker. In order to explore the association of this change with different age groups, the stimuli

were presented alongside photos of either a young, middle aged, or old speaker. Koops et al. (2008) found that participants would look at the competitor word more when listening to an 'old' speaker, suggesting increased expectations for a merged system. In comparison, they did not have this expectation of the 'younger' and 'middle aged' speakers, providing insight into the social evaluation of the unmerger in Houston.

Similarly, Hay, Warren and Drager (2006) have explored the connections between both age and social class and the NEAR~SQUARE merger in New Zealand English. They played all listeners the same intermediate stimuli between NEAR and SQUARE lexical sets, and asked them to choose which word it matched. The listeners were divided into four conditions according to visual stimuli, and were presented with an image of either a younger or older, working class or middle class speaker. In addition, they considered the effect of a variety of listener characteristics, including their own production of the vowels. Overall, they find that perceptions of the NEAR~SQUARE merger are mediated by a complex set of interactions between listener characteristics and experimental stimuli, but conclude that the results generally support the suggestion that social information is indexed by the linguistic variables.

Finally, there has been a small amount of research exploring the effect of perceived speaker gender on perceptions. In a review of two speech perception experiments, Strand (1999) suggests that listener stereotypes about language and gender affect their perception of /s/ and /ʃ/ fricatives. When hearing a nine-step continuum between /s/ and /ʃ/, listeners perceived the boundary between the fricatives to be in a different place depending on whether the remainder of the word was spoken by a male or female voice, suggesting their expectations were mediated by speaker gender. In another experiment, listeners were presented with the same nine-step series of fricatives, but accompanied by images of either a male or female face. In what they term the 'Face Gender Effect', listeners' perceptions of the boundary between the fricatives was influenced by the perceived gender of the speaker. A similar effect was found by Johnson, Strand and D'Imperio (1999), where the perceived location of the boundary between /ʊ/ and /ʌ/ was mediated by either the gender of a speaker on a video, or by the listeners simply imagining a male or female speaker while completing the task.

Beyond these macro-social demographic categories, this effect has also been found for persona-based information. D’Onofrio (2015) has investigated perceptions of TRAP-backing, a change in progress in California that has been associated with the well-known Valley Girl persona. Participants were played an ambiguous word, in which the vowel had been synthesised to be exactly between a TRAP and LOT minimal pair (e.g. ‘sack’ and ‘sock’) and were asked to choose which word they had heard. On the screen, alongside the words, participants were presented with either an image representing macro-social information (California), persona-based information (Valley Girl), or a baseline with no social information. Overall, D’Onofrio (2015: 251) found that TRAP-backing was heard significantly more often in the Valley Girl condition, concluding that ‘listeners integrate persona-based information into their linguistic expectations’.

The social meaning of linguistic variation has also been explored by testing how the linguistic features present in a guise may influence listener perceptions of a speaker. For example, Campbell-Kibler (2006) has used matched-guise tests to explore the social meaning of the variable <ing>. Using digital manipulation and splicing, she produced a variety of guises which differ only in the number of [ɪn] or [ɪŋ] tokens. Overall, the results demonstrated that <ing> variation significantly influenced listener perceptions of the speaker. In general, use of [ɪŋ] meant speakers were evaluated as more educated and articulate, while [ɪn] appeared to be thought of as ‘casual’, and an index of lower social class (Campbell-Kibler 2006: 192).

Campbell-Kibler (2007) has also explored how the social meaning of <ing> variation was affected by the wider style in which the variant was situated. In this study, a higher frequency of [ɪn] within a ‘Southern [American]’ speech style increased the perceived accent strength. Conversely, a speaker described as ‘urban and/or gay’ was rated as more accented in the guise with higher [ɪŋ] frequency. In a similar study, Phrao et al. (2014) explored the perception of [s+], a fronted realisation of <s>, in Copenhagen speech. The feature has been shown to be a strong index of femininity and gayness, but is also, to a lesser extent, associated with more masculine ‘street’ styles and ethnic minorities in Copenhagen. The authors term these different registers as MODERN and STREET, and splice instances of [s+] into speech samples of each register, creating two sets of guises which are identical aside from [s+] frequency. For the MODERN guises, [s+] frequency

had a significant effect of the perception of the speaker as feminine or gay, and in the STREET guises, <s> variation had a less significant effect, with [s+] guises being slightly more likely to be described as ‘gangster’ or ‘immigrant’. Together, these studies demonstrate the context-dependent nature of social meaning. Listeners can perceive the same feature differently depending on the other co-present feature used by the speaker.

The effect of co-present features in a guise has additionally been shown to be affected by the order in which those features occur. Building upon the previous research on the social meaning of [s+] in Copenhagen Danish, Phrao and Maegaard (2017) explored how perceptions of this feature are influenced by the presence of the palatalised [tʃ] variant of /t/. The [tʃ] variant, which is part of the same STREET register as discussed above, weakened perceptions of femininity and gayness when it occurred alongside [s+] within a MODERN register. However, the order in which these variants occurred significantly affected responses. Where the [s+] variant in a MODERN guise occurred first, subsequent [tʃ] tokens had no effect on listener perceptions. As such, this study demonstrates how once one indexicality has been activated early on by the presence of a stereotypical feature, this can be retained for the remainder of the guise.

Overall, these studies demonstrate how a diverse array of social meanings can be attached to linguistic features. Where listeners’ perceptions of a variant can be manipulated by the context in which they hear a stimulus, this provides insight into its social evaluation. Conversely, listener perceptions of speakers are influenced by the variables in their speech. Just as the social meaning of linguistic forms influences, and emerges from, production, listeners draw on social information in the processing of speech, using pre-existing knowledge of language and social groups in their interpretation of language and evaluation of speakers.

However, the majority of these methods present participants with only one word or phoneme at a time, alongside variables such as perceived age or gender (e.g. Koops, Gentry & Pantos 2008; Strand 1999), or one variable manipulated across multiple stimuli (e.g. Campbell-Kibler 2006). While these methods are entirely necessary to

ensure the experimental rigour required in speech perception research, and have provided rich insight into the cognitive encoding of social-indexical and linguistic information (see Foulkes 2010), they are problematic if we wish to extrapolate the findings to a more general understanding of social meaning in interaction. As highlighted by Munson (2010), speech perception research often ignores the fluidity and complexity of social meaning and language, presupposing in the research design that, for example, a particular vowel sound will be straightforwardly linked to a social characteristic. Sociolinguistic research has demonstrated the way in which the social meaning of a linguistic feature is never as simple as an association with one distinct social category, such as ‘young’ or ‘gay’. Instead, a feature can have a myriad of interconnected indexical meanings which include both large-scale social categories and characteristics evoked in locally-relevant stance-taking (see Eckert’s (2008) notion of the *indexical field*). In addition, there is evidence to suggest that social meaning is not indexed by individual linguistic features, but is evoked in relation to *clusters* of features and the broader style in which they are situated (Moore 2012). While this has been explored in some more recent speech perception research (Levon 2014; Pharao et al. 2014; Pharao & Maegaard 2017), this approach remains atypical.

In sum, this section has demonstrated how the context in which a feature is presented can influence how it is perceived and, conversely, the linguistic features present in a guise can alter listener perceptions of the speaker. This highlights the application of speech perception research to explore the social indexation of linguistic variation. Given the important role of social meaning in processes of language variation and change, this further demonstrates the benefits of combining speech perception and production methodologies. This section has also identified some of the limitations of these approaches, which are further discussed in Section 3.1 of Chapter 3. The following sections will now explore the status and social meaning of the variables under investigation in the present study: BATH and TRAP.

2.4 BATH AND TRAP

The speech production study undertaken as part of this thesis comprises a diachronic and synchronic analysis of BATH and TRAP variation in West Cornish English. The

remainder of this chapter explores the previous linguistic research on these variables. In tracing their development in RP, it explores how this relates to their current status in RP. Finally, a review of previous research on patterns of BATH and TRAP variation in production and perception provides insight into the social meaning of these variables in England.

2.4.1 BATH AND TRAP IN RP

Before discussing BATH and TRAP in Cornish English, I will first outline the status and historical trajectory of these variants in RP. Regarding Middle English (ME) /æ/, which comprised the modern BATH, PALM, TRAP and START lexical sets, Lass (2006: 104) states that, beginning in pre-/r/ and pre- voiceless fricative environments, this vowel first lowered to /a/, then lengthened and gradually retracted. Aside from in pre-/r/ environments, the lengthening and backing of ME /æ/ never completed, meaning modern RP words such as *path*, *calm*, and *start* are distinct from words such as *bat*, or *man*. Importantly for the distribution of this variant in Cornwall, vowels with the raised /æ/ quality were confined to the South East of England (Lass 2006: 85–86), until the BATH, PALM, and START words gradually lowered to /a:/ and retracted in the eighteenth and nineteenth centuries (Lass 2006: 104). The development of the BATH, PALM, TRAP, and START lexical sets in RP can be seen in Figure 2.1 below.

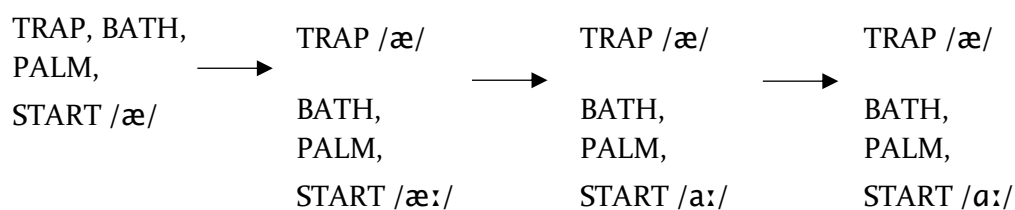


Figure 2.1: The development of the BATH, PALM, TRAP, and START lexical sets in RP from Middle English /æ/.

As noted by Wells (1982a: 232) and Lass (2006: 89) there is little consensus over the phonological motivation behind the lengthening and backing of some ME /æ ~ a/ words, with RP TRAP and BATH words sharing the same phonological environment (e.g. *glass* and *lass*). As a result, Wells (1982a: 233) describes the TRAP/BATH split as ‘a half

completed sound change, which seems to have come to a stop well before completing its lexical diffusion through the vocabulary'. In an analysis of BATH variation in the English Fens, where both /a/ and /aː~aːɪ/ are found, Britain (2001) provides insight into the phonological processes behind the initial lengthening in some ME /æ ~ a/ words. He finds that long /aː/ is favoured if there is a following consonant cluster, /n/, or /ʃ/; if there is a preceding consonant cluster, or word initial /a/; and in high frequency words, French words, or multi-syllabic words (Britain 2001: 236–247). However, he notes that there is much lexical variation, so these phonological environments are not clear-cut.

In comparison to the BATH vowel, there has been relatively little linguistic analysis of the TRAP vowel in British English. Wells (1982a: 129) describes the RP TRAP vowel as the front, near open, unrounded /æ/, although he notes a shift in more contemporary speech towards the more open /a/. This has been confirmed in subsequent phonetic studies of modern RP (e.g. Fabricius 2007). There are also reports of lengthening of TRAP words in RP in certain linguistic environments. For example, Cruttenden (2014: 120) states that RP /æ/ is notably lengthened before voiced consonants, to the point that it is 'almost equivalent to long vowels'. In order to provide the first full account of TRAP lengthening in RP, Kettig (2016) conducted an acoustic analysis of TRAP in a number of phonological and lexical environments in the speech of twenty-one native English speakers from the University of Cambridge. Kettig (2016) measured the TRAP vowel durations, with one token per environment per speaker, and ran a linear mixed-effects model with following voice, place, and manner as fixed effects. He found the following hierarchy for the conditioning of the preceding TRAP vowel duration, with voiceless fricatives favouring lengthening the most, and nasal and voiceless stop combinations disfavouring lengthening (Kettig 2016: 10):

'voiceless fric. \geq voiced stops/aff. \geq nasals > voiceless stops/aff. \geq nasal + voiceless stops'

Interestingly, Kettig (2016: 11) notes that TRAP vowels preceding /b/ lengthen the expected amount due to coarticulatory effects, while TRAP preceding /g/ and /d/ lengthens beyond what is expected for a short vowel. He suggests that lengthening in the words which do not follow the expected hierarchy may account for their increased noticeability in previous accounts of long TRAP in RP (Kettig 2016: 14). Therefore, while lengthened TRAP vowels *are* found in RP, they are lengthened in additional phonological environments in South Western varieties to, or beyond what would be expected in RP (Piercy 2011), which may contribute to their increased salience.

2.4.2 BATH AND TRAP IN THE SOUTH WEST

In West Cornwall, the BATH vowel has been recorded as traditionally fronted and lengthened to /æː/ (Wakelin 1975: 116). The TRAP vowel has the same quality (Wakelin 1975: 114), but is also variably lengthened (Wells 1982a: 345). These variants are relics of the partially completed changes in the early Modern English period discussed in Section 2.4.1 above. To account for this, through an analysis of Cornish place-names and documents in both Cornish and English from the late medieval and early modern period, Wakelin (1975) traces the piecemeal adoption of English in Cornwall in the run up to the eighteenth century. He argues that while East Cornwall adopted the ‘ancient Wessex dialects’, the West Cornish were acquiring English as a second language, which was ‘spoken to them in schools and by the upper classes’ (Wakelin 1975: 100). As a result, the accent of West Cornwall is a fossilisation of something similar to Standard English at the time of adoption in the region, whereas the accent of East Cornish is closer to those found across the South West.

Wakelin (1975) discusses as a whole the set of words that were, in ME, merged as the short front vowel /a/, and which now make up the BATH, TRAP, PALM, and START lexical sets. His analysis of SED data shows that, for speakers born in the 1800s, all of these words are fronted throughout Cornwall, and the BATH, PALM, and START words are additionally lengthened, although he does not discuss TRAP-lengthening in this account. Wakelin (1975: 114) describes the [æ] quality of BATH, TRAP, and PALM in West Cornwall as ‘an old Standard English type’, while the [a] found in East Cornwall ‘is the true South Western dialectal type’. The West Cornwall forms represent an

intermediate stage for BATH and PALM in sixteenth century Standard English, in which [æ:] had replaced [a], but the backed [ɑ:] forms had yet to develop (Wakelin 1975: 112).

Wakelin (1986) contextualised these findings with a wider description of the phonology, lexis and grammar of the dialects found across the South-West of England. This analysis was also based, for the most part, on SED data, but he also used historical written texts, such as prose and poetry written in dialect. Regarding the TRAP vowel, Wakelin (1986: 21–22) notes that [a] is found across the South West, with raised [æ] forms in some of Somerset and, as previously discussed, in West Cornwall. Regarding the BATH vowel, Wakelin (1986: 26) finds [a: ~ æ: ~ ɑ:] in different locales in the South West. He also notes that the quality of the [a:] form is ‘often an intermediate sound between back and front articulations’ (Wakelin 1986: 26).

Following Wakelin (1975), North (1983) provided an updated account of the geographical distribution of the phonological features of Cornish English. This book used data from the SED, supplementary SED recordings in the same localities, as well as newer recordings from the Institute of Cornish Studies Survey of Cornish Dialects, which were made in 1979 (North 1983: 9). In order to ensure comparability between the corpora, these newer recordings used similar criteria for participant recruitment to the SED, and all informants were older, working class (often in the farming profession), non-mobile men. However, this survey included many more localities in Cornwall than were included in the SED. Regarding BATH variation in Cornwall, North (1983: 61) also finds [a: ~ æ: ~ ɑ:], with one instance of [æə] in West Cornwall, and an occasional low central vowel. Data from the new localities supports Wakelin’s (1975) suggestion that the raised BATH vowel [æ:] is found more frequently in West Cornwall (North 1983: 62). He also notes that [æ:] appears to have spread eastwards ‘at the expense of [a:]’ (North 1983: 62). Regarding the TRAP vowel, North (1983: 58–59) finds the ME [a] variant in East Cornwall, while, as noted by Wakelin (1975), [æ] is progressively more common towards West Cornwall. North (1983: 59) concludes that this additional evidence supports Wakelin’s original hypothesis of West Cornwall acquiring the standard pronunciations of BATH and TRAP later than East Cornwall. Finally, North (1983: 70) notes (anecdotally), that long front BATH vowels were still very common amongst

young people in Cornwall, but calls for further sociolinguistic investigation of young people's speech in the South-West.

The studies discussed above from Wakelin (1975; 1986) and North (1983) are representative of traditional varieties of Cornish English and, aside from my own preliminary research (Dann 2016), there has been little research looking at phonological variation in the region. However, the lexical sets which developed from ME /a/ have been researched in neighbouring varieties of English. Piercy (2011) explored the phonemic status of BATH, TRAP, PALM, and START in Dorset, England. She found a change in progress across apparent time that followed the historical trajectory of ME /a/ in RP, with START backing first, followed by PALM, and BATH shifting last. The shift in the BATH vowel appeared to be occurring via lexical diffusion, with the word 'rather' and 'half' backing first. She also found no intermediate BATH vowels, with all tokens being definitively front or back. This suggested that the change was occurring via lexical diffusion. Regarding the TRAP vowel, Piercy (2011) finds both long and short variants in Dorset. Piercy (2011: 162) summarises the findings of a number of studies of TRAP lengthening in different varieties of English, including RP, American Englishes, and Australian English. While there are a number of phonological environments in which TRAP is consistently lengthened, such as in open syllables and before voiced plosives, TRAP lengthening is found in a number of *additional* environments in Dorset English.

Moore and Carter (2015) explored the social meaning of TRAP and BATH on the Isles of Scilly, a group of islands off the coast of West Cornwall, as well as establishing the status of the variables in an acoustic comparison of oral history interviews made on the islands, with the SED recordings from Cornwall, and recordings of Standard English speakers. Previously, only auditory analysis of the Cornish SED recordings had been carried out. I will first outline the findings from this acoustic analysis, and the sociolinguistic findings will be discussed below (Section 2.4.3). Moore and Carter (2015: 13) find that, for the West Cornwall speakers and the Scillonian speakers who were educated on the islands, there was complete overlap between the BATH and TRAP vowels. BATH and TRAP in East Cornwall were still very similar in quality, but there

was a little less overlap. Finally, Scillonian speakers who were educated on the mainland, and received a more prestigious, boarding-school education, displayed a pattern closer to Standard English, with a near-split in quality of BATH and TRAP.

Regarding the durations of BATH and TRAP, all the varieties had, on average, shorter TRAP vowels than BATH vowels, and for those speakers with a complete overlap of the two vowels in quality, the lexical sets were only split by duration (Moore & Carter 2015: 15). In addition, for the Scilly-educated speakers and the speakers from Cornwall, the backed BATH vowels of Standard English were a similar duration to the fronted variants. Only the BATH vowels produced by the mainland-educated Scillonian speakers were a little shorter than Standard English BATH. For West Cornish English, there were no statistical differences between BATH and TRAP in duration. However, this was possibly due to the small dataset, as there were differences in duration between the two lexical sets for individual speakers. As such, these results tentatively indicate that there may be lengthened TRAP vowels in the region, despite there being no mention of this from Wakelin (1975; 1986) and North's (1983) analysis of the same data.

More recently, Blaxter and Coates (2019) have analysed the speech of twenty-five Bristol speakers in two age groups to explore the status of the TRAP/BATH split in Bristol English. They find little evidence of a shift towards backed BATH in apparent time, although over half the speakers did have backer BATH vowels than TRAP vowels. They suggest that this may be due to either BATH quality being a stable variant in Bristol, or that it is 'undergoing "communal change"', meaning speakers of all ages are shifting together, as opposed to a generational change (Blaxter & Coates 2019: 48). However, there was evidence of a change across apparent time in the duration of TRAP and BATH vowels. While older speakers in Bristol always maintained a distinction between TRAP and BATH in duration, although sometimes it was marginal, younger speakers either had much longer BATH vowels than TRAP vowels, or they had no distinction at all. As a result, they suggest that there are two competing changes to the BATH vowel in Bristol English: an increase in BATH duration to maintain the distinction between TRAP and BATH, and a shortening of the BATH vowel, 'presumably under the influence of the northern system' (Blaxter & Coates 2019: 48). However, they state that they cannot be

sure about the mechanism behind the shortening BATH vowels without further investigation of the speakers' social networks.

Finally, a macro-level picture of the status of the BATH vowel across the whole of the South West is provided by the findings of the English Dialects App (EDA) (Leemann, Kolly & Britain 2018). Over 47,000 participants from across the UK answered questions relating to their use of phonological, lexical and grammatical features. Regarding the BATH vowel, there were two versions of the EDA with different questions. In the first, they were asked whether they pronounced 'last' with a short front vowel [æ], or a long back vowel [ɑ:], and in the second version, an additional option for a long front vowel [æ:] was included. The results, which are summarised in Blaxter and Coates (2019: 16), as well as in personal communications with Blaxter (Blaxter, P.C.), indicated that the Standard English backed variant had advanced a great deal through the South West at the expense of the long front variant since the SED recordings were made. In addition, the short fronted variants were also found 20-30% of the time across the South West, including Cornwall. However, it should be noted that these findings are based on self-reported data. As such, they may better reflect ideologies related to BATH pronunciation than actual production.

Overall, these findings paint a complex picture of the status of BATH and TRAP in the South West. Of the two, TRAP has received less in-depth analysis and, with the exception of Piercy (2011), has tended to simply act as a reference point from which to explore the duration and quality of the BATH vowel. As a result, understanding of the status of TRAP in the South West has advanced little beyond Wakelin's (1975; 1986) analysis of the SED. As discussed above, this found open front variants across the majority of the South West, with slightly raised variants in West Cornwall, and attestations of variable TRAP lengthening from Wells (1982b: 346) and Piercy (2011). The BATH vowel, in comparison, has received a little more attention, most likely due to its status as a shibboleth in England (see Section 2.4.3 below). While BATH is traditionally [ɑ:] across the South West, [æ:] is found in West Cornwall (Wakelin 1975; 1986), but there is little evidence to suggest whether contemporary speakers in West Cornwall have retained the raised variant. Further evidence from the EDA (Leemann,

Kolly & Britain 2018) found that the Standard English backed variant is now commonly reported across the entire South West and a new, short front variant may have also been introduced since the SED. Therefore, in West Cornwall, there are likely to be a number of competing BATH variants: [ɑ: ~ æ: ~ a: ~ a].

2.4.3 SOCIAL MEANING OF BATH AND TRAP

Across England, BATH acts as a linguistic shibboleth, most notably as a marker of the North/South divide (e.g. Wales 2006: 20; Lawrence 2015). The status of the short, fronted BATH vowel [a] as a strong marker of Northern identity is particularly well attested. For example, Wells (1982b: 354) states that '[t]here are many educated northerners... who would feel it to be a denial of their identity as northerners to say BATH words with anything other than a short [a]'. Trudgill (1986: 18) agrees, noting that '[m]any Northerners, it seems, would rather drop dead than say /dɑ:ns/: the stereotype that this is a Southern form is again *too strong*' (emphasis in original). This sentiment is echoed in a variety of subsequent sociolinguistic studies of Northern Englishes. For example, Sangster (2002: 219) noted that, '[h]owever else a Liverpoolian may modify his or her speech, disloyally adopting the longer, back 'a' of the South [ɑ:] would lead to censure and ridicule'. In a comparison of SED data with students and alumni from Leeds University, the latter being largely from middle and upper class origins, Gupta (2005: 24) found 'astonishingly consistent' use of one particular variant of the BATH vowel between these groups. Metalinguistic commentary from the respondents indicated that the Southern BATH vowel indexed undesirable 'posh' characteristics: '[m]any of the northerners were noticeably hostile to /grɑ:s/, describing it as 'comical', 'snobbish', pompous', or even 'for morons' (Gupta 2005: 25). Similarly, Beal (2009b) demonstrated that the Arctic Monkeys' frontman Alex Turner uses a variety of Northern English features, including the short BATH vowel, as an index of authenticity. In a diachronic study of linguistic accommodation amongst university students from the Midlands, Evans and Iverson (2007) found that speakers adjusted their pronunciations of BATH less than STRUT, but only in quality and not in duration. This potentially indicates that the *duration* of the Northern BATH vowel contributes most to its salience as an in-group marker, although Evans and Iverson (2007) do not discuss this possibility.

Finally, recent work from Austen (2019) has demonstrated that, for those in Northern England, indexical links between ‘posh’ and the [ɑ:] variant of BATH are so strong that they ‘leak’ to perceptions of this variant in other lexical sets. In a series of perception experiments, Austen asked listeners to match stimuli of BATH and TRAP words with either [a] or [ɑ:] realisations to ‘posh’, ‘social climber’, or ‘working class’ personas. She found that, despite the fact that Southern varieties of English do not have a [ɑ:] TRAP vowel, Northern listeners were more likely to associate this form with ‘posh’ or ‘social climber’ personas. As such, the ‘posh’ social meaning of [ɑ:] variants of BATH had, for some listeners, ‘leaked’ to the TRAP lexical set.

While the status of Northern English BATH appears to have little bearing on the social meaning of BATH in the South West, it does provide insight into the social meaning of the RP form. Northerners’ particular resistance to accommodation towards the RP BATH vowel attests to its salience as a marker of ‘posh’ Southern speech in England. Indeed, Mugglestone (2007: 78) describes the Southern BATH vowel as ‘one of the primary markers of a non-localized ‘standard’ accent’. The results from the EDA suggested that the North-South isogloss for BATH is moving southwards (Blaxter & Coates 2019: 26), which is most likely due to the stereotype of the Southern form as ‘posh’. Interestingly, the EDA’s findings indicate that the long, back variant has made significant in-roads into the South West, which suggests that the lengthened and fronted variant of BATH does not hold the same overt prestige as the Northern variant. In addition, backed and lengthened BATH is also a feature of many South Eastern non-standard accents. Indeed, the backing and lengthening of BATH first emerged as a feature of Cockney English in the 18th Century, and was long considered a vulgarity before it took root in RP (Mugglestone 2007: 80). Therefore, for speakers of non-standard varieties in the South East, BATH is very unlikely to carry the same ideological load as it does for Northerners.

As there has been far less research on South Western varieties in comparison to Northern varieties, the status of BATH and TRAP in the South West region is less well attested. However, production and perception studies of South Western speech have

indicated that fronted and lengthened BATH, and TRAP are both socially meaningful variables in the region. Returning to Moore and Carter's (2015) study of the social meaning of BATH and TRAP in Scillonian English, they explore the dichotomy between 'posh' (RP) and Cornish accents. Moore and Carter (2015) find a correlation between education type and TRAP/BATH pattern in the region, with those with a more prestigious, mainland education using more standard forms, and those with a less prestigious, island education using the local pronunciation. This indicates an association between the Cornish English BATH variant and less prestigious education types, suggesting that this feature does not have the same degree of overt prestige as the Northern variant has amongst people from the North. As previously discussed in Section 1.3 of Chapter 1, Moore and Carter (2017) extend this analysis to include both Scilly-educated and mainland-educated Scillonian women. They find that, although the women patterned similarly to the men in terms of education type, the difference between the Scilly-educated and mainland-educated women's TRAP/BATH split was less distinct. Regardless of education type, both groups of women were shifting towards Standard English, whereas this shift was only evident in the speech of mainland-educated men. Moore and Carter (2017: 275) argue that the 'incredible salience' of these variants may have caused increased pressure on women, in particular, to use the 'correct' form, regardless of education type. In addition, irrespective of where they were educated, all the women had similar roles and responsibilities in the community, and did not have access to the same institutional roles as the men. Taken together, these findings highlight the status of BATH in the South West as a resource for identity work, but also demonstrates how different groups of speakers do not necessarily have the same identities available to them.

Similarly, Piercy (2010: 257) describes a change in progress across apparent time in the proportion of fronted BATH variants for Dorset speakers, with young females and the children of in-migrants leading the change. This suggests that the fronted variant indexes characteristics that are undesirable for both females and the younger generation. However, contrary to these findings, Blaxter and Coates (2019) did not find a shift towards backed BATH across apparent time in Bristol, but did find that some young speakers were producing Northern-like short variants. These findings suggest that, at

least in an urban context, any stigma surrounding South Western BATH may be attached to its duration rather than to its fronted quality. Finally, my own preliminary work on BATH and TRAP variation amongst first-generation in-migrants in West Cornwall showed a significant correlation between use of the local forms (fronted BATH and lengthened TRAP) and positive local orientation, as well as being subject to much metalinguistic commentary (Dann 2016). This suggests that these variants may be enregistered as features of Cornish English.

While the research summarised above explores the social meaning of TRAP and BATH through the patterning of these features in speech production, there has also been some investigation of the perception of these features. Montgomery and Moore (2018) tested the salience of features of Isles of Scilly English in real time, specifically exploring how differences in the topic of the guises, ‘farmer’ or ‘islander’, influenced perceptions. Montgomery and Moore (2018) found that fronted and lengthened BATH was most recognised in the ‘islander’ guise. They suggest that the majority of features noticed most in the ‘islander’ guise were not specifically associated with the South West, and the increased salience of BATH in this condition may be due to its status as a shibboleth across England, and the strong associations between fronted BATH and Northern Englishes. Regarding the TRAP vowel, only lengthened variants of this variable were present in the ‘farmer’ guise, where they were regularly noticed by listeners. In comparison to the BATH vowel, the fronted and lengthened variant of the TRAP vowel is regionally restricted to the South West. The particular salience of fronted and lengthened TRAP in the ‘farmer’ guise speaks to its association with the concept of the uneducated and unsophisticated ‘South Western farmer’ (Montgomery & Moore 2018: 649). This sentiment also appeared to be echoed by a student from Bristol in Gupta’s (2005: 24) study, who stated that he used the short, rather than long, front BATH vowel because ‘he did not want to sound “rustic”’.

Finally, with regards to these findings, it should be noted that it may not be possible to entirely untangle the social meanings of BATH and TRAP in the South West of England. As demonstrated by Austen (2019), the social meaning of BATH for Northern speakers ‘leaked’ to the TRAP vowel, as these lexical sets are merged in Northern varieties. Similarly, for some speakers in the South West, the BATH and TRAP lexical sets are

almost entirely merged. Therefore, for these speakers, it is probable that the social meanings of these lexical sets is connected. Indeed, anecdotally, South Western speech is often simply characterised by the /a:/ variant of the entire set of <a> words, including BATH, PALM, and TRAP, and non-linguists are unlikely to fully distinguish between lexical sets. For example, when describing which features of Cornish English were most noticeable, a participant interviewed for Dann's (2016: 43) study noted 'the way they say 'a's in words'. Similarly, when discussing South Western dialects, British Council teaching English resources simply state that, '[t]he vowel sound /a:/ appears in an unusually high number of words in a West Country accent' (TeachingEnglish no date). To give an example from fiction, the first book in Emma Burstall's popular romance series set in Cornwall characterises the accent as having 'elongated r's and a's' (Burstall 2015: 15). Therefore, it is not entirely appropriate to separate a discussion of the social meaning of these two lexical sets. As a result, Montgomery and Moore's (2018) finding that longer TRAP vowels are associated with the concept of the 'South Western farmer' may provide some insight into the social meaning of lengthened and fronted BATH vowels in West Cornish English. It is possible that the duration of the fronted BATH vowel in Cornwall has the same 'farmer' associations, while the fronted quality alone does not.

2.4.4 SUMMARY: BATH AND TRAP VARIATION IN THE SOUTH WEST

In the previous sections, I outlined the potential variants of BATH and TRAP that are likely to be available to the speakers in these studies, before exploring the possible social meanings of those variants. First, it has been suggested that the Standard English [ɑ:] variant of BATH may be making significant inroads into the South West (Blaxter & Coates 2019: 26). This variant has been identified as one of the key markers of the standard accent, and is, outside the South East, often considered to be representative of 'posh' speech (e.g. Mugglestone 2007: 78). The social meaning of the fronted and lengthened [æ: ~ a:] variants traditionally found in Cornish English and the wider South West is a little less well understood. Changes across apparent time (Blaxter & Coates 2019), and speech perception research (Montgomery & Moore 2018), suggest that specifically the long duration of these front vowels may be stigmatised and an index

of the ‘South Western farmer’ persona. However, the social meaning of the fronted quality specifically is less clear, although this variant holds a large amount of local prestige in the North of England (e.g. Wells 1982b: 354), and there is some evidence to suggest that the fronted variant is an index of local identity in the South West (Dann 2016). Regarding the TRAP vowel, the lengthened variants are also salient and index a ‘South Western farmer’ persona (Montgomery & Moore 2018), although this feature is not as salient as the BATH vowel. Finally, auditory analysis of the SED data suggested that, in West Cornwall. BATH and TRAP also traditionally have a raised [æ] quality (Wakelin 1975; North 1983). Unfortunately, there is little previous research exploring either the current status or social meaning of these variants in the region, most likely due to their restriction to a small area of an understudied variety. Taken together, these findings suggest that there are at least four different social meanings that could be indexed by the different variants of TRAP and BATH in West Cornwall: *standard*, *posh*, *farmer*, and *local*. Of course, the variants will also index myriad other, more locally and interactionally specific meanings, but these would be best explored with more in-depth, ethnographic research.

2.5 IDEOLOGIES LINKED TO BATH AND TRAP SOCIAL MEANINGS

The potential indexes of BATH and TRAP variation in Cornwall identified in section 2.4.4 above, *standard*, *posh*, *farmer*, and *local*, are not specific to these variables or this region. Instead, they represent more widely recognised ideologies connected to linguistic variation. Sections 2.5.1 to 2.5.3 below explore each of these ideologies and the influence they may have on language use.

2.5.1 ‘STANDARD’ AND ‘POSH’

Beginning with ‘standard’ and ‘posh’, I will now consider the social meaning and ideological underpinnings of these labels as a whole. Two overarching ideologies about RP exist, characterised by Honey (1985: 248) as a tension between ‘talking proper’ and ‘talking posh’. Regarding the former, the influence of this ideology on language use has been demonstrated through analyses of style shifting. Beginning with Labov (1972b), linguists have demonstrated how speakers tend to shift away from marked, non-standard forms, and towards the standard in the most monitored styles, such as reading

passages and word lists. Similarly, Coupland (1980) reported that travel agency workers shifted towards RP when talking to clients or on the phone. Studies such as these highlight the status of RP as the ‘most correct’ and formal variety. As summarised by Britain (2017b: 295), it is ‘a variety which is *seen* to embody a clarity of expression, correctness, precision’ (emphasis in original).

While studies of style shifting have often positioned the non-standard variants as marked or stigmatised, this does not mean that RP is free from negative indexical associations, most notably in its association with being ‘posh’. Mugglestone (2007: 280) describes this shift around the 1960s in how RP was perceived: “talking proper” gradually came to be seen as “talking posh” for far wider sections of society’. Accent rating studies have demonstrated that RP is perceived as having high socio-intellectual status, but it often also scores poorly on scales relating to friendliness and trustworthiness (Giles 1970; 1971; Giles & Powesland 1975), most likely due to its social evaluation as ‘posh’. Research from Rampton (2011) explored some of the negative attributes attached to ‘posh’ speech amongst adolescents in London. The speakers in this study were shown to use stylisation of ‘posh’ in order to conjure attributes such as ‘social distance, superiority, constraint, physical weakness, and sexual inhibition’ (Rampton 2011: 1239). These stereotypical associations with RP speech mean that using features of the variety can carry more of an ideological load than simply sounding ‘correct’ or ‘precise’.

2.5.2 ‘FARMER’

Another label that local variants of TRAP and BATH appear to index is that of the ‘South Western farmer’. In order to fully explore the social meaning of this label, it is important to consider conceptualisations of the rural more generally, as the two are undeniably linked. Britain (2017a) discusses conceptualisations of the urban and the rural in both public discourses and dialectological research. On the one hand, he explains, the rural is often framed in terms of ‘rural idyll’, meaning it is viewed as, among other things, ‘peaceful, tranquil, stable, simple, virtuous, unspoilt yet fragile’ (Britain 2017a: 173). On the flip side of this, alternative representations of the countryside portray the rural as ‘backward, conservative, boring, dangerous, threatening, uncultured and uneducated’

(Britain 2017a: 174). The employment of these tropes in popular culture demonstrates a consensus regarding their existence. For example, Bell (1997) discusses the ‘anti-idyll’ portrayed in the ‘hillbilly horror’ film genre, in which the local rural townspeople are conceptualised as backwards, dangerous, and monstrous. Although Bell specifically analyses films set in the USA, many parallels can be drawn with UK media in films such as *Hot Fuzz* (Wright 2007), *The Wicker Man* (Hardy 1973), or *Straw Dogs* (Peckinpah 1971). A less sinister framing of the ‘South Western farmer’ as a comedic character is typified in the ‘Scrumpy and Western’ music genre, most well-known for the comedy/pop band The Wurzels’ *The Combine Harvester*. In this genre, the South Western accent is undoubtedly used for comedic effect. Consider, in comparison, the way Sheffield English has been demonstrated to be used as an index of authenticity and independence in indie music (Beal 2009b). Therefore, the label of the ‘South Western farmer’ is likely to incorporate traditional, backwards, and potentially sinister social meanings, as well as being associated with more a friendly, yet comedic persona.

2.5.3 ‘LOCAL’

Finally, it has been suggested that fronted variants of BATH and lengthened variants of TRAP are enregistered as features of Cornish English. There is a large volume of research on the importance of place-based indexicalities in language variation and change. This was explored in detail in Section 1.2 of Chapter 1. Overwhelmingly, this research has demonstrated that place-based identities are an important factor in the progress, or lack of progress, of sound change. For example, research such as Labov (1963), Hazen (2002a), and Becker (2009) have demonstrated how the speakers with strong attachments to their local region are more likely to use locally enregistered features, even if those features are stigmatised and/or in the process of attrition.

The ideological basis for this effect is explored further by Johnstone (2010b) in a discussion of the effect of large scale mobility, brought about by globalisation, on language change. She states that ‘conditions which foster dialect levelling are also those which foster the production of locality through the ideological differentiation of imagined dialects’ (Johnstone 2010b: 398). In other words, while large-scale dialect contact can result in the loss of local varieties (Trudgill 1986), it can also draw attention

to linguistic differences between social groups, allowing certain forms to become markers of local identity. Johnstone (2010b: 391) demonstrates that certain forms may undergo ‘resemiotization’ when people ‘link the identity of a place with particular forms of speech’. When a form becomes linked with place identity, it can become ideologically de-linked from class, meaning it loses some of the stigma that can be attached to regional forms and becomes a resource for performing local identity. As such, ideologies of ‘localness’ are a particularly important dimension to consider in language variation and change research.

2.6 SUMMARY

This chapter has contextualised this study within the field of sociolinguistics. It first demonstrated the importance of awareness and social meaning of linguistic variation in processes of language variation and change. It then reviewed the previous sociolinguistic literature in speech perception, highlighting where these methodologies have been particularly successful at exploring the social meaning of variation, and considering some of their limitations. In particular, these methodologies often presuppose that certain features will be socially meaningful, and often only test one feature at a time. This provides the backdrop for the perception test used in the present study, which tests the salience of multiple features of the variety simultaneously. This chapter then moved on to describe the variables that were chosen for study in this thesis following the perception test: BATH and TRAP. It traced the history and potential social meaning of BATH and TRAP variation in the South West, and explored the ideologies that are linked to these social meanings. Overall, it found that the Standard English [ɑ:] BATH may index ‘posh’ or ‘standard’, although this may be dependent on where the speaker is from; the fronted quality of the South Western BATH vowel [æ ~ a] may be an index of ‘localness’, particularly given the recent large-scale demographic change in Cornwall (see Section 1.4.1 of Chapter 1); and longer variants of both TRAP and fronted BATH in the region may be an index of the ‘South Western farmer’ persona. In the next chapter, I will provide an overview of the methodologies used in both the production and perception elements of this study, as well as a discussion of the theoretical and methodological justifications for the study design.

CHAPTER 3: METHODOLOGY

3.0 INTRODUCTION

This project uses both perception and production methodologies to explore linguistic variation in West Cornwall. As discussed in Section 1.4.2 of Chapter 1, there is very little previous research which provides insight into the social meaning of individual features of Cornish English. Previous research has suggested that awareness of a linguistic feature can be an important factor conditioning language variation and change (see Section 2.1 of Chapter 2). Therefore, before choosing the features to explore in speech production, a perception experiment was carried out to test the salience of West Cornish English features in real time. As a consequence of the results of this study, two features (vowels in the BATH and TRAP lexical sets) were analysed in the speech of schoolchildren from West Cornwall. The schoolchildren's production of these features was also compared to traditional speakers of West Cornish English from the SED, as well as a corpus of RP speakers.

The following chapter describes the methodologies used to carry out the two parts of this study. It begins with an overview of the real time speech perception experiment used to diagnose the most salient features of West Cornish English (Section 3.1). It then describes the production data collection methods, including participant recruitment, and the spoken data elicitation tasks that were used (Section 3.2). The data collected from these speakers is henceforth referred to as the 'Contemporary Cornwall' corpus. Section 3.3 then provides a description of the two other datasets, the SED and RP corpora, used for comparison with the Contemporary Cornwall corpus. Next, the auditory and acoustic phonetic methods used for analysis of the spoken data are described in Section 3.4. Finally, this chapter concludes with a description of the statistical tests used for analysis of both the perception and production data in this study (Section 3.5).

3.1 SPEECH PERCEPTION EXPERIMENT

In order to rank the features of West Cornish English in order of salience, this experiment collected responses to four recordings of two speakers from West Cornwall. Section 2.3 of Chapter 2 provided a review of previous studies which have used speech perception methodologies to explore the social meaning of linguistic variation. These studies have provided rich insight into how social information can become attached to linguistic features, and into the social meaning of individual features (e.g. Campbell-Kibler 2006; Hay & Drager 2010; D’Onofrio 2015). However, the experimental designs generally necessitate the study of only one feature at a time, as listeners must respond to the guise *after* they have heard it. Where researchers, such as Pharao and Maegaard (2017) and Levon (2014), have explored perceptions of co-occurring features, the participant responses have been post-hoc. As a result, they have difficulty accounting for the influence of any other features in the guises, and on the effect of the controlled variables on those other features. At the other extreme, accent stimuli and concept rating tasks (e.g. Giles 1970; Coupland & Bishop 2007) are very effective in producing relatively general evaluations of varieties, but tell us little about the individual features that are activating those evaluations. To counteract this problem, researchers have developed innovative methodologies to test responses to stimuli in *real time*. This means that the listener responds to a stimulus while they are still listening, so researchers can have more certainty about exactly which feature (or cluster of features) triggered a reaction.

In an effort to systematically diagnose which linguistic features were most associated with the Austrian dialect, Soukup (2011) asked participants to listen to different stimuli from standard Austrian and Austrian dialect speakers. While listening, they underlined on a transcript any speech which they considered ‘dialectal’, and Soukup (2011: 355) found a high level of agreement in the responses. However, Soukup (2011: 360–361) cautions that the written format of the task may have prompted participants to underline words that sounded particularly different to the orthography. She also surmised that the speech may have been too rapid for the listeners to have enough time to underline all noticeable features.

Moving away from the written format, Watson and Clark (2013; 2015) used an online interface to measure listener responses to stimuli on a magnitude estimation scale in real time. Participants were presented with a question, such as ‘does this speaker sound posh’, and asked to respond on a sliding scale running from ‘definitely yes’ to ‘definitely no’ while still listening to the stimulus. The exact point at which they began to move the scale provided some insight into which feature was triggering the reaction, thus indicating that the feature is particularly salient to the listener. Watson and Clark (2013) found that real time responses to a speaker from North West England could be correlated with the occurrence of the NURSE~SQUARE merger, suggesting that it is a salient feature of this variety. Using un-manipulated speech, Watson and Clark (2015) then used the tool to explore salience in a variety of English regional accents. They found that listeners did react with some uniformity to the guises, suggesting they were responding to something in the linguistic signal. However, in both studies, they note that they had difficulty isolating exactly which features participants were responding to.

In an attempt to address this difficulty of untangling exactly which features listeners are responding to, and to test the salience of multiple features of a variety at once, Montgomery and Moore (2018) developed a new tool to test perceptions in real time. Through an online interface, participants were presented with voice samples and instructed to click on a button whenever they heard something that they thought indicated where the speaker might be from. In order to increase confidence that the listeners were responding to the feature they had clicked on, participants were then asked to go back and review their reactions, then either discard them or add qualitative comments. Where participants indicated that they were unsure why they clicked or where there was ambiguity in the qualitative responses, the data was discarded. The effectiveness of this tool was demonstrated by Montgomery and Moore (2018) in a study of the effect of topic on perceptions of Isles of Scilly English, which found that listeners noticed different features depending on what the speaker was talking about (see Section 2.4.3 of Chapter 2 for a more detailed discussion of these results).

3.1.1 EXPERIMENT DESIGN

In the present study, reactions to West Cornish English were collected using the same browser-based survey instrument developed by Montgomery and Moore (2018). Participants were recruited using both social media and through a University of Sheffield mailing list. In particular, social media was used in order to recruit participants from the South West. There were no restrictions on who could participate, but listeners who had spent fewer than 10 years living in the UK were excluded from the analysis, as they were assumed to have inadequate knowledge of the social meaning of accent variation in the country.

After following the link to the online tool, participants were first asked to fill out some biographical details, including information about their current and previous residential history. Before beginning the experiment proper, they were then asked to listen to a recording of a speaker from London and used a mouse to click on a large, green 'click' button on the screen whenever they heard instances of (th)-fronting (for more information about this task, see Montgomery & Moore 2018: 635). This gave the listeners a chance to get used to the tool.

Listeners then moved on to the task proper, where they heard each of the target stimuli twice. They were first asked to listen to a stimulus and, afterwards, indicate where they thought the speaker was from, and anything else about their voice which stood out to them. Participants were given free choice on both of these questions. Providing participants with prior experience of the stimuli was intended to allow them to focus more carefully on the linguistic features of the speech when listening for the second time. They then listened to the stimulus again, but this time they were asked to press the large, green 'click' button whenever they heard something they found interesting or signalled to them where they thought the speaker might be from. This screen and the precise instructions they were given can be seen in Figure 3.1 below. At the end of the stimulus, they were presented with a short audio clip and transcription +/- 3 seconds from the exact point at which they clicked and were asked to either comment on what stood out to them, or state that they didn't know why they had clicked (see Figure 3.2 below). For example, in Figure 3.2 below, the listener has clicked just after the speaker

said ‘Cornish flag’ and, subsequently, after they said ‘Saint Michael’s Mount’. They could then comment that they noticed, for example, the pronunciation of the <r> in ‘Cornish’ and the vowel in ‘Mount’.

Voice sample 1

For the next task, listen to the voice sample again and listen out for anything in the way this person sounds which makes you wonder where they are from (or confirms where you already think they are from). This might include the way they pronounce certain words or phrases, the quality of their voice (its speed, loudness or pitch) or the words they use. When you hear something that sounds distinctive, please click the button below the sound wave straightaway. You can do this by hovering your mouse over the green button and left clicking. This will record the exact point in time where you reacted to the sound clip. You may hear the same distinctive feature of language multiple times and you can click as many times as you like.

You will only hear the voice sample once, so don't think too much about what it is that made you feel this way. Just click straightaway whenever you hear something which triggers these feelings. Don't worry if you miss something or click accidentally. You can correct any mistakes in the next section.

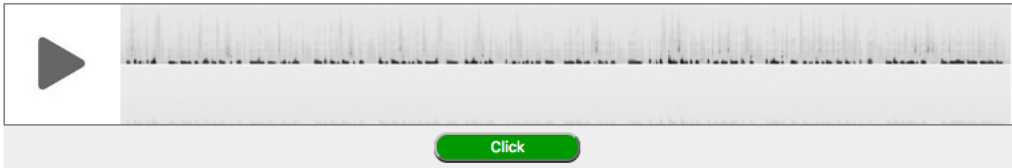



Figure 3.1: The screen introducing the clicking task, shown to participants when they are presented with a stimulus for the second time.

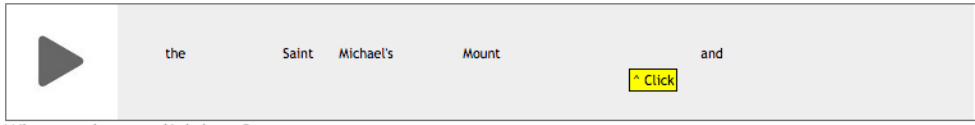
Voice sample 1

Below is the sound wave you just heard, showing where you clicked in the last task. There is also a transcript of what you heard. You can hear the portion of speech you selected by clicking on the marker in the sound wave. Each click also has a box next to it. If you know what it was that made you click, please write what this was in the relevant box. If you don't know, or you made a mistake, please tick the appropriate box. You can listen to the sample as many times as you like for this portion of the task. If you notice anything else in the course of completing this part of the task, please write about this in the box at the end.



What made you click here?

I don't know. I made a mistake and didn't mean to click here.



What made you click here?

I don't know. I made a mistake and didn't mean to click here.

Figure 3.2: The screen shown to participants asking them to review their ‘clicks’ and add qualitative comments.

While the main aim of this study was to test the salience of different phonological features of West Cornish English, previous research has demonstrated that salience is not a stable fact, and is malleable according to many contextual factors (see Sections 2.1 and 2.2.1 of Chapter 2). With this in mind, four different stimuli were collected from two speakers from West Cornwall. Both speakers were middle-aged, born in West Cornwall, and had long family histories in the region. This speaker demographic was chosen as they were old enough to be likely to have many features of traditional West Cornish English in their speech, while still being young enough to be representative of contemporary speech in the region.

In line with previous research on language and gender (e.g. Labov 1990), the female speaker's variety is closer to Standard English than the male's more traditional West Cornish English speech (see Section 3.1.3 below). Following research such as Phrao et al. (2014), Phrao and Maegaard (2017), and Levon (2014), the inclusion of these two different speakers was intended to provide insight into how perceptions of individual linguistic features are influenced by the larger repertoire in which they are heard.

Two speech samples were collected from each speaker. In one, the content of the speech sample is overtly Cornish. In the second, the topic is relatively neutral, with no references which could easily be linked to any English region. These make up the CORNWALL and NEUTRAL conditions respectively. As discussed in Section 2.3.1 of Chapter 2, previous research has demonstrated the effect of regional primes on perception of speech (e.g. Niedzielski 1999; Hay, Nolan & Drager 2006; Hay & Drager 2010). As such, the inclusion of these two conditions in the research design was intended to provide insight into which features were salient due to their enregisterment as 'Cornish', and which were more generally salient with no regional priming.

Participants were directed to click one of two links according to their birth month. Those born in the first half of the year were directed to the CORNWALL condition, where they were asked to respond to the two stimuli of the female and male speakers, respectively. If they were born in the second half of the year, they were directed to the NEUTRAL stimuli from the same speakers.

This experiment also considers the effect of listener experience with the variety on the salience of the individual linguistic features. Previous research has found that experience with a variety affects perceptions of that variety's linguistic features (Clopper & Pisoni 2006; Sumner & Samuel 2009; Kendall & Fridland 2010; Hay, Drager & Gibson 2018). This experiment further explores how listener experience affects different features of the same variety. In addition, it considers the effect of listener experience on perceptions of relatively naturalistic stimuli, which has not previously been researched. Given the similarity between South Western varieties of English (see Section 1.3.2 of Chapter 1), listeners are assumed to have experience with the variety if they live, or have lived, in the South West of England.

3.1.2 STIMULI RECORDING

Using a method which has previously been successfully used to prepare stimuli for speech perception experiments (Hansen & Pharao 2010), the speakers used in this experiment were recorded taking part in two 'map tasks' (Anderson et al. 1991) (see Section 3.2.4 of this chapter for an in-depth discussion of the map task methodology). They were given a map with a number of different 'landmarks' and a dotted line tracing a route around them from a 'start' to an 'end' marker. They were asked to describe the route to me from the start to finish, to enable me to replicate the line on my own map (which did not include the dotted line). Each of the speakers took part in two map tasks, each including different 'landmarks', to generate the CORNWALL and NEUTRAL guises. On the CORNWALL map, the landmarks were all chosen as items or locations that are associated with the region. This included references to the topical geography of the region, landmarks relating to the traditional industries of Cornwall, local food and drinks, and two prominent locations in West Cornwall. The most overt reference to Cornwall, 'Cornish flag', was placed at the start of the map. This ensured that 'Cornwall' would be primed from the start, rather than a theme that emerged throughout the stimuli. On the NEUTRAL map, the landmarks were intended to not prime any region in particular.

In recording the speakers for the perception test stimuli, there were a number of methodological considerations to ensure a robust experimental design. First, the speech

was intended to be relatively naturalistic, while ensuring comparability between guises and eliciting as many features of the traditional variety as possible. As such, following Labov's (1972b) *vernacular principle* and Sharma's notion of *attentional load* (Sharma 2018; Sharma & McCarthy 2018), more traditional features of West Cornish English were likely to be elicited if the speakers were preoccupied by a relatively complex task. Second, the results of this perception experiment were primarily intended to provide insight into production patterns. As such, the use of relatively naturalistic speech for the stimuli increases the applicability of the results to real-world language use. Therefore, the use of a map task to elicit the stimuli provided a reasonable balance between control and formality. The speech collected from this kind of task is more naturalistic than a reading passage, but is more controlled than, for example, interview questions.

Each map task landmark was chosen to ensure that the speaker had the opportunity to produce many of the traditional phonological features of West Cornish English, as identified by Wakelin (1975: Ch. 5; 1986: 21–33). However, features noted by Wakelin to be in decline at the time were omitted, as they would be very unlikely to still be present in contemporary local speech. In addition, a number of features are stated by Wakelin to only occur in East Cornwall, so were not included. For example, while voiceless fricatives are regularly voiced word-initially in some parts of South West England, almost no non-standard forms were found in West Cornwall, with the exception of 'three' being pronounced [dʒr] in one locality (Wakelin 1975: 165). Therefore, the only word-initial voiceless fricative specifically chosen was 'three'. Finally, those features which Wakelin notes to only very occasionally have non-standard pronunciations were excluded. For example, the most common pronunciation of NURSE and SQUARE words are close to Standard English with the addition of rhoticity or /r/-colouring of the vowel (Wakelin 1986: 27, 29), so these lexical sets were not chosen to be part of the task.

To increase comparability across the two conditions, each West Cornish English feature represented by a landmark was matched for phonological environment in the NEUTRAL and CORNWALL maps. Where possible, the same word was used in each condition, as in the representation of the CHOICE vowel in the CORNWALL map's

‘noisy tourists’ and the NEUTRAL map’s ‘noisy children’. However, it was often necessary to choose an equivalent word with the same phonetic environment in order to avoid any landmarks so incongruous that they distract from the task. For example, the PRICE vowel is represented by ‘roadside café’ on the NEUTRAL map and by ‘cider bottle’ on the CORNWALL map. Although there was only one landmark intended to elicit a specific feature, most features occurred in more than one landmark. In particular, the features which occur frequently in English, such as rhoticity and TRAP, are present in multiple landmarks. Table 3.1 below shows each of the landmarks used on the two maps, along with the linguistic features they were intended to elicit.

