LONDON CALLING: ASSESSING THE SPREAD OF METROPOLITAN FEATURES IN THE SOUTHEAST

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ABSTRACT

A growing phenomenon in British English is *Regional Dialect Levelling*. This is where accents lose their local characteristics in favour of more *supralocal* forms. The result is that different areas cease to have recognisably different dialects. For instance, neighbouring towns or villages become linguistically indistinguishable. Earlier elements of dialectal diversity are shaved off through processes of linguistic smoothing.

This research focuses on two key issues:

1. The understanding of the mechanisms involved in *regional dialect levelling*
2. How accounts of dialect levelling can inform models of sound change more generally

In this thesis I present an apparent time sociolinguistic study of regional dialect levelling in Hastings, a town on the coast of East Sussex, England. The study employs an empirical analysis of a number of ongoing sound changes.

Specifically, the study examines three sound changes that, through previous analyses, have been shown to operate through different mechanisms: two features that are attributed to the externally motivated processes *levelling* and *diffusion,* and one *internally* motivated change driven by pressures inherent in the linguistic system. These contrasting mechanisms have been chosen in order to investigate a number of issues: first, to examine how each type of change may contribute to regional dialect levelling; and second, the analysis of these features enables a close examination of the interplay between external and internal forces of language change.

More broadly, the evidence from this research is used to evaluate traditional principles of sound change in order to investigate how well they hold within a variety that is undergoing regional dialect levelling.

THESIS OUTLINE

Chapter 1 presents the theoretical context for this study, including a summary of the evidence and findings on regional dialect levelling so far, motivating and providing the necessary background for issue 1, above. In addition, this chapter seeks to situate the study of regional dialect levelling within broader sociolinguistic models of language change, thus motivating and contextualising issue 2, above.

The second chapter presents an outline of the research community and the methodology used in the study. The procedure and the theoretical and methodological justification for the decisions made are outlined.

Chapters three, four and five present the main variable analyses as they patterned in adult speaker data. These chapters provide the relevant review of the previous research of this feature as well as the specific research questions each particular analysis will contribute to.

Chapter six presents another view of the variables with an analysis of how each feature patterned in the data from preadolescent speakers.

Chapter seven reviews the present thesis and draws together its major findings, what they contribute to our knowledge of dialect levelling and also their wider implications for sociolinguistic theory and models of sound change.

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1 Research Context

1.1 Introduction

The first section of this chapter defines and describes regional dialect levelling. In addition, it outlines the possible reasons for its increase in recent years – the social and demographic conditions that promote linguistic homogenisation. The section following this presents a description and examples of the two main identified mechanisms involved in regional dialect levelling: *diffusion* and *levelling.* These externally motivated changes are then contrasted with changes arising through linguistic *drift*, also described as internally motivated change. These different types of change motivate the variable selection of this research and a short summary of these is also provided.

I turn first to describe regional dialect levelling and the processes involved.

1.1.1 ***Regional dialect levelling: linguistic homogeneity***

Regional dialect levelling refers to the phenomenon whereby accents and dialects lose their more unusual, local forms in favour of more neutral, *supralocal* ones: "dialect levelling which, it is often claimed, is leading to the loss of localised features in urban and rural varieties of English in Britain, to be replaced with features found over a wider region" (Kerswill, 2002:187). The effect is that vast areas that may have previously exhibited a number of distinct regional varieties become linguistically homogenous. This process is also referred to as *supralocalisation* (e.g. Britain, 2010:193).

Figure 1 presents a schematised (and hypothetical) dialectal map of how isoglosses in England may alter over time as a result of regional dialect levelling.

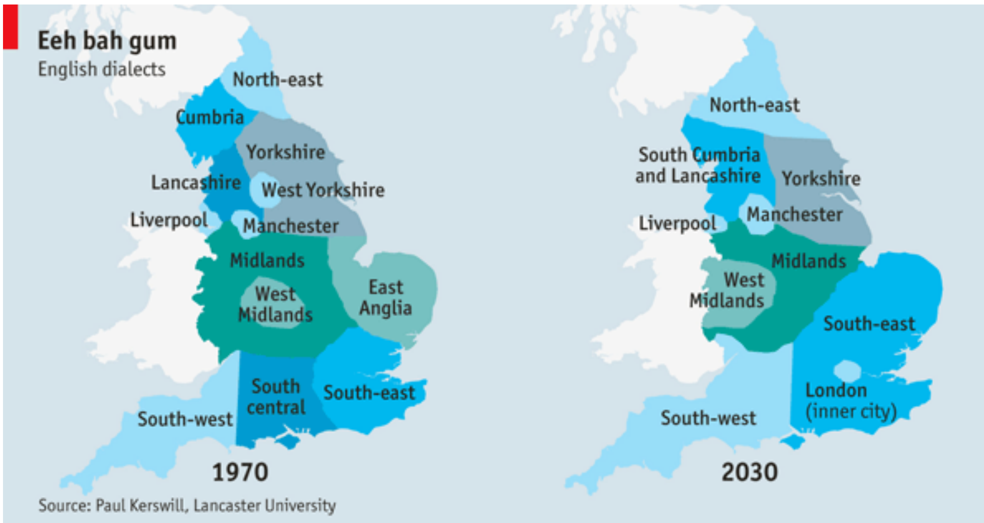


Figure 1: schematised representation of regional dialect isoglosses over time as an effect of regional dialect levelling.

Figure 1 shows the predicted effects of this process. For instance, while there may have been significant enough dialectal differences to categorise three separate southern varieties in the 1970s – southeast, south central and southwest varieties – it is hypothesised that these distinctions will have probably completely disappeared by 2030. Indeed, based on patterns visible now (e.g. Britain, 1997) the southeast will likely continue to make inroads into East Anglia and eventually lead to the loss of a distinct East Anglian variety. The overall effect is a loss of dialectal diversity throughout England.

In sum, regional dialect levelling reduces the amount of variation within an area through the loss or attrition of locally or socially marked or unusual variants. This occurs through a process of dialectal convergence, where two or more accents gradually change and become more similar to each other.

> *[S]ince the 1980s, at least in Europe, studies have increasingly concentrated on dialect levelling, which can be defined as the reduction in the number of realisations of linguistic units found in a defined area, usually through the loss of geographically and demographically restricted, or 'marked', variants, and the closely related notion of dialect convergence, by which two or more varieties becoming more alike through convergent changes. These are both seen as the outcomes of various, mainly contact-based, scenarios.* (Torgersen & Kerswill, 2004:24)

As suggested by Torgersen & Kerswill (2004:24), regional dialect levelling is attributed to the outcomes of *dialect contact*. Contact between dialects can arise for a number of reasons. For instance, dialects may come into contact through trade between different regions, migration, development of cultural and commercial centres, changes in spatial practices related to work or education, etc (Britain, 2010:197). The exact mechanisms as they pertain to the southeast, and to Hastings specifically, are outlined and discussed in section 2.2.2.

1.1.2 TERMINOLOGY: REGIONAL DIALECT LEVELLING, LEVELLING AND SUPRALOCALISATION

Before diffusion and levelling can be defined and described, it is necessary to clarify the use of the terms *regional dialect levelling*, *levelling* and *supralocalisation.*

A number of researchers highlight that there is a level of overlap between the terms used to describe *levelling* as a mechanism of change, and *regional dialect levelling* as an outcome deriving from the combination of a number of different mechanisms (e.g. Kerswill, 2002:187; Kerswill et al, 2008; Torgersen & Kerswill, 2004;25). Following Kerswill (2002:187–188), I adopt the distinction between *regional dialect levelling* the outcome and *levelling* the process along the following lines:

> *There is, thus, a rather awkward terminological ambiguity. Regional dialect levelling is an outcome of various partly geographically-based language change processes. One of these is geographical diffusion. Another, is of course, levelling, in the sense of 'mutual convergence'. I would propose the use of the term regional dialect levelling for the dialect-geographical phenomenon and simply levelling (following Trudgill, 1986) for the linguistic changes which are the outcome of accommodation.* (Kerswill, 2002:187-188)

In short, *regional dialect levelling* refers to the increased homogeneity of regions, whereas *levelling* describes one contributing mechanism. Regional dialect levelling is often linked to increasing supralocalisation where the traditional, local linguistic forms lose out to incoming forms which have currency over a wider region. In other words, forms which do not have regional associations replace those which do.

The following section presents a concrete example of *supralocalisation* in process: glottal replacement in the northeast. This example shows the competition between traditional local forms and incoming *supralocal* forms.

1.1.2.1 *An example in focus: glottal replacement in the northeast*

An often-cited case of regional levelling is that which has taken place in the northeast of England. This change involves a number of variable forms used in place of canonical /t/. Here the supralocal glottal-stop [ʔ] is encroaching at the expense of the local glottal-reinforced variant [ʔt] as well as the standard variant [t] (Milroy, Milroy, Hartley & Walshaw, 1994). Figure 2 shows a quantitative view of this process.

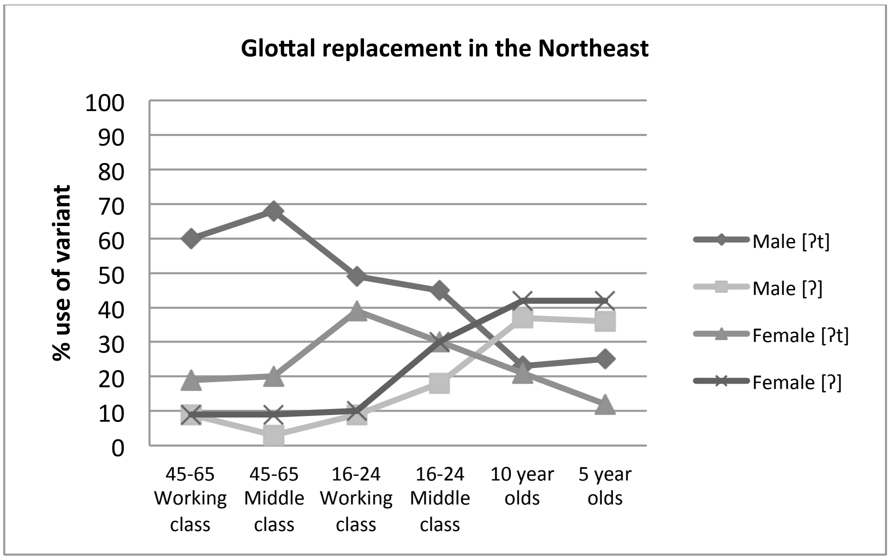


Figure 2: Use of glottal-stop and glottal-reinforced variants of /t/ in Newcastle (based on Milroy, Milroy, Hartley & Walshaw, 1994)

Figure 2 shows that for the older speakers the local glottal-reinforced form is the dominant variant. For the young speakers, on the other hand, the dominant variant is the supralocal glottal-stop. This example shows a clear case of regional dialect levelling where a supralocal form is adopted and a local form discarded. The result is that the distinctive northeastern variant loses out to the non-local glottal, a form not associated with any particular region and used throughout the UK.

Now that the terminology has been unpacked, I turn to examine the mechanisms that contribute to regional dialect levelling. I start with the externally motivated mechanisms *diffusion* and *levelling*.

1.1.3 EXTERNALLY MOTIVATED CHANGE: DIFFUSION AND LEVELLING

If regional dialect levelling is the consequence of a number of different linguistic processes, what are these processes and how do they function? Two mechanisms that have been identified as fundamental to regional dialect levelling are *levelling* and *diffusion*; the following section outlines and describes these.

1.1.3.1 *Levelling*

Levelling refers to a change where a number of variants, over time, decrease so that a community comes to focus on one or two forms: “one variant emerges victorious from the mixing of many different dialect variants of the same variable” (Britain, 2010:197).

In the description of this mechanism, a useful concept, and one that is often central in the discussion of contact scenarios, is that of Mufwene’s (2001) *feature pool.* The feature pool refers to a situation where speakers of different varieties come into contact and each contribute a set of linguistic features. These features function at a variety of linguistic levels:

> *…a feature pool from which individual speakers select materials specific to their idiolects…According to the feature pool approach, members of a speech community, especially those who interact with each other, contribute different models in pronunciation, lexical materials, grammatical models, and pragmatic constraints to the feature pool. (Mufwene, 2008; 116)*

The ”feature pool” concept is primarily used to describe contact scenarios which involve the meeting of extremely diverse varieties, for example, in the formation of colonial Englishes or emergent urban varieties formed from a wide range of different ethnolects (e.g. Multicultural London English: Cheshire et al, 2011). The type of regional dialect levelling that is the focus of this research does not involve this level of diversity. However, the concept of a micro-feature pool can perhaps still be applied to levelling as a process of change.

The feature pool represents variation as a collection of discrete variants insofar as the variation does not form a continuous cline. The speakers are then faced with a wide range of options from which to choose during the formation of their own idiolect (Mufwene, ibid). An example of this can be seen in the levelling of the MOUTH vowel in Milton Keynes, as shown by the distributions in table 1 below.

	[ɛʊ]	[ɛɪ]	[ɛ:]	[a:]	[æʊ]	[aʊ]
SED informants (1950-60)	present					
Elderly (2f, 2m)	63.2	25.6	9.8	0	1.2	0
Women 25-40 (n=48)	0	0	11.7	17.2	38.6	31.5
Girls aged 14 (n=8)	0	0	0	5.9	4.7	88.8
Boys aged 14 (n=8)	0	0	0	12.3	3.8	83.1

Table 1: distribution of range of MOUTH vowel variants in speakers from Milton Keynes (based on Kerswill, 2002:697)

Table 1 demonstrates how the mixing of different dialects has given rise to a range of different forms that create something like Mufwene's theoretical description of a feature pool. Auditorily at least, the different vowel variants are discrete entities; they do not form a continuous cline. The speakers in the community are therefore presented with a number of choices (Kerswill, 2002:200).

The levelling process is demonstrated through the patterning of the variants. Table 1 shows how, over time, as evidenced by the different distributions of forms between old and younger speakers, the range of variation decreases. For instance, the old and middle speakers have distributions split over three or four forms, all of which have a sizeable proportion of use. In contrast, the younger speakers' use centres on one main variant where both girls and boys exhibit over 80% use of the [aʊ] form.

The levelling mechanism ultimately results in a degree of consensus within the community as to which variants come to be regularly selected from the feature pool. During this process the level of variation is reduced. The tendency is for regionally marked variants to be discarded at the expense of those which have a wider supralocal currency (Trudgill, 1986:98). In this sense, i.e. the selection of discrete supralocal forms over regional ones, levelling is quite similar to diffusion. However, the distinction between the two processes comes from the range of variation. While diffusion tends to involve the replacement of one form for another, levelling involves the narrowing of the spread of variation. In this instance, as demonstrated in the previous example, where there were previously four or five possible variants, one or possibly two variants come to dominate (Kerswill, 2002:197).

1.1.3.2 *Diffusion*

Like levelling, diffusion is also a contact-induced mechanism. However, while levelling leads to a reduction in variability, diffusion involves the introduction of supralocal forms which can lead to either a reduction or extension of the variability, depending on the local context. Diffusion refers to the spread of linguistic features. This is both geographical spread from one location to another and also social spread between speakers. It is a contact-based phenomenon that involves the transplantation of linguistic features from one dialect to another: "the result of contact between the speech communities involved and the transfer of features from one to the other. This transfer across branches of the family tree is here designated linguistic *diffusion*" (Labov, 2007:344). Often, features diffuse from dense, culturally significant focal points within a region; most commonly from cities to the surrounding areas (Trudgill, 1983:52–87).

Recall section 1.1.2.1 and the example of the glottal variants in the northeast. This scenario is most likely attributed to diffusion. Here the supralocal forms, while possibly starting in the south, do not possess any regional connotations. These non-regional forms then displace the local northern forms. In fact, Kerswill (2003:8) describes the rapid spread of a set of non-standard consonantal features as the "torchbearers" of linguistic diffusion. Examples of these torchbearing consonantal features include: TH-fronting, t-glottalling, h-dropping and labio-dental /r/ (Britain, 2005:29). These features have been described as being "off the shelf" (L. Milroy, 2007:149). This description relates to the observation that they may exist high above the level of consciousness, require little effort to acquire and, as supralocal forms, are often accompanied by a certain "modern" kudos. The fact that they are not stigmatised by regional associations further facilitates their adoption (Kerswill, 2002:197). These forms have shown a rapid spread throughout the UK. Figure 3 below shows the spread of three so-called torchbearers: glottal stop for intervocalic /t/, TH-fronting in a voiceless context (replacement of [f] for /θ/ as in *fing* for *thing*), and the voiced equivalent of TH-fronting (the replacement of [v] for /ð/ as in *brover* for *brother*).

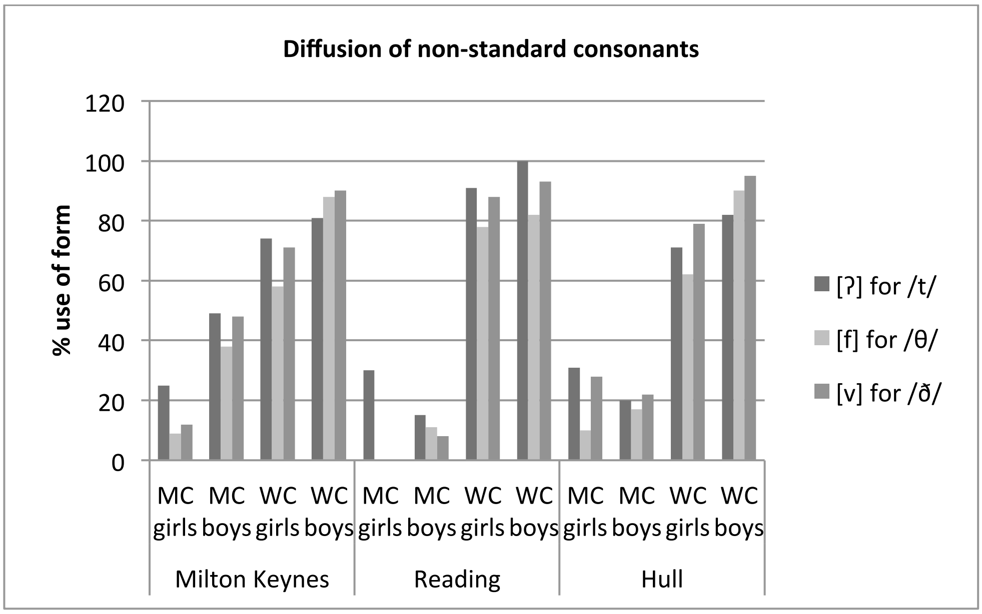


Figure 3: levels of non-standard "torchbearer" consonants for middle-class and working-class girls and boys at three locations (based on Kerswill, 2002:197).

Figure 3 shows that, particularly among working-class speakers, these features have now become the dominant form, and the non-standard supralocal variant accounts for categorical, or near-categorical, use. What this example further demonstrates is how these features have become the dominant forms across a range of geographically and linguistically separate places. They are becoming the new dialectal norms for young speakers throughout the UK.

The result of diffusion is that dialectal isoglosses for particular features, which may have previously differentiated local accents within a wider region, start to dissolve. Within England at least, this leads to reduced regional variability. As varieties discard regional forms for the incoming supralocal ones, local diversity is reduced and the area as a whole becomes more homogenous.

The first overarching aim of the present thesis is to contribute to the understanding of the mechanisms involved in *regional dialect levelling.* This will be met through a detailed analysis of the two mechanisms *diffusion* and *levelling*, as they are in progress in southeast England.

1.1.4 Internally motivated change: drift

So far, the discussion has been concerned with a description of regional dialect levelling and how this is brought about through the two externally motivated mechanisms of *diffusion* and *levelling*. These changes are socially motivated and exist above the level of consciousness to the extent that some of the adoptions are characterised as "off the shelf" changes. Another purported mechanism of language change is *drift*. This is described as the gradual, unconscious language change which occurs in a particular direction. Internally driven change is not usually considered as a process which contributes to regional dialect levelling. However, endogenous drift-like changes which occur in many varieties simultaneously will also bring about the homogenising of regional dialects. In other words, global phonological change contributes to dialect levelling in the sense that accents will become more like each other through natural phonetic drift.

Therefore, as well as investigating externally motivated changes, i.e. diffusion and levelling, this research also looks at internally motivated change in order to compare these mechanisms and also to examine their contributions to regional dialect levelling. What follows is an outline of Sapir's description of drift followed by an example of this type of change. The following section presents Labov's distinction between *changes from above* and *changes from below*, which unites these different types of change within one model.

As outlined by Sapir (1921), drift refers to the idea that there are structures inbuilt in the composition or the grammar of a language that cause it, all other factors remaining constant, to change in a gradual drift-like mode. He describes the natural flux visible in linguistic variation as "random" and that the fluctuations that eventually succeed, or "catch-on", are due to their fitting in with the general structural drift of that language:

> *Language exists only in so far as it is actually used – spoken and heard, written and read. What significant changes take place in it must exist, to begin with, as individual variations…They themselves are random phenomena, like the waves of the sea, moving backward and forward in purposeless flux. The linguistic drift has direction. In other words, only those individual variations embody it or carry it which move in a certain direction, just as only certain wave movements in the bay outline the tide. The drift of a language is constituted by the unconscious selection on the part of its speakers of those individual variations that are cumulative in some special direction. This direction may be inferred, in the main, from the past history of the language. (Sapir, 1921:155)*

Three central qualities emerge from Sapir's description of drift:

1. It is gradual (resulting from small natural fluctuations)

2. It is unconscious (speakers are unaware of these natural fluctuations)
3. It is directional, and therefore natural (innovations will only survive if they are in line with the structural tendencies of the language)

The classification of these change types as natural suggests that they should be predictable and can therefore form the basis of deterministic models. One example of this type of deterministic model is Labov, Ash and Boberg's (2006:14) *general principles of chain shifts*, where:

1. Long vowels rise
2. Short vowels and nuclei of upgliding diphthongs fall
3. Back vowels move to the front

Figure 4, below, presents a figurative representation of these tendencies in the (American) English vowel system.

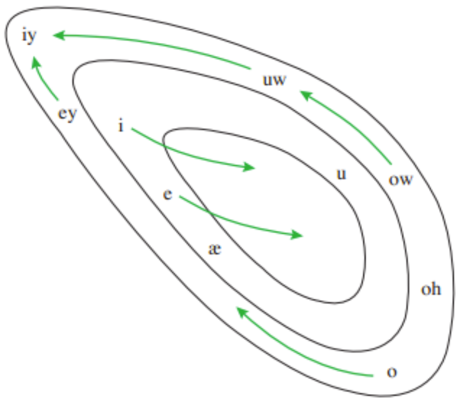


Figure 4: general principles of vowel shifting (from Labov, Ash & Boberg, 2006:14)

Figure 4 predicts several changes. These changes have since been borne out through empirical investigation. For instance, research has demonstrated that the back (uw) vowel, or GOOSE vowel, is moving forward in the vowel space. Indeed, a large number of studies of a number of different dialects have shown this to be the case (e.g. North America: Labov, 1994, 2001; Clarke et al 1995; Ash, 1996; Fought, 1999; Hall-Lew, 2005; Fridland, 2008; Australia: Cox, 1999, New Zealand: Easton & Bauer, 2000; South Africa: Mesthrie, 2010; and throughout the British Isles: Cheshire et al, 2011; Tollfree, 1999; Altendorf & Watt, 2008; Hawkins & Midley, 2005; Altendorf, 2009; Williams & Kerswill, 1999; Roach & Hartman, 1997; Harrington et al, 2008; Flynn, 2012; Hughes et al, 2011; Jansen, 2010). This change, according to Labov (1994:116), is brought about through the tendency for back vowels to move to the front. Similar to Sapir (1921), Labov (1994:116) attributes changes of this sort to *drift*-like mechanisms built into the internal structure of language.

Based on the previous sections, two sources for language change are clear:

1. Contact-based sources with the associated mechanisms *diffusion* and *levelling*
2. Internally based random fluctuations with the associated *drift*-type mechanism

These two types of change represent a central distinction in sociolinguistic models of language change (e.g. Labov, 1966). These models are deterministic in that the source or type of the change means that certain predictions can be made about its functioning and development within the community and the system.

The following section outlines Labov's (1966) distinction between these different types: changes that originate from outside the community, and those whose motivations are system internal.

1.1.5 A unifying model: change from above and change from below

Labov (1966) makes a distinction between two types of language change:

1. Change from above
2. Change from below

Change from above refers to those changes which come from outside the community. They result from contact. Frequently, speakers exhibit high levels of awareness of the incoming forms. This means they are often overtly commented upon and often exhibit style shifting where speakers modify their rates depending on the social setting in which the speech is taking place (most commonly rated along a formal–informal cline). The evaluation of forms can be positive, i.e. the feature can exhibit prestige; or the form may be negatively evaluated, i.e. the form is stigmatised (Tagliamonte, 2011:57). Labov (1966:158) describes change from above as:

> *relatively simple examples of the pressure of society upon language. These forces are applied from above – they are the product of overt social pressures consonant with the social hierarchy. The process is out in the open for us to observe, in public performances, in the attitudes of teachers in the schools, and in the conscious reactions of some middle class speakers.*

An example of a change from above that receives positive evaluation from the recipient community is post-vocalic /r/ in New York City. This was demonstrated through Labov's (1966) NYC Department Store Study. At the time of the study, the New York accent was largely non-rhotic, that is, /r/ was not realised post-vocalically in words like *car* and *card* or *four* and *fourth*. The rhotic realisation of /r/ was a positively evaluated feature linked with more educated and high-status varieties of American English. This variable was high above the level of consciousness where a fully realised /r/ was associated with speakers of a higher socioeconomic status and considered prestigious; "This particular variable appeared to be extraordinarily sensitive to any measure of social or stylistic stratification" (Labov, 1966:41–3). In sum, in NYC, higher rates of /r/ were associated with classes higher up the socioeconomic scale and more formal situations.

In the department store study, Labov (1966) examined the intersection of the factors style and class. Class was represented through the use of three different department stores, each with a different socioeconomic target market. Saks represented the higher end and equated roughly with upper-middle class. Macy's was a more middle-class market, and Klein's represented the lower working-class end of the socioeconomic scale. In order to test his hypothesis, Labov used a random and anonymous survey technique where he would visit each store and elicit the words *fourth* and *floor* in both casual and emphatic styles of speech via the following technique:

> *The interviewer approached the informant in the role of a customer asking for directions to a particular department. The department was one which was located on the fourth floor. When the interviewer asked "Excuse me, where are the women's shoes?" The answer would normally be "Fourth floor."*
>
> *The interviewer then leaned forward and said, "Excuse me?" He would usually then obtain another utterance, "Fourth floor," spoken in careful style under emphatic stress.*
>
> *The interviewer would then move along the aisle of the store to a point immediately beyond the informant's view, and make a written note of the data.* (Labov, 1966:45)

In line with the predictions, and reflecting the distribution of the variable in the city at large, Labov found that the variable showed class stratification by store. Specifically, the higher end the store, the more /r/ was fully realised. Further, respondents used more fully realised /r/ in emphatic speech than in casual speech.

Labov (1966) interpreted this finding as meaning that /r/ was above the level of consciousness; i.e. the variable showed style shifting. Further, Labov argued that this was evidence that the speech community all evaluated this form in the same way. Specifically, they all rated post-vocalic /r/ as a prestige feature as evidenced by increased use in emphatic speech in all three stores. In other words, all members of the speech community showed style shifting in the same direction.

In contrast, change from below has much in common with the previous section's description of drift. It is gradual and operates below the level of consciousness. Unlike change from above, it is unlikely to receive overt commentary or be subject to style shifting. Labov (1966:128) describes it as being:

> *expressed as a gradual shift in the behaviour of successive generations, well below the level of conscious awareness of any speakers. In most cases, the shift begins with a particular group in the social structure and is gradually generalised in the speech of other groups. Usually the initiating group has low status in the social hierarchy – otherwise the change would be transformed into overt pressure from above*

With regards to the linguistic character of changes from below, Labov (1994:78) describes these as being the product of "the operation of internal, linguistic factors". An example of a change from below would be the gradual and continuous movement of a vocalic feature. For example, the phonetically conditioned raising of the PRICE vowel, better known as Canadian Raising (e.g. Chambers, 1973). This variable refers to the raised articulation of the (ay) diphthong in words such as *right* or *tide* when it is followed by a voiceless phoneme compared to a voiced one. The effect is an allophonic distinction of the vowel in pairs such as *tight* versus *tide*, or *light* versus *lied*. In Canadian Raising the pre-voiceless *tight* and *light* are raised in comparison to their realisations in *tide* and *lied*.

This feature has shown to be a change in progress operating below the level of consciousness for some time in Philadelphia, where "F1 of (ay0) had a strong age-coefficient, but no significant distribution across social class groups" (Labov, 2001:172). This lack of socioeconomic stratification, paired with the system internal motivation (the voicing of the following consonant), are the identifying features of typical change from below.

In sum, in Labov's model changes from above and changes from below, as well as being distinguished by speakers' level of awareness, are also differentiated by their sources. Contact-based changes from above are *exogenous*, originating from outside the speech community. They are driven by social forces and demonstrate socioeconomic and stylistic stratification. Changes from below, on the other hand, are *endogenous*; they originate and are driven by system internal pressures. Unlike changes from above, these changes operate below the level of consciousness and as a result do not show the same type of socioeconomic or stylistic stratification.

The source of a change has a direct impact on how it is learned. In other words, exogenous and endogenous features have different routes into linguistic systems. These different routes have implications for the types of variable patterns expected for changes resulting from different mechanisms. The section below presents Labov's (2007) description of these different routes and their effects on variation.

1.1.6 Routes into the language: transmission and diffusion

If the route of a change into a system has a bearing on the types of variable patterns to be expected then evidence of this type can be used to evaluate and identify the source of a feature. Examining the interplay between external and internal sources of language changes is an overarching aim of this research. Therefore, the variable patterns of a feature will give a clear indication as to its source. In order to utilise this line of reasoning, I first outline Labov's (2007) distinction between the different types of language learning related to external and internal sources of change.