Feature	NEUTRAL Map	CORNWALL Map
BATH	Pa <u>th</u>	Cliff <u>top</u> Pa <u>th</u>
TRAP	Gr <u>an</u> ny’s House, Roadside Ca <u>f</u> e	Cornish Fla <u>g</u> , Gra <u>n</u> ite Quarry, La <u>n</u> d’s End, Mothers Homema <u>d</u> e Pa <u>s</u> ty ⁵
PALM	Ca <u>l</u> m River, Fa <u>th</u> er	Ca <u>l</u> m Sea
LOT	Dog, Mountai <u>n</u> top	Granite Qu <u>a</u> rry, Farmer’s Shee <u>p</u> dog
KIT	T <u>i</u> nder, Ri <u>v</u> er, Three Pige <u>o</u> ns	Corn <u>i</u> sh Fla <u>g</u> , Ti <u>n</u> Mine, Fi <u>sh</u> ing Boat
PRICE	Roadside Ca <u>f</u> e	Ci <u>d</u> er Bottle, St. Mi <u>ch</u> ael’s Mount, ⁶ Ti <u>n</u> Mi <u>n</u> e
CHOICE	No <u>i</u> sy Children	No <u>i</u> sy Tourists
MOUTH	Mountai <u>n</u> top, Gr <u>an</u> ny’s Ho <u>u</u> se	St. Michael’s Mo <u>u</u> nt
GOAT	Rowing Bo <u>a</u> t	Fishing Bo <u>a</u> t, Mother’s Ho <u>m</u> emade P <u>a</u> sty
Rhoticity	Ri <u>v</u> er, Worried Fa <u>th</u> er, Wa <u>t</u> er Bottle, Ti <u>n</u> der	Cornish Fla <u>g</u> , Far <u>m</u> er’s Shee <u>p</u> dog, Mother’s Ho <u>m</u> emade P <u>a</u> sty, Ci <u>d</u> er Bottle
Fricative Voicing	Th <u>r</u> ee Pige <u>o</u> ns	Th <u>r</u> ee Seagulls
/t/-flapping	Wa <u>t</u> er Bo <u>t</u> t <u>l</u> e	Ci <u>d</u> er Bo <u>t</u> t <u>l</u> e

Table 3.1: Traditional features of West Cornish English and the landmarks on the NEUTRAL and CORNWALL maps intended to elicit them. The specific feature in each landmark has been underlined.

⁵ Pasties are a traditional dish associated with Cornwall.

⁶ Cider is a drink commonly associated with, and made in, the South West of England, and St. Michael’s Mount is a prominent landmark near Penzance.

3.1.3 THE STIMULI

After the recordings had been collected, they were edited in Audacity® (Audacity Team 2019) to remove any long pauses and disfluencies, such as false starts, which may influence perceptions of the speaker and distract from the task. Post-editing, each of the CORNWALL guises were 38 and 40 seconds long, while the NEUTRAL guises were both a little under 37 seconds. Below are the full transcriptions of the guises. Subsequently, Table 3.2 details the non-standard features in each guise, along with the words in which they occur. In addition to West Cornish English features, the speakers also produced some more generally vernacular features which are found in many varieties of British English. These features are also identified in Table 3.2 below.

Male CORNWALL Guise

Right, we went out and um- I saw a Cornish flag. Then we went around the corner to Saint Michael's Mount. And then we went on a bit further and I saw a farmer's sheepdog. And then a bit further on again we saw the calm sea, and on the calm sea there were some fishing boats. Then along past the boats there was a granite quarry. Further on from the quarry I saw a cider bottle that was next to um- mother's homemade pasty. We carried on a bit further and then I saw a beachball. And after the beachball there were three seagulls, on top of a cliff path. Along the cliff path were some noisy tourists next to a tin mine. And the tin mine was on its way to Land's End.

Male NEUTRAL Guise

We went down the garden path towards granny's house. We went around to the left and around the calm river where we saw a dog and a worried looking father. Further along we saw some- um- we saw some tinder. And then we saw the top of a mountain. And by the top of the mountain we saw a roadside cafe. And then we saw, around to the left, some noisy children. And then we went around a bit further, and then we saw a rowing boat. And then we went on a little bit more and we could see three pigeons. And then further on around we saw a football. And a bit further on than that we saw a water bottle.

Female CORNWALL Guise

Er- starting at the top left in-between the Cornish flag and the farmer's sheepdog. Going around the Saint Michael's Mount and back down to the farmer's sheepdog. Down to the calm sea, keeping the calm sea on the left, and down below the fishing boat. Up between the fishing boat and the granite quarry and then down towards the cider bottle. And up above over the cider bottle up towards mother's homemade pasty. Up around the beachball through to the three seagulls and through the clifftop path, heading down towards the noisy tourists and the tin mine and then to Land's End.

Female NEUTRAL Guise

Err- through the path up to the right hand side of granny's house. Going across the roof up past the calm river, keeping the river on your right hand side. Down between the dog and the worried father, towards the tinder around the corner. Up over the mountaintop and up above the roadside cafe. Around the noisy children and to the rowing boat and through the rowing boat and the three pigeons, keeping the pigeons on the left and then up to the football. The football's on your right hand side. And then up to the water bottle.

Feature	IPA	Male CORNWALL Guise	Male NEUTRAL Guise	Female CORNWALL Guise	Female NEUTRAL Guise
BATH	[a:] [aː] /a/	<i>Past, after,</i> path , path	Path	Path	Path, past
TRAP	[a:] [aː] /a/	<i>Granite,</i> Land's, pasty, flag	<i>Granny's,</i> <i>café</i>	Flag, granite, <i>pasty, Land's</i>	<i>Granny's, café</i>
PALM	[a:] [aː] /a ɾ/ [ɑ:]	Calm, calm	<i>Calm,</i> father	Father	<u>Calm</u>
GOAT	[ou]	Boats, boats	Roadside	Boat, boat	Roadside, rowing, boat
KIT	[e] [ē]	Cornish, fishing, cliff, cliff , tourists, tin, tin	Tinder, children, pigeons, little, river	Clifftop, tourists	Pigeons, pigeons, tinder, children
LOT	[ɑ] [ɒ] [ʌ]	Sheepdog, along, quarry, quarry, along	Dog, worried, along	Sheepdog, sheepdog, quarry	Across, dog, <i>worried</i>
PRICE	[ɑɪ] [ɔɪ] /äɪ/	Right, Michael's, cider, mine, mine	Roadside	<i>Michael's,</i> <i>cider, cider,</i> <i>mine</i>	<i>Right, right,</i> <i>side, roadside,</i> <i>right, side</i>
MOUTH	[æʊ] [æʊ]	Out, around, Mount	Down, house, around, around, mountain, mountain, around, around, around	Around, Mount, down, down, down, around, down	House, down, around, mountaintop, around
CHOICE	[ʌɪ] [oɪ]	Noisy	Noisy	Noisy	Noisy
Rhoticity	[ɹ] [v]	Cornish, corner, further, farmer's, further, further, cider, mother's, further	Garden, towards, river, father, further, tinder, further, more, further, further, water	Starting	River

/t/ Flapping	[ɾ]		Little, water, bottle		
Glottal /t/	[ʔ]	Out, bottle	Mountain	Boat	Right, boat, right
Alveolar ING	[ŋ]	Fishing	Looking, rowing	Fishing	Keeping, keeping
Vocalised /l/	[w]	Bottle, beachball, beachball, seagulls	Football, bottle	Bottle, bottle, seagulls	Football, bottle
/h/ Dropping	∅	Homemade	House		
Labiodental /r/	[ʋ]			Around, granite, quarry, around, through, three, through, tourists	Right, roof, right, worried, around, roadside, around, children, rowing, rowing, three, right

Table 3.2: Non-standard accent features in each guise, with auditory phonetic IPA transcriptions, and the word(s) in which they occur. Where there are multiple variants of a variable, different types of typographical emphasis are used to show which variant occurs in each word.

3.1.4 RESULTS CODING AND ANALYSIS

For each of the four guises, the qualitative data provided with the clicks was coded for the linguistic feature(s) and the word(s) in which it appears. For example, where a participant stated that they clicked because of ‘the a in path’, this was coded as ‘BATH:path’. Where participants indicated that more than one feature made them click, as in “around” has a different vowel than I would use, and “corner” had a really pronounced R’, both features were coded separately as, for example, ‘MOUTH:around’ and ‘Rhoticity:Corner’. Similarly, participants would often simply state the word(s) that stood out to them. When these words contained more than one vernacular feature, the comment would be coded for both. If participants indicated that they didn’t know why they had clicked, had made a mistake, or provided no qualitative data, the data was removed from the analysis.

Comments were coded as ‘ambiguous’ when the participant was unclear about exactly what they had noticed, as in ‘general tone of voice sounded like a farmer’ and ‘pronunciation and accent’. Other comments were coded as ‘irrelevant’ when they did not include anything related to language, such as ‘Cornish Flag indicates where they are from’. Occasionally, participants would state that one of the lexical items stood out to them, as in ‘tinder is a dialect type word - a bit villagey’. These comments were also coded as ‘irrelevant’, as the words were part of the map task and not selected by the speakers. This coded data was then collated and the frequency of every noticed linguistic feature in each guise was calculated.

In order to increase certainty that the coded comments matched with the actual feature responded to in real time, an R script was used to match each click to the most recent possible occurrence of that token in the stimulus, as identified in Table 3.2 above.⁷ This was done by matching the time of the click to the most recent occurrence of the coded feature and word in the stimulus. As the listeners were presented with a section of the recording +/- 3 seconds from the time they clicked in order to add their qualitative comments, if there was more than a 3 second time lag between the click and the coded token, the data was removed from the study. Similarly, if the comment matched with a token that occurred after the click, the data was removed, as the listeners could not have responded to this feature in real time.

This script coded each listener’s response to each occurrence of a non-standard feature in a guise as a click/non-click outcome. This meant that the proportion of clicks a feature received could be calculated out of a possible total, giving a rough guide to how much each feature stood out to listeners.

Finally, each participant’s guess of the location of the speakers was coded as either ‘South West’ or ‘other’. Some participants guessed a specific town or city, such as ‘Penzance’ or ‘Bristol’, while most would just guess a region or county. The ‘other’ group is comprised of any guesses that weren’t in the South West, as well as participants who

⁷ I am very grateful to Dan Villarreal for his help in writing this R script.

didn't guess or stated that they were unsure. The data was used to analyse responses to each guise according to where the speaker was guessed to be from.

The features that were clicked most often by listeners were considered to be the most salient. These were then chosen to analyse in the production study, which is described in Sections 3.2 to 3.5 below.

3.2 PRODUCTION STUDY: THE CONTEMPORARY CORNWALL CORPUS

The perception study described in Section 3.1 above identified the South Western 'long <a>', which encompasses lengthened and fronted variants of vowels in the BATH, PALM, and TRAP lexical sets, and the MOUTH vowel as the most salient features of West Cornish English (see Chapter 4). As such, the production study was designed to elicit tokens of vowels from these lexical sets. However, it was ultimately beyond the scope of this project to analyse all four linguistic features and, impressionistically, there was little variation in the PALM and MOUTH lexical sets in the Contemporary Cornwall corpus. As such, this study only considers variation in the BATH and TRAP lexical sets.

This analysis provides both a diachronic and synchronic perspective on BATH and TRAP variation in West Cornwall. It begins by situating the Contemporary Cornwall speakers on a continuum between traditional Cornish English and RP (using the SED and RP corpora, see Section 3.3 of this chapter). Subsequently, a synchronic analysis of BATH and TRAP variation in the Contemporary Cornwall corpus provides insight into how these variables pattern according to a variety of social and stylistic factors.

This section details the methodologies used in the creation of the Contemporary Cornwall corpus. It describes the motivation for studying early adolescents (Section 3.2.1), provides an overview of the criteria for grouping the speakers according to social class, gender, and parental birthplace (Section 3.2.2), and describes the methods for constructing an 'identity index score' for each speaker (Section 3.2.3). Finally, it discusses the methods for spoken data collection, which involved a map task and word list (Section 3.2.4).


3.2.1 PARTICIPANT SELECTION: EARLY ADOLESCENTS

Section 1.1 of Chapter 1 discussed the motivation for analysing the speech of early adolescents in this study. It suggested that the previous research on early adolescent language use is limited, and that we know little the relative influence of caregivers and peer groups for this age group. As such, speakers aged 11 to 13 were recruited from three secondary schools, each situated in a different West Cornwall town.⁸ These recordings comprise the Contemporary Cornwall corpus.

3.2.2 PARTICIPANT BIOGRAPHIES: SOCIAL CLASS, GENDER, PARENTAL BIRTHPLACE

Biographical data pertaining to speaker gender, family migration history, and social class was collected alongside the production data. Prior to the recording, participants were asked to complete an ‘interview pack’, which included consent forms, a form asking for biographical information (see Figure 3.3 below), as well as to fill in an identity questionnaire (see Section 3.2.3 below). Participant gender was self-reported on this form, and all participants identified as either male or female. Studies of dialect acquisition (e.g. Chambers 1992; Trudgill 1986: 28) have suggested that there is a ‘critical period’ for acquisition of a new, mutually intelligible dialect, and after seven or eight years old, children are unable to fully acquire the new variety. Therefore, participants who had moved to Cornwall after the age of seven were excluded from this study. However, only one participant was excluded on the basis of this criteria and the vast majority of participants, including those whose parents are not from Cornwall, were born in Cornwall. This reflects the general trend of in-migrants moving to Cornwall with the intention of bringing up children away from city life (Deacon 2013: 20).

⁸ To preserve the anonymity of the participants, the town locations cannot be given, as most Cornish towns only have one secondary school.


The University
Of
Sheffield.

Biographical Details

Age: _____

Gender: _____

Postcode: _____

Birthplace: _____

Years Lived in Cornwall: _____

Father's Birthplace: _____

Mother's Birthplace: _____

Father's Occupation: _____

Mother's Occupation: _____

Father's Education Level: _____

Mother's Education Level: _____

Figure 3.3: Questionnaire requesting biographical data from participants provided as part of the 'interview pack' prior to the sociolinguistic interview.

In this study, family migration history is considered according to the birthplace of the participants' parents. This is an essential variable in the Cornish context, given that more than 50% of residents of the region were not born there (Deacon 2013) and that language change is primarily fuelled by dialect contact (e.g. Trudgill 1986). Traditional dialectology considers anyone who was born, and has remained, in the region to be 'non-mobile' and most likely to use local forms (Chambers & Trudgill 1998: 29–30). However, preliminary research in Cornwall has found that there is a great deal of variation in the use of local forms amongst the children of in-migrants, which may be attributed to varying affiliation to the region between speakers (Dann 2016). In addition, research on language and social networks (Milroy & Milroy 1985; Milroy 1987) has demonstrated how speakers with a long family history in a region are most likely to be part of dense, multiplex networks, thus retaining the most local linguistic forms. More recently, researchers have found parental migration history to be a significant factor in linguistic variation. For example, Moore (2003; 2011) groups participants according to

whether one parent was local (meaning from the Northwest of England), one parent was from Bolton, or both parents were from elsewhere. This was found to be a significant factor in *was/were* variation, with speakers with at least one parent from Bolton being the most likely to use non-standard *were*, which is a traditional feature of the local dialect.

Considering this, the present study moves beyond the traditional view that anyone born in the region is 'local' to consider the family history of participants, grouping them according to the birthplace of their parents. If they have at least one local parent, they are assumed to have access to the local social networks, as opposed to those with parents from outside Cornwall. However, for the models of BATH duration, parental birthplace was further categorised to reflect whether the speakers had any influence from Northern parental input. Where shorter, fronted variants of BATH are found in this data, this explores the degree to which they may be influenced by parental input. Therefore, the BATH duration analysis additionally considered whether speakers' parents were Northern, local, both local and Northern, or South Eastern.

Participants were divided into three bands according to social class: Band 1, Band 2, and Band 3. These groups were determined according to a social class index calculated from each participant's parents' occupations, and their parents' level of education. As noted by Rickford (1986), it is important for sociolinguists to make use of the wealth of 'theoretical machinery' from the social sciences when designing socio-economic class indices. With this in mind, occupation is one of the key methods for stratifying socio-economic status in sociological research (for an overview, see Connelly, Gayle & Lambert 2016). It is assumed to be indicative of a person's social position, as well as act as a measure of lifetime income, which can be more representative of social class, as annual income often fluctuates (Connelly et al., 2016: 2). While more recent developments in sociology have advocated more modern approaches to social class which incorporate Bourdieu's (1985) notion of 'cultural capital' (e.g. Savage et al. 2013), these methodologies are not easily applicable to children. In sociolinguistic research, speaker occupation has often been used to measure social class, either as the sole indicator (e.g. Macaulay 1977; Guy et al. 1986; Baranowski 2017), or alongside other factors such as

education level and residence (e.g. Labov 1966; 2001; Trudgill 1974a; D'Arcy & Tagliamonte 2010).

One of the most influential systems for stratifying class in the UK is the Erikson-Goldthorpe-Portocareo (EGP) schema, which delineates seven social classes according to occupation of both the participant and their father (Erikson, Goldthorpe & Portocarero 1979). However, this method relies on the outdated assumption that only the male parent will have an occupation. More recently, following the EGP schema and an in-depth review from Rose, Pevalin, and O'Reilly (2005), the Office for National Statistics (ONS) developed the National Statistics Socio-Economic Classification (NS-SEC) (Office for National Statistics, 2010b). This method divides occupations into eight classes, from 'never worked and long term unemployed' to 'higher managerial, administrative and professional occupations' (Office for National Statistics 2010a: 13). In this study, each of the participants' parents' occupations is scored out of eight using the ONS' Occupation Coding Tool (Office for National Statistics 2010b). The mean of each participant's parents' score is then combined with a score for parental educational attainment to form an index of social class.

While education level is undeniably linked to the occupation-based classifications of the NS-SEC, it additionally acts as a vehicle for the accumulation of higher status cultural capital (Brown 2001). Therefore, the inclusion of education level in the index provides insight into the social status of participants that could not be gained from NS-SEC score alone. For example, one participant's father's occupation ('train manager') scored highly on the NS-SEC, but his lower level of education was also taken into account in the index. In addition, from a purely linguistic point of view, attendance at university has been shown to have a significant effect on the standardisation of students' accents (Evans & Iverson 2007). Therefore, it can be assumed that parental education level may affect the linguistic input participants will have received from their parents.

In sociolinguistics and sociology, 'education level' alone has rarely been used as the sole indicator of social class. However, exceptions include Squires' (2013) study of the effect of listener experience in speech perception, in which university students are grouped as either 'upper' or 'lower' social class according to whether one or both parents were

university educated. Labov (1966) considered education level alongside occupation and income in his index of social class. He scored each participant from zero to four according to the highest level of education they had achieved, from primary school to college-level. Following Labov (1966), Trudgill (1974a) used a similar index, with the addition of ‘housing’, ‘locality’ and ‘father’s occupation’ (p. 36). Trudgill (1974a: 40) considers education on a six-point scale, from ‘terminal education age’ of 13, to ‘some university or college education’.

In this study, the education scales used in the earlier sociolinguistic work cited above were updated due to more recent changes to the UK’s education system. For example, in 1972 schooling up to the age of 16 was made compulsory for all UK schoolchildren. As the participants’ parents were most likely in school around the 1980s, they all ought to have at least finished secondary school, so the inclusion of ‘primary education’ at the lowest end would likely skew the sample upwards. Therefore, this study includes an educational attainment scale of one to four, as demonstrated in Table 3.3 below. The score of educational attainment for each participant was then calculated from the mean average of both parents’ scores.

Index Score	Level of Education
1	No education post-secondary school
2	College-level qualifications (e.g. A-Levels, Diploma)
3	Bachelor’s degree
4	Postgraduate degree

Table 3.3: Score for educational attainment in the social class index.

In creating the social class index for this study, the scores for occupation and educational attainments were combined. As the NS-SEC occupational coding tool scores each occupation out of eight, and the educational attainment score is only from one to four, the raw scores were not compatible. Therefore, the mean parental educational attainment score for each participant was first doubled, before being added to the occupation score to create an index score from three to 16. Participants were then grouped into three bands according to this score. Band 1 (3 to 8) includes the 13

participants who scored the lowest on the index, Band 2 (8.1 to 12) includes the 14 participants who fell in the middle of the scale, and Band 3 (12.1 to 16) includes the 15 who scored the highest.

3.2.3 IDENTITY QUESTIONNAIRE

In order to explore the influence of local identity on the use of locally enregistered forms, participants were asked to fill in identity questionnaires prior to the spoken data collection (see Appendix A for the full identity questionnaire). These were provided as part of the ‘interview pack’, as discussed in Section 3.2.2 above. Each sociolinguistic interview then began with a discussion of their answers to the identity questionnaire.

Sociolinguistic research into language and place identity has generally tended towards qualitative methodologies, using interview data to determine speakers’ orientations to different identities. For example, Ito and Preston (1998) analysed discursal data to group Michigan speakers according to their ‘local loyalty’. They found that an orientation to ‘small town’ rural life was a significant predictor of resistance to participation in the ‘Northern Cities Shift’, which is diffusing from urban areas. Similarly, Podesva et al. (2015) classified California speakers as either ‘Countryfolk’ or ‘Townies’ according to qualitative interview data and ‘observations of speakers in their community context’ (p. 164), finding that this was a significant predictor of participation in the California Vowel Shift. Llamas (2007) considered qualitative responses to interview questions about local identity in her analysis of plosive articulation in Middlesbrough speech. As Middlesbrough lies between two regional accents (Geordie and Yorkshire), and has been subject to repeated reassignment of political identities due to changing electoral geography, Llamas (2007) found an ideological split along generational lines in terms of affiliation to the regions. These differing orientations to place were reflected in varying levels of glottalised /p/ and /t/. The youngest speakers, who considered Middlesbrough to be its own, distinct location and variety, produced high levels of both glottal /p/, which is an index of North Eastern varieties, and glottal /t/, which is traditionally less frequent in the North East.

Despite the popularity of the qualitative approach to language and place identity, attempts to quantify local identity through the use of identity questionnaires have also

been successful. This technique was first introduced by Underwood (1988) in his study of Texas English and local identity. Underwood (1988) found that the higher speakers scored on the 'Index of Texan Identification', the more likely they were to use highly localised forms. Following Underwood (1988), Llamas (1999) developed an 'Identification Score Index' as part of a proposed methodology for the study of identity and regional variation. This methodology was designed to elicit a large amount of linguistic, social, and attitudinal data 'as quickly and easily as possible' (Llamas 1999: 97). As part of the sociolinguistic interview, participants were asked a series of questions relating to their regional identity. The participants were then deemed to be either 'positive', 'negative', or 'neutral' in their local orientation according to their answers to these questions. As these judgements were relatively subjective, Llamas (1999: 107) introduced the 'Identification Score Index' (ISI) to support the questionnaire with a more objective and quantifiable measure of local orientation. Prior to the interview, participants are asked to answer seven multiple choice questions designed to assess 'how closely or how loosely tied to the area the informants feel' (Llamas 1999: 108).

Llamas' (1999) proposed methodology had been adapted and applied to a number of other speech communities since its inception. Burbano-Elizondo (2008) used both qualitative and quantitative methods to assess the local orientation of informants from Sunderland and finds that there were few discrepancies between the qualitative responses and the ISI. The ISI was comprised of six multiple choice questions relating to feelings about the local community, each with three possible answers representing different degrees of local orientation. Ultimately, Burbano-Elizondo (2008: 310) concluded that a focus on local orientation provides a deep understanding of linguistic variation which could not be provided by socio-demographic factors. Using another methodology based on Llamas (1999), Asprey (2007) explored language local identity in the Black Country considering both qualitative and quantitative answers to an identity questionnaire. However, Asprey (2007) concluded that her attempt to correlate local orientation and language use was 'wholly unsuccessful'. She attributes this, for the most part, to a lack of sensitivity to the different social contexts of the participants, suggesting that speakers' experiences of Black Country identity across different regions and age groups are not necessarily comparable. These findings highlight the importance

of an in-depth knowledge of how local identity may intersect with other social groups within the community when constructing identity questionnaires. There is not necessarily a 'one size fits all' questionnaire which can be applied in all contexts and, indeed, identity questionnaires may not be an appropriate tool for the analysis of local orientation in certain communities.

In the Cornish context, recent work from Sandow and Robinson (2018) and Sandow (in preparation) has adapted Llamas' (1999) ISI to assess the degree of alignment with Cornish identity of participants from Redruth, Cornwall. Participants were asked to rate their responses to ten statements relating to Cornish identity on a 1 – 5 Likert scale. Their total score on the questionnaire was then considered to be indicative of a tendency towards either 'Kernowcentrism' or 'Kernowscepticism'. Following a picture naming task intended to elicit tokens of dialect lexis, an interaction between age and identity questionnaire scores was found, with older, 'Kernowcentric' participants found to use the local form in the most monitored speech style.

In an independent innovation to Underwood (1988) and Llamas' (1999) work, identity questionnaire methodology has also been applied to studies considering the role of ethnic identity in linguistic variation. Hoffman and Walker (2010) developed the 'Ethnic Orientation Questionnaire' to explore how the ethnic identity of migrants in Toronto, Canada may influence their use of local linguistic features. Participants who scored lower on the questionnaire were assumed to have weaker ties to their ethnic background. Hoffman and Walker (2010) considered how these scores influenced participation in the Canadian Vowel Shift and (*t/d*)-deletion, which represent a change in progress and a stable variable respectively. They found that there was a connection between ethnic orientation and language use, but it was not straightforward and differed between ethnic groups. Hoffman and Walker (2010: 58) suggest that some of the participants may favour or disfavour these linguistic features 'to construct and express ethnic identities'.

Using this methodology, Alimoradian (2014) explored how the use of vocative *mate* by first and second generation migrants in Australia correlated with ethnic identity. Participants' orientation to either Australian or their own ethnic background was

quantified from their responses to an adaptation of Hoffman and Walker's (2010) Ethnic Orientation Questionnaire. Participants rated 33 statements relating to ethnic identity, such as 'I think of myself as [ethnicity]', on a 5-point Likert scale. It was found that those with a lower score, indicating that they orient themselves less to their ethnic background, were more likely to both use the vocative *mate*, and to be called *mate*. Alongside gender, scores on the Ethnic Orientation Questionnaire were found to be the most significant predictor of variation.

Using a combination of qualitative and quantitative techniques, Haddican et al. (2013) explored local identity as a predictor of use of local variants in York, England. As part of an ethnographic interview, participants were asked four questions (adapted from Haddican et al. 2013: 377):

1. Do you like living here in York?
2. Do you plan to settle here in York?
3. Do you like the York accent?
4. Are you proud to be from York?

Responses to these questions were then scored on a 3-point scale from -1 to 1 according to whether the response was broadly positive or negative. These scores were then combined to create an index of local identity for each participant. They found that FACE and GOAT monophthongisation positively correlated with local orientation, while the effect for fronting of GOAT and GOOSE went in the opposite direction. Considering the qualitative data regarding the local accent in their sample, Haddican et al. (2013) hypothesise that GOOSE fronting is not an index of localness in the region and, while GOAT fronting does seem to be associated with localness, it also indexes a more undesirable 'chav' persona. They attribute the sample's young speakers' lack of participation in GOOSE and GOAT fronting as an effort to avoid 'chavvy' language, but their retention of monophthongised forms as an index of local identity. These results demonstrate the need to give a great deal of consideration to the different personas that may be indexed by one feature when exploring the effect of local orientation on language use. First, it is important to determine whether a feature is actually an index of local identity (and which specific type of local identity it indexes), then one must

consider what other personas that feature might index. Traditional features of a regional variety do not automatically become candidates for expression of local identity, as they may also index other, more undesirable attributes to the speaker.

Using a similar questionnaire to Haddican et al. (2013), Baranowski (2017) investigated the effect of local orientation and social class on GOAT and GOOSE fronting in Manchester English. They found that while local orientation did predict variation, the effect was predicted better with consideration of social class as a variable. For these participants, there was a strong inverse correlation between social class and local orientation, so Baranowski (2017) concluded that consideration of the attitudinal data was unnecessary, as it was simply showing the effect can be adequately explained by social class. However, this is not to say that exploration of more micro-level social factors such as local orientation in addition to social class serves to provide a richer insight into the mechanisms behind language change. In addition, the effect of local orientation and social class on variation will not be uniform across different locales and varieties, or even across different people in the *same* locales.

Llamas and Watt (2014) propose an updated method of quantitatively analysing attitudes. They present a review of the literature on Likert scales, critiquing their use in attitudinal research. They state that Likert scales are not capable of ‘reflecting the degree of precision with which informants can report their levels of agreement or disagreement with a particular proposition’ (Llamas & Watt 2014: 612). In addition, participants are less likely to use the most extreme categories on a Likert scale due to ‘central tendency’ bias. Despite Llamas’ (1999) suggestion of using a three-point scale to quantitatively test informants’ local orientation, Llamas and Watt (2014) propose the use of a ‘Visual Analogue Scale’ (VAS), in which participants can indicate their degree of alignment with different concepts on a 100mm line representing a continuum from ‘agree’ to ‘disagree’. As noted by Llamas and Watt (2014: 612), the use of a VAS is particularly advantageous, as it ‘enable[s] fine-grained measurement of the evaluation of the attitude object by providing informants with greater freedom of expression.’

The VAS was applied to the Luxembourgish context by Redinger and Llamas (2014) in an investigation into national identity and language use. 70 secondary school students

were presented with 55 attitude statements and were asked to mark their responses for each on a VAS. The study found that participants from Romance language backgrounds expressed more negative attitudes towards both Luxembourgish and German, while ethnically Luxembourgish and German students were more positive about German and Luxembourgish. These findings shed light on the complex linguistic identities in Luxembourg and provided important insights for educational policymakers.

In addition to the VAS, Llamas and Watt (2014; see also Watt & Llamas 2017) designed the 'Relational Analogue Scale' (RAS) to explore participants' alignment with specific identity labels. Participants were asked to place various labels, such as 'British' and 'Scottish' on a line running from 'least important' to 'most important'. This provided insight into how participants aligned with these different identities relevant to one another. Watt and Llamas (2017) reported findings from the *Accent and Identity on the Scottish/English Border* (AISEB) project, in which linguistic data was considered alongside responses to an RAS. Respondents' placements of the labels 'British', 'English', 'Scottish', 'European', 'Borderer', and 'from (e.g. Gretna)' on an RAS were considered in relation to Voice Onset Time (VOT), which is typically shorter in southern Scottish varieties. It was found that an increase in VOT across apparent time, as well as from East to West along the border, generally correlated with a tendency to place the 'British' and 'Scottish' labels closer together (Watt & Llamas 2017: 208).

Overall, the use of identity questionnaires in variationist research is an effective resource for gaining a more nuanced understanding of language use beyond traditional macro-social categories. They are particularly useful when the researcher does not have the resources, or access to the speech community, to conduct more in-depth ethnographic study. However, they are not an entirely effective substitute for the high level of insight into a community gained from ethnographic methods. Identity is complex and fluid, and cannot be entirely captured in a one-dimensional questionnaire. In addition, the researcher is necessarily imposing their own assumptions about which identities will be relevant to local identification, and they may not be capturing those identities which are most linked to the variables under consideration. Therefore, while identity questionnaires are a useful tool for examining and quantifying one element of a speaker's identity, and an excellent option for researchers who have limited time with

participants, we must be prepared for the possibility that they will provide only limited insight into the connection between language use and identity.

Nonetheless, following Llamas and Watt (2014), the identity questionnaire used in the present study assesses participants' degree of local orientation using a number of VASs and a RAS. Participants were presented with eight statements relating to Cornwall and Cornish identity and asked to mark their alignment with each on a line running from 'disagree' to 'agree' (see Figure 3.4 below). As each VAS line was 100mm long, the participants scored between 1 and 100 for each statement. Each participant's overall identity questionnaire score was calculated from their mean average score across all 8 statements. The higher the identity questionnaire score, the more affiliated to Cornwall and Cornish identity they are assumed to be.

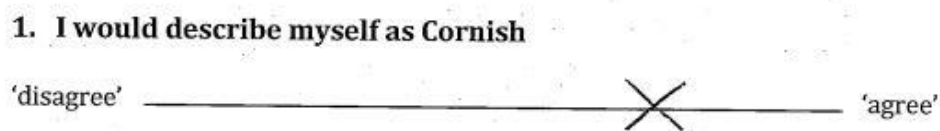


Figure 3.4: Example identity questionnaire statement with one participant's response on the Visual Analogue Scale.

The statements on the identity questionnaire were chosen with reference to my previous sociolinguistic work in Cornwall which utilised qualitative methods to explore Cornish identity (Dann 2016), Llamas' (1999) original identity questionnaire, and the findings of other researchers who have used this methodology. For example, Burbano-Elizondo (2008: 124) finds that responses to questions about whether participants would be more likely to vote for a local politician or to have local schoolteachers were skewed by a desire to appear unbiased or politically correct. Therefore, this type of question was not included in the questionnaire. Sandow (in preparation) finds that there is a notable gender split for the statement 'I would be more likely to vote for a performer in a talent show if they were from Cornwall', with most male participants scoring very low due to their lack of interest (or unwillingness to show interest) in the subject matter. However, this was included in the identity questionnaire for this study, as the participants were only 11, 12 or 13 years old and it was assumed that the same gender split would not yet exist for them. Indeed, both identity questionnaire scores

and qualitative responses to the statement demonstrated this to be the case. Finally, the statement 'I wish to remain living in Cornwall for a long time' was included with reference to Pappas' (2008) sociolinguistic study of a community in rural Greece, in which participants' satisfaction with their lives and desire to leave was found to be a significant predictor of variation. The identity questionnaire statements were as follows:

1. I would describe myself as Cornish.
2. I am proud to be Cornish.
3. I think that Cornwall should be separate from England.
4. I plan to remain living in Cornwall for a long time.
5. I am glad to have grown up in Cornwall.
6. I would be more likely to vote for a performer in a talent show if they were from Cornwall.
7. If I met someone on holiday and thought they were from Cornwall, I would be more likely to talk to them and strike up a friendship.
8. I like the Cornish accent.

Following the eight VASs, participants were asked to place four identity labels, 'Cornish', 'British', 'English', and 'European', on an RAS running from 'least important' to 'most important'. They were also told that they could add any other labels that they thought were important to them to the scale, but very few chose to do this. An example of a completed RAS can be seen in Figure 3.5.

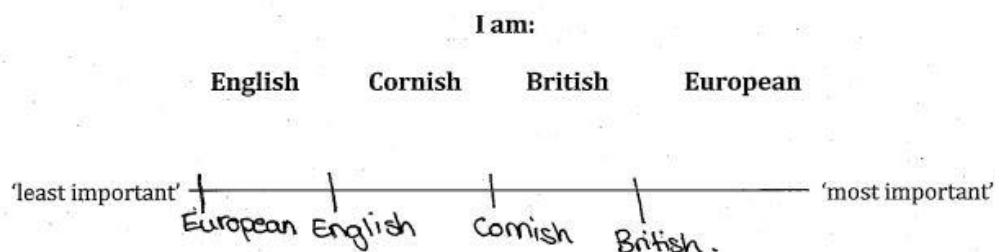


Figure 3.5: One participant's response to the task involving a Relational Analogue Scale.

Following a consideration of qualitative discussions with the participants at the start of the spoken data collection regarding the RAS, I made the decision not to include this

data in the analysis. While there were certainly some interesting results regarding whether participants considered Cornish identity to be most important, many participants failed to fully understand the task. A large proportion of respondents simply stated that they ordered the labels by size, stating things like: ‘I put Cornish first because that’s the smallest, then if people don’t know where that is I’d say “England”’. This is most likely a symptom of the age-appropriateness of the task. While the identity questionnaire was relatively straightforward for the participants, they may have been a little too young to fully comprehend the significance of the RAS. In addition, this may have been the first time that a lot of them had thought carefully about how they identify with national and regional labels such as these.

3.2.4 SPOKEN DATA COLLECTION

Phonetic data was gathered via a map task (Anderson et al. 1991) and a word list which were collected as part of a series of sociolinguistic interviews with schoolchildren from West Cornwall. The recordings were made using the Zoom H4n Pro recording device, and participants each had their own lapel microphone.

The sociolinguistic interview method was designed by researchers (Labov 1966; 1972a; 1972b; Wolfram & Fasold 1974) in the early days of sociolinguistics in an effort to collect relatively naturalistic data and avoid the *Observer’s Paradox* (Labov 1972b). To this day, it remains ‘the most important item in the variationist sociolinguist’s toolkit’ (Schilling 2013: 7). In the data collection for this project, participants were first recorded taking part in a semi-structured interview, then in a map task (Anderson et al. 1991) and reading a word list, representing three levels of the Labovian style continuum (Labov 1972b). In this study, only word list and map task data are used, given the time constraints and the variables under investigation. As this thesis is split between a production and a perception study, it was necessary to minimise time spent on transcription and analysis of the spoken data. In addition, the BATH vowel is particularly infrequent in ‘natural’ speech (Wells 1982a: 135), and a comparative number of tokens to those produced in the elicitation tasks would require many hours of recordings per speaker.

As noted above, sociolinguists have generally considered sociolinguistic interviews to be the best method for collecting more ‘vernacular’ speech. However, research from Boyd et al. (2015) has suggested that the key differences are between any kind of ‘laboratory speech’, including interviews, and self-recorded data. In addition, they found that ‘lab tasks’, such as map tasks, story narrations, and Diapix tasks, were relatively comparable to interview speech. Therefore, the benefits of using map tasks in the present study most likely far outweighed the costs of using more time-consuming interview data.

All the recordings were conducted in schools, either during the school day or after school. Some researchers (e.g. Di Paolo & Yaeger-Dror 2011: 12) have cautioned that a school setting may influence the formality of the spoken data, with students feeling that there are ‘right’ and ‘wrong’ answers. However, researchers such as Kirkham (2013) and Ryan (2018) have successfully collected vernacular speech using sociolinguistic interview techniques in school. Considering this, although it would not have been viable to change the location of the data collection, steps were taken in order to elicit the most vernacular speech in this setting. Milroy and Gordon (2008: Ch. 3) discuss the importance of moving away from the traditional interview setting in order to elicit the most vernacular speech. They note that the richest and most naturalistic data is often collected from group interviews which have minimal involvement from the fieldworker. Similarly, researchers such as Stuart-Smith (1999) and Macaulay (1977) have successfully interviewed participants in friendship pairs, which made participants feel more comfortable and encouraged conversation between peers. This study utilises the same approach, with the large majority of participants interviewed in pairs of their choosing. As a result, the map tasks were always completed in peer group pairs.

The structured elicitation tasks in this study are intended to represent two different speaking styles. Word list readings are assumed to elicit the most ‘monitored’ speech styles, and following Cardoso (2015) and Boyd et al. (2015), map task data is assumed to be roughly equivalent to interview data. This is because the ‘attentional load’ (e.g. Abel & Babel 2017; Sharma 2018; Sharma & McCarthy 2018) of the task can be assumed to elicit less monitored speech than the word list reading. Where speakers are preoccupied with a task which increases their cognitive load, they are less likely to be able to pay

attention to speech style, and are more likely to revert to an earlier-learned vernacular. However, the experimental and test-like nature of the task likely elicits a less 'natural' speech style than speakers would use in everyday life (Boyd et al. 2015).

Beginning with the map task, this methodology was originally designed by Brown et al. (1984) as a method of testing the communication competency of school children in the UK and, subsequently, to test the success of communication strategies of young people (Anderson, Clark & Mullin 1994). It was developed for use in a wider range of linguistic research by Anderson et al. (1991) in the creation of the 'HCRC Map Task Corpus'. Anderson et al. (1991) asked 64 Glaswegian undergraduates to take part in the task. One participant, the 'Instruction Giver', was provided with an A3 printed map depicting a number of different labelled landmarks, a start and end point, and a predetermined route between the two. The Giver sat facing the second participant, the 'Instruction Follower', with a pair of drawing boards between them. The Follower was given a similar map with no marked route and a few small changes to the landmarks. They could not see each other's maps. The participants were then filmed and audio recorded as the Giver described the route on their own map to the Follower.

This method is advantageous in collecting spoken linguistic data for two reasons. First, the task elicits relatively spontaneous speech, while controlling the topic, thus increasing the comparability of the data. Second, the researcher can design the map however they want and can insert landmarks with names that include the phonological features of interest. This ensures that within their relatively spontaneous speech, participants will produce the tokens relevant to the study. This is particularly useful when the features under investigation are relatively infrequent in speech, as with the BATH vowel (Wells 1982a: 135).

Different corpora, including those of other varieties of English and of different languages altogether have either replicated or modelled their design on the HCRC corpus. For example, 'the IViE Corpus' of English intonation in the British Isles (Grabe 2004) includes recordings of speakers from a number of urban localities across Britain taking part in a number of different tasks intended to elicit different speaking styles, including an adaptation of Anderson et al.'s (1991) map task. Beyond the British Isles,

'the American English Map Task Database' (2006) includes recordings of eight female speakers of American English that were elicited using one of the maps from Anderson et al.'s (1991) map task. Similarly, one element of 'the Australian National Database of Spoken Language' (Millar et al. 1994) consisted of a map task which was very closely modelled on the HCRC map task (Anderson et al. 1991). Map tasks have also been used in the study of languages other than English. For example, Helgason's (2006) 'Swedish Map Task Corpus' includes a small database (4 speakers) of Swedish speakers taking part in a map task.

Although map tasks are most commonly used in pragmatics and semantics research (Fletcher et al. 2002; Miller & Weinert 1995), they have had some limited, yet successful, applications in sociolinguistic studies. For example, as briefly discussed in Section 3.1.2 above, Hansen and Phrao (2010) used a modified version of Anderson et al.'s (1991) map task to elicit comparable speech samples of speakers of different varieties of Danish in Copenhagen. In their design, one map contained the names of fictional roads and places in a fictional town. The road and place names were chosen to elicit tokens of interest to the researchers. In total, there were 33 test words in the task. They found that the task was very successful in creating 'lively dialogue' and often the participants went over parts of the map again, meaning target words were repeated. These repetitions were particularly effective in avoiding 'read speech', as after the target words had been uttered once, they became 'known entities' (Hansen & Phrao 2010: 83). Similarly, Cardoso (2015) used map tasks to elicit 'casual speech' in her sociophonetic study of MOUTH and PRICE in Liverpool English. Her participants took part in two map tasks eliciting these lexical sets in a variety of phonetic environments. FLEECE, KIT, and TRAP words were included as distractors, and also utilised for vowel normalization.

Following Anderson et al. (1991), the map task used in the present study was designed to elicit data from participants in pairs. This was very similar to the map task used to collect perception stimuli, as discussed in Section 3.1.2 above. One participant, the 'director', was given a map with a number of 'landmarks', a 'start' and 'end' point, and a dotted line marking a route across the map (Figure 3.6). The second participant, the 'follower', was given a map with no dotted line, which was otherwise identical to the director's map (Figure 3.7). The participants were seated facing away from one-another,

so that they could not see each other's maps. The director then described the route aloud, while the follower attempted to replicate it on their own map using a pencil. The participants were then asked to swap roles and repeat the task using new maps showing a different route around the landmarks. Previous map task methodologies have included discrepancies between the maps so as to promote further discussion between participants. However, a pilot study for this project suggested that this unnecessarily complicated the task, particularly considering the youngest participants were only 11 years old, so the map was simplified. Indeed, while the majority of the participants completed the task with ease (and even reported that they had enjoyed it), a small selection of the participants did find the task difficult.

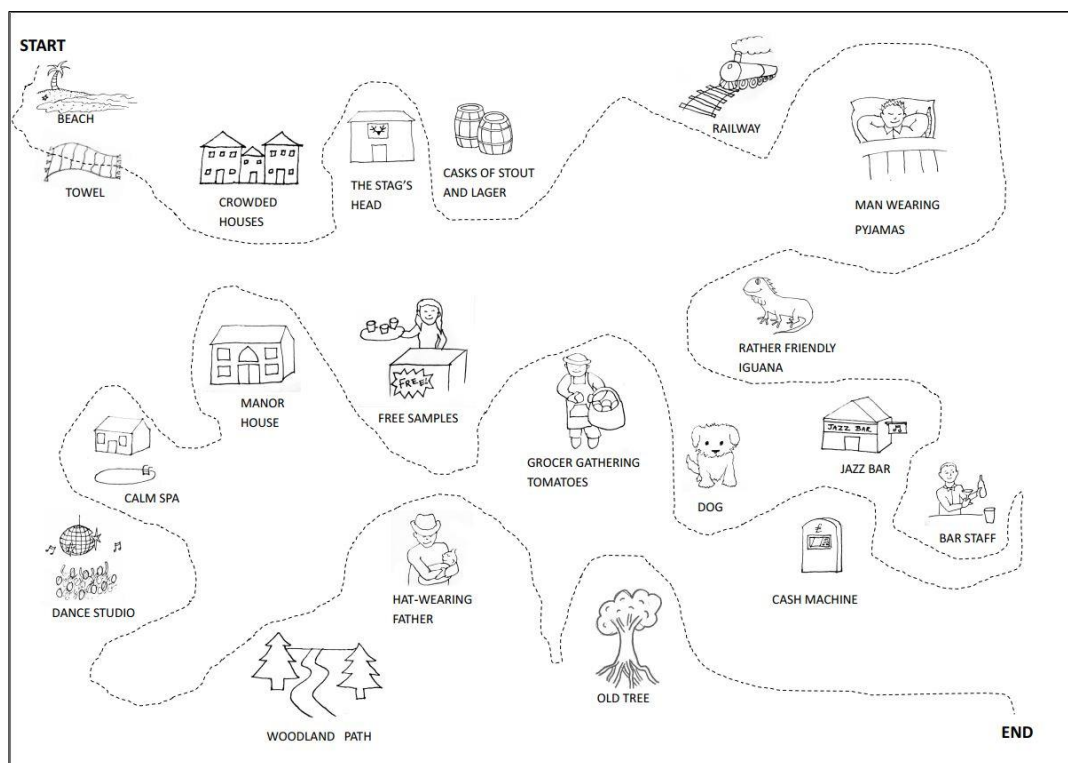


Figure 3.6: Director's map used in the map task.⁹

⁹ Many thanks to Hazel Dann for producing illustrations for each of the landmarks.

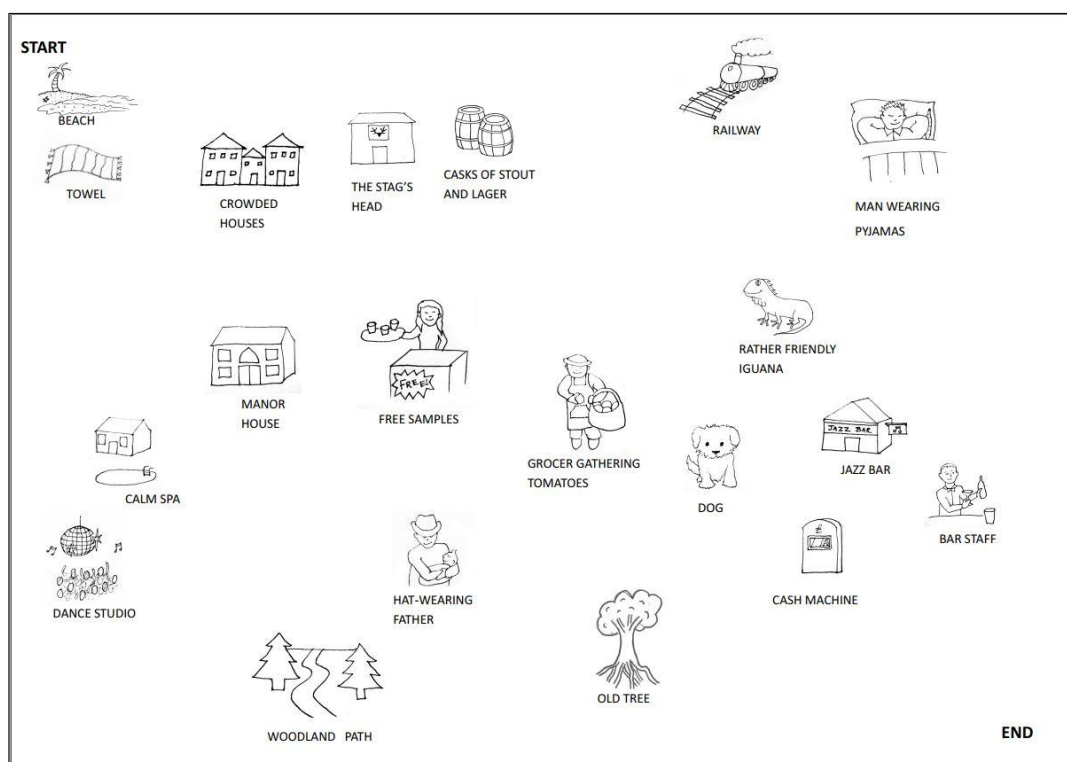


Figure 3.7: Follower's map used in the map task.

The final section of the sociolinguistic interview comprised of a word list reading, representing the most monitored style. According to Labov's (1972b) 'attention to speech' model, it is assumed that, during this task, participants are most aware of their speech and they will produce the most 'prestigious' forms. The word list comprised 49 words, with 14 tokens of BATH and TRAP and 35 distractor items (see Appendix B for the full word list).¹⁰ Each word appeared in the word list twice, meaning that participants read a total of 98 words aloud. Following Di Paolo and Yaeger-Dror (2011: 15), the word list was presented in a randomised order, ensuring that both tokens of each word appear with different neighbouring words. In order to reduce coarticulatory effects, the words were presented on individual PowerPoint slides, so the participants were unable to read ahead. The slides were set to change automatically every 1.5 seconds, meaning that once the task had begun, there was minimal involvement from the interviewer.

¹⁰ However, note that there are also PALM tokens in both the word list and map task, as I originally intended to examine this feature. As in traditional West Cornish English BATH, TRAP and PALM are merged, these words may have been less effective distractor items.

The words included in the structured elicitation tasks were selected to include a variety of relevant phonetic environments for BATH and TRAP. This is intended to account for the effects of coarticulation on both vowel length and quality. As anticipatory effects have the most influence on vowel variation (Thomas 2010: 149), the words are largely chosen according to following environment. As advised by Di Paolo, Yaeger-Dror and Wassink (2011: 88), where possible, the preceding phoneme is realised with relatively neutral articulators (i.e. /h/, /t/, or /d/). As preceding glides have the most influence on vowel realisation (Di Paolo, Yaeger-Dror & Wassink 2011: 88), they were avoided. Where possible, the same words were not used in both the map task and the word list.

Beginning with the TRAP vowel, the main difference between RP and West Cornish English TRAP vowels is in duration (see Section 2.4.2 of Chapter 2), so the linguistic environments most likely to condition vowel length were considered when developing the structured elicitation tasks. First, as discussed in Section 3.4.4 below, voicing and manner of articulation of the following consonant conditions vowel length. Regarding the latter, Peterson and Lehiste (1960) report longer vowels before fricatives than before stops.

Beyond RP, Piercy (2011) provides an overview of the environments that favour and disfavour TRAP lengthening in Dorset English, which shares many features with West Cornish English. She finds that TRAP is most likely to be lengthened when preceding the phonemes /f s ð n m d g ŋ b ʃ p t k l r tʃ/, while following /v dʒ z/ favours short TRAP vowels. In addition, she finds that if the following consonant closes the syllable, TRAP is likely to be long, whereas if it opens the next syllable, TRAP is short. The structured elicitation tasks in this study combine Piercy's (2011) findings, which are specific to the TRAP vowel in a South Western variety of English, and the phonetic influences on vowel length. The following environments which favour lengthened TRAP in Piercy's (2011) study are divided according to voicing, while fricatives and stops are considered separately. Table 3.4 below shows the resulting following linguistic environments for TRAP, and the words chosen to represent them in the two structured elicitation tasks.

Environment	Word List	Map Task
_/f s ʃ tʃ/	Dash	Cash
_/ð/	Gather	Gathering
_/v dʒ z/	Have	Jazz
_/p t k/	Tat	Hat
_/d b g/	Dad	Stag's
_closed syllable	Fab	Man
_open syllable	Fabulous	Manor

Table 3.4: TRAP words included in the two structured elicitation tasks, the word list and map task, according to following linguistic context.

In comparison to the TRAP lexical set, BATH words are restricted to only a small number of following linguistic contexts. Therefore, for this lexical set, the structured elicitation tasks include all possible following environments. As such, in the two structured elicitation tasks in the present study, the BATH lexical set is divided into seven different groups. These environments and the words chosen to represent them in the elicitation tasks are shown in Table 3.5 below.

Environment	Word List	Map Task
_f	Daft	Staff
_θ	Bath	Path
_ð	Rather	Rather
_s	Task	Casks
_n	Trance	Dance
_m	Example	Sample
_v	Calves	- ¹¹

Table 3.5: BATH words included in the two structured elicitation tasks, the word list and map task, according to following linguistic context.

3.3 OTHER CORPORA

¹¹ This following context is restricted to a very small number of BATH words, none of which would realistically work as a map task landmark.

In addition to the Contemporary Cornwall corpus, two other pre-existing corpora were also analysed for this project. The early adolescent speakers in the Contemporary Cornwall corpus are compared with recordings of older speakers from the *Survey of English Dialects* (Orton & Dieth 1962).¹² Given that there is around 100 years between the birth dates of the SED and Contemporary Cornwall speakers, this provides a macro-level overview of real time changes in BATH and TRAP variation in West Cornwall. The Contemporary Cornwall corpus is also compared to a near-contemporary corpus of RP speakers, in order to situate the former on a continuum between traditional West Cornish English and present-day RP.¹³ The following section provides a discussion of the motivations behind the inclusion of these corpora in this project. For an overview of the demographics of these corpora, as well as a breakdown of the linguistic data extracted from each, see Chapter 5.

Beginning with the SED corpus, the real time comparison of speakers from Cornwall provides insight into the how these variables have evolved over the intervening years between their birth dates, whether in regard to a shift towards the standard forms, or innovations of new variants. This is important because Wakelin's (1975) description of Cornish English derives only from 'impressionistic' auditory analysis of the SED recordings, so the use of acoustic methods in this study provides an updated analysis of these features.

A number of criticisms have been levelled against the 'impressionistic' nature of the SED transcriptions. For example, in an early review of the SED materials, Kurath (1963: 127) states that, '[i]t is my impression that the investigators have not always taken full advantage of the potentials of this system [the IPA]; that is, their notation strikes me as rather "broad"'. This 'broad' transcription has since been problematised by Jones (2002: 332), who claims that it should only have been used after 'much detailed phonetic transcription' could aid understanding of the dialect phonology. In relation to transcriptions of definite article reduction of the IPA, Jones (2002: 332) notes that 'in many cases... symbol-by-symbol analysis of the transcription reveals that it is at best

¹² Many thanks to the British Library and the University of Leeds for the use of the SED materials and transcriptions, and thanks to Emma Moore for providing me with time-aligned transcriptions.

¹³ I am very grateful to Anne Fabricius for providing me with the RP recordings and transcripts.

ambiguous, and at worst inaccurate'. Therefore, it is important to take into account the potential lack of objectivity in Wakelin's transcriptions.

In addition, Wakelin (1975) describes an isogloss between pronunciations of a variety of phonological features in West and East Cornwall, which is also represented by vowels in the BATH and TRAP lexical set. As discussed in Section 2.4.2 of Chapter 2, Wakelin hypothesises that this is due to the later adoption of Standard English in the West of the county. Therefore, the acoustic analysis of the SED data seeks to further examine Wakelin's claims.