In his description of types of language learning, Labov (2007:307) makes a distinction between transmission and diffusion. These two types of learning are associated with different types of language change; endogenous changes such as GOOSE-fronting are spread through transmission between parents and their children, whereas exogenous changes are spread through diffusion.

He defines *transmission* as the "unbroken sequence of native language acquisition by children". Transmission, therefore, involves language learning from adult to child and most commonly occurs between children and their main caregivers. This type of language learning results in the children acquiring the native dialects of their parents and takes place before the critical period. During this time, children are capable of acquiring the full level of linguistic complexity associated with the form and its constraints. This means forms passed on through this route are acquired with the full range of detail and complexity intact and the system is replicated fully: "the faithful transmission of the adult system, including variable elements with their linguistic and social constraints" (Labov, 2007:344). In contrast, diffusion results from contact between varieties and is the result of adult-to-adult language learning. Many of the complex details and patterns associated with the form are shaved off during this type of language learning: "It follows that structural patterns are not as likely to be diffused, because adults do not learn and reproduce linguistic forms, rules and constraints with the accuracy and speed that children display" (Labov, 2007:383).

The difference between these two processes is illustrated with reference to the New York City short-*a* system. Within the city, as well as the traditional split in terms of nasality where short-*a* is tense before nasal consonants (i.e. *can, man, hand, dam* etc), the feature has also developed the array of complex linguistic constraints now visible (i.e. grammatical, morphological, lexical, syllabic etc). Labov (2007:354) reports that when this form is passed down through generations of native New York City dwellers, between parents and their children, the full complement of constraints is preserved and the children then continue to increment the change in the same direction as their parents. However, when the feature diffuses, to surrounding places such as New Jersey, Albany and Cincinnati, many of these constraints are reorganised along simpler lines – a simple nasality split without lexical exception, for instance, or they are lost altogether (Labov, 2007:354-61).

In sum, transmission and diffusion represent two different routes into the language resulting from the difference in the language learning capabilities of children compared to adults. Transmission, which results from adult-to-child learning, leads to the faithful replication of the form and all its associated structural complexities. In contrast, diffusion, which results from adult-to-adult contact, leads to imperfect learning and means the associated structures of the form are either lost or simplified.

1.1.7 The interplay between external and internal mechanisms of change

Examining the interplay between externally and internally motivated changes forms a major focus of this research. While Labov formulates the model of these change types in terms of a dichotomy, he suggests that in reality, clear-cut, real-world examples of the different types of change, particularly transmitted changes from below, can be extremely hard to find. Indeed, Labov (1994:140) asserts that there are situations in which the principles may be overridden: "…none of the principles of chain shifting is either absolute or isolated from social factors. If social pressures are strong enough, phonetic processes that are deeply rooted in the history of the language and the functional economy of the system can be reversed."

Further to this, Kerswill et al (2008:451-2) suggest that while Labov's formulation may recognise the interplay between internal and external mechanisms, it "lacks detail". In other words, a principled account of how these factors may interact is still wanting: "what forces might be at work when an established, purportedly universal or natural phonetic change seems to have been halted and is, in fact, reversing" (Kerswill et al, ibid). It is this which further motivates the second overarching research aim of this research: how accounts of dialect levelling can inform models of sound change more generally.

Understanding the interplay between internal and external forces in language change is hardly a new endeavour for linguistic study. However, recent methodological advances make the present study timely. As sociolinguistic methods continue to advance, and it becomes possible to handle and analyse increasingly large corpora, it is now possible to investigate the details of the processes underlying regional dialect levelling with greater instrumental precision: "The levelling of accents/dialects has been something of a 'given' in recent accounts of change in the spoken English of Britain. However, the very recent availability of a larger number of studies presents us with the opportunity to examine the mechanism behind this 'levelling' with a new degree of precision" (Kerswill, 2002:187).

The objective above and the availability of the latest analytical techniques motivate my variable selection of three features that are reported (in the southeast, at least) to be operating via three different mechanisms of change. These are two externally motivated mechanisms:

1. Levelling-based change
2. Diffusion-based change

As well as an internally based mechanism:

3. Endogenously based change

1.2 VARIABLE SELECTION

Three variables were selected for analysis based on their different sociolinguistic characteristics. Specifically, this thesis aims to compare and contrast three different proposed mechanisms of change to examine the interplay between internal and external mechanisms in detail within a variety that is undergoing levelling. The three features and associated mechanisms are as follows:

1. MOUTH vowel variation: recent investigations into the MOUTH vowel have suggested that it is changing through a process of *levelling* (e.g. Kerswill & Williams, 2000).

Descriptions of realisations of the MOUTH vowel in the southeast demonstrate that it is characterised by a wide range of variability. Further, this variability tends to take the form of several categorical variants rather than a phonetic continuum (Kerswill, 2002:697). Changes in this vowel are typical of a process of levelling. This involves the reduction in the number of variants where supralocal forms replace regionally or linguistically marked forms (e.g. Trudgill, 1986). The range of different variants is usually attributed to contact-based processes where increased mobility means different dialects and phonologies combine, resulting in a number of different competing variants. In this sense, levelling processes are an example of an *exogenous* type of change, that is, its origin is from outside the community.

2. TH-fronting: this language change is most commonly attributed to a process of *diffusion* whereby innovations spread out from large, dominant, urban centres (commonly cities) to the surrounding areas (Trudgill, 1983:52–87).

Similarly to levelling, diffusion involves contact, and in this sense is also an *exogenous* feature. However, in this case (as many of the features diffusing through urban Britain, e.g. Foulkes & Docherty, 1999), TH-fronting is usually characterised as involving the adoption of a vernacular non-standard feature as opposed to the loss of regionally marked or minority variants. In many respects diffusion shows similarities to levelling; both involve the adoption of forms from outside the community. However, these types of change operate via contrasting mechanisms (*diffusion* versus *levelling*) and may therefore be predicted to show contrasting patterns of variation and change.

3. GOOSE-fronting: represents an *endogenous* change insofar as it is driven "by the operation of internal, linguistic factors" (Labov, 1994:78).

Unlike MOUTH variation or TH-fronting, GOOSE-fronting most commonly operates as a phonetically continuous, internally driven change brought about through linguistic factors and is hence often described as a "natural" change. Again in contrast to MOUTH and TH-fronting, GOOSE-fronting is not subject to social evaluation. At the early stages at least, GOOSE-fronting appears to operate below the level of consciousness, characterising it as a typical change from below.

Following the contextualisation of the present thesis and the justification of the variable selection, it is now possible to state the overarching research aims of the current work in terms of three main research questions.

1.3 Research Questions

1. How do the linguistic and social functioning of the different mechanisms levelling, diffusion and endogenous change compare and contrast? What implications, if any, does this have for current models of language change?
2. How do these mechanisms contribute to regional dialect levelling?
3. How well does the distinction between change from above and change from below hold within a variety susceptible to regional dialect levelling?

I now turn to the data and method. The following section outlines how the community I have selected and the procedure I have adopted are suitable for my research aims

2 Data and method

2.1 Introduction

This chapter introduces and describes two important aspects of this thesis:

1. The community chosen for investigation
2. The methodology employed to carry out this investigation

The research site chosen is Hastings, East Sussex. The description and brief history below demonstrate why Hastings is a good site to study regional dialect levelling. Specifically, the section identifies significant population movements as key to its history of sustained contact with speakers of traditional working-class varieties of London English.

2.2 The community: Hastings

2.2.1 Hastings: basic facts and figures

Hastings is situated just over fifty miles south of London, as shown in Figure 5.

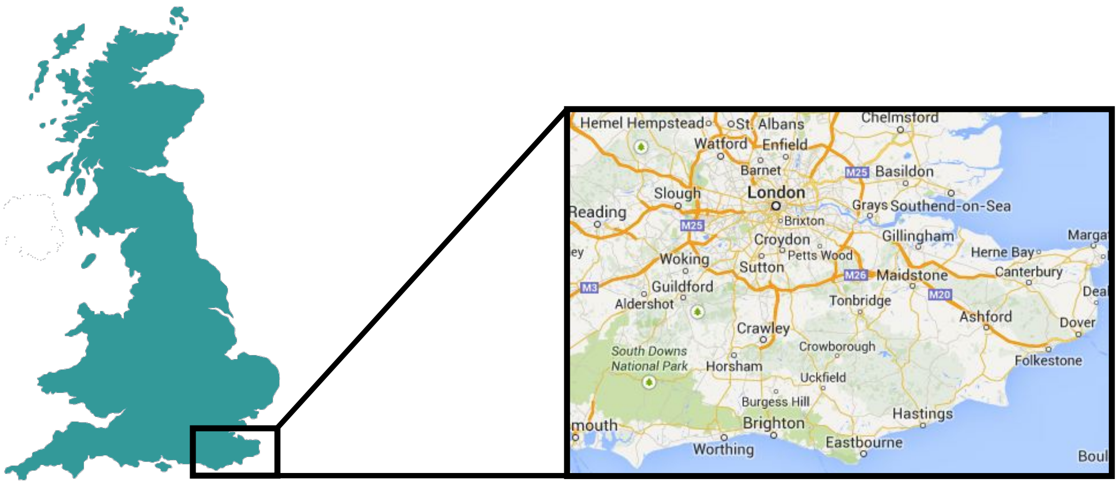


Figure 5: location of Hastings relative to UK, and London

According to the 2011 census, Hastings has a population of just over ninety thousand residents. [1] Although the population of Hastings has grown since the previous census (from 85,029 in 2001 to 90,254 in 2011) this increase is proportionally slightly less than the southeast in general (6% in Hastings compared to 8% for the region overall). Economically, Hastings is a deprived area; it performs worse than the national average, with lower average income per household and higher rates of unemployment.

[1] http://neighbourhood.statistics.gov.uk/dissemination/LeadKeyFigures.do?a=7&b=6275125&c=Hastings&d=13&e=62&g=6420779&i=1001x1003x1032x1004&m=0&r=1&s=1400419019848&enc=1

These statistics reflect the fact that, relative to the southeast more generally, Hastings is considered underprivileged. This is demonstrated not only by the lower household income but also patterns of mobility as they relate to work and education. In short, in a region where high standards of living and levels of mobility have become the norm, Hastings represents a relatively disadvantaged and isolated area within the southeast; section 2.2.2 describes this, as well as the possible causes, in greater detail.

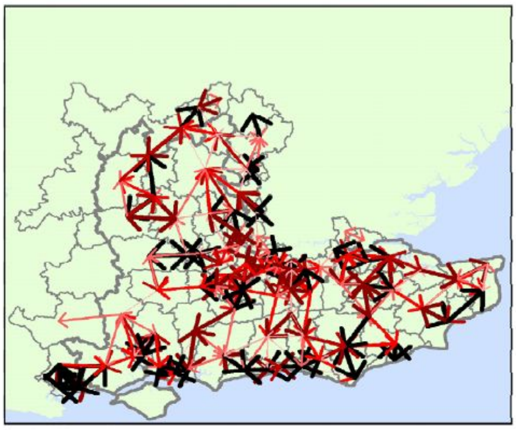
2.2.2 Patterns of contact in the southeast

In his description of regional dialect levelling, Britain (2010:193) identifies a number of factors that increase the level of contact experienced by a community. Further, he explains how these have linguistic consequences whereby "linguistic variants with a wider socio-spatial currency become more widespread at the expense of more localised forms". Often the changes can be traced back to the influence of a large, dominant metropolis such as a city (Trudgill, 1983:52-87). There are a number of social and demographic patterns that have led to high levels of contact between people living in London and those in towns within the southeast. Some of these apply to Hastings, while others do not. A likely candidate in the southeast is patterns of commuting, where individuals may live outside the city but travel in to work. However, as the following section will demonstrate, Hastings does not function as a typical commuter town.

2.2.3 Hastings and commuting, just out of reach

Taking figures from Tollfree (2004:6-26), Britain (2010:197) shows the density of population movement through migration and commuting in the southeast. These are shown in figure 6.

Cross-district migration (Tollfree, 2004:7) **Commuting to London (Tollfree, 2004:26)**



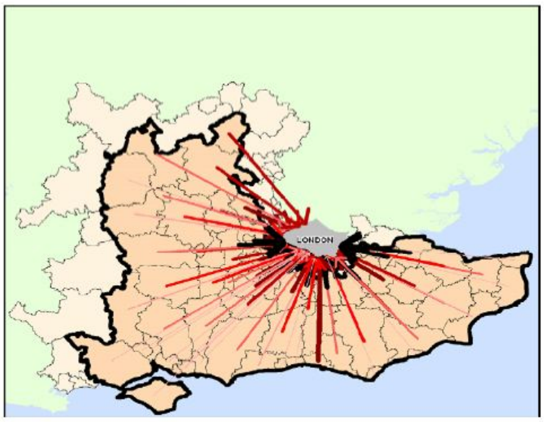


Figure 6: migration and commuting patterns in the southeast, darker lines signify greater numbers of people migrating/commuting

Figure 6 shows the prevalence of migration and commuting within the southeast. Certainly, for some Sussex towns commuting is so common that the potential for its linguistic consequences have not gone unnoticed. In fact, Brighton's local newspaper recently proclaimed: "Sussex dialect being wiped out by commuting".[2] However, while commuting may be prevalent for Brighton, which is served by a high-speed rail link to London, the same may not be said of Hastings. Figure 7 shows how levels of commuting vary throughout the southeast (Hastings indicated by red arrow).

[2] Article featured: "Sussex dialect being wiped out by commuting" Emily Walker, The Argus, Sunday 3rd January 2010 http://www.theargus.co.uk/news/4829246.Sussex_dialect_being_wiped_out_by_commuting/

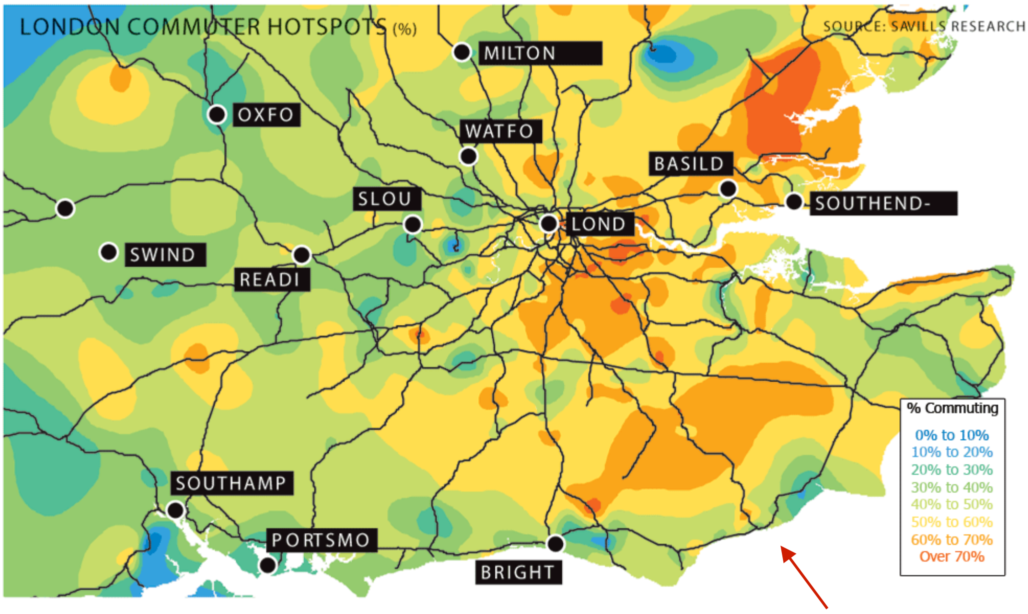


Figure 7: Map showing density of commuting in southeast with arrow added indicating Hastings (from Propertyweek.com)[3]

Figure 7 shows that while commuting may be the norm for much of the southeast, this is not the case for Hastings, which shows some of the lowest commuter rates within the region. Indeed, research by Savills into the relationship between property value and commuting indicates that a journey time of more than one hour results in a distinct drop-off in commuting from that location. The quickest rail time between Hastings and London is an hour and a half. Another good indicator of commuter levels is house prices. Savills suggests that for train journeys outside the M25, for every additional minute, house prices decrease by £1000. Although a number of factors determine property value, a comparison of house prices gives a good indication of Hastings' status within the southeast. The average house price in Hastings is £180,508. This is in comparison to two other East Sussex towns, Wadhurst (£469,237) and Ticehurst (£310,271), both of which have a commute time of around one hour. Although not the only reason for Hastings' low house prices, the lack of a commuter link certainly contributes to the town's poorer economy.

While not quite an enclave, what the above suggests is that Hastings is excluded from the general trend of commuting towns throughout the southeast. However, as will become clear in the section to follow, there is still substantial potential for traditional London varieties to influence Hastings, albeit via a different mode of population contact.

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[3] Article featured: "Commuters' track record" Lucian Cook & Yolande Barnes, Property Week, 9th November 2007
http://www.propertyweek.com/commuters%E2%80%99-track-record/3099223.article

2.2.4 Hastings: a brief history

What follows is a brief account of the major milestones in the economic and cultural development of Hastings over the last 150 years or so. While Hastings has had repeated contact with London as it served as a holiday destination, the most significant and sustained influence was during the 1970s in the form of its participation in the *London Overspill* scheme. This is detailed at the end of the following historical outline.

Like many British seaside towns, the end of the 19th century represented the largest period of growth for Hastings. In 1851 the railway reached Hastings and the town became established as a popular holiday destination for more affluent members of the middle classes, with many of these coming from London. As a result, Hastings saw a boom in the building industry to cater for the housing needs of both the families of holidaymakers and the staff they employed (Gray et al, 1982:7–8). In terms of the social and economic profile of Hastings, the pull of tourism created an economy which rested on the service industry, as detailed by Gray et al (1982:8):

> *In the 1891 Census the top three occupations for women were domestic servants, dressmakers and lodging house keepers, whereas for men the same Census lists labourers, coachmen and grooms and carpenters as the top three male occupations. By 1921 the Census records the top three female occupations as domestic servants, lodging house keepers and shop assistants while for male employment it was shopkeepers, shop assistants and road transport. In short a small army was needed to care for and entertain the visitors and wealthy residents. For its prosperity the area depended on wealth created elsewhere and brought into the town.*

The boom in tourism was followed by a slump between the end of the 19th century and the start of the First World War; Hastings attracted less wealthy visitors, leading to a spike in unemployment and an accompanying dip in living conditions by those previously employed in the associated service industries. Following the war, Hastings' council put effort into regenerating the town and marketed its tourism at a slightly lower strata of society, this time lower-middle-class and upper-working-class London families (Gray et al, 1982:9). This effort was, in the most part, a successful one, and Hastings' tourism industry began to prosper again. However, during the sixties, with the increase in the availability of affordable foreign holidays, tourism once again slumped.

Hastings sought an alternative to tourism as means by which to revive its economy; this time the aim was to develop industry. They aimed not only to stimulate the town's economy but also to create a boost in the town's population, as the following from Gray et al (1982:11) describes:

> *…moves were also made to develop a small light industrial sector over the years. The industrial estate as Ponswood was one major project after the Second World War. The Hastings Town development scheme, first published 1962, and amended in 1965, sought to provide employment opportunities and attract an extra 18,000 people to the town. Help was going to be forthcoming from the Greater London Council whose "overspill" would provide the extra people.*

The predicted industry did not develop in Hastings and the town continued to suffer from economic deprivation. Evidence of this persists; while there are a number of dedicated industrial sites on the outskirts of the town, the main source of employment continues to be health, public services, retail and education. However, despite the lack of industry, Hastings did receive a population boost by way of London overspill during the 1970s.[4] The effect was a substantial population increase of working-class Londoners to Hastings and the "Toll Kiln" council estate was created in order to accommodate these people. The estate was developed as part of the Hollington borough of Hastings, which was already home to a smaller and well-established working-class community in Hastings. Evidence from personal accounts (see section 2.3.10.3, extract from Anthony) suggests that while there may have been initial hostility, what followed was the integration of this overspill into the larger community. This not only affected the demographic profile of the town, but, as will be demonstrated throughout this thesis, had wide-ranging linguistic consequences on the dialect.

2.2.5 Summary

What emerges from the description and history of Hastings is a town characterised by lower-than-average levels of wealth and employment prospects. Unemployment is worse than the national average and particularly marked for the southeast. The lack of any significant industry contributes further to Hastings' economic deprivation. Its distance from London and the lack of a high-speed rail link means it is not a viable commuter

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4 "London Overspill (vol 850 cc445-6)", Hansard, 16 February 1973.

town. The combination of these factors means that Hastings experiences lower levels of mobility and lower socioeconomic status than the southeast generally.

However, although not subject to repeated exposure and links to London through work by commuting, Hastings has experienced substantial influence by London via other means. The population overspill from London and the development of the Toll Kiln estate within Hollington has had radical effects upon the nature of the working-class community in Hastings. As noted by Kerswill (2003:229), such drastic population movement is likely to have profound consequences for language change. In particular, the resulting dialect contact would provide a strong impetus for regional dialect levelling.

Hastings' history, specifically its receipt of a population boost through the London Overspill programme, demonstrates why it is a suitable site to investigate regional dialect levelling. The section below presents a chronology of the procedure through sample design, recruitment, interviewing, transcription, analysis and the statistical interpretation of the results.

2.3 METHODOLOGY

Once Hastings was selected as a site to investigate regional dialect levelling, the next stage was sample design. This needed to be done with the aims of the project in mind. Further, so that the results gathered made a relevant contribution to the field more generally, the sample needed to be comparable with previous studies. Therefore, the design of the sample needed to reflect methodology and conventions developed from sociolinguistic theory. Two crucial elements of the sociolinguistic study of language change are the treatment of age and gender as social variables. These are outlined below.

2.3.1 AGE AND GENDER IN SOCIOLINGUISTICS

The present study adopts an *apparent time* methodology where a corpus of speech is created through interviewing a sample of participants comprised of different age groups. In addition to age, the sample is also stratified by gender; the motivations for doing so are provided below.

2.3.2 APPARENT TIME

In order to investigate language variation and change, this study employed an apparent time design. Apparent time is an analytical tool which assumes that the language patterns of different ages of speakers represent different stages of the language. In other words, the speech patterns of older speakers represent an earlier state of the language, and vice versa:

> *In an apparent time study, generational differences are compared at a single point and are used to make inferences about how a change may have taken place in the (recent) past. Age differences are assumed to be temporal analogues, reflecting historical stages in the progress of the change…Analytically, apparent time functions as a surrogate for chronological (or real) time, enabling the history of a linguistic process to be viewed from the perspective of the present.* (Tagliamonte, 2011:43)

The increasing or decreasing frequency of a linguistic feature between different generations is interpreted as a change in progress (Sankoff, 2006).

2.3.3 Age as life-stages

In this approach, rather than treating age as a linear scale where the unit of measurement is years or decades, age is thought to comprise a continuous set of stages. Eckert (1997:159) observes that the age cohorts associated with these life-stages are:

> *"native categories" in US culture, and commonly used as explanations for people's behaviour: childhood (which includes pre-adolescence), adolescence (more finely divided into early adolescence and adolescence), adulthood (which is more finely divided into early adulthood and middle age), and old age, which is interestingly enough viewed separately from adulthood.*

In this sense, the life-stage approach to age is a more emically informed approach to age. In other words, the study does not treat age as a linear correlate but rather employs broader age groups which are based on socially meaningful categories.

2.3.4 Gender and sex

Both the terms "sex" and "gender" have been used in sociolinguistic research. The choice of either term tends to correlate with whether the explanatory factor is related to the anatomically derived differences or socially derived ones. The term sex is used when differences are more related to anatomical factors, for example vocal pitch,[5] while gender, on the other hand, is used in reference to more social influences – politeness

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[5] Although there is increasing evidence to suggest that even vocal pitch is conditioned more socially than biologically, e.g. Foulkes et al 2010.

strategies, for instance (Tagliamonte, 2011:64). As the present work is more rooted in the social explanation for differences between male and female speakers, the term *gender* is used.

Despite the potentially deterministic approach of a binary categorisation of gender, it has been shown to be one of the most consistent predictors of linguistic variation (Tagliamonte, 2011:62). One of the most reliable sociolinguistic observations is that women tend to be more standard than men, as outlined by Chambers (2003; 116):

> *In virtually all sociolinguistic studies that include a sample of males and females, there is evidence for this conclusion about their linguistic behaviour: women use fewer stigmatised forms than men of the same social group in the same circumstances.*

2.3.5 Sample design

The discussion presented above demonstrated that two key social factors within sociolinguistics are age and gender. Analysis of each of the factors independently yields important information about the change under investigation. Analysing age can indicate whether a change is in progress, how fast the change is happening and also the direction of the change. Analysing gender, on the other hand, can provide information about the status of the change in the community. Although women lead both changes from above and below, they tend to withdraw from stigmatised features. The behaviour of women, therefore, is a good diagnostic for the social evaluation of a change (Labov, 2001:293).

2.3.5.1 *Age*

In order to test change in apparent time, my sample was stratified by age (e.g. Tagliamonte, 2011:47). Following Eckert's (1997:151–66) approach, rather than using arbitrary age brackets, I designed the sample in terms of four life-stages that have been shown to correlate with different sociolinguistic influences and behaviours:

1. *Preadolescence, 8–10 years:* at this stage children have oriented away from their parents and are modelling the sociolinguistic norms of their peers (Kerswill, 1996:195). However, they are still in a process of development, and as a result their systems are not stable and they will often lag behind the adolescents who represent the vanguard in terms of language change. The *patterns* present in the

speech of this group, however, can point towards the next stage of development of a change.

2. *Adolescence, 16–18 years:* these speakers are often described as the most innovative and represent the leading edge of the change (Kerswill, 2007:1). Adolescent speakers are also often more non-standard, railing against the norms prescribed by their parents' generation in what Chambers (2003:185) terms "declarations of adolescence".
3. *Middle-age, 35–50*: at this stage in their lives, speakers are often at their most conservative. This stage is usually described with reference to the *Linguistic Marketplace* where, depending on an individual's stage and role within society, greater value will/will not be placed upon the standard language (Sankoff & Laberge, 1978). During middle age most individuals will be focused on their careers and/or raising families, hence greater levels of responsibility and a greater value placed on the standard language.
4. Old age/retirement, 65+: in contrast to middle age, retirement usually brings with it less responsibility and therefore less pressure to adhere to the standard (Eckert, 1997:165). Without work, their networks tend to be more restricted and mean they are less likely to encounter new linguistic innovations or adopt them; for this reason the speech of this group represents a more stable, older form of the language.

2.3.5.2 *Gender*

In addition to age, gender has also been shown to interact with the propagation of change (where women are most often in the lead – see section 2.3.1 for further discussion). In addition to this, research has shown that gender differences are more pronounced during the mid-stages of a change and tend to be smaller at the beginnings and ends of changes in progress (Labov, 2001:462). Therefore, the relative size of gender differences between different age cohorts can provide evidence that can help identify the stage of the change.

Based on the discussion in this chapter and the previous one, the motivations for the inclusion of a sample design based on age and gender are clear. Specifically, I want to track ongoing changes; hence age is an essential dimension. Further, I aim to examine the status and type of language change, as mentioned previously; as women use prestige forms at a greater rate than men and tend to avoid stigmatised forms, gender patterns can provide useful insight as to the status of a language feature within a community. Therefore, the sample is balanced for gender.

Table 2 shows the structure of the present sample: 47 participants stratified by age and split by gender.

Age	Male	Female	Total
Old 65–90	4	5	9
Middle 35–50	6	6	12
Young 16–18	4	6	10
Child 8–10	8	8	16
Total	22	25	47

Table 2: construction of present study stratified by age and gender

2.3.5.3 *Other requirements*

Alongside balancing the sample for age and gender, in order to make valid claims about changes in the Hastings dialect, the study required that the participants met a set of criteria:

- *They must have been born and brought up in Hastings (preferably by parents also raised in Hastings, although this was not always possible).*

This is so that the participants were native speakers of the Hastings dialect. Research has shown that children acquire the sociolinguistic patterns of their native dialect very early on (Kerswill, 1996:181; Smith et al, 2007:74). Further, although children orient away from their parents once they start attending school/nursery (Kerswill, 1996:196) research has also shown that they first model their dialects on the speech of their parents (Smith et al, 2007:76-8). For these reasons it was essential that the participants were born and raised in Hastings and, where possible, their parents were also native to the area (e.g. Payne, 1980).

- *English had to be their first and only language*

Research has shown that community-wide patterns of sociolinguistic variation are often reinterpreted by non-native and/or minority groups (e.g. Poplack, 1978:98; Sharma & Sankaran, 2011:415). This would mean that these individuals would not be representative of a native Hastings dialect and therefore would not be suitable for the purposes of this study: i.e. to map the changing profile of the native Hastings dialect.

- *They must have typical speech and hearing*

Atypical hearing can impede the regular development of speech, and any speech impediments can complicate the analysis of variation. In order to gain as clear and accurate a picture of the variation as possible, only participants with typical speech and hearing were recruited.

- *They must not have lived outside of Hastings for longer than six months*

This is because there is evidence that, even once a person's dialect has more or less stabilised, a sustained period of time outside the native dialect area can exert enough influence so as to alter it (Evans Wagner, 2012:179).

- *They must not have attended higher education*

This is because participation in further and higher education has been shown to have consequences for a person's dialect (Prichard & Tamminga, 2012:87). Therefore, in order to get speech that was representative of Hastings, it was necessary to recruit speakers who had not been exposed to the potential influence of time spent living elsewhere.

Only if a person was aged within one of the predetermined age cohorts and met all of the above criteria were they eligible for recruitment. In order to ensure this was the case, a background questionnaire was first given to all potential participants and checked before the interview was started (see appendix 8.2 for questionnaire).

2.3.6 Ethics

As the present study involves interviewing and recording adult and child participants, ethics were a serious consideration (e.g. Tagliamonte, 2006:33). The present study was designed and conducted following the protocols set out by the College of Arts, University of Glasgow ethics policy (http://www.gla.ac.uk/colleges/arts/research/ethics/). Approval was sought and granted from the Ethics Committee (see appendix 8.1 for application).