The potential variants of BATH identified in Section 2.4.2 of Chapter 2 all exist on a spectrum across the bottom of the vowel space. Where speakers in contemporary Cornwall have changed realisations of the vowels relative to those found in the SED, a comparison with RP speakers provides insight into whether, and how far, they have shifted towards the other end of the spectrum. Where speakers do appear to have shifted towards the standard, analysis of the RP corpus enables a consideration of whether they are 'doing RP' or something different.

3.4 SPOKEN DATA ANALYSIS

The spoken data from all of the three corpora were analysed using acoustic and auditory methodologies. The following sections describe how these analyses were carried out. It first discusses the transcription and segmentation of the spoken data (Section 3.4.1), then describes the acoustic phonetic analysis, including measurement of the acoustic elements of the vowels, and vowel formant and duration normalisation (Section 3.4.2). Subsequently, Section 3.4.3 describes the auditory analysis of the BATH vowels. Finally, the coding for linguistic context, which was a predictor in the statistical models, is described in Section 3.4.4.

3.4.1 TRANSCRIPTION AND SEGMENTATION

All the recordings were transcribed using ELAN (Wittenburg et al. 2006), with time-aligned segments of no more than five seconds long. The Contemporary Cornwall recordings were transcribed by either myself or by a research assistant, who was also a trained linguist and phonetician. A database of the recordings from all three corpora was then created using LaBB-CAT, a tool for storing and automatically annotating

transcripts (Fromont & Hay 2012). The lexical database CELEX2 (Baayen, Piepenbrock & Gulikers 1995), which was integrated with LaBB-CAT, automatically generated RP phonemic transcriptions for all the transcripts. Using these phonemic transcriptions, each recording was then force-aligned using HTK within LaBB-CAT. This is a tool for the automatic segmentation of a waveform into individual phonemes. Recordings of each speaker were aligned individually, so the aligner could train itself more accurately. This phoneme-level segmentation of each utterance allowed for extraction of phoneme-specific tokens from the dataset.

Following the forced alignment of the dataset, I then checked and, if necessary, hand corrected each token of BATH and TRAP in the dataset using Praat (Boersma & Weenik 2018). In making these corrections, the onset and offset of the vowel was marked by instances of periodicity in the waveform. An example of a segmented token can be seen in Figure 3.8 below. For vowels following voiceless stops, aspiration following the stop release was not included.

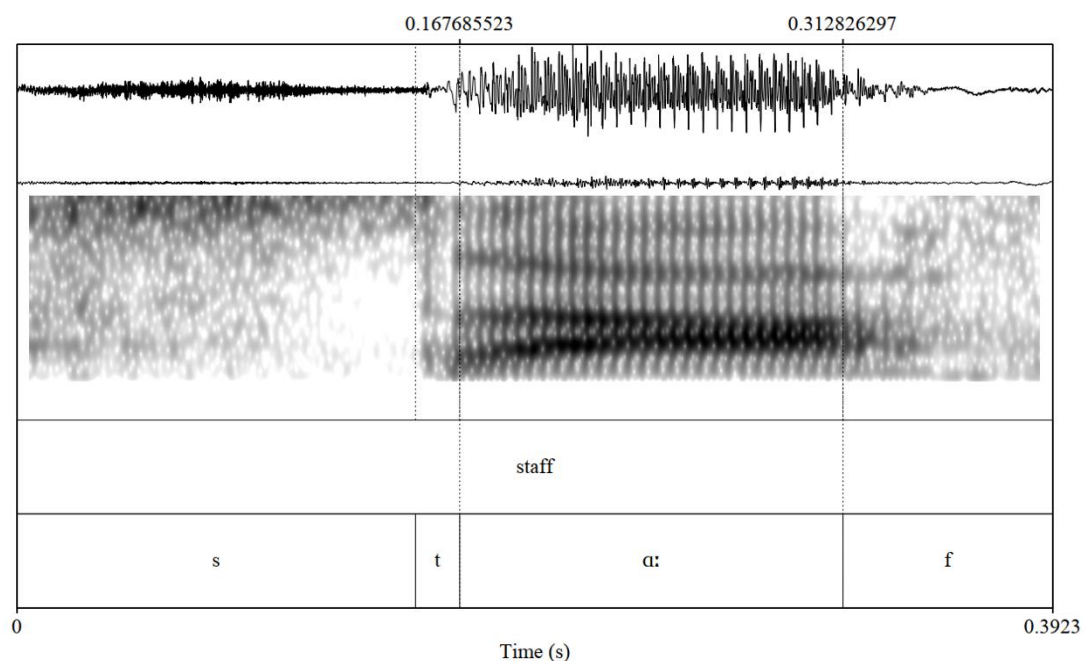


Figure 3.8: Example of a token of the BATH vowel in the word ‘staff’, segmented in Praat.

3.4.2 ACOUSTIC ANALYSIS

Formant measurements were extracted for each token of BATH and TRAP in the dataset through LaBB-CAT, which is connected to Praat. F1 and F2 measurements were taken

at 50% of the way through the vowel. As BATH and TRAP are both monophthongs in West Cornish English and RP, the midpoint represents the most stable portion of the vowel, with the least coarticulatory effects (Thomas 2010: 152).

Vowel duration measurements were also taken for each token, also using the Praat integration in LaBB-CAT. As vowel duration is significantly influenced by speech rate (e.g. Crystal & House 1990; Smith 2000; 2001), it was necessary to normalise these measurements. Vowel duration normalization was carried out using z-scores. Z-scoring, or centring, scores a set of values in terms of standard deviations from their mean. The resulting score is a minus number if it is below the mean, and a positive number if it is above the mean. In this case, the duration of every vowel token was z-scored for each individual speaker. In addition, the measurements for each speaker were separately z-scored within the map task and word list elicitation tasks. This is because speakers would often have very different speech rates in the two different tasks, so normalizing these measurements together would skew the results. The use of z-scores is a common technique for comparing datasets which have been measured on different scales or have been necessarily normalised within their own population (e.g. Sani & Todman 2006: 60). This method for normalizing vowel duration is regularly used in linguistic research (e.g. Ingram & Park 1997; Wassink 2006), and uses essentially the same process as the Lobanov (1971) method for formant frequency normalization (see below).

Physiological differences between the vocal tracts of the participants also necessitates normalization of the formant data. Although listeners are able to process the differing frequencies produced by, for example, adult and child vocal tracts as the same vowel, measurements taken of raw formant frequencies do not reflect this perceptual processing and are, thus, not quantitatively comparable between speakers (Watt, Fabricius & Kendall 2011: III).

A large variety of techniques for vowel normalization have been developed, all of which have advantages and disadvantages depending on the requirements of the study (see Thomas & Kendall 2007; Flynn 2011). For this study, it is most important to ensure comparability between speakers, while ‘maintaining sociophonetically-relevant information’ (Flynn 2011: 2). Following a comparison of 20 normalization methods,

Flynn (2011: 24) concluded that the best methods all ‘showed the typological classification of vowel-extrinsic, formant-intrinsic, speaker-intrinsic’. In other words, they compare formants from multiple vowels, normalise each formant separately (e.g. only comparing F1 with F1), and use measurements from individual speakers, rather than trying to normalise the entire sample group against one-another. Some of these methods, such as that described in Watt and Fabricius (2002), normalise the vowel space using only the three corner vowels. These are not appropriate for this study, as they can often distort the lowest vowels and may normalise meaningful variation in the BATH and TRAP vowels (Thomas & Kendall 2007). However, the Watt and Fabricius “modified” method ameliorates this problem by calculating the F2 of the lowest vowel using an equidistant point between the two high corner vowels method (see Fabricius, Watt & Johnson 2009).

In comparison, the Lobanov (1971) method uses the entire vowel space of the speaker, minimising any distortion at the corners of the vowel space. Following a comparison of a number of different normalization methods for sociophonetic research, Adank et al. (2004) concluded that the Lobanov method was most effective. As noted by Thomas and Kendall (2007), the two main disadvantages of this method are the need to include measurements from the speaker’s entire vowel system, which can be very time-consuming, and it is not appropriate for comparing dialects with very different vowel systems. Fortunately, as the recordings in this study have been force aligned and processed with LaBB-CAT, the Lobanov method is no more time-consuming than any other, and the participants all speak a similar variety of English.

As there were no clear benefits or disadvantages to using either the Watt and Fabricius “modified” method or the Lobanov method of normalization, I normalised all the vowel data using both of these approaches and compared the results.

The Lobanov method works by taking measurements from the entire vowel space of a speaker and z-scoring them (as discussed above), which transforms each measurement in distance in standard deviations from the assumed centre of the vowel space. Therefore, the resulting z-scored formant measurements will be a negative number if they are lower than the centre of the vowel space, and a positive number if they are

higher. The Watt and Fabricius “modified” method establishes the highest and lowest possible F1 and F2 for each speaker from the three frontest, lowest and backmost vowels, FLEECE, TRAP, and GOOSE, and derives the centre point from them (Watt & Fabricius 2002; Fabricius, Watt & Johnson 2009).

In order to normalise each BATH and TRAP vowel in the dataset, I extracted every vowel in each speaker’s vowel space from LaBB-CAT. F1 and F2 measurements were then taken at the midpoint of each vowel using the Praat plugin in LaBB-CAT. In order to account for any erroneous measurements, the standard deviations of all the F1 and F2 measurements were calculated separately and any outliers which fell outside 3 standard deviations from the mean were removed from the dataset. The cut-off point of 3 standard deviations from the mean is standard practice in outlier detection using z-scores with large datasets such as this (Sincich 1982). This resulted in a total of 40,899 tokens across the three corpora, and an average of 560 tokens per speaker, which were used to normalise the formant measurements. These formant measurements were first converted to the Bark Scale, following the formula proposed by Traunmüller (1990), in order to better reflect auditory perception. The ‘dplyr’ package in R (Wickman et al. 2018) was used to create the z-scores for each speaker, and for F1 and F2 separately. Watt and Fabricius “modified” normalization was carried out using the ‘vowels’ package in R (Kendall & Thomas 2018).

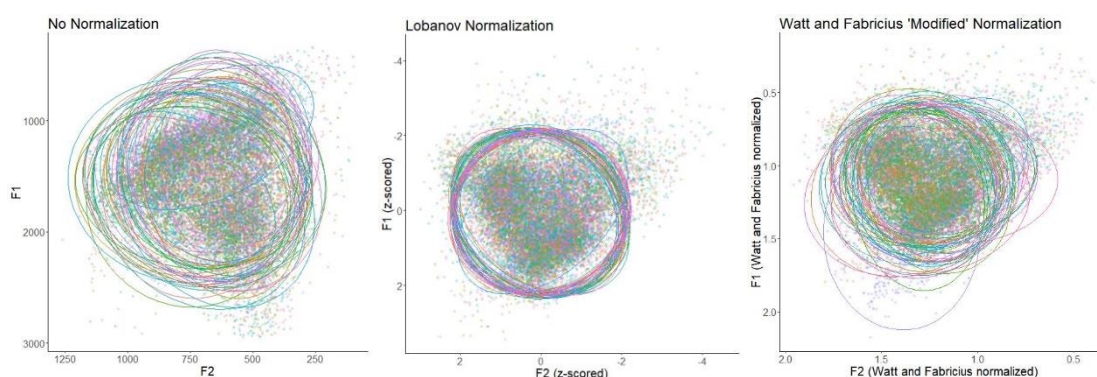


Figure 3.9: Comparison of all vowel tokens of all speakers with no normalization (left), following Lobanov normalization (centre), and following Watt and Fabricius “modified” normalization (right). Ellipses representing 95% confidence intervals for each speaker are shown. Each speaker is represented by a different colour.

Figure 3.9 above shows a comparison of the resulting vowel spaces of each speaker with the raw F1 and F2 formant measurements, and following the two methods of normalization. It is clear to see that, in this case, the Lobanov method was far more effective at aligning the vowel spaces of all the speakers, as there is very little variation between the ellipses. Therefore, all analysis of vowel quality in this study was performed on Bark scaled, then z-scored, formant values.

3.4.3 AUDITORY ANALYSIS

In addition to the acoustic analysis, the BATH tokens were also auditorily coded as either fronted, backed, or intermediate. This was carried out for two reasons. First, this improved confidence in the acoustic measurements, ensuring they were accurate to auditory perception and aided in the identification of issues with the acoustic measurements of individual tokens. Second, this enabled exploration of the connection between BATH quality and duration. When modelling the BATH duration data, it was necessary to also include whether each token was fronted or backed as a predictor. Without this, duration measurements are less meaningful, as durational differences between fronted variants of BATH have a different social meaning to backed and lengthened variants (see Section 2.4.3 of Chapter 2). While F2 could have simply been included as a predictor here, this was not appropriate for the duration models. This is because the effect of front/back articulation on a gradient *phonetic* scale was not of importance here. Instead, interaction between *phonologically* fronted/backed vowels and vowel duration was modelled. In addition, it was important to separate the fronted and backed vowels when modelling the real time changes in duration between the traditional Cornish English BATH vowels in the SED corpus and those found in the Contemporary Cornwall corpus. Real time shifts in the duration of the Cornish English BATH vowel would be obfuscated by combining backed and fronted variants in the same model.

Each BATH token was first auditorily coded as either fronted, backed, or intermediate. The vast majority of the tokens easily fell into a binary front or back category, and intermediate tokens were very infrequent. Another trained linguist then re-coded 10% of the tokens, with particular focus on those which appeared to be outliers when

compared to the acoustic measurements. There was 93% agreement between the two coders, with most disagreement being about the intermediate tokens. Following research that has also accepted similar agreement levels in auditory coding of phonological variables (e.g. Becker 2014; Sharma & McCarthy 2018), this was decided to be sufficient verification that my auditory coding was accurate enough for use in the analysis. Following auditory coding, there were still some outliers where the formant measurements did not match auditory perceptions. To remove these outliers, the standard deviation of the (z-scored) F1 and F2 measurements in the two groups, fronted and backed, was calculated. Any tokens more than 2 standard deviations from the mean of each group were then removed. While outliers which lay more than 3 standard deviations from the mean were previously removed from the dataset with all vowel tokens (n = 26,140), a cut-off point of 2 standard deviations was used here, due to the smaller size of the dataset. After removing these outliers, the vowel plot showing each token according to fronted, backed, or intermediate auditory coding, was visually inspected, and any further outliers which sat outside of the ellipses (representing 95% confidence intervals) along the F1 and F2 planes were identified. The formant tracking of each of these tokens was checked using Praat and the measurements were corrected where necessary. After these corrections, only 3 outliers remained, and they were also excluded from the statistical analysis of BATH F2. Figure 3.10 below shows the resulting vowel plot for all BATH tokens, coloured according to the three auditory coding categories.

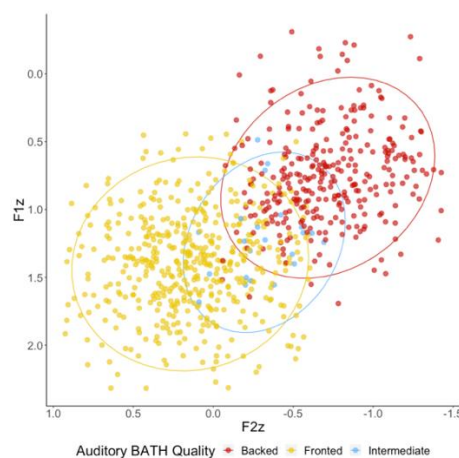


Figure 3.10: Vowel plot showing z-scored F1 and F2 values for each BATH token, with colours representing the three groups coded auditorily, and outliers removed.

I did not conduct an auditory analysis of either TRAP or BATH vowel height, as this was not of relevance to the duration models. In addition, in this case, variation in vowel height (i.e. between /a/ and /æ/) is much smaller than front-back variation, so is much more difficult to accurately code auditorily. However, I did go through the same process of hand-correcting and, if necessary, removing outliers along the F1 plane, before modelling vowel height.

3.4.4 LINGUISTIC CONTEXT

As this study considers both vowel quality and vowel duration, a number of different linguistic context factors were coded. As noted above, anticipatory effects have the strongest coarticulatory influence on vowels (Thomas 2010: 149), so only following linguistic context was considered. Vowel duration and vowel quality are affected by different types of linguistic contexts. Regarding the former, Peterson and Lehiste (1960) demonstrated that vowel duration is influenced by both following voice and following manner of articulation. Following an acoustic analysis of 1263 CVC words, Peterson and Lehiste (1960: 702) concluded that ‘the syllable nucleus is shorter when followed by a voiceless consonant’, with voiceless plosives conditioning the shortest vowel durations, then nasals and voiced plosives, followed by voiceless fricatives, then voiced fricatives. In a similar study, House and Fairbanks (1953) came to the same conclusion, finding that voicing has the most effect on duration, followed by manner of articulation, while place of articulation had little effect. Neither Peterson and Lehiste (1960) nor House and Fairbanks (1953) considered the phonetic reality of the following consonant (e.g. whether the phonetic realisation was actually voiced or not), but simply considered the underlying representation of the consonant. Following these studies, only phonological following voice and manner of articulation were coded for each token.

In addition, Piercy (2011: 162) reports that vowel duration is also conditioned by whether the syllable containing the vowel is open or closed, with open syllables favouring shorter realisations. Therefore, the following environment of each token of BATH and TRAP was coded for voicing, manner of articulation, and whether the syllable was open or closed.

Regarding vowel quality, place of articulation of the following context must also be considered, as well as manner of articulation (Stevens & House 1963). Regarding the latter, Stevens and House (1963) found that F2 values, in particular, were affected by whether the vowel was in a fricative or stop consonantal environment. Thomas (2010: 100–101) summarises the influence of following place of articulation on the first three vowel formants, stating that there are some consistent and some inconsistent effects across different types of vowels. He summarises these effects in a table, reproduced in Table 3.6 below. In comparison to the effect on following duration, the actual phonetic realisation of the following consonant is important here, as it will directly affect tongue position.

Place of Articulation	General effect on:	
	F1	F2
Bilabial	Lowered	Lowered
Labiodental	Lowered	Lowered
Dental	Lowered	Raised next to back rounded vowels, lowered next to front vowels
Alveolar	Lowered	Raised next to central and back vowels, lowered next to front vowels
Retroflex	Lowered	Raised next to back vowels, lowered next to front vowels
Palato-alveolar	Lowered	Raised
Palatal	Lowered	Strongly raised
Velar	Lowered	Raised
Uvular	Lowered?	Lowered
Pharyngeal	Raised	Strongly lowered

Table 3.6: Anticipatory effects of following place of articulation on F1 and F2 vowel formants. Reproduced from Thomas (2010: 101).

Considering these factors, each token of BATH and TRAP was coded for following context. Where duration was being modelled, each following consonant was coded for manner of articulation, voicing, and whether the syllable was open or closed. Where formant measurements were modelled, following context was coded for manner and

place of articulation. These following contexts were then inputted into a model as one variable. For example, the following context of the word *fabulous* would be inputted into a duration model as ‘voiced plosive, open syllable rhyme’, and into a formant model as ‘bilabial plosive’.

In addition to following context, it is well attested that the phrasal positioning of a syllable or foot can also influence its duration, with phrase-final vowels being up to twice as long as vowels in other positions (e.g. Klatt 1976; Wightman et al. 1992). Therefore, tokens collected from the map tasks were additionally coded as a binary ‘yes’ or ‘no’ for whether the vowel occurs in a phrase-final syllable or foot. As a result, the models of vowel duration include ‘discoursal context’ as a fixed effect, as opposed to ‘elicitation task’. This includes ‘map task’, ‘pre-pausal map task’, and ‘word list’ as the three discoursal contexts.

3.5 STATISTICAL MODELLING

Both the perception and production data in this project were analysed using mixed-effects modelling. The following section describes the process of fitting the models to each of these datasets. For the perception data, the outcome variable was whether a token received a click or a non-click by a listener. As such, this outcome variable (click/non-click) is binary. Therefore, generalised linear mixed-effects models were fit to this data. The production data, in contrast, always had a continuous outcome variable (F1, F2, or duration). Therefore, the statistical analysis of the production data always used linear mixed-effects models. However, the process of fitting these models was the same for both types of data.

Mixed-effects regression modelling was carried out using the ‘lme4’ package in R (Bates, et al. 2019). In each of the production data models, social and linguistic variables were included as fixed effects, while speaker was included as a random effect (Johnson 2009). Including speaker as a random effect minimises the effect of individual speaker differences in the model. In order to reduce collinearity in the models, particularly in those which included interactions, the identity index score for each participant, which was the only remaining continuous variable that had not already been scaled, was z-scored. As discussed above (Section 3.4.2), z-scoring transforms the values into

standard deviations from the mean. This does not alter the calculation, but decreases multicollinearity in a model, thus reducing the risk of an obscured significant result (e.g. Afshartous & Preston 2011; Bell, Jones & Fairbrother 2018). For the perception data, the models were fit with guessed location (see Section 4.2.1 of Chapter 4), listener location, and condition as fixed effects, while listener was included as a random effect. This was intended to minimise the effect of individual differences between listeners.

Models were first fit with all the predictors, then tested for interactions. Any predictors which did not improve the model were then removed. After removing a predictor, the two larger and smaller models were compared using an ANOVA and, following the principle of Occam's Razor, if there was no significant difference between the models, the smaller model was assumed to be best (Gries 2009: 260). To demonstrate how this was done, a worked example of this process is provided below:

First, a model testing the effect of all the predictors (independent variables) on the outcome (dependent variable) is fit:¹⁴

```
fit1 <- lmer(outcome ~ predictor1 + predictor2 + predictor3 +  
            (1|random_effect)), data=data
```

Then, any potential interactions between predictors were tested:

```
fit2 <- lmer(outcome ~ predictor1 * predictor2 + predictor3 +  
            (1|random_effect)), data=data
```

An ANOVA was then used to test the difference between the two models. If there was a significant difference between the two fits, the interaction was assumed to improve the fit of the model. If it did not, the interaction would not be included in the model:

```
anova(fit1, fit2)
```

¹⁴ For the perception data models, where the outcome variable was binary, the model was fit using the 'glmer' command, as opposed to 'lmer'.

Once all interactions had been tested, and any that improved the fit of the model retained, predictors were removed one by one if, following an ANOVA, they were not found to significantly improve the fit of the model:

```
fit3 <- lmer(outcome ~ predictor1 * predictor2 + (1|random_effect)),  
            data=data  
  
anova(fit2, fit3)
```

In this example, provided the two remaining predictors significantly improve the fit of the model, this would be the final model used in the results of the regression analysis.

3.6 SUMMARY

This chapter has provided an overview of the methodologies used in both the production and perception elements of this study, as well as a discussion of the theoretical and methodological justifications for the study design. It first demonstrated how real time speech perception methodologies are an effective way of accessing listener awareness of multiple linguistic features simultaneously, and subsequently described the design of the real time experiment used in this study. It then discussed how this study explores BATH and TRAP variation from both a diachronic and synchronic perspective. First, it discussed how the Contemporary Cornwall corpus was created, with a focus on the different social factors that stratify the sample (gender, social class, parental birthplace, and identity index score). Then this chapter demonstrated how the inclusion of the SED and RP corpora in this study situates the Contemporary Cornwall speakers on a continuum between traditional Cornish English and RP. Finally, an in-depth description of the acoustic, auditory, and statistical methods used in this study was provided. Chapter 4 will now present the findings of the perception experiment and, subsequently, Chapters 5, 6, and 7 will discuss diachronic and synchronic production results.

CHAPTER 4: PERCEPTION TEST RESULTS

4.0 INTRODUCTION

This chapter describes the results of the perception experiment designed to test the salience of phonological features of West Cornish English in real time (for a definition of salience, see Section 2.1 of Chapter 2). In this chapter, the results of the perception experiment suggest that the South Western ‘long <a>’ (the /aː/ variant of BATH, TRAP, and PALM) is the most salient feature of the variety, leading to a focus on this in the production analysis (Chapters 5, 6, and 7). In diagnosing these features, this chapter attempts to rank the features of West Cornish English in order of salience. Additionally, the results of this experiment have implications beyond our understanding of South Western Englishes. In exploring the effects of context-driven expectations and listener experience on perceptions, it demonstrates that salience is not fixed, but malleable.

As discussed in the experiment design detailed in Section 3.1 of Chapter 3, I divided the participants in the perception experiment in half. Each half of the participants heard specific topic-based conditions. In one condition, participants listened to a male and a female speaker from Cornwall talking about topics related to Cornwall, while the participants in the other condition listened to the same speakers talking about topics neutral to region. These are termed the CORNWALL and NEUTRAL conditions, respectively. The perception task involved participants first listening to a stimulus and, afterwards, indicating where they thought the speaker was from, and anything else about their voice which stood out to them. They then listened to the stimulus a second time, but this time they were asked to press a large, green ‘click’ button whenever they heard something they found interesting or signalled to them where the speaker might be from (see Figure 3.1 in Section 3.1.1). At the end of the stimulus, they were presented with a short audio clip and transcription +/- 3 seconds from the exact point at which they clicked and were asked to either comment on what stood out to them, or state that they didn’t know why they had clicked. These clicks and comments were then coded for

the feature(s) they had clicked for, and the word(s) in which they occurred (see Section 3.1.4 of Chapter 3).

4.1 PARTICIPANT DEMOGRAPHICS

A total of 220 participants took part in the experiment. 33 participants who had spent fewer than 10 years living in the UK were removed from the sample, as they were assumed to have inadequate knowledge of the social meaning of accent variation in the country. A further 14 participants were removed who had one or fewer clicks for either of the guises, or had not provided any qualitative comments. This left 64 participants in the NEUTRAL condition, and 109 participants in the CORNWALL condition. In order to ensure an even distribution of participants between the conditions, a further 45 listeners were randomly selected from the CORNWALL condition and removed from the analysis, leaving 64 participants for each condition (128 in total). Table 4.1 below shows a demographic breakdown of the participants for each condition.

		Condition	
		<i>CORNWALL</i>	<i>NEUTRAL</i>
Gender	<i>Female</i>	44	42
	<i>Male</i>	19	22
	<i>Not reported</i>	1	0
Age	<i>Lowest Age</i>	19	18
	<i>Highest Age</i>	73	61
	<i>Mean Age</i>	35.8	32.5
Lived in the South West	<i>Yes</i>	15	24
	<i>No</i>	49	40
Total		64	64

Table 4.1: Demographic breakdown participants in each condition.

4.2 RESULTS

The analysis of the results of this experiment first considers where the listeners guessed the speakers to be from (Section 4.2.1). It then provides a general overview of the responses to each guise, exploring where the ‘peaks’ in clicks occurred, and which linguistic features may have prompted these clicks (Section 4.2.2). In Section 4.2.3, I

then break down the results for each individual linguistic feature in order to rank the accent features of West Cornish English in terms of salience (as defined in Section 2.1 of Chapter 2). Further interrogation of the specific phonetic realisation of individual tokens also provides insight into the salience of individual variants of certain features (Section 4.2.4). Finally, statistical analyses of the results for each individual feature considers how responses were affected by condition (CORNWALL or NEUTRAL), where the listener thought the speaker was from, and listener experience with the feature (Section 4.2.5). This analysis provides further insight into how the salience of individual linguistic features is mediated by context-driven expectations (see Section 2.3.1 of Chapter 2 for a review of the literature on this topic), and the influence of where listeners live, or have lived, on perception (as discussed in Section 3.1.1 of Chapter 3).

4.2.1 GUESSED LOCATION

This experiment asked participants to listen to the guise once, then guess where the speaker was from, then they listened again and completed the clicking task. The guesses were coded as either ‘South West’ or ‘other’ for each of the guises. The frequencies for each of the guesses are shown in Table 4.2 below.

Guise	Gussed Location	
	<i>South West</i>	<i>Other</i>
Male CORNWALL	57 (89%)	7 (11%)
Male NEUTRAL	48 (75%)	16 (25%)
Female CORNWALL	49 (77%)	15 (23%)
Female NEUTRAL	35 (55%)	29 (45%)

Table 4.2: Frequencies of ‘South West’ or ‘other’ gussed locations in each guise.

Table 4.2 above demonstrates that, as a whole, listeners were fairly good at locating the speakers in the South West. One exception is the female NEUTRAL guise, where only 55% of listeners correctly identified her as South Western. Unsurprisingly, listeners were also much more likely to guess the speakers were South Western in the CORNWALL condition. However, it is difficult to determine whether they were relying more on the topic of the guise when making their guess, or whether the content of the

guise primed them to notice more South Western features (following, for example, Niedzielski 1999; Hay & Drager 2010; Montgomery & Moore 2018).

Within the ‘other’ category, there was relatively little variation in guesses. For the male speaker, almost all of the ‘other’ guesses were for either Norfolk or Suffolk. For the female speaker, almost all the ‘other’ guesses could be attributed to South Eastern locations, usually London. Indeed, one listener simply described her as a ‘generic Southerner’.

4.2.1 GENERAL OVERVIEW OF RESPONSES

The results of this experiment consider to what extent listeners noticed each of the non-standard features in each of the guises, as identified in Table 3.2 of Chapter 3. Turning first to more general responses to the recordings, participants were notably consistent in their responses. Each of the non-standard features received different levels of attention from listeners, and certain tokens were consistently noticed regularly by listeners. Regarding differences between the guises, as shown in Table 4.3 below, the male guises received the most clicks. In addition, the NEUTRAL guise of each gender received fewer clicks than the corresponding CORNWALL guise, although the difference between the two female guises is only small.

Guise	Total Clicks	Mean Clicks Per Participant
Female NEUTRAL	533	8.32
Female CORNWALL	574	8.97
Male NEUTRAL	799	12.48
Male CORNWALL	900	14.06

Table 4.3: Total and mean average clicks from 64 participants for each guise.

These clicks were not evenly distributed across each guise. Instead, there were certain points where many participants clicked around the same time, suggesting they were responding to the same accent feature, or cluster of features. Following Montgomery and Moore (2018: 646–647), in order to explore the distribution of these responses, the charts presented below in Figures 4.1, 4.2, 4.3, and 4.4 show the total clicks for all

participants every 0.5 seconds in each of the four guises. Where there are 'spikes', this shows where lots of participants clicked at the same time. Spikes are labelled with the linguistic feature(s) and word(s) in which it occurs, with reference to the coded qualitative comments.

Male NEUTRAL Guise

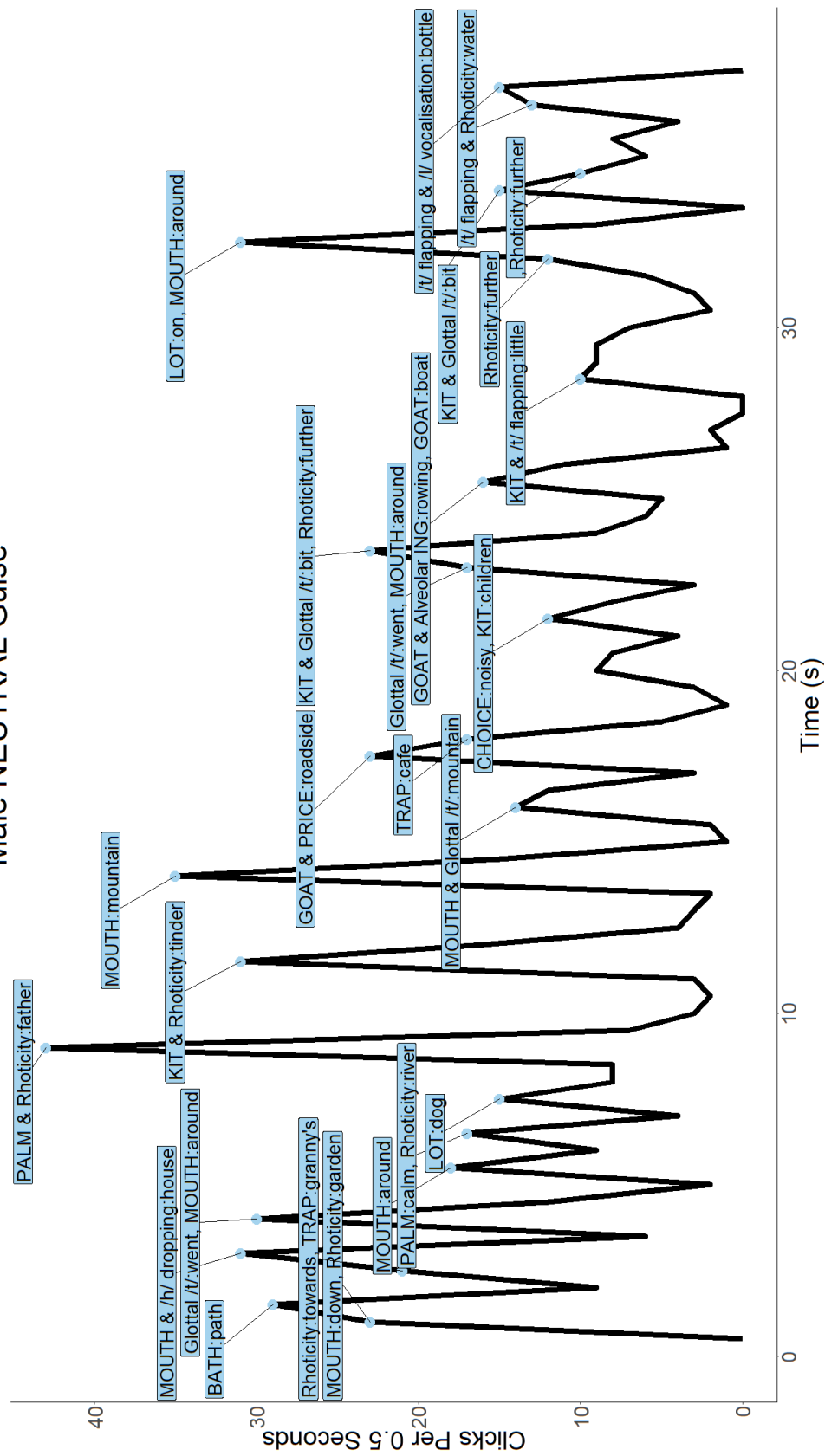


Figure 4.1: Chart showing the total clicks per 0.5 seconds for the male NEUTRAL guise. 'Spikes' are labelled with the linguistic feature(s), followed by the word(s) in which it/they occur

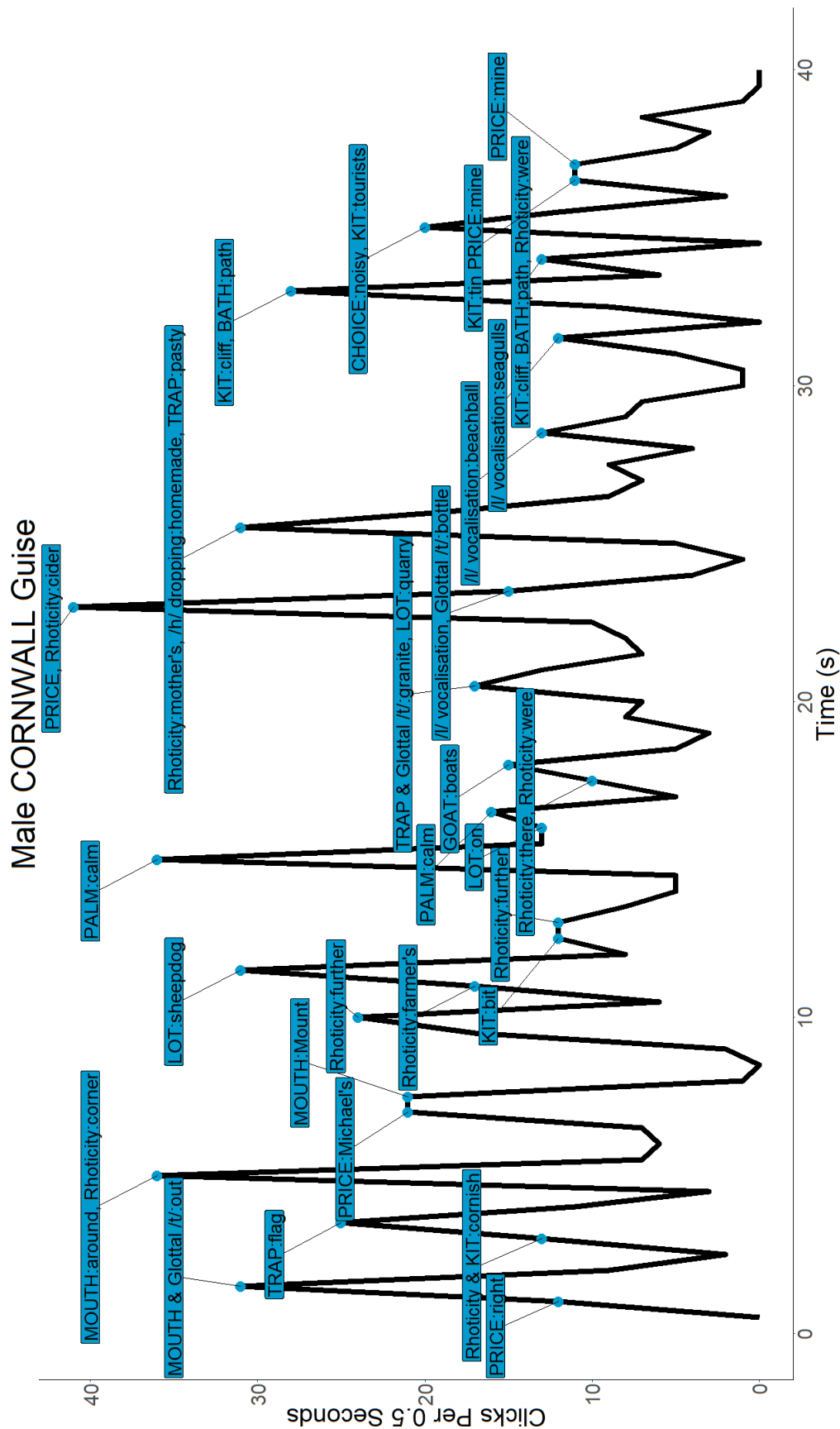


Figure 4.2: Chart showing the total clicks per 0.5 seconds for the male CORNWALL guise.

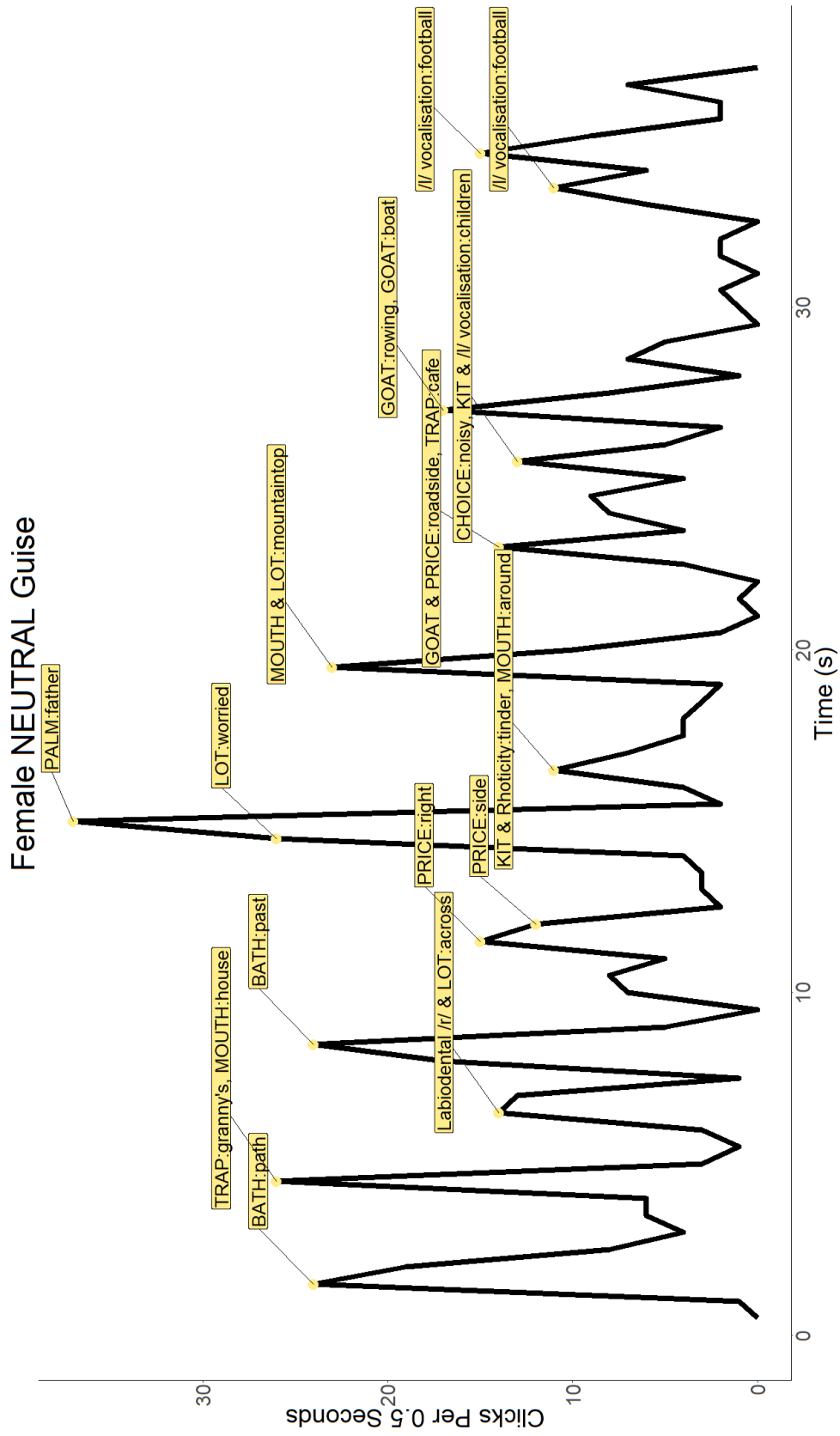


Figure 4.3: Chart showing the total clicks per 0.5 seconds for the female NEUTRAL guise.

Female CORNWALL Guise

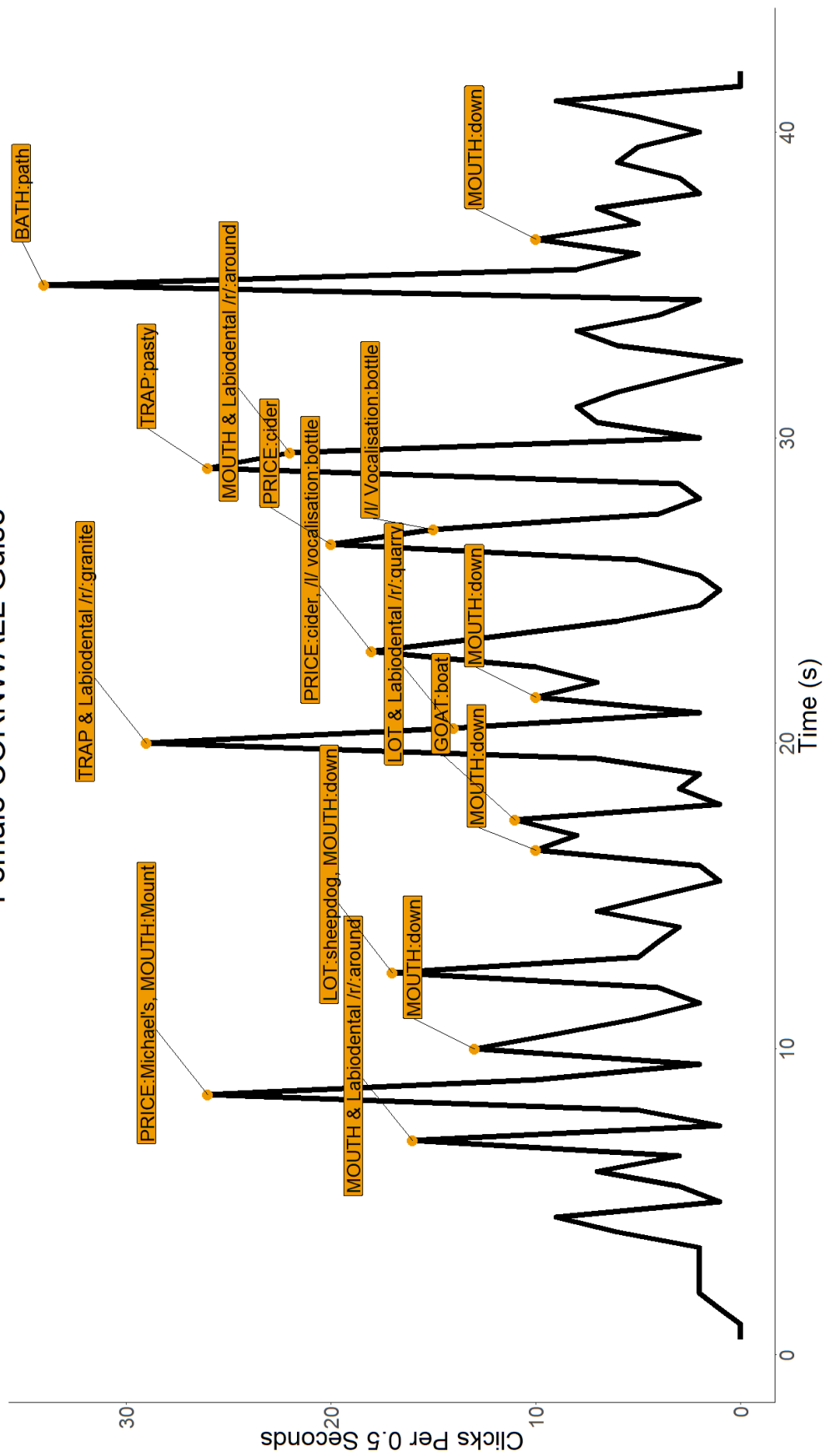


Figure 4.4: Chart showing the total clicks per 0.5 seconds for the female CORNWALL guise.

These charts demonstrate that listeners were able to consistently identify non-standard features in the guises and acted similarly with regards to several of the features. The difference in responses to the two speakers can also be clearly seen in these charts, with far more spikes in the male guises.

With reference to the coded qualitative comments, for each of the guises, the most clicked words and linguistic features were:

- Male NEUTRAL Guise: PALM [a:] and Rhoticity in the word ‘father’ (n = 39)
- Male CORNWALL Guise: PRICE [ɔi] and Rhoticity in the word ‘cider’ (n = 40)
- Female NEUTRAL Guise: PALM [a:] in the word ‘father’ (n = 48)
- Female CORNWALL Guise: BATH [a:] in the word ‘path’ (n = 39)

This suggests that the long, open, front vowels in West Cornish English consistently stood out to participants, particularly in PALM words. The high number of clicks for the [ɔi] pronunciation of ‘cider’ in the male CORNWALL guise is not in line with the other results. PRICE is not highly salient in any of the guises, and it seems that the cultural significance of the word ‘cider’ seems to have bolstered the salience of this token (see Section 4.3.4 for a full discussion).

4.2.2 RESPONSES TO INDIVIDUAL ACCENT FEATURES

The following section explores the question of which of the non-standard features were most salient, as opposed to simply comparing the noticeability of individual words. As discussed in Section 3.1.4 of Chapter 3, in order to explore how often listeners noticed individual phonological features, every non-standard feature in the four guises was first identified. Using the qualitative comments provided by listeners and the precise time of each click, every participant’s response to each of the identified non-standard features could be coded as a binary click/non-click outcome. As each instance of a non-standard feature is coded as a binary outcome, this accounts for the varying frequencies of each feature in the guises. As such, the total clicks for each feature in each guise can be compared to the *potential* clicks it could have received. Table 4.4 below shows these figures for each of the non-standard features in the guises.

Feature	Guise							
	Male CORNWALL		Male NEUTRAL		Female CORNWALL		Female NEUTRAL	
	C/N	% C	C/N	% C	C/N	% C	C/N	% C
<i>BATH</i>	52/204	20.31	32/32	50	39/25	60.94	83/45	64.84
<i>TRAP</i>	78/242	24.38	40/152	20.83	59/197	23.05	12/180	6.25
<i>PALM</i>	58/70	45.31	46/82	35.94	18/110	14.06	48/80	37.5
<i>GOAT</i>	23/105	17.97	29/99	22.66	12/116	9.38	11/181	5.73
<i>KIT</i>	28/356	7.29	38/154	19.79	5/123	3.91	17/239	6.64
<i>LOT</i>	48/272	15	14/178	7.29	31/161	16.15	9/183	4.69
<i>PRICE</i>	78/242	24.38	13/51	20.31	34/222	13.28	35/413	7.81
<i>MOUTH</i>	85/107	44.27	215/361	37.33	97/415	18.95	50/270	15.62
<i>CHOICE</i>	5/59	7.81	5/59	7.81	6/58	9.38	4/60	6.25
<i>Rhoticity</i>	151/425	26.22	178/526	25.28	0/64	0	19/173	9.9
<i>/t/-Flapping</i>	N/A		52/140	27.08	N/A		N/A	
<i>Glottal /t/</i>	42/86	32.81	16/48	25	6/58	9.38	8/184	4.17
<i>Alveolar ING</i>	0/64	0	12/116	9.38	0/64	0	0/128	0
<i>/l/ Vocalisation</i>	37/219	14.45	29/99	22.66	43/149	22.4	17/111	13.28
<i>/h/ Dropping</i>	15/49	23.44	25/39	39.06	N/A		N/A	
<i>Labiodental /r/</i>	N/A		N/A		47/465	9.18	55/713	7.16

Table 4.4: Proportion of ‘click/non-click’ (C/N) responses to each of the non-standard features in each of the guises, and the percentage of clicks each received out of the total ‘possible clicks’ (% C). The total ‘possible clicks’ is calculated by multiplying the number of listeners (64) by the number of instances of each feature in each guise. The table begins with the vocalic features of West Cornish English, then the consonantal features, then the more generally vernacular features.

In order to more clearly represent the complex results shown in Table 4.3 above, the percentage of clicks for each feature in each guise is shown in the bar chart in Figure 4.5 below. This provides an approximate guide to the overt noticeability of the non-standard accent features in each of the four guises.

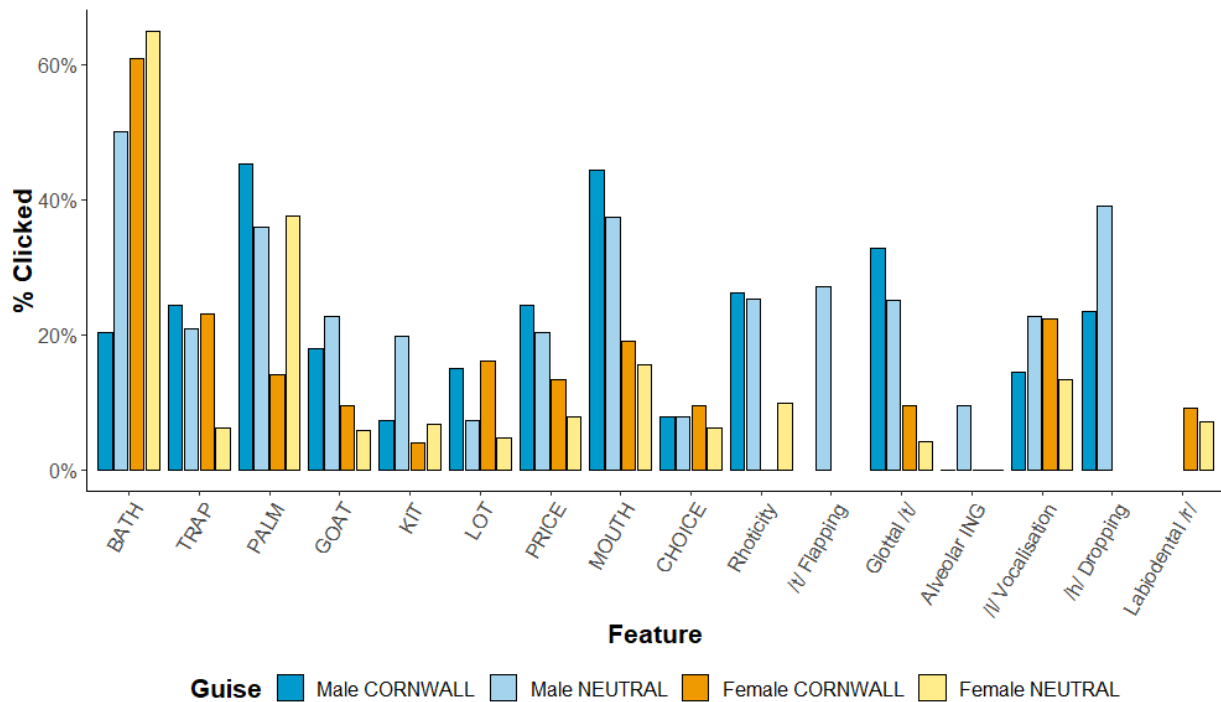


Figure 4.5: Proportion of clicks for each non-standard feature, coloured according to guise.

The results shown in Figure 4.5 above demonstrate that certain accent features were much more noticed than others by the respondents. Three of the West Cornish English features, BATH, PALM, and MOUTH generally attracted a notably higher proportion of clicks than the others, suggesting that they are the most salient features of the variety, while one more generally vernacular feature, /h/ dropping, was also salient. In comparison, the least salient features in the guises were KIT, LOT, CHOICE, labiodental /r/, and alveolar ING.

There were also some differences in responses between the two conditions (CORNWALL or NEUTRAL) for each feature. These differences, as well as other potentially conditioning factors relating to individual differences between the listeners, are tested statistically in Section 4.2.4 below. However, given that this thesis is focussed

on TRAP and BATH variation, this analysis will first turn to a more in-depth exploration of responses to open, fronted vowels in the guises.

4.2.3 THE EFFECT OF SOUTH WESTERN 'LONG <A>'

As discussed by Wakelin (1986: 21–22, 26), the BATH, TRAP, PALM, and START lexical sets are traditionally merged in quality and BATH and PALM are also merged for length in South Western Englishes (including West Cornish English). Considering the merging of these lexical sets, it is unlikely that the social meaning of these individual features can be entirely disconnected. As such, it is important to also consider how these lexical sets patterned together, as well as separately.

For the BATH, TRAP, and PALM lexical sets in this study, the differences in the noticeability of features between conditions, as well as the 'spikes' for specific words, as shown in Figures 4.1, 4.2, 4.3, and 4.4, can be attributed to differences in the phonetic realisation of each token (neither of the speakers had a fronted START vowel, so this lexical set is not considered in this analysis). Further interrogation of responses to these individual tokens provides insight into the degree to which the social meaning of these variables are connected and, if so, which variants are most salient.

Beginning with the PALM vowel, the differences between the two female guises can be attributed to the quality of the different tokens of this feature. In both guises, the speaker produces all three tokens of 'calm' with a relatively back [ɑ:] variant, whereas she pronounces 'father' in the NEUTRAL guise with a traditional, fronted and lengthened [a:] vowel. The vast majority of the clicks for PALM in both of the female guises can be attributed to the word 'father' (n = 48). The male speaker also produced two different variants of PALM. In the CORNWALL guise, PALM was pronounced as [ɑ†] in the word 'calm' twice, and the first instance received 38 clicks and the second 20. This represents a historical retention of the /l/ found in traditional South Western varieties (Wells 1982b: 346). In comparison, 'father' and 'calm' were pronounced as [a:] and [aˈ] respectively in the male NEUTRAL guise, and received 39 and 9 clicks (the effect of vowel duration on perceptions is explored below). As such, the clicks for PALM

in the male speaker's CORNWALL and NEUTRAL guises can be attributed to two different, yet both salient, variants.

All tokens of vowels in the BATH and TRAP lexical sets, and a selection of PALM tokens (see above) were produced with an open, fronted quality. However, there was a good deal of variation in the duration of each token from all three lexical sets in the guises. Given that previous research on South Western Englishes has suggested that the duration of open, front vowels may be socially meaningful (see Section 2.4.3 of Chapter 2), it is important to consider how vowel duration may have affected perceptions of these tokens. Figure 4.6 below compares the vowel duration of each token with the total clicks it received in the BATH, TRAP and PALM lexical sets respectively.

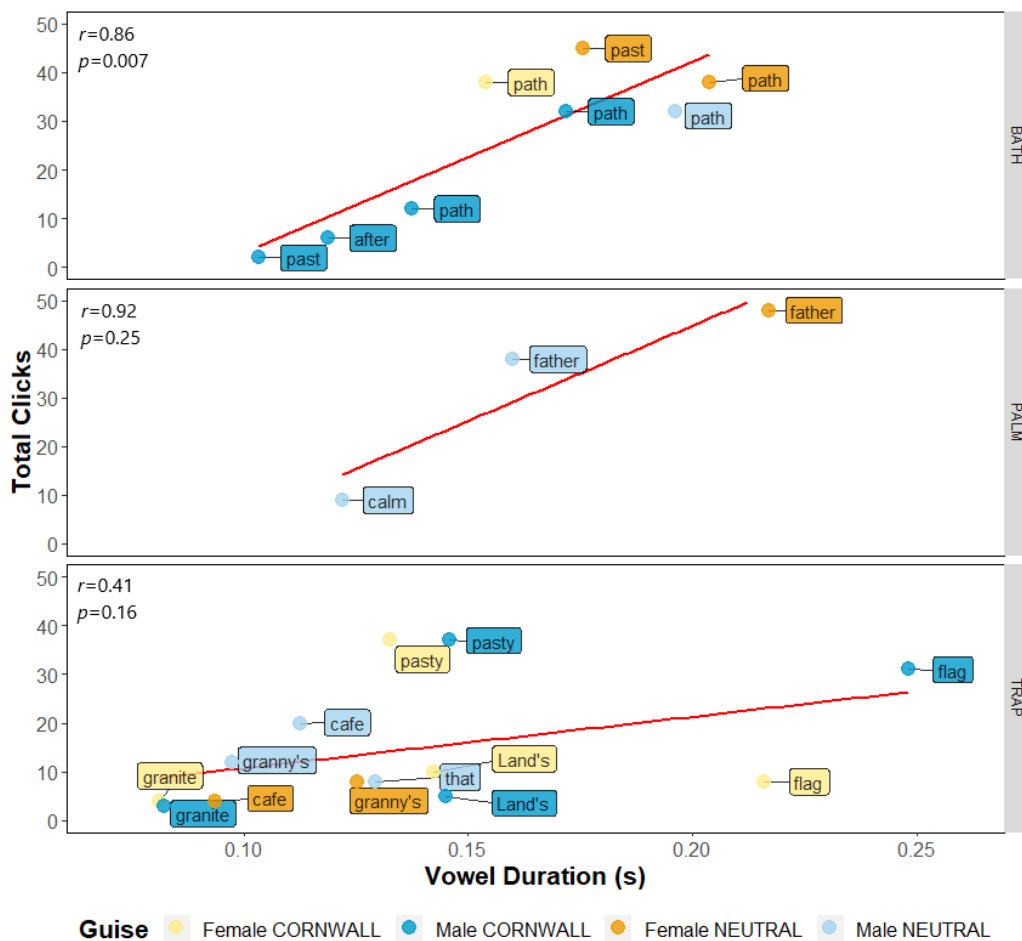


Figure 4.6: Clicks received for each token of vowels in the BATH (top), PALM (middle), and TRAP (bottom) lexical sets in the perception experiment according to vowel duration. They are coloured according to guise, and labelled with the word in which they occur. Regression lines are shown in red, and Pearson's correlation coefficients are labelled.

Pearson's correlation coefficients were additionally calculated for each of these lexical sets, and for all the open and fronted vowels together. When all the open and fronted vowels were taken together, there was a statistically significant correlation between vowel duration and clicks ($r=0.64$, $p=0.0007$). For each of the lexical sets alone, the correlation between duration and clicks only reached significance for the BATH vowel ($r=0.86$, $p=0.007$). For the PALM vowel, there was a very high correlation coefficient, but it did not reach significance due to the low token count ($r=0.92$, $p=0.25$). In comparison, there was a low correlation coefficient for the TRAP vowel, which also did not reach significance ($r=0.41$, $p=0.16$). Considering Figure 4.6 above and the correlation coefficients, these results suggest that, particularly for vowels in the BATH and PALM lexical sets, there was a correlation between the duration of open, fronted vowels and the amount of clicks a token received. This accounts for the difference in responses to the BATH vowel between the two male guises, as three of the four BATH vowels in the CORNWALL guise were much shorter than the one BATH token in the NEUTRAL guise. It also adds further insight into the particular salience of the PALM vowel in 'father' in the female NEUTRAL guise, which was the most noticed word in any of the guises. With the exception of 'flag' in the male NEUTRAL guise, this token had the longest duration of any of the open, front vowels in all the guises.

The relationship between TRAP duration and noticeability is more complex. Although Figure 4.6 suggests that there is a general trend for longer TRAP vowels to be clicked more frequently, this correlation was not significant. This is due to a number of outliers. Most notably, both the tokens of 'pasty' are relatively short, but were the most clicked TRAP words in the four guises.

In summary, of the BATH, TRAP, and PALM lexical sets, there are two variants which were particularly salient in the perception experiment. First, the very traditional [aɪ] pronunciation of the PALM vowel was consistently noticed by listeners. Secondly, particularly for the BATH and PALM lexical sets, fronted variants were noticed more if they were longer. For the TRAP vowel, there was not such a clear correlation between vowel length and noticeability, but where a half-long vowel occurred in the word 'pasty', listeners were much more likely to click.

4.2.4 STATISTICAL ANALYSIS

Following Montgomery and Moore (2018), responses to each of the linguistic features were modelled individually using generalised linear mixed-effects modelling. Every participant's response to each non-standard feature in the guises (as identified in Table 3.2 of Chapter 3) was coded as a binary click/non-click, which acted as the outcome (dependent) variable in the models. Due to the differences in phonetic realisation between the two speakers, as shown in Table 3.2 of Chapter 3, it was not deemed appropriate to statistically compare responses to the male and female speakers. As such, the male and female guises were modelled separately. Three fixed effects were included in these models. First, 'condition' (CORNWALL or NEUTRAL) tested the differences in responses between the guises. Second, with consideration of the research suggesting that listener experience with a linguistic feature can influence their perceptions (Clopper & Pisoni 2006; Sumner & Samuel 2009; Kendall & Fridland 2010; Hay, Drager & Gibson 2018), the modelling also considered whether or not the listener had lived in the South West. Given the importance of place-based enregisterment of linguistic features on salience (e.g. Johnstone, Andrus & Danielson 2006; Beal 2009a), 'guessed location' of the speaker was also included as a predictor in the models, with a simple distinction between 'South West' and 'other'. Finally, a random effect of 'listener' was also included in order to minimise the influence of individual listeners on the results. Responses to a small number of features (CHOICE, alveolar ING, and rhoticity in the female guises) were not modelled, as they received so few clicks that the models would not converge.

Table 4.5 below shows the results of the regression analysis for each feature in the guises, with separate models for the male and female guises. The 'odds ratio' statistic refers to the effect of a predictor on the likelihood of a click/non-click outcome. Where the odds ratio is less than 1, the feature is more likely to be clicked in the identified condition, and where the odds ratio is more than 1, the feature is less likely to be clicked in the identified condition. For example, BATH was significantly more likely to be clicked in the male NEUTRAL guise, as demonstrated by an odds ratio of 0.25, while LOT was more likely to be clicked in the male CORNWALL guise, with an odds ratio of 2.45. The 'CI' column refers to confidence intervals. The range reported in the confidence interval

describes the degree of certainty in the strength of the effect, with a wider range indicating lower confidence. Finally, a p value of <0.05 is accepted as a significant result, and is shown in the ‘ p ’ columns.

Feature	Predictors	Male Guises			Female Guises		
		Odds Ratio	CI	p	Odds Ratio	CI	p
BATH	Condition: NEUTRAL	0.25	0.13-0.46	<0.001	N/S		
TRAP		N/S			N/S		
PALM	Condition: NEUTRAL				0.27	0.15-0.50	<0.001
GOAT		N/S			N/S		
KIT	Condition: NEUTRAL	0.27	0.12-0.60	0.001	NS		
LOT	Condition: NEUTRAL	2.45	1.20-4.19	0.011	5.65	2.11 – 15.11	0.001
	Lived in South West: Yes				5.28	1.12-23.09	0.027
PRICE		N/S			N/S		
MOUTH		N/S			N/S		
CHOICE		Not Modelled			Not Modelled		
Rhoticity	Lived in South West: Yes	0.60	0.38-0.95	0.031	Not Modelled		
Alveolar ING		Not Modelled			Not Modelled		
Glottal /t/		N/S			N/S		
Vocalised /l/		N/S			N/S		
/h/ Dropping		N/S			N/A		
Labiodental /r/		N/A			N/S		

Table 4.5: Results of the generalised linear mixed-effects modelling for each linguistic feature in the male and female guises, respectively.

As shown in Table 4.5 above, for the majority of features, there was no variation according to condition, whether the listener had lived in the South West, or guessed location. Indeed, guessed location was not a significant predictor in any of the models. Regarding the significant results, both the BATH and KIT vowels are more noticed in

the male NEUTRAL guise than in the male CORNWALL guise. Similarly, the PALM vowel is much more noticed in the female NEUTRAL guise than the female CORNWALL guise. Conversely, the LOT vowel is more noticed in the CORNWALL condition for both the male and female speakers. However, for the female LOT model, there is a very large confidence interval for this predictor (2.11 – 15.11), so this result should be treated with caution. Similarly, listeners who had *not* lived in the South West were more likely to notice the LOT vowel in the female guises. However, this has an even larger confidence interval (1.12-23.09), and should also be treated with much caution. Finally, for the male speaker, rhoticity is more noticed by listeners who had lived in the South West.

4.3 DISCUSSION

In the following discussion of the results of the perception experiment, features which were responded to in similar ways are discussed together, exploring the implications of these findings on our understanding of the social meaning of features of West Cornish English. Subsequently, the more general implications of these findings on our understanding of the nature of speech perception will be explored.

Where this discussion considers links between region and the features in the guises, it is important to note that listeners were not necessarily clicking for features which were an index of West Cornwall speech. While West Cornwall has an accent historically distinct from East Cornwall (Wakelin 1975), there is no up-to-date research confirming that this distinction still remains. In addition, given that this study explores the effect of enregisterment on perceptions, and West Cornish English is unlikely to be a recognisably enregistered variety, this distinction is unlikely to be of importance. Indeed, as demonstrated by Montgomery (2007: 222–224), ‘Cornwall’ is often synonymous with the wider South West in (Northern) non-linguists perceptions of the dialect region. Given that a large proportion of the non-South Western listeners were from the North, it is likely that the enregisterment of these features as part of a broader ‘South Western’ variety is most important in influencing their responses, as opposed to their specific association with (West) Cornwall. As such, the following discussion of the connections between West Cornish English features and region simply refers to associations with ‘South Western Englishes’.

It is also important to acknowledge the lack of significant results for ‘guessed location’ for any of the features in the guises. On the surface, this result appears to weaken the argument that the salient features in this experiment are enregistered as South Western. However, further interrogation of the listeners’ guesses suggests that this may not be the case. As noted in Section 4.2.1, for the male speaker, the vast majority of the listeners guessed he was South Western. The few ‘other’ guesses were almost all for places in East Anglia. This is most likely because traditional East Anglian varieties share a variety of phonological features with Cornwall, including fronted and lengthened BATH vowels, unrounded LOT vowels, raised-onset CHOICE and MOUTH vowels (e.g. Trudgill 2008). Although one of the key features that distinguishes East Anglian and South Western varieties is rhoticity (in the latter, and not the former), Britain (2017a: 175) has noted that amongst some non-linguists, this feature is ‘characteristic of *all* the rural South of England’ (emphasis in original). This speaks to a shared indexicality of rurality between the East Anglian and South Western varieties. Therefore, guessed location was most likely not an effective predictor for any of the features in the male guises, as the two most common guessed locations were being identified using the some of the same features, and evoked similar social meanings.

For the female speaker, the majority of incorrect guesses were for locations in the South East. These were accompanied by comments such as ‘clutching at straws really, I would have zero confidence guessing where she is from’, and ‘quite a neutral accent’. This was most likely because her accent was much closer to Standard English than the male speaker. However, regardless of where they thought she was from, the listeners never specifically identified Standard English features in her speech. Therefore, guessed location was likely not significant in the female guises because, even if they did not correctly guess she was South Western, they would still click for the South Western features in her speech.

4.3.1 BATH, TRAP AND PALM

As discussed in Section 2.4.2 of Chapter 2, the BATH, TRAP, and PALM lexical sets are traditionally merged in quality in South Western Englishes. In addition, the BATH and PALM vowels are also traditionally long, while TRAP vowels are also variably lengthened in these varieties (Wells 1982b: 345; Piercy 2011). As such, responses to these features

were considered together in order to explore the extent to which their social meaning is connected. Of these open, front vowels, the BATH and PALM lexical sets were some of the most noticed features in the guises (see Figure 4.5). There was also a direct correlation between the duration of fronted BATH and PALM vowels and their noticeability (see Figure 4.6).

The finding that BATH was one of the most salient features in the guises is unsurprising, given the status of this feature as having ‘perhaps the greatest sociolinguistic significance in England’ (Foulkes & Docherty 2007: 66) (see Section 2.4.3 of Chapter 2). This result suggests that the South Western BATH vowel is similarly salient. However, as discussed in Section 4.2.3 above, only the longer variants of fronted BATH were salient. This may account for the significantly different results between the two male guises for the BATH vowel (see Table 4.5), as all of the short, fronted BATH vowels occurred in the CORNWALL condition. This is particularly interesting, as all these BATH tokens have the same, fronted quality as BATH in Northern English (e.g. Beal 2010: 14). Given the sociolinguistic significance of this feature in Northern varieties, these short, front forms would be expected to be salient in this experiment. It is possible that the priming of both the topic in the CORNWALL guise, and the other features of West Cornish English used by the speaker, decreased the salience of short, fronted BATH. If this is the case, this finding speaks to the context-dependent nature of salience (e.g. Peleg, Giora & Fein 2001; Hay & Drager 2010; Hilton & Jeong 2019).

Regarding the PALM vowel, the long, fronted variants were highly salient in this experiment. Notably, the long, fronted PALM vowel in the word ‘father’ in the female NEUTRAL guise was the most clicked of any word in the four guises. This can be seen in the high peak for ‘father’ in Figure 4.3, and the highly significant difference between the two female guises for the PALM vowel, as shown in Table 4.5. In the male guises, it is possible that the co-occurrence of rhoticity may have contributed to the clicks for the word ‘father’, but this word was not produced with a rhotic /r/ for the female speaker. As with the BATH vowel, these results also indicate that it is not the fronted quality of the PALM vowel alone that is contributing to its salience in West Cornish English, but the long *duration* of the fronted variants. Despite the words ‘calm’ and ‘father’ having

the same fronted quality in the male CORNWALL guise, the longer vowel in the latter was much more noticed by listeners.

In comparison, the [aʔ] pronunciation of the two PALM words in the male CORNWALL guise included a historical retention of the /l/ found in traditional South Western varieties (Wells 1982b: 346). As shown in Figure 4.5 above, this variant of PALM was also highly salient to listeners. However, this result does not necessarily indicate that this variant of PALM was regularly noticed due to its strong associations with Cornish (or South Western) English. Although there has been no sociolinguistic account of this variant in the South West since Wells (1982b), this form is most likely very infrequent now. Indeed, Wakelin (1975: 120) notes that, at the time of the SED, it was already in recession. This could have resulted in increased ‘surprisal value’ (Rácz 2013) amongst the listeners. As discussed in Section 2.1 of Chapter 2, salience can result from something unexpected or unusual occurring, so the [aʔ] variant of PALM may have been noticed due to its infrequency in present-day British Englishes.

Finally the TRAP vowel was much less salient than either the BATH or PALM vowel in all four guises, despite having the same quality and some lengthened variants. The three most noticed TRAP vowels were the two instances of ‘pasty’ in the CORNWALL guises, and a particularly long vowel in ‘flag’ in the male CORNWALL guise (as shown on Figure 4.6). The generally lower rates of recognition for the TRAP vowel in comparison to the BATH and PALM vowels may be due to similarity to Standard English. The quality of the TRAP vowels in these guises was the same as present-day Standard English /a/ (see Wells 1982a: 129). In addition, the TRAP vowel is also variably lengthened in RP (Kettig 2016), so longer variants are not necessarily distinctly South Western. The longest TRAP variants in the guises occurred in the word ‘flag’. As shown by Kettig (2016: 11), the pre-/g/ environment particularly favours lengthening in RP, which may be why these tokens were not regularly noticed by listeners. In comparison, the TRAP vowel in the word ‘pasty’ is part of an open syllable, which generally favour shorter vowels (e.g. Piercy 2011: 162). As such, the TRAP vowels may have been lengthened beyond expectations in these words, despite being only half-long. The salience of the TRAP vowel in ‘pasty’ may have also been bolstered by the cultural significance of pasties as a regional dish in Cornwall.

If, as would be suggested by the salience of fronted and lengthened BATH and PALM vowels, the South Western ‘long <a>’ is an enregistered feature of South Western English, this result may speak to an association between lengthened TRAP and the region. Where TRAP is lengthened beyond those environments that would be expected in RP (i.e. in an open syllable), and it occurs within a word with strong links to the region, listeners noticed it most. This further supports the suggestion that open, fronted, and lengthened vowels are enregistered as features of South Western English.

Overall, this analysis has suggested that the social meaning of open, front vowels in South Western Englishes may be connected. In particular, the ‘long <a>’ appears to be one of the most salient features of the variety. In addition, these findings have implications beyond our understanding of South Western Englishes. The majority of sociophonetic analyses of vocalic variation in both speech perception and production has focussed on vowel *quality* while, as noted by Hay and Drager (2007: 92), analysis of other acoustic characteristics, such as duration, are ‘not yet routine’. In the intervening 12 years, sociophonetic work has remained focussed on variation in vowel quality, although there are exceptions (e.g. Fridland, Kendall & Farrington 2013; Jacewicz & Fox 2015). The results of this experiment have suggested that, in this context, for the BATH, PALM and (to a lesser extent) TRAP vowels, duration is a key factor influencing the salience of a token. However, further, more controlled, experiments would be required to disentangle the influence of vowel quality and duration on perceptions of these features (for a discussion, see Section 8.3 of Chapter 8).

4.3.2 MOUTH

The MOUTH vowel was consistently noticed by participants in the male guises, where all tokens had a [æ̥̥̥] realisation, with a raised onset and centralised offglide. In comparison, vowels in this lexical set were not regularly noticed in the female guises. This is most likely because she realised MOUTH as [ḁ̥̥] in both guises, which is closer to the standard.

The salience of the MOUTH vowel in the male guises was surprising. Montgomery and Moore (2018) found that the South Western MOUTH vowel was salient in the ‘islander’

guise, which was recognised as belonging to the South West. However, they did not find it to be readily associated with the concept of the ‘South Western farmer’. As the present study specifically primed ‘Cornwall’, not ‘farmer’, this further suggests that the MOUTH vowel is more readily associated with the South Western region than the specific ‘farmer’ persona.

In addition, Montgomery and Moore (2018: 651) hypothesise that the large amount of variation in the MOUTH lexical set across the South West (see Wakelin 1986: 28) means it is not as readily associated with the region than other, less variable, features. In comparison to the wider South West, there is little variation in the MOUTH vowel in traditional Cornish English (Wakelin 1975: 152–154), which may have helped the feature to become enregistered as part of the variety. Thus, the priming of ‘Cornwall’ in the topic of the CORNWALL guise, and the other features of the speaker’s accent in both guises, may have increased the salience of MOUTH in this study.

4.3.3 RHOTICITY

Rhoticity was almost never noticed in the female guises, and clicked about a third of the time in the male guises. However, there was only one rhotic token in each of the female guises. Of these, only the token that occurred at the start of the CORNWALL guise, in the word ‘starting’ was noticed by participants. It is possible that the numerous non-rhotic tokens that occurred first in the female NEUTRAL guise decreased the salience of the one rhotic token. In comparison, the rhotic token in the CORNWALL guise occurred in the first word, so listeners had yet to form any evaluations of her speech, and were more likely to click. This result is in line with previous research from Phrao and Maegaard (2017), which found that the order in which linguistic features occur in a guise can significantly affect evaluations of the speaker.

The male speaker, in comparison, was 100% rhotic. As a result, rhoticity was the most noted feature in the ‘general comments’ section of the perception test. For example, listeners noted: ‘rolling of the r sounds,’ ‘the way they pronounce ‘er’ at the end of words,’ ‘this sounds like the rhotic r prevalent in the South West.’ However, particularly given the prevalence of these qualitative comments, and because rhoticity is regularly identified as one of the most ‘iconic’ features of South Western Englishes (Maguire et al.

2010: 97; Britain 2017a: 175; Montgomery & Moore 2018: 651), it is surprising that this was not one of the most clicked features.

One possible explanation for this result is the effect of ‘surprisal’ (Rácz 2013). It is possible that, as Cornwall and the wider South West were primed by the other features of West Cornish English in the guises, the most iconic feature of the region, rhoticity, would have been expected by the listeners. As a result, its ‘surprisal value’ decreased, and it received fewer clicks in real time. In addition, it should also be acknowledged that there may be a methodological explanation for this result. There were a high number of rhotic tokens in both the guises, so listeners would have to notice more tokens of rhoticity for it to appear to be salient. However, a comparison with the results for MOUTH, which had similarly high token counts in the NEUTRAL guise, suggests that listeners are able to consistently click for the same high-frequency feature throughout the experiment. Also, there was no disparity in the clicks for rhotic tokens between the start and end of the recording, so listeners were not simply clicking for the feature at the start, and then dropping off. However, certain rhotic tokens, such as ‘cider’, ‘tinder’, and ‘father’ were regularly clicked by listeners, while others were rarely clicked. Therefore, it is possible that other factors, such as the specific phonetic properties each rhotic token, or co-occurrence with other features, influenced the noticeability of individual tokens.

Both rhoticity in the male guises and LOT in the female guises were more noticed by those who live, or had previously lived, in the South West. However, as discussed in Section 4.3.5 below, this result for LOT was most likely spurious, and should be discounted. In comparison, as shown in Table 4.5 above, the effect for ‘lived in the South West’ in the rhoticity model was significant, with a very small confidence interval (meaning we can be relatively certain about the size and direction of the effect). This predictor was intended to test the effect of listener experience with a feature on perceptions, and is in line with previous research that suggests greater prior experience with a variable increases its salience (e.g. Clopper & Pisoni 2007; Hay, Drager & Gibson 2018). However, it is notable that, with the exception of the spurious result for LOT, responses to none of the other features were affected by listener experience. One possible explanation for this is the status of rhoticity as an iconic feature of South

Western Englishes. For those who live or have lived in the South West, the links between rhoticity and place may be particularly prominent in comparison to the other, less iconic local features.

4.3.4 PRICE

The PRICE vowel was one of the less noticed features in the guises. This result was particularly unexpected, as Montgomery and Moore (2018) found that the Isles of Scilly variant of PRICE was one of the most noticed features in the ‘farmer’ guise. The discrepancy in results between the two studies could be attributed to linguistic differences between the varieties, as the PRICE variants in the present study were closer to Standard English than the raised and retracted variants heard in the Isles of Scilly speech tested in Montgomery and Moore’s (2018) study. The female speaker’s PRICE onset [äɪ] is only slightly raised in comparison with Standard English, while the male produced two tokens with a slightly fronted [ɶɪ] onset, although he did produce more typically South Western [ɔɪ] PRICE vowels in the other tokens. Indeed, it is surprising, and perhaps a testament to the enregisterment of centralised PRICE as South Western, that it was noticed at all by listeners in the female guises.

However, as with the heightened salience of the TRAP vowel in the word ‘pasty’, a priming effect for the cultural significance of individual words could also be seen for the PRICE vowel. The most noticed feature in either of the male guises was the PRICE vowel in the word ‘cider’ in the CORNWALL guise, with 38 clicks (see Figure 4.2 above). Given that PRICE was not very salient elsewhere in the guises, this is a surprising result. Although this token was produced with a distinctly South Western [ɔɪ] diphthong (Wakelin 1986: 28), there are other instances of this diphthong in both the male guises. This result may also be due to the co-occurrence of rhoticity in the word. However, if this entirely explained the result, you would expect to see a similar effect where PRICE [ɔɪ] co-occurred with other salient features, and this is not the case. Where PRICE [ɔɪ] co-occurs with the consistently salient MOUTH vowel in the word ‘roadside’ in the NEUTRAL guise, it only receives 14 clicks. Therefore, the particular salience of the

PRICE vowel in this instance could be explained by the cultural significance of cider in the South West, as this drink is strongly associated with, and produced in, the region.

In addition, as noted above, Montgomery and Moore (2018) found that the South Western PRICE vowel was one of the most noticed features in the ‘farmer’ guise. Considering these findings, it is possible that the concept of ‘farmer’ and ‘cider’ index a specific *type* of South Western persona. If this is the case, this result and Montgomery and Moore’s (2018) findings taken together suggest that South Western variants of the PRICE vowel may index this specific persona, but not the region as a whole. This findings contrasts the result for MOUTH (Section 4.3.2 above), where the local variant was only free to index region when the ‘farmer’ primes were removed.

4.3.5 LOT

In all four guises, the LOT vowel was rarely clicked by listeners. As shown in Table 4.5, there was a significant difference in clicks for vowels in this lexical set between the CORNWALL and NEUTRAL guises for both the male and female speakers, with more clicks in both the CORNWALL guises. However, the confidence interval for the difference between guises for the female speaker is very wide (2.11 – 15.11), so should be treated with caution. This result represents the only significant difference between guises that cannot be attributed to different realisations of the variables, as each speaker pronounced LOT the same in both conditions. The significantly higher number of clicks for the LOT vowel in the CORNWALL conditions potentially indicates that the regional primes in the guises increased its salience. In this is the case, this result potentially suggests that where a feature, such as LOT in Cornwall, is associated with a place, primes for that place are much more effective at increasing its salience. This is in line with previous research in speech perception, which has found that when primed with a specific region (or things associated with that region), listeners are more likely to perceive a stimulus as containing a feature associated with that region (Niedzielski 1999; Hay, Nolan & Drager 2006; Hay & Drager 2010). However, across all four guises, LOT was one of the least noticed features. This suggests that the regional primes in the CORNWALL guises only influenced listener perceptions of the least enregistered features of the variety. When compared with the results for rhoticity from Montgomery and Moore (2018), this result is particularly interesting. Montgomery and Moore (2018)

found that the iconic status of the feature increased its salience in the guise where it would be *least* expected due to increased ‘surprisal’. In comparison, there is no evidence to suggest that the LOT vowel has such an iconic status in the South West. Therefore, this finding suggests that regional primes may increase the noticeability of local features, unless that feature has iconic status, which reduces its ‘surprisal value’.

In the female guises, the LOT vowel was also significantly more likely to be noticed by listeners who live, or have lived, in the South West (see Table 4.5 above). However, although this predictor had a P value of 0.027, the confidence intervals for this result, as well as further interrogation of the raw data, suggests that this is most likely a spurious correlation. For this predictor, there was a confidence interval of 1.12-23.09, which is the widest of any of the significant predictors in this experiment, and much wider than the confidence interval for the effect of listener experience on rhoticity (0.38-0.95). This is most likely because there were very few clicks for LOT in the female guises (n = 41), and only seven of these were from listeners who had lived in the South West. These numbers are far too low for the model to make predictions with any degree of certainty. As such, this result should be discounted, and a study with a far larger sample size would be required to draw any conclusions on the effect of listener experience on perceptions of the LOT vowel.

4.3.6 KIT

In three of the four guises, the KIT vowel was one of the least recognised features. However, in the male NEUTRAL guise, KIT was noticed more often by listeners and, as shown in Table 4.5 above, this difference is highly statistically significant. This result can most likely be attributed to the realisation of the KIT vowel in the different guises. In both the female guises and the male CORNWALL guise, the KIT vowel was realised as [ɪ], which is very close to the Standard English variant, most likely accounting for its lack of salience. In comparison, the KIT vowel had a more centralised [ë] quality more often in the male NEUTRAL guise, which may have sounded more non-standard to listeners than the [ɪ] variant, which was more common in the male CORNWALL guise. Therefore, this result suggests that the more centralised variant of KIT is most salient to listeners, but still one of the less salient features of West Cornish English.

4.3.7 CHOICE and GOAT

Vowels in both the CHOICE and GOAT lexical sets were rarely noticed by listeners in the perception experiment. In addition, there were no significant differences in responses between the guises, or according to listener experience with the variables (see Table 4.5). This straightforwardly suggests that the [oʊ] variant of GOAT and the [ʌɪ] and [oɪ] variants of CHOICE are not salient features of West Cornish English.

4.3.8 SUMMARY: WEST CORNISH ENGLISH FEATURES

The previous sections have explored listener responses to individual features of West Cornish English. They have shown that lengthened and fronted variants of BATH, TRAP, and PALM (South Western ‘long <a>’) are particularly associated with the region. MOUTH was also a salient feature in the experiment, and the differing responses to vowels in this lexical set from Montgomery and Moore (2018) suggested that this feature may be enregistered as ‘South Western’ but perhaps not the specific ‘South Western farmer’ persona. In comparison, vowels in the PRICE, LOT, KIT, CHOICE and GOAT lexical sets were not particularly salient in the experiment, suggesting that they are less enregistered as South Western. However, the regional primes in the CORNWALL guises did increase the likelihood that listeners noticed the LOT vowel, suggesting that it is associated with the region, but not as highly enregistered as some of the other, more salient features. Finally, listener experience with South Western varieties was found to significantly increase the salience of rhoticity. This was attributed to rhoticity being an ‘iconic’ feature of South Western Englishes. Given the ‘iconic’ status of this feature, it was surprising that it was not one of the most clicked features in the guises. It was proposed this was likely due to either lowered ‘surprisal’ value in the guises, or variability in the noticeability of individual tokens in the guises as a result of a variety of potential factors.

4.3.9 GENERALLY VERNACULAR FEATURES

Sections 4.3.1 to 4.3.8 have explored responses to the features in the guises which are specific to South Western Englishes. However, all the guises also included more general vernacular features, which are found across varieties of British English: glottal /t/, /h/ dropping, /l/ vocalisation, and alveolar ING. In addition, there were three instances of

/t/ flapping in the male NEUTRAL guise, and the female speaker consistently produced /r/ with a labiodental [v].

Beginning with /h/ dropping, this feature was only present in the male guises in the words 'homemade' and 'house'. Of all the generally vernacular features, only /h/ dropping attracted a high proportion of clicks from the respondents. This is unsurprising, given its status as the 'single most powerful pronunciation shibboleth in England' (Wells 1982b: 254).

Glottal /t/ received a little less attention than /h/-dropping. The majority of clicks (n = 26) were for the word 'bottle' in the male CORNWALL guise, while 'out' and 'mountain' in the male NEUTRAL guise each received 16 clicks. In the female guises, glottal /t/ was clicked six times in the word 'boat', and eight times in the word 'right'. It is possible that the different phonetic environments of glottal /t/ in the guises may have affected responses. As reported by Fabricius (2002), the only environments in which glottalised variants of /t/ are not common in RP are intervocally and before syllabic /l/. Therefore, the glottal /t/ in the word 'bottle' could be considered the most non-standard, accounting for its increased salience in perception.

In addition to glottal stops, /t/ flapping (also known as /t/ voicing or tapping) occurred in one of the four guises, the male NEUTRAL guise, where he produced the /t/ in the words 'water', 'bottle', and 'little' as [ɾ]. Although this feature is now commonly associated with North American Englishes (e.g. Wells 1982a: 248), /t/ flapping has also historically been a feature of South Western Englishes (Orton, Sanderson & Widdowson 1978: ph239), which is most likely why it was present in the male speaker's speech. This feature was recognised as often as glottal /t/, suggesting it is similarly salient.

/l/ vocalisation and alveolar ING were not particularly salient in this study. Regarding the former, /l/ vocalisation is now found in near-RP varieties of English (e.g. Scobbie & Wrench 2003), so this may contribute to its low salience in this study. Despite being present in every guise, alveolar ING was only noticed in the male NEUTRAL guise. This result is in line with Levon and Fox's (2014) finding that this variant is not socially salient in Britain.

Finally, the female speaker's production of labiodental [v] for /r/ was often noticed by listeners, with a total of 102 clicks out of a possible 1280. However, the qualitative comments from listeners regarding this feature suggest they were not necessarily clicking because it located the speaker regionally. For example, one listener who clicked for this feature noted, 'the 'r' in the 'roof', but it may be a speech impediment, rather than a feature of their accent/dialect'. It is also possible that the iconic status of rhoticity in the South West (see Section 4.3.3 of this chapter) may have increased the salience of labiodental [v] in the female guises. This is suggested by the qualitative comment from one listener, who noted, 'the r in 'around' sounds Cornish'. As labiodental [v] has been found to be diffusing from the South East to a variety of urban British English dialects (see Foulkes & Docherty 2000), it is unlikely that this listener specifically associates this feature with Cornwall. Instead, they may have been aware of variation in /r/ in the region, so clicked for any instances of unusual-sounding <r>. However, the remainder of the qualitative comments did not mention any accent in particular, so this hypothesis is only tentative.

4.3.10 CONTEXTUAL EFFECTS ON SALIENCE

Beyond providing insight into the salience of individual West Cornish English and generally vernacular phonological features, the results of the perception experiment also have more general implications for our understanding of how salience is mediated by context-driven expectations. A number of studies have highlighted the context-dependent nature of salience (Peleg, Giora & Fein 2001; Hay & Drager 2010; Hilton & Jeong 2019). A key finding from Montgomery and Moore (2018) was that when listeners were unsure about where a speaker was from, either due to a mismatch between the topic of the guise and the linguistic features present, or because the speaker was using a less enregistered variety, the topic primes had a stronger influence on perceptions. In comparison, in the present study, there was never any mismatch between the linguistic features in the guise and the guise topic. The speakers used an enregistered variety of South Western English, and the topic primes were either neutral to region or Cornish. As such, the speakers were either using the variety primed by the topic (in the CORNWALL guises), or no variety was being primed (in the NEUTRAL guise), so the listeners would have no context-driven expectations about the speakers.

As shown in Table 4.5 above, condition (CORNWALL or NEUTRAL) only had a significant effect on perceptions of four out of 16 features. As detailed in Sections 4.3.1 to 4.3.8, almost all of these significant effects could be attributed to differences in the phonetic realisation of the feature, as opposed to contextual effects alone. Differences in recognition between guises for one of the least noticed features, the unrounded LOT vowel, was the only result that could be attributed to contextual effects. Taking salience as ‘the degree to which something stands out relative to other, neighbouring items’ (Drager & Kirtley 2016: 12), this finding suggests that the salience (or lack of salience) of the majority of these features is not particularly affected by the context in which they occur. When compared with the results from Montgomery and Moore (2018), this result is particularly illuminating. In the present study, no mismatch occurred between stimulus topic and the linguistic features, as either the variety itself was primed, as in the CORNWALL guises, or there were no regional primes, as in the NEUTRAL guises. Taken together, these results suggest that contextual effects on salience are least strong when listeners either have no expectations, or there is a match between their expectations and the linguistic features they are hearing. However, results for the LOT vowel suggested that, where a feature is not *highly* enregistered as local, as the proportion of clicks for this feature would suggest, the contextual effects do influence perceptions in the expected direction.

4.4 CONCLUSIONS

The results of this experiment have implications for both our understanding of perceptions of South Western English features, and our understanding about the nature of salience. With regards to this thesis, it also dictated the features which were explored in the production study of West Cornish English (see Chapters 5, 6 and 7).

4.4.1 IMPLICATIONS FOR UNDERSTANDING OF SOUTH WESTERN ENGLISHES

This study has found that the BATH, PALM, and MOUTH vowels are the most salient features of West Cornish English. Of the more generally vernacular features, only /h/-dropping and, to a lesser extent, intervocalic glottalisation, were regularly noticed by listeners. The salience of BATH and PALM was suggested to be connected to the association between South Western varieties of English and ‘long <a>’. For the fronted

tokens of BATH and PALM, there was a direct correlation between vowel duration and the amount of clicks the token received. In addition, the half-long TRAP vowel in the word 'pasty', which had the same fronted quality, was more noticed than any other TRAP word. This was suggested to be due to the association between open, fronted, and lengthened vowels and pasties, which are a culturally significant food in Cornwall, further strengthening the hypothesis that 'long <a>' is indexically linked to the South West. This experiment also provided support for the notion that rhoticity is an iconic feature of South Western Englishes (Maguire et al. 2010: 97; Britain 2017a: 175; Montgomery & Moore 2018: 651). Although it was not regularly clicked by listeners, it was suggested that may be due to reduced 'surprisal value' (Rácz 2013) as a result of the other South Western features and, in the CORNWALL guise, the regional primes. When listeners heard these other features and regional primes, they were likely expecting rhoticity to occur, so it was less prominent to them. In addition, some rhotic tokens were much more noticed than others, so it is possible that there were other factors influencing the salience of these individual tokens.

Of the less salient features of West Cornish English, PRICE, KIT, LOT, CHOICE and GOAT, there were significant differences between the two male guises for KIT and LOT, and significant differences between the female guises for LOT. With regards to KIT, this finding was attributed to differences in pronunciation between the guises, suggesting that the more centralised variant [ë] is more salient to listeners. In comparison, both speakers did not vary their pronunciation of LOT between the guises, so differences in responses to this variable was most likely attributable to the wider context of the guises (following, e.g. Niedzielski 1999; Hay, Nolan & Drager 2006; Hay & Drager 2010). This was the only feature for which differences between the guises could be attributed to the phonetic realisation of the variable. Additionally, it was one of the least noticed features across all four guises. Taken together, these results suggest that the regional primes in the CORNWALL guises caused the listeners to notice some of the less enregistered features of the variety. However, where the features were more generally prominent, the regional primes had less effect.

4.4.2 IMPLICATIONS BEYOND SOUTH WESTERN ENGLISHES

In ranking the accent features of West Cornish English in order of salience, this study has drawn upon, and contributed to, a variety of theories of the nature of salience. First, it has demonstrated that listener experience with a variable only significantly influenced perceptions of rhoticity in the male guises and the LOT vowel in the female guises. However, the significant result for LOT was discounted as spurious due to unacceptably wide confidence intervals. Considering the strong perceptual ties between rhoticity and the South West, this result additionally suggests that listener experience may have the most influence on salience when a variant is an iconic feature of a variety. Following research such as Montgomery and Moore (2018) and Phrao and Maegaard (2017), this study also demonstrated the effect of co-occurring linguistic features on salience. Listener expectations, driven by the co-occurrence of other South Western features in the guises (and the topic in the CORNWALL guise), decreased the salience of rhoticity, due to lessened ‘surprisal value’ (see Rącz 2013: 37). Finally, contextual effects were found to have less influence on perceptions at the level of guise than expected, because the guise content either matched listener expectations, or if they had few context-driven expectations.

4.4.3 IMPLICATIONS FOR THE PRESENT STUDY

The primary intention of this experiment was to provide some insight into individual features of as-yet underexplored South Western Englishes, and to choose the most salient features of the variety to explore in a production study. As discussed above, this experiment has demonstrated South Western ‘long <a>’, which occurs in the BATH, PALM, and TRAP lexical sets, and the MOUTH vowel are the most salient features of West Cornish English. As such, the speech production portion of this thesis was conducted with the intention of exploring these features in the speech of early adolescents in the region, and comparing them across real time with Survey of English Dialects recordings from Cornwall. This experiment also supported the notion that rhoticity is an iconic feature of South Western Englishes. However, this was discounted as a potential variable to explore in production from the outset due to it being highly recessive in the region (e.g. Piercy 2007; Britain 2009b), and would thus be highly

unlikely to be present in the early adolescents' speech. Indeed, impressionistically, only one of the 42 speakers in the Contemporary Cornwall corpus was rhotic.

In order to analyse variation in these four chosen lexical sets, the elicitation tasks used in the production data collection were designed to elicit tokens of BATH, PALM, TRAP, and MOUTH (as detailed in Section 3.2.4 Chapter 3). However, following auditory inspection of the production data, vowels in the PALM, TRAP, and MOUTH lexical sets were found to have almost entirely standardised across real time. Therefore, as shown in Chapters 5, 6 and 6, the production study only explored variation in the BATH and TRAP lexical set, where variation in the BATH lexical set represents a change in progress, and TRAP variation represents a change in the final stages of completion. Analysis of the TRAP vowel alongside BATH also provided a reference point for BATH variation, following previous research on the TRAP/BATH split in the South West (Piercy 2011; Moore & Carter 2015; Blaxter & Coates 2019).

4.5 PERCEPTION TEST LIMITATIONS

This experiment cast as wide a net as possible in order to test the salience of multiple features of West Cornish English, given the lack of previous research on South Western varieties. As such, the listeners were given a particularly general brief: 'listen out for anything in the way this person sounds which makes you wonder where they are from'. In addition, the voice samples themselves came from relatively spontaneous speech. This approach has clear benefits, as it enables the collection of a large volume of data in one experiment, the results are listener-directed (meaning the experimental design does not presuppose which features may be socially meaningful to listeners), and the unmanipulated guises are more representative of 'natural' language. However, in order to achieve this, there was also a trade-off with the amount of control over the experimental design, and the specificity with which research questions could be answered.

First, the research design necessarily subscribed to a fairly wide-reaching definition of salience, which simply focussed on noticeability within the context of the guise (see Section 2.1 of Chapter 2). Therefore, the results of the experiment demonstrated which features of West Cornish English were most salient, but explanations for *why* individual

features were salient were mostly conjecture. Given that the listeners were directed to click for any features which helped them to locate the speakers regionally, it was reasonable to assume that they were responding to the most enregistered features. In the case of South Western 'long <a>', the large volume of previous research on this feature, and the BATH vowel in particular, increased the certainty that salience was due to enregisterment. However, rhoticity was less clicked than expected. While some possible explanations for this were provided in Section 4.3.3 of this chapter, given the 'iconic' status of this feature, it would be expected to have been more regularly noticed. In addition, in the case of the MOUTH vowel, for example, far less is known about this feature's social meaning in the South West. Therefore, it is possible that this feature was salient in the perception experiment simply because it sounded particularly unusual to listeners, which would speak to heightened 'surprisal value' (Rácz 2013).

In the experiment design, this issue was intended to be mitigated by the manipulation of guise topic between the conditions. In the CORNWALL condition, the topic was intended to prime listeners to notice those features they associated with the region. This design was chosen following previous research in speech perception which has found that listener perceptions are highly malleable according to the context in which a guise is presented (e.g. Niedzielski 1999; Hay, Nolan & Drager 2006; Hay & Drager 2010; Montgomery & Moore 2018). However, since this experiment was designed and carried out, further research from Juskan (2018) has suggested a caveat for this approach: priming may only affect perceptions of linguistic variation for the most salient features. Therefore, it is possible that attempting to explore enregisterment through subtle topic manipulations may have been too subtle an approach for the present study. It would, perhaps, have been preferable to overtly state that the speakers were from Cornwall.

Another limitation of this experiment was that, for certain vocalic variables, there were different variants in different guises. For example, as described in Section 3.1.3 of Chapter 3, there were four different variants of PALM in the four guises. As a result, it was sometimes difficult to determine whether differences in listener responses to individual features were due to variant realisations or context-driven effects. While the analyses presented in Sections 4.3.1 to 4.3.8 of Chapter 4 attempted to disentangle these factors, this would not have been necessary if the guise content had been more carefully

controlled. The perception results were intended to provide insight into the production patterns in Chapter 6 and 7. Therefore, it was decided that the guises should be as representative of ‘real’ speech as possible, while controlling for the linguistic variables and topic by eliciting the samples using map tasks (see Section 3.1.2 of Chapter 3). However, researchers have effectively used ‘splicing’ to create realistic, but highly comparable speech samples (see, e.g. Campbell-Kibler 2006; Pharao et al. 2014; Pharao & Maegaard 2017). If similar methods had been used in the present study, the guises could have been more comparable, and this would have ensured a more robust experimental design.

4.6 SUMMARY

This chapter has presented the results of a perception experiment which attempted to rank the phonological features of West Cornish English in terms of salience. The results suggested that lengthened and fronted variants of BATH and PALM, and the [æ̥] variant of MOUTH vowel, are particularly salient features of the variety. In addition, this experiment provided insight into how listener experience with a variety, co-occurrence of other linguistic features, and the context in which a feature occurs, affect salience. Chapters 5, 6, and 7 will now describe the results of the diachronic and synchronic analysis of BATH and TRAP variation in West Cornwall.

CHAPTER 5: PRODUCTION DATA OVERVIEW

5.0 INTRODUCTION

Prior to the analysis of the production data for this study, the following chapter provides an overview of each of the three corpora. It first provides a demographic breakdown of each corpus, exploring the similarities and differences between the speakers (Sections 5.1 to 5.3). Given that Chapter 7 discusses a synchronic analysis of the Contemporary Cornwall corpus, and that this corpus was specifically collected for this study, much more detail is provided about individual speaker attributes. Section 5.4 discusses how the spoken data was collected in each of the corpora, exploring how this may affect their comparability. Finally, Section 5.5 provides an overview of the tokens of BATH and TRAP in each corpus. It specifies token counts for BATH and TRAP vowels in each corpus according to the following linguistic context considered in the models of duration and quality

5.1 DEMOGRAPHICS: THE CONTEMPORARY CORNWALL CORPUS

Data for this corpus was collected from 42 speakers in West Cornwall. As discussed in Sections 3.2.2 and 3.2.3 of Chapter 3, this sample is stratified by social class, gender, parental birthplace, and identity index score. Table 5.1 below shows the distribution of speakers according to the macro-social demographic categories.

Gender	Social Class	Parental Birthplace		Total
		<i>At Least One Local</i>	<i>Neither Local</i>	
<i>Female</i>	<i>Band 1</i>	2	8	10
	<i>Band 2</i>	3	4	7
	<i>Band 3</i>	3	5	8
	Total	8	17	25
<i>Male</i>	<i>Band 1</i>	0	3	3
	<i>Band 2</i>	7	1	8
	<i>Band 3</i>	3	3	6
	Total	10	7	17

Table 5.1: Distribution of Contemporary Cornwall speakers across the macro-social demographic categories of social class, gender, and parental birthplace.

Overall, there is a relatively even distribution of speakers across the demographic categories. However, it should be noted that there is a slightly uneven gender distribution, with more female speakers (n=25) than males (n=17). This was simply due to an increased willingness amongst the girls to participate in the study. As a result, there are no male speakers in the ‘Band 1’ social class category with at least one local parent, and only one male speaker in the ‘Band 2’ social class category with neither parent being born in Cornwall.

With regards to the local identity questionnaire, each participant’s results were scored on a numerical scale from 1 to 100. A full discussion of the questions on the identity questionnaire and the rating scale can be found in Section 3.2.3 of Chapter 3. Figure 5.1 below shows an overview of the identity questionnaire scores in this sample. This boxplot shows that scores from the participants ranged from the low 20s to the high 90s, but there is a generally positive skew to the responses, with many scores in the 70s.

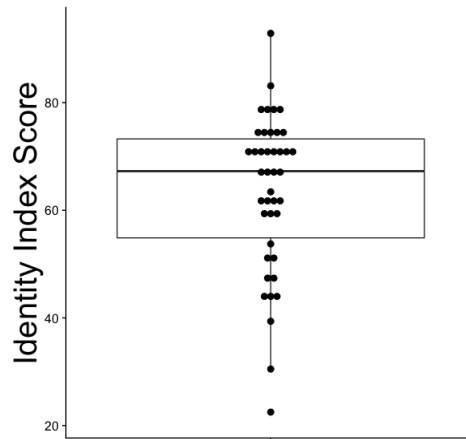


Figure 5.1: Boxplot showing the distribution of participant scores on the identity questionnaire. Raw datapoints are overlaid in black.

In order to explore how identity index score interacted with the other demographic variables, Figure 5.2 below shows how participants from each social class band, gender, and parental birthplace grouping responded to the questionnaire. Regarding social class, those who scored highest on the identity questionnaire tended to be from the lowest social class band, there is a lot of variation for Band 2 speakers, and those from Band 3 fall roughly in the middle. As would be expected, those with at least one local parent generally score higher on the identity questionnaire, but there is a lot of variation within this group. Finally, there is not a lot of difference in identity index scores according to gender, although all of the more extreme scores come from girls.

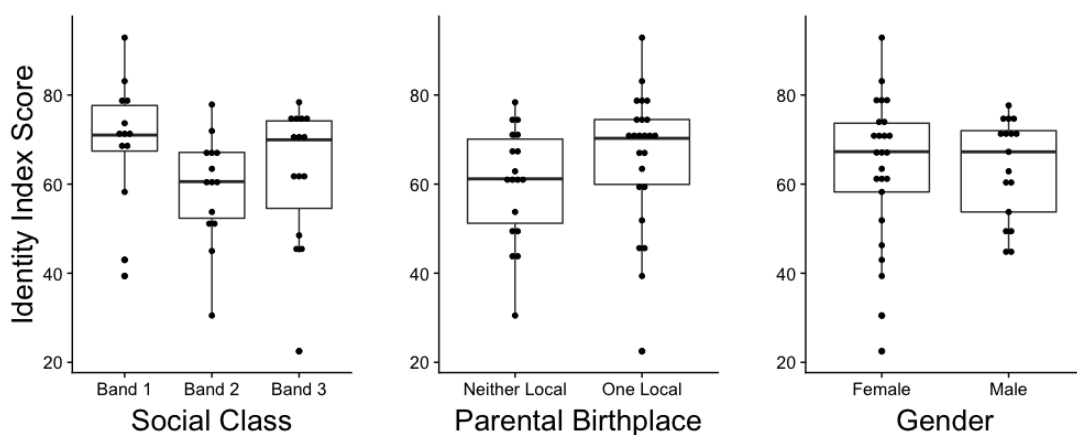


Figure 5.2: Boxplots showing the distribution of participant scores on the identity questionnaire according to social class (left), parental birthplace (centre), and gender (right). Raw datapoints are overlaid in black.

Overall, there are some slight correlations between the demographic variables and identity questionnaire scores, with a skew towards higher scores for speakers in the lowest social class grouping, and those with at least one local parent. However, there is a lot of variation within each of these groups, and the mean for every group is relatively similar, lying within the 60s and low 70s. Therefore, this suggests that any effect (or lack of effect) for identity index score in this analysis cannot be solely attributed to collinearity with any of the demographic variables.

5.2 DEMOGRAPHICS: THE SED CORPUS

The SED recordings were taken from seven localities in Cornwall, as shown in Figure 5.3 below. As discussed in Section 1.4.2 of Chapter 1, Wakelin (1975) describes an isogloss between pronunciations of a variety of phonological features in West and East Cornwall, which is also represented by vowels in the BATH and TRAP lexical set. Therefore, this dataset has been additionally divided into West Cornwall, which is represented by recordings taken at the localities on the map in Figure 5.3 with a triangle marker, and East Cornwall, represented by localities with a circle marker. Separating the SED corpus into East and West Cornwall additionally enables consideration of the effect of regional dialect levelling on BATH and TRAP variation in the intervening 50 years, as discussed in Chapter 6.

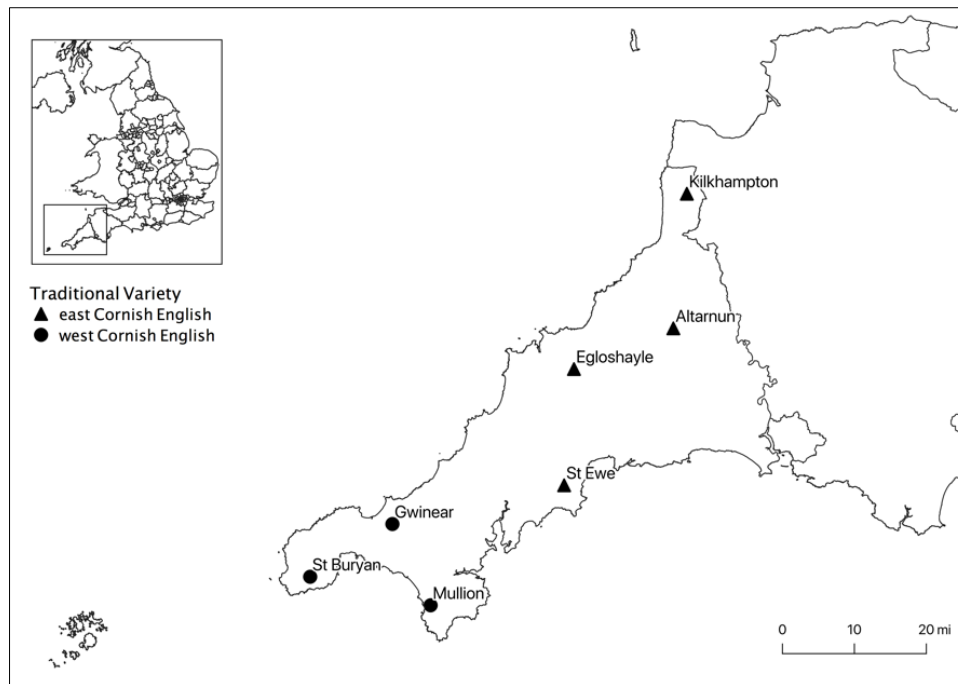


Figure 5.3: The seven SED localities in Cornwall, marked according to Wakelin's (1975) divisions between West and East Cornish English. [Contains National Statistics data © Crown copyright and database right 2019. Contains NRS data © Crown copyright and database right 2019. Source: NISRA: Website: www.nisra.gov.uk. Contains OS data © Crown copyright [and database right] 2019.]

For each of the seven localities, a recording of one speaker was analysed. Although the SED surveyed multiple speakers at each locality, only some of them were tape recorded and deposited in the British Library archive, and thus available for acoustic phonetic analysis. Each of the recordings consists of semi-structured interviews, in which the speakers discussed their lives in Cornwall, often with a focus on family life and farming practices. Table 5.2 below provides some biographical information about each of the speakers.

Locality	Age at time of recording (1963)	Year of Birth	Gender	Profession	School leaving age
Kilkhampton	82	1877	Male	Farmer	10
Altarnun	74	1889	Male	Farm worker and shepherd	12
Egloshayle	70	1893	Male	Miller and small-holder	13
St Ewe	64	1899	Male	Farmer	13
Gwinear	77	1886	Male	Farm worker, tin miner, quarry worker	12
St. Buryan	70	1893	Male	Farm labourer	12
Mullion	73	1890	Male	Farm labourer	12

Table 5.2: Biographic information about the seven speakers used in the SED corpus (adapted from Wakelin 1975: 31–33).