2.3.7 Sample recruitment

Due to ethical considerations and also their different daily commitments, different procedures were used to recruit the adults and the preadolescents. I first describe the method used to recruit the adults.

2.3.7.1 *Recruitment: adults*

As the study required the participants meet the necessary criteria, random sampling was not possible. Therefore participants were sought out using community-internal judgement sampling, where I relied on my existing networks (e.g. Britain, 1997:22). This technique is often termed the "friend-of-a-friend" method (Milroy, 1987:66). Here, an existing contact within the community acts as a hub, introducing the researcher to potential participants via their social networks. These participants in turn introduce the researcher to participants through their social networks. This method is known as "snowball sampling" and has been an extremely successful method for sociolinguistic research (Britain, 1997:22). This method also proved to be effective in the present study. For instance, I interviewed a number of my parents' friends and colleagues. These participants then suggested and put me in contact with friends and family members who also met the criteria.

Much of the sample is connected to one another either by family, marriage, friendship or work. As mentioned previously, Hastings is characterised by lower rates of mobility. Further, given the general trend for underemployment in Hastings, those who are born and raised in the town form a fairly homogenous community of upper-working to lower-middle-class individuals. In a social networks sense, the sample represents a community characterised by dense and multiplex ties (e.g. L.Milroy, 1980; Cheshire, 1982). However, one shortcoming of the present research is that no formal or principled analysis of class or social network structure was undertaken during the sampling procedure. The analyses and their interpretations would have undoubtedly been strengthened if this had been carried out.

2.3.7.2 *Recruitment: preadolescents*

A different method was used for the preadolescents for a number of reasons. First, as children lack the autonomy of adults and spend most of their time in school, they are unlikely to have the same kind of developed networks as adults do. Second, as the children were under sixteen, I first had to gain the permission of their parents to participate in the study. This also had the knock-on effect of ensuring the children were eligible, as parents were asked to fill in a background questionnaire on behalf of their children.

The decision was taken to recruit the preadolescents through a primary school. This was for a number of reasons. Recruiting through the school would mean a large number of children could be reached quickly and efficiently. Further, I also had an established contact by way of the Deputy Head Teacher at the school. Using a gatekeeper in this way distilled any distrust or reluctance that a parent may have felt had I contacted them out of the blue. I received a successful response to the call; 18 out of 20 parents replied with their consent.

The call was administered using the school's communication channels via a "letter home". The letter was approved by the Head Teacher and provided information on what the study was about, what the interview involved, how long it would last and what the interview would then be used for. This was so the parents could make an informed decision as to whether they were happy for their children to participate and sign and return the consent form if they were happy to do so.

Along with the information and consent form, the letter home also contained a background questionnaire. This questionnaire was administered for the same reasons one was given to the adults – to ensure that potential participants met all the necessary criteria (see appendix 8.2).

Once I had gained the consent of the children's parents I drew up a list of potential participants who were eligible for the study and arranged a convenient time to visit the school and interview them.

2.3.8 PROCEDURE

2.3.8.1 *Gaining informed consent*

In line with the ethical guidelines laid out by the University's Ethics Committee, before I interviewed the participants I first gained their informed consent: the participants must be aware of what is involved in the study before they can consent to being a part of it. So that this was possible, the participants were first briefed via an information sheet which detailed the aims of the project – that it was an investigation into Hastings and the south eastern dialect, as well as the procedure involved – namely that they were going to be interviewed and recorded for an hour.

The participants were also informed that they may withdraw from the study at any point during, or after, their participation. Following the interview, participants were debriefed and were provided with my contact details in case they chose to withdraw or had any questions.

2.3.8.2 *Interview procedure*

Once the participants had been briefed with the information, we progressed to the interview stage. As with the recruitment procedure, the adult and child interview procedures also differed. This was for a number of types of reasons, including ethical, logistical (where and when they could be recorded) as well as practical (how best to get them talking) concerns. Both the adult and child procedures are described separately below.

2.3.8.3 *Recording equipment*

All the interviews were recorded on a Marantz PMD660 Solid State recorder. The recorder produced uncompressed 16-bit PCM WAV files sampled at 44.1kHz (the standard sampling rate used in acoustic phonetic research).

The machine is fairly small (the size of a small book) and as a result was reasonably unobtrusive, and the portable size of the recorder contributed to mitigating the observers' paradox. This was important, as the formality of a situation has been shown to increase a person's use of standard language (e.g. Labov, 1966; 1972; 2001; Coupland, 1980; Bell, 1984)

2.3.9 INTERVIEW PROCEDURE: ADULTS

2.3.9.1 *Time and place*

All participants, as far as possible, were recorded under the same conditions to ensure comparability of the recording context. I ensured that the general interview procedure was the same for all participants involved. This included location, approximate length, conversational topics and style; plus, the interviews were always conducted by me.

The majority of participants were recorded in their homes (apart from three participants who were recorded at their places of work). These locations were chosen as it was assumed that the participants would feel most relaxed in a place familiar to them. Most participants were recorded alone, although six participants were recorded in pairs: husband and wife Malcolm and Caroline, mother and daughter Abigail and Kelly, and father and son Mark and Jack (pseudonyms). As the individuals in these pairs were all extremely familiar with each other this was not considered as a factor that had any potential to increase the formality of the situation. However, during the analysis I checked for potential differences caused by the slightly different set ups, and I found no observable differences.

In order to generate enough data for reliable analysis, the interviews all lasted between an hour and an hour and a half.

2.3.9.2 *The interview*

The interview consisted of the traditional sociolinguistic interview as outlined by Labov (1984) and Tagliamonte (2006:37–9). So as to reduce any tension or formality, the stance I took during the adult interviews was friendly and relaxed and aimed to put the participants at ease. I came to the interviews casually dressed and attempted to conduct the interviews in what Labov (1984:33) refers to as the “colloquial format”. I took a number of steps to ensure the interviews were as casual as possible: I avoided soap box topics such as politics and any potentially sensitive issues, and I phrased the questions in straightforward and relaxed language. This was in the hope that the participants would follow my lead and a good rapport would develop. There are a number of extracts from the interviews where the participants speak candidly with me, which suggests that this was the case. For example, the following extract comes from Jeanie where she describes what the nightlife in Hastings was like and her (far from ideal) hen-do.

> **Extract Jeanie: black bra white t-shirt brigade**
> *and then there was of course Denny's, good old scum city. I like to think of it as the black bra white t-shirt brigade "punch your lights out!" I mean they were scary girls in there, scary, scary girls. (SHE: oh so did you ever wind up in there?) Yup, on my hen night (SHE: oh no!) yup my bloody sister dragged me in that place I wan- I wanted to go to, there was only about five or six of us out, but I wanted to go to JR's and then along to Scallywags but she "no let's go and do some sleaze it's your hen night" and we went in there and my ex-boyfriend was the doorman there and he was a big old, he was a bit like me, he came from a big family, and they were all brothers and we kind of grew up together. Then like there was a bit, like a fight that night and he sort of "come on get you out, get your sister out" and I'm just like "it is my hen night take me away just take me away from here" you know but it was a bit sleazy and I'm not being sort of snobby about it, it was, I mean, it was very rough, very rough.*

So as to stimulate conversation, I came armed with a number of pre-determined topics, or *conversational modules* (e.g. Labov, 1984:199). They were intentionally general – early memories, family, work etc. Again, the idea was to diffuse any formality and give participants free rein to lead and direct the conversation onto topics that were of interest to them. Labov (1984:200–1) describes these moves as “tangential shifts” and argues that these are key to a successful sociolinguistic interview. The reason these participant shifts are important is that they indicate that the interviewee is engaged at a high enough level that they begin to drive the conversation and naturally begin to focus more on the content of their speech as opposed to the way they are saying it. It was the intention that participants become relaxed enough that “minimum attention is given to the monitoring of speech”, as this has been shown to be key to eliciting a person’s everyday speech, or vernacular (Labov, 1972: 208). Recording the vernacular, or as close to it as possible, was the aim of the current thesis so as to capture the most accurate and realistic representation of the Hastings dialect possible. Again, the interviews provide many examples of the participants directing the conversation and moving seamlessly from one topic to another. Below is an excerpt from Nina where she moves from describing having known Freddie Mercury’s ex-boyfriend to how she used to live in “the party flat”.

> **Extract from Nina: Freddie Mercury’s boyfriend**
> *Well it- they were a strange couple his name was Marco I believe they were, they both passed away now, they had, they were HIV positive, although, I mean that wasn't sort of known, people didn't know about it then. Yeah but yeah they shared a flat but they used to argue and fight a lot this couple but yeah he lived with Freddie Mercury for a while but that's all I know about him. He was Italian very um flamboyant and yeah very camp they were both very very camp (SHE: were people ok about that back then or did they get hassle?) no, they were alright they yeah I suppose when we had our- we lived in erm Priory Avenue we had a flat in Hastings and it was really the party flat we were party girls I remember going out one Sunday night and we we met erm some soldiers that were passing through I think their vehicle had broken down or something and there was like this whole van full of soldiers in this pub in erm The Town Crier and erm my friend and I got talking to them it was a Sunday evening and they were saying they had nowhere to stay so we said "well come and stay with us" (laughs) and they stayed in our lounge. We had a huge lounge and they just stayed in there the night otherwise they'd have had to slept in the back of this army truck. Well that's what they told us anyway (laughs) but yeah and when I think, do you know, I'd bump into people and we'd say "yeah come back to ours and have a party" complete strangers, I wouldn't do it now.*

While no strict script or set of questions was followed, I aimed to control the interview insofar as the participants were asked questions in the same way; i.e. the questions were wide and open-ended and yes/no questions were avoided as much as possible. Throughout the interview I provided positive back-channelling and would frequently ask the speaker to elaborate or explain. The reason for this, the open-ended questions and the positive back-channelling, was to give the participants as much opportunity as possible to encourage them to speak as much as possible while also maintaining an engaged conversational style of interview. Open-ended questions tend to elicit narratives which tend to not only provide a greater quantity of data, but this data is also linguistically richer, containing a greater variety of phonetic and grammatical forms (Tagliamonte, 2006:39-42). While actual conversational topics varied, the interviews all seemed comparable in terms of their relaxed and informal nature. I was fortunate that most participants gave longer monologues on topics or recalled anecdotes that formed longer narratives. Below are some examples of longer narratives where participants recalled stories from their pasts. The first is from Jimmy, where he recalls a scooter trip to Scarborough that went awry, and the second is from Mark, a fisherman, about an unfortunate encounter with a lobster.

> **Extract from Jimmy: Scooter rally to Scarborough**
> *I went to Southend in seventy-nine, Brighton – Scarborough that was a good one. There was six of us (SHE: what happened there?) we went the wrong way, how can you go the wrong way to Scarborough? We finished up we- instead of going up straight up we went towards the wash you know sort of Ipswich area going up that way, 'cause you didn't have the internet then or anything like that or SatNavs you'd just have old maps, you know. If and if you had somebody in front of you that couldn't map read which we did! We didn't know where we were going. I can remember going through Cambridge and thinking "this isn't right" and we finished up in Kings Lynn. Anyway took us fifteen hours just to get to Hull and in those days there was no bridge at Hull either so you couldn't get across the Humber the only way to get across was this ferry. It was a place called little Holland and we used to we- you have to go up go to this pub and wait for the ferry to come in and get your scooters on and then go across and then from the other side of Hull you'd go up to Scarborough and we met this other club from Lincoln and we made quite a nice sort of alliance 'cause they came down to us which was good. About six months later they all came down to us and there was about forty of us they did a rally from Hastings to Brighton made up of half of us and half of Lincoln club which was a really good day I've kept in touch with a couple of them until quite recently seemed to have lost touch but yeah no it's nice things like that.*

Extract from Mark: the lobster
and they've got they've got a crusher and a cutter, a lobster, and sometimes they're left handed and sometimes they're not. (SHE: that's crazy) There's not much in it, it's more or less fifty-fifty. You'll get hold of a lobster, get one and it's got the crusher on here, and you get hold of another one it's got the cutter on there, and it's the cutter you've got to be careful of 'cause they're ever so quick lobsters are. Crabs aint so quick but a lobster it'll get hold of you (SHE: really?) See that scar there? That was a lobster about thirty years ago that was. (SHE: that's terrifying) Give it a crack on the top rail and it chucked the other claw off and kept that one on. Thing is as well, if you pull the claws off, the same with the crabs they close up 'cause obviously all the, it all tightens and their arms and their ligaments and everything tighten up and if you snap their claws off then it don't let go then it's just proper pinch on. Yeah cor, I mean I, I went up the hospital with it 'cause it was all jagged and everything it was quite deep. (SHE: must have been you can still see it) They said "well aint nothing we can do about it really if we stitch it up it's still not going to heal", so of course they dressed it up said "don't get it wet". I took the lobster home and bloody ate it!

The adult interviews were successful and yielded approximately 33 hours of spoken data. Crucially, this was enough to produce more than sufficient tokens necessary for the analysis.

For a number of reasons, a slightly different tack was taken while interviewing the youngest age cohort, the preadolescents. These reasons and the details of the procedure are outlined below.

2.3.10 Interview procedure: preadolescents

2.3.10.1 *Time and place*

In order to make the preadolescent data comparable with the adult data, where possible, I kept certain elements of the procedure the same. The same recording device was used and a similar interview structure was employed insofar as the participants were encouraged to lead the conversations. However, a number of modifications were made in order to a) minimise disruption to the school, and b) make the procedure more child-oriented.

The preadolescents were recorded at school during school hours at a time deemed suitable by their class and Head Teacher. This was so it caused the minimum amount of disruption to their school day.

Previous research into child speech has shown that a good way to elicit a greater amount of speech, and speech that more closely resembles their normal day-to-day speech patterns, is to interview the children in groups or pairs (e.g. Kerswill et al, 2007; Stuart-Smith et al, 2007). For this reason, I interviewed the children in pairs. Again, in order to minimise disruption to the class, interviews lasted about 45 minutes and were conducted in a quiet room which was usually used for teaching small groups and was therefore child-friendly. It was also a room that many of the participants were already familiar with.

2.3.10.2 *The interview*

Given the challenges in eliciting data from young children, I took a different approach to motivating the conversation with the preadolescents compared to the adults. This time, instead of coming armed only with topics, I brought along a set of pictures to use as props. Although less goal-oriented than the tried-and-tested Map Task (Brown, Anderson, Yule, and Shillcock, 1983), it was in many ways similar; the idea was to use these to generate conversation through creating a shared focus and point of reference. The pictures I chose were also intentionally of topics which are generally outside of a “school” frame so that the children would approach the interview in a more casual way and not treat it as some form of assessment. These included pictures of TV shows (X-factor, The Voice, Horrible Histories and Tracey Beaker) as well as pictures of animals and Premiership footballers. The interviews started with the children being asked to identify the pictures and to offer any opinions they had on them. The props served as ice breakers, and once a rapport was established they were generally not referred to again. The props proved to be a successful method of generating conversation, as the extract below demonstrates:

> **Extract from Rachel and Amy: The Voice**
> (SHE: ok so you were saying you know who these people are) *Rachel:* yeah (SHE: do you watch the show?) *Rachel:* yeah (SHE: so what's been happening ‘cause I've missed quite a lot ‘cause I was away) *Rachel:* well they have to, well they had blind auditions, and erm,
> *Amy:* what happened is they all had their backs facing to the people who were singing if they wanted them to like make a record or something they would press a buzzer and they could turn around, if all of them erm turned round, the person who was singing had to pick one (SHE: right and then what happens so once then so they pick them, what do they win from that, or?)
> *Rachel:* no they have to pick ten people and then they go onto the battle rounds where erm, so say like Jessie had two people and she paired them up together, them two had to battle against each other to find their voice and {laughs} and then so Jessie has to pick one of them to go through to the live shows and same with all the other ones have to train them up really hard so they can find their proper voice (SHE: so what do they do in training then do

> they just have lots of like singing exercises?) yeah things like that and there's more famous people what help them
> *Amy:* like their good friends and stuff they come in to help them (SHE: so how do you think it compares to the X factor like better or worse?) better, it's brand new as well it only started this year so I like Danny,
> *Rachel:* I like Jessie
> *Amy:* when he has to turn around he puts his feet up {laughs} or stands up or done something it's really funny

Again, I took a casual stance; I was casually dressed in shorts and trainers in order to set me apart from the more smartly dressed staff. I also adopted a friendly and fun approach to the interview, again relying on the “colloquial format” (Labov, 1984:33) but tailored towards the children so that the topics and the phrasing of the questions were more appropriate for younger interlocutors.

Like the adult interviews, I aimed to keep topics of conversations wide but fairly consistent across pairs. Topics included: family, friends, birthdays/Christmas, pets, YouTube, computer games, hobbies and aliens (a surprise hit). Again, the interviewees were given free rein so that the interview would naturally drift towards topics they found interesting and ideally promote longer narratives like the one below, from Louise.

> **Extract from Louise: the second coming of Stanley**
> Someone threw a box of cats into one of the barns (SHE: really?) kittens, when it was snowing that's awful yeah and we could only find two of them but we took one home and our friend she took the other one Diesel and when can I just it was she was like really sweet she sat on my lap ‘cause my mum was like "it can't be a wild cat" and I was like "could we take it home otherwise the foxes'll eat it as it's a kitten”. We took it home and the dog and the cat were getting on fine and I wouldn’t've thought that, ‘cause Jasmine's actually quite scared of cats, because quite a few cats have attacked her before, and yeah the cat was really nice to her but we, ‘cause my dad's son's mum has cats and her one just died and she wants another one, so she- we said "would you like this one" and we, well it's really weird ‘cause my dad just said "let's call it John" just as a laugh but then my brothers wanted to call it Jesus because they found it in the barns at Christmas time in the snow, so for a night the cat was called Johnny Jesus {laughs} erm until it got a real name the next day when it went home as Stanley.

Again every effort was made to make the procedure comfortable for the participants; as with the adult interviews, many of the children remarked that they were pleased to have been chosen.

2.3.10.3 *London calling? Mixed attitudes of Hastings today*

In addition to the modern of history of Hastings, outlined above, the interviews also provided insight into the attitudes of people from Hastings towards London. This is significant, as attitudes have been shown to play an important role in patterns of sociolinguistic variation (e.g. Labov, 1972:39). Further, results from my MA thesis, which formed the preliminary work for the current research, demonstrated that attitudinal scores correlated with linguistic behaviour. Specifically, in a study of teenagers from Hastings, a higher attitudinal rating of London along an axis relating to dynamism (corresponding roughly to attributes such as exciting, fashionable, cool etc) was correlated with higher rates of TH-fronting (Holmes, 2010:41). Since TH-fronting is often associated with London (Milroy, 2006:201; Kerswill, 2006:234), a possible interpretation of this was that younger speakers were more willing, or more likely, to adopt linguistic innovations from London if they rated it highly in terms of attributes that were relevant and important to them. Further evidence for this interpretation comes from Denmark, where Kristiansen (2001:9) found that dynamism was the only relevant attitudinal scale for the adoption of linguistic innovation by young Danish speakers.

Often during the interviews, London would come up in conversation. While outwardly the speakers often expressed mildly negative opinions towards London, many participants reported behaviour that suggested the opposite, i.e. shopping/theatre trips to London or supporting London-based football teams. While this may not directly indicate a positive attitude towards London (after all, if you live in Hastings and want to go to the theatre you have little option other than to go to London), what it does indicate is the cultural dominance of London in the minds of speakers from Hastings.

More extended narratives often recounted experiences of contact with London and demonstrated a range of views. For instance, Deirdre, an older speaker from Hastings, expressed largely positive experiences of mixing and working with Londoners. During the later summer months, Londoners would come “dahn ‘oppin”.[6] This referred to the influx of temporary workers from London who would come down to Hastings to work on the farms as hop-pickers.

> **Extract from Deirdre: hop-picking**
> *Yes it was lovely yeah, there yeah there's that, gypsies, there were loads of gypsies as well but they were all nice everybody mixed in you know? And*

[6] http://www.visit1066country.com/events/annual-hop-pickers-weekend-p771321

everybody – if you were on your own and trying to lift one of the hop bins there's always somebody there pick it up help you with it and you know and round the campfire at nights it was lovely 'cause my brother in law used to come out and he'd bring his little old wind up gramophone and put the records on and we'd sit round all the old songs you know that we could sing and then we'd put something on the stove you know we always had a billy can full of the tea and then we'd put something on there to cook you know there'd be like sausages in a pan or things like that because you used to have a van come round to sell things so you know we used to be out there singing away and really enjoying it and you got to know everybody else 'cause a lot of them Londoners used to come as well so you got other people, how they were getting on and things you know so that was nice.

Hop-picking, while probably more of a working-class occupation, was generally seen in a positive light, so much so that those of a higher social status sometimes envied those who were involved. Abigail, another older speaker, described her feelings of missing out:

Extract from Abigail: envy
well I- my parents maybe my mother was a little bit erm snobby in a nice way and she said that "oh no it was more people - we can afford to buy your uniform it's more for the poorer people" which I thought was a little bit snobby. I used to envy the children that went 'cause they had a lot of fun there!

Other speakers relayed less positive experiences of the mixing. Anthony, a middle-aged speaker, recalls the initial tussle for territory following the arrival of the families re-located through the London Overspill scheme. Here he describes his experience of the development of the Toll Kiln housing estate.

Extract from Anthony: they weren't like us you know
the dynamics had changed then because Toll Kiln was there it wasn't so much of a community anymore I think whether it was just 'cause the whole area had grown and had a bit of a explosion of people coming in to town but the people that came in were different you know they were different. There were lots when they built the new estate in Toll Kiln. I remember they had lots of places they'd build things so you can go and play football and we used to with, we used to call it the cage as it goes, and it was ten minutes away for where we lived we could walk there and play and the kids that used to come in from the estate were different. Lots of fights with them lots of conflict with them 'cause they were different they you know they weren't they weren't like us you know. They'd they're from a different background, different way of life and and it showed yeah there was a lot of conflict to start with and gra- I know most of them now you know 'cause I played football with a lot of them but I remember (SHE: where did they come from?) I think mainly London I think a lot of them were from South London and Medway sort of area when they brought them all in I think

Despite Anthony's description of the newcomers as "different", his story describes a situation where there was significant contact between the groups through fighting and playing football. What is clear, as mentioned in section 2.2.4, is that the early antagonism soon gave way to community integration. For instance, he says: "*I know most of them now you know 'cause I played football with a lot of them".*

The younger speakers in the sample were more ready to acknowledge the status and influence that a London image has within Hastings. Although reluctant to admit that they did it themselves, many of the teenagers spoke of other young people who tried to emulate an inner-city London dialect in their own speech. Again, opinions such as these provide further qualitative evidence as to the social and psychological status that London has for people from Hastings, particularly young people. The following extract details an exchange between Danielle and me where I ask her directly about whether she feels London has an influence on language in Hastings:

> **Extract from Danielle: this image of London**
> *(SHE: do you think London speech influences Hastings?) yeah definitely (SHE: what ways do you reckon?) I don't know, like, a group went up to London the other day, and they heard like these two boys speaking, they were like "oh that sounds cool" it's like then they pick it up and like start using it, that way really sort of like, sort of like, trying to be cool kind of thing 'cause they think they're from London so they're like cool, this whole, like this image of London, kind of thing, so young people will copy it basically, sort of like imitate one another*

2.4 Processing and analysis of the data

The linguistic variable is the "most fundamental construct in variation analysis" (Tagliamonte, 2006:70). Each of the analyses presented in this research is based on this construct (although the variation functions in slightly different ways for each). What follows is a short overview of the definition of the linguistic variable and the associated "principle of accountability" and how this determines the "circumscribing of the variable context".

2.4.1 Investigating variability

2.4.1.1 *The linguistic variable*

In the most straightforward sense, a linguistic variable is "two or more ways of saying the same thing" (Labov, 1972:8). This is possibly best illustrated through an example, for instance, t-glottaling, where the alveolar plosive /t/ in words like *better*, *bottle* and *but* is variably realised as [ʔ]. The *variable* is the underlying phonological representation, here /t/, while the associated *variants* are how this form is realised phonetically in actual speech, i.e. as an alveolar [t] or a glottal [ʔ]. This type of categorical alternation is an example of a linguistic variable in the most straightforward sense. However, features can be variable along different dimensions. For example, variable features may have a range of possible variants, as was the case of MOUTH-levelling discussed in section 1.1.3.1. In this instance, the range of variation was spread over six variants. As well as categorical alternations, linguistic variability can also form a continuous cline. For instance, GOOSE-fronting is most often measured acoustically using the value of the second formant to create a continuous cline from front to back where higher second formant values indicate fronter vowels (e.g. Labov, 1994)[7].

Quantitative sociolinguistics is founded on the concept of the linguistic variable, as well as the associated "principle of accountability", outlined below.

2.4.1.2 *Principle of accountability*

In order to accurately represent the structure of linguistic variability under study, it is necessary to adhere to the "principle of accountability" (Labov, 1972:72). Tagliamonte (2006:12-3) describes it as the following:

> *In variation analysis, accountability is defined by the 'principle of accountability', which holds that every variant that is part of the variable context, whether the variants are realised or unrealised elements in the system, must be taken into account. In other words, you cannot simply study the forms that are new, interesting, unusual or non-standard…You must also study the forms with which such features vary in all the contexts in which either of them would have been possible.*

Hopefully, returning to the example outlined above will help to make this slightly less abstract. In order to satisfy the principle of accountability, not only would an analyst need to consider the instances where possible contexts were realised as glottal stops, but also where they were realised as /t/, or in fact any other possible realisations: "an accountable

[7] Depending on the method adopted (i.e. auditory or acoustic) most features can be analysed through a categorical or continuous approach. The choice of approach taken depends on both the nature of the variation present and the questions the research aims to engage with. For instance, it is possible to analyse MOUTH in either way; in this case an auditory approach was taken. The reasons for this decision are given in section 3.5.2.

analysis demands of the analyst an exhaustive report for every case in which a variable element occurs out of the total number of environments where the variable element could have occurred" (Tagliamonte, 2006:13). The principle of accountability means that comparable *proportions* may be calculated across a range of social and linguistic factors so that an accurate picture of the variation is gained (Tagliamonte, 2006:72). The principle of accountability means that the full range of variants is recognised and is factored into the final analysis.

2.4.2 Transcription

So as to create a fully searchable corpus of spoken data, the interviews needed to be transcribed. The nature of the analysis, a quantitative investigation, required that all instances of the variable forms be locatable. Therefore, full transcriptions of the entire interviews were made. It was possible to search and analyse all the features I had chosen to investigate from their orthographic representation, and therefore it was not necessary to phonetically transcribe the interviews. For example, the MOUTH set of lexical items can be located through searching for words containing either (ou) or (ow); TH-fronting items could be located through searching for (th); while GOOSE was analysed using an automated process which measured and extracted all instances of the entire GOOSE lexical set (see section 2.4.2 for details of this process). While the more general decisions are laid out at the end of this chapter, detailed accounts of the analyses are given in the individual chapters for each variable.

2.4.2.1 *Transcription software*

So that the transcripts were linked with the sound files, time-aligned transcriptions were made using *Transcriber* (Boudahmane, Manta, Antoine, Galliano & Barras, 2008). This tool provides "a user friendly graphical interface for segmenting long duration speech recordings, transcribing them, and labelling speech turns, topic changes and acoustic conditions" (http://trans.sourceforge.net/en/presentation.php).

The decision to use to this program as opposed to a number of others on offer (e.g. Praat, ELAN etc) was made for a number of reasons. First, through testing a number of different programmes (e.g. Praat, ELAN), Transcriber proved to be the quickest tool to get the interviews transcribed; as I had over 30 hours of interviews, time constraints were a concern. Second, Transcriber has number of functions that make it ideal for the type of analysis I wanted to carry out:

- Transcriber produces time-aligned text to speech files; this format is easy to search, making it ideal for auditory analysis.
- Transcriber is flexible: it creates .trs files which can be imported into ELAN and re-saved as .eaf files. These files can then be re-exported as tab-delimited text files which can be read on a number of platforms.

2.4.2.2 *Transcription method and protocol*

The transcriptions were created by typing up the recorded speech and inserting "time-stamps" into the transcript file. This meant that the writing corresponded to a time point on the linked sound file. Time stamps were made after each utterance. Utterance length was based on breath groups, and these roughly correlated with clauses. The stamps were made at these intervals for two reasons. First, breath groups create natural gaps in the stream of speech. This enables a clear division to be made between the preceding and the following utterance. Second, the acoustic analysis would be carried out using the University of Pennsylvania's Forced Alignment and Vowel Extraction suite (FAVE-align), which works most successfully on data that has been divided into breath-group-sized utterances.

A transcription protocol was adopted for two reasons: first, to ensure that conventions used were consistent across transcripts; second, so that FAVE-align could successfully process the transcripts. These conventions included certain issues of orthographical representations: how to record spellings, numbers, non-lexical discourse markers (i.e. *ums* and *ers*). These also extended to paralinguistic elements such as laughter, coughing, intakes of breath etc. Pragmatic and conversational elements were also standardised, e.g. false starts, mispronunciations etc (see appendix 8.5 for the transcription protocol).

2.4.3 University of Pennsylvania's Forced Alignment and Vowel Extraction: FAVE-align

2.4.3.1 *Forced alignment*

Following transcription, the recordings were automatically aligned using the University of Pennsylvania's Forced Alignment and Vowel-Extraction suite, *FAVE-align* (Rosenfelder, Fruehwald, Evanini, Jiahong, 2011: http://fave.ling.upenn.edu). Automatic alignment uses the orthographic transcriptions and a pronunciation dictionary to create a phonemic transcription. The automation of alignment enables an extremely large increase in the number of tokens measured: 9,000 tokens per 50 minute interview, compared to the

300–350 tokens typical of manual alignment and extraction, with no loss in precision (Labov et al, 2013:35).