As shown in Table 5.2 above, the speakers in the SED corpus are relatively homogenous. They are all male, and were all relatively old at the time of the recording, although there is 18 years between the oldest and youngest speakers. All the speakers worked doing manual labour in traditional industries, and left school at a relatively young age, thus can certainly be considered working class. As such, they are characteristic of the ‘NORM’ demographic (non-mobile, older, rural men), which was often sought-after in early large-scale surveys such as the SED (Chambers & Trudgill 1998: 29).

Regarding comparability between this corpus and the Contemporary Cornwall speakers, there are clearly few similarities beyond region. More than half the Contemporary Cornwall speakers are mobile, with parents being born elsewhere in the UK, they come from a variety of social classes, and there are both male and female speakers. In addition, even those speakers who had the lowest social class index scores did not have parents who worked as farmers or miners. This most likely results from a combination of the social changes that have occurred in the region since the SED recordings (see Section 1.4.1 of Chapter 1), and a lack of interest or willingness of the children from these more traditional working class families to take part in a study such as this. Therefore, any real

time shifts in BATH and TRAP realisation cannot entirely be generalised to changes that have happened uniformly across the region. The SED speakers were recruited as the most conservative speakers of the variety, while the Contemporary Cornwall corpus was intended to be representative of a variety of social groupings in present-day West Cornwall. However, comparisons between these two corpora do demonstrate how the Contemporary Cornwall speakers are situating themselves relative to the most traditional variants of BATH and TRAP, providing insight into the social meaning of these forms.

5.3 DEMOGRAPHICS: THE RP CORPUS

The RP corpus comprises 24 speakers who were recorded in 2008. They were all recorded in a sound-treated laboratory at the University of Cambridge, where they were students. Table 5.3 below shows the demographic details about each speaker's gender, date of birth, age at the time of recording, and where they have lived. Overall, it shows that there is an equal split of males and females in the corpus, they were all aged 18 to 27, and are almost all from the South East.

Has Lived In...	Age at time of recording (2008)	Year of Birth	Gender
North London, Hampstead	19	1989	Female
Warwickshire	18	1990	Female
Surry, Hampshire	21	1987	Female
East Sussex, West Sussex, Germany	22	1986	Female
Suffolk	19	1989	Female
London, Reading	21	1987	Female
London, Switzerland	19	1989	Female
Canada, Oxford	19	1989	Female
Bedfordshire	21	1987	Female
Winchester	23	1985	Female
North London	20	1988	Female
Havering, Essex, Devon	22	1986	Female
Lincolnshire, Cambridge	24	1984	Male
Oxford	19	1989	Male
London	18	1990	Male
Bonn, Germany (diplomatic family)	19	1989	Male
Oxfordshire, Bedford	19	1989	Male
South Wales	22	1986	Male
Northampton, Bath	22	1986	Male
South London	21	1987	Male
Harlow	25	1983	Male
Epson, Cheam, West Sussex	25	1983	Male
Greenwich, London	27	1981	Male
London	27	1981	Male

Table 5.3: Biographic information about the 24 speakers used in the RP corpus.

These speakers are not direct contemporaries of the Contemporary Cornwall speakers. At the time of the Contemporary Cornwall data collection (2018), these RP speakers would have been between 28 and 37 years old. As such, they are closer to the children's

parents' generation. Therefore, while this corpus is not a perfect point of comparison for the Contemporary Cornwall speakers, it is perhaps more representative of their parental input.

Regarding the specific variety spoken by those in the RP corpus, these speakers are some of the most privileged people in the country, and attend one of the most elite universities. Therefore, their speech represents the most conservative variety of RP of their generation. Many features of this variety, including the quality of the TRAP vowel, differ from more mainstream varieties of RP (such as Southern Standard British English) (see, e.g. Milroy 2001).

5.4 DATA COLLECTION METHODS IN EACH CORPUS

All three corpora included recordings collected from different stages of the traditional sociolinguistic interview. First, the SED corpus represents the most 'casual' speech. The recordings are speakers taking part in semi-structured interviews, where the fieldworker asked them about their lives in Cornwall and their work. Most of the interviews consist of discussions of farming practices and family life. As such, they represent a relatively 'casual' style. However, it should be noted that they were being interviewed by an educated outsider, which may also have increased the formality of the interview. In comparison, the RP speakers are taking part in a reading passage, representing a more formal speech style. As discussed in Section 3.2.4 of Chapter 3, the Contemporary Cornwall speakers were recorded taking part in two elicitation tasks: a map task and a word list. These are intended to represent more 'casual' and formal speech, respectively.

Considering the varying 'formality' of the elicitation techniques in each corpus, comparisons between them should be treated cautiously. If, for example, the RP speakers had been recorded in an interview setting, the differences between their speech and the other two corpora may be less distinct. However, for the purposes of the present study, the SED and RP corpora are intended to be representative of two extremes of a continuum from traditional Cornish English, to a prestigious variety of RP. As such, the less monitored style of the SED interviews will best capture this traditional variety, while more monitored reading passages in the RP corpus are likely to elicit more conservative RP.

5.5 LINGUISTIC DATA OVERVIEW

Regarding the linguistic data collected from these corpora, Tables 5.4 and 5.5 below show token counts for vowels in the BATH and TRAP lexical sets in each linguistic environment for each corpus. As discussed in Section 3.4.4 of Chapter 3, a number of different linguistic environments were considered in modelling the duration and quality of these features. In modelling vowel quality, each token was coded for the place and manner of articulation of the following context. For duration, both voicing and manner of the following context were coded, as well as whether the vowel was part of an open or closed syllable rhyme. However, regarding BATH duration, there were not enough tokens with an open syllable rhyme to consider this linguistic environment, so only voicing and manner of the following consonant were considered. Tables 5.4 and 5.5 below show the different combinations of following environments used in modelling the duration and quality of each feature, and the number of tokens in each environment. Vowels in the BATH lexical set are limited to relatively few linguistic environments, while there is much more variation in the TRAP lexical set. As a result, while there are environments with limited numbers of tokens for both lexical sets, the TRAP vowels are even more sparsely distributed.

Linguistic Environment		Corpus			
		CC	SED-w	SED-e	RP
<i>Vowel Quality</i>	<i>Alveolar Fricative</i>	194	9	23	22
	<i>Dental Fricative</i>	162	0	0	21
	<i>Labiodental Fricative</i>	224	10	16	42
	<i>Alveolar Nasal</i>	141	1	5	0
	<i>Bilabial Nasal</i>	139	0	0	0
	<i>Alveolar Stop</i>	0	0	0	21
<i>Vowel Duration</i>	<i>Voiced Fricative</i>	125	0	0	21
	<i>Voiceless Fricative</i>	455	19	39	64
	<i>Voiced Nasal</i>	280	1	5	0
	<i>Voiceless Stop</i>	0	0	0	21
Total		860	20	44	106

Table 5.4: Token counts for BATH vowels in the Contemporary Cornwall (CC), SED-w (SED localities in West Cornwall), SED-e (SED localities in East Cornwall), and RP corpora in each linguistic environment used in the vowel quality and vowel duration models, with a total token count for the BATH vowel in each of corpora.

Linguistic Environment		Corpus			
		CC	SED-w	SED-e	RP
Vowel Quality	<i>Alveolar Fricative</i>	65	0	0	21
	<i>Postalveolar Fricative</i>	141	4	0	41
	<i>Dental Fricative</i>	78	0	0	0
	<i>Labiodental Fricative</i>	37	7	2	42
	<i>Alveolar Approximant</i>	23	8	3	21
	<i>Glottal Stop</i>	60	0	0	0
	<i>Velar Stop</i>	146	13	43	21
	<i>Bilabial Stop</i>	175	6	7	62
	<i>Alveolar Stop</i>	160	18	18	42
	<i>Postalveolar Affricate</i>	2	3	14	63
	<i>Bilabial Nasal</i>	0	4	12	0
	<i>Alveolar Nasal</i>	167	21	33	86
	<i>Velar Nasal</i>	0	0	0	21
Vowel Duration	<i>Voiced Fricative, Open SR</i>	115	7	0	42
	<i>Voiced Fricative, Closed SR</i>	63	0	0	21
	<i>Voiceless Fricative, Open SR</i>	1	4	2	41
	<i>Voiceless Fricative, Closed SR</i>	142	0	0	0
	<i>Voiced Approximant, Open SR</i>	23	8	3	21
	<i>Voiced Stop, Open SR</i>	110	1	1	0
	<i>Voiceless Stop, Open SR</i>	6	13	9	41
	<i>Voiced Stop, Closed SR</i>	212	3	7	21
	<i>Voiceless Stop, Closed SR</i>	213	20	51	63
	<i>Voiced Affricate, Open SR</i>	2	0	2	63
	<i>Voiceless Affricate, Closed SR</i>	0	0	3	0
	<i>Voiceless Affricate, Closed SR</i>	0	3	9	0
	<i>Voiced Nasal, Closed SR</i>	102	22	42	87
	<i>Voiced Nasal, Open SR</i>	65	3	3	85
Total		1054	84	132	485

Table 5.5: Token counts for TRAP vowels in the Contemporary Cornwall, SED-w, SED-e, and RP corpora in each linguistic environment used in the vowel quality and vowel duration models, with a total token count for the TRAP vowel in each of corpora. In this table, ‘SR’ refers to ‘syllable rhyme’.

As can be seen in Tables 5.4 and 5.5 above, there are a number of linguistic environments with very low or zero token counts. In the synchronic analysis of the Contemporary Cornwall corpus (Chapter 7), environments with fewer than 10 vowel tokens were removed, in order to increase the statistical power of the models. In the diachronic comparison of the three corpora in Chapter 6, this was not necessary or possible. This is because the statistical models used to compare the corpora had far smaller degrees of freedom than those used to consider the finer-grained social stratification in the Contemporary Cornwall corpus, so lower token counts were more acceptable. In addition, the SED corpus is particularly small, and the BATH vowel is so infrequent, that excluding environments with fewer than ten tokens would result in the removal of the majority of the corpus. However, this does mean that the model outputs, particularly in relation to comparisons with the SED corpus, should be treated cautiously.

5.6 SUMMARY

This chapter has provided an overview of the three corpora analysed in Chapters 6 and 7. It has described how the SED and RP corpora represent the two extremes of a continuum between traditional Cornish English and modern-day RP. Although the demographic make-up and data collection techniques of each corpora differ, they were deemed to be suitable for analysis in the present study. Finally, an overview of the BATH and TRAP tokens in each corpus was presented. As the SED and RP corpora were not purpose-built for analysis of vowels in the TRAP and BATH lexical sets, and for comparison with the Contemporary Cornwall corpus, the tokens are not evenly distributed across linguistic environments. As such, it was noted that the model outputs comparing the three corpora should be treated cautiously. Chapters 6 and 7 will now present the diachronic and synchronic analyses of TRAP and BATH variation in these corpora.

CHAPTER 6: DIACHRONIC ANALYSIS

6.0 INTRODUCTION

This chapter presents a diachronic analysis of vowels in the TRAP and BATH lexical sets in Cornwall across a 50-year timespan, from the 1960s Survey of English Dialects recordings, to the contemporary data collected as part of the present study. This is additionally compared with a dataset of RP speakers, situating the contemporary data on a spectrum between traditional local usage, and more prestigious RP forms. A full breakdown of the demographics and the tokens of BATH and TRAP in each of these three corpora was presented in Chapter 5.

As discussed in Section 3.3 of Chapter 3, this diachronic analysis was intended to demonstrate how these variables had evolved over the 50 years since the SED. It was also intended to provide an acoustic phonetic perspective on Wakelin's (1975) analysis of the SED recordings, which was based on auditory transcription.

Finally, where speakers in contemporary Cornwall have changed realisations of the vowels relative to those found in the SED, a comparison with RP speakers provides insight into whether, and how far, they have shifted towards the other end of the spectrum. Where speakers do appear to have shifted towards the standard, it enables a consideration of whether they are 'doing RP' or something different.

6.1 ACOUSTIC ANALYSIS OF BATH ACROSS THE THREE CORPORA

The analysis presented in this section is a comparison of vowel durations and F1 and F2 formant values for BATH in each of the corpora. Both the formant values and duration measurements have been normalised using z-scores (see Section 3.4.2 of Chapter 3 for a discussion). The results for vowel quality will first be summarised, followed by the results for vowel duration. Following this, there is a general discussion of the implications of these results for our understanding of the trajectory of the sound change in Cornwall, as well as consideration of what the acoustic methods used in this study can tell us about the BATH vowel in traditional Cornish English.

As discussed in Section 3.4.3 of Chapter 3, the Contemporary Cornwall tokens were additionally coded auditorily as fronted, backed or intermediate. These auditory codings are used in this analysis in order to facilitate comparison between the corpora. Consequently, the Contemporary Cornwall corpus is split into backed and fronted tokens, then compared to the RP and SED corpora respectively. If these tokens were all considered as one dataset, very little could be drawn from any statistical analysis. Instead, this analysis aims to explore whether the ‘non-standard’ fronted tokens in the Contemporary Cornwall corpus differ from those found in traditional Cornish English, and whether or not the speakers with backed BATH vowels are ‘doing RP’.

6.1.1 BATH QUALITY RESULTS

Figure 6.1 below is a vowel plot of every BATH token in the three corpora, with the SED corpus split into East and West localities, and the Contemporary Cornwall corpus split by front/back auditory coding. As this analysis is focused only on the relationship between BATH vowels in the Contemporary Cornwall corpus and their potential sources, the intermediate tokens from the Contemporary Cornwall corpus have been removed. While the Contemporary Cornwall tokens are all in the same colour, they differ by shape and line type according to front/back auditory coding.

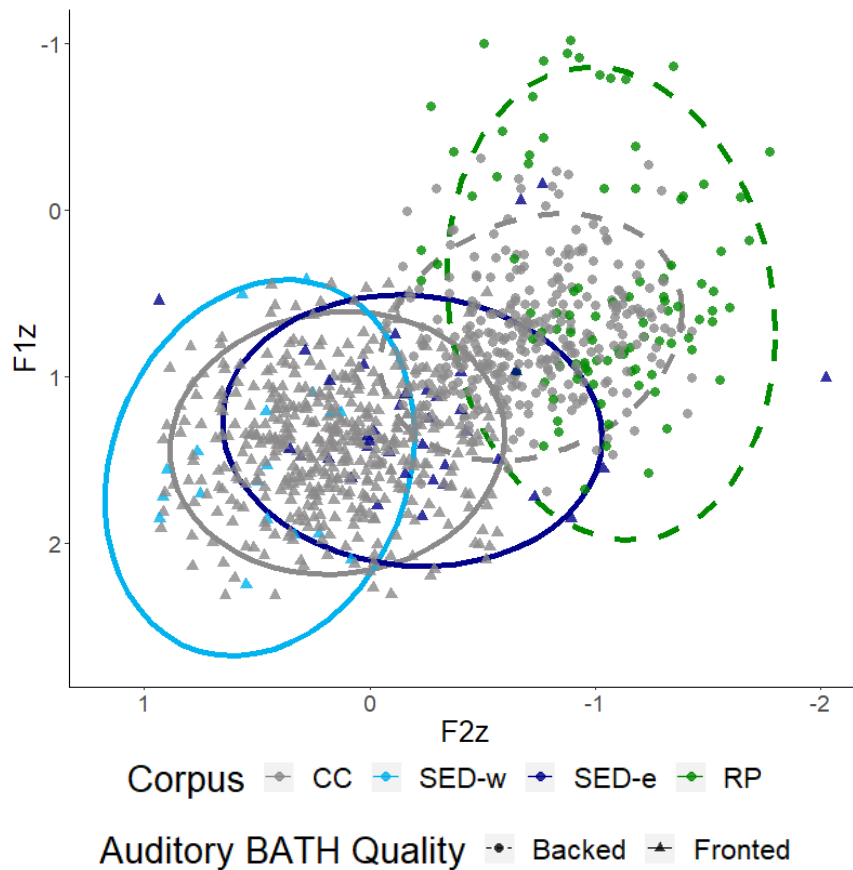


Figure 6.1: Vowel plot comparing (z-scored) BATH vowels across the four corpora. Tokens and ellipses are coloured according to corpus, and are differentiated in shape and line type according to auditory coding of vowel quality, with the backed token being represented by circular points and dashed lines, and the fronted tokens being represented by triangle points and solid lines.

Beginning with the SED corpus, the results presented in Figure 6.1 above support Wakelin’s (1975) argument that there is an isogloss between the traditional varieties spoken in East and West Cornwall. The BATH tokens from West Cornwall (shown in light blue) have generally much higher F2 than the BATH tokens from East Cornwall (shown in dark blue), which suggests that they have more fronted realisations. The fronted tokens from the Contemporary Cornwall corpus are generally situated between the SED tokens from West and East Cornwall, but overlap a little more with the latter. However, there is a lot of overlap between the West and East Cornwall SED tokens, suggesting that the differences between the two traditional varieties is only represented by an average value, and is not categorical. Regarding the differences between the backed BATH tokens in the Contemporary Cornwall and RP corpora, Figure 6.1 above suggests that RP speakers have more backed and raised BATH vowels. While some of

the Contemporary Cornwall speakers do have backed realisations of BATH, they do not entirely overlap with the RP realisations. Therefore, the most backed and raised Contemporary Cornwall tokens are not as extreme as the most backed and raised RP tokens.

Before discussing the observations drawn from Figure 6.1 in detail, it is important to first statistically model this data in order to determine which of the differences between the corpora are significant. As such, the results of a mixed-effects regression analysis are presented in Tables 6.1 and 6.2 below. As discussed above, the Contemporary Cornwall tokens were considered separately according to auditory quality in this analysis, testing whether the backed tokens in the Contemporary Cornwall corpus were significantly different to the RP tokens, and whether the fronted tokens were significantly different to the two SED corpora. In comparison to some of the more complex models presented in Chapters 4 and 7, these models simply included ‘corpus’ and ‘following linguistic context’ as fixed effects, with ‘speaker’ specified as a random effect. Models for both F1 and F2 were considered when comparing the corpora for two reasons. First, Figure 6.1 above suggests that there is a lot of F1 variation in the RP data, so variation between backed BATH vowels in Cornwall and RP may also be represented by tongue height. Second, Wakelin’s (1975: 115) transcriptions of the traditional BATH variants in Cornwall, [æ:] and [a:], indicate that there is variation in F1 as well as F2, which is also supported by the measurements shown in Figure 6.1.

In Tables 6.1 and 6.2 below, the ‘predictors’ column refers to the variables which were fit as fixed effects in the model. The ‘estimates’ column describes the effect each of the identified predictors has on (z-scored) F2. As higher F2 suggests a fronter realisation, predictors that favour a fronter BATH vowel should have a positive estimate. Similarly, a positive estimate for F1 suggests the predictor favours a more open realisation. The ‘CI’ column refers to confidence intervals. The range reported in the confidence interval describes the degree of certainty in the strength of the effect, with a wider range indicating lower confidence. The *P*-values, reported in the column ‘*P*’, and any effects that reach the significance threshold of $P < 0.05$ are bolded and accepted as a significant result. Finally, the R^2 value of the model is presented in the final row of the table. This refers to the ‘goodness of fit’ of the model as a whole or, in other words, the proportion

of the data that can be explained by the predictors in the model. The ‘marginal R^2 ’ value refers to the fit of the model with only the fixed effects, while the ‘conditional R^2 ’ value refers to the model fit with both fixed and random effects. In social sciences, fairly low conditional R^2 values (<0.5) are considered to be acceptable due to difficulties in predicating human behaviour (Winter 2013). It is particularly important to consider the confidence intervals and R^2 in the models presented in this chapter due to the low token counts in each cell.

Where there are more than two levels within a predictor, and that predictor is significant, post-hoc Estimated Marginal Means (EMMs) testing was carried out. This tests where the significance lies between different levels of a predictor. For example, where ‘corpus’ is significant in the models for the fronted BATH tokens, ‘Contemporary Cornwall corpus’ is set as the intercept, and the model output shows the difference between this corpus and each of the two SED corpora. Post-hoc testing then determines whether the two SED corpora are additionally significantly different for one another. These post-hoc pairwise comparisons between corpora are represented graphically following the presentation of the statistical models.

<i>Predictors</i>	BATH F1 - Fronted Tokens			BATH F2 - Fronted Tokens		
	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	1.42	1.33 – 1.51	< 0.001	0.14	0.07 – 0.21	< 0.001
Corpus: SED-w	0.04	-0.25 – 0.33	0.790	0.32	0.08 – 0.57	0.008
Corpus: SED-e	-0.01	-0.21 – 0.19	0.914	-0.41	-0.59 – -0.24	< 0.001
Following Context: Alveolar Nasal	-0.25	-0.37 – -0.12	< 0.001	0.07	-0.02 – 0.15	0.137
Following Context: Bilabial Nasal	-0.21	-0.34 – -0.09	0.001	0.02	-0.07 – 0.10	0.677
Following Context: Dental Fricative	0.10	-0.06 – 0.26	0.203	-0.06	-0.17 – 0.05	0.292
Following Context: Labiodental Fricative	0.04	-0.07 – 0.15	0.467	0.00	-0.07 – 0.08	0.915
Random Effects						
σ^2	0.23			0.11		
τ_{00}	0.02 _{speaker}			0.02 _{speaker}		
ICC	0.06 _{speaker}			0.13 _{speaker}		
Observations	556			556		
Marginal R ² / Conditional R ²	0.063 / 0.122			0.124 / 0.239		

Table 6.1: Results of the mixed-effects regression analysis comparing F1 (left) and F2 (right) measurements of fronted BATH vowels in the Contemporary Cornwall and SED corpora. The models are fit to the same dataset with the same predictors. Only the outcome (F1 or F2) differs.

<i>Predictors</i>	BATH F1 - Backed Tokens			BATH F2 - Backed Tokens		
	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.79	0.61 – 0.97	<0.001	-0.74	-0.83 – -0.64	<0.001
Corpus: RP	-0.33	-0.54 – -0.11	0.003	-0.30	-0.44 – -0.17	<0.001
Following Context: Alveolar Nasal	-0.20	-0.41 – 0.01	0.056	0.07	-0.02 – 0.16	0.148
Following Context: Alveolar Stop	-0.16	-0.44 – 0.12	0.261	0.03	-0.09 – 0.16	0.623
Following Context: Bilabial Nasal	-0.15	-0.37 – 0.08	0.203	0.15	0.05 – 0.25	0.004
Following Context: Dental Fricative	-0.02	-0.18 – 0.15	0.832	-0.00	-0.08 – 0.07	0.974
Following Context: Labiodental Fricative	-0.09	-0.26 – 0.07	0.265	0.02	-0.06 – 0.09	0.648
Random Effects						
σ^2	0.27			0.05		
τ_{00}	0.10 _{speaker}			0.05 _{speaker}		
ICC	0.27 _{speaker}			0.48 _{speaker}		
Observations	411			411		
Marginal R ² / Conditional R ²	0.061 / 0.310			0.166 / 0.565		

Table 6.2: Results of the mixed-effects regression analysis comparing F1 (left) and F2 (right) measurements of backed BATH vowels in the Contemporary Cornwall and RP corpora. The models are fit to the same dataset with the same predictors. Only the outcome (F1 or F2) differs.

Overall, the statistical analyses in Tables 6.1 and 6.2 show that, for the fronted tokens of BATH, there are significant differences between the corpora for F2, but not for F1. Figure 6.2 below shows the results of the post-hoc pairwise comparisons between the corpora for F1 and F2 measurements of the fronted tokens. On this graph, the black dots represent the Tukey-adjusted EMMs for each corpus, and the red arrows are for comparing them between corpora. Where the red arrows overlap for two corpora, the difference between them is not significant. Therefore, Figure 6.2 shows that there are significant differences between all three corpora for BATH F2, with the difference

between the East and West Cornwall SED localities being the largest. There are no significant differences between the three corpora for F1. The West Cornwall SED BATH tokens are the most fronted, followed by the fronted Contemporary Cornwall tokens, then the East Cornwall SED tokens. However, the statistical results for the fronted tokens must be treated very cautiously due to the low conditional R^2 values for the models (0.122 for F1, and 0.239 for F2).

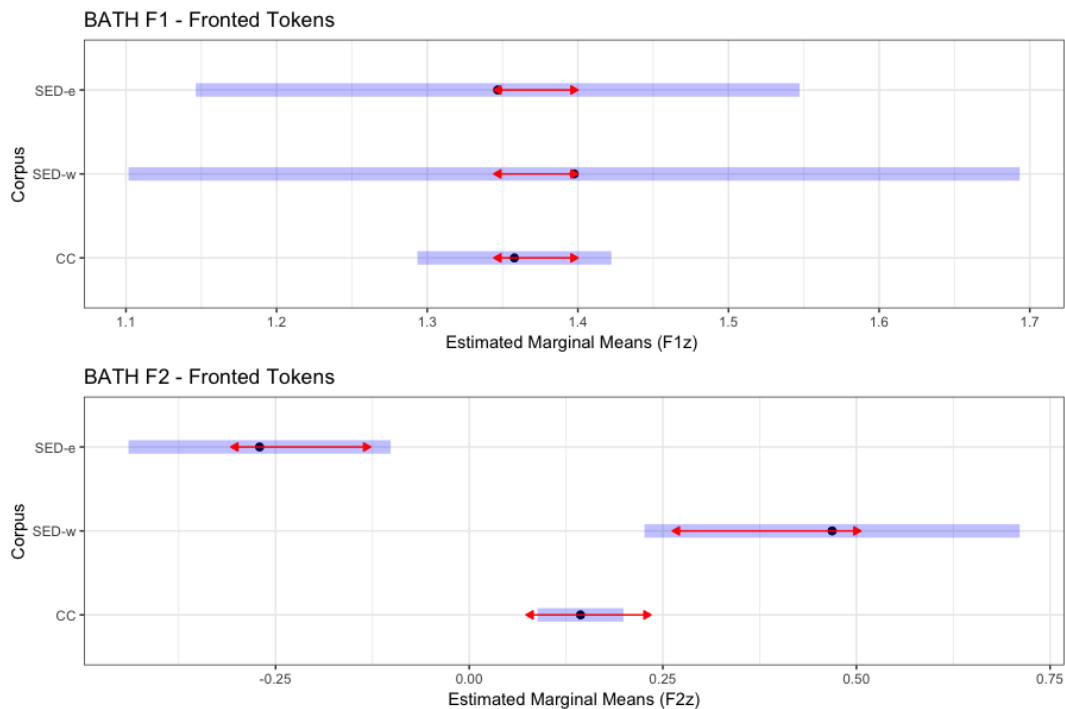


Figure 6.2: Pairwise comparisons of EMMs between the SED and Contemporary Cornwall corpora from the fronted BATH F1 (top) and F2 (bottom) model outputs. The black dots represent the Tukey-adjusted estimated marginal means, the purple bars show the confidence intervals, and red arrows are for comparisons between them (with an alpha of 0.05).

For the backed tokens of BATH, the Contemporary Cornwall corpus is significantly different from the RP corpus for both F1 and F2, although the effect is strongest for F2. As such, the RP BATH vowel is both more backed and more raised than the backed vowels produced by the Contemporary Cornwall speakers.

6.1.2 BATH DURATION RESULTS

Figure 6.3 below is a density plot of every BATH token in the corpora, with the SED corpus split into East and West localities, and the Contemporary Cornwall corpus split by front (the solid lines) and back (the dashed lines) auditory codings. As with the BATH

quality plot, the intermediate tokens from the Contemporary Cornwall corpus have been removed. The plot demonstrates the distribution of the data from short to long durations, with peaks showing where the most values are clustered.

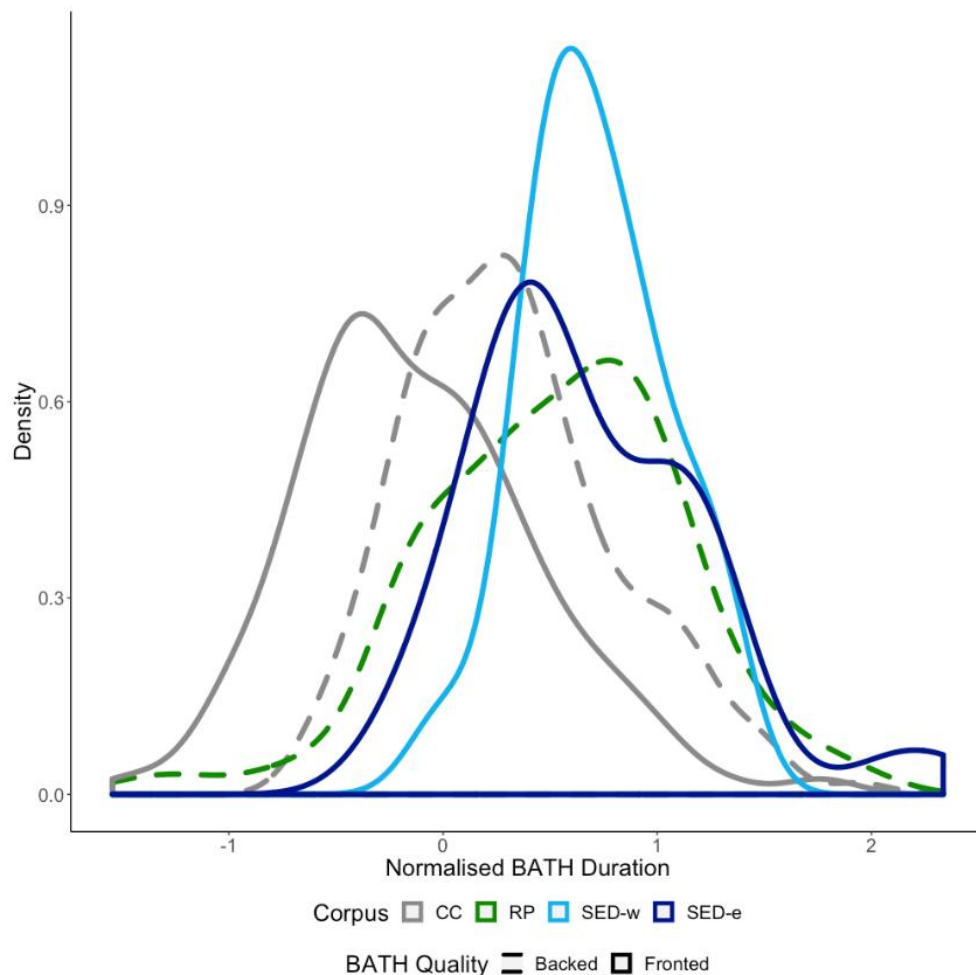


Figure 6.3: Density plot showing BATH durations, coloured according to corpus, and split in line type by vowel quality.

The density plot shown in Figure 6.3 above suggests that the traditional BATH vowel in both East and West Cornwall is, on average, much longer than either the fronted or backed variants in the Contemporary Cornwall corpus. Similarly, the RP BATH vowel is, on average, longer than the backed BATH variants in the Contemporary Cornwall corpus.

In order to explore whether the differences shown in Figure 6.3 are statistically significant, the differences between BATH duration in the corpora were modelled using mixed-effects regression analysis. The results of this analysis are presented in Tables 6.3 and 6.4 below. As with the comparison between the corpora for BATH quality, the

tokens are split by the auditory front/back coding. As a result, the backed and fronted tokens are modelled separately. As with the models for BATH quality, ‘following linguistic context’ is included as a fixed effect, and ‘speaker’ is included as a random effect. ‘Discoursal context’ is also included in the duration models, as tokens that occur word-finally have been consistently found to be longer than those in other discoursal contexts, as discussed in Section 3.4.4 of Chapter 3. For the Contemporary Cornwall corpus, ‘word list’ has also been included as a distinct discoursal position.

BATH Duration - Fronted Tokens			
<i>Predictors</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	-0.06	-0.33 – 0.21	0.641
Corpus: SED-w	0.52	0.15 – 0.89	0.005
Corpus: SED-e	0.53	0.26 – 0.80	<0.001
Discoursal Context: Word List	-0.12	-0.21 – -0.03	0.012
Discoursal Context: Pre-Pausal	0.34	0.23 – 0.45	<0.001
Following Context: Voiceless Fricative	0.18	-0.07 – 0.44	0.163
Following Context: Nasal	-0.35	-0.61 – -0.09	0.009
Random Effects			
σ^2	0.19		
τ_{00} speaker	0.05		
ICC _{speaker}	0.20		
Observations	556		
Marginal R ² / Conditional R ²	0.376 / 0.501		

Table 6.3: Results of the mixed-effects regression analysis comparing duration measurements of fronted BATH vowels in the Contemporary Cornwall and SED corpora.

BATH Duration - Backed Tokens			
<i>Predictors</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.14	0.03 – 0.25	0.012
Corpus: RP	-0.13	-0.29 – 0.02	0.090
Discoursal Context: Word List	-0.10	-0.20 – -0.01	0.039
Discoursal Context: Pre-Pausal	0.27	0.14 – 0.40	<0.001
Following Context: Voiceless Fricative	0.46	0.36 – 0.56	<0.001
Following Context: Voiceless Stop	1.08	0.88 – 1.29	<0.001
Following Context: Nasal	0.02	-0.10 – 0.14	0.749
Random Effects			
σ^2	0.16		
τ_{00} speaker	0.03		
ICC _{speaker}	0.16		
Observations	432		
Marginal R ² / Conditional R ²	0.345 / 0.451		

Table 6.4: Results of the mixed-effects regression analysis comparing duration measurements of backed BATH vowels in the Contemporary Cornwall and RP corpora.

Beginning with comparisons between the fronted tokens in the Contemporary Cornwall and the SED corpora, Table 6.3 shows that differences between the corpora are significant. In order to explore where this significant difference lies between the corpora, post-hoc EMMs testing was again carried out. Figure 6.4 below shows a graphical summary of the results of this test. It shows that the duration of the BATH vowels in the East and West Cornwall SED recordings are very similar, and there is no significant difference between them. In comparison, the fronted BATH tokens in the Contemporary Cornwall corpus are significantly shorter than the traditional pronunciations in both East and West Cornwall.

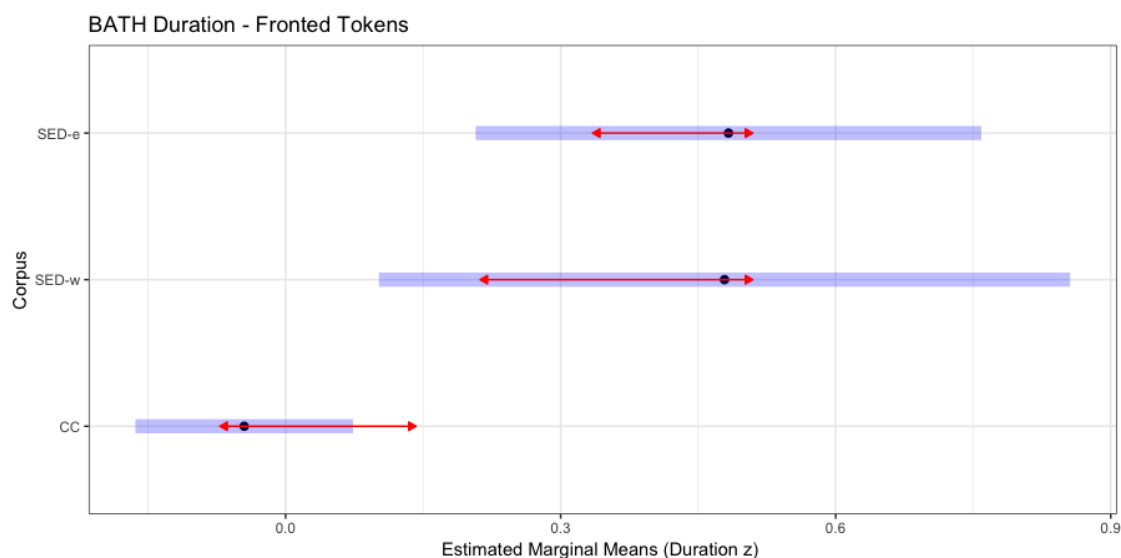


Figure 6.4: Pairwise comparisons of EMMs between the SED and Contemporary Cornwall corpora from the fronted BATH duration model output.

In comparison, Table 6.4 shows that the difference between the duration of the backed tokens of BATH in the Contemporary Cornwall corpus and the RP corpus is not significant. Therefore, while the Contemporary Cornwall speakers do not back their BATH vowels to the same extent as in RP, they do not also shorten them.

6.1.3 BATH QUALITY AND DURATION DISCUSSION

The following section separates discussion of the diachronic analysis of BATH variation into the two variants of this feature found in contemporary Cornwall: backed and fronted. It first discusses how the fronted variants in the Contemporary Cornwall corpus differ from those found in the SED. Additionally, it considers what this acoustic analysis of the SED corpus tells us about the status of this variant in the traditional varieties of Cornish English that were spoken in East and West Cornwall. Subsequently, this discussion turns to the differences between the backed tokens in the Contemporary Cornwall and RP corpora. It considers the degree to which the contemporary Cornwall speakers with backed BATH have shifted towards the backed RP variant.

This discussion turns first to a comparison between the fronted tokens in the Contemporary Cornwall corpus and the SED recordings. Measurements of vowel duration and quality in all the corpora, as shown in Figures 6.1 and 6.3, suggested that the BATH vowel in Cornwall has shifted to a shorter variant that is intermediate in quality between the SED recordings from West and East Cornwall. The statistical

analyses shown in Tables 6.1 and 6.3 confirmed that the Contemporary Cornwall tokens are significantly fronter than those found in traditional East Cornish English, significantly backer than those found in traditional West Cornish English, and significantly shorter than those found in both SED localities. There were no differences between the corpora for BATH F1 (however, note that there are very low R^2 values for the F1 model in particular, most likely due to their being very few BATH tokens in the SED corpora). Indeed, F1 variation for the BATH vowel in these corpora is only significantly affected by linguistic context. Although a visual comparison of the data in Figure 6.1 does show some variation in F1 between the corpora, it suggested that some West Cornwall SED BATH vowels were more *open*, whereas Wakelin's (1975: 115) analysis suggested they were more *close*.

Although it is not possible to draw any strong conclusions without a comparison with contemporary data from speakers in East Cornwall, these results suggest that the fronted pronunciation of the BATH vowel in Cornwall may have levelled to an intermediate form. This finding is in line with other accounts of regional dialect levelling, or 'supralocalisation' (Britain 2010b). As defined by Britain (2010b: 193), regional dialect levelling refers to the process by which, 'linguistic variants with a wider socio-spatial currency become more widespread at the expense of more localised forms'. In cases of regional dialect levelling, where dialect contact occurs and there are multiple competing variants of a variable, one variant will usually 'win out' and become the supralocal form. For example, Britain (2010b: 193) cites the case of the glottal stop becoming widespread in the North East of England at the expense of glottal-reinforced and standard variants, as reported by Milroy et al. (1994). This effect has also been found for vocalic variables, such as the reduction of the local variants of FACE and GOAT in favour of 'mainstream' Northern variants amongst younger speakers in Tyneside, England (Watt 2002). Alternatively, dialect levelling can result in a new, intermediate variant emerging from the older forms. For example, in a case of extreme dialect mixing in Milton Keynes, Kerswill and Williams (2000) find intermediate forms between London English and RP emerging for PRICE, PALM, TRAP, and STRUT vowels. The results of the present study suggest that a similar process seems to have occurred for

the BATH vowel in Cornwall, with the older, West Cornwall variant potentially giving way to a supralocal regional form.

However, the results for BATH duration across real time are perhaps more striking. While the quality of the BATH vowel in Cornwall has either levelled to an intermediate form, or shifted towards the standard variant, the duration of the fronted vowel has significantly shortened. While RP and Cornish English BATH vowels traditionally have different qualities, they are both long vowels (Wakelin 1975: 115; Wells 1982a: 133). Therefore, this suggests that this shortened [a] BATH vowel that has entered into present-day Cornish English is an innovation.

This finding is in line with Blaxter and Coates' (2019) study of Bristol English, in which fronted BATH vowels were found to be decreasing in duration across apparent time. Although Blaxter and Coates (2019: 30) suggested that this shift may be due to the 'influence of the northern system', the presence of these short, front vowels in West Cornwall suggest that this may not be the case, as this variant is very unlikely to have diffused across such a long distance (however, it is possible that shift may have been influenced by both the presence of Northern Englishes in the speakers' parental input, and the *social meaning* of the Northern variant, which is further explored in Sections 7.4.2 and 7.4.4 of Chapter 7).

Instead, findings from perception research conducted as part of the present study, as well as Montgomery and Moore's (2018) study of perceptions of Isles of Scilly English, suggest that the shortening of the fronted BATH vowel in Cornwall may be socially motivated. Before discussing the importance of the results of these studies, recall the discussion in Section 2.4.3 of Chapter 2, in which it was suggested that the social meaning of the BATH and TRAP lexical sets could not be entirely untangled.

Returning to the real time perception study of West Cornish English, this experiment found a direct correlation between the duration of the fronted BATH vowel and its salience (see Figure 4.6 of Section 4.2.3). Similarly, as discussed in Section 2.4.3. of Chapter 2, Montgomery and Moore (2018) tested the salience of features of Isles of Scilly English in real time, specifically exploring how priming 'farmer' or 'islander' influenced perceptions. The results of this study provide some insight into why the salience of the

BATH vowel may increase with its duration. Although they did not specifically measure BATH durations and consider how this affected perceptions, Montgomery and Moore (2018) stated that there was a difference in realisation of the TRAP vowel between guises. They found that the longer variants in the ‘farmer’ condition were noticed significantly more, which may speak to the association between fronted and lengthened TRAP and the concept of the uneducated and unsophisticated ‘South Western farmer’ (Montgomery & Moore 2018: 649). As the longer variants of the fronted BATH vowel were most noticed in the perception study, and as the social meanings of TRAP and BATH are likely intertwined, it is possible that the lengthening of the fronted BATH vowel in Cornwall has the same negative rural associations as lengthened TRAP. Questions remain as to where precisely this social meaning is located and the relative role that quality and duration have to play in social meaning.

As discussed in Section 2.5.3 of Chapter 2, variants linked to rurality face particular stigma due to prevalent stereotypes of rural areas as, ‘backward, conservative, boring, dangerous, threatening, ‘uncultured’ and uneducated’ (Britain 2017a: 174). In addition, as discussed in Section 1.2 of Chapter 1, there is a wealth of research which has highlighted the importance for speakers of maintaining regional distinctiveness in language (e.g. Labov 1963; Beal 2009a; Becker 2009). This can significantly increase the resistance of a form to dialect levelling and attrition, particularly for those forms which are highly enregistered as ‘local’ (Johnstone 2010b). As the BATH vowel is a salient marker of region across England (Foulkes & Docherty 2007: 66), it would certainly fit this description.

This tension between the stigma against rurality, and the importance of maintaining regional distinctiveness, may explain the presence of an innovative variant of the BATH vowel in the Contemporary Cornwall corpus. In shortening the traditional Cornish English BATH vowel, the acoustic element of the variant with the most negative associations is lost, but it maintains its distinctiveness in comparison to the RP form.

Regarding the differences between the West and East Cornwall SED localities, there are significant differences for BATH F2, but not for F1 or vowel duration. This suggests that Wakelin’s (1975: 115) IPA transcriptions of these differing pronunciations of the BATH vowel, [æ:] and [a:], do not entirely represent this variation in the F2 plane. This

difference can also be heard clearly auditorily, with the East Cornwall tokens generally sounding intermediate between backed and front realisations. Considering Wakelin's analysis alone, one would assume the key difference between BATH in East and West Cornwall is tongue height, which this acoustic analysis does not support. As discussed in Section 3.3 of Chapter 3, these transcriptions were 'impressionistic', as opposed to being based on acoustic measurements. It should also be noted that Wakelin's analysis of the Cornish SED data was undertaken specifically with the intention of arguing for the influence of English (as opposed to the Cornish language) on Cornish English. As stated in the first chapter, the aim of the book was not to give a comprehensive description of Cornish English, but to 'draw such conclusions about the linguistic history of the county and the influence of Cornish and English upon each other as may be possible' (Wakelin 1975: 22). As the RP BATH vowel historically raised to [æ:] before backing to [ɑ:], Wakelin claims that the raised BATH vowels in West Cornwall are evidence for the later adoption of English in the region through education (Wakelin 1975: 174). As such, Wakelin's motivation for making this argument may have influenced these 'impressionistic' transcriptions of the BATH vowel in East and West Cornwall. Indeed, as stated by Ochs (1979: 45), 'researchers rarely produce a transcript that does not reflect their research goals and the state of the field'. It should also be noted that my analysis is merely a qualification to Wakelin's findings, and he also provides compelling data for his argument from a variety of other variables. Indeed, it still supports Wakelin's suggestion that the varieties spoken in East and West Cornwall are distinct. Therefore, following the acoustic analysis of the SED presented above and in order to better reflect the variation in the F2 plane, I suggest that the traditional variants of BATH in West and East Cornwall should be transcribed as [ɑ̣:] and [ɛ̣:] respectively. Next, this discussion turns to the differences between the backed BATH tokens in the Contemporary Cornwall and RP corpora. This analysis suggests that, while some of the Contemporary Cornwall speakers do have backed realisations of BATH, they do not reach the same extreme quality as the RP BATH vowel. The RP BATH vowel is, on average, both higher and backer than the backed BATH vowels in the Contemporary Cornwall corpus.

This may suggest that the Contemporary Cornwall speakers with backed BATH are in a kind of intermediate stage, and the vowel has not fully shifted as far as RP. Alternatively, this may not be an intermediate form, but the final outcome of the sound change. The speakers in the Contemporary Cornwall corpus may not be ‘doing RP’, but a more localised standard form. If this is the case, this finding may also support the suggestion that it is not the fronted quality of BATH in Cornwall that attracts stigma, but the duration. If the fronted variant were overtly stigmatised, one might expect the speakers with backed BATH to produce variants closer to the RP BATH vowel, so as to avoid the ‘risk’ of the quality being interpreted as a traditional fronted variant. More in depth analysis of BATH variation in the Contemporary Cornwall corpus, presented in Chapter 7, provides further insight into this finding.

The lack of significant difference in duration between the backed BATH vowel in the Contemporary Cornwall corpus and the RP corpus provides further insight into the motivation for the innovation of short, front forms in present-day Cornwall. As only the fronted forms have shortened, this suggests that it is long, front forms that are potentially stigmatised, not just long BATH vowels in general.

6.2 ACOUSTIC ANALYSIS OF TRAP ACROSS THE THREE CORPORA

The following analysis considers the quality of the TRAP vowel across the three corpora, measured in F1 and F2 formant values, as well as TRAP duration. As with the BATH vowel, Wakelin (1975: 114) found differences in the vowel quality of TRAP across Cornwall, with [a] in the East, and [æ] in the West. He again attributes this to ‘the piecemeal adoption of English in the west of the peninsula’, with [æ] being ‘the old standard English type’ (Wakelin 1975: 114). As with the analysis of BATH, this acoustic analysis provides a new perspective on Wakelin’s ‘impressionistic’ transcriptions of the SED recordings. Furthermore, comparison with the RP corpus provides insight into whether the TRAP vowel in West Cornwall was closer to the RP form, which would support his theory about the influence of the English language on Cornish English. Finally, comparing these corpora with the Contemporary Cornwall corpus will show how the pronunciation of the TRAP vowel in Cornwall has shifted in real time.

As discussed in Section 2.4.2 of Chapter 2, the TRAP vowel in the South West is also variably lengthened (Wells 1982b: 352; Piercy 2011). However, Wakelin (1975) does not discuss this in his analysis of the SED recordings. Therefore, this analysis will provide insight into the degree of TRAP lengthening in traditional Cornish English and explore whether the extent to which it is present in present-day Cornish English, with the RP corpus acting as a reference point.

6.2.1 TRAP QUALITY RESULTS

Figure 6.5 below shows each token of TRAP, coloured according to corpora. First, in comparing the East and West Cornwall SED localities, there is a slight difference, with the East Cornwall tokens being slightly more backed. This follows the same pattern as the BATH vowel, with the main difference between the localities being in F2, although there is more F1 variation in amongst the West Cornwall SED speakers. However, the split is a little less distinct for the TRAP vowel. As with the BATH vowel, the TRAP tokens from the Contemporary Cornwall corpus are situated in-between the two SED corpora. Finally, the TRAP vowels in the RP corpus are most distinct. There is a lot of variation in this corpus, but they are generally more raised and centralised than in either the SED or the Contemporary Cornwall corpora.

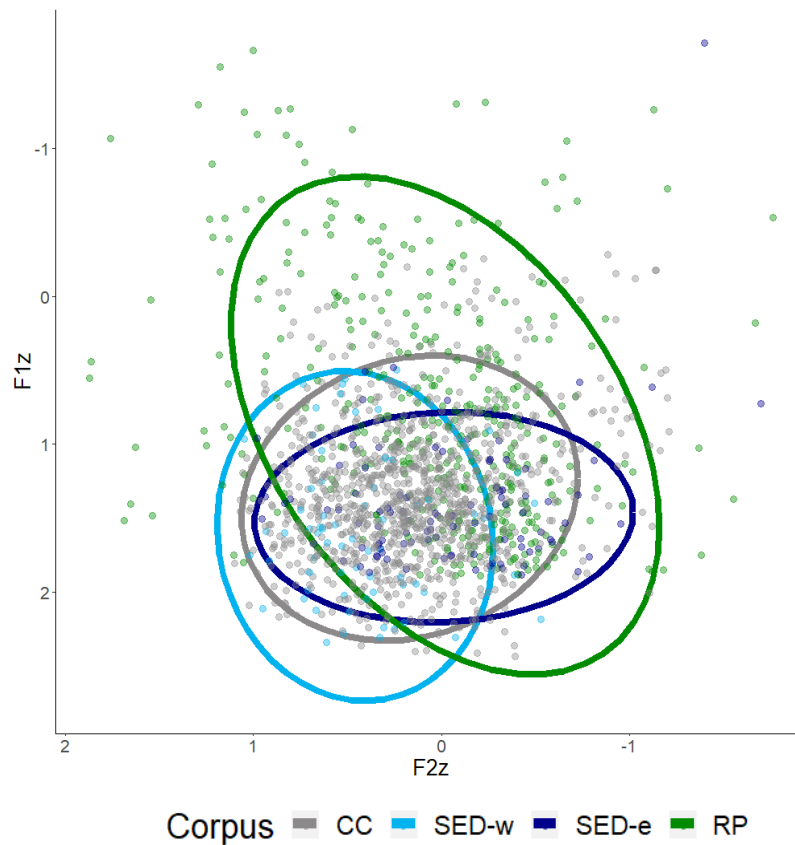


Figure 6.5: Vowel plot comparing (z-scored) TRAP vowels across the four corpora. Tokens are coloured according to corpus.

In order to explore which of these differences between the corpora are statistically significant, as well as to account for the effect of linguistic context on variation, these measurements were statistically modelled. The results of these statistical models are presented in Table 6.5 below, with the outcome variable set to either F1 or F2. As with the previous models, ‘corpus’ and ‘following linguistic context’ are set as fixed effects, and ‘speaker’ is specified as a random effect. Where differences between corpora are significant, post-hoc EMMs testing has been carried out to explore where differences between specific corpora are significant.

<i>Predictors</i>	TRAP F1			TRAP F2		
	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
Intercept	0.98	0.79 – 1.16	<0.001	0.16	0.02 – 0.31	0.028
Corpus: RP	-0.31	-0.51 – -0.11	0.002	-0.09	-0.23 – 0.04	0.167
Corpus: SED-w	0.22	-0.22 – 0.67	0.323	0.28	-0.01 – 0.57	0.055
Corpus: SED-e	0.41	0.03 – 0.80	0.034	-0.16	-0.41 – 0.08	0.196
FC: Alveolar Approx.	0.03	-0.19 – 0.24	0.802	-0.16	-0.35 – 0.02	0.082
FC: Alveolar Fric.	0.13	-0.06 – 0.33	0.175	-0.09	-0.25 – 0.07	0.286
FC: Alveolar Nasal	-0.18	-0.34 – -0.02	0.025	-0.20	-0.33 – -0.06	0.004
FC: Alveolar Stop	0.48	0.32 – 0.64	<0.001	0.02	-0.12 – 0.16	0.766
FC: Bilabial Nasal	0.27	0.08 – 0.46	0.005	-0.15	-0.31 – 0.01	0.074
FC: Bilabial Stop	0.45	0.29 – 0.61	<0.001	-0.05	-0.19 – 0.08	0.449
FC: Dental Fric.	0.31	0.11 – 0.52	0.003	0.15	-0.03 – 0.32	0.100
FC: Glottal Stop	0.42	0.20 – 0.64	<0.001	-0.25	-0.43 – -0.06	0.009
FC: Labiodental Fric.	0.45	0.26 – 0.64	<0.001	-0.08	-0.24 – 0.08	0.334
FC: Postalveolar Fric.	0.45	0.28 – 0.62	<0.001	0.03	-0.11 – 0.18	0.638
FC: Velar Nasal	0.47	0.17 – 0.76	0.002	-0.04	-0.30 – 0.21	0.726
FC: Velar Stop	0.26	0.09 – 0.42	0.002	-0.07	-0.21 – 0.07	0.306
Random Effects						
σ^2	0.38			0.27		
τ_{00}	0.13 _{speaker}			0.05 _{speaker}		
ICC	0.25 _{speaker}			0.15 _{speaker}		
Observations	1755			1755		
Marginal R ² / Conditional R ²	0.163 / 0.373			0.051 / 0.193		

Table 6.5: Results of the mixed-effects regression analysis comparing F1 (left) and F2 (right) measurements of backed TRAP vowels in the Contemporary Cornwall, SED and RP corpora. The models are fit to the same dataset with the same predictors. Only the outcome (F1 or F2) differs. ‘FC’ refers to ‘following context’.

The results of the statistical analysis of TRAP F1 and F2 across the corpora, as shown on Table 6.5 above, show that ‘corpus’ is significant for F1 only. However, it should be noted that the F2 model has very low conditional R^2 , most likely due to the low token counts in a number of cells, so should be treated with caution. Figure 6.6 below shows the EMMs for pairwise comparisons between each of the corpora for TRAP F1 and F2. It shows that, for TRAP F1, there is a significant difference between the RP and Contemporary Cornwall corpora, and the RP and East Cornwall SED corpora. In other words, the RP TRAP vowel is significantly higher than the TRAP vowels found in present-day Cornwall and traditional East Cornish English but it is not significantly different to traditional West Cornish English. However, none the three corpora from Cornwall were significantly different from one another.

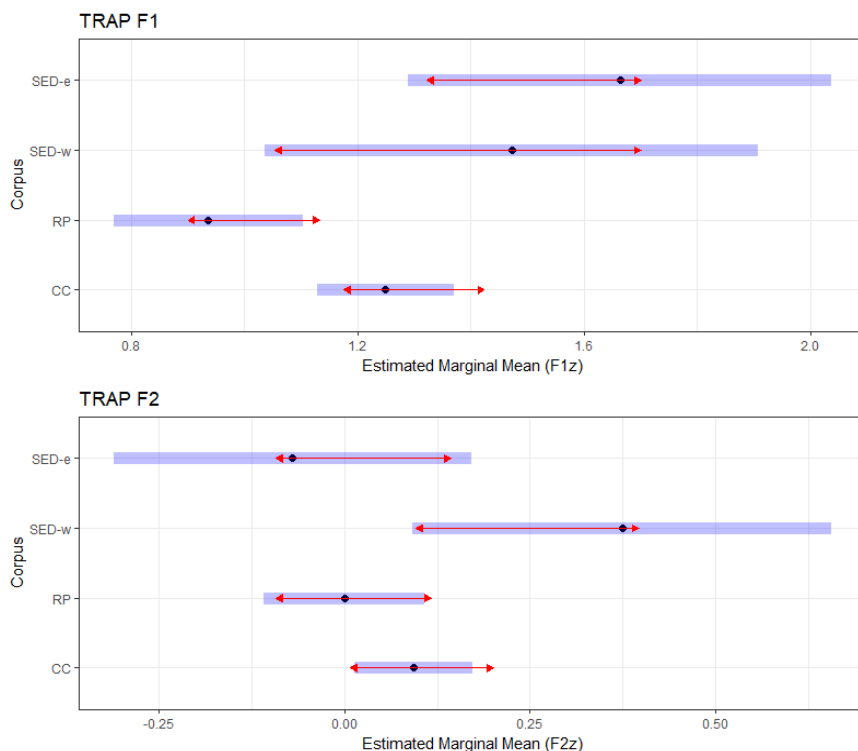


Figure 6.6: Pairwise comparisons of EMMs between the SED and Contemporary Cornwall corpora from the TRAP F1 (top) and F2 (bottom) model outputs.

Regarding Wakelin’s (1975) theory of the influence of the English language on Cornish English, this result appears to support the suggestion that the quality of the TRAP vowel in West Cornwall is closer to RP. Although no significant differences between the two SED corpora were found, the East Cornwall SED TRAP vowels were significantly more open than in the RP corpus, while the West Cornwall SED tokens did not differ

significantly from RP. This suggests that the TRAP vowel in traditional West Cornish English is more raised than those found in East Cornwall. The TRAP vowel in the Contemporary Cornwall corpus was not significantly different from either the East or West SED corpora in F1 or F2, suggesting there hasn't been a real time shift in the quality of the TRAP vowel in Cornwall. However, the Contemporary Cornwall TRAP vowels were significantly more open than those in the RP corpus.

6.2.2 TRAP DURATION RESULTS

Figure 6.7 below shows a density plot of TRAP durations in each of the corpora. This plot suggests that the RP and Contemporary Cornwall corpora are grouped together with shorter TRAP durations, and both the SED corpora have longer TRAP vowels. However, the TRAP vowels in the Contemporary Cornwall corpus are, marginally, the shortest. In addition, for the SED corpora, there appear to be a few instances of 'extra-long' TRAP vowels.

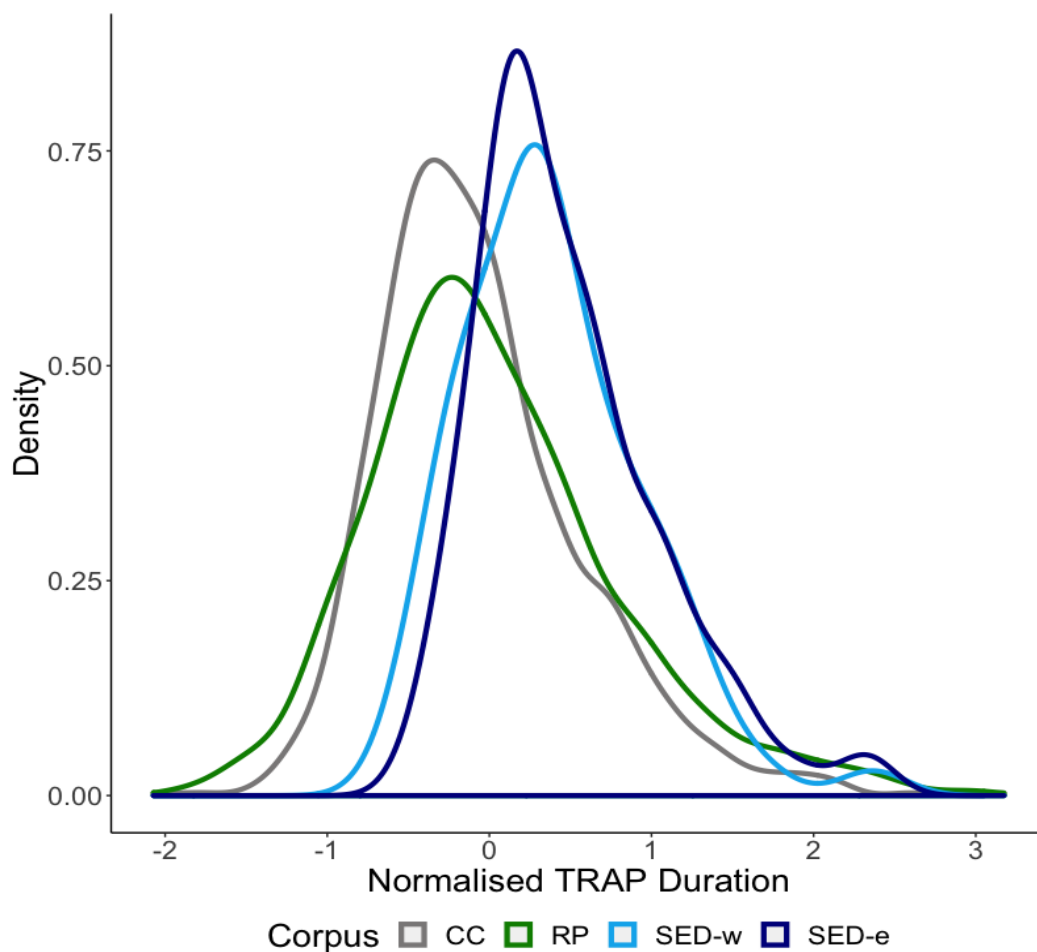


Figure 6.7: Density plot showing TRAP durations, coloured according to corpus.

Mixed-effects modelling was applied to these results in order to explore which of the differences between the corpora reach statistical significance, while also accounting for the effect of linguistic and discursal context. As with the previous models, post-hoc EMMs testing was carried out in order to explore which differences between corpora were significant. The results of the model are summarised in Table 6.6 below.

<i>Predictors</i>	TRAP Duration		
	<i>Estimates</i>	<i>CI</i>	<i>p</i>
Intercept	-0.34	-0.66 – -0.01	0.043
Corpus: RP	0.22	0.10 – 0.33	<0.001
Corpus: SED-w	0.55	0.32 – 0.79	<0.001
Corpus: SED-e	0.56	0.36 – 0.77	<0.001
Discourse Context: Word List	-0.08	-0.16 – -0.01	0.034
Discourse Context: Pre-Pausal	0.20	0.12 – 0.27	<0.001
Following Context: Voiceless Affricate, Open SR	0.12	-0.55 – 0.80	0.720
Following Context: Voiced Affricate, Open SR	-0.19	-0.54 – 0.16	0.280
Following Context: Voiced Approximant, Open SR	0.07	-0.28 – 0.42	0.686
Following Context: Voiced Fricative, Closed SR	0.67	0.33 – 1.01	<0.001
Following Context: Voiceless Fricative, Closed SR	0.16	-0.18 – 0.49	0.352
Following Context: Voiceless Fricative, Open SR	-0.14	-0.50 – 0.21	0.429
Following Context: Voiced Fricative, Open SR	0.11	-0.22 – 0.44	0.506
Following Context: Voiced Nasal, Closed SR	0.31	-0.01 – 0.64	0.058
Following Context: Voiced Nasal, Open SR	-0.13	-0.46 – 0.20	0.438
Following Context: Voiced Stop, Closed SR	1.06	0.73 – 1.38	<0.001
Following Context: Voiceless Stop, Closed SR	0.09	-0.23 – 0.41	0.573
Following Context: Voiceless Stop, Open SR	-0.24	-0.58 – 0.10	0.172
Following Context: Voiced Stop, Open SR	-0.27	-0.60 – 0.07	0.124
Random Effects			
σ^2	0.27		
τ_{00} speaker	0.03		
ICC _{speaker}	0.09		
Observations	1755		
Marginal R ² / Conditional R ²	0.362 / 0.421		

Table 6.6: Results of the mixed-effects regression analysis comparing duration measurements of TRAP vowels in the Contemporary Cornwall, SED and RP corpora.

Table 6.6 above shows that, for TRAP duration, corpus is a highly significant predictor. Figure 6.8 below shows a graphical summary of the post-hoc EMMs testing carried out to explore where the significant differences lie between the corpora for this variable. As shown in Figure 6.8, there are significant differences between all the corpora aside from the East and West Cornwall SED corpora. The speakers in the Contemporary Cornwall corpus have the shortest TRAP vowels, followed by the RP speakers, then the two SED corpora have the longest vowels. This suggests that there has been a real time shift towards shorter TRAP vowels in Cornwall. In addition, this shift has surpassed the duration of the TRAP vowel in RP. It should be noted that the difference between the Contemporary Cornwall and RP durations looks only marginal when considering Figure 6.7, but is much larger when considering modelled estimates. This is because the modelled estimates have taken into account the effects of discursal and linguistic context, explaining the larger distance between the corpora.

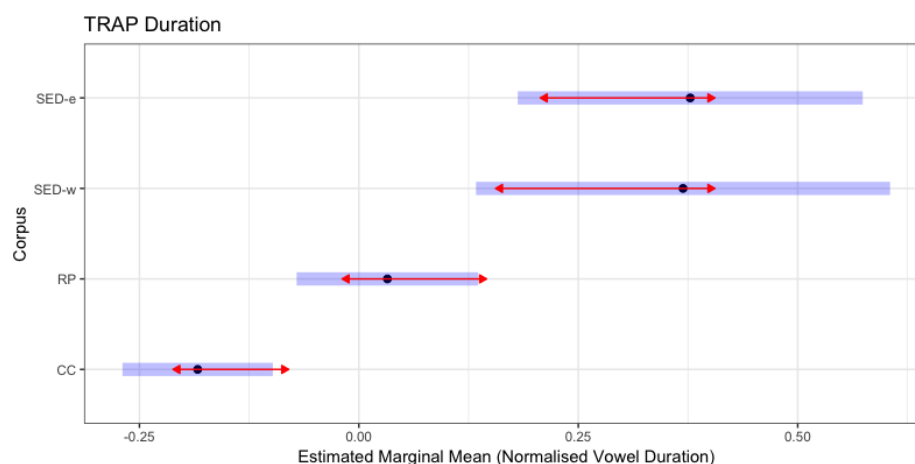


Figure 6.8: Pairwise comparisons of EMMs between the SED, RP, and Contemporary Cornwall corpora from the TRAP duration model output.

6.2.3 TRAP QUALITY AND DURATION DISCUSSION

Overall, this analysis of TRAP vowels in the Contemporary Cornwall, RP and SED corpora has found very little change over real time for the quality of this variable in Cornwall. However, the Contemporary Cornwall and East Cornwall SED TRAP vowels were significantly more open than those in the RP corpus. On the surface, this may suggest that the quality of the TRAP vowel in present-day Cornwall is non-standard. However, as discussed in Section 5.3 of Chapter 5, the RP corpus represents a

particularly conservative variety of RP. In more mainstream varieties of RP, there has been a general shift towards a more open pronunciation of TRAP (Wells 1982a: 129). Therefore, although the [a] variant of TRAP found across the majority of the South West was non-standard at the time the SED recordings (Wakelin 1986: 21–23), it is now no different from the most widely used RP variant. Thus, although there are differences in height between the RP and Contemporary Cornwall TRAP vowels, it would not be accurate to describe the variant of TRAP produced by the Contemporary Cornwall speakers as ‘dialectal’.

The analysis of the duration of the TRAP vowel in the SED recordings found that it was significantly longer than the TRAP vowel in both the RP and Contemporary Cornwall corpora. This provides further evidence for lengthened TRAP as a feature of traditional South Western Englishes, which was not noted by either Wakelin (1975) or North (1983), but has been previously attested in Dorset (Piercy 2011) and the Isles of Scilly (Moore & Carter 2015). However, the speakers in the Contemporary Cornwall corpus have significantly shorter TRAP vowels than those found in the region 50 years ago. Indeed, these speakers have even shorter TRAP vowels than those found in the RP corpus.

The diachronic change in TRAP durations in Cornwall is in line with the results for the BATH vowel, which also found fronted BATH durations to be significantly decreasing across real time. As noted in the discussion of the BATH vowel (Section 6.1.3), Montgomery and Moore (2018) found that lengthened variants of TRAP were potentially associated with the concept of the ‘South Western farmer’. Therefore, one motivation for this change could be the stigma against variants linked to rurality. As discussed in Section 2.4.3 of Chapter 2 and Section 4.3.1 of Chapter 4, it is likely that that the social meanings of the traditional South Western variants of BATH and TRAP are somewhat linked due to their acoustic similarity. The finding that fronted BATH and TRAP appear to be decreasing in duration across apparent time in-step with one another supports this hypothesis.

In addition, the Contemporary Cornwall speakers had even shorter TRAP durations than the RP speakers. This provides further support for the suggestion that the shift towards short TRAP vowels in Cornwall was motivated by some kind of local stigma associated with the long variant. In RP, lengthened TRAP vowels do occur in specific

linguistic environments, in what is termed the ‘BAD-LAD split’ (Kettig 2016). One explanation for the difference in TRAP duration between the Contemporary Cornwall and RP corpora could be that the stigma against South Western ‘long <a>’ has resulted in an overshooting of the RP form. For an RP speaker, lengthened TRAP vowels in certain linguistic environments (such as in words like ‘bad’ and ‘glad’) most likely would not be associated with South Western varieties of English. However, for the young speakers in Cornwall, all lengthened TRAP (and BATH) vowels may be associated with rurality. Previous studies of ‘hypercorrection’ have found speakers to overgeneralise rules in their avoidance of an overtly stigmatised form (e.g. Labov 1972a). A similar process may be occurring here, with the Contemporary Cornwall speakers producing shorter TRAP vowels in all linguistic environments, not just those which are regularly found in RP. The synchronic analysis of TRAP variation in the Contemporary Cornwall corpus, which provides a more in-depth analysis of the effect of linguistic environment on vowel duration, supports this suggestion (see Section 7.6 of Chapter 7).

Finally, with regards to the quality of the TRAP vowel in the SED corpora, this analysis supported Wakelin’s (1975) theory of the influence of the English language on Cornish English. The quality of the TRAP vowels in the East and West Cornwall SED recordings were not significantly different from one another. However, the TRAP vowels in East Cornwall were significantly more open than the RP TRAP vowels, while the West Cornwall vowels were not. This suggests that the West Cornwall TRAP vowel was, indeed, closer to the raised [æ] RP variant, as it has continued to track RP more closely than the East Cornwall variety.

6.3 TRAP AND BATH ACROSS THREE CORPORA: CONCLUSIONS

In summary, this diachronic analysis of BATH and TRAP across the three corpora has found significant real time changes in the realisation of these vowels in West Cornwall across a 50-year timespan. Regarding the BATH vowel, while it has begun to back across real time for some speakers, fronted variants are still common in the region. However, for these fronted variants, there has been a significant decrease in vowel duration. In tandem, the duration of the TRAP vowel, which is variably lengthened in traditional South Western varieties, has also decreased. Notably, the TRAP vowels in the

Contemporary Cornwall corpus were even shorter than those in the RP corpus. One explanation for this real time change was the potential stigma against South Western 'long <a>'. In the perception experiment conducted as part of the present study (Chapter 4), the longer open, front vowels were most salient, and Montgomery and Moore (2018) found lengthened TRAP vowels to be associated with the concept of the 'South Western farmer'. Due to the undesirable attributes linked to rurality (Britain 2017a: 174), the social meaning of the 'long <a>' in the South West may have caused the reduction in duration across real time.

One potential explanation for the maintenance of fronted BATH in present-day Cornwall, despite the decrease in duration, was that the fronted quality does not have so much 'rural' stigma attached to it. The salience of the BATH vowel as a marker of region across England may have increased its resistance to standardisation in Cornwall. Therefore, the speakers in the Contemporary Cornwall corpus with fronted BATH may be maintaining a sense of regional distinctiveness by using a non-standard variant of the BATH vowel, but avoiding the stigmatised rural associations by keeping both the TRAP and BATH vowels short.

Regarding the acoustic analysis of the SED corpora, this analysis provided further insight into Wakelin's (1975) theory of the influence of the English language on Cornish English, which he developed following auditory analysis of the SED recordings. He suggested that the later adoption of English in West Cornwall has caused the BATH and TRAP vowels to be slightly raised due to the status of these variants in RP at the time (Wakelin 1975: 171–174). The acoustic analysis of the TRAP vowel indicates that the West Cornwall continues to track RP pronunciations more closely than East Cornwall. The TRAP vowels in the RP corpus were significantly more raised than those in the East Cornwall SED recordings, but were not more raised than those in the West Cornwall SED corpus. However, the acoustic analysis did not find any evidence of a raised BATH vowel in the West Cornwall SED corpus. Instead, the variation between the SED localities was better captured in the F2 plane, as the West Cornwall SED BATH vowels were significantly more fronted than those found in East Cornwall at the time.

Returning to the real time changes in these vowels in Cornwall, there was some evidence of regional dialect levelling for vowels in the BATH lexical set (see Britain 2010b). The fronted BATH vowels in the Contemporary Cornwall corpus were situated at an intermediate point between those in the East and West Cornwall SED corpora. However, it was difficult to draw any strong conclusions without comparison with present-day speakers in East Cornwall. In comparison, there were no significant real time changes in the quality of the TRAP vowel. However, this was likely because there was not a distinct difference between the East and West Cornwall SED localities, so there was less scope for regional dialect levelling to occur.

The following chapter presents a synchronic analysis of TRAP and BATH variation in the Contemporary Cornwall corpus. In exploring the sociolinguistic correlates of variation in these lexical sets within this corpus, this analysis provides further insight into the social meaning of the different variants of these vowels. As such, it suggests how the real time shifts in TRAP and BATH production in Cornwall may be socially motivated.

CHAPTER 7: SYNCHRONIC ANALYSIS

7.0 INTRODUCTION

In Chapter 6, the diachronic analysis of TRAP and BATH in Cornwall suggested that the duration of vowels in these lexical sets had decreased across real time. It was hypothesised that this may be due to the links between South Western ‘long <a>’ and rurality. However, BATH vowels with a fronted quality were still common in the region, suggesting that the fronted quality of the BATH vowel potentially does not have the same stigma attached to it. In this chapter, a synchronic analysis of the Contemporary Cornwall corpus provides further insight into potential motivations behind the loss of TRAP-lengthening and the innovation of the short, front BATH vowel in present-day Cornwall. In addition, the acoustic parameters of words in the TRAP and BATH lexical sets are compared to one another in order to explore the degree to which the shortening of fronted BATH vowels across apparent time has resulted in a TRAP/BATH merger in the region.

The data used in this analysis is from the Contemporary Cornwall corpus. This corpus includes 860 tokens of the BATH vowel, and 1054 tokens of the TRAP vowel. A full demographic breakdown of the corpus can be found in Section 5.1 of Chapter 5, while an overview of the linguistic data can be found in Section 5.5.

7.1 AUDITORY ANALYSIS OF BATH

As discussed in Sections 3.4.2 and 3.4.3 of Chapter 3, both acoustic and auditory analyses of the BATH vowel were carried out in this study. This provides an overview of the general distribution of fronted, backed, and intermediate tokens in this dataset. In addition, the auditory coding is later used to explore the interaction between variation on the front/back plane, F1 frequencies, and vowel duration. For a more detailed discussion of the relative functions and merits of auditory and acoustic analysis of sociophonetics data, as well as a discussion of how the auditory coding was implemented, see Section 3.4.3 of Chapter 3. The results of this analysis are shown in Figure 7.1 below.

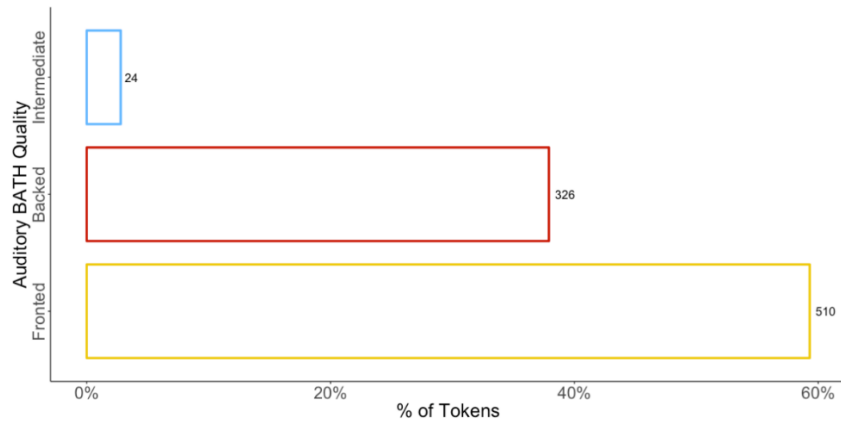


Figure 7.1: Bar chart with the percentage and counts of the auditory coding of each token of the BATH vowel.

As shown in Figure 7.1, the vast majority of the tokens could be coded as fronted or backed, with only 24 intermediate tokens. Fronted BATH vowels were the most frequent, although the backed variant was also common. This suggests that the fronted variant is clearly still more prevalent in the region, despite the presence of the backed BATH vowel in this dataset.

Regarding the lexical conditioning on BATH variation in this data, Figure 7.2 below shows the proportion of fronted, backed, and intermediate variants of the vowel in each lexical item. Words with fewer than ten tokens have been excluded, ensuring the tokens for individual lexical items are distributed across multiple speakers.

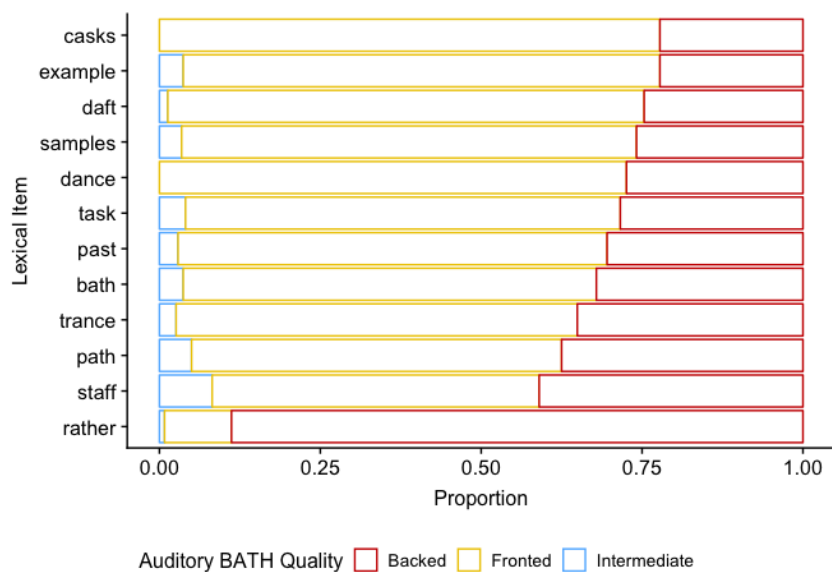


Figure 7.2: Proportion of auditorily backed, fronted, and intermediate tokens of each lexical item containing a BATH vowel.

Figure 7.2 above suggests that, for the most part, there does not appear to be any pattern as to which lexical items are backed or fronted, as there is no set of words which are consistently backed. The only exception is the word ‘rather’, which is almost always backed, even for speakers with otherwise consistently fronted BATH tokens. This result is in line with Piercy’s (2011) findings, which she suggested were evidence for the backing of BATH via lexical diffusion in Dorset. However, as noted by Blaxter and Coates (2019: 16), ‘rather’ is often considered to be in the PALM lexical set. While Wells (1982a: 135) does include ‘rather’ in the BATH lexical set, he includes it in a subset of BATH words which ‘typically have the PALM vowel in the otherwise flat-BATH accents of the north of England’. For the majority of speakers in this study, vowels in the PALM lexical set were categorically backed. Therefore, this finding suggests that ‘rather’ belongs with the PALM lexical set in Cornwall.

The word ‘staff’ had the second highest proportion of backed tokens, as well as the highest proportion of intermediate tokens. This could be explained by the effect of priming from the previous word. As demonstrated by Clark (2018), where two instances of the same variable are produced consecutively, the realisation of the preceding token can influence the following token. In the present study, the word ‘staff’ appeared as part of the map task landmark ‘bar staff’. As the START vowel was categorically backed by the speakers in this study, this may have sometimes primed a back (or intermediate) pronunciation of the BATH vowel in ‘staff’. This was the only instance in either of the elicitation tasks where a BATH word was immediately preceded by either a START or a PALM word.

Overall, this auditory analysis of the BATH vowel has explored the distribution of backed, fronted, and intermediate tokens in the Contemporary Cornwall corpus. It has provided an overview of the distribution of variants of the BATH vowel in this dataset, demonstrating that fronted variants of BATH are still the most common amongst young speakers in the region. In addition, it has provided insight into the lexical conditioning of BATH variation in the dataset, which has important consequences for the statistical analysis; in particular, it has demonstrated that ‘rather’ should not be grouped with other BATH words when modelling vowel quality. However, placing variants into discreet categories does not capture the subtle shifts that can occur on a gradient

phonetic scale. In addition, the analysis has not considered how variation is conditioned by different social and linguistic factors. Therefore, to explore these questions in more detail, an acoustic and statistical analysis of the BATH vowel is described in Section 7.2.

7.2 ACOUSTIC ANALYSIS OF BATH QUALITY

As detailed in Section 3.4.2 of Chapter 3, following auditory analysis of the BATH vowels in this data, F1 and F2 measurements were taken at the mid-point of the vowel, and normalised using the Lobanov (1971) method. Figure 7.3 below shows the vowel plot with resulting F1 and F2 measurements for each BATH token, coloured according to the quality (fronted, intermediate, or backed) they were coded for in the auditory analysis. The formant measurements have been normalised, and the z-scores represent standard deviations from the mean of the centre of each speaker's vowel space. As such, a higher measurement represents a more front, or more open pronunciation, while lower values represent backer or closer pronunciations.

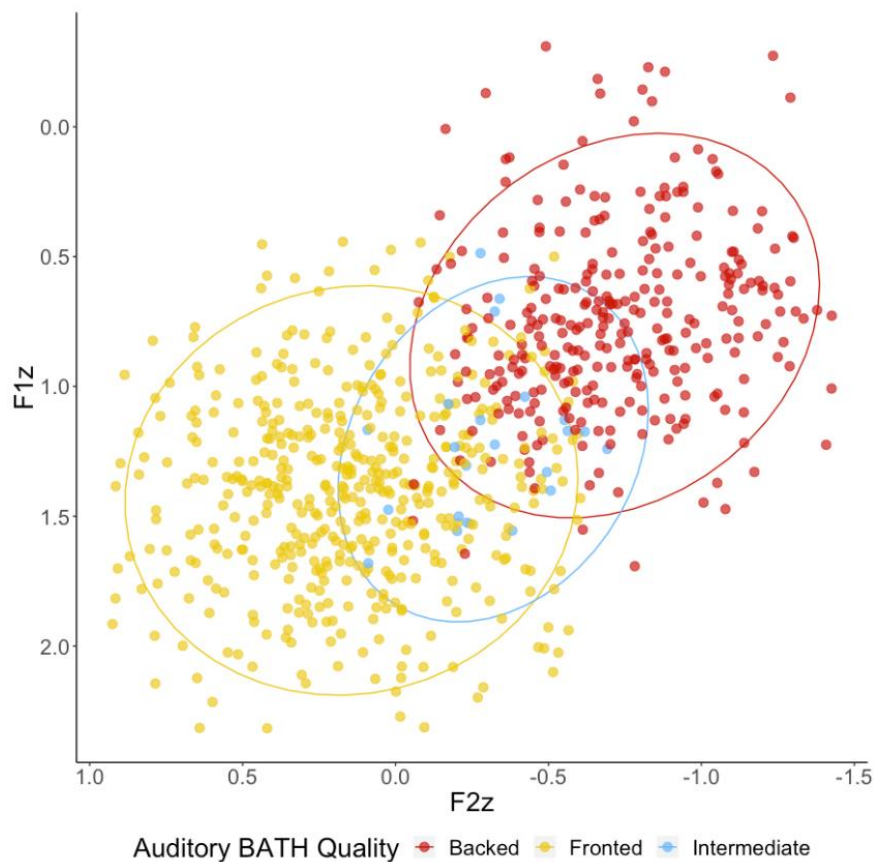


Figure 7.3: Vowel plot showing the (z-scored) F1 and F2 values of 860 BATH tokens. Each token is coloured according to its auditory quality, with ellipses representing 95% confidence intervals in each category.

Figure 7.3 above confirms the finding that there are fronted, backed, and intermediate variants of BATH in this dataset. There is a denser cluster of tokens with higher F2, which also supports the finding from the auditory analysis that the fronted variant of BATH is more frequent amongst these speakers. However, Figure 7.3 also demonstrates that there is variation within each category identified in the auditory analysis. This highlights the possibility that differences in BATH realisation between speakers and social groups may be more nuanced than could be captured with discreet auditory categories. For example, while two groups may have auditorily fronted BATH vowels, there may be subtle phonetic differences, linked to social meanings, in how the vowels are articulated.

In order to explore the extent to which this variation may be socially motivated, and to explore the effects of linguistic context, variation in F1 and F2 was statistically modelled using mixed-effects regression analysis (see Section 3.5 of Chapter 3 for details about how this was carried out). In Cornwall, all the potential variants of BATH (as identified in Section 2.4.2 of Chapter 2) vary from the open front [a] vowel to the open back [ɑ]. Wakelin (1975) also suggested the traditional West Cornwall BATH variant had a slightly raised [æ] quality in comparison to East Cornwall. However, the acoustic analysis of the same SED data (see Section 6.1 of Chapter 6) suggested that the variation he recorded was also along the F2 plane. Therefore, it would be expected that the majority of socially meaningful variation in the Contemporary Cornwall corpus would be in F2.

However, the comparison of the SED, RP, and Contemporary Cornwall corpora in Chapter 6 also demonstrated that F1 was significant in differentiating RP BATH vowels from the auditorily backed vowels in present-day Cornwall. Considering these findings, measuring the effect of the social factors on F1 alone may not provide much insight into where socially meaningful variation occurs relative to vowel height. Instead, in modelling F1, each of the social factors is interacted with the auditory front/back coding. As a result, the model tests the effect of the social factors on vowel height on the backed and fronted BATH tokens separately. The 24 intermediate tokens were excluded from this model. In addition, as noted in Section 7.1 above, the word 'rather' appeared to be

patterning with PALM words for these speakers. Therefore, tokens of this word were not included in these models, as they would likely skew the results. Finally, tokens with outlying F1 and F2 measurements were excluded from the models using the method outlined in Section 3.4.3 of Chapter 3.

The results of the mixed-effects regression analysis are presented below in Table 7.1 (see Section 6.1.1 of Chapter 6 for details on interpreting these tables). As detailed in Section 3.5 of Chapter 3, the models were first fit with all the predictors and then tested for interactions. Any predictors or interactions which did not significantly improve the model were removed. Where there are more than two levels to a predictor, or where there are interaction effects, post-hoc EMMs testing was carried out in order to explore where the significance lies (see Section 6.1.1 of Chapter 6 for a discussion of this technique).

<i>Predictors</i>	BATH F1			BATH F2		
	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.79	0.68 – 0.90	<0.001	-0.41	-0.63 – -0.18	<0.001
BATH Quality: Fronted	0.52	0.40 – 0.64	<0.001			
Gender: Male	-0.14	-0.29 – -0.00	0.044	0.25	0.00 – 0.49	0.048
ET: Word List	0.11	0.01 – 0.21	0.034	0.17	0.10 – 0.24	<0.001
Following Context: Alveolar Nasal	-0.16	-0.24 – -0.07	<0.001	0.00	-0.08 – 0.08	0.974
Following Context: Bilabial Nasal	-0.14	-0.22 – -0.06	0.001	0.02	-0.06 – 0.10	0.608
Following Context: Dental Fricative	0.09	-0.00 – 0.19	0.062	-0.16	-0.26 – -0.06	0.002
Following Context: Labiodental Fricative	-0.01	-0.08 – 0.07	0.885	-0.08	-0.15 – -0.00	0.037
BATH Quality: Fronted * Gender: Male	0.23	0.07 – 0.38	0.005			
BATH Quality: Fronted * ET: Word List	0.09	-0.03 – 0.21	0.160			
PB: At Least One Local				0.28	0.04 – 0.52	0.023
ET: Word List * Gender: Male				-0.15	-0.26 – -0.04	0.009
Random Effects						
σ^2	0.12			0.12		
τ_{00}	0.01 _{speaker}			0.14 _{speaker}		
ICC	0.09 _{speaker}			0.54 _{speaker}		
Observations	653			674		
Marginal R ² / Conditional R ²	0.450 / 0.498			0.102 / 0.590		

Table 7.1: Results of the mixed-effects regression analysis of F1 (left) and F2 (right) in vowels in the BATH lexical set. ‘ET’ refers to ‘elicitation task’, and ‘PB’ refers to ‘parental birthplace’.

The statistical analysis presented in Table 7.1 above shows that a variety of social and linguistic factors influence both F1 and F2 variation in the BATH vowel. In addition, it also shows that fronted variants of BATH are significantly lower than backed variants of BATH. Each of the significant effects will now be summarised and explored in more detail.

7.2.1 BATH QUALITY: LINGUISTIC FACTORS

Regarding the influence of linguistic context on F1 and F2, it should be noted that BATH is a particularly restricted lexical set, so there were relatively few following environments included in the models. Of the five following environments specified in the model, both bilabial and alveolar nasals had a significant effect on BATH F1, while dental fricatives and labiodental fricatives had a significant effect on BATH F2. This effect can be seen in the vowel plot in Figure 7.4 below, with coloured ellipses showing the distribution of BATH tokens for each following linguistic context. It shows that both the nasal environments favoured lower F1 values, particularly for front variants of BATH. In addition, it shows that both labiodental and dental fricatives favoured lower F2, but the effect is strongest for the latter.

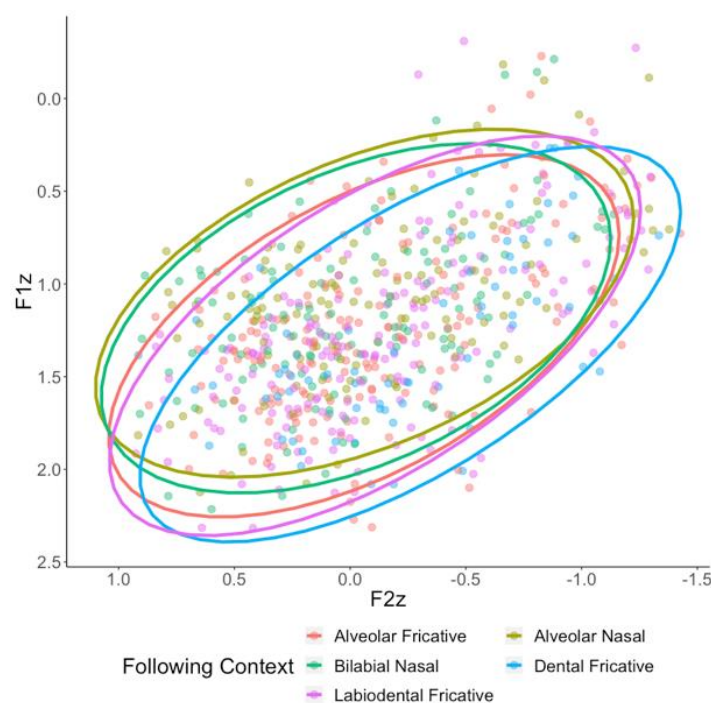


Figure 7.4: Vowel plot showing (z-scored) F1 and F2 values for each BATH token, coloured according to following linguistic context. Ellipses represent 95% confidence intervals in each category.

Regarding the lowering of F1 when the vowel precedes a nasal consonant, this is most likely the effect of nasalisation on the acoustic properties of the vowel, as this has previously been found to lower F1 frequencies of low vowels (e.g. Arai 2004; Feng & Castelli 1996).

The results for contextual effects on F2 are roughly in line with Thomas' (2010: 100–101) description of the effect of these environments on this formant. He suggested that following labiodental consonants should lower F2, and following dental consonants should lower F2 next to front vowels, and raise F2 next to back vowels. As there were more front vowels in this dataset, the effect of following dental consonants lowering F2 would be expected to be stronger. Previous research has also suggested that a fricative following a vowel tends to lower F2 values (Stevens & House 1963), which is also in line with this result.

In addition, there is a possible sociolinguistic explanation for the stronger effect of following dental consonants on lowering F2. Speakers who had had a fronted BATH vowel were more likely to also have (th)-fronting. As such, of the BATH vowels with a following /θ/ consonant, tokens identified as having a back pronunciation in the auditory analysis were followed by [f] 24.4% of the time, while fronted tokens were followed by [f] 44% of the time. Therefore, this result could be due to a stylistic effect, where fronted BATH and (th)-fronting are components of the same style. As a result, following dental consonants most likely favoured a lower F2 than labiodental consonants because they were more likely to be used by speakers with a backed pronunciation of BATH.

7.2.2 BATH QUALITY: SOCIAL FACTORS

The results of the regression analysis suggested that elicitation task had a significant effect on both F1 and F2 BATH values, while parental birthplace and gender only significantly affected F2. There was also a significant interaction between auditory BATH quality and gender for F1, and an interaction between elicitation task and gender for F2. However, neither social class nor identity index score significantly improved the models for F1 or F2, so were removed. Beginning with the autonomous main effects,

Figure 7.5 below shows three vowel plots demonstrating how they influence the quality of the BATH vowel in this dataset.

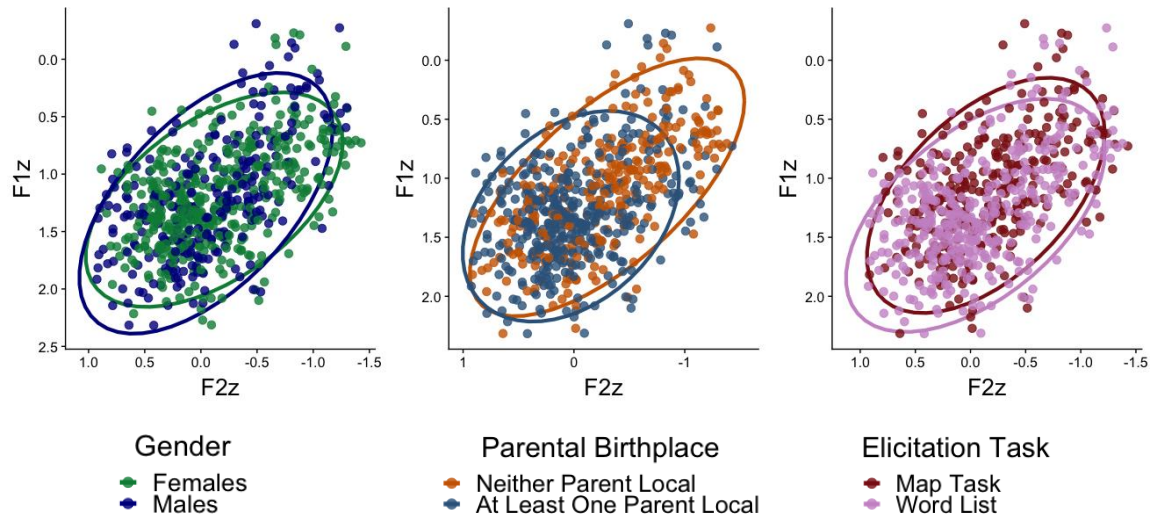


Figure 7.5: Vowel plots showing (z-scored) F1 and F2 measurement of BATH vowels, coloured according to gender (left), parental birthplace (centre), and elicitation task (right). Ellipses represent 95% confidence intervals in each category.

Considering Figure 7.5 above, it can be seen the strongest effect on vowel quality is parental birthplace. This figure shows that those speakers with at least one locally born parent have fronter realisations of the BATH vowel, with the majority of tokens from these speakers clustered in the low, front area of the vowel space.

The effect for gender is more subtle, but statistically significant. The boys generally have slightly higher F2 than the girls, and thus fronter and lower pronunciations of the BATH vowel. The regression model for F1 also found an interaction between gender and auditory BATH quality for F1, which suggested that, for the backed tokens, the boys had higher F1. This effect can also be seen on Figure 7.5 above, with the ellipses suggesting that the highest BATH tokens were produced by male speakers. However, further analysis of this result using Tukey-adjusted post-hoc EMMs testing found this difference to only just reach significance ($p=0.05$). The results of this test can be seen in Figure 7.6 below. The red arrows, which show pairwise comparisons between the boys and girls for the two BATH qualities, overlap for the fronted tokens and are very close together for the backed tokens, meaning the gender effect is only marginal. This finding is not

entirely unexpected, as the post-hoc testing is more restrictive than a full model. Therefore, the gender effect on F1 for fronted variants of BATH should be treated with some caution.

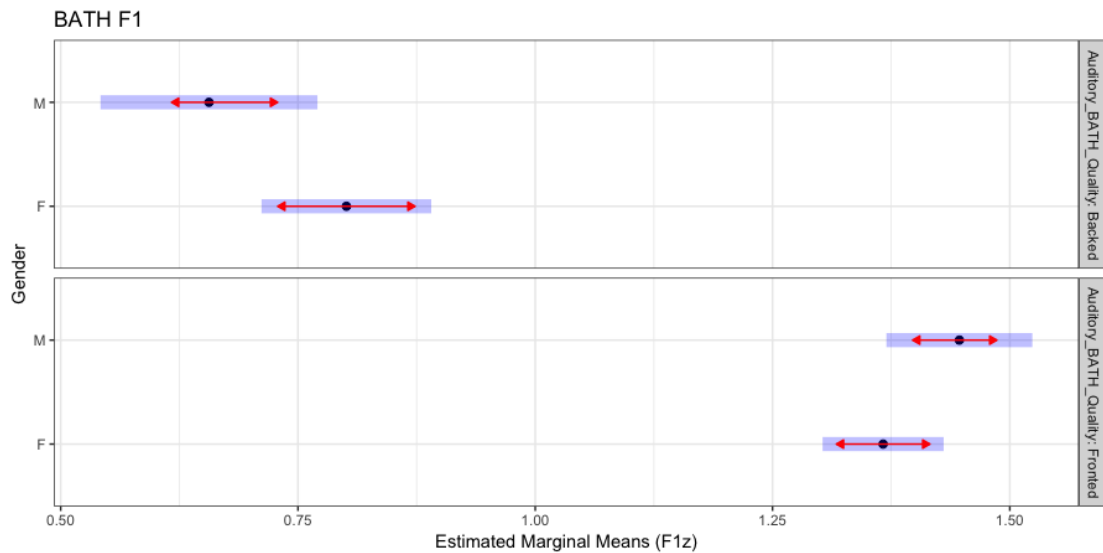


Figure 7.6: Pairwise comparisons of EMMs of the two genders according to auditory BATH quality from the BATH F1 model output. The black dots represent the Tukey-adjusted estimated marginal means, the purple bars show the confidence intervals, and red arrows are for comparisons between them (with an alpha of 0.05).

Finally, there was a significant effect for elicitation task in both F1 and F2. This can be seen in Figure 7.6 above, where BATH tokens in the word list are slightly more clustered towards the low, front area of the vowel space. There was also a significant interaction between gender and elicitation task for F2. Post-hoc EMMs testing was carried out to explore where this significant result lies, and the results can be seen in Figure 7.7 below. This Figure suggests that the boys are not style shifting at all in F2, as the red arrows are almost entirely overlapping, while there is a significant increase in F2 for the girls in the word list style. This suggests that the girls are shifting towards fronted pronunciations of BATH in the most monitored speech style.

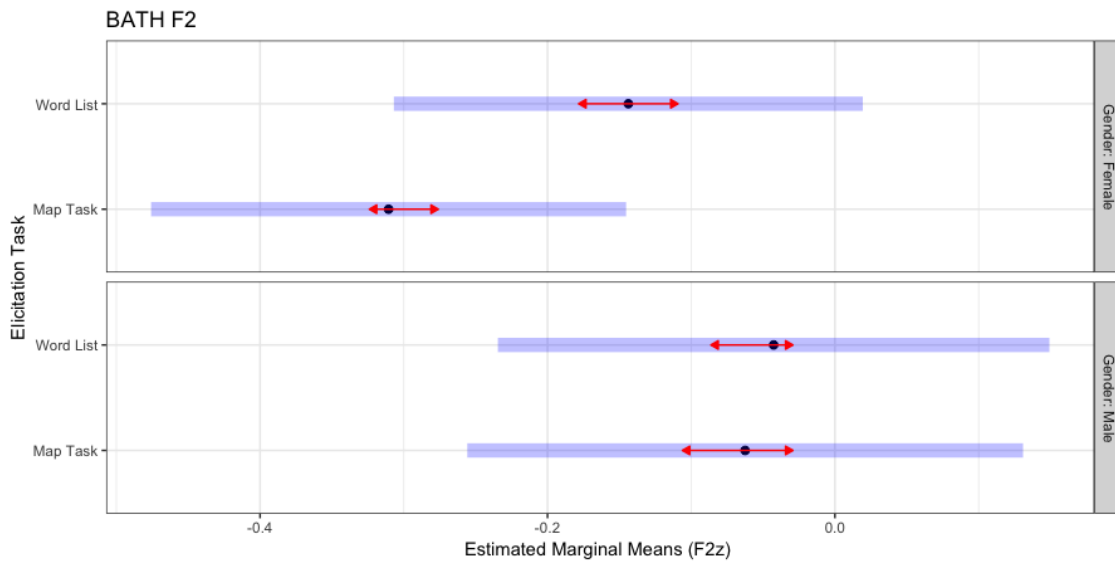


Figure 7.7: Pairwise comparisons of EMM F2 values of the two genders according to elicitation task from the BATH F2 model output.

7.2.3 SUMMARY: BATH QUALITY

To summarise the results for BATH quality in the Contemporary Cornwall corpus, there were significant effects for both F1 and F2 according to a variety of social and linguistic factors. Regarding the latter, following nasals significantly lowered the F1 of the vowel, while following dental and labiodental fricatives significantly lowered F2 values, as expected. In addition, the increased backed quality of BATH vowels preceding dental fricatives had a possible sociolinguistic explanation. Speakers who had (th)-fronting, and therefore produced fewer dental fricatives, were also more likely to have a fronted BATH vowel, suggesting an interaction between style¹⁵ and linguistic context.

For F2, there was an effect of parental birthplace, where those speakers with at least one parent born in Cornwall had more fronted pronunciations of BATH. There was also a gender effect for both F1 and F2, where the boys had more fronted and open BATH vowels. For F1, there was also a marginally significant effect for the backed BATH tokens, where the boys had more raised backed BATH vowels. The female speakers were also found to be style shifting, with a general shift towards fronter and more open BATH

¹⁵ Here, I mean ‘style’ to mean a cluster of features with interconnected social meanings.

vowels in the most monitored style. Finally, neither social class nor identity index score had a significant effect on F1 or F2.

7.3 ACOUSTIC ANALYSIS OF BATH DURATION

In addition to an acoustic analysis of BATH quality, this study also considers the duration of the vowel. The diachronic analysis found that the BATH vowel had significantly shortened across real time (see Chapter 6). Furthermore, the duration of the vowel has been highlighted as potentially socially meaningful in the South West (see Section 2.4.3 of Chapter 2). As such, the duration of each token of the BATH vowel was measured, then normalised using z-scores (see Section 3.4.2 of Chapter 3 for a description of this process). As detailed in Section 3.4.4 of Chapter 3 the influence of different social and linguistic factors on BATH duration was then tested using mixed-effect regression modelling.

In modelling this data, some slightly different parameters were set in comparison to the statistical analysis of BATH quality. First, the fixed effect for the linguistic context of the vowel considers voicing and manner of articulation of the following consonant. Second, as with the model for F1, each social factor was interacted with the auditory coding for BATH quality (see Section 3.4.3 of Chapter 3 for a discussion of the motivation behind this). As a result, it was also necessary to exclude the ‘intermediate’ BATH tokens from this analysis, as they were very infrequent ($n = 24$) and would reduce the statistical power of the model. Third, the fixed effect of parental birthplace was expanded to a wider range of groupings. As the main difference between the Northern English and South Western BATH vowel is in duration, it was important to consider the potential influence of a Northern parent in modelling BATH duration. Therefore, where shorter variants of BATH are found in this data, this explores the degree to which they may be influenced by parental input.

Finally, as discussed in Section 7.1, Wells (1982a: 135) stated that ‘rather’ is hovering in between the PALM and BATH lexical sets. Inspection of the distribution of BATH tokens according to auditory BATH quality suggested that, for Contemporary Cornwall speakers, ‘rather’ may be a PALM vowel, although there were still fronted and intermediate tokens of this word. However, in modelling BATH duration, each of the

social factors is interacted with the coding for BATH quality. This means that uneven distribution of fronted or backed pronunciations of individual word will not skew the model. Therefore, the decision of whether or not to include 'rather' in these models was determined by whether it was patterning in duration with the other BATH words. Analysis of the mean duration of each BATH word according to auditory vowel quality found that both fronted and backed tokens of 'rather' were, on average, neither the longest nor the shortest of the BATH words. In addition, as discussed in Section 4.2.3 of Chapter 4, perceptions of BATH and PALM vowels patterned together. The salience of both BATH and PALM words was influenced in the same direction by the duration of the vowels. Therefore, as the model would not be affected by vowel quality, and 'rather' appears to pattern with BATH words in both production and perception of vowel *duration*, it was decided that this word should be included in the model.

In addition, as discussed in Section 3.4.4 of Chapter 3, words that occur phrase-finally have been consistently found to be longer than those in other phrasal positions. As such, when considering the effect of elicitation task on BATH duration, it was important to also consider whether a token in the map task occurred in a pre-pausal discoursal context. Therefore, this model includes three discoursal contexts for BATH duration: word list, map task, and map task (pre-pausal). This is specified as a fixed effect in the model in place of elicitation task. This model of BATH duration is presented in Table 7.2 below.

BATH Duration			
<i>Predictors</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.23	0.12 – 0.35	<0.001
BATH Quality: Fronted	-0.57	-0.68 – -0.45	<0.001
PB: Northern	-0.00	-0.20 – 0.20	0.987
PB: South Eastern	-0.09	-0.22 – 0.03	0.151
PB: One Local, One Northern	-0.01	-0.27 – 0.25	0.958
Gender: Male	-0.09	-0.21 – 0.03	0.133
Following Context: Voiceless Fricative	0.43	0.33 – 0.53	<0.001
Following Context: Nasal	-0.07	-0.18 – 0.04	0.199
Discoursal Context: Word List	-0.10	-0.17 – -0.04	0.003
Discoursal Context: Map Task (Pre-Pausal)	0.34	0.24 – 0.43	<0.001
BATH Quality: Fronted * PB: Northern	-0.38	-0.61 – -0.16	0.001
BATH Quality: Fronted * PB: South Eastern	0.28	0.11 – 0.46	0.002
BATH Quality: Fronted * PB: One Local, One Northern	-0.34	-0.62 – -0.07	0.014
BATH Quality: Fronted * Gender: Male	0.25	0.11 – 0.39	<0.001
σ^2	0.18		
τ_{00}	0.01 _{speaker}		
ICC	0.04 _{speaker}		
Observations	836		
Marginal R ² / Conditional R ²	0.445 / 0.466		

Table 7.2: Results of the mixed effects regression analysis of BATH duration.

Overall, the results of this regression analysis suggest that a variety of predictors significantly affect the duration of the BATH vowel in this dataset, including both social and linguistic factors. As with BATH quality, neither social class nor identity index score significantly improved the models, so were removed. The model was also significantly better when discoursal context was not interacted with BATH quality. Beginning with the effects of linguistic and discoursal context, each significant effect will now be explored in more detail.

7.3.1 BATH DURATION: LINGUISTIC AND DISCOURSAL FACTORS

As shown in Table 7.2, discursual context, following linguistic context, and the quality of the vowel all significantly affected BATH duration in this model. These effects can be seen in Figure 7.8 below, which shows three density plots, coloured according to following linguistic context, discursual context, and auditory vowel quality, respectively. The density plot for following linguistic context shows that the BATH vowels with the longest duration were followed by voiceless fricatives, then nasals, and the shortest BATH vowels were followed by voiced fricatives. For discursual context, Figure 7.8 shows that tokens in pre-pausal positions were longest, while the BATH tokens in the word list were shortest. The final density plot shows that auditorily fronted tokens of BATH had much shorter durations than backed tokens.

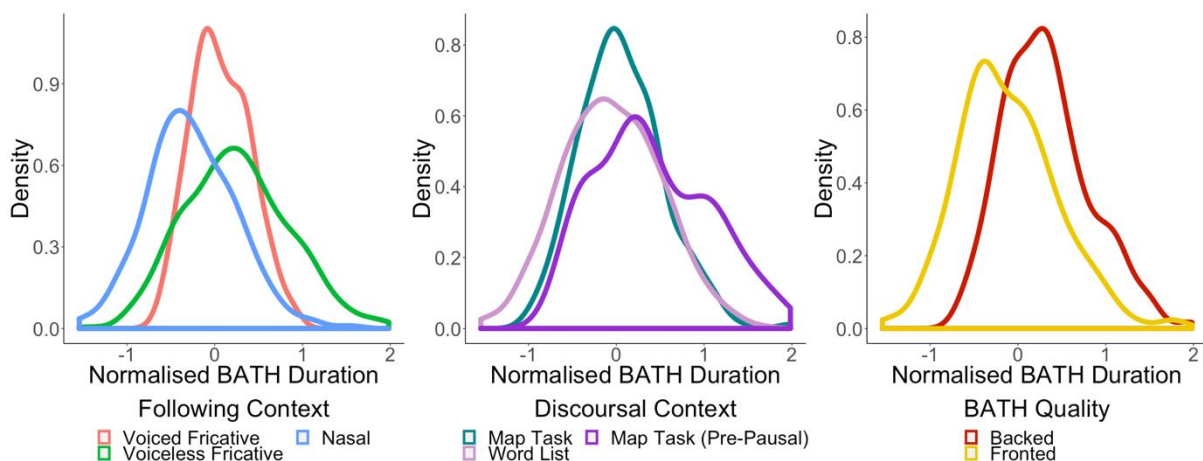


Figure 7.8: Density plots showing the effect of following linguistic context (left), discursual context (centre), and auditory vowel quality (right) on BATH vowel durations.