FAVE-align is a Python scripted program which enables the forced alignment of transcripts with their sound files. Following this, it is possible to then extract vowel measurements from the aligned files. The program employs the *Hidden Markov Models Toolkit* (HTK) to automatically align transcriptions with their associated audio files. HTK employs a series of algorithms which use probability matching to link the distribution of energy within the speech signal to the stored profiles it has for the various phonemes. In other words, the program contains a series of models which tell it how the vowels and consonants of English should pattern acoustically (HTK has not yet been developed for any other languages). For example if the program encounters the word <pit> in the transcript, it would first search the sound file for a period of silence denoting the stop closure of the /p/, followed by a concentration of energy for its release; it would then search for the energy distribution associated with the formant structure of a high-front vowel /i/; finally, it would search the audio signal for the profile it had stored for a word final /t/. The procedure works exactly the same for breath-group-length utterances, except, as the string of phonemes to match is longer, the matching and aligning takes longer (Fruehwald, 2014). The end result is a transcript that is time-aligned phoneme by phoneme, returned in the form of a Praat .textgrid (Boersma & Weenink, 2012). An example of the outputted .textgrid is shown in figure 8.

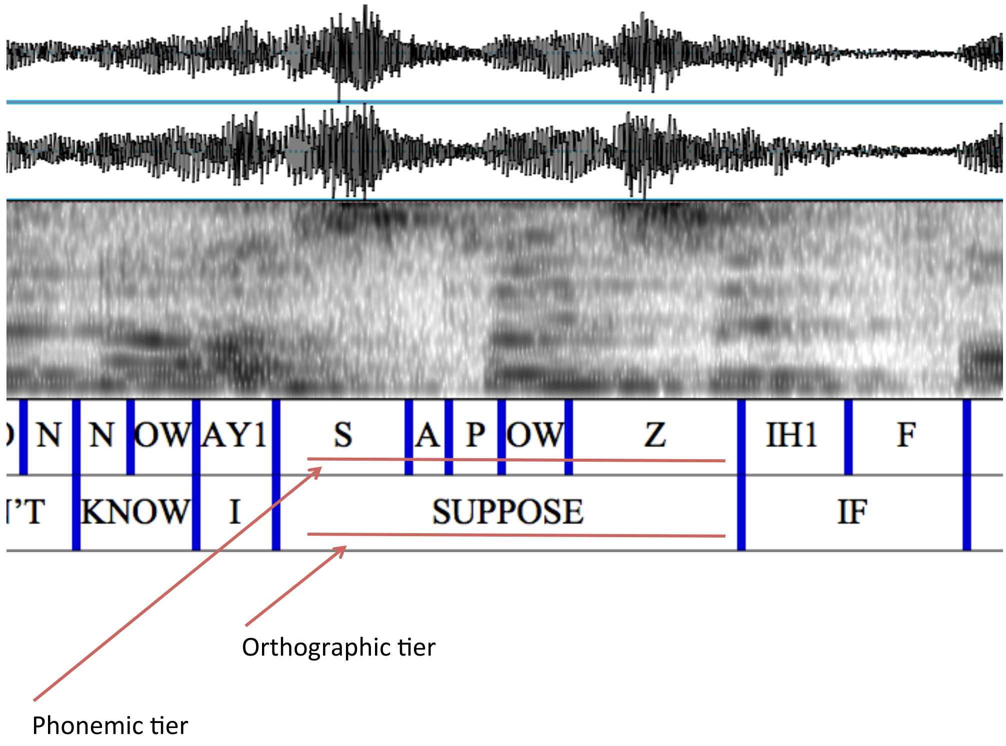


Figure 8: Sample from FAVE-align generated Praat .textgrid

Figure 8 shows the textgrid where the bottom tier demonstrates the word-by-word alignment with the orthographic transcription. The top tier shows the phoneme-by-phoneme alignment of the words.

2.4.3.2 *Vowel extraction*

The second phase of the FAVE process is to extract acoustic measures from the speech signal. The aligned textgrid and sound file are then processed by the extraction element of the FAVE-align suite. Again using Python scripts, the program interfaces with Praat and takes a series of measurements for every vowel encountered (first three formants, duration, inglide measures for diphthongs etc). The gender of the speaker determines the maximum formant to be passed to Praat's formant tracking algorithm (5500 Hz for females and 5000 Hz for males). The program produces a set of four candidate formant tracks, then selects a single point to represent the central tendency of the nucleus as a whole (Labov et al, 2013:36). These measures are then checked via a two-fold system. First, they are compared with comparable measures from the *Atlas of North American English* (ANAE) (Labov, Ash & Boberg, 2006). Second, they are then checked against the formant distributions for the vowels of that individual speaker:

> *It then iterates back over every vowel token, comparing each candidate measurement for that token to the speaker-specific distribution for the vowel in the same way it previously compared them to the ANAE distribution, selecting the measurement with the smallest Mahalanobis distance. This two-step process (comparison to the ANAE distribution, followed by comparison to the speaker-specific distribution) eliminates the vast majority of gross errors in formant estimation. (Labov et al, 2013:36)*

The program then produces a tab-delimited .txt file that can be read by most data-handling software (Excel, R, SPSS etc). The exact point of measurement is dependent on the vowel. As FAVE-align was only used to analyse GOOSE in the present thesis, the details of the point of analysis are given in chapter 5 on GOOSE-fronting. The measures extracted are raw acoustic scores; in order to compare these, they must then be normalised. The description of the normalisation method and the justification for doing so are outlined in the following section.

2.4.4 Normalisation

As outlined by Flynn (2012:118), there are a number of different reasons a researcher may wish to normalise their data, and the criterion by which they judge the success of any method will depend on their initial purpose: "The onus, then, appears to be on the researcher to choose a normalisation method that is appropriate for the type of study and its research objectives." For sociophonetic enquiry, the aim is most commonly to minimise anatomical differences while preserving differences owing to sociophonetic factors. For instance, reported differences between males and females in sociophonetic research should be the result of gender-based sociolinguistic norms for males and females and not owe to the fact that males have, on average, larger vocal tracts than females (Labov, 2001:157–8).

There are a number of different techniques available, each with merits and drawbacks. Flynn (2011) provides an extensive review of several reviews of procedures and also presents the results from his own tests. Based on his review of the literature, Flynn (2011:8) concludes that on the whole the most useful methods for variationist studies appear to be:

- Vowel extrinsic: they are calculated with reference to the formant measures of other vowels

- Formant intrinsic: without reference to the other formants for that particular token
- Speaker intrinsic: tokens are normalised with reference to that particular speaker's vowel space and not the vowel spaces of the entire sample.

In terms of individual tests, the ones that performed best, for American English data at least, were the Nearey (1977) and Lobanov (1971) methods.

In his own study, Flynn (2011) tested 20 vowel normalisation procedures on British data and used two modes of rating how well the tests performed:

1. The squared co-efficient of variance, which looks at the difference between speakers' vowel spaces after normalisation. The smaller a number, the better normalised the vowel spaces.
2. The amount of overlap as "two vowel spaces might have identical areas, but be different shapes or show poor overlap" (Flynn, 2011:15)

Flynn (2011:20) reports that the modified Watt & Fabricius (2009) method performed the best in terms of the two rating criteria. He suggests that the reason his results were in contrast to the American reviews is due to the fact that his study was conducted on British English data. As these techniques are vowel extrinsic – that is, the vowels are normalised with reference to the speaker's other vowels – and British and American English have different vowel phonologies, it would follow that different normalisation techniques would work better on some varieties compared to others (Flynn, 2011:12). Out of all of the reviews compared, Flynn's (2011) data (British English) and aim (a sociophonetic study) are the most similar to the data and aims of the present study. For this reason it would seem that the best normalisation method would be the modified Watt & Fabricius (2009) method. However, Flynn's data came from Nottingham, a northern English variety, and these results might not be replicated for a southern English variety. Comparative normalisation procedures were carried out in on the Hastings data using the online NORM suite (Erik & Kendall. 2007. NORM: The vowel normalization and plotting suite http://ncslaap.lib.ncsu.edu/tools/norm/). Two methods were compared:

1. Nearey (1977): $F^*_{n[V]}$ =anti-log(log($F_{n[V]}$)-MEANlog
2. Modified Watt & Fabricius (2009): S(F1)=(BEET F1 =BAT F1 + SCHOOL F1)/3
   S(F2) = (BEETF2 + BATF2 + SCHOOL F2)/3

The Nearey (1977) method is similar to the Lobanov method in that it makes reference to standard deviations of token measures to the reference vowel. The Watt and Fabricius (2009) methods uses a centroid measure calculated through taking the extreme measures of the vowel space. For instance, the highest, most front vowel (referred to in the formula as BEET), the lowest most front vowel (referred to as BAT) and, finally, the highest and most back vowel (referred to as SCHOOL)[8]. Vowel measures are then calculated with reference to the centroid measure (Thomas & Kendall, 2007).

All speakers were evaluated for each technique. F1–F3 measures were submitted for all checked GOOSE tokens, alongside F1–F3 measures for approximately 100 checked tokens of each of the speaker's FLEECE, THOUGHT and TRAP vowels. Figure 9 presents a comparison of two normalisation methods across two speakers.

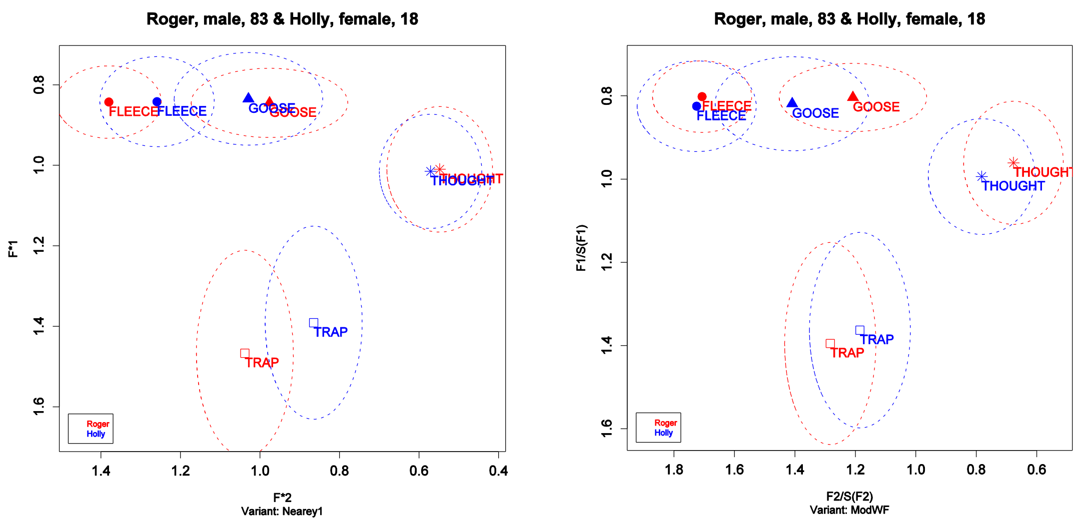


Figure 9: comparison of two normalisation procedures, Nearey (1977) (left) and the modified Watt & Fabricius (2009) (right)

Figure 9 shows the amount of overlap for Holly, 18 (blue), and Roger's, 82 (red), vowel systems using two different normalisation techniques. It appears, in line with Flynn's (2011) findings, that the modified Watt & Fabricius (2009) technique outperforms the Nearey (1977) one. This can be judged by the fact that two of the reference vowels (TRAP and particularly FLEECE) show greater overlap in the modified Watt & Fabricius (2009) plot. The Nearey (1977) method appears to show Roger's vowels as more peripheral than Holly's, this is the expected pattern for un-normalised data, as males have larger vocal

8 While the BEET, BAT and SCHOOL vowels are used in the formula notation, the actual normalisation process as it is implemented by the NORM suite and accompanying "vowels" R package calculates the extreme points based on the most extreme measures regardless of the token's vowel category membership (http://ncslaap.lib.ncsu.edu/tools/norm/) .

tracts than females. The vowel space as a whole shows better overlap using the Watt & Fabricius method.

Based on the reviews and comparisons taken from the literature, plus the comparison presented here, the Hastings vowel data was normalised using the modified Watt & Fabricius (2009) method using the online NORM package.

2.4.5 Statistical analysis

The present investigation is a quantitative sociolinguistic study. Descriptive statistical methods are employed in order to identify, describe and visualise variable patterns in the data. In order to determine whether any differences identified between groups within the sample reflect true differences that may be generalisable to the larger population, or are in fact the result of natural fluctuations, inferential statistical tests are used. Put simply, inferential statistics provide a level of certainty that the patterns in the data are not due to chance.

For each of the variables, the first stage of the analysis was to examine the overall distributions of the variants. The compiled and coded data (in comma-delimited spread sheets) were read by the statistical analysis software R: http://cran.r-project.org/. R is an open-source programming language which forms the basis of a command-line-interface operated statistical suite (Tamminga, 2011:1). R is free to download and is programmed and maintained by The R Core Team (2014).[9]

Once the data has been read by R, the overall distributions are examined, for example, how the variants patterned for all contexts combined over the entire sample. Following standard procedure for statistical analysis in sociolinguistics, a factor-by-factor analysis is performed before a multivariate analysis is carried out (e.g. Tagliamonte, 2006:196). For instance, the distribution may be examined over age categories or by gender. All factors are cross-tabulated so that any interactions between groups may be identified. These differences are then examined inferentially at a factor level. This is to establish whether the observed differences and interactions are statistically significant. If they are significant, this is considered justification for adding them to the multivariate analysis.

Once the overall distributions and cross-tabulations have been examined, it is then possible to examine the relative effects of the factors to each other; this is achieved

[9] http://cran.r-project.org/ for full list of developers

through a multivariate analysis. The underlying principles and method involved in performing a multivariate analysis are described below.

Multivariate analysis was performed using RBrul (Johnson, 2009; www.danielezrajohnson.com/rbrul). RBrul is a variable rule program similar to Goldvarb (Sankoff et al, 2005). RBrul analysis means that factors can be combined and compared within one statistical model. RBrul has a number of advantages compared to previous software. For instance, RBrul can handle continuous as well as categorical data. Another important advantage is that RBrul incorporates mixed-effects modelling. Mixed-effects models make a distinction between replicable or "fixed" effects such as gender, age or phonetic environment, and non-replicable, or "random", effects such as individual speaker. The advantage in using mixed models is that individual effects are controlled for. In other words, the relative contribution a particular array of individuals in the sample makes to the fixed effects is taken into account. Accounting for individual differences in this way safeguards against overestimating the fixed factor effects, while the model "can still capture external effects, but only when they are strong enough to rise above the inter-speaker variation" (Johnson 2009:365).

2.5 Summary

Description of the methodology above has provided an outline of the main decisions as they relate to the larger elements of the project, e.g. sample design, interview procedure etc. The individual variable chapters provide detailed accounts of each analysis.

The following chapters present the variable analyses. First, I focus on the features which previous studies have demonstrated are changing through the external mechanisms, *levelling* and *diffusion,* as these are the mechanisms typically associated with regional dialect levelling. Chapter 5 presents an analysis of GOOSE-fronting, a change most commonly attributed to internal mechanisms. This analysis examines how an endogenous change may also contribute to regional dialect levelling.

The main variable analysis, chapters 3, 4 and 5, presents an analysis of the data as it patterns in the adult data only. This is the old, middle and young age cohorts. The preadolescent data is then analysed in chapter 6 in light of the results found in the adult data. The reason for this presentation of the data was that I could first analyse the variable patterns in the data using a traditional apparent-time approach. Following this, chapter 6 focuses on how the variable patterns of these features in the speech of the youngest cohort, the preadolescents, may point towards the next stage of the feature's development. In short, chapter 6 examines the *incrementation* of these variable features. Before this, however, I turn now to the analysis of the MOUTH vowel, followed by TH-fronting and, finally, GOOSE-fronting.

3 MOUTH

3.1 INTRODUCTION

This chapter reports on an auditory analysis used to investigate variation in the production of the MOUTH vowel. Previous studies of the MOUTH vowel in the southeast have shown that it is changing through a process of levelling, suggesting that it may also be changing through this mechanism in Hastings. Therefore, investigating variability of the MOUTH vowel should provide an opportunity to examine the patterns and processes involved in the levelling mechanism.

3.1.1 THE MOUTH VOWEL

Wells (1982:151) defines the MOUTH vowel as “comprising those words whose citation form in RP and GenAm has the stressed vowel /aʊ/”. It can occur with both preceding and following, checked and unchecked environments, as in:

Fully checked	*mouth, house, down*
Unchecked preceding	*out, outside, oust*
Unchecked following	*now, how, brow*

As well as MOUTH, it is frequently referred to in the literature as /aw/ (e.g. Labov, 1972:10). It is represented orthographically as (ou) and (ow) (Smith, 2007:70). Historically, MOUTH derives from Middle English /u:/ and became diphthongal following the Great Vowel Shift (Wells, 1982:152).[10]

Following the Great Vowel Shift, the MOUTH vowel demonstrated a wide range of variability. The Survey of English Dialects (henceforth SED) records 45 different possible realisations for the 30 recorded ME /u:/ words (Orton & Dieth, 1962). Ogura (1986:45) suggests a series of successive advancements of ME /u:/, and outlines 11 “main routes”. These cover a range of variants, starting with the earliest back diphthongal and lowered /oʊ/, /ɔʊ/ and /ɒʊ/, then fronting along the open track of the vowel space through /aʊ/

[10] In some areas, such as the north of England (e.g. Beal, 2008) and Scotland (e.g. Stuart-Smith, 2003; Smith 2007), the vowel remains unshifted and is still variably produced with the relic monophthong. This form does not survive in the south of England, where the vowel became invariably shifted. This variation, as it is found in the north, represents a different set of processes which, although related, are distinct from the variable patterns found in the south.

to /æʊ/, with the most advanced dialects exhibiting fronted and raised variants /ɛʊ/, with each main variant encompassing a range of its own sub-variants.

From a synchronic perspective, Wells (1982:152) also notes the range of diverse realisations and describes the potential for variability in terms of four main types:

1. Frontness of the starting point
2. Openess of the starting point
3. Quality of the second element
4. The degree and "speed" of the diphthong

Developments in the MOUTH vowel have a long and diverse history; as outlined by Wells (1982:152), barring length, it can vary along any vocalic dimension. While this variability is wide ranging and widespread, as demonstrated above, there is no universal or predictable route for its development. This means that variant realisations will be particular to specific places and speech communities. For this reason, it is necessary to contextualise the present analysis within the realisations that characterise the southeast of England.

3.1.2 A NOTE ON DESCRIPTIVE TERMINOLOGY

During the discussion of this feature, the descriptive phonetic terms front/fronter and back/backer are used in a relative, as opposed to an absolute, sense. For instance, the forms [aʊ] and [a:] are described as backer forms despite having a front onset as they are *relatively* backer than the higher onset forms [ɛʊ] or [ɛɪ]. This is due to the nature of the vocal tract and the relationship between openness and height. In short, the distance between /i/ and /u/ is greater than that of /a/ and /ɑ/ (Catford, 1988:135). This means that any increase in openness for the onset of the MOUTH vowel will be accompanied by a decrease in frontness, hence the description of the more open variants as also more back.

3.1.3 MOUTH IN THE SOUTH

Older recorded observations of the MOUTH vowel in the southeast note a wide range of variable forms. Orton & Wakelin (1962) list [ɛʊ] as the traditional southern variant. Wright (1905:14-7) lists a number of possible variants for realisations of items within the MOUTH lexical set; he notes the mid-front onset [ɛʊ] and [aʊ] as being common forms in words such as *house* for Southern and Midland dialects. For words such as *cow* and *down*, Wright describes a more centralised onset [ɐʊ] as being common for Southern and Midland dialects.

This variation continues today; Wells (1982:308–9) describes a wide range of variants of the MOUTH vowel, many of which overlap for both London and RP. The stereotype for Cockney is the monophthong [æ:], for popular London the diphthong [æʊ], and for RP it is the lowered onset [aʊ] (often accompanied with an accentuated glide between the onset and offset of the diphthong). Wells describes these three as the most commonly occurring forms, although a centring diphthong [æə] and an opener monopthong [a:] are also listed as minority variants, and a backer onset diphthong [ɑʊ] as being an almost hypercorrect variant for Londoners "on the fringe of RP…in order to be sure of avoiding the vulgar [æʊ]". The wide range of variants seems to also have a wide set of sociolinguistic associations.

Tollfree (1999:164) makes a distinction between speakers of the broader South East London English (SELEs) and speakers of a variety closer to RP South East London Regional Standard (SELRs). For the more RP-like variety, Tollfree describes the typical variant as a low front onset diphthong with either rounded or unrounded glide [aʊ] – [aɤ]. For the broader variants, Tollfree lists the fronter onset diphthong [æʊ] or the front monophthongs [æ:] or [ɛ:]. For the younger speakers, Tollfree (1999:169) describes the less regionally and socially marked [aʊ].

Kerswill et al (2008:454) list [əʊ] as being a traditional and widespread variant in the rural southeast during the 19th century. The more open and fronted variants, [æʊ] and [ɛʊ], were at this point "virtually unknown". In their survey of evidence from older London varieties, Kerswill et al (2008) report that fronted unrounded monophthongs were common particularly for working-class boys, while females were more likely to produce diphthongs. This possibly suggests that the monophthongal variants were stigmatised in London and have been for some time. Kerswill & Williams (2000:87) list four main variants for Milton Keynes that they felt could be "reliably identified". Two of these variants they label as London forms: a raised front monophthong [ɛ:] and a lower diphthongal [æə], alongside a traditional front southeastern form, [æʊ], and the unmarked RP-like form [aʊ]. In his analysis of dialect levelling in Reading and Milton Keynes, Kerswill (2002:697) outlines 6 variants, as shown in table 3 below.

	[ɛʊ]	[ɛɪ]	[ɛː]	[aː]	[æʊ]	[aʊ]
SED informants (1950-60)	present					
Elderly (2f, 2m)	63.2	25.6	9.8	0	1.2	0
Women 25-40 (n=48)	0	0	11.7	17.2	38.6	31.5
Girls aged 14 (n=8)	0	0	0	5.9	4.7	88.8
Boys aged 14 (n=8)	0	0	0	12.3	3.8	83.1

Table 3: spread and distribution of variants in patterning of MOUTH vowel in Reading and Milton Keynes (based on Kerswill, 2002)

The patterns shown in table 3 indicate a cline of the MOUTH vowel moving from fronter onset variants, through monophthongal realisations and finally to backer and lower forms. Although a cline is visible, Kerswill (2002:200) reports "The tables show that the unrounded [ɛɪ] has almost completely given way to [aʊ] over two or three generations… there is strong polarisation on the one hand, between the old variants [ɛʊ] and [ɛɪ] on the one hand and, on the other, the most recent variant [aʊ]." Kerswill et al (2008:461) describe the selection of the new variants as a "replacement of both rural and urban local forms" which arises from social pressures where the youngest speakers are opting for "a socially and regionally more neutral variant – a case of non-linguistic factors propelling change".

To summarise, MOUTH variation in the south is characterised by a wide range of variant forms. The change involves the replacement of traditional high front and unrounded variants with lower and backer forms. Fronter variants appear subject to stigma, particularly within London (e.g. Wells, 1982) and appear marked as "old fashioned" within the southeast more broadly. While a cline from high front to lower back variants is visible, it does not appear to be a gradual shift, and speakers switch between different forms. Both diphthongal and monophthongal variants exist within the mix; whether they exhibit front or back realisations seems to be dictated by the relative position of the dominant diphthongal variant; i.e. if a speaker or group displays mainly front diphthongs, then the monophthongs will also be fronter and vice versa.

In order to understand the variable patterns, it is necessary to consider the source of the variability and the motivations for the change. The following section examines the proposed internal and external factors at work within MOUTH variability in the south.

3.1.4 NATURE OF THE CHANGE - INTERNAL OR EXTERNAL MOTIVATION?

Previous analyses of variation of this change have suggested two possible sources for the variation: internal and external. This distinction is relevant to the following chapter as, if it is indeed a case of levelling, then it should be the result of dialect mixing brought about through contact. Labov (1992:43–4) suggests that one way to determine the source of a change is to examine how the variation is conditioned; if the source of this sound change is external then there should be an absence of phonetic conditioning. The following discussion reviews the evidence in terms of the source of this variable.

There have been several different proposed accounts put forward for the genesis and spread of variability in the MOUTH vowel. Ogura (1986:45) describes the advancement as an example of lexical diffusion, stating that the change is one that "propagates itself across the lexicon…gradually from morpheme to morpheme". Evidence for this is provided by the variable realisations forming lexical isoglosses throughout Britain.

Several authors have suggested that the change, or at least elements of the change, derive from natural, internal, phonetic pressures. In other words, the shifting MOUTH vowel is an example of a regular, Neogrammarian change. In an examination of Ogura's (1986) account of the shift as a case of lexical diffusion, Labov (1992) reconsiders the evidence from a Neogrammarian perspective. Labov (1992:43–4) uses a criterion that determines phonetic conditioning as evidence for regular sound change, whereas lexically based frequency effects provide evidence for a lexically diffused route. Applying quantitative analysis to existing evidence, lexical incidence combined with frequency counts and phonetic environment, Labov concludes that there is evidence that this shift started out as a phonetically driven and gradual sound change. Labov (1992:52) argues that the reason phonetic effects are not immediately evident is because the shift does not move in one direction: "From a phonetic viewpoint, the route is curvilinear rather than linear. Different phonetic effects can be expected to apply to favour or disfavour the change at each stage." Using a Principal Components Analysis, Labov (1992:57) demonstrates how all phonetically similar words cluster together in terms of vowel realisation and concludes that "Given the proper tools for quantitative analysis, the phonetic regularity of the dialect patterns emerges…No phonetic information is fed into the multidimensional scaling program: the fine grained phonetic clustering is a property of the data itself."

As well as the historical account, more recent developments have also been ascribed to phonetic shifts. Wells (1982:256) outlines the "Diphthong Shift" which he describes as "a set of phonetic changes almost as fundamental as the Great Vowel Shift". For the MOUTH vowel, this involves a shift forwards from an RP-like [æʊ] through a popular London [æə] to a fronter Cockney [ɛʊ]. Trudgill et al (2000) use evidence from New Zealand English in support of the phonetic account of Diphthong Shift. Trudgill et al (2000:118) describe the vowel system in New Zealand as one that arises from natural drift-like tendencies (as outlined and discussed in chapter one, the research context), tendencies that were inherited from its source: "diphthong shifted vowels were indeed inherited by New Zealand English from English English, but that it was really diphthong shift as an ongoing process which was inherited rather than the vowel qualities themselves". The result was that the MOUTH vowel in New Zealand English continued to front and raise, in line with the directions outlined by Wells (1982) and also Labov's (1994) chain shift principles (Trudgill et al 2000:118).

In an evaluation of the drift account, Kerswill et al (2008) discuss the case for Diphthong Shift in the south. Following on from Trudgill et al (2000:50), Kerswill et al (2008:455) suggest that if the route the MOUTH vowel took is due to a natural shift arising from internal pressures created through architecture of the system, then the patterning in London and the south would constitute a reversal of this shift. In their data, the youngest speakers are leading a change that is backing and lowering rather than raising: "if we accept the drift argument in accounting for the developments in the production of diphthongs in New Zealand, we would expect a further, parallel development in the vowels in London. This turns out not to be the case…we are probably dealing with a genuine reversal."

However, in line with the summary provided in the section above, Kerswill et al (2008:458) note that fully fronted variants of the MOUTH vowel have been present in the southeast since the earliest made records. This creates a discrepancy within the present account of Diphthong Shift which describes the backer RP variant as the older variant; i.e. this might not in fact be a reversal at all but a continuation of the vowel's present trajectory: "the shift from [ɛʊ] to [aʊ] goes in the opposite direction to the clockwise shift discussed by Wells (1982) – always assuming, of course, that the [aʊ] is the starting point, which as we have seen is an unlikely scenario". Further, Kerswill (2002:200) describes the variation in Milton Keynes as one that does not involve any phonetic gradience: "There is no phonetic continuum: speakers switch between the two variants, often within a single utterance." The discrete shifting between categorical forms would run counter to the idea of a regular sound change (Labov, 1992:43-4).

Instead of appealing to an internal motivation to explain the patterns found in MOUTH variation, Kerswill (2002:197) suggests an external one brought about through contact and processes involved in levelling: *"*dialect levelling of this sort fits well with the social-psychological mechanism…Variants, old and new, exist in the given geographical region. Speakers adopt the new ones by accommodating to other people who may be socially attractive because of their perceived 'modernity'*"*. Increased mobility and linguistic mixing led to the introduction of a wide range of possible realisations. Speakers are faced with a choice of competing variants; the one that ultimately wins out appears to be due to its social associations and processes of supralocalisation: "The success of [aʊ] seems to be an example of supralocalisation…not the adoption of a majority variant, but rather one that is socially unmarked" (Kerswill et al 2008:488).

Several motivations have been put forward to account for the variability:

- Lexically diffused change (Ogura, 1986) that may have started out as a regular Neogrammarian sound change (Labov, 1992:49–50), as evidenced through the phonetic clustering of different sets of lexical items.
- Natural drift-like change, labelled Diphthong Shift by Wells (1982:256). Evidence for this is provided through the patterning of the Diphthong system in New Zealand English (Trudgill et al, 2000:118), where the change continued.
- Finally, Kerswill (2002:205) attributes the variation to a case of dialectal mixing. Support for this theory comes from the observation that the variants are discrete and not continuous. Kerswill (2002:205) suggests that the mechanism of change is *levelling* where the old and new variants exist together creating a wide range of variation. Ultimately, this range of variation decreases as particular variants come to be regularly selected. The variants that win out tend to be the supralocal forms which are not impeded through regional associations.

To summarise, it is most likely that all of these mechanisms may have played a part in the progression of this variation and change; there is evidence for both external and internal pressures operating upon this feature. The differing reports appear to account for different stages in the development of this change. The quantitative analysis provided by Labov (1992) suggests that the shift may have started out as a regular, phonetically driven change, affecting the entire lexical class. Once embedded within a system, the route, rate and lexical incidence of the change were then dependent on the variety and speech community it spread to. These different developments may then account for the lexical isoglosses used by Ogura (1986) in her account of the change as a lexically diffused one. Wells (1982) outlines more recent developments in the way of the phonetically motivated drift he labels Diphthong Shift. Evidence for the naturalness of this process comes from New Zealand English, where the shift "continued unabated". However, it was reversed in London and the southeast. This reversal was brought about through the contact-induced processes of "diffusion, levelling and supralocalisation", suggesting that social factors can override the natural phonetic ones (Kerswill et al, 2008:451). At each stage of its development, different types of factors become prominent: phonetic at the start of a regular phonetic change, word- and frequency-based effects as it becomes lexically conditioned, and finally, social factors move to the fore as the feature is subject to levelling and processes involved in supralocalisation. Based on the previous discussion, the most likely mechanism for the operation of this change in Hastings is levelling. However, it is only through examining the data that I will be able to confirm this empirically. Further, what can the analysis of this variable in the present data contribute to the profile of this change, and does the data indicate the next stage in this feature's development? The section below outlines the general research questions of this chapter, following on from this discussion, linking the existing research to the overarching aims of this thesis.

3.2 RESEARCH QUESTIONS

- Does the variable patterning of MOUTH in the Hastings data indicate an ongoing change?
- If change is in progress, what do the variable patterns in the data reveal about the mechanism of change, and how is it contributing to the regional dialect levelling of the area?
- How does the variable pattern socially? For instance, who is leading the change and what does the variable patterning suggest about the development of this feature?

3.3 Linguistic and social constraints on MOUTH

As outlined in the previous section, the MOUTH vowel is widely variable along a number of different phonetic dimensions. Unsurprisingly, it has been subject to a large number of phonetic and sociolinguistic studies. The following discussion is limited to those studies which are of direct relevance to this investigation.

3.3.1 Linguistic factors

3.3.1.1 *Phonetic context*

Often studies which have investigated MOUTH variation do not report on whether phonetic effects were found or not. However, some researchers do provide an account of how the phonetic conditioning of this form constrains the variability.

Labov (1992:52) used existing historical records and charted isoglosses to perform a quantitative analysis in order to investigate whether the shift was a phonetically motivated one. He reports that following velars and preceding liquids both inhibited the change.

In his study of MOUTH variation, Flynn (2012:220) conducted both auditory and acoustic analysis and found that the younger speakers were selecting backer, supralocal variants over the fronter, local variants. He found that backer vowel variants were promoted by preceding back consonants, suggesting that place was an influencing factor, and reports the following hierarchy: Velar > Alveolar > Glottal > Dental > Labiodental > Bilabial; he comments that that the “hierarchy appears logical since it follows a back-to-front organisation of places of articulation”. Flynn (2012:220) also examined whether the variability between monophthongal and diphthongal variants was phonetically conditioned and found that monophthongs were mildly favoured when preceded by a backer consonant, although he noted that “there does not seem to be an obvious phonetic reason for this”.

3.3.1.2 *Lexical effects*

There is evidence to suggest that the shifted quality of the MOUTH vowel, as a result of the Great Vowel Shift, was lexically conditioned during the latter stages of its propogation.

Alongside Ogura’s (1986) account of the shifting MOUTH vowel as a case of lexical diffusion, lexical effects have been found in a number of other studies of modern varieties that still exhibit variable realisation of the unshifted form. In her study of Glasgow, Macafee (1983) found that the alternation between the relic Scottish monophthongal variant and the shifted diphthongal one was lexically conditioned. While items such as *about, round* and *down* showed up to 50% monophthongal realisations, other words such as *crown, mouth, Townhead* also showed variable realisations but at much lower rates.

Similar to Macafee, Smith et al (2007:78), in her study of child and caregiver variability in Buckie, northeast Scotland, found that the variable use was lexically conditioned. There was a large range of variation across the lexical items; some items showed extremely high use of the monophthongal variants, while other words showed very low rates. Further, child production mirrored the proportional use displayed by the parents, in other words, the parents were transmitting this internal constraint of use to their children.
However, in his recent study of the fully shifted southern form, Kerswill (2002:200) finds no lexical exceptions in his investigation of MOUTH-levelling in Reading and Milton Keynes. Kerswill (2002:200) further notes that the inventory or phonemic structure of the lexical set is unaltered by the change. Kerswill (2002:200) describes the change as one where the speakers are "substituting the new for the old. There is no phonetic continuum: speakers switch between the two variants often within a single utterance."

3.3.2 Social factors

3.3.2.1 *Age*

Kerswill et al (2008:467–8) showed that movement away from a front onset was a change in progress, as the young speakers showed significantly lower and backer MOUTH realisations than the older speakers. As this form is described as the least regionally marked form, this suggests a process of levelling whereby the speakers discard the regional form and select the supralocal form. The identification of this change as brought about through the levelling process is further supported by evidence from Kerswill & Williams (2000:99), who demonstrated that a strong trend among the younger speakers was to reduce the variability. While the older speakers favoured two or three variants, the children favoured only one. Table 4 displays these patterns.

	Percentage use of variants of (au). Milton Keynes, interview style (working class: 1996 recordings)					
	[ɛː]	[aːə]	[æə]	[aʊ]	[ɛʊ]	[ɛɪ]
Girls aged 14 (n=8)	0	5.9	4.7	88.8	0	0
Boys aged 14 (n=8)	0	12.3	3.8	83.1	0	0
Elderly (n=2f, 2m)	9.8	0	1.2	0	63.2	26.5
	Percentage use of variants of (au). Reading, interview style (working class: 1997 recordings)					
	[ɛː]	[aːə]	[æə]	[aʊ]	[ɛʊ]	[ɛɪ]
Girls aged 14 (n=8)	0	8	0	90.4	0	2.3
Boys aged 14 (n=8)	0	5.7	0	87.1	3.8	3.2
Elderly (n=2f, 2m)	3.3	0	4.1	0.7	53.5	38.1

Table 4: spread and distribution of variants in patterning of MOUTH vowel in Reading and Milton Keynes by age (based on Kerswill & Williams, 2000:99).

Kerswill & Williams describe the scenario as one of new dialect formation where “the children are faced with an input composed of different variants, all of which have particular regional and social distributions…this adoption can be viewed as a strategy of neutrality”. Similar to Kerswill et al (2008), Tollfree (1999: 169) finds that the shift towards the less broad [aʊ] is a change in progress, as it is the variant favoured by young speakers.

In a similar vein, Devlin et al (2013) present a report on patterns they attribute to a process levelling in their study of county Durham. They find that while the traditional variant [ɛʊ] is common in the speech of the older informants, it is entirely absent in the speech of the younger speakers. The older form is described as a local shibboleth (Beal, 2000:353), and Devlin et al (2013) attribute this rapid change to a process of regional dialect levelling.

Flynn (2012:206) found no age effect for the alternation between monophthongal and diphthongal variants. Age was shown to interact with class where young middle-class and working-class speakers showed a far greater difference than the older speakers. In fact, young speakers spanned the entire range of variation, with the young middle-class speakers showing the least use of the monophthongal variant compared to the young working-class speakers, who showed the most. The rates of use for the older middle- and working-class speakers sat between those of the younger speakers. The polarisation of the monophthongal form may suggest that the social evaluation of this alternation has become more salient for the younger speakers, where the monophthong is possibly a heavily stigmatised working-class variant.

As well as analysing the monophthongal versus diphthongal realisations, Flynn (2012:220) also examined the vowel in terms of height and frontness. Along this dimension, age was a factor in its own right, with younger speakers showing backer and lower variants than the older speakers.

3.3.2.2 *Gender*

Kerswill et al (2008:467) observe that the females were ahead in the move towards the unmarked [au] variant: "The girls have a more open ($p<0.001$) and more back ($p<0.05$) onset than the boys suggesting a female led change." As previously noted, monophthongal realisations are associated with working-class males, particularly in Cockney (Wells, 1982; Kerswill et al, 2002).

Flynn (2012:218) found that young females have lower and backer realisations than males. Further, by examining F-values in order to compare the strength of the conditioning factors, Flynn reports that sex was the strongest conditioning factor: "the size of the F-values resulting from the mixed effects model were considerably larger for sex and age than for any other fixed effects…the size of the F-value can be taken to represent the relative importance of the factor in explaining the variation patterns, it can be hypothesised that sex as a main effect explains the patterns found better than age does" (Flynn, 2012:221).

3.3.2.3 *Class*

A number of studies have reported that the monophthongal variant is associated with working-class speakers, particularly males (Tollfree, 1999; Wells, 1982). This finding was supported by Flynn's (2012:220) findings, where he found that middle-class speakers showed fewer monophthongal realisations than working-class speakers.

Flynn (2012:220) found that middle-class speakers used lower and backer variants than working-class speakers. Further, he found that this effect was stronger for the young speakers than the older ones. Tollfree (1999:165) found that the South East London Regional Standard (SELR), the more RP of the two London varieties identified by Tollfree, showed a greater proportion of lower and backer diphthongal variants. Tollfree interpreted this as evidence for the backer form possessing associations of prestige.

These findings, alongside the reported gender patterns, suggest that social evaluation is crucial to the process of levelling and supralocalisation where middle-class and female speakers are particularly motivated to adopt the neutral and avoid the stigmatised variants.

3.3.3 Summary of conditioning factors

From the review above, a number of trends are clear. Several studies have reported lexical effects, although these appear to affect an earlier, unshifted version of the change (prior to the Great Vowel Shift). More recent developments indicate a change that does not exhibit lexical effects (e.g. Kerswill, 2002:200).

The alternation between monophthongal and the diphthongal variants does not appear to be changing, although as a stable variable it is associated particularly with males and working-class speech – the expected pattern for a stigmatised form. Therefore, the change appears to be one of vowel quality where the onset of the vowel becomes increasingly lowered and backed in the vowel space with accompanying but stable variation between monophthongs and diphthongs. Both of these elements, the ongoing movement and the alternation between monophthongs and diphthongs, contribute to the variable patterns and profile of this feature in the southeast.

Although social factors appear to be more important for conditioning variation than the linguistic ones, some linguistic factors do emerge for the lowering and backing of the vowel. Phonetic environment has been shown to condition the variation, with the hierarchy of the effect falling along a front/back cline, so that when the vowel is preceded by a backer consonant it is more likely to exhibit a backer realisation.

The lowering and backing of the vowel is also accompanied by a decrease in the range of variability. That is, while older speakers alternate between several variants, younger speakers tend to have just one form as their majority variant (Kerswill & Williams, 2000). Women and middle-class speakers lead this reduction in variability. This suggests that the traditional and local variants are stigmatised.

The social and linguistic constraints for the backing and lowering of the MOUTH vowel can be summarised as follows:

Linguistic

Phonetic environment:	Velar > Alveolar > Glottal > Dental > Labiodental > Bilabial

Social

Age:	young > old
Sex:	female > male
Class:	middle > working

3.4 SPECIFIC RESEARCH OBJECTIVES

The general research objectives are twofold. First, to examine whether MOUTH is changing in Hastings through a process of levelling, and second, what the variable patterning of this feature suggests about the next phase in the development of this feature. These general questions can be tackled directly through the following specific research objectives:

- To examine the variable distribution over age: this will identify whether MOUTH is a change in progress, and, further, whether all variable elements are changing or whether some, i.e. monophthong/diphthong, are variable but stable. Further, this will also offer good insight into the mechanism of change. For instance, does the change represent a reduction of variability characteristic of levelling?
- Examine gender: this will indicate which groups are leading the change and further help to contribute to the description of the mechanism at work. This will further enable insight into the social status of the variable forms.
- Examine a range of linguistic constraints: examining the linguistic patterning will enable me to investigate how the mechanism functions; for instance, is it phonetically constrained and driven by internal factors, or does it show lexical conditioning indicating a external source?
- Examine the interaction between age and the social and linguistic constraints: this will enable insight into the social and linguistic development of the change and provide insight into the development of the change over time.

3.5 DATA AND METHOD

3.5.1 AUDITORY ANALYSIS

An auditory analysis was chosen for several reasons. First, an initial pass of the data revealed that the variants did not overlap or form a phonetic continuum. Different variants could be reliably identified auditorily. This echoed previous findings; for instance, Kerswill (2002:200) reports that the variants are auditorily distinct. Analysing the data in this way also means that the analysis is directly comparable with previous work on regional dialect levelling in the southeast. Second, the range of phonetic variation covered several phonetic dimensions: height, backness, and whether it was produced with a glide and/or lip-rounding. In order to capture the full range of variability, several different acoustic measures would need to be employed (F1, F2, F3, measure of Euclidean distance etc); this could potentially make it difficult to interpret the variable patterns.[11]

The analysis was conducted in several stages. As well as checking the viability of the auditory analysis, an initial first pass was performed to discover the range and quality of the variable forms. A representative slice of the sample was used: two speakers from each age cohort with an equal gender split. Once the variable forms had been mapped, a full analysis of all speakers was conducted.

3.5.2 Circumscribing the variable context

A central part of the principle of accountability is that, as well as representing the full spread of variants within the analysis, all and only variable *contexts* must be taken into account. This means that every context where the form is variable, and only those where the full spread of variants is possible, should be considered within the analysis. Categorical contexts and those that only permit particular variants must be excluded from the analysis.

Kerswill (2002:200) reports that in the southeast there are no lexical exceptions; this finding was confirmed by the present study. All words orthographically containing <ou> and <ow> were included in the analysis.

3.5.3 The variants

Auditory examination of the data revealed a total of five variants:

1. [ɛɪ] traditional local southern variant, high onset unrounded diphthong
2. [æʊ] traditional local southern variant, lower onset and rounded backer offglide
3. [ɛ - æ] traditional front monophthong
4. [aʊ] supralocal neutral backer diphthongal variant with rounded off glide
5. [a:] supralocal Cockney backer monophthongal variant

[11] The potential shortcomings of this type of analysis are recognised. For instance, a more fine-grained or acoustic analysis may enable a more comprehensive or detailed examination of phonetic conditioning. However, while these disadvantages are noted, the merits of an auditory analysis (namely that it suited the distribution of the data and made the results comparable with previous analyses) were judged to outweigh the negatives.

The variants are organised along the front/back dimension comprising three diphthongs and two monophthongs. The first three are more traditional/local forms compared to the latter two, which are the more supralocal forms (Kerswill, 2008:454).

3.5.4 TOKEN CAPPING, TYPE/TOKEN RATIO

The MOUTH vowel occurs fairly regularly within natural speech, so the number of tokens that each speaker produced depended on interview length and speech rate. So that all speakers received equal representation in the data, their token numbers were capped at approximately 100 each. Lexical spread of the data was also checked in terms of type/token ratio. Particularly frequent items such as *now, town, about, how, out* etc were capped at maximum 10 tokens per speaker. This was so that the data represented a spread of lexical items and was not skewed by the highly frequent items. This was to ensure that the most accurate representation of the variation was gained (Wolfram, 1993:214).

3.5.5 PHASES OF ANALYSIS

The variability was analysed in four phases:

1. The full range of variation was considered where the distribution of all 5 possible forms was considered across age, gender and by individual. These distributions were examined through descriptive statistics and the patterns described as they appeared visually.
2. The variation was then analysed along a binary monophthong/diphthong distinction, as recent research (e.g. Flynn, 2011) has shown that this is a stable aspect of the variation. Here the relative proportions of monophthongs compared to diphthongs were examined along a range of linguistic and social constraints. As well as inspecting the variability visually, the observed differences were also tested statistically through a factor-by-factor approach. The distributions were tested using a range of different statistical tests depending on which was appropriate for the factor in question.
3. Following the monophthong/diphthong alternation, the variation was analysed in terms of a Levelling Index. This index was based on Kerswill & Williams' (2000:102) analysis of a similar process. In this instance Kerswill & Williams (2000:102) sought to create a numerical index for a change which demonstrated a range of distinct categorical variants (in the same way as the present analysis). These variants were

then ranked in terms of their height and frontness, as higher and fronter forms represented the more supralocal variants. In this way the index could indicate how supralocal an individual/context was. A similar method is used here, but the index ranks how lowered and backed the forms are, as previous analyses and descriptions of the Sussex dialect indicate these are the supralocal forms. In a similar way to the monophthong/diphthong alternation, the levelling index was analysed across the data using a factor-by-factor approach. Again, this used a combination of visual inspection of the patterning and statistical testing to see whether the differences were significant.

4. Finally, following the factor-by-factor analysis of the levelling index, those which were statistically significant were entered into the linear mixed-effects model to examine each factor's relative contribution to the observed variation.

3.5.6 Coding

Based on previous analyses of the feature and the research questions of the present study, the tokens were coded for the following factors:

3.5.6.1 *Linguistic*[12]

Preceding and following phonetic environment: Flynn (2012:219) reports that the phonetic effect he reports in his data is likely due to word juncture effects; that is, fronter contexts produced fronter vowels and vice versa. This was tested for in the present data through a coding of all phonemic consonantal contexts; following Flynn (2012), vowels received a three-way split between front, central and back. End and beginning of turn were also coded separately, as these positions are subject to different phonetic and prosodic processes: start of turns tend to receive greater prominence, while end of turns tend to receive less emphasis in English and are more susceptible to reductive processes (Shockey, 2003:15).

Lexical item: each lexical item occurring more than 300 times was coded separately. However, individual word codes were entered into the linear mixed-effects model as a random factor.

[12] The range of linguistic factors investigated is by no means exhaustive. However, the specific constraints tested were chosen based on results from previous analyses which had shown these to significantly condition the variation. The research recognises that a number of alternative linguistic constraints would likely also condition the variation. This applies to all variable analyses in the present work.

Relative frequency of lexical item: in order to disentangle lexical effects from frequency – i.e. are the lexical patterns due to actual lexical effects or an indirect effect of the frequency of that particular lexical item? – the effect of lexical frequency was also examined. Frequency measures were based on the spoken English proportion of the British National Corpus.[13]

3.5.6.2 *Social*

In line with the objectives laid out in section 2.3, the data were also coded for individual, age and gender.

3.6 Results

Figure 10 displays the distribution of all the variable forms across the three adult age cohorts.

3.6.1 Full range of variable forms

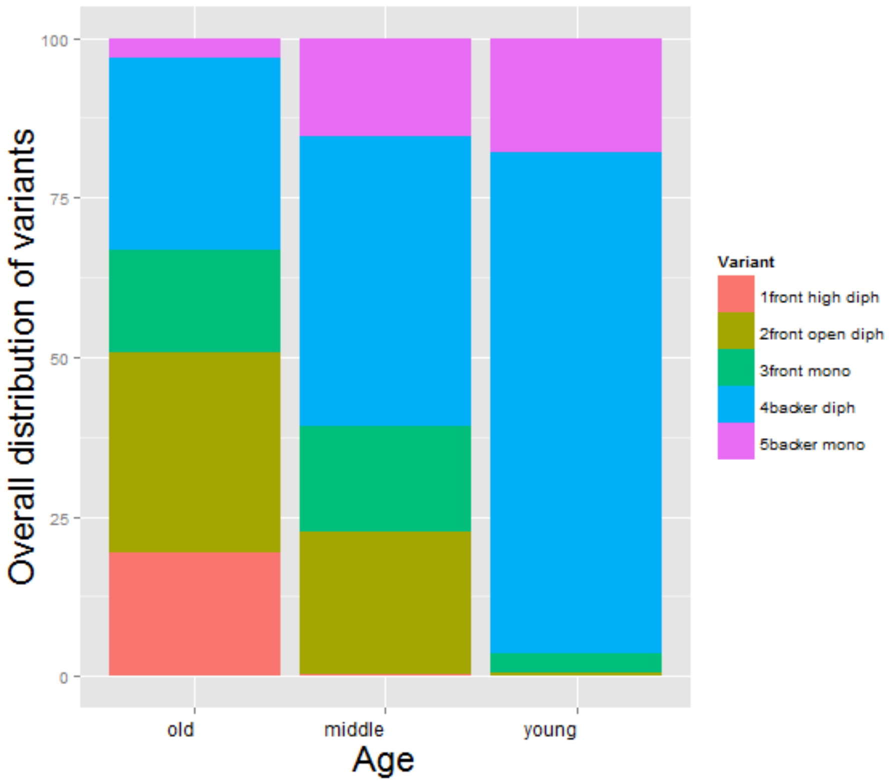


Figure 10: Full range of variants across age cohorts

The most prominent pattern visible in figure 10 is the reduction in variability over time. The old speakers show the greatest range of variation, displaying the use of four main variants, including the traditional front variants [ɛɪ] (red), [ɛʊ] (olive), [æ] (green) and also the newer, backer diphthongal form [aʊ] (blue), and show a small amount of the newer

[13] http://www.natcorp.ox.ac.uk/

and more back monophthong variant, [a:] (purple). This is in striking contrast to the range of variability for the younger speakers. The younger speakers show a clear preference for the newer, backer diphthong, and this form accounts for over 80% of their total use. The middle speakers show a range of variability that sits somewhere in between; they show a greater range of variability than the younger speakers, although the backer diphthong (shown in blue) is starting to dominate and accounts for more of the total use than any of the other forms.

Another clear trend visible in the graph above is the distribution of the different variants over time. For the old speakers, about 70% of the variable forms are traditional front variants. The middle speakers also exhibit a fairly wide range of variation displaying four common forms, two traditional front forms [ɛʊ], [æ], as well as the newer back diphthong and monophthong [aʊ], [a:]. For the middle cohort, although they do use some front variants, the highest unrounded form [ɛɪ] has virtually fallen out of use. The youngest cohort exhibit the smallest range of variation: the back diphthong [aʊ] accounts for over 80% of all the variable forms, and front forms are the clear minority, accounting for around 2% of the total variation.

Overall, two main trends emerge;

1. The range of variants decreases over time.
2. Local front variants are discarded in favour of supralocal back ones, with the front forms lost entirely over the course of two generations.

Now that the overall patterns have been examined, it is necessary to see the spread of variation at an individual level. Examining the data in this way means it is possible to examine whether the individuals in the age cohorts behave uniformly, or at least show similar tendencies. If this is indeed the case, it then provides a justification for their collapsing into larger, age-based categories.

3.6.1.1 *Individuals*

Figure 11 shows the distribution of variable forms for the individuals in the old age cohort. Males are positioned on the left; females are on the right.

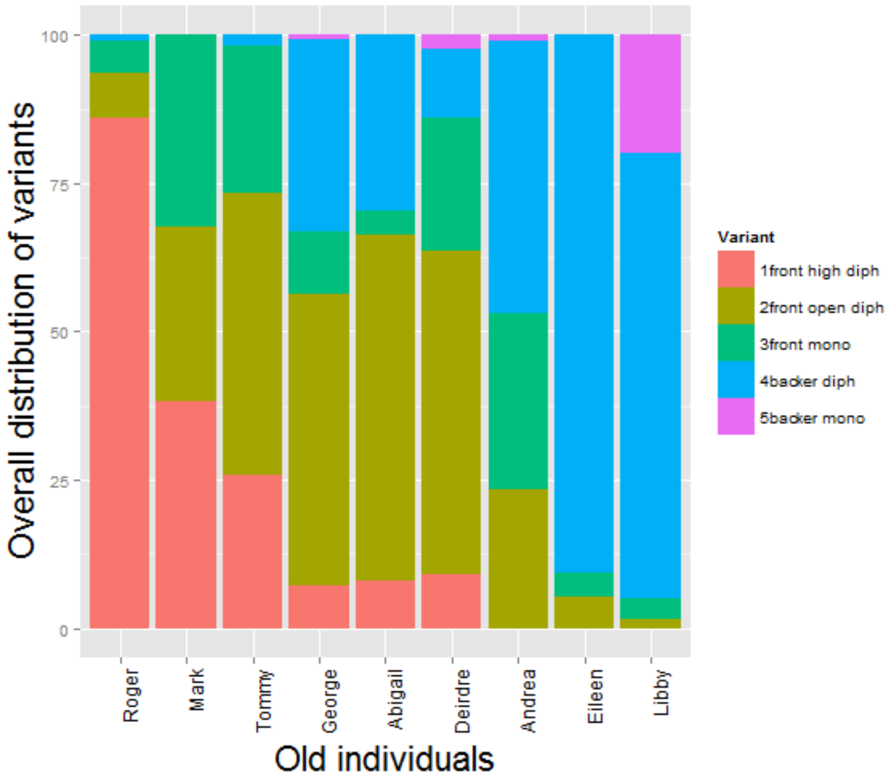


Figure 11: range of variants for individuals in old cohort

A number of different patterns are visible in figure 11. First, for the majority of speakers front variants (red and olive) are the dominant forms, accounting for 60–100% of their total variation. The highest and most traditional form [ɛɪ] is still the dominant form for Roger, who, at 81, most likely represents an older form of the Sussex dialect. In contrast to Roger are the two speakers Eileen and Libby, who exhibit the newer standard and backed forms. These speakers could represent the vanguard of change towards the more levelled forms within Hastings. On the whole, while the exact patterning of the variants varies between the speakers, the older speakers all exhibit wide ranges of variability (with the aforementioned exceptions, Eileen and Libby).

Figure 12 displays the spread of variants for the individuals in the middle age cohort. Again, males are to the left and females to the right of the figure.

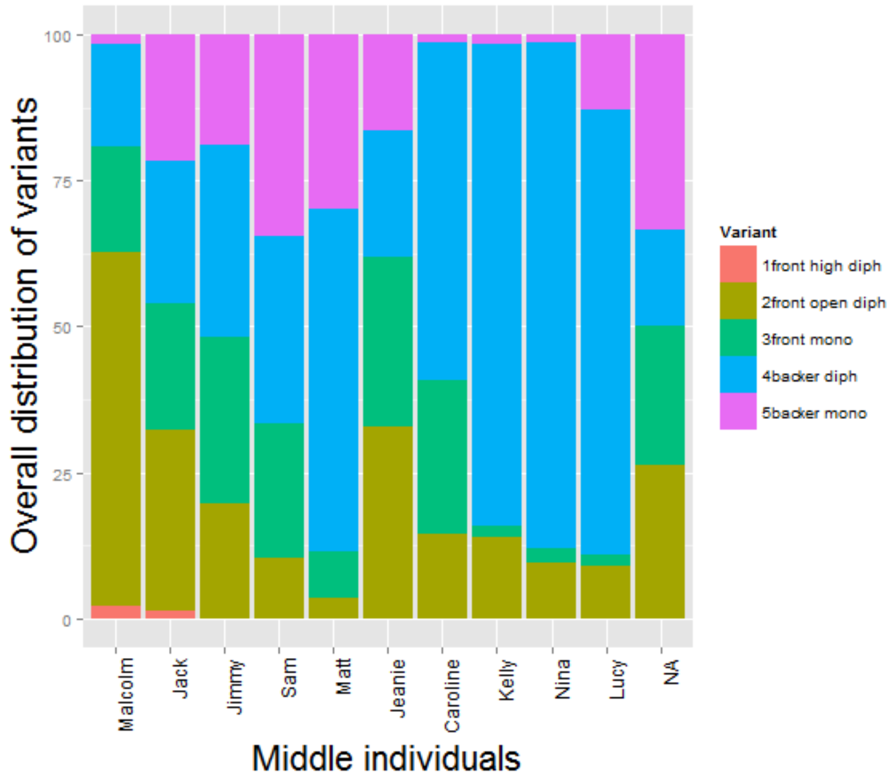


Figure 12: range of variants for individuals in middle cohort

Figure 12 shows how, similar to the older speakers, the middle speakers also exhibit a wide range of variation, although for most speakers there is a clearly dominant variant. With the exception of Malcolm, who uses mainly front forms, there appears to be a split in terms of those speakers who use roughly equal amounts of front and back variants (Anthony, Jack, Jeanie, Jimmy) and those who use mainly back variants (Caroline, Kelly, Lucy, Matt, Nina and Sam). There does not appear to be as striking a gender split as was visible with the older speakers, although notably those speakers who have the supralocal diphthong as the clear majority variant are all female (Kelly, Lucy, Nina).

What is clearly visible from the inspection of the middle individuals is the how the encroaching of the new back diphthong (blue) visible in the overall distribution is also a property of the individual behaviour. All the speakers are adopting the newer forms in step with one another. Figure 13 demonstrates whether this trend is continued by the younger individuals.

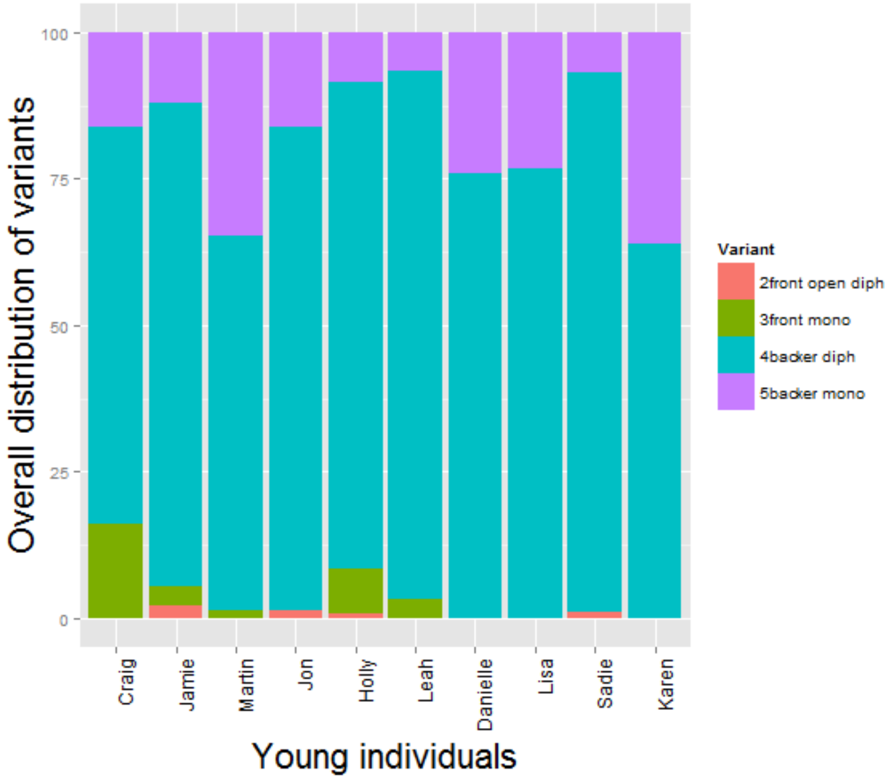


Figure 13: range of variants for individuals in young cohort

Figure 13 shows that compared to the older and middle age cohorts, the young speakers display a marked reduction in variability. Moreover, this is the case for every individual. The back diphthong is the majority form for all speakers. Several speakers display small rates of fronter forms, although the highest unrounded variant is completely absent in the speech of the young cohort. Unlike the middle and old age cohorts, the young cohort does not appear to show any distinct patterns in terms of gender.