Regarding following linguistic context, post-hoc pairwise EMMs testing for both models confirmed that voiceless fricatives significantly increased the duration of the vowel, but no other following environments were significant. This result is surprising, as vowel duration tends to decrease when the following context is voiceless (House & Fairbanks 1953; Peterson & Lehiste 1960). However, the significant increase in duration for voiceless fricatives in comparison to voiced fricatives may be better explained by the confounding effect of whether the vowel was part of an open or closed syllable rhyme. As in Section 5.5 of Chapter 5, it was not possible to include contextual information about the syllable rhyme, as the BATH lexical set is too small, and the majority of BATH

vowels have an open syllable rhyme. Indeed, in this dataset, the only tokens with an open syllable rhyme were ‘rather’ and three instances of ‘passing’. Additionally, ‘rather’ was the only word with a voiced fricative following the BATH vowel. Therefore, as open syllables favour a shorter vowel (Piercy 2011: 162), this may have had a stronger effect on the vowel duration than the voicing of the following consonant.

Discoursal context had the expected effect on vowel length, with a significant increase in duration in pre-pausal environments (Klatt 1976; Wightman et al. 1992). This effect was also confirmed following post-hoc pairwise EMMs testing, which found significant differences between all three discoursal contexts. This can be seen in Figure 7.9 below, where the shortest BATH vowels are found in the word list, followed by the map task in non-pre-pausal then pre-pausal discoursal contexts. Of course, the differences in BATH duration between the word list and map task also represent stylistic shifts, and the implications of this are explored in Section 7.3.2 below.

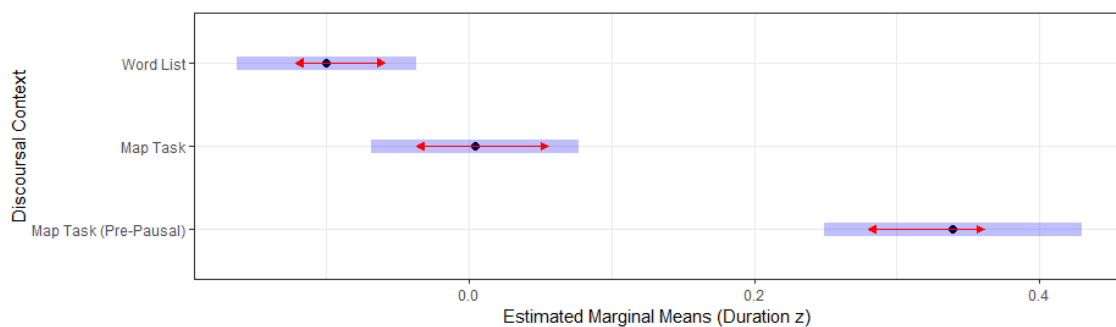


Figure 7.9: Pairwise comparisons of EMM BATH duration for the three discoursal contexts from the BATH duration model output.

Finally, the quality of the BATH vowel had a highly significant effect on duration. Fronted tokens of BATH were significantly shorter than backed tokens, with the largest estimate (-57) of any predictor in the models (Table 7.2). Following the results of the diachronic analysis of BATH duration in Cornwall, which found that fronted variants of BATH had significantly decreased in length across real time (see Chapter 6), this finding was in line with expectations.

7.3.2 BATH DURATION: SOCIAL FACTORS

The results of the regression analysis (Table 7.2) suggested that, when interacted with BATH quality, parental birthplace and gender both significantly affected the duration of the BATH vowel. Discoursal context, which included the type of elicitation task, significantly affected BATH durations for both backed and fronted variants of BATH in the same direction. These are the same social factors that had a significant effect on BATH quality, with non-significant effects for social class and identity index score once again. This analysis will now take each of these significant variables in turn and explore them in more depth, performing post-hoc pairwise EMMs tests where necessary.

First, Figure 7.10 below shows two density plots comparing vowel durations in the two elicitation tasks. They compare how the shift in BATH durations between the two elicitation tasks (right) differs to the shift in vowel durations between the tasks in all other lexical sets (left). The plot showing BATH durations demonstrates the style shifting effect, with shorter vowels being produced in the word list. The comparison with vowel durations in the other lexical sets suggests that this is atypical for the general trend in the dataset, in which vowels tend to be shorter in the map task. This demonstrates that this finding is not simply an artefact of the methodology, as the normalisation technique may have made all vowels appear shorter in the word list, or speakers may have had a faster speech rate in one task. It should be noted that only the BATH (and TRAP) alignments have been checked and hand-corrected in this dataset. Although the other duration measurements were not checked and hand-corrected, there is a high number of tokens ($n=18,419$), and those that were more than 2 standard deviations from the mean were removed from the dataset in order to guard against inaccuracies in token extraction.

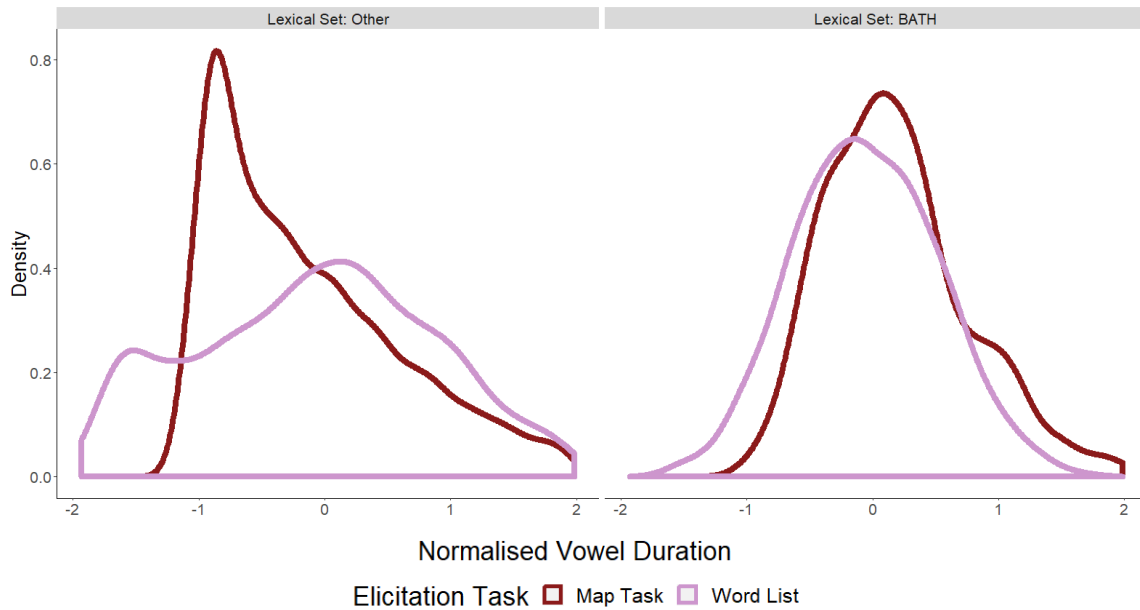


Figure 7.10: Density plots showing the duration of all non-BATH vowels (left) and BATH vowels (right) according to elicitation task.

In the model of BATH duration, gender was highly significant when interacted with BATH quality. This effect can be seen in Figure 7.11 below, which shows that, in general, fronted tokens of BATH were shortest for the girls.

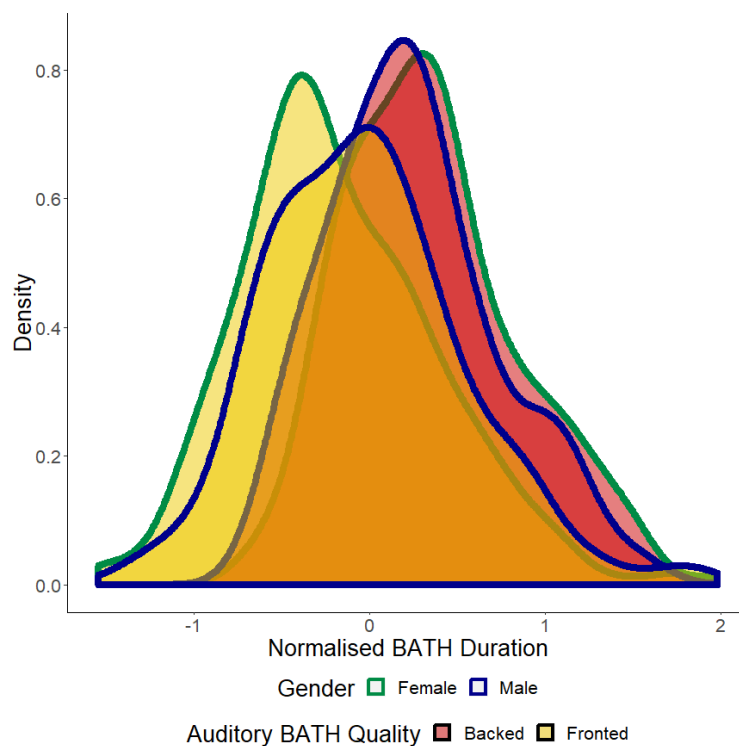


Figure 7.11: Density plot showing BATH durations, coloured according to gender, and split in fill colour auditory vowel quality.

In order to explore where the significance lies in the interaction between gender and auditory BATH quality, post-hoc pairwise EMMs tests were carried out, the results of which can be seen in Figure 7.12 below. This shows that there is a significant difference between the genders in the duration of fronted BATH tokens, but not for backed tokens. As such, the girls have significantly shorter variants of fronted BATH than the boys.

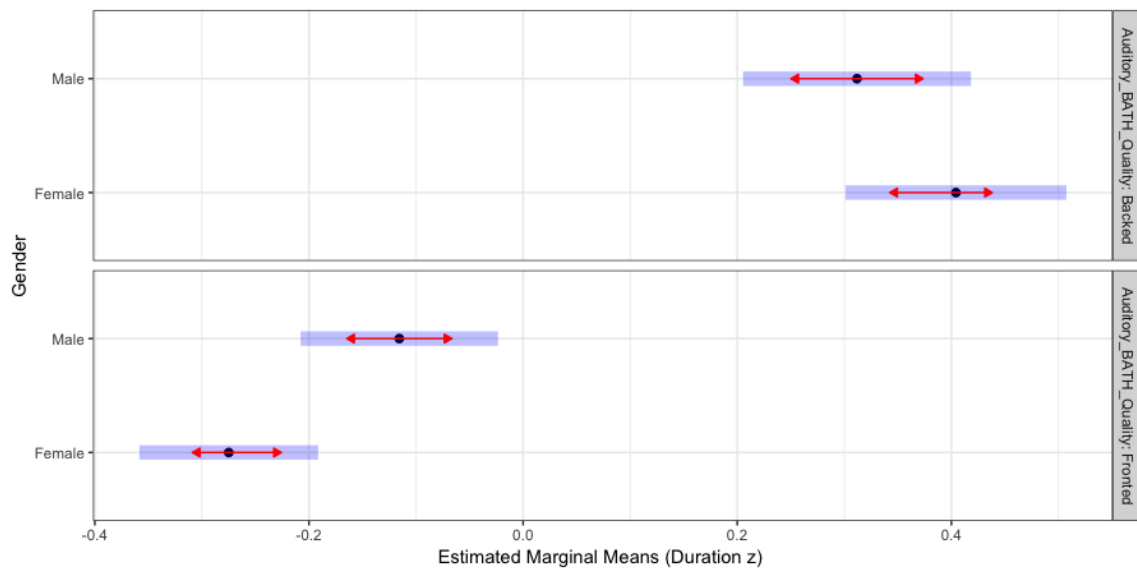


Figure 7.12: Pairwise comparisons of EMM BATH duration for the two genders according to auditory vowel quality from the BATH duration model output.

Finally, the boxplots in Figure 7.13 below show the effect of parental birthplace on the duration of the BATH vowel, split according to auditory vowel quality. Due to the multiple levels within the interaction between BATH quality and parental birthplace, this variable was too complex to visualise using a density plot. Figure 7.13 shows that parental birthplace has very little effect on the duration of backed tokens of BATH, and for all the groups, they are longer than the fronted tokens. This suggests that the backed variant of BATH is an unambiguously long vowel for these speakers. However, for the fronted tokens of BATH, parental birthplace significantly affects duration. The speakers with either both Northern parents, or one local and one Northern parent, have the shortest fronted BATH vowel, followed by those with both local parents, then those with South Eastern parents have the longest fronted BATH vowels.

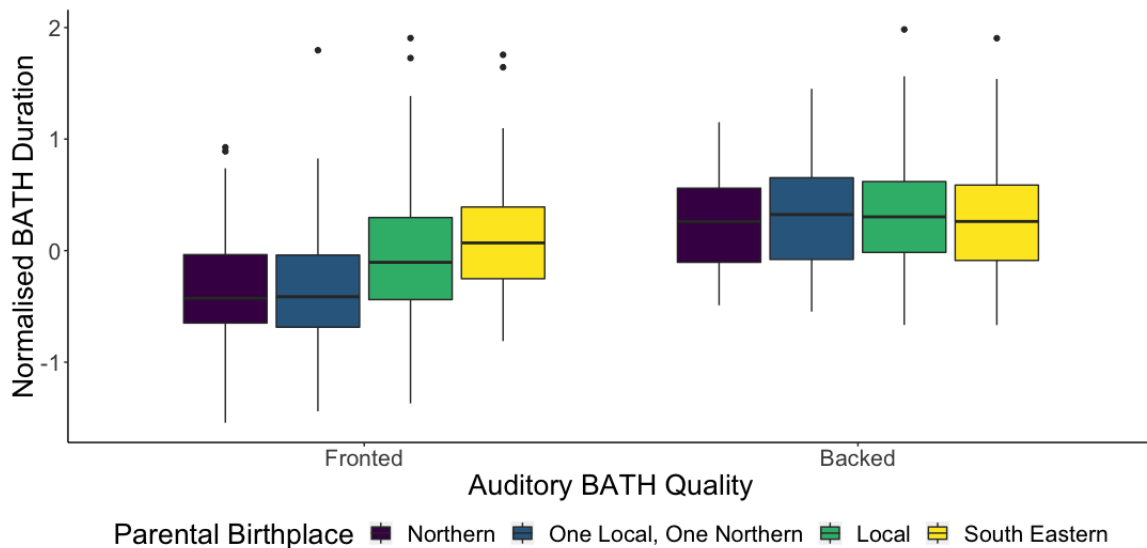


Figure 7.13: Boxplot showing normalised BATH vowel durations, grouped by vowel quality, and coloured according to parental birthplace.

In order to make pairwise comparisons between the groups, post-hoc EMMs testing was carried out on this variable. The results of this test are shown in Figure 7.14 below. This shows that, for backed tokens of BATH, parental birthplace has no significant effect on durations. In contrast, for fronted tokens, there are significant differences for three groups. First, the speakers with either both Northern parents, or one local and one Northern parent, are grouped together with the shortest fronted BATH vowels. The speakers with both local parents have significantly longer fronted BATH vowels. Finally, the speakers with parents from the South East have the longest fronted BATH vowels. They are only marginally longer than those produced by speakers with local parents, but the difference is statistically significant. In addition, there is no significant difference between the duration of fronted and backed variants of BATH for the speakers with South Eastern parents.

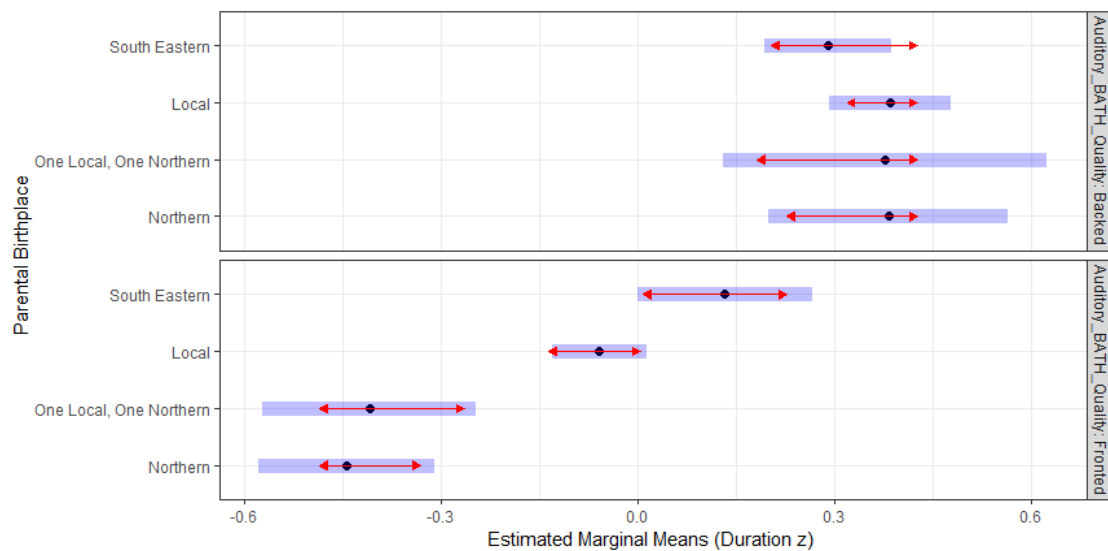


Figure 7.14: Pairwise comparisons of EMM BATH duration for the four parental birthplace categories, and according to auditory vowel quality, from the BATH duration model output.

7.3.3 SUMMARY: BATH DURATION

In summary, the statistical analysis of BATH duration in the Contemporary Cornwall corpus has found significant effects for a variety of linguistic and social factors. As expected, tokens in pre-pausal discursal context in the map task were significantly longer. For following linguistic context, one environment (voiceless fricatives) significantly favoured longer durations. However, this was attributed to the co-occurrence of this environment and tokens with closed syllable rhymes. Duration was also conditioned by the quality of the vowel, with significantly shorter fronted variants of BATH than backed variants. This reflects the shift in real time towards short, fronted BATH vowels in Cornwall, as reported in Chapter 6.

Regarding the social factors, there was an interaction between auditory vowel quality and gender, where female speakers had the shortest variants of fronted BATH. Parental input was also found to have a significant influence on the fronted variants of BATH, but not the backed tokens. Speakers with influence from at least one Northern parent had the shortest fronted BATH vowels, followed by those with both local parents, then those with South Eastern parents had the longest fronted BATH vowels. Finally, the significant effect for discursal context also found that speakers shifted towards shorter variants of BATH in the most monitored style, regardless of vowel quality.

7.4 DISCUSSION: SYNCHRONIC ANALYSIS OF BATH VARIATION

This synchronic analysis of BATH variation in West Cornwall has suggested some potential motivations for the diachronic shifts discussed in Chapter 6. It has explored the linguistic and sociolinguistic correlates of variation in both vowel duration and quality. In particular, analysis of the social distribution of these acoustic parameters has provided insight into the social meaning of the different variants of BATH in West Cornwall. The following discussion first explores a general overview of these results, and their implications for our understanding of the current status of BATH in West Cornwall, before providing an in-depth discussion of each of the social factors.

7.4.1 GENERAL OVERVIEW

The results of both the acoustic and auditory analysis of the BATH vowel in the Contemporary Cornwall corpus found that backed variants of BATH have diffused into West Cornwall. However, fronted variants of BATH were still in the majority amongst these young speakers in the region. This result is particularly interesting given the findings of other studies of BATH in the South West. In Dorset, Piercy (2011: 157) found BATH to be backing across apparent time, with the fronted tokens occurring only 10% of the time in the speech of the youngest participants (aged fourteen). Similarly, self-reported and self-recorded data collected from the English Dialects App (Leemann, Kolly & Britain 2018) indicated that the backed BATH vowel is now the most common form in the South West, including Cornwall (Blaxter p.c.). The auditory and acoustic analysis of the BATH vowel in the present study suggests the attrition of the local variant of BATH in favour of the South Eastern form has not progressed as far as would be expected from these studies. Regarding comparisons between Piercy (2011) and the present study, these differences could be attributed to geography. Dorset is much further east than Cornwall, so it would be expected that diffusion of the South Eastern variant of the BATH vowel would have progressed further in this region. In addition, the English Dialects App relied on a different data collection technique and a different population to the present study, which may account for the disparity in the results. Within the English Dialects App data, participants with higher education were 'substantially oversampled' (Leemann, Kolly & Britain 2018: 14). As such, fewer non-standard variants could be expected to be found in their speech. Self-reported data can

also to be biased towards standard forms, as speakers can either be unaware of, or unwilling to admit to, their usage of stigmatised variants (e.g. Labov 1966: 470–472).

In addition to a general overview of the distribution of variants of the BATH vowel in this dataset, this analysis also explored how variation patterned across different social groups and speech styles. Each of these factors will be discussed in more detail in the sections below, exploring what they tell us about the status and social meaning of BATH vowels in West Cornwall.

7.4.2 STYLE SHIFTING

The statistical analysis of BATH variation in this dataset found that elicitation task was a significant predictor for both the quality and duration of the vowel. For BATH quality, female speakers shifted towards a more fronted and open pronunciation in the most monitored style. For BATH duration, there was a shift towards a shorter BATH vowel in the most monitored style. In comparison to the result for BATH quality, this shift was not gendered.

Interpretation of this result requires careful consideration of notions of style, prestige, and identity. Conceptualisations of style through the lens of a traditional Labovian ‘attention to speech’ paradigm (Labov 1972b) assume that, in the most formal speech styles, speakers will modify the features of which they are most aware. This approach has generally assumed a connection between prestigious language and formality, where more ‘formal’ styles, such as read speech, will elicit more prestigious features associated with that style. Conversely, in less monitored and less formal styles, such as in interviews, speakers will revert to a more ‘vernacular’ style. This effect has been demonstrated in numerous sociolinguistic studies (e.g. Trudgill 1974b). However, recent research from Sharma (2018) and Sharma and McCarthy (2018) has highlighted issues with untangling the effects of prestige and attention in the traditional sociolinguistic interview design. They demonstrate that increased ‘attentional load’ can result in shifts towards the speaker’s ‘first learned vernacular’. As such, they suggest that the influence of community-based prestige norms cannot wholly explain the numerous variationist accounts of style shifting in the traditional sociolinguistic interview.

Other researchers have explored where instances of increased attention to speech have not resulted in a shift towards more prestigious forms, but have instead been used as an opportunity for identity performance. These alternative interpretations of the attention to speech paradigm have problematised the assumption of a continuum from 'vernacular' to 'standard'. For example, in a study of style shifting in relation to pharyngeals in Hebrew, Gafter (2016) found that speakers increased their use of the stigmatised form when reading a word list. Gafter (2016) concluded that the speakers were using the word list as a site to perform their ethnic identity.

This inverted style pattern has also been found amongst adolescents. Stuart-Smith, Timmins and Tweedie (2007) found that, while working class Glasgow adolescents did shift away from using local forms in the most monitored style (a word list), they did not shift in their use of more widespread vernacular forms, such as /t/-glottaling and /l/-vocalisation. They suggest that this may be due to identity performance in the word list: 'the teenagers treated the task as an opportunity to display to [the fieldworker] instances of 'their' speech' (Stuart-Smith, Timmins & Tweedie 2007: 247)

In the Cornish context, this effect has also been demonstrated by Sandow and Robinson (2018) in an analysis of shifts in usage of dialect lexis according to the amount of attention paid to speech. When the speakers were highly aware that they were being observed, they used more local dialect lexis, while they used the standard form more often when they were paying least attention to their speech. Sandow and Robinson (2018) concluded that the most monitored style is an opportunity for the speakers to 'perform' their Cornish identity.

I also found a similar effect in my own preliminary research into BATH variation in Cornwall (Dann 2016). Speakers from West Cornwall were split according to positive, neutral, or negative orientation to Cornwall, and their production of the BATH vowel was analysed in both a 'casual' interview style, and a 'monitored' word list style. It was found that, for all three groups, speakers shifted towards the more fronted pronunciation in the most monitored style. I considered this finding to demonstrate the status of the BATH vowel in Cornwall as a highly enregistered feature. As a result, the shift towards fronted BATH for even the most negatively oriented speakers suggested

that they were, to some extent, ‘performing’ the features most associated with the variety in response to the context on the interview (the lack of significant results for the effect of identity index score on BATH variation in the present study is discussed in Section 7.6 below).

Similarly, Schilling-Estes (1998) has demonstrated how consideration of performance speech, a highly self-conscious register, can provide insight into the social evaluation of linguistic forms. As stated by Schilling-Estes (1998: 77), ‘speakers highlight features of which they are most aware... when they give a speech performance’. In relation to Bell’s (1984) ‘audience design’ model, Schilling-Estes (1998) also highlights the context of a sociolinguistic interview as a kind of performance for the linguistic researcher.

Taken together, these studies have demonstrated the way in which the ‘attention to speech’ paradigm can provide more insight into a social meaning of a variable which goes beyond a simple correlation between prestige and use of the standard form. Speakers may shift towards the vernacular during instances of increased attentional load. In addition, the most monitored styles are an opportunity for speakers to ‘perform’ for the researcher, either by expressing an element of their personal identity in shifting towards forms which are high status for them, or by highlighting the forms which are strongly associated with the variety they believe to be under study. Given these findings, it is important to consider how we conceptualise notions of ‘prestige’ and ‘stigma’. While prestige is generally equated with standard language in sociolinguistics (e.g. Labov 1990), non-standard forms can often hold *local* prestige, which can help them to resist the effects of standardisation and incoming innovations (see Section 1.2 of Chapter 1). Similarly, while ‘posh’ speech is often characterised as including more standard speech, the term ‘posh’ is rarely positively applied, it is a particularly stigmatised rendering of prestige (see Section 2.5.1 of Chapter 2).

With regards to the present study, conceptualising the word list as an opportunity for performance provides insight into the social meaning of BATH variants in West Cornwall. It suggests that short, fronted variants of BATH have some local prestige amongst these speakers. The oppositional style shifting patterns for the duration and the quality of the BATH vowel also suggest that the two acoustic elements of the

traditional variant may have different social meanings. Amongst these speakers, fronted and lengthened variants of BATH may have less local prestige than short, fronted forms. In addition, as discussed above, if the most monitored styles in a sociolinguistic interview can act as an opportunity for speakers to ‘perform’ for the researcher, this may also highlight the enregisterment of fronted variants of BATH as a feature of Cornish English.

Regarding the significant interaction between gender and elicitation task, the shift towards short fronted BATH in the word list was also largely undertaken by the girls. This provides further evidence for the lack of stigma attached to short fronted BATH in the region as, on average, girls have been found to use both the most prestigious, and most innovative, linguistic forms (e.g. Labov 1990). Given these general trends in variationist research, one would assume that if a variant were overtly stigmatised, girls would be the least likely to use it in the most self-conscious style.

This finding may speak to the ‘resemiotization’ (Johnstone 2010b) of short fronted BATH in Cornwall. Johnstone (2010b) describes the process whereby a linguistic feature becomes such a strong index of place that it is ideologically de-linked from the stigma of class-based associations. This process is particularly likely to occur in cases of large-scale dialect contact as a result of mobility, as place-linked identities become more important for speakers. As there has been large-scale in-migration to Cornwall in recent years (see Section 1.4.1 of Chapter 1), it follows that short, fronted BATH, a locally enregistered feature from this region, may be a good candidate for resemiotization, particularly given that this feature has undergone the same process in Northern England (cf. Wells 1982b: 354; Trudgill 1986: 18).

It is also possible that the social meaning of the Northern form has had some influence on the adoption of the innovative, short, fronted BATH vowel in Cornwall. A similar process is described by Stuart-Smith and Timmins (2014), in an exploration how the presence of Cockney accents in the media may have influenced the spread of a variety of ‘London’ innovations to Glasgow, including /l/ vocalisation and (th)-fronting. Specifically, engagement with the London-based soap *EastEnders* was found to accelerate the adoption of these features amongst adolescents. However, they do not

suggest that the Glasgow adolescents are trying to sound like Londoners. Instead, shows such as *EastEnders* may reinforce the social personae indexed by these features. It is possible that a similar process has happened for the BATH vowel in Cornwall. It is unlikely that the speakers in the Contemporary Cornwall corpus are using short, fronted BATH vowel to try and sound like Northerners. However, the notion of a locally oriented, working class, and urban social identity in the North is portrayed in, for example, shows such as *Coronation Street*, and by musicians such as the Arctic Monkeys (see Beal 2009b). This could potentially have reinforced the social meaning of the short, fronted BATH vowel in Cornwall as an index of localness, but not specifically rurality. In addition, the presence of the Northern form in many of the speakers' parental input means it is possible for this variant to be adopted, and to attract social meaning, locally. This is further explored in Section 7.4.4 below.

Finally, the shift toward shorter variants of BATH for the backed tokens in the word list is more surprising. The standard form is a long vowel, so it would be expected that, for this variant, there would be little style shifting in duration along the formality continuum. However, there was no significant interaction between discursial context and vowel quality, so the style shifting effect was present for both fronted and backed vowels. There are two possible explanations for this. First, for Northerners (and most likely South Westerners) long, back BATH vowels can be associated with a 'posh' persona (e.g. Gupta 2005: 24; Austen 2019). Therefore, the duration of the back vowel may carry some undesirable social meanings in relation to its association with being 'posh', so speakers shift away from the long vowel in the most monitored style. However, further research into perceptions of backed BATH would be needed to draw this conclusion with any certainty (see Section 8.3 of Chapter 8). Alternatively, the associations between the long, fronted BATH vowel and rurality may be strong enough to influence the production of backed vowels. Speakers may shift away from long, backed BATH vowels in the most monitored style as an extra precaution against sounding 'farmer-like'. In addition, the shift towards more fronted pronunciations of BATH in the word list may have increased motivations to shorten the vowel, as this heightens the possibility of the longer variant being interpreted as 'rural' (for a discussion of how these hypotheses could be tested, see Section 8.3 of Chapter 8).

Overall, this style shifting pattern provided further support for the hypothesis drawn from the diachronic analysis of BATH and TRAP, which found that the duration of both variants had significantly decreased across real time (see Chapter 6). As discussed in Section 6.1.3 of Chapter 6, it was suggested that the innovation of short, fronted variants of BATH may have been motivated by associations between long, fronted BATH variants and negative perceptions of rurality. However, the rural associations may be specifically tied to the *duration* of fronted BATH, as opposed to the vowel quality alone. Instead, the fronted quality may have more place-based associations. Therefore, the desire to maintain regional distinctiveness, but avoid variants linked to negative stereotypes of rurality, may have motivated the shortening of the fronted variant, as opposed to simply shifting towards the RP form. If, as discussed above, the most monitored style is viewed as an opportunity for the speakers to perform some aspect of their identity, and use locally prestigious variants, these results are in line with this hypothesis. In addition, while the speakers with fronted BATH may be avoiding ‘rural’ associations by shortening their BATH vowels in the word list, the speakers with backed BATH may be shifting in the same direction in order to avoid ‘posh’ associations.

7.4.3 GENDER

For both BATH quality and duration, gender significantly influenced production. The boys had the most open and fronted variants of BATH. In addition, within the auditorily fronted tokens, the boys also had the longest variants. However, the effect of gender for both F1 and F2 was only marginal ($p=0.044$ and $p=0.048$, respectively), while the effect of gender on the duration of fronted tokens of BATH was much stronger ($p < 0.001$).

This finding adds some nuance to both the results of the diachronic analysis of BATH in West Cornwall, and the discussion of style shifting in Section 7.4.2 above. The style shifting results suggested that the duration of the fronted BATH vowel may have undesirable associations for young speakers in Cornwall, whereas the fronted quality may have more positive attributes due to its association with place. If, as noted in Section 7.4.2 of the current chapter and Section 6.1.3 of Chapter 6, South Western ‘long <a>’ is associated with negative stereotypes of rurality, the highly significant stratification by gender in the duration of fronted BATH tokens is unsurprising. As a

general trend in language variation and change, male speakers tend to use more stigmatised forms. Trudgill (1972) explains this patterns as the consequence of ‘covert prestige’, the process by which non-standard dialect features index desirable masculine characteristics for male speakers, such as ‘toughness’, despite being overtly stigmatised. This pattern has been replicated in numerous sociolinguistic studies of language variation, such as Gal (1978) and Eckert (1990).

Ideological links between masculinity and rurality may explain the gendered patterns in this data. Section 1.3 of Chapter 1 discussed how rurality can reinforce traditional gender roles. It demonstrated how this may affect linguistic practices in areas such as Cornwall, as women have both increased pressure to conform to standard language norms, and local linguistic features are more likely to have ‘masculine’ associations.

Therefore, as rural identities are inherently linked with stereotypical masculinity, there may be more ideological constraints on the use of variants linked to rurality for the girls. In comparison, the boys may not be subject to the same ideological constraints, so are more likely to use the forms in their input. The highly significant difference between girls and boys for the duration of fronted BATH may be explained by these constraints. However, there was also a marginally significant result for BATH quality, as the boys had slightly more open and fronted BATH vowels. This suggests that similar ideological pressures may be influencing the girls’ use of the fronted form. However, the gender difference in durations was much larger than the difference in quality, which supports the hypothesis that the negative stereotypes of rurality are largely tied to the duration of the vowel.

It should be noted that these hypotheses about the links between certain nonstandard forms and stereotypical ‘rural’ masculinity are only tentative. Eckert (2011: 86) discusses the need to consider children’s identities in their own right, rather than viewing ‘adult behaviour as the target’. In the context of both gender and the rural, our understanding of dominant ideologies is often informed by studies of adult behaviours, and there is evidence to suggest that children experience and relate to these constructions differently (see Matthews et al. 2000; Horton 2014). For example, Bye (2009) found that rural masculinities had shifted amongst younger generations, becoming more

flexible and less firmly rooted in physical labour. However, she notes that young rural men still lag behind in their adoption of ‘new and alternative masculinities’ (Bye 2009: 287). Therefore, further research would be required to explore exactly how rural adolescents such as those in the Contemporary Cornwall corpus ‘do’ masculinity, and the extent to which this is rooted into stereotypical constructions of the rural.

Finally, the gendered differences in BATH realisation in this dataset could be explained by the changes in progress for this variant in West Cornwall. The analysis in Chapter 6 found that BATH was slowly backing across real time in the region, albeit not as quickly as expected, and that fronted variants were becoming significantly shorter. Female speakers also tend to lead language change, using the most innovative incoming linguistic forms (e.g. Labov 1990; Tagliamonte & D’Arcy 2004). Therefore, the effect of gender on BATH realisation in the Contemporary Cornwall corpus is in line with these real time results. If BATH in West Cornwall is simultaneously in the process of backing and, for fronted variants, shortening, the female speakers would be expected to be leading these changes. However, this analysis has explored BATH variation from two particularly disparate time points, and the SED corpus consisted of one, relatively homogenous group of speakers. As a result, it is difficult to determine the trajectory and stage of the shift.

7.4.4 PARENTAL BIRTHPLACE

When analysing the effect of parental birthplace on BATH quality and duration, the speakers were grouped differently. While the statistical models of BATH quality considered whether the speaker had at least one parent who was locally born, the duration models additionally considered whether speakers’ parents were Northern, local, both local and Northern, or South Eastern.

The results of the regression analysis suggested that parental birthplace influenced BATH F2, with those speakers with at least one parent who was born in Cornwall having significantly fronter BATH vowels. The statistical results for BATH duration were more complex. For backed tokens of BATH, there was no significant differences in duration between parental birthplace groupings. For fronted tokens, speakers with at least one Northern parent had the shortest BATH vowels. Those with local parents had

significantly longer fronted BATH vowels, but they were shorter than those speakers with both South Eastern parents, who had the longest vowels.

Taken alone, these results are striking, and support the notion that parental input is paramount, and has remained influential into early adolescence (Payne 1980). However, the influence of parental input may not simply disappear after adolescence. A variety of studies have demonstrated the importance of family ties to a region on language use amongst speakers of a variety of ages. In a summary of this research, Hazen (2002b) has explored how the family can act as a community of practice, where patterns within families can differ from community norms. Most notably in relation to the present study, Hazen (2002b: 518) notes:

‘Amongst families, the children of families recently immigrated to a community may demonstrate more family-oriented language variation patterns. The effects on the children may vary by age and the relative prestige of the family’s variety versus that of the community’.

The family-oriented language patterns could be linked to a lack of social networks which include high volumes of local speakers for the families who have recently immigrated to the region (Hazen 2002b: 516). In addition, in the present study, for both the children of Northern parents and the children of South Eastern parents, the BATH variant used by their families may be more prestigious relative to the South Western form. Even though the Northern variant is also non-standard, as discussed in Section 2.4.3 of Chapter 2, numerous sociolinguistic studies have highlighted the local prestige of short, fronted BATH vowel in the North, regardless of the speaker’s social status. Considering these factors, it is unsurprising that the children with at least one recently immigrated parent in this study appear to be influenced by their family ties in their pronunciation of the BATH vowel. Indeed, Piercy (2010: 235) found a similar pattern for the BATH vowel in Dorset. She found that, regardless of age, speakers with the fewest parents and grandparents born in the region patterned most like RP speakers.

This suggestion that these results do not simply reflect an incomplete process of incrementation is also supported by significant effects for elicitation task and gender. This indicates that the BATH vowel is doing some social work for these speakers. In

particular, the ability to style shift has been identified as evidence of sociolinguistic competence in children (Romaine 1984; Kerswill & Williams 2000: 103).

Regarding the duration of this variable, the finding that the shortest variants of BATH in West Cornwall were used by the children with Northern parents may suggest that the short, front BATH vowel in Cornwall may be a consequence of dialect contact with Northern in-migrants. However, the speakers with no Northern influence from their parents still have shorter variants of fronted BATH than those found in traditional varieties of Cornish English (see Chapter 6). In addition, as noted above, the stylistic and gendered patterns suggest that short variants are taking on social meaning that is local to West Cornwall.

Finally, the speakers with South Eastern parents had the longest, fronted tokens of BATH. This could be explained by the differing social meaning of long BATH vowels for these speakers compared with either local, Cornish-born parents, or Northern parents. As noted above, the shortening of the front BATH vowel in Cornish English may have occurred in response to the stigma attached to the South Western 'long <a>'. In addition, for Northerners (and most likely South Westerners) long, backed BATH vowels can be associated with a 'posh' persona (e.g. Gupta 2005: 24; Austen 2019). However, this variant is unlikely to be an index of 'posh' for those speakers with South Eastern parents, given that this is the norm for speakers of all social classes in the South East. In addition, these speakers are likely to have maintained social networks with South Easterners, amongst whom the long backed BATH vowel will have prestige. As a result, longer BATH vowels in general might be more positively evaluated for this group of speakers, so they may also not shorten the fronted variants of BATH. However, further speech perception tests would be required to increase certainty in this conclusion (see Section 8.3 of Chapter 8).

Therefore, the variation according to parental birthplace in this dataset is likely explained by a combination of the continued influence of parental speech on children as old as 13, the effect of family ties on language use, and how this might affect their evaluation of linguistic variants.

7.5 ACOUSTIC ANALYSIS OF TRAP DURATION

The analysis of TRAP duration across real time in Cornwall (Section 6.2.2 of Chapter 6) found that the vowel had significantly decreased in length. Indeed, it had even decreased beyond the duration of the TRAP vowel in the RP corpus. Similarly, fronted variants of the BATH vowel had also decreased in duration across real time (Section 6.1.2 of Chapter 6). However, some groups of speakers, namely boys, were still using some longer variants of fronted BATH (Section 7.4.3 of this chapter). Taken with findings from speech perception experiments (Chapter 4; Montgomery & Moore 2018), it was suggested that these results were due to the association between South Western ‘long <a>’ and rurality.

Regarding vowel quality, it was suggested that the traditional Cornish English form [a], which has the same quality as the Contemporary Cornwall TRAP tokens, is close to the variant used in more mainstream varieties of RP. Therefore, it is assumed that there will not be any meaningful variation in TRAP F1 or F2 for the Contemporary Cornwall speakers. On the other hand, both the diachronic analysis of BATH and TRAP vowels, and the synchronic analysis of the BATH vowel, suggested that the duration of low front vowels in Cornwall is socially meaningful. Considering these findings, the analysis of TRAP in the Contemporary Cornwall corpus presented in this section will model only the duration of the vowel.

As detailed in Section 3.4.2 of Chapter 3, duration measurements were taken from 1054 tokens of the TRAP vowel in the Contemporary Cornwall corpus. This analysis will first present a statistical model of these measurements. As with the modelling of the acoustic parameters of BATH, this model sets fixed social effects of gender, social class, identity index score, parental birthplace (at least one local, or non-local), and discoursal context (which accounts for style shifting effects) on TRAP duration. It also includes fixed effects for linguistic context, which describe the voicing and manner of articulation of the following context, and whether the vowel is part of an open or closed syllable. Contrasting with the BATH vowel, TRAP tokens occur in many different linguistic contexts. As a result, vowel tokens in the TRAP lexical set are much more sparsely dispersed across following linguistic contexts (see Section 5.5 of Chapter 5). In order to

increase the predictive power of the model, any linguistic environments with fewer than 10 tokens were removed. Finally, as with the BATH duration model, ‘discoursal context’, which codes each token as ‘map task’, ‘map task (pre-pausal)’, or ‘word list’, was also included as a fixed effect (see Section 3.4.4 of Chapter 3 for a discussion of the motivation and methods behind the linguistic and discoursal contexts). This best model of TRAP duration is shown in Table 7.3 below.

TRAP Duration			
<i>Predictors</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	-0.38	-0.58 – -0.19	< 0.001
Identity Index Score	0.04	0.01 – 0.08	0.025
Following Context: Voiced Fricative, Closed SR	0.63	0.40 – 0.85	< 0.001
Following Context: Voiceless Fricative, Closed SR	0.17	-0.04 – 0.38	0.113
Following Context: Voiced Fricative, Open SR	0.05	-0.17 – 0.26	0.670
Following Context: Nasal, Closed SR	0.36	0.14 – 0.57	0.001
Following Context: Nasal, Open SR	0.22	0.00 – 0.45	0.049
Following Context: Voiced Stop, Closed SR	1.03	0.82 – 1.24	< 0.001
Following Context: Voiceless Stop, Closed SR	0.09	-0.11 – 0.29	0.389
Following Context: Voiced Stop, Open SR	-0.27	-0.49 – -0.05	0.015
Discoursal Context: Word List	-0.02	-0.09 – 0.05	0.650
Discoursal Context: Pre-Pausal	0.39	0.23 – 0.56	< 0.001
Random Effects			
σ^2	0.21		
τ_{00}	0.01	speaker	
ICC	0.03	speaker	
Observations	1045		
Marginal R ² / Conditional R ²	0.447 / 0.465		

Table 7.3: Results of the mixed effects regression analysis of the duration of vowels in the TRAP lexical set.

Table 7.3 above shows that the only social effect which significantly predicted TRAP duration in this dataset was identity index score. However, the duration of the TRAP

vowel was conditioned by a variety of following linguistic contexts. In addition, discoursal context significantly predicted the duration of TRAP vowels. Beginning with linguistic and discoursal context, each of these significant effects will be explored in more detail.

7.5.1 TRAP DURATION: LINGUISTIC AND DISCOURSAL CONTEXT FACTORS

For the fixed effect of ‘following linguistic context’, the predicted TRAP durations from the model output were very different to the durations of the unmodelled data. This is most likely due to the conditioning effect of discoursal context, which also significantly affected vowel duration. For example, where one linguistic environment usually occurred phrase finally (such as at the end of a map task landmark), it may have generally been produced with a longer vowel. Post-hoc EMMs testing was also carried out on the model output for following linguistic context in order to explore which environments were significantly different from one another. Figure 7.15 below shows the EMM TRAP duration according to following linguistic context.

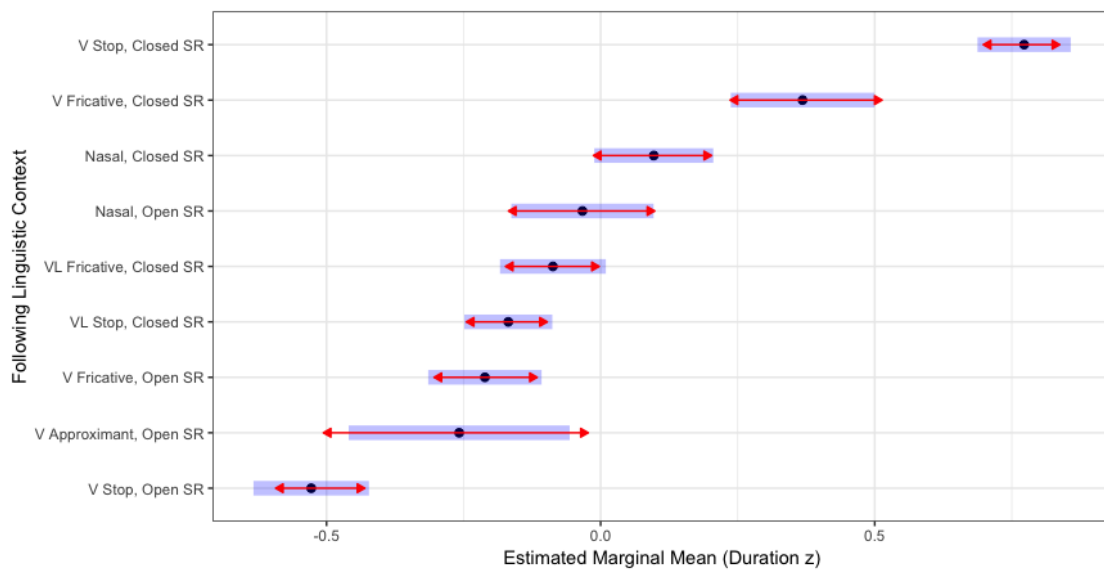


Figure 7.15: Pairwise comparisons of EMM TRAP durations from the model output according to following linguistic context. ‘V’ refers to ‘voiced’, ‘VL’ refers to ‘voiceless’, and ‘SR’ refers to ‘syllable rhyme’.

As shown in Figure 7.15 above, many of the different following linguistic contexts significantly differ from one another in their effect on TRAP durations. From the highest EMMs to the lowest, there are some clear patterns within the different environments.

First, the TRAP tokens which are part of a closed syllable are almost always longest. This is in line with both the results for BATH duration (Section 7.3.1 of this chapter) and Piercy's (2011: 162) analysis of TRAP duration in Dorset. In addition, when syllable rhyme is taken into account, the voicing of the following consonant also affects vowel duration in the expected direction (House & Fairbanks 1953; Peterson & Lehiste 1960), as following voiced consonants tend to favour longer vowels. Taking voicing and manner of articulation together, Peterson and Lehiste (1960) have previously found that voiced fricatives favour the longest preceding vowel durations, followed by nasals, then voiceless fricatives and voiced stops, and voiceless stops favour the shortest durations. Therefore, the predicted TRAP durations in the present study roughly follow the expected constraint hierarchy.

However, Kettig (2016) found a different lengthening pattern for the TRAP vowel in RP, with voiceless environments favouring lengthened TRAP the most, followed by voiced stops and nasals. In Dorset English, Piercy (2010: 274) reports the most TRAP lengthening in 'following [θ d r s n m ʃ f ð]' environments. This is roughly in line with the environments that favour TRAP lengthening in RP, although she also reports lengthening in environments that are not found in any other varieties. As such, in both RP and Dorset English (and thus presumably other traditional South Western English varieties), TRAP duration does not follow the expected constraint hierarchy.

In the present study, the results suggest that there is no TRAP lengthening beyond that which can be explained by the effects of coarticulation, as the order in which following environments condition vowel lengthening almost precisely mirrors the findings from Peterson and Lehiste (1960). Although, in contrast to Peterson and Lehiste (1960), the following voiced stops which close the syllable rhyme favour the longest vowels, following voiced stops in open syllable rhymes favour the shortest vowels. As such, it would not be accurate to say that voiced stops always favour longer TRAP vowels in this dataset, bringing the results even further in line with Peterson and Lehiste (1960). Therefore, the effect of following linguistic context on TRAP duration in the Contemporary Cornwall corpus supports the suggestion (first made in Section 6.2.3 of Chapter 6) that the real time shift towards short TRAP vowels in Cornwall has reduced the duration of the vowel even in those environments which favour lengthening in RP.

Regarding the effect of discursal context, the model shown in Table 7.3 above, and post-hoc EMMs testing, found that tokens in pre-pausal positions were significantly longer than both non-pre-pausal and word list discursal contexts. This effect can be seen in the density plot in Figure 7.16 below. This result is in line with both the results for the BATH vowel, and previous research on the effect of discursal context on vowel duration (Klatt 1976; Wightman et al. 1992). TRAP tokens in the word list were not significantly different from those which were not in pre-pausal contexts, which reflects the lack of style shifting according to elicitation task for TRAP duration.

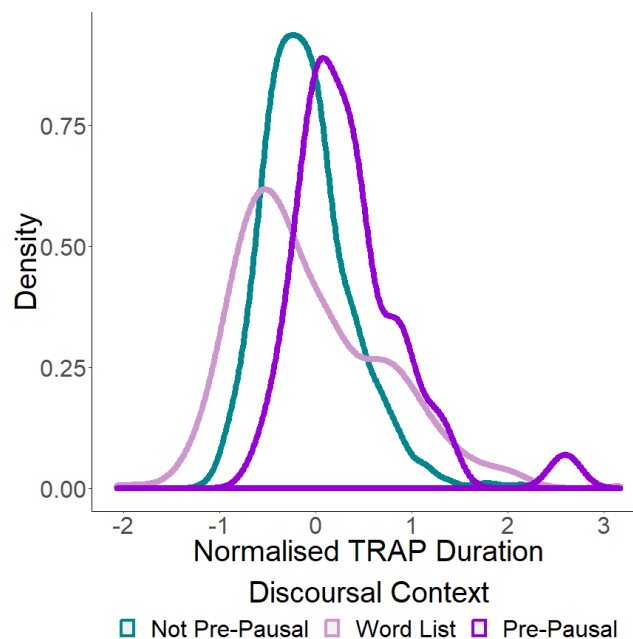


Figure 7.16: Density plots showing the effect of discursal context on the duration of the TRAP vowel.

7.5.2 TRAP DURATION: SOCIAL FACTORS

Only one social factor, identity index score, was a significant predictor of TRAP duration in the Contemporary Cornwall corpus. Figure 7.17 below shows a scatter plot comparing identity index scores and TRAP durations. This shows the individual datapoints for each TRAP vowel, with vowel duration along the x axis, and the speaker's identity index score on the y axis. The regression line (plotted in red) shows the relationship between TRAP duration and identity index score, which the model shown in Table 7.3 found to be significant ($p=0.025$). This demonstrates that speakers who scored higher on the identity questionnaire were more likely to have longer TRAP vowels, but TRAP duration

was not stratified by any other social factors. Section 7.6 will now discuss some implications of these findings.

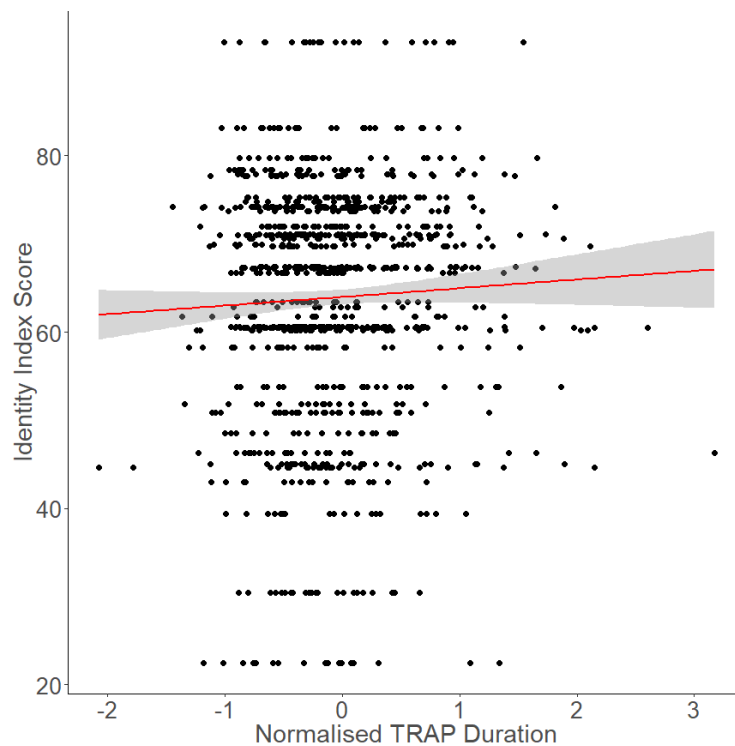


Figure 7.17: Scatter plot showing the correlation between TRAP durations and identity index score, with a regression line plotted in red.

7.6 DISCUSSION: SYNCHRONIC ANALYSIS OF TRAP VARIATION

This analysis of TRAP duration in the Contemporary Cornwall corpus has demonstrated that vowel length is conditioned by a variety of linguistic and discoursal context effects, but the only significant social effect was identity index score. Regarding the effect of discoursal context, this effect was in the expected direction, with vowels in pre-pausal positions having the longest durations (Klatt 1976; Wightman et al. 1992). The analysis of the effect of following linguistic context provided further insight into the results of the diachronic analysis of TRAP variation, which found that this variable had shortened across real time, becoming shorter even than the RP TRAP vowels (Section 6.2.2 of Chapter 6). TRAP vowels in both RP and Dorset English (and presumably other South Western Englishes) are lengthened in additional environments to those that could be explained by coarticulatory effects, as they are longest preceding voiceless fricatives and nasals (Kettig 2016: 10; Piercy 2010: 274). The TRAP vowels in the Contemporary

Cornwall corpus did not exhibit this pattern; they were in line with the expected coarticulatory effects on vowel length, as outlined by Peterson and Lehiste (1960).

As discussed previously (Section 2.4.3 of Chapter 2), long TRAP vowels have been found to be associated with the concept of the ‘South Western farmer’ (Montgomery & Moore 2018). The stigma attached to this persona could explain why this variable has significantly reduced in duration in Cornwall across real time. The speakers in the Contemporary Cornwall corpus do not have TRAP lengthening in those environments that would be found in RP, potentially due to their avoidance of the stigmatised South Western variant.

Regarding the social factors, the results of the statistical model suggested that a higher identity index score predicted longer TRAP vowels. This suggests that speakers with stronger attachment to Cornwall were more likely to use the most traditional variant of TRAP, regardless of stigma, as an expression of their local identity. This is in line with previous research which has considered the effect of local identity on variation (e.g. Underwood 1988; Llamas 1999; Haddican et al. 2013; Sandow & Robinson 2018).

Given that it has previously been suggested that the social meaning of open, front vowels in South Western Englishes are connected (Section 2.4.3 of Chapter 2), it would be expected that identity index score would also have affected the patterning of the BATH vowel. However, in this chapter, the duration of fronted BATH was found to be conditioned by a variety of social factors, such as parental birthplace, gender, and elicitation task, but identity index score was not significant. Identity index score was also not a significant predictor of variation in BATH quality. This does not mean that the BATH vowel is not being used to signal local identity amongst these speakers. Indeed, it was argued earlier in this chapter (Section 7.4.2) that the fronted quality of the BATH vowel likely holds some local prestige in the region. Instead, this may suggest that BATH and TRAP vowels index different *types* of local identity, only one of which was captured by the identity questionnaire.

The identity questionnaire is a relatively blunt tool of measurement. In collecting alignments to statements such as ‘I would describe myself as Cornish’ and ‘I am proud

to be Cornish', they access particularly overt notions of 'Cornishness'. These questions (which are listed in full in Section 3.2.3 of Chapter 3) provided a general insight into how much each speaker identified as Cornish, and how much they enjoyed living in Cornwall. As such, it would be expected that the identity index score would correlate best with usage of those features which are more associated with established notions of 'Cornishness'. As discussed in Section 2.4.3 of Chapter 2, Montgomery and Moore (2018) specifically found lengthened TRAP vowels to be associated with the concept of the 'South Western farmer'. This persona has links to traditional conceptualisations of Cornish identity as connected to rurality, peripherality and traditional industries (see Section 1.4.1 of Chapter 1). It was then suggested that this may have influenced the social meaning of South Western 'long <a>' more generally. However, it could be argued that lengthened TRAP is more strongly associated with this concept than traditional local variants of BATH.

If this is the case, this would explain why TRAP appears to be more advanced than fronted BATH towards a short vowel. This would also account for the significant effect of identity index score for TRAP duration. As this variable is at the very end of a change in progress, only those speakers who identify with very traditional (i.e. 'old-fashioned') notions of 'Cornishness' use the traditional variant. Similar patterns were reported by Labov (1990), where sound changes that were near completion showed the sharpest stratification by social class. Although social class was not a significant predictor of TRAP variation, it could be argued that the most traditional notions of 'Cornishness' are intricately linked to working class identities. In comparison, the BATH vowel may be an index of more modern and nuanced notions of local identity that are inadequately captured by the identity questionnaire.

7.7 A TRAP/BATH SPLIT IN CONTEMPORARY WEST CORNISH ENGLISH?

Following the analysis of variation in the TRAP and BATH lexical sets individually, this section will now bring the analysis of the acoustic parameters of the TRAP and BATH lexical sets together. While there is traditionally a TRAP/BATH split in duration in Cornish English, the diachronic analysis of BATH in Cornwall found that fronted vowels in this lexical set had significantly shortened in present-day Cornwall. This analysis will

explore whether this shortening has resulted in a merger of the TRAP and BATH lexical sets for some speakers in Cornwall.

Figure 7.18 below shows a two-dimensional kernel density plot with the F1 and F2 measurements for each token of BATH and TRAP in the corpus (left) and a density plot with the normalised vowel duration of the same tokens (right). As this analysis is intended to explore whether the speakers with fronted BATH have merged TRAP and BATH lexical sets, the BATH tokens have again been split by auditory front/back quality. Following Nycz and Hall-Lew (2013: 9), the two-dimensional kernel density plot was chosen instead of a regular vowel plot, as this shows where most BATH and TRAP tokens are clustered together, which is difficult to determine from a regular scatter plot.

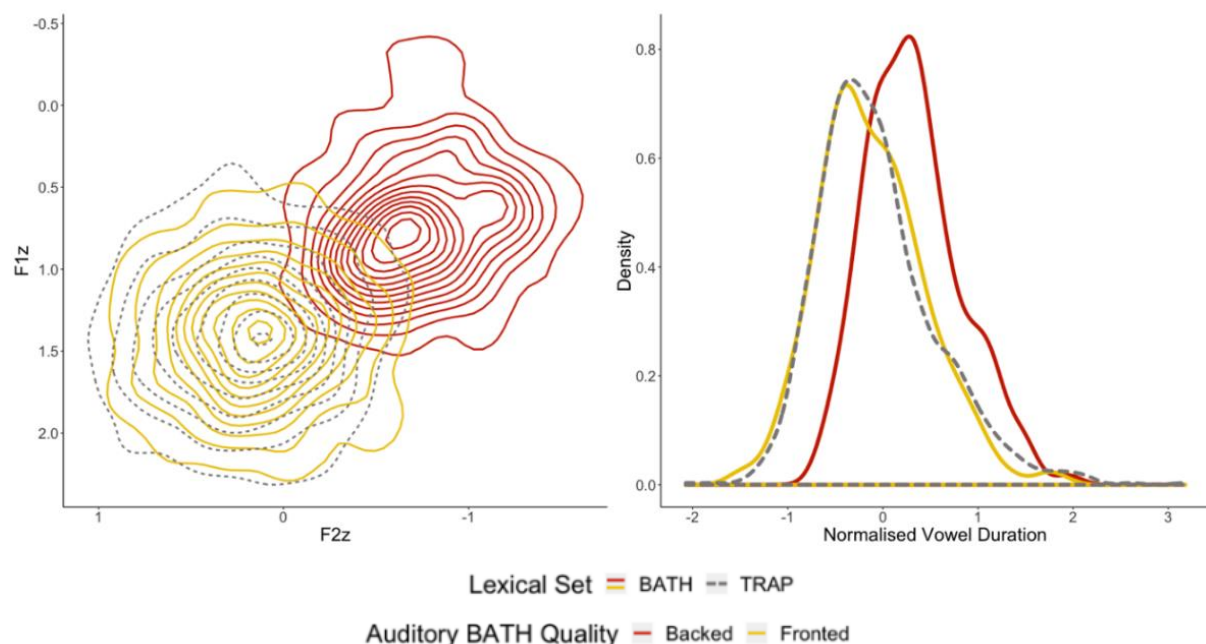


Figure 7.18: Two-dimensional kernel density plot showing the distribution of F1 and F2 measurements of BATH and TRAP tokens (left), and density plot showing the distribution of vowel durations for the same tokens (right). The BATH tokens have been split by colour according to auditory front/back coding, and the lexical sets are split by colour and line type.

Considering Figure 7.18 above, it can be seen that the fronted tokens of BATH are neither split by quality nor duration from the TRAP tokens in the same corpus. Where speakers use a fronted BATH vowel, it tends to occupy exactly the same vowel space as the TRAP vowel, and is generally almost identical in duration. In comparison, the

backed tokens of BATH are split from the TRAP vowel in both duration and quality. They are both longer and more backed than the TRAP tokens. This suggests that, for those speakers with fronted variants of BATH, there is no TRAP/BATH split in contemporary West Cornish English.

However, the analysis of the duration of the BATH vowel in this dataset (Section 7.3 of this chapter) found that vowel duration is significantly conditioned by parental birthplace, with those speakers with at least one Northern parent having the shortest fronted BATH vowels. Therefore, it is possible that the conclusion that there is no TRAP/BATH split for speakers with fronted BATH has been skewed by the speakers with Northern parental input, and is not entirely representative of contemporary West Cornish English speakers. In addition, many speakers had a mixture of fronted and backed BATH variants in their speech. These factors may have skewed Figure 7.18, which shows TRAP tokens from *all* the speakers in the Contemporary Cornwall dataset, not just those with fronted variants of BATH. Therefore, in order to further explore the question of whether there is a TRAP/BATH split in contemporary West Cornish English, Figure 7.19 below shows density plots of TRAP and BATH tokens for selected individual speakers.¹⁶ None of these speakers had any parental input from Northern parents, and all had categorically fronted BATH vowels (with the exception of the word ‘rather’, tokens of which have been removed from the plots). Due to the low token counts, it was also possible to add raw data points to the vowel plots. To aid the interpretation of the duration density plots, the mean BATH and TRAP duration for each speaker is also shown.

¹⁶ Pseudonyms have been used in order to anonymise the participants.

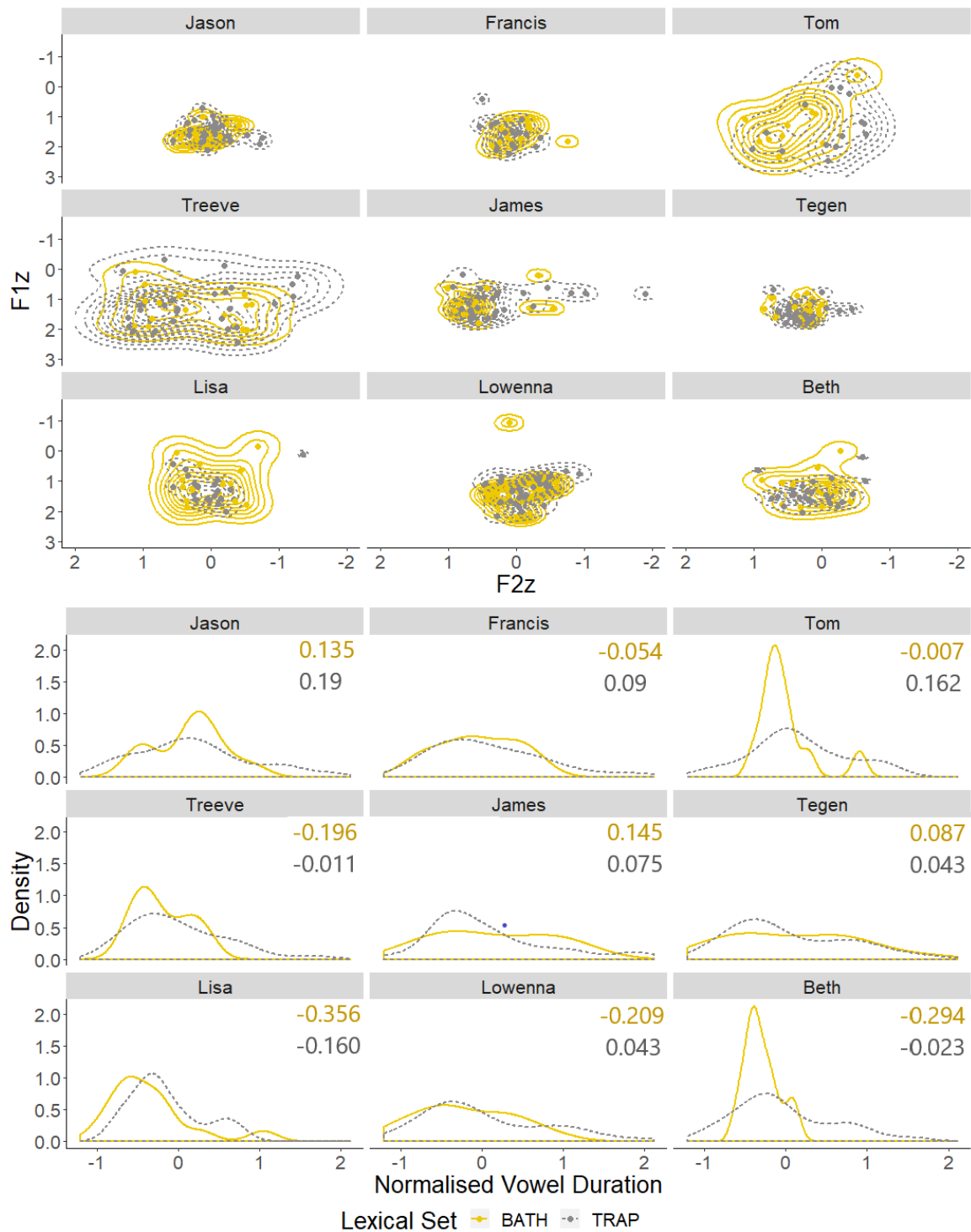


Figure 7.19: Two-dimensional kernel density plots showing the distribution of F1 and F2 measurements of BATH and TRAP tokens (top), and density plots showing the distribution of vowel durations for the same tokens (bottom) for each speaker with neither parent born in the North, and categorically fronted BATH vowel. Lexical sets are split by both colour and line type. Mean BATH and TRAP durations for each speaker are shown next to the duration plots.

Regarding this subset of speakers with no Northern influence from parental input, and categorically fronted BATH vowels, Figure 7.19 provides a slightly more nuanced picture of the status of the TRAP/BATH split in contemporary West Cornish English. First, with the exception of Tom, TRAP and BATH are almost entirely overlapping in the speakers' vowel spaces. Regarding vowel duration, Figure 7.19 shows both the mean average BATH and TRAP duration, and the overall distribution of the duration of these vowels for each speaker. It shows that, for most speakers, the two lexical sets are also overlapping in duration. Where there is a TRAP/BATH split in duration for some speakers, it is only small, and it is often represented by longer TRAP vowels, as with Francis, Tom, and Lowenna. Beth, Lisa, and Treeve all have particularly short BATH and TRAP vowels, although for Beth and Lisa, their TRAP vowels are a little longer. The only speaker with the split that would be expected in traditional Cornish English is James, who has long BATH vowels, and relatively short TRAP vowels. However, he does produce some shorter BATH vowels.

Overall, this figure indicates that the boys generally had longer TRAP and BATH vowels than the girls. This was to be expected from the models of BATH duration in the entire corpus, as the boys generally had longer fronted variants of BATH than the girls (for a discussion of potential reasons for this, see Section 7.4.3 of this chapter). However, with the exception of James, they do not have a distinct TRAP/BATH split in duration. Tegen and Lowenna both stand out as atypical for their gender. Lowenna has one of the most distinct TRAP/BATH splits in duration, although she has longer TRAP vowels. Tegen does not have a TRAP/BATH split in duration, but she does have longer TRAP and BATH vowels than the other girls.

Earlier discussion of the social meaning South Western 'long <a>' in the region (see Section 7.4.2 of this chapter, and Section 6.1.3 of Chapter 6) has suggested that this variant may face particular stigma due to its association with rurality. The individual profiles of these two girls may provide some insight into why they pattern differently.

Impressionistically, these speakers were atypical in the corpus as a whole, as they were the most 'Cornish sounding' of any of the Contemporary Cornwall speakers. Indeed, Lowenna was the only speaker who was consistently rhotic. Rhoticity has been

identified as one of the primary markers of rurality in England (Britain 2017a: 175). As discussed in Section 7.6 above, the lengthened TRAP vowel is also perhaps more strongly associated with traditional notions of ‘Cornishness’ than local variants of BATH are. Therefore, it is unsurprising that the only consistently rhotic speaker in this corpus also has more lengthened variants of TRAP.

In addition, although social class was not a significant predictor in any of the models of TRAP and BATH variation in this chapter, it is also notable that Tegen had the lowest social class index score of any of the speakers, with the lowest possible score for parental educational attainment and occupation. Tegen also stood out from the other speakers as the participant with the most familial attachment to Cornwall. For example, while discussing the identity questionnaire, she says: ‘I’m completely Cornish. Born and bred. My whole family – everyone’s lived here’.¹⁷ She also reaffirms this later in the interview, saying: ‘I’m born and bred here, so everyone knows me and I know everyone’. Given Tegen’s family history in the region and social class, she is likely to have a dense, multiplex social network which include many speakers of traditional varieties of Cornish English (see Milroy & Milroy 1985; Milroy 1987). As such, the South Western ‘long <a>’ is unlikely to have such a negative social meaning for Tegen.

The overview of the Contemporary Cornwall corpus suggested that, for those speakers with fronted variants of BATH, there is no TRAP/BATH split in contemporary West Cornish English. Analysis of the TRAP/BATH split amongst speakers with no Northern parental input has generally supported this hypothesis. Only one speaker, James, could be argued to maintain the traditional distinction between the two vowels, with longer variants of fronted BATH, while Lowenna had a split in the opposite direction, with longer TRAP vowels. One speaker, Tegen, had no TRAP/BATH split, both vowels were relatively long. These speakers represent groups who would generally be expected to produce more traditional forms, such as boys, speakers with the lowest social status, and speakers with long family histories in the region. In addition, all the speakers produced shorter variants of BATH some of the time, suggesting that the duration of

¹⁷ Although only map task and word list data was used in this thesis, interviews were also carried with all the participants. These quotes from Tegen come from the interview portion of the data collection.

the BATH vowel may be being used stylistically. Further consideration of how these speakers use this variable stylistically in different contexts may provide further insight into the social meaning of the different variants, although this is beyond the scope of this project (see Section 8.3 of Chapter 8 for a discussion of how this analysis could be carried out).

7.8 SUMMARY: BATH AND TRAP VARIATION IN THE CONTEMPORARY CORNWALL CORPUS

The analysis of BATH variation in Cornwall has found that both backed and fronted pronunciations of vowels in this lexical set are prevalent in the region, but the fronted forms are the most frequent. However, the fronted tokens were, in general, much shorter than those found in traditional varieties of Cornish English (as discussed in Chapter 6). Similarly, the TRAP vowels were generally short. As a result, for many of those speakers in the Contemporary Cornwall corpus with fronted BATH, there was no TRAP/BATH split in duration or quality. However, a small selection of speakers who would be expected to use more traditional forms did maintain a TRAP/BATH split in duration.

Regression modelling of vowel quality (F1 and F2) in the BATH vowel, and vowel duration in both TRAP and BATH found a variety of significant social and linguistic effects on variation. Beginning with TRAP, vowel duration was only conditioned by one social factor: identity index score. This is most likely because TRAP (in both quality and duration) is at the very end of a change in progress. Only speakers who identified with very traditional notions of ‘Cornishness’ used lengthened TRAP vowels. Beyond this very specific identity, there does not appear to be any socially meaningful variation in this variable for these speakers. Regarding the linguistic factors, the reduction in TRAP duration across real time had resulted in almost no vowel lengthening in any environments beyond those predicted by coarticulatory effects.

The social effects on BATH variation provide further insight into the motivation behind both the change in progress towards backed, or short, fronted variants of BATH, and short TRAP vowels, in the region. Beginning with the style shifting patterns, it was found that there was a shift towards a more fronted and open BATH quality, but a

reduction in the duration of this vowel, in the most monitored style. In addition, the shift in vowel quality was gendered, with the girls style shifting in F2, but not the boys. Following Schilling-Estes (1998) and Gafter (2016), this style shifting pattern could be explained by consideration of the word list as an opportunity to ‘perform’ for the researcher either the features that were most prestigious to the speakers (as opposed to wider social norms around ‘standard language’), or the most enregistered features of Cornish English. Therefore, this result may indicate that the fronted quality of BATH in Cornwall holds some local prestige. Given the status of the BATH vowel across England and the prestige of fronted variants in the North, it was suggested that, through the process of ‘resemiotization’ (Johnstone 2010b), this feature has become so strongly linked to place that it has lost some of its negative associations. In comparison, the shortening of this variable in the most monitored style further suggested that that it is the *duration* of the fronted BATH vowel in Cornwall that is stigmatised.

The stratification of this variable by speaker gender provided further support and nuance to these results. The boys tended to have the most fronted and open BATH vowels, although this finding was only marginal, and the girls had the shortest, fronted variants of BATH. As female speakers tend to use the most prestigious or innovative forms (e.g. Labov 1990), this finding reflected the real time shift towards either backed or shorter fronted BATH vowels in Cornwall. In addition, it provided further support for the hypothesis that the duration of fronted BATH is more stigmatised than the quality, as the gender stratification was much larger for vowel length.

Finally, parental birthplace was one of the best predictors of BATH variation in both vowel quality and duration. The early adolescents in this study were more likely to have a fronted pronunciation of BATH if they had at least one parent who was born in the region. Regarding BATH duration, parental birthplace only affected the fronted tokens of BATH. Those speakers with Northern influence from at least one of their parents had the shortest fronted BATH pronunciations, followed by those with local parents, then those with South Eastern parents. Following Hazen (2002b) this result was suggested to be due to the potential influence of family ties on the children of recent in-migrants, particularly given the prestige of both the South Eastern, and Northern variants of BATH.

Overall, the social factors influencing the duration and quality of the BATH vowel are consistent with the view that South Western ‘long <a>’ in West Cornwall is stigmatised. This is in line with the results of the perception experiment presented in Chapter 4, which found that the longest variants of fronted BATH were the most salient, and Montgomery and Moore’s (2018) finding that lengthened variants of TRAP were associated with the concept of the ‘South Western farmer’. As a result, the lengthened TRAP vowel is associated only with very traditional notions of ‘Cornishness’, and is not readily available for much more nuanced identity work amongst the Contemporary Cornwall speakers. The BATH vowel, in comparison, is a salient marker of region across England (Foulkes & Docherty 2007: 22), and is highly enregistered as a feature of Cornish English (Chapter 4; Dann 2016). In addition, short, fronted variants of BATH are locally prestigious forms in Northern England (e.g. Trudgill 1986: 18). As evidenced by the shift towards short, fronted BATH vowels in the most monitored style for the contemporary (female) West Cornwall speakers, the fronted quality of this variable may carry similar local prestige in Cornwall as in the North, while longer variants of the fronted form may be particularly stigmatised. Therefore, the innovation of short, fronted BATH vowels and the standardisation of the TRAP vowel in Cornwall represents an opportunity for speakers to maintain regional distinctiveness, but avoid stigmatised, rural forms.

Chapter 8 will now bring together the results of the perception experiment and the diachronic and synchronic analysis of BATH and TRAP variation in West Cornwall. It will summarise what the study has contributed to understanding of variation in these lexical sets in the region, as well as the how it has furthered understanding of processes of language variation and change. It will also discuss the limitations of this study, and suggest potential future avenues of investigation.

CHAPTER 8: CONCLUSIONS

8.0 INTRODUCTION

The following chapter will set out the key findings from this thesis, drawing together the perceptual, diachronic, and synchronic analyses of variation in the TRAP and BATH lexical sets in Cornish English. This discussion will be framed around the three research questions that this thesis set out to answer, as described in Section 1.0 of Chapter 1 (see Section 8.1). It will then discuss the more general theoretical implications of these findings, setting out the contribution of this thesis to our understanding of both process of language variation and change, and speech perception (Section 8.2). Finally, this chapter will suggest some future research directions that could both address some of these limitations, and provide further insight into the patterns of variation described in this thesis (Section 8.3).

8.1 RESEARCH FINDINGS

Chapter 1 of this thesis set out three research questions (Section 1.0), and stated that the thematic approach to answering these questions would be centred on a discussion of the connections between language, place, and rurality. The three overarching research questions were:

1. What are the most salient features of West Cornish English?
2. To what extent have vowels in the BATH and TRAP lexical sets in West Cornwall changed in the intervening years since the Survey of English Dialects?
3. What are the sociolinguistic correlates of variation in these vowels?

In answering these questions, this thesis employed both production and perception methodologies to explore linguistic variation in Cornish English. The perception experiment first identified South Western ‘long <a>’ as one of the most salient features of West Cornish English. This led to the selection of variables to study in the production strand of this project, and Chapter 6 explored diachronic patterns of variation in the BATH and TRAP lexical sets in the region. Subsequently, Chapter 7 provided a synchronic analysis of BATH and TRAP, where the sociolinguistic correlates of variation

in these lexical sets provided further insight into potential motivations for the sound changes found in Chapter 6. As a result, the layering of these analyses has provided insight into the status and social meanings of BATH and TRAP in West Cornwall. This section will now take each of the research questions in turn and summarise the key findings.

8.1.1 WHAT ARE THE MOST SALIENT FEATURES OF WEST CORNISH ENGLISH?

Chapter 4 presented the results of a perception experiment designed to test the salience of individual phonological features of West Cornish English in real time. Participants were asked to listen and respond to recordings of speakers from West Cornwall. While they were listening they completed a clicking task, in which they had to click on a button whenever something in the person's speech stood out to them, or made them wonder where they were from. They were then asked to go back at the end and listen to a bit of the audio around where they clicked, and add some qualitative comments about what precisely triggered the reaction. These clicks and comments were then coded for the linguistic feature(s) being responded to. As a result, each non-standard feature in each of the guises could be ranked in terms of salience, providing some insight into which features of the variety are most enregistered as South Western. This experiment also explored both the effect of the wider context in which a feature occurs, and listener experience with a variable on the salience of individual features. These findings are discussed in Section 8.2.1 below.

Regarding the salience of West Cornish English features, this experiment identified the lengthened and fronted variants of BATH and PALM as the most salient features of the variety. In addition, the TRAP vowel was noticed most when it occurred in the word 'pasty', despite only being half-long. Together, these results suggested that South Western 'long <a>' is a salient feature, which is most likely enregistered as being from this region. The traditional Cornish English raised-onset MOUTH vowel was also regularly noticed by listeners, suggesting that this is also a salient feature of the variety. Therefore, this experiment identified South Western 'long <a>', raised-onset MOUTH variants as the most salient features of West Cornish English.

Rhoticity was surprisingly not one of the most clicked features in the guises. However, given the iconic status of this feature in the region (Maguire et al. 2010: 97; Britain 2017a: 175; Montgomery & Moore 2018: 651), it was not suggested that this was because it is not a salient feature of the variety. Indeed, certain rhotic tokens received many clicks, while other received relatively few. It was suggested that other factors, such as the specific phonetic properties each rhotic token, or co-occurrence with other features, may have influenced the noticeability of individual tokens. In addition, following Rącz (2013), it was hypothesised that the listeners would be primed by either the other South Western features in the guises, or by the topic of the CORNWALL guise, to expect the most iconic features of the variety. As a result, when they did hear some rhotic tokens, they were actually less likely to click, due to a lessened effect of ‘surprisal’.

8.1.2 TO WHAT EXTENT HAVE VOWELS IN THE BATH AND TRAP LEXICAL SETS IN WEST CORNWALL CHANGED IN THE INTERVENING YEARS SINCE THE SURVEY OF ENGLISH DIALECTS?

Following the results of the perception experiment, the production study explored diachronic and synchronic variation in the TRAP and BATH lexical sets in Cornwall. Although local variants of MOUTH and PALM lexical sets were also found to be salient, impressionistically, the Contemporary Cornwall speakers used few non-standard variants of these variables. The diachronic analysis of these vowels, presented in Chapter 6, compared a new corpus of early adolescent speakers from West Cornwall to the 1961 SED recordings from the region in order to explore how production of these variables had shifted in real time. It also considered how this compared to a corpus of RP speakers, who were near-contemporaries of the Contemporary Cornwall speakers’ parents. This analysis considered both the duration and quality of these vowels, situating the Contemporary Cornwall speakers on a continuum from traditional Cornish English to RP.

Beginning with the BATH vowel, this analysis found that there had been significant shifts in pronunciations in the intervening 60 years since the SED recordings were made. For some speakers, the BATH vowel had begun to back towards the RP form. However, the majority of BATH vowels in the Contemporary Cornwall corpus were fronted. In addition, the Contemporary Cornwall speakers with backed BATH generally had

slightly fronter realisations than the RP speakers. There had also been significant shifts in the duration of this vowel, and the fronted tokens of BATH had shortened to [a] across real time. Overall, the diachronic analysis of BATH in Cornwall found that this vowel is either backing towards the standard form, or speakers are innovating a new, short, fronted variant.

Diachronic variation in the TRAP vowel followed a similar trajectory as the BATH vowel. While it had not shifted much in quality over real time, this was most likely because the traditional East and West Cornish English variants have a similar quality to more mainstream and conservative varieties of RP, respectively. In comparison, the TRAP vowel had significantly reduced in duration across real time. Indeed, the Contemporary Cornwall speakers had shorter TRAP vowels than *both* the SED and RP speakers.

In discussing potential explanations for this change, this analysis drew on previous research exploring the social meanings of BATH and TRAP in England. As discussed in Section 2.4.3 of Chapter 2, BATH is a shibboleth in England, but fronted and lengthened variants may be associated with rurality. In addition, backed BATH may be evaluated as ‘posh’ by speakers from outside the South East. The duration of South Western ‘long <a>’ also significantly affected responses to the West Cornish English speakers in the perception experiment conducted as part of the present study. As discussed in Section 4.2.3 of Chapter 4, there was a significant, positive correlation between the duration of open, fronted vowels and noticeability.

With reference to this previous research on BATH and TRAP in Cornwall, it was suggested that the speakers from the Contemporary Cornwall corpus who were participating in the innovation of a short, fronted BATH vowel may be responding to subtly different social meanings of the two acoustic elements of the tradition Cornish English from (the fronted quality and long duration). These speakers may be responding to a desire to maintain regional distinctiveness, while also avoiding using variants associated with negative stereotypes of rurality (see Britain 2017a: 174). Therefore, in shortening the traditional Cornish English BATH vowel, the acoustic element of the variant with the most negative associations is lost, but it maintains its distinctiveness in comparison to the RP form. With regards to the TRAP vowel, this feature does not have

the same status as a shibboleth in England. In addition, the results from Montgomery and Moore (2018) suggested that lengthened TRAP may be most straightforwardly associated with rurality. Therefore, there would be little benefit to maintaining the local form for the Contemporary Cornwall speakers, so the shift towards short TRAP vowels is almost at completion amongst this group.

8.1.3 WHAT ARE THE SOCIOLINGUISTIC CORRELATES OF VARIATION IN THESE VOWELS OVER TIME?

In order to further test the hypothesis about the potential motivations for the innovation of short, fronted BATH vowels, and the shortening of the TRAP vowel, Chapter 7 presented a synchronic analysis of the sociolinguistic correlates of variation in these vowels in the Contemporary Cornwall corpus. It considered how the quality of the BATH vowel, and the duration of both the BATH and TRAP vowels varied according to a variety of social and linguistic factors. Regarding the social factors, it tested the effect of social class, parental birthplace, gender, identity index score (see Section 3.2.3 of Chapter 3), and style (map task or word list).

Overall, this analysis provided support for the hypothesis that the duration of the BATH and TRAP vowels may be stigmatised amongst these speakers, while the fronted quality of the BATH vowel may have local prestige. Beginning with the TRAP vowel, the only social factor that significantly affected vowel duration was the identity index score (see Section 7.5.2 of Chapter 7). Speakers who scored higher on the questionnaire were more likely to produce longer TRAP vowels. This suggested that lengthened TRAP may be most associated with very traditional conceptualisations of ‘Cornishness’, which are in turn connected to notions of traditional industry, rurality, and peripherality (see Section 1.4.1 of Chapter 1). Given that the identity questionnaire is a rather ‘blunt’ tool for measuring identity, it is possible that it was only able to access these very traditional notions of ‘Cornishness’. As the analysis in Chapter 6 suggested that TRAP was at the very end of a change in progress towards a short variant, only those speakers who identified with this traditional Cornish identity used the lengthened variant.

In comparison, the BATH vowel showed much more nuanced patterns of variation (see Section 7.4 of Chapter 7). First, both the duration and quality of the BATH vowel was stratified by gender. The boys had the most open and fronted variants of BATH, and

amongst the fronted tokens, the boys also had significantly longer durations than the girls. Therefore, the girls were more likely to produce the most innovative [a] variant. This follows a general trend in language variation in which girls are more likely to use the most innovative and prestigious forms (e.g. Labov 1990; Tagliamonte & D'Arcy 2004). In addition, there was an inverted style shifting pattern for vowel quality amongst the girls, in which they shifted to a more fronted pronunciation of BATH in the most monitored style (the word list). However, for vowel duration there was a shift towards shorter BATH vowels in the word list for both the genders. Following previous research from, for example, Schilling-Estes (1998), Stuart-Smith et al. (2007), and Gafter (2016), the most monitored style was viewed as an opportunity for identity performance. The Contemporary Cornwall speakers, in particular the girls, may have been 'performing' the most locally-enregistered variant (fronted BATH), and demonstrating an element of their personal identity by avoiding using a variant associated with negative rural stereotypes (lengthened and fronted BATH). Therefore, the stratification of this variable by both gender and style provided further support for the hypothesis that the fronted quality of the traditional BATH vowel may have more positive, place-based associations, while the long duration of fronted BATH may be associated with negative rural stereotypes.

The stratification of BATH quality and duration according to parental birthplace provided further insight into how language variation and change may have been influenced by in-migration from other UK regions. When analysing the effect of parental birthplace on BATH quality and duration, the speakers were grouped differently. While the statistical models of BATH quality considered whether the speaker had at least one parent who was locally born, the duration models additionally considered whether speakers' parents were Northern, local, both local and Northern, or South Eastern. These models found that those speakers with at least one local parent were more likely to have fronted BATH. For BATH duration, there was a significant interaction between vowel quality and duration. For the fronted BATH vowel, speakers with some Northern parental input had the shortest BATH vowels, followed by the speakers with local parents, with those who had South Eastern parents exhibiting the longest fronted BATH vowels. In comparison, parental birthplace had no effect on the

duration of backed BATH. These results suggested that the in-migrants from the North appeared to be leading in the innovation of the short, fronted BATH vowel. However, the speakers with local parents still had much shorter BATH vowels than the traditional variant, so this innovation could not be solely attributed to the Northern children. In addition, the stylistic and social stratification of BATH duration suggested that, wherever the short, fronted variant originated from, it has gained locally-relevant social meaning in West Cornwall. Section 8.2.5 below further explores the implications of the stratification of this variable according to parental birthplace.

Overall, consideration of the sociolinguistic correlates of BATH and TRAP variation provided further insight into the real time shifts demonstrated in Chapter 6. They suggested that the innovation of short, fronted BATH vowels in Cornwall was being led by in-migrants from the North. In addition, the speakers were generally shifting towards a shorter, fronted BATH vowel in the most monitored style. Together, these results support the suggestion that the Contemporary Cornwall speakers participating in the innovation of short, fronted BATH vowels are maintaining regional distinctiveness with the fronted quality, but avoiding stigmatised rural associations by keeping their BATH vowels short. In comparison, the local variant of the TRAP vowel was associated with a more traditional notion of ‘Cornishness’, so only those speakers who identified with this persona used the now highly recessive, lengthened variant.

8.2 GENERAL IMPLICATIONS: BEYOND CORNISH ENGLISH

Section 8.1 above set out how the results of this study answered the specific research questions about the social meaning of two features of West Cornish English. However, this study also has methodological and theoretical implications beyond the specific variables and research context under investigation. As such, the following sections explore the more general contributions of this study to our understanding of wider processes of language variation and change.

8.2.1 SALIENCE AND SPEECH PERCEPTION

The perception experiment presented in Chapter 4 provided insight into the relative salience of individual features of West Cornish English. In ranking these features, this experiment additionally drew upon and contributed to a variety of theories relating to

the nature of salience. This section will outline the specific contribution of this experiment to the study of speech perception. These findings can be divided into those relating to contextual effects on salience, and the influence of listener characteristics.

Beginning with the latter, listener experience with a variable, which was operationalised as whether or not participants had lived in the South West, only significantly influenced perceptions of rhoticity in the male guises and the LOT vowel in the female guises (see Sections 4.3.3 and 4.3.7). However, the significant result for LOT was discounted as spurious due to unacceptably wide confidence intervals. Previous research has attested that greater prior experience with a feature may increase its salience in perception (e.g. Clopper & Pisoni 2006; Hay, Drager & Gibson 2018). Considering the strong perceptual ties between rhoticity and the South West, this result additionally suggests that listener experience may have the most influence on salience when a variant is an iconic feature of a variety.

Regarding contextual effects on salience, listener responses to certain features were found to be influenced by the co-occurrence of other features in the guises. Rhoticity was clicked much less than expected, given its iconic status in the region (see Section 4.3.3). Following Montgomery and Moore (2018), it was suggested that listener expectations may have decreased the salience of rhoticity. As the other features in the guise (and the topic in the CORNWALL guise) primed the region, the ‘surprisal value’ (see Rącz 2013: 37) of the most iconic feature of the region was lessened, so they were less likely to click. This highlighted the need to consider how the co-occurrence of other variants may themselves prime the local variety.

At the level of guise, contextual effects had less of an influence on perceptions than expected (see Section 4.3.10). The influence of the context in which a guise is presented on listener perceptions has previously been well-attested (e.g. Peleg, Giora and Fein 2001; Hay and Drager 2010; Montgomery and Moore 2018; Hilton and Jeong 2019). In this study, the condition (CORNWALL or NEUTRAL) rarely significantly affected responses, and where differences were found, they could almost always be attributed to differences in the phonetic realisation of the tokens. The only feature for which differences in responses between the guises could be attributed to topic effects was the LOT vowel, which had generally low rates of recognition across the guises. Therefore,

this experiment has furthered understanding of contextual effects on salience, finding that they may be less strong when the guise content either matches listener expectations, or if they have few context-driven expectations. However, for less salient features of a variety, regional primes may bolster salience.

In contrast, contextual primes did have an effect at the level of individual words, as opposed to the guise as a whole. Vowels in both the TRAP and PRICE lexical sets were not particularly salient in any of the guises (see Sections 4.3.1 and 4.3.4). However, the PRICE vowel in the word ‘cider’ in the male CORNWALL guise was the most clicked feature of any of the four guises. In addition, the half-long TRAP vowels in the word ‘pasty’ in both the male and female CORNWALL guises received a similar number of clicks to the other BATH and PALM words with South Western ‘long <a>’. This was explained by the cultural significance of both cider and pasties within the South West. Where the same variant of PRICE or TRAP occurred within other words that did not have such strong cultural ties to the region, they were not clicked as often by participants.

8.2.2 COMBINING PRODUCTION AND PERCEPTION METHODOLOGIES

As discussed in Section 2.2 of Chapter 2, researchers have highlighted the role of ‘awareness’ in processes of language variation and change (e.g. Babel 2016), as well as the importance of ‘social meaning’ within these processes (see, e.g. Eckert 2012). In tandem with this growing interest in awareness and social meaning, methodological developments have allowed for the study of the salience and/or social evaluation of individual linguistic features (e.g. Campbell-Kibler 2006; Watson & Clark 2013; Pharaoh et al. 2014; Montgomery & Moore 2018). Where researchers have combined these techniques with analysis of production data, they have found nuanced insights into local linguistic practices (e.g. Johnstone & Kiesling 2008; Moore & Carter 2018).

The present study has further demonstrated the benefits of combining speech production and perception methodologies. Given that this study set out to explore connections between language and place in a rural setting (see Section 1.1 of Chapter), the perception experiment was used to diagnose the most salient features of the variety. It was assumed that these features would be the ones most likely to shift in real time

and vary according to locally-relevant social factors. As discussed in Chapters 6 and 7, this was indeed the case.

However, beyond simply diagnosing the salient features of the variety, the perception experiment provided a more nuanced insight into the patterns of variation in the TRAP and BATH vowels. Section 4.2.3 of Chapter 4 considered how the specific realisation of individual tokens of BATH, PALM and TRAP correlated with the amount of clicks received. This demonstrated the connection between the open, fronted vowels in South Western varieties, suggesting that these features may be perceptually linked and subject to similar social evaluations. Taken with the results from Montgomery and Moore (2018), this led to the hypothesis that the fronted quality and duration of the traditional Cornish English BATH vowel may have subtly different social meanings. Therefore, the use of a perception experiment alongside the production study both ensured that the variable under study would be meaningful to the speakers, and provided valuable and nuanced insight into the social meaning of individual acoustic elements of a feature.

8.2.3 RURALITY AND LINGUISTIC VARIATION

The results of this study also provided important insights into the connection between rurality and linguistic variation, both with regards to the social evaluation of rural features, and the impact of rural places on language use.

Beginning with the former, this study has highlighted how the stigma against rural identities can have a profound impact on processes of language variation and change. As discussed in Section 1.2 of Chapter 1, research such as Smith and Durham (2011; 2012) and Britain (2009b) has demonstrated the effect of rapid dialect obsolescence in rural areas of Britain. Over the course of just one generation, many local features can become lost in favour of the standard forms. The speakers recorded for the present study are no exception to this. Although the analysis presented in this thesis focussed on BATH and TRAP variation specifically, it is important to note that, impressionistically, traditional Cornish English forms were all but absent from the speech of the majority of the Contemporary Cornwall participants. Indeed, following the trend summarised by Britain (2009b), only one speaker in the corpus produced rhotic tokens with any regularity.

This analysis of BATH and TRAP variation has provided some insight into a potential motivation for this rapid attrition of local forms in rural regions such as Cornwall. As discussed in Section 8.1 of this chapter, the acoustic element of the traditional Cornish English BATH and TRAP vowels associated with rurality, long duration, has been lost in the intervening years between the SED and Contemporary Cornwall corpora. While many speakers have maintained the fronted BATH vowel, they have shortened it, meaning it is still local, but that it may be less readily associated with negative rural stereotypes. It is notable that, amongst these speakers, the fronted BATH vowel was one of the only features that would easily differentiate them from someone from the South East. As such, the Contemporary Cornwall speakers have lost almost all regional distinctiveness in their speech with the exception of the BATH vowel, but for this feature they have innovated a new form which is less easily associated with negative rural stereotypes.

Therefore, the results of this study may suggest that rapid dialect attrition in rural regions could be motivated by stigmatised social meanings linked to rurality which can be attached to traditional local forms. This is not to say that young, rural speakers have no desire to signal place-based identity with their language use, but they are limited in the range of local features to use which are free from rural stigma.

These findings also have implications for the wider focus of variationist research. As discussed in Section 1.3 of Chapter 1, Britain (2009a; 2012; 2017a) has argued that rural areas are subject to the same kinds of demographic shifts that drive language change as cities. Therefore, he argues, we should research regions with high levels of contact, and avoid a de facto focus on urban contexts. This study has provided further support for this argument. It has shown that the high levels of demographic changes in the past 60 years in Cornwall (see Section 1.4.1 of Chapter 1) have resulted in dramatic linguistic changes. As demonstrated by the diachronic analysis of the TRAP vowel, the linguistic changes have generally been in the direction of the standard. However, the analysis of the BATH vowel did not follow this trajectory. Instead, just like their urban counterparts, the rural adolescents in this study were innovative in their language use.

This study has also explored how living in a rural region may shape linguistic practices (as first discussed in Section 1.3 of Chapter 1). In particular, the gendered patterns for

the BATH vowel suggest the differing availability of rural identities to boys and girls. The gender stratification was strongest for BATH duration, where girls were using the shortest, fronted BATH vowels. In addition, the shift towards fronted BATH in the word list was solely undertaken by the girls. Therefore, while the boys were generally more non-standard, as would be expected from previous studies of gender differentiation in language use (e.g. Labov 1990), the differentiation was more pronounced for the variant associated with rurality. Section 1.3 of Chapter 1 discussed how research in both human geography (e.g. Little & Panelli 2003) and sociolinguistics (e.g. Ladegaard 1998; Moore & Carter 2017) has highlighted how rurality can reinforce gendered identities. As such the girls in this study were subject to more ideological pressure to avoid variants that are socially evaluated as rural.

Similarly, social class was not a significant predictor of variation in any of the statistical models presented in Chapter 7. This was a surprising result, given the robust patterns of class-based stratification throughout the history of variationist sociolinguistics (e.g. Kerswill 2006). Section 1.3 of Chapter 1 noted that the schools in Cornwall have particularly wide catchment areas, and there are very few private schools. As a result, children from all social classes tend to attend the same schools. This may explain the lack of stratification by social class for either of the variables. As a result of the rural context, social differentiation by social class may simply be less present in the lives of the Contemporary Cornwall speakers. Taken together with the gendered patterns of language use, this result has demonstrated how rurality may serve to either reinforce or reduce the effects of robust trends in variationist studies.

8.2.4 IDENTITY QUESTIONNAIRES

This study highlighted some methodological limitations to the use of identity questionnaires in variationist research. As discussed in Section 3.2.3 of Chapter 3, previous studies which have used identity questionnaires to quantify local affiliation are limited, and have had varying levels of success. For example, researchers such as Asprey (2007) and Haddican et al. (2013) have noted the lack of insight into nuanced place-based identities gained by the use of identity questionnaires. The results of the present study further highlighted this methodological limitation. Identity index score was a significant predictor of variation for TRAP duration (see Section 7.5.2 of Chapter 7). The

shift towards short TRAP vowels was almost at completion, and the local variant was most likely associated with very traditional notions of ‘Cornishness’. The identity questionnaire was an effective tool for measuring these straightforward and traditional notions of Cornish identity and, as a result, predicted TRAP duration amongst the Contemporary Cornwall speakers. However, BATH vowel variation, in particular the inverted style pattern for vowel quality, suggested that fronted BATH was also associated with local identity. In comparison to the TRAP vowel, the identity questionnaire did not predict variation in BATH quality. This suggests that fronted BATH may be associated with more nuanced place-based identities, which cannot be accessed and quantified by a ‘blunt’ tool such as the identity questionnaire.

As discussed in Section 3.2.3 of Chapter 3, the original identity questionnaire administered to participants included a Relational Analogue Scale (RAS), following Llamas and Watt (2014). This asked the participants to place various identity labels (‘Cornish’, ‘British’, ‘English’, and ‘European’) on a line from ‘most important’ to ‘least important’. However, when discussing the responses with the participants, it became clear that many of them had struggled with the task, and they often simply placed the labels in size order (i.e. with ‘Cornish’ first, as that is the smallest region out of the choices). They often failed to grasp that the task was trying to access their affiliation with macro-level identity labels. This contrasts with Watt and Llamas’ (2017) findings on the Scottish/English border, in which the relative position of identity labels on the RAS reliably predicted Voice Onset Time amongst adult speakers.

There are two possible explanations for this task’s lack of success. First, at aged 11-13 the Contemporary Cornwall speakers may have been too young to have developed a fully realised sense of regional identity which could be expressed using macro-level identity labels. Additionally, tasks such as the RAS access very specific and clearly delineated notions of national and regional identity. As such, they may be more appropriate for contexts such as the Scottish/English border, where the identity labels are widely subscribed to and clearly defined.

8.2.5 PARENTAL INPUT

This study also explored the effect of parental input on BATH and TRAP production with a consideration of where the speakers' parents were born. As discussed in Section 7.4.4 of Chapter 7, parental birthplace was a highly significant predictor of both BATH duration and quality. These results were attributed to a complex interplay between the effect of family ties on the social evaluation of BATH variants, and the possible continued influence of parental input on children as old as 13.

Beginning with the former, following Hazen (2002b), it was suggested that family ties may have a stronger effect for variants with particularly salient social evaluation. This effect may be strengthened when the family's variety has higher societal prestige than the local variety. As such, the children may have been less inclined to accommodate to the local BATH variant due to the salience of this feature and its status as a marker of region across the country. Therefore, this study has highlighted the importance of consideration of the social meaning of the variants in both the input and local variety when exploring the effect of in-migration on language change.

It was also suggested that the strong effect for parental birthplace may have been, in part, due to the age of the speakers. We know little about the relative importance of parental input and peer groups in early adolescence. This study suggests that, at age 11 to 13, caregiver input remains paramount, which is in line with the findings of Payne (1980). However, in order to test the relative importance of family ties, the social meaning of individual variants, and incrementation, further examination of different features with varied social meanings and at different stages of a change in progress would be required. Regardless, this study had demonstrated the importance of consideration of family migration history as a demographic factor in variationist studies, particularly when working with younger participants.

8.2.6 IMPLICATIONS FOR SOCIOPHONETIC RESEARCH

The results of this study have implications for sociophonetic research more generally. As discussed in Section 4.3.1 of Chapter 4, sociophonetic research has tended to focus on variation in vowel quality, and there has been little investigation into how vowel

duration may be conditioned by sociolinguistic factors. The limited research on vowel duration has generally looked at how duration cues are used to maintain phonemic distinctions following large-scale chain shifts (Labov & Baranowski 2006; Langstrof 2009), and the role of vowel duration in the regional differentiation of varieties (Fridland, Kendall & Farrington 2013; Jacewicz & Fox 2015). However, there has (to my knowledge) been no sociophonetic research exploring how vowel duration may be a carrier of social meaning in a similar manner to vowel quality: on a gradient, *phonetic* scale. The present study demonstrated that, for the BATH vowel in particular, duration was socially meaningful in both production and perception. In perception, Section 4.2.3 of Chapter 4 demonstrated that longer variants of BATH and PALM were more salient, despite all the tokens having a non-standard, fronted quality. In production, Section 7.3.2 of Chapter 7 demonstrated that BATH duration varied on a gradient, phonetic scale according to both demographic and stylistic factors.

In analysing both vowel duration and quality separately, this study also demonstrated that two acoustic elements of the same variant can have different social meanings. Both the real time shifts in BATH realisation discussed in Chapter 6, and the synchronic analysis of this vowel discussed in Chapter 7 suggested that the duration and the quality of the traditional variant were not varying in step. For some Contemporary Cornwall speakers, the vowel had the same quality as the traditional variant, but had a much shorter duration. Similarly, speakers shifted towards fronted BATH in the word list, but away from lengthened BATH. This suggested that, while the *combination* of fronting and lengthening in the traditional variant evoked associations with rurality, it was the *duration* of the vowel that had the strongest indexical links with this social meaning.

Overall, this study has highlighted the importance of vowel duration in sociophonetic research. It has demonstrated how vowel duration interacts with vowel quality in a socially meaningful manner. In addition, it has shown that speakers can manipulate vowel duration on a gradient, phonetic scale in the construction of social meaning, in much the same way as has been extensively documented with regards to vowel quality.

8.2.7 ACOUSTIC ANALYSIS OF LEGACY MATERIALS

Finally, as discussed in Chapter 6, the analysis of the SED interviews found inconsistencies between the auditory transcriptions from Wakelin (1975; 1986) and the acoustic measurements taken as part of the present study. Section 3.3 of Chapter 3 noted how the SED materials have been criticised for their ‘impressionistic’ transcriptions and ‘broad’ use of IPA notation (e.g. Kurath 1963: 127; Jones 2002: 332). The comparison of F1 and F2 measurements of BATH vowels in the East and West Cornwall SED localities was not consistent with Wakelin’s (1975; 1986) transcriptions. While he suggested that the West Cornwall BATH vowel was more close than the East Cornwall variant, the difference between these two varieties was best captured in the F2 plane. In Section 6.1.3 of Chapter 6, it was suggested that Wakelin’s motivation for making an argument about the influence of different versions of Standard English on Cornish English may have influenced these ‘impressionistic’ transcriptions. Therefore, this study has highlighted some potential issues in the use of legacy materials such as the SED. It should be acknowledged that there is far less objectivity in auditory analyses, particularly where the researcher may have been working from pre-existing hypotheses.

8.3 FUTURE DIRECTIONS

Considering the results of this study, as well as the limitations of the methodology, there are a number of future avenues of study that would build upon these findings. First, the synchronic analysis of variation in the Contemporary Cornwall corpus took a macro-level, correlational approach to exploring the social meaning of BATH and TRAP variation. This provided insight into some of the more wide-reaching ideological meanings attached to the different variants. Without recordings of more ‘casual’ speech, it was not possible to conduct more fine-grained analysis of the ways these features may be used to construct social meaning in interaction. However, as noted in Section 3.2.4 of Chapter 3, interviews with the Contemporary Cornwall speakers were recorded alongside the structured elicitation tasks. Previous research has successfully explored the construction of social meaning in semi-structured interviews, with consideration of variation according to, for example, stance-taking (Levon 2016), or topic shifts (Nycz 2018; Leach 2018). Following studies such as these in taking a more qualitative approach

to the analysis of sociolinguistic interview data, a more in-depth and nuanced account of the social meanings of these features could be gained.

One of the key findings of this study related to the effect of 'rural' associations on processes of language variation and change (see Section 8.2.3 above). Given that this study suggested that rapid dialect attrition in rural areas may be linked to the stigma associated with rural variants, one potential avenue of investigation would be to explore how these same features pattern in urban South Western regions. If it is rural stigma that is driving this dramatic dialect attrition, it is possible that these features may be evaluated differently in urban regions, and the local speakers may be subject to less pressure to standardise. To investigate this, this study could be replicated in urban South Western regions such as Plymouth, Exeter, or Bristol.

Finally, both the production and perception analyses in this study suggested that the two acoustic elements of the traditional Cornish English BATH vowel may have different social meanings. Specifically, it identified potential associations with local identity and rurality. In addition, Section 7.4.2 of Chapter 7 tentatively suggested that the long duration of the backed BATH vowel may, for some speakers, be most associated with 'posh' personas. Throughout this analysis, these conclusions were caveated with the need for additional speech perception tests to unpick the effects of duration and quality on the social evaluation of the BATH vowel. Following research such as Campbell-Kibler (2006; 2010b), Phrao et al. (2014), and Villarreal (2018), the effect of vowel duration and quality on perceptions could be tested using a matched-guise experiment. Tokens of BATH would be digitally manipulated in quality (fronted or backed) and duration (long or short) and spliced into otherwise identical guises. They would then be played to different sets of respondents and they would be asked to rate them to locate them regionally and rate them on scales relating to, for example, 'poshness' and rurality. The results of this experiment would provide further insight into the relative importance of BATH duration and/or quality on the social evaluation of the speaker.

8.4 CONCLUDING REMARKS

This thesis has explored productions and perceptions of BATH and TRAP variation in Cornish English. First, a perception experiment identified South Western ‘long <a>’ as one of the most salient features of the variety. A diachronic sociophonetic analysis of these vowels in Cornwall found that an innovative [a] variant was emerging amongst early adolescents, while the TRAP vowel had significantly shortened. This was suggested to be due to links between South Western ‘long <a>’ and negative rural stereotypes. Subsequently, a synchronic analysis of BATH and TRAP variation amongst the early adolescents provided further support for this hypothesis. Stylistic shifts and macro-level demographic stratification suggested that [aɪ] variants may be particularly stigmatised, while [a] variants of BATH may hold some local, place-based prestige. Overall, this thesis has highlighted the benefits of combining production and perception methodologies, and the importance of rurality on processes of language variation and change, and shown how rural adolescent can be innovative in their language use. I hope this work has demonstrated that rural regions are fascinating sites for sociolinguistic investigation, and will encourage further work on this topic.

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APPENDIX A

Identity Questionnaire

Task 1:

Below are a series of statements relating to Cornish identity and life in Cornwall. Consider each statement and think about to what extent each applies to your own feelings and identity.

The line below each statement represents a scale from 'agree' to 'disagree'. Draw a cross on each line to represent to extent to which you agree or disagree with the corresponding statement.

Example:

5. I am glad to have grown up in Cornwall

'disagree' _____ X _____ 'agree'

1. I would describe myself as Cornish

'disagree' _____ 'agree'

2. I am proud to be Cornish

'disagree' _____ 'agree'

3. I think that Cornwall should be separate from England

'disagree' _____ 'agree'

4. I plan to remain living in Cornwall for a long time

'disagree' _____ 'agree'

5. I am glad to have grown up in Cornwall

'disagree' _____ 'agree'

6. I would be more likely to vote for a performer in a talent show if they were from Cornwall

'disagree' _____ 'agree'

7. If I met someone on holiday and I thought they were from Cornwall, I would be more likely to talk to them and strike up a friendship

'disagree' _____ 'agree'

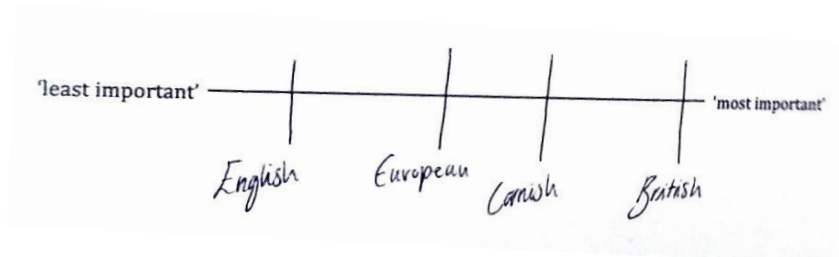
8. I like the Cornish accent

'disagree' _____ 'agree'

Task 2:

The next task is intended to find out about how important different labels are to you. Please mark a point anywhere along the line below indicating where you would place these words in terms of how important you think they are to who you are (please also write each word underneath the line). You may also add other words what aren't listed here if you feel they are important to who you are (e.g. 'from Penzance').

Example:



I am:

English Cornish British European

'least important' _____ 'most important'

APPENDIX B

Word List

BATH	IGUANA	FIFTH
DAD	FABULOUS	LAGER
BID	FROG	BIT
FARMER	NURSERY	GOLDEN
BIN	CITY	RATHER
DOUBT	BOOKS	TILL
HOUSES	VILLAGE	BRA
PARK	WORD	QUEEN
EXAMPLE	CALVE	HOWL
FAB	ZOO	FATHER
FRIEND	TASK	YESTERDAY
TAT	SPOUSE	TRANCE
DASH	DAFT	VOWED
BRIGHT	BORED	HAVE
LOVE	TOMATO	PANORAMA
DOG	BALM	
GATHER	HILLTOP	