Now that the individual patterns have been examined and a level of consistency within the age cohorts has been established, it is possible to look at the variation as it patterns over the linguistic and social factors. I will turn first to gender, where the patterns observed within the individuals are more clearly visible at a group level.

A number of trends that are observable from the individual plots may relate to gender patterns. For instance, in the older speakers, the most traditional highest unrounded variant [ɛɪ] is used almost exclusively by males, with Mark, Tommy and particularly Roger using relatively high proportions of the form (with the exception of Abigail and Deirdre, who use around 8–10%, the form). The overall view from the plot of the older individuals is that the males show the highest use of the most traditionally and locally marked variant, while women appear to be leading the move towards the backer, supralocal forms. This was clearest in the older individuals, where Roger, Tommy and Mark demonstrated distributions that most likely represented a more conservative form of the variety. Eileen and Libby, on the other hand, used much higher rates of the innovative, backer forms and most likely represent the leading edge of the change for this age cohort.

3.6.1.2 *Gender*

The gender effect is analysed in more detail across the age groups in figure 14. Figure 14 shows the distribution of variable forms across the ages and split by gender, with females on the left and males on the right.

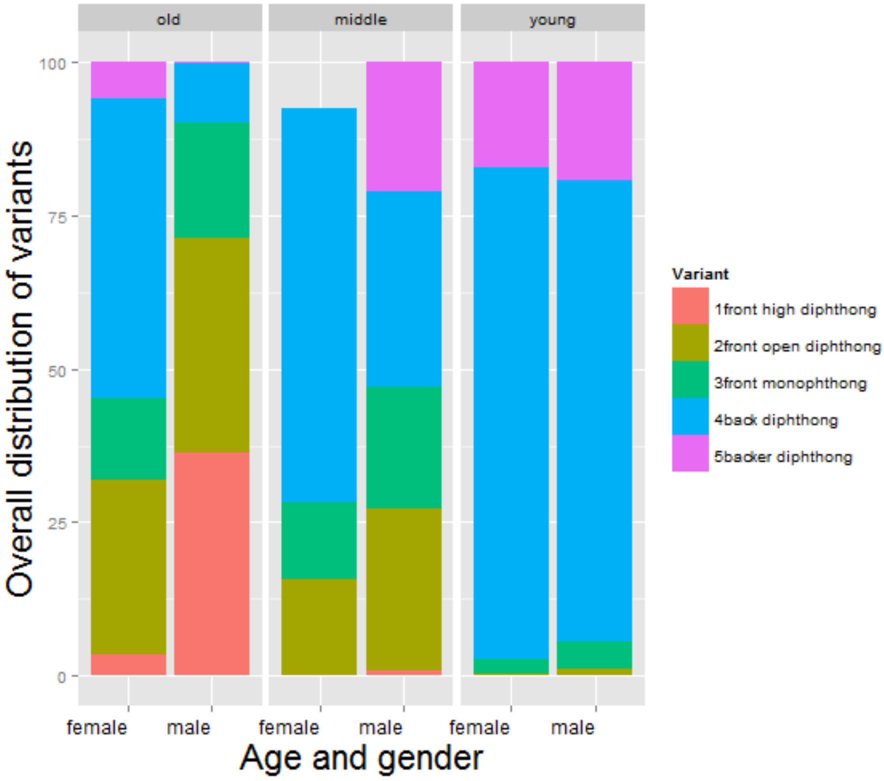


Figure 14: range of variants by gender for old, middle and young age cohorts

As was visible at the individual level, figure 14 shows the how the variants pattern by gender for each age cohort, with females on the left and males on the right. From the old cohort it is clear that females are leading the switch to the newer supralocal forms, while the oldest form is still used by the males, accounting for about 30% of their total variable forms. This trend is continued by the middle cohort, where women use more of the back diphthong than males. The oldest form is still present in the speech of male speakers in the middle cohort but is an extremely small minority. The youngest cohort does not appear to show any gender difference in terms of the choice or range of variants. The back diphthong is the clear majority variant for both males and females. Males use very slightly more of the back monophthong than the females; further analysis of the monophthong/diphthong alternation will reveal if this tendency is statistically significant (see section 3.6.2.2 for results).

3.6.2 Monophthongs versus diphthongs

One aspect of the variability was the distribution of monophthongs compared to diphthongs. Although part of the inherent variability, previous research (e.g. Kerswill, 2002; Flynn, 2012) has demonstrated that this aspect, although variable, is stable. In other words, the alternation between monophthongs and diphthongs represented another element of the variability that, while present in the variant mix, was not actually changing.

Similar to Kerswill (2002:697), the present analysis found that the position of the monophthongal realisations was a correlate of the speakers' variant distribution. For instance, if a speaker had mainly front variants, then their monophthongs would also exhibit a front realisation; if they had mainly back realisations, then they would exhibit back monophthongs. Speakers who exhibited a range of front and back variants also realised a range of front and back monophthongs. For this reason, in order to examine this aspect of the variation, a binary split was made between monophthongs and diphthongs.

3.6.2.1 *Overall*

Figure 15 shows the distribution of diphthongal and monophthongal variants across the three age cohorts where diphthongs are in black and monophthongs are in grey.

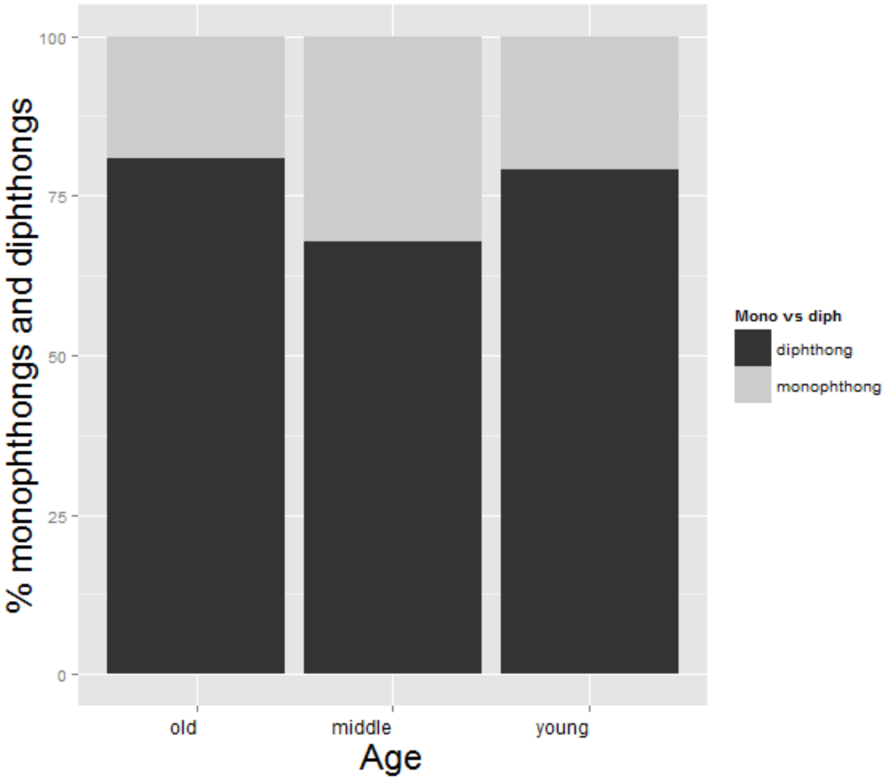


Figure 15: relative proportions of monophthongs to diphthongs across age cohorts

Figure 15 demonstrates that for every age cohort diphthongs are the majority variants. Both the young and the old cohorts demonstrate almost 80% use of the diphthong variants. The middle speakers use much less of the diphthong, around 65%. There was a significant association between the age cohort and the relative use of diphthongs to monophthongs $\chi^2(2)$, = 50.26, p<.001. The observed difference between the age cohorts is statistically significant. However, while there was a level of fluctuation between the age cohorts, with the middle speakers showing an increased use of the monophthong, this variable aspect was not shown to be changing over time, as there was no difference between the old and young speakers. It is unclear whether this fluctuation represents a change that was started and then reversed or simply just a property of the sample.

Previous analyses have demonstrated that the monophthong is particularly associated with males (Flynn, 2012:206). Therefore, the present analysis now turns to examine the patterning of this feature in terms of gender at each age cohort.

3.6.2.2 *Gender*

Figure 16 shows the relative distribution of monophthongs and diphthongs as they pattern across age and gender.

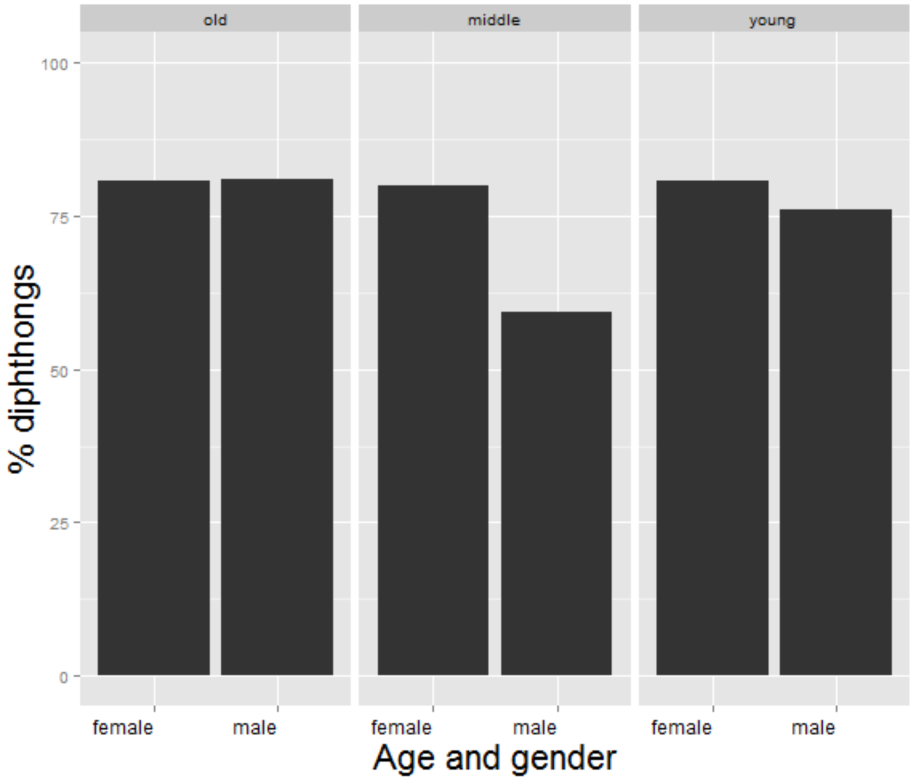


Figure 16: monophthongs versus diphthongs by gender for old, middle and young age cohorts

Figure 16 shows that for the old cohort there is no association between use of the monophthong and gender ($\chi^2(1)$, = 0.01, p=.94); both males (right) and females (left) use roughly equal amounts of the monophthong. This was also the case for the young cohort; although the young males do appear to use slightly more of the monophthong, this is not significant $\chi^2(1)$, = 2.54, p=.11). For the middle cohort there is a visible and significant gender difference ($\chi^2(1)$, = 44.87, p<.001), meaning that the middle age cohort males use significantly more of the non-standard monophthong than the females.

There are a number of possible reasons for the gender difference visible in the middle age cohort. As outlined in chapter one, the research context, in western society middle age represents a stage where individuals often experience the greatest level of responsibility; they are beginning to forge ahead in their careers and raise families of their own. However, these pressures exert themselves differently upon men and women.

Eckert (1989:249) suggests that females often have to rely more on “symbolic capital”, such as their language, to assert their class- or group-based identity. This is in comparison to men, who can rely on outward markers such as profession or recreational activities to achieve the same end. This tendency is then amplified by females' societal roles; for instance, females are usually the primary care-givers to their children. Research has shown that females will use a greater proportion of standard forms than males, particularly when speaking to their children (Roberts, 1997; Smith et al 2007).

As well as being the primary caregivers, women also tend to work in more "language sensitive roles" compared to men. These are sectors, such as education and healthcare, as well as secretarial and administrative roles, that value and require high levels of language skills compared to the class-equivalent male roles. In a linguistic marketplace sense, these roles place a high value on the standard language (Sankoff & Laberge, 1978). For the younger and older female speakers, this trend to use fewer diphthongs is less apparent, which may reflect their experiencing less pressure to conform to the standard at this phase in their lives.

Alongside social factors, some authors have found that linguistic factors constrain the alternation between monophthongs and diphthongs (e.g. Smith, 2007; Flynn; 2012).

3.6.2.3 *Phonetic environment*

Only fully variable contexts were entered into the analysis. For preceding phonetic environment this meant that only preceding unchecked positions were analysed (e.g. *out, oust* etc). Tokens were coded initially using a fully elaborated and detailed phonemic system. These codes were then collapsed into larger categories based on the patterns in the data, the similarity of the phonetic classes and previous findings from the literature which indicated the relevant phonetic dimensions.

Preceding phonetic contexts were grouped into a five-way split: labial; alveolar & post alveolar; velar & palatal; liquid and vowel (token counts were too low for a "start of turn" category). This breakdown is shown in table 5.

Preceding environment	Phonemes included	Example
Labial	f, m, p, v	*they're all they're all really nice and they* ***help out*** (Karen, 17)
Alveolar & post alveolar[14]	d, n, s, ʃ, t, θ, z	*dunno what she was doing letting* ***us out*** (Jimmy, 49)
Velar & palatal	g, k, ŋ, j	*I mean not that we're* ***going out*** *to get drunk* (Anthony, 45)
Liquid	l, r	*so I'm literally wasting a* ***tenner out*** *of thirty pounds* (Danielle, 16)
Vowel	(all vowels)	*the trammel net is a net and it's got big mesh on* ***the outside*** (Mark, 65)

Table 5: preceding phonetic environments with examples

A similar procedure was adopted for following phonetic environment. Here only following unchecked positions were analysed (*how, now* etc), and, using the same strategy for the collapsing of the more detailed categories as was adopted for the preceding phonetic environment, the following phonetic contexts were grouped into a five-way split: labial; alveolar & post alveolar; vowel & liquid; velar & palatal and pause, as shown in table 6.

Following environment	Phonemes included	Example
Labial	m, p, w	*not sure* ***how much*** *of an attraction the old town actually was* (Andrea, 65)
Alveolar & postalveolar	d, ð, s, ʃ, t, θ, z	***how difficult*** *it is for young people to get on the ladder* (Malcolm, 50)
Vowels & liquids	(vowels and liquids: l, r)	*I can't remember* ***how long*** (George, 91)
Velar & palatal	g, h, k, j	*now that they've seen how cute Nizzy is they want one* (Holly, 18)
Pause		*I mean you wouldn't dream of doing that* ***now*** (Caroline, 45)

Table 6: following phonetic environment with examples

Figures 17 and 18 show the distribution of monophthongs and diphthongs of preceding and following across the different phonetic environments.

[14] For brevity, this category is referred to as “alveolars” in the main text, although it encompasses the range displayed in the tables 5 and 6.

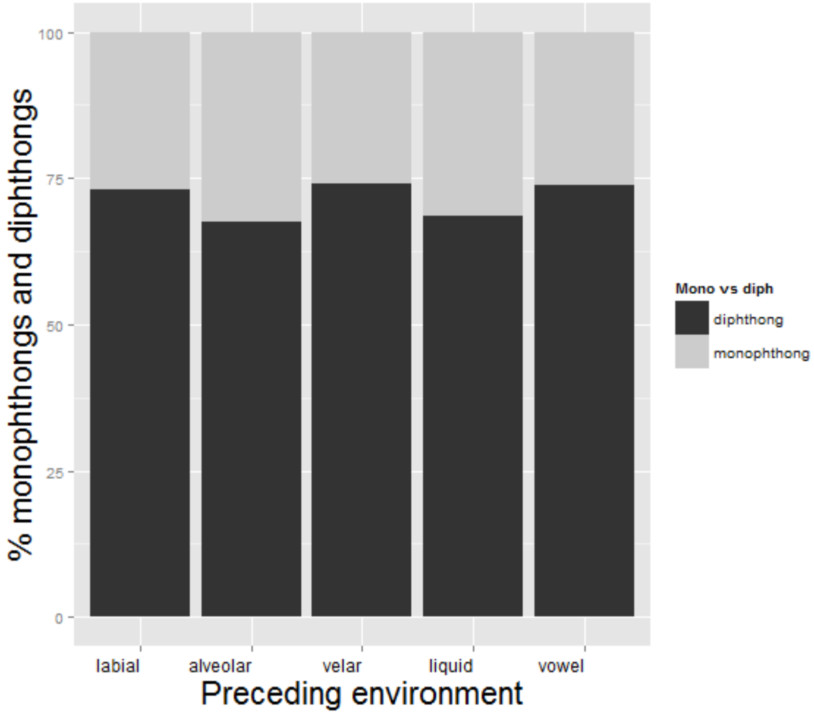


Figure 17: distribution of monophthongs and diphthongs by preceding phonetic environment (unchecked positions only)

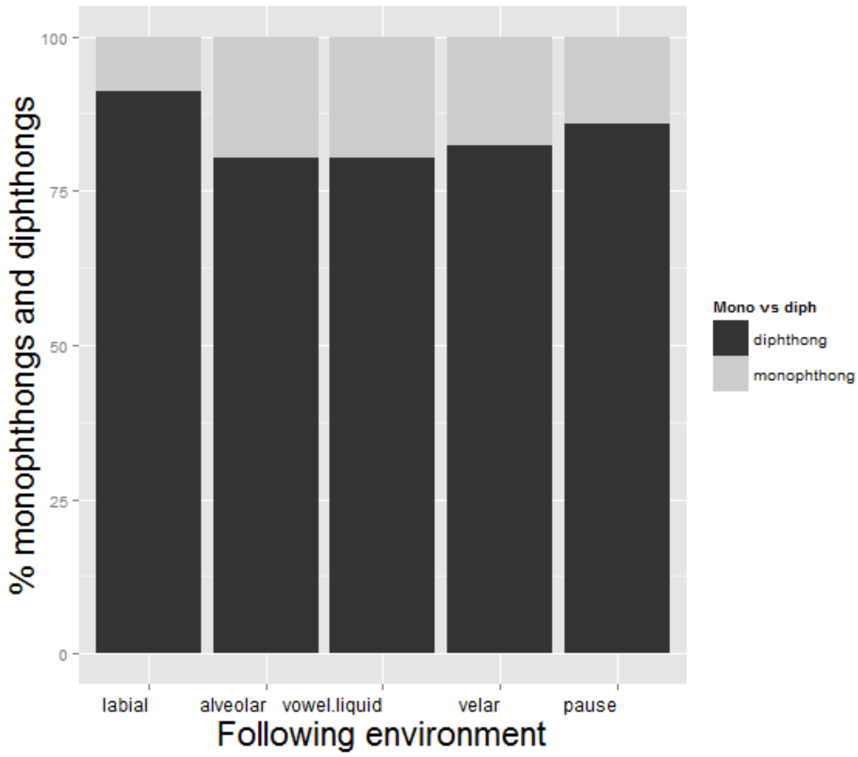


Figure 18: distribution of monophthongs and diphthongs by following phonetic environment (unchecked positions only)

Figures 17 and 18 indicate the alternation between monophthongs and diphthongs is not strongly conditioned by phonetic environment. For the preceding environment, liquids and alveolar environments appear to show slightly more monophthongs than the other contexts, but these trends are not statistically significant ($\chi^2(4)$, = 2.06, p=.72). The following phonetic environment shows a similar pattern: sonorants and alveolars show slightly more monophthongs than the other contexts, but again this is not statistically significant ($\chi^2(4)$, = 6.55, p=.16). One apparent tendency is that the preceding unchecked items (figure 17) appear to show greater levels of monophthongisation than the following unchecked items. This is likely a knock-on effect of lexical item: the preceding unchecked environment is dominated by the word *out* (inc. outside). This item showed higher levels of monophthongisation than average. For the following unchecked category, there is a greater spread of lexical items: frequent words such as *how* and *now*, as well as less frequent words such as *cow* and *eyebrow*. I now turn to the examination of the possible confounding factor of lexical item.

3.6.2.4 *Lexical and frequency effects*

In exemplar theories of language change (e.g. Bybee, 2001; Pierrehumbert, 2006), lexical effects are attributed to underlying effects of frequency. Exemplar models posit a "usage based" account of language change where a speaker's experience of the relative frequency of lexical items affects how they are stored in the mental lexicon (Nielsen, 2010:18). Here, it is exposure to particular lexical items that promotes change as "cognitive representations are affected by every token of use" (Bybee 2007: 199). That is, more frequently occurring items are expected to behave differently from less frequently occurring items within the course of change. In vowel shifts, exemplar models predict that more frequently occurring items should change first (Bybee, 2002: 267; Pierrehumbert, 2002). However, several large-scale studies of vowel shifts have failed to find any such effects. For example, Labov et al (2006) did not find any evidence for lexical effects in any of the vowel shifts they investigated in the extremely large corpus of data they used in compiling the Atlas of North American English. I now turn to examine frequency effects in the MOUTH vowel shift in the Hastings data.

Throughout the analysis of the MOUTH vowel, lexical and frequency effects are analysed simultaneously. This is achieved by analysing the 10 most commonly occurring lexical items: *about, out, now, how, down, house, around, round, town, pound* and a catch all "other" category. The items are ordered by frequency measures obtained through the British National Corpus Version 3 (www.natcorp.ox.ac.uk). The items were binned into frequency categories based on the frequency measures outlined in table 7.

Colour	Categorical freq.	Frequency in BNC	Words
Red	Very high	130,000+	*About, out, now*
Green	High	130,000 > 90,000	*How, down*
Blue	Medium	90,000 > 30,000	*House, round, around*
Purple	Low	< 30,000	*Town, pound*
Grey	N/A	N/A	All other items

Table 7: frequency categories of MOUTH lexical items

Lexical effects are examined alongside frequency effects so that genuine lexical effects can be disentangled from indirect phonetic effects brought about through the phonetic makeup of the individual words. Lexical frequency has also been shown to impact on lexical diffusion. Testing for this effect will also help shed light on the processes involved in this change within the current data:

> *Since we are testing for evidence that would support either of two hypotheses – regular phonetically conditioned change and lexical diffusion – it is also useful to include an independent variable that would be sensitive to the presence of lexical diffusion. Such an indicator is word frequency, since the majority of studies that show lexical diffusion show a strong frequency effect, with the more frequent words favoured in the change* (Labov, 1992:51)

Figure 19 shows the distribution of monophthongs and diphthongs as they pattern for the 10 most frequently occurring lexical items containing the MOUTH vowel. They are ordered in terms of frequency, from highest to lowest from left to right.

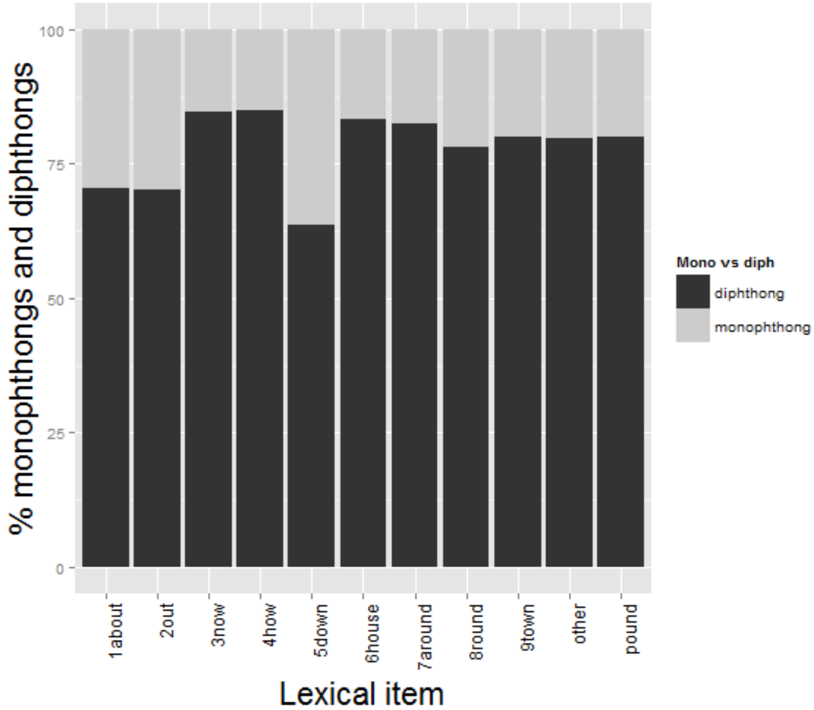


Figure 19: Monophthongs versus diphthongs by lexical item for all speakers

Figure 19 demonstrates the effects of lexical item on the variability between monophthongs and diphthongs. Further, this trend is statistically significant ($\chi^2(10)$, = 82.67, $p<.0001$). The words *down, about* and *out* all show higher levels of monophthongs, while *now* and *how* show lower levels. However, while there is a lexical effect, it does not appear to be a directly linked to frequency; among the most frequent words are the highest and lowest rates of monophthongs.

While lexical effects were significant for all ages combined, examining this factor across the age cohorts will demonstrate whether this finding is consistent over time. Figure 20 presents a view of this factor across the three age cohorts.

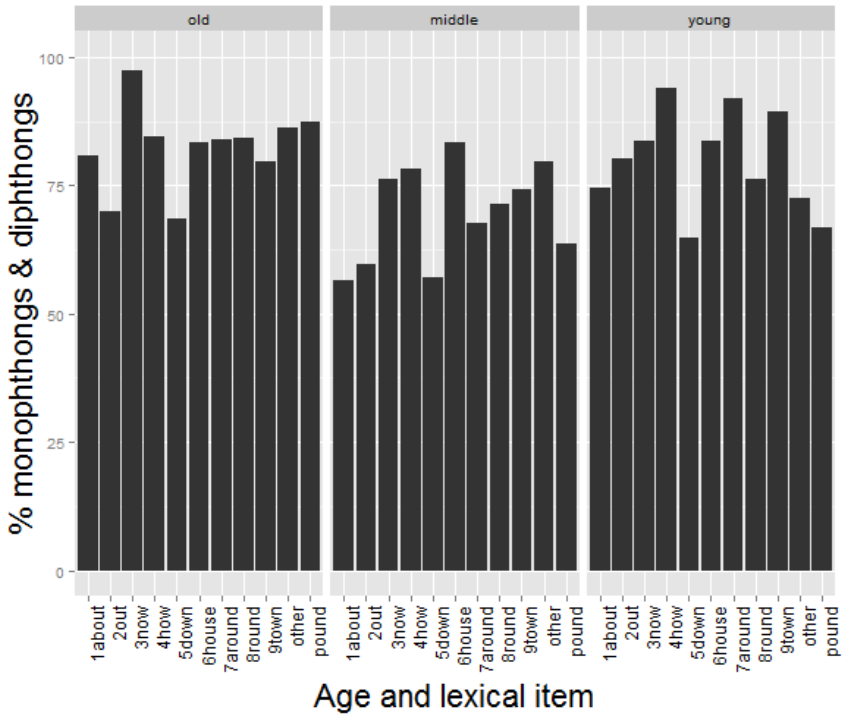


Figure 20: monophthongs versus diphthongs by word for old, middle and young age cohorts

From figure 20 some consistent lexical patterns do emerge. The lexical item, *down,* exhibits markedly higher rates across all age cohorts while the fourth bar along, *how*, exhibits relatively lower rates across all three groups. On the other hand, some items do not show any consistent patterning, for instance, the item *about* shows the highest level of monophthongs for the middle cohort but this trend is not replicated for the young or old cohorts. Unfortunately, small cell counts prohibit statistical testing of this constraint within the different age cohorts.

Overall, there is some evidence for lexical effects; particular items such as *down* and *how* demonstrate consistently high rates of the monophthong across all age cohorts. However, other items, such as *about*, do not replicate this consistency. It is unclear whether this fluctuation represents a reorganisation of constraints or whether it is the result of low token counts. In sum, the previous figures show that while some particular items favour the monophthong the patterning of this variable element is not an example of lexically conditioned variation per se.

3.6.3 Summary for monophthongs versus diphthongs

The analysis revealed a number of trends present in the variable alternation between monophthongal and diphthongal realisations of the MOUTH vowel. The variable was shown to be stable through time although the middle cohort did shoe higher rates of the non-standard form than the old or the young speakers. An analysis of the feature by gender revealed that the apparent difference between ages was on account of the middle-aged men showing markedly higher rates than middle-aged females, there were no visible or significant gender differences found for the old or young age cohorts. Both preceding and following phonetic environment was examined considering only unchecked positions as these are the only fully variable contexts. There were no visible or significant phonetic effects present. Lexical and frequency effects were examined. Lexical effects are significant; in particular, the item *down* was shown to exhibit higher rates of the monophthong than other lexical items. Lexical item was examined across age cohorts, while *down* showed greater rates for each of the ages, no other patterns were visible. Low cell counts prevented these patterns from being subject to a statistical analysis.

As the alternation between monophthongs and diphthongs was not shown to be changing through apparent time, these tokens are included within the following analysis which presents the results as a cline or *Levelling Index*.

3.6.4 Levelling Index

After the full range of variants was considered, it was necessary to attempt to pull these phonetic dimensions together into one, easily interpretable scale. The full range of variability demonstrated that the change in Hastings represented a cline from higher fronter variants to lower backer forms. This movement through the vowel space, from local forms to supralocal ones mirrored previous findings from the southeast (e.g. Kerswill & Williams, 2000). In line with these studies, the patterns from the Hastings data indicate a process of *Dialect Levelling*; the range of variability decreased from the older to the younger speakers who were opting for “a socially and regionally more neutral variant” (Kerswill et al (2008:462).

The Levelling Index measures this process through use of a numerical scale:

Levelling index	**2**	**3**	**4**	**5**	**6**
Variant	[ɛɪ]	[ɛ - æ]	[æʊ]	[a:]	[aʊ]

Table 8: Levelling Index cline of variants

The cline ranks the variants from the highest frontest variant to the lowest backest variant. The monophthongs are also included as intermediate positions as they were more central phonetically. Quantifying the variants in this way meant that scores could be generated based on the proportional make up of variants for individual speakers, groups or contexts. This meant comparisons between contexts or groups can be made simply and the leaders and laggers in terms of the levelling of MOUTH are easily identified.

Figure 21 shows the mean levelling index score for each age cohort split by gender.

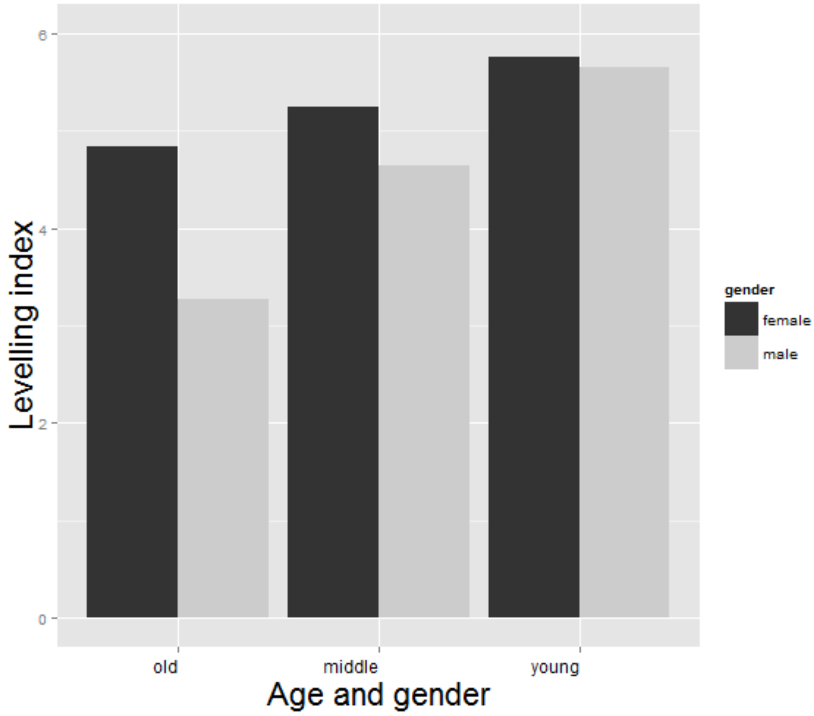


Figure 21: Levelling Index by gender for old, middle and young age cohorts

Figure 21 reveals a number of visible trends. As indicated by the full spread of variable forms, each successive generation shows a move towards the lower, backer more levelled forms. Further, this process is female led, echoing Kerswill et al's (2008) findings. Females show a greater use of more levelled variants, this trend is most pronounced for the oldest cohort which shows a highly significant difference $t(926.5) = 19$, $p<.001$. The middle age cohort also shows a highly significant gender difference $t(844.39) = 7.99$, $p<.001$. The youngest cohort did not appear to show any visible gender difference. However, the finding that females used slightly more levelled forms than the males was shown to be mildly significant $t(516.05) = 2.25$, $p=.02$.

Perhaps more clearly than the full spread of variants could indicate, the levelling index scores reveal that MOUTH-levelling is a female led change in progress. I now turn to examine whether the change is constrained by any linguistic factors.

3.6.4.1 *Phonetic environment*

In phonetic terms, the levelling index measures the variants along a backing and lowering cline. The least levelled variants are the highest and frontest and the most levelled are the lowest and most backed variants. If phonetic environment affects whether a more or less levelled variant is produced then it would be feasible that this would be due to where the environment sits along the front-back dimension. For instance, fronter alveolar environments such as in (1) and (2) would promote fronter articulations, while backer, velar or glottal environments such as in (3) and (4) might promote backer variants:

1. Preceding: and you had to ***get out*** of your bunk. Mark, 65
2. Following: there's very little money ***now to*** support adults, Caroline, 45
3. Preceding: I recognise them, they ***make out*** that they don't recognise you. Abigail, 67
4. Following: and he's then he's hollered down at me "***now hold*** on look out". Jack, 35

At the outset, analysis of phonetic environment used a phonetically detailed coding system. These detailed codes were gradually collapsed into larger categories based on patterns in the data and whether the environments were phonetically similar in terms of the front/back dimension.

As was the procedure for the analysis of monophthongs versus diphthongs, only fully variable contexts were entered into the analysis. For preceding, this meant that only preceding unchecked positions were analysed (e.g. *out, oust* etc) and the preceding phonetic contexts were grouped into a five-way split: labial, alveolar, velar, liquid and vowel (token counts were too low for a 'start of turn' category). This was also the case for following phonetic environment where only following unchecked positions were analysed (*how, now* etc) and the following phonetic contexts were grouped into a five way split: alveolar, labial, pause, sonorant and velar.

Figures 22 and 23 reveal to what extent preceding and phonetic environment influenced variability in realisations of the MOUTH vowel as it is measured through the levelling index.

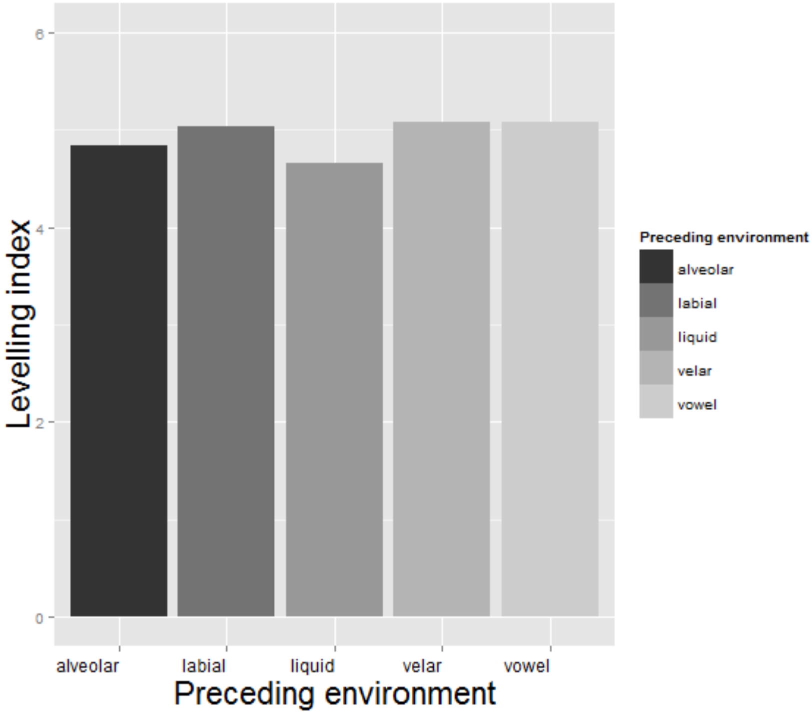


Figure 22: Levelling Index by preceding phonetic environment (unchecked positions only)

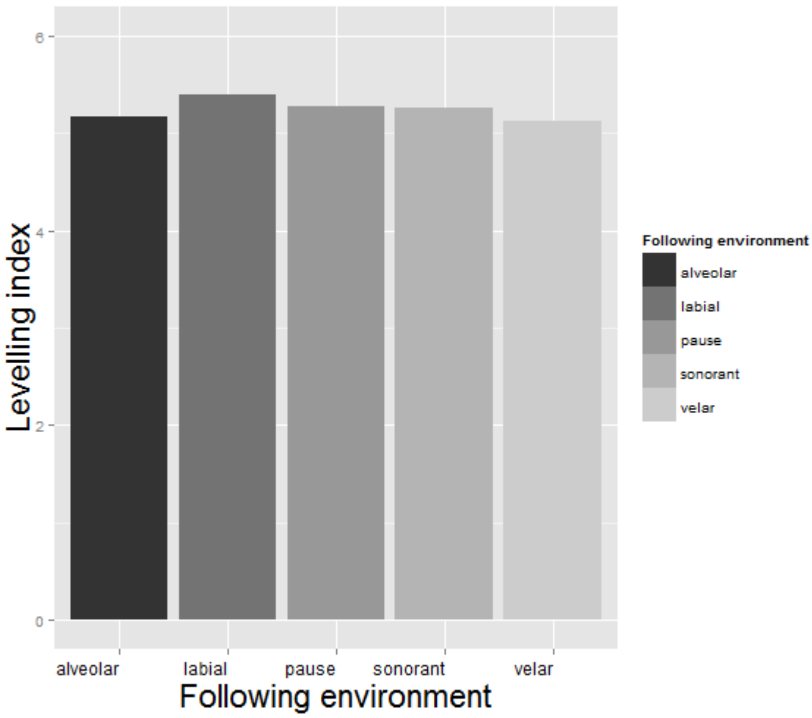


Figure 23: Levelling Index by following phonetic environment (unchecked positions only)

Figures 22 and 23 demonstrate that preceding and following phonetic environment do not appear to show any strong conditioning of the backing and lowering of the MOUTH vowel. Within the fully variable preceding contexts, liquids appear to have a mildly inhibitive effect however there was no significant effect of preceding environment, *F*(4) = 1.25, p>.05. For following phonetic environment, labials show slightly higher rates of levelled variants, however, this was not significant *F*(4) = 0.73, p>.05. Phonetic environment was not a significant conditioning factor for the backing and lowering of MOUTH. Lexical and frequency effects are now examined.

As detailed above in section 3.6.2.4, lexical and frequency effects are considered together. Figure 24 shows how the levelling index measure is subject to lexical effects. The lexical items are ordered from left to right in descending level of frequency. The shade of each bar corresponds to the frequency category that item belongs to as shown in the figure legend and detailed in table 7.

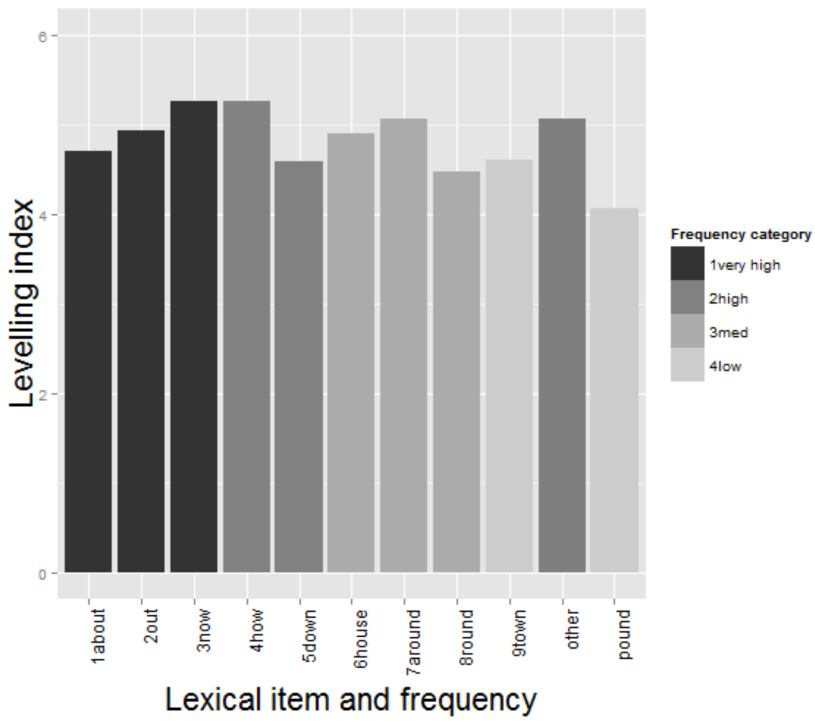


Figure 24: levelling index by lexical item

Figure 24 reveals a number of trends. First, lexical item does appear to have a bearing on whether an item is likely to be produced with a more or less levelled variant. The items *out, now, how* and *around* show higher rates of levelled forms relative to the other lexical items. The items *round, town* and *pound* show lower rates of levelled variants. This trend is highly statistically significant *F*(10, 2718) = 12.97, p<.000). As well as lexical effects, frequency also appears to play a role; more frequent items are more often produced with more levelled variants and vice versa. Categorical frequency is considered in its own right in the following section, for now the analysis focuses on how lexical item patterns with regards to the levelling index for each age cohort. These trends are presented in figure 25.

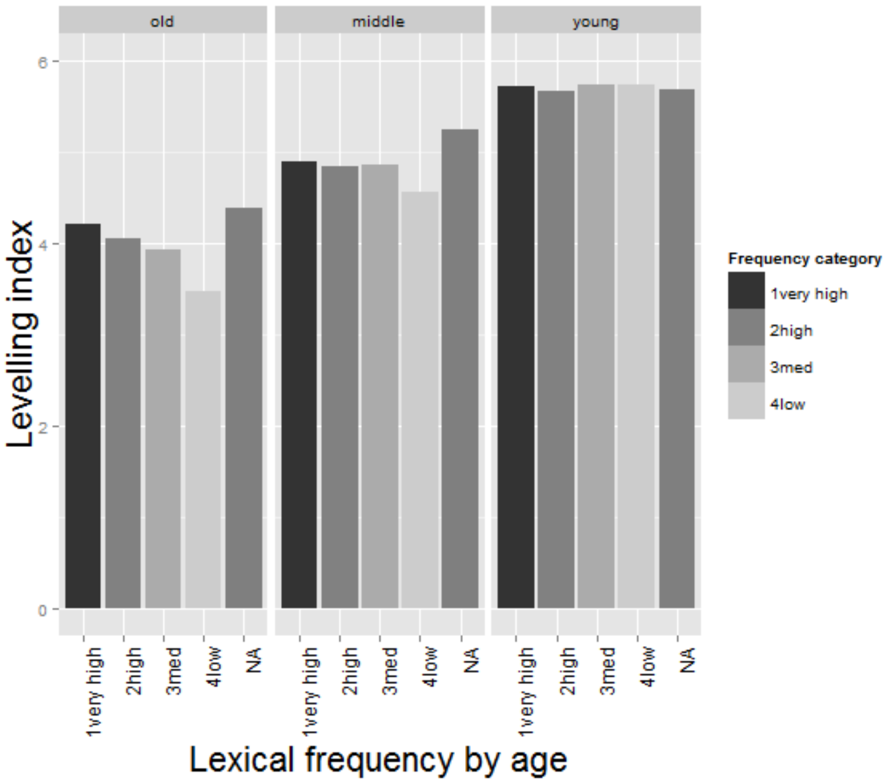


Figure 25: Levelling index for lexical item ordered by frequency for old, middle and young age cohorts

The overarching trend visible from figure 25 is that all lexical items increment across time. In other words, there are no lexical items that resist the change and lag behind. However, in terms of lexical patterning, some consistent trends emerge.

In each age cohort the items *now* (both adverbial and discourse marker *now*) and *how* show greater rates of levelled forms. This is more pronounced for the old and middle cohorts. However, some differences in terms of lexical conditioning also emerge. For the old cohort, the item *pound* is produced less often with backed and levelled forms; this is not the case for the middle cohort where the item shows high rates of levelled tokens. Another visible effect is that lexical effects are stronger for the older and middle cohorts, statistical analysis confirms that for these cohorts lexical item is highly significant $F(10, 920) = 7.93$, $p<.000$, for the old cohort and $F(10, 930) = 6.35$, $p<.000$) for the middle cohort. For the youngest cohort, lexical effects do appear to have some bearing on the variability although to a lesser extent than the older and middle-aged speakers, this is reflected in the statistical significance where the effect is significant but less so than for the other age cohorts ($F(10, 846) = 2.22$, $p<.05$).

In sum, while the charts show that all lexical items increment through time, i.e. no items resist the change, there is also evidence that the lexical conditioning of this feature does weaken over time. This is not surprising, based on the levelling index, the young speakers are reaching categoricity for this change and all constraints will become less pronounced as the change spreads through the grammar and the newer forms eventually oust the older forms.

From the figures above, frequency trends are also apparent; more frequent words are more likely to be produced with levelled variants. In other words, more frequent words are leading the levelling trend. As with the lexical effects, this effect is more pronounced for the old cohort. Frequency effects are examined in the following section. Figure 26 shows how the levelling index varies by frequency where the lexical items have been further collapsed into the aggregate frequency categories.

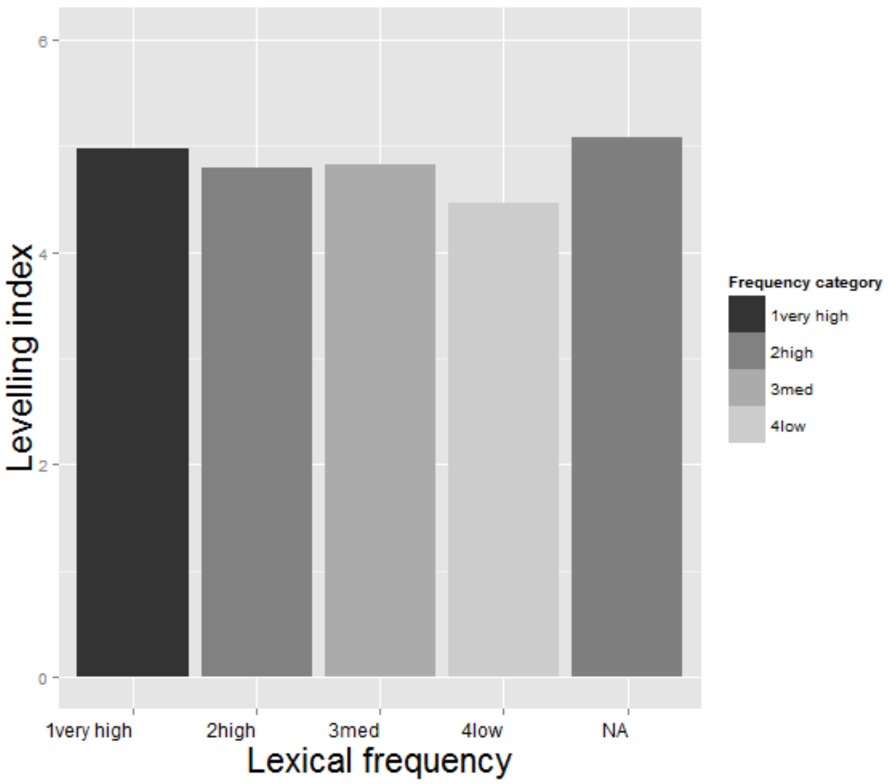


Figure 26: Levelling index by categorical frequency measure for all speakers

The visible effect of frequency shown in figure 26 is statistically significant ($F(3, 2394) = 11.79$, $p<.000$) effect is visible. More frequent items show higher rates of levelled variants than less frequent items. Interestingly, the catch-all category of all other items also appears to show high rates of levelled forms although it is not obvious why this should be.

One possibility could be related the nature of the forms within the category. For instance, the category contained a range of different forms including proper names (*Ashdown, Sandown, The Fountain* – a pub in Hastings, etc) as well as comparatively content heavy words (*pronounce, thousand, account, counsellor* etc). Research has shown that these semantically rich and grammatically central items are more likely to be produced with greater emphasis (e.g. Drager, 2011). This may have led speakers to use less socially marked forms. Corroborative evidence is provided by the observation that the items within the catch-all other category also showed lower rates of monophthong use. Before this factor can be added into the multivariate analysis, it is necessary to check for an interaction with age. The analysis now examines the levelling index in terms of lexical frequency for each age cohort as shown in figure 27.

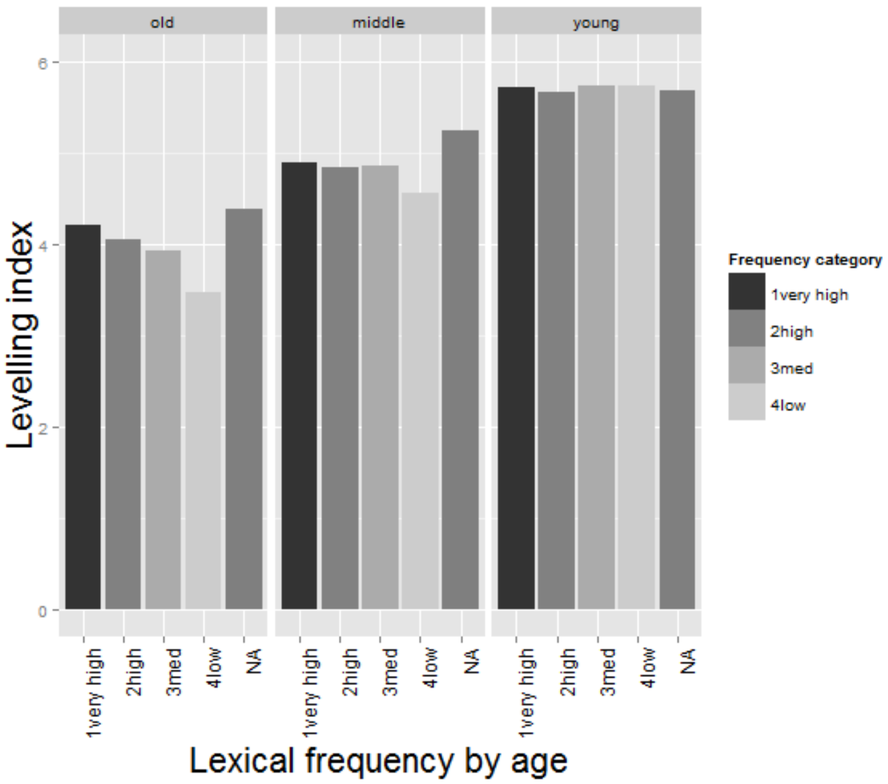


Figure 27: Levelling index by categorical frequency for old, middle and young age cohorts

In comparison to the overall trend, figure 27 shows some consistent and some inconsistent patterns as frequency patterns across age. For the old cohort the trend is replicated; more frequent words show a higher rate of levelled forms. These visible trends are also highly significant, (F(3, 803) = 7.53, p<.000). The middle age cohort appears to show a slight effect of frequency category however this is only approaching significance for the middle speakers, (F(3, 839) = 2.17, p=.09). For the young cohort, there is not any visible or significant effect of frequency, $F(3, 744) = 0.56$, $p>.05$. Again, similar to the lexical effects for the young speakers, this could mean that as this feature progresses this constraint no longer operates, or, that as the young speakers are reaching categoricity in their use of levelled variants, no effects are present.

3.6.5 SUMMARY

The analysis revealed that realisation of the MOUTH vowel in the Hastings data was variable in a number of ways and that this variation was constrained by a number of linguistic and social factors.

The overall distributions of the five different variants showed that there was a marked reduction in the number of variable forms over time. While the older and middle speakers showed a variable split between 3-4 variants, the young speakers favoured only 2 variants.

The distribution of monophthongs versus diphthongs was not changing; each age cohort used a majority of the standard monophthongs. For the old and young cohorts, males and females showed similar ratios of monophthongs and diphthongs, this was not the case for the middle cohort where males used significantly more monophthongs than the middle females. The variation was not conditioned by phonetic factors; an analysis of preceding and following phonetic context was not significant. The relative distributions were lexically conditioned with some words showing significantly higher monophthong use than other words. This pattern appeared, to some extent, to be consistent across the age cohorts although low token counts for some items prevented this from being tested for statistical significance. As this dimension of the MOUTH variation was not changing through time, these tokens were included in the larger pool of variants analysed in terms of the Levelling Index.

In order to track the change in terms of the lowering and backing of the MOUTH vowel through the vowel space, the variants were ranked along a numerical cline from the highest frontest vowel to the lowest backest vowel. This meant that the variation was captured along a continuous scale, a *Levelling Index*. This dimension of the variation was changing through time with the each successive age cohort using a higher proportion of lower and backer forms. This process was led by females who were in the lead at each age cohort and showed a greater difference for the older and middle-aged cohorts than the young cohort. The movement through the vowel space was not conditioned by phonetic factors; an analysis of preceding and following phonetic context showed no visible trends and was not statistically significant. The change did show lexical and also frequency effects. Some words showed higher scores on the levelling index than, with some items showing significantly higher proportion of lower and backer forms than others. The analysis revealed that lexical item showed an interaction with age; some words were consistently favoured in terms of backing and lowering across each age cohort while other items did not show any consistent patterning. Conditioning by lexical item was statistically significant for each age cohort. The lexical effects were also examined in terms of frequency, there was evidence for a frequency effect insofar as more frequent words showed greater proportions of backed and lowered forms than less frequent words. However, this was only statistically significant for the older speakers who also showed the strongest conditioning for lexical item. It is unclear whether the apparent weakening of the lexical and frequency effects is a genuine weakening of this internal conditioning or a knock on effect of the vanishing of constraints as the speakers reach catgoricity of use for the lower and backer forms.

Following the consideration of the factors individually, it is possible to consider their relative contributions to the variation through a multivariate analysis. Factors were entered into a linear mixed-effects model which treated the Levelling Index as a continuous variable; a stepwise comparison was conducted using RBrul to determine the relative goodness of fit for each model. The following factors and factor types were entered into the model[15]:

Fixed:

Age

Gender

Lexical item

Interacting:

Age*Gender

Age*lexical item

[15] Categorical frequency was not entered into the model as it would have meant violating the condition that all factors must be non-orthogonal (Labov, 1984). As frequency was derived from lexical item, including it in the model would have had the effect of entering the same factor twice.

Random:

Speaker

Word

A multivariate model of the data means that it is possible to determine which factors significantly condition the variation when they are considered together.

3.6.6 Multivariate analysis of levelling index

A multivariate analysis of the data meant that all factors were considered simultaneously as measured through the levelling index. A stepwise analysis was performed in RBrul. Models were built using a step-up, step-down procedure whereby factors were added consecutively to create a series of models. This method compares each model against the previous to judge whether the new model explains the data significantly better relative to the increased complexity incurred through adding another factor, or its increased elegance through subtracting a factor.

The stepwise analysis revealed that the stepped up and stepped down models matched. All entered factors and interactions were selected as significant.

Table 9 presents a linear mixed-effects model of MOUTH-levelling in the data structure of each individual age cohort (N=2,729). For each model, gender and lexical item were entered as fixed independent predictors; individual speakers were entered as random effects. The table displays a number of different aspects of the model. The p-values indicate whether that factor significantly conditioned the variability of the data. The range indicates the difference between the highest and lowest values for the estimated means for that factor. Higher ranges indicate stronger effects for that factor. The coefficient values indicate the direction of the effect (denoted by the *coef* column in the table). That is, those items with more positive coefficients promoted higher scores along the levelling index and vice versa. The token counts (the column labelled *tkns*) shows how many individual tokens factored into that item within the category. The “mean” indicates the model’s estimated mean for that factor category – the model’s predicted mean for that item once the other factors had been taken into account.

Factor	Overall			Young			Middle			Old		
Age (p=.000)	coef	tkns	mean	coef	tkns	mean	coef	tkns	mean	coef	tkns	mean
Young	0.8	857	**5.7**									
Middle	0.07	941	**4.9**									
Old	-0.8	931	**4.1**									
range	1.6											
Gender (p<.001), *Gender*age (p<0.01)*												
Female	0.4	1422	**5.3**	-0.3	551	**5.8**	-0.1	387	**5.2**	0.4	484	**4.8**
male	-0.4	1307	**4.4**	0.3	306	**5.7**	0.1	554	**4.6**	-0.4	447	**3.3**
range	0.9					***(0.1)***			***(0.6)***			***(1.5)***
												2.5
Lexical item (p<.001) *Lexical*age (p<.001)*												
Now	0.3	386	**5.3**	-0.1	102	**5.7**	0.1	147	**5.2**	0.1	110	**4.9**
How	0.2	159	**5.2**	0.3	50	**5.9**	-0.1	64	**5.4**	-0.1	45	**4.3**
Out	-0.1	468	**4.9**	0.1	176	**5.8**	0.1	169	**4.8**	-0.1	123	**3.9**
About	-0.1	349	**4.7**	-0.1	94	**5.7**	-0.1	124	**4.8**	0.1	131	**3.9**
Town	-0.3	200	**4.6**	-0.1	57	**5.8**	-0.1	89	**4.5**	0.1	54	**3.5**
Down	-0.2	393	**4.6**	-0.1	102	**5.5**	-0.1	135	**4.6**	0.2	156	**3.9**
Round	-0.2	114	**4.5**	-0.1	42	**5.7**	-0.1	28	**4.6**	0.2	44	**3.3**
pound	0.1	70	**4.1**	-0.3	12	**5.5**	0.5	11	**5.3**	-01	47	**3.4**
range	1.2					***(0.4)***			***(0.8)***			***(1.5)***
												2.6
Total (N) 2729												

Table 9: multivariate analysis of factors contributing to levelling index

Table 9 shows that the factors are all selected as significant when considered simultaneously. Age was highly significant, demonstrating a range of variability of 1.6 with regards to the levelling index. Gender was also selected as a significant main effect factor, with a range of 0.9. Gender was also shown to interact significantly with age; taking both variables together explained a greater amount of variability (range 2.5) than either factor on its own. This was likely due to the fact that the older males were extremely conservative; they used high and front variants in the majority. Although females were in the lead for each age cohort, the differences were less pronounced for the middle and younger age cohorts; considering the overall trend for gender obscured some of the variation. Lexical item was also selected as significant, and the patterns found in the analysis of this individual factor were confirmed by the model. Lexical item was also shown to interact with age where the pattern of lexical item was not consistent across the ages; each age cohort showed a different ordering of the lexical items. As revealed by the factor-by-factor analysis, those items which demonstrated the highest rates of levelled variants showed some consistency across age groups; the items *now, how* and *about* were among the most levelled items for each age. The hierarchy observed for the aggregate data was generally preserved for each age cohort, although considering age and lexical item together explained a greater range of variation than treating them as separate factors. As with gender, this factor was weaker for the middle and young speakers and showed the greatest range of variation for the older speakers.

In summary, the model confirms the patterns demonstrated in the factor-by-factor analysis. MOUTH-levelling is a change in progress within the Hastings data. Young speakers use a greater proportion of lowered and backed forms than the middle and old speakers. The change is female-led, with women in the lead at every age group, although this trend is more extreme for the older and middle speakers. The variation is lexically conditioned, and this constraint hierarchy is preserved across each age cohort, although is weaker for each successive age cohort.

3.7 Discussion

Now that the analysis is complete, it is possible to situate these findings within the broader research context and return to the research questions.

3.7.1 Research questions

- Does the variable patterning of MOUTH in the Hastings data indicate an ongoing change?

The MOUTH vowel was variable along a number of different dimensions in the Hastings data; some of these were changing, while others were not. One dimension that was stable through time was the alternation between monophthongs and diphthongs. Each age cohort used a majority of diphthongs. For the older and younger cohorts there was no gender difference along this dimension. However, for the middle cohort, males used significantly more of the non-standard monophthong than the females. This was perhaps due to pressures associated with the linguistic marketplace (Sankoff & Laberge, 1978), whereby women tend to be employed in more language-sensitive roles which place a greater value on standard language norms. This is also consistent with Labov's (2001:267) second external principle of language change: in situations of stable sociolinguistic variation, women will show lower rates of non-standard or stigmatised forms than men.

However, while this interpretation helps to explain the gender effect that was present in the middle-aged cohort, it does not help to explain the *lack* of one for the young and older cohorts. One possible reason for this, which was touched on previously, is the sociolinguistic behaviour of female caregivers. Research has shown that female caregivers use higher proportions of standard forms (Roberts, 1997; Foulkes et al 2005; Smith et al, 2007). In terms of the life-stages of the age cohorts of the speakers, it is only the middle-aged speakers who would likely be raising children; the older speakers' children would now be adults themselves, and the younger speakers would not have started to have families yet. Without the sociolinguistic pressure of childrearing, where research has indicated that mothers' patterns of speech enable young children to develop their sociolinguistic competence (e.g. Smith et al, 2007), the older and younger speakers would not have felt the same pressure to conform to the social evaluation of the forms and thus avoid the potentially stigmatised monophthong.

One dimension that was changing through time was the backing and lowering of the MOUTH vowel through the vowel space. This was demonstrated by the individual factor analysis and then confirmed by the inclusion of age as a significant factor in the linear mixed-effects model. Younger speakers used a greater proportion of lowered and backed forms, while the older speakers used a higher proportion of high front realisations. This trend is consistent with other findings from the southeast and the UK more generally (e.g. Kerswill et al, 2008; Tollfree, 1999; Flynn, 2012). Hastings echoed the trend whereby younger speakers are showing a move away from regionally marked forms in favour of more regionally and socially neutral forms.

Two main trends over time were visible for this change:

1. Older speakers used more high front forms than the middle speakers, who in turn used more than the young speakers.

2. There was a marked reduction in the use of a range of different variable forms. The older and middle-aged speakers alternated between 3–4 forms while the young speakers only switched between 2, with one clearly dominant form.

The variable patterns in the Hastings data demonstrate a classic case of levelling, “the reduction or attrition of marked variants” (Trudgill, 1986:98). Faced with a wide range of variability, the young speakers opt for one main form. This is an example of what Kerswill & Williams (2000:101) refer to as a process of language *focussing*. This is where speakers, when faced with a range of variants from different dialects, develop a new set of norms, leading to increased linguistic homogeneity and a reduction in the range of variation.

- If change is in progress, what do the variable patterns in the data reveal about the mechanism of change, and how is it contributing to the regional dialect levelling of the area?

This change operates through a process of levelling brought about through contact and dialect mixing. As touched upon during the research context, although not the prototypical use of the term, the range of variation, exhibited particularly by the old and middle cohorts, can be described as what Cheshire et al (2011:176), in their description of inner-city London, would term a “feature pool”. Here, varieties in contact contribute a range of different forms to the pool, “with speakers selecting different combinations of features from the pool, sometimes modifying them into new structures in the output varieties” (Cheshire et al, 2011; 176). For Hastings, according to historical descriptions of dialects in the southeast, the main input varieties appear to be a traditional Sussex dialect and a more supralocal, standard and London-influenced one. The front and high forms are most likely derived from traditional Sussex forms. The backer forms appear to have a less local and more supralocal currency, common throughout the southeast and perhaps originally hailing from the standard end of the London dialect continuum. The change is female-led with women showing greater use of the innovative forms than men of the same age; this is the predicted pattern for a change of this type and is consistent with Labov’s (2001) description of women as the leaders of linguistic change.

- How does the variable pattern linguistically and socially? For instance, who is leading the change and what does the variable patterning suggest about the development of this feature?

The examination of the linguistic constraints revealed that the variation was not conditioned by phonetic factors. According to the dichotomy posited by Labov (1992:47–8), the absence of phonetic effects would suggest that the sound change is externally motivated. This is further supported by the presence of lexical and frequency effects, which, according to Labov's description, would suggest a change that is externally motivated and brought about through contact.

Hickey (1999:278) describes a situation in Dublin, Ireland where the same vowel shift has two different sources depending on the social and geographic situation of the speakers exhibiting the shift. For the central, endogenous speakers, whom Hickey labels the *motivated speakers*, the vowel shift is a naturally conditioned Neogrammarian change. For speakers on the periphery, labelled by Hickey as *detached speakers*, the change operates as an externally conditioned, lexically diffused one. Hickey (1999:279) suggests that the reason for this is that for the detached speakers, the advanced vowels are associated with the fashionable city dwellers. The advanced vowels are especially perceptible within salient words. For example, Hickey suggests the words *Irish* and *Ireland* become stereotypical, and shifted qualities for these words are readily adopted by the detached speakers who seek to emulate the prestigious Dublin speakers. As well as highly salient words, highly frequent items are also subject to the externally motivated shift before less frequent items. A similar situation could be occurring in Hastings; the patterns present in the data would be consistent with an externally motivated shift brought about through contact. Through increased dialect contact, speakers in Hastings are faced with a variety of distinct-sounding allophones for the same word, with these variants forming the aforementioned feature pool. The change is then attached to certain words, possibly frequent or salient items, and then propagated across the lexicon.

In sum, the change appears to be externally motivated, brought about through contact and the psychosocial and linguistic effects of dialect levelling. This is demonstrated through the speakers showing a marked reduction in the number of distinct variable forms over time and also a change from the locally marked forms to the less regional, supralocal southeastern forms.

The clearest finding is that as the change progresses towards completion both the linguistic and the social constraints level out, as there is nowhere for them to go. For instance, for the social constraints, females are ahead of males for each age group.

However, this is more pronounced for the older and middle age cohorts, where the females show a much greater proportion of levelled forms than the males. In terms of the linguistic constraints, lexical item was shown to condition the change at each stage. However, as with gender, this constraint was weaker for each successive cohort.

3.7.2 Conclusion

Variation in the MOUTH vowel in Hastings is a classic case of levelling; each successive generation displays a marked decrease in the range of variable forms and local, socially marked forms are replaced by neutral forms which exhibit a wider regional currency. As with all cases of levelling, patterns in the data suggest it is motivated through contact with other varieties which contributed a range of variable forms, creating a feature pool for speakers to select from. As is the predicted pattern for innovations, females were in the lead of the change. Consistent with an externally driven change, the change spread through the grammar via a process of lexical diffusion. Evidence for this came from the observed lexical and frequency effects present in the data. MOUTH-levelling in the Hastings data was linked to similar changes operating in the southeast, attributed to the social and linguistically motivated processes of levelling. These processes are linked to the overarching social processes of supralocalisation, where increased mobility and contact means speakers are less locally orientated, a trait that is reflected by the establishment of new linguistic norms which reach over wider geographic regions.

4 TH-FRONTING

4.1 INTRODUCTION

This chapter looks at a frequently studied variable within British sociolinguistics, TH-fronting. This is a change that is most commonly attributed to a process of diffusion (Foulkes & Docherty, 2000:34). One focus of this chapter is the examination of how this exogenously motivated sound change mechanism contributes to regional dialect levelling. Another focus is how the patterning of the linguistic and social constraints can provide evidence for the feature's route and development within a variety.

4.1.1 TH-FRONTING

TH-fronting refers to the variable replacement of the dental fricatives [θ, ð] with the labiodental fricatives [f,v] (Wells, 1982:328), as in:

*Well their dad was one of **thirteen [fɜtin]** I **think [fɪŋk]** her mum was one of nine, yeah like as I say she's **Catholic [kaflɪk]*** Matt, 46

Both voiced [ð] and voiceless [θ] instances of the dental fricatives can be fronted (Wells, 1982:328). For the voiceless fricative, fronting is permitted in any word/syllabic position and across the lexicon with no exceptions. For the voiced phoneme, fronting is generally only permitted in medial and coda contexts and blocked in word initial contexts (Milroy, 2003:212). For medial and final contexts, the voiced phoneme exhibits no lexical exceptions in terms of fronting. Table 10 outlines this positional constraint.

	Initial	**Medial**	**Final**
Voiceless [θ]	think: ***[fɪnk]***	ethics: ***[ɛfɪks]***	birth: ***[bɜf]***
Voiced [ð]	that: ***[vat]**** (not permitted)	bother: **[bovə]**	smooth: **[smuv]**

Table 7: positional distribution of TH-fronting

J. Milroy (2003:216) suggests that the first recorded mention of the feature may have been as early as the late 15th century. Wyld (1927:291) records a number of early spellings, e.g. <u>*erf*</u> for *earth* (1460–70), which suggests that the feature has been present, if not common, for centuries. TH-fronting, although still commonly reported as having originated from London (e.g. J. Milroy, 2003:210) has spread rapidly through the British Isles and has been subject to extensive sociolinguistic enquiry. TH-fronting has been found in London (Tollfree, 1999; Cheshire et al, 2011; Altendorf & Watt, 2008; Schleef &

Ramsammy, 2013), Reading (Kerswill, 2003), Ashford (Kerswill, 2003), Hastings (Holmes, 2010), Norwich (Trudgill, 1999), The Fens (Britain, 2005), The Midlands (Mathisen, 1999), Middlesbrough (Llamas, 1998), Derby (J. Milroy, 2003; Docherty & Foulkes, 1999), Carlisle (Jansen, 2010), Nottingham (Flynn, 2012), Newcastle (Watt & Milroy, 1999), Glasgow (Stuart-Smith & Timmins, 2006; Lawson, 2010; Neilsen, 2010), Edinburgh (Schleef & Ramsammy, 2013) and Fife (Clark & Trousdale, 2009). Although most often studied within the UK, TH-fronting has also been found in other non-standard varieties such as African American Vernacular English (AAVE) (Wolfram & Thomas, 2002:131; Green, 2002:117). The observation that this feature occurs in a number of disparate varieties, both within and outwith the UK, presents some interesting questions as to its genesis and spread. Questions regarding the actuation and the transmission of TH-fronting will be one focus of this chapter.

TH-fronting is typically described as a vernacular feature and is non-standard in terms of its social evaluation. It is a salient feature which is subject to stylistic variation where speakers generally show less use of the fronted variant in more formal situations (Neilsen, 2010:33; Flynn, 2012:326). The feature is also stigmatised; parents will correct for it in the speech of their children (Tollfree, 1999:172; Altendorf & Watt, 2008:192). As is often the case with highly salient features, TH-fronting has become a stereotype, primarily of southern and particularly London speech; the stereotypical pronunciations of north London/south London as [nɔf landan/saf landan] are good examples of this. Several researchers have also pointed out how TH-fronting appears to be a national emblem of British adolescence, or *yoof culture*, as it is frequently referred to by the press (e.g. Foulkes and Docherty, 2000:39–40).

As well as its rapid spread and stereotypical associations, another reason TH-fronting has received so much sociolinguistic attention is because it is often studied as part of a “set” of sound changes. This set of consonantal changes, including t-glottaling, h-dropping, l-vocalisation and labiodental-r, are often described as radiating out from London throughout the UK. Along with TH-fronting, they characterise a set of supralocal vernacular youth norms, whose spread through British English is most commonly attributed to diffusion (Kerswill, 2003:230).

TH-fronting is usually described as an exogenous change – coming from outside the speech community. As a diffused change, TH-fronting does not appear to be driven by linguistic pressures in the same way as an endogenous change. However, the feature has been shown to be subject to a number of linguistic constraints (Schleef & Ramsammy, 2013:8). For instance, word position is frequently cited as significant conditioning factor for TH-fronting (e.g. Neilsen, 2010:32).[16] However, even the most consistent constraints have been shown to vary between, and even within, varieties. The lack of stable linguistic conditioning may be due to the nature of TH-fronting as a diffused change operating above the level of consciousness; i.e. as a highly salient feature, it is prone to conscious manipulation by speakers. This may have the knock-on effect of disrupting or masking any "naturally" occurring linguistic or phonetic tendencies.

As the feature is said to come from outside the system, the system it diffuses to may already possess non-standard alternatives for the dental fricatives. In other words, when TH-fronting diffuses, it often encounters competition. For example, within AAVE, TH-stopping appears to take priority over TH-fronting within word-final and medial contexts of the voiceless phoneme (e.g. nothing as [***nʌtɪŋ]***) (Green, 2002:118). Within Glaswegian, glottal variants [h] compete with the labiodental and dental fricatives in word-initial and medial contexts so that *think* may be realised as [**θ*ɪŋk*]*, [fɪŋk],*** or ***[hɪŋk]*** (e.g. Lawson, 2010:102). This can add another level of complexity to a comparative analysis of constraints between different varieties which exhibit TH-fronting.

In summary, within British English, TH-fronting is a long-established variable associated particularly with the Cockney dialect. TH-fronting can occur in any word position (apart from initial contexts for the voiced dental fricative) and permits no lexical exceptions. It has been a frequently studied variable within British sociolinguistics, partly owing to the speed and distance it has spread and also its membership within the London set of consonantal changes. Its membership within the set has meant that it has become a staple variable within any research into regional dialect levelling – currently a widespread trend in British English. In England at least, TH-fronting is highly salient; it is stereotypical of London English and is a supralocal feature, possibly indexical of youth speech within the UK. It is subject to stigma and stylistic variation. Although often showing linguistic conditioning, this does not appear to be entirely consistent between distinct varieties,

[16] In his study of TH-fronting and frequency effects, Neilson (2010:32) tests the relative effects of word versus syllabic position. He reports that it is word position, as opposed to syllabic position, which more strongly conditions this variable form. Therefore, the present work focuses on word position and not syllabic position.

possibly owing to it undergoing a level of reorganisation once it becomes "embedded" within the adoptive linguistic system (cf. Weinreich, Labov, & Herzog:1968).

4.1.2 TH-fronting in the southeast of England

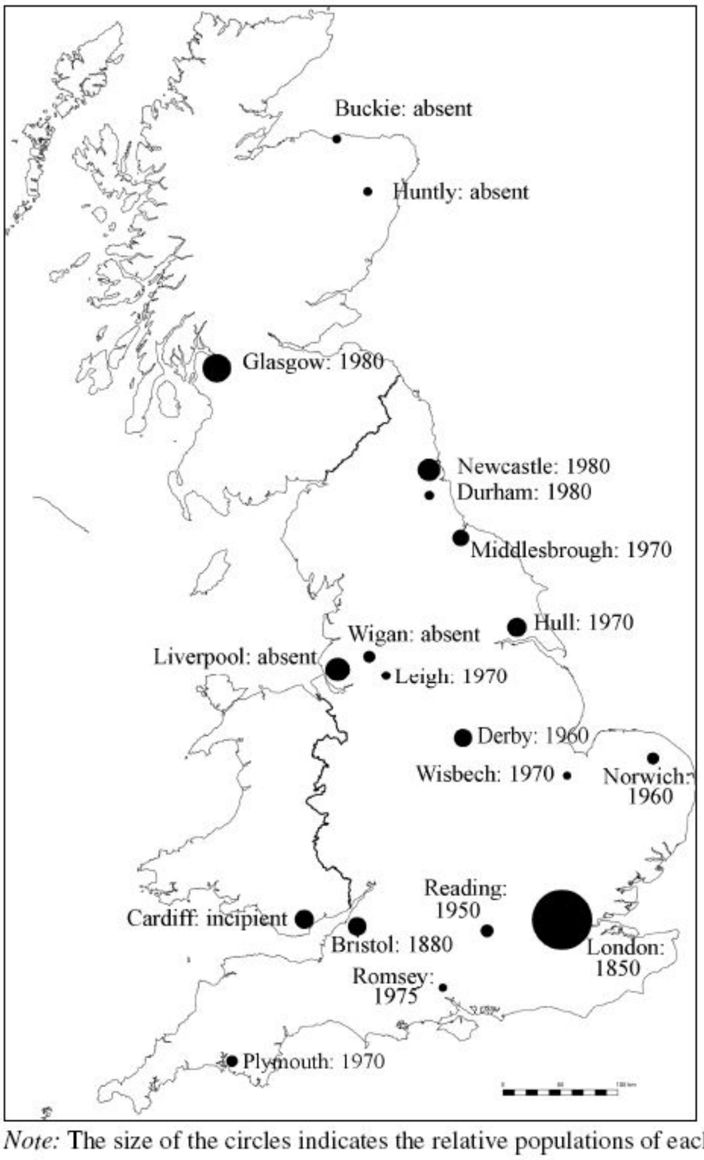
The findings from the literature suggest that, once spread, the form develops social and linguistic constraints of use within the specific context of the variety it spreads to. A number of studies have investigated TH-fronting within the southeast of England.

In his study of Milton Keynes and Reading, Kerswill (2003:231) finds extremely high rates of TH-fronting, particularly within young working-class males. As mentioned, Kerswill (2003:231) suggests that London is one origin of the feature, and its occurrence within the Cockney dialect of London has been noted for centuries. Altendorf & Watt (2008) provide a description of southern English phonology. Similar to Kerswill (2003), they report that TH-fronting is a non-standard feature where males and working-class speakers show higher levels. They go on to note that while their survey suggests that it is virtually absent in middle-class speech, there is evidence that it is beginning to make inroads (e.g. Williams & Kerswill (1999)). In her study of London, Tollfree (1999:172) suggests that while the feature is variably present within the southeast, the lack of any difference in rates between young and old speakers in her sample suggests that it is no longer a feature in the process of change within London. This is consonant with J. Milroy's (2003:216) comment that TH-fronting may have been a variable feature within British English for centuries without always necessarily being involved within a process of change.

In terms of TH-fronting within the Sussex dialect, there is some evidence that the feature has been present since the 19th century. Further, there is evidence to suggest that even at this early phase the feature was stigmatised. In his dictionary of Sussex, Parish (1875) notes several pronunciations that may be indicative of hypercorrection in a Labovian sense. He records variable pronunciations of *to-and-fro* as *to-and-thro* and notes that "it is rather startling to be told that a person is afflicted with *deathness* when they meant *deafness"* (Parish, 1875:34). The observation that this feature may have been above the level of consciousness could suggest that the feature was a non-standard import as opposed to one emerging gradually from natural linguistic tendencies. This may also be supported through its social patterning; i.e. the fact that males are in the lead of this change is not the expected pattern for a stigmatised change from above.

4.1.3 MECHANISM OF SPREAD; "TORCHBEARERS OF GEOGRAPHICAL DIFFUSION"

Within the UK, TH-fronting is often studied within the wider context of regional dialect levelling. Research into this variable, and the consonantal set as a whole, has often suggested that these features travel to varieties through a process of diffusion (Foulkes & Docherty, 2000:34). Kerswill (2003:231) suggests that these consonantal features may be the "torchbearers of geographical diffusion" which herald the integration of more supralocal features and the regional dialect levelling of an area more generally. Kerswill (2003:224) argues that dialect geography can provide good evidence for establishing the diffusion of these features and their route. Figure 28 is taken from Kerswill (2003:236) and displays the main focal points in the history of the spread of TH-fronting throughout the UK.



Note: The size of the circles indicates the relative populations of each town/city

Figure 28: demonstrates the "Spread of [f] for /θ/ and [v] for / ð / in low-status urban varieties", from Kerswill (2003:236)

Kerswill (2003:234) uses this evidence to support the theory that TH-fronting may have originally had two main focal points within the UK: London and Bristol. The feature, he argues, appears to spread out from these focal points to the surrounding areas and urban hubs:

> *...it is reasonable to suppose that the changes were established early in the two cities and subsequently spread out from them, in each case, the features seem to have spread out in a wave like fashion. (Kerswill, 2003:234).*

4.1.4 TH-FRONTING AND PERCEPTION

However, diffusion may not be the only source of TH-fronting. The speed at which different, geographically distinct communities have adopted the change, coupled with the observation that the speakers exhibiting the highest levels of the features tend to be non-mobile with limited contact with southern varieties, suggests that diffusion might not be the whole story. A number of researchers have suggested that as well as an outside source, TH-fronting may be motivated by "natural" linguistic, perceptual, or developmental factors, or a combination/interaction of these. In articulatory terms, TH-fronting appears to be a striking change, as Blevins (2004:135) writes: "In terms of phonological features, a consonant specified as coronal, non-apical, and non-strident has been transformed into a labial strident." However, in acoustic terms, [θ, ð] and [f,v] are only weakly discernible. In other words, based on their acoustic characteristics, perceptually these pairs of fricatives are highly confusable (Jongman, Wayland & Wong, 2000:1257). Blevins (2004:135) suggests that TH-fronting, in its actuation phase at least, is a phonetically motivated change arising through an accumulation of perceptual error.

Based on the description above, it would seem that while TH-fronting is most commonly characterised as an exogenous, diffusing change from above, a closer look reveals this might not be the full story. The phonetic and acoustic profiles of this change suggest evidence of a linguistic motivation for the change. This theme is explored in greater depth in the section below.

4.1.5 THE ROAD TO TH-FRONTING IS A ONE-WAY STREET: UNIDIRECTIONALITY AND VERNACULAR PRIMITIVES

While the perceptual basis may help to account for the substitution of seemingly articulatorily distinct phonemes, it does not help to explain why this process is only ever unidirectional; i.e. [f, v] are used as variable replacements for [θ, ð], but this process is never seen in reverse (except perhaps in hypercorrection) (Nielsen, 2010:10). Several researchers have highlighted that there are also likely internal motivations that explain the unidirectionality of the change (e.g. J. Milroy, 2003:218; Neilsen, 2010:8–9). For example, J. Milroy (2003:218) suggests that in phonological terms, [θ, ð] are more marked than [f,v] within the world's languages: "they are rare and often unstable. The Germanic languages (with the exception of Icelandic and most varieties of English) have replaced them with the dental/alveolar stops [t,d]." Further evidence for the markedness argument comes from the fact that children acquire [f,v] much earlier than [θ, ð], and TH-fronting has previously been described as an infantilism (Hock, 1991:132; J. Milroy, 2003:218).

This evidence combined suggests that TH-fronting may be characterised as a *linguistic primitive* (Chambers, 2003:270). A theory that has emerged from language acquisition research is that part of the acquisition process that children undergo involves a suppressing of natural, "primitive" tendencies that would otherwise lead them to use certain non-standard (although arguably regular) features. The observation that child language shares certain linguistic traits with many disparate vernaculars suggests something about the origin of these features:

> *Middle-class children, for instance, pass through stages in which their speech has multiple negation which they never hear in the adult speech that surrounds them, and conjugation regularizations (such as thinked and losed) that their parents not only do not use but find risible. Here, surely, any appeal to a diffusionist explanation would be absurd. Most children lead highly circumscribed lives – more circumscribed even than the rural farmers and the semi-skilled labourers whose vernaculars share so many features with theirs.* (Chambers, 2003:268)

This line of evidence doesn't necessarily undermine the diffusionist perspective but rather helps to explain how the feature has grown so rapidly within many separate communities. TH-fronting, perhaps accurately described as a vernacular primitive, is a natural change, ever present under the surface in English. Accelerated through diffusion, this natural tendency is given the external correspondence which prevents children from suppressing it and enables the change to become an established feature in a variety. Kerswill (2003:238) suggests that this process then further interacts with the levelling mechanism present with regional dialect levelling: "once the feature is adopted by a critical mass of people, perhaps simultaneously in more than one location within a region, it can spread to the remainder of the population by a process of both levelling and diffusion".

In sum, TH-fronting is a feature that may have a variety of sources. It may have first reached levels that led it to be noticed (reflected by spellings from the time) within British English in London. The feature's spread can then be traced through historical-dialectal survey evidence (Kerswill, 2003:333). The acoustic similarity of the dental/labiodental fricatives may provide a perceptual basis for the variability of the articulatorily distinct features. However, the perceptual explanation may not be able to account for the feature's unidirectionality; i.e. TH-fronting is relatively common, whereas V/F-backing does not seem to happen, at least within English. The unidirectional nature of the change may be accounted for through the markedness of the dental fricatives, rare in the world's languages and acquired late in children's language development. This may suggest that TH-fronting is a sound change lying in wait – a natural feature of English phonology, its suppression part of the acquisition of the standard variety. The observation that the feature occurs in disparate English vernaculars provides additional evidence for its description as a vernacular primitive. This means that a range of different sources and motivations for the feature's presence and patterning need to be considered in order to best account for the variation. As outlined by L. Milroy (2007:150-2), this will enable the construction of models of change that are capable of dealing with the realities of linguistic situations where high levels of mobility and contact are the norm.

4.1.6 Not all changes are equal; off the shelf and under the counter

L. Milory (2007:149), based on an analogy first suggested by Eckert (2003:395), makes a distinction between "off the shelf" versus "under the counter" changes. The categorisation of changes depends on both their linguistic and social characteristics. Under the counter changes tend to be linguistically complex and require repeat exposure in order to be acquired; they are often not the subject of overt social commentary. These types of changes tend to be endogenous changes, learned by children and passed from one generation to the next. Off the shelf changes, on the other hand, are highly salient and easily learnable insofar as they are not subject to detailed or complex linguistic conditioning (L. Milroy, 2007:164). These types of changes do not need repeat exposure and can be picked up through adult-to-adult contact. L. Milroy (2007:150) lists both TH-fronting and quotative *be like* as prototypical off the shelf changes.

TH-fronting may be described as an off the shelf change for a number of reasons. It is socially salient to the point of stereotype; it is a binary change in that it involves swapping one discreet phoneme for another; and it is without lexical or phonological contextual exception. L. Milory (2007:154) suggests that another important factor within the spread of these so-called off the shelf changes is an attitudinal/ideological dimension: *"off the shelf* changes highlight the role of attitude and ideology and the influence of particular identifiable speakers or groups of speakers". As mentioned previously, TH-fronting appears to have a particular value within UK adolescents and the apparent ease by which TH-fronting can be acquired means speakers, particularly young speakers, may use this feature to "index affiliation with youth culture" (Milroy, 2007:164). My previous research found a correlational link between attitudes towards London and youth culture and the presence of TH-fronting in Hastings, East Sussex. Based on Kristiensen (2001), I conducted a survey which measured attitudinal affiliation with the capital and youth culture along three main axes – status, solidarity and dynamism – and I found a positive correlation between evaluation of London along the dynamism axis and levels of TH-fronting in a corpus of teenagers. This was unsurprising, as previous research had shown that dynamism has been reported as the most important attitudinal axis in predicting language behaviours in young speakers (Ladegard, 2001; Fabricius, 2006). As is always the case with correlational association, this does not suggest a causal link between attitudes and language use. However, this relationship suggests that attitudinal measures may have an explanatory value and perhaps even predictive power in accounting for language patterns.

4.1.7 Diffusion then transmission: development in the system

The longer a feature has been a part of a community's linguistic system, the longer it has had to develop and become increasingly integrated within that system. This means that the type of linguistic conditioning a feature demonstrates can give a useful indication of how long it has been a part of that system. This is due to the type of language learning that accompanies the two possible routes a feature may take within a language (recall section 1.2.5 and Labov's (2007) distinction between transmission and diffusion). In their comparative analysis of TH-fronting in London and Edinburgh, Schleef & Ramsammy (2013:29) argue that when the same feature is found in two separate locations yet the linguistic conditioning may be different in each place, this may be due to the length of time the feature has been a part of that system.

Schleef & Ramsammy (2013:29) focus on "how innovative phonological features like TH-fronting undergo progressive lexical and grammatical diffusion once they have been introduced into a speech community". Schleef & Ramsammy (2013) suggest that TH-fronting, in grammatical terms, shows higher levels of conditioning in the London speech than in Edinburgh. For instance, word position is a conditioning factor in Edinburgh but not in London. Schleef & Ramsammy (2013:43) argue that the positional effect is the result of TH-fronting's perceptual basis, i.e. that medial and coda positions are acoustically weaker and therefore more susceptible to this kind of confusion. As a change becomes more established, these perceptual factors fade away: "the lack of positional asymmetries in the London data is indicative of an increasing integration of the fronting process with higher-level grammatical structure".

4.1.8 More than just a "one-time" thing? diffusion and TH-fronting

Using a similar line of reasoning, Cukor-Avila & Bailey (2011:41) show how levels of linguistic conditioning reveal how the same feature may have diffused more than once to the same community via two separate generations. Cukor-Avila & Bailey (2011:41) suggest that treating the first instance a feature is visible in apparent time as its sole point of entry assumes that diffusion is a "'one-time' event". Using results taken from their longitudinal study of a community they refer to as Springville, Cukor-Avila & Bailey suggest that this might not always be the case.

Through reference to the specific child-rearing practices adopted in Springville, where children tend to be raised by their grandparents rather than their parents, Cukor-Avila & Bailey (2011:43) uncovered patterns that they argue appeared to show that the innovative quotative *be like* had diffused separately to two different generations. Figure 29 presents the generational distribution of this form and provides evidence for the argument that the form more than likely had more than one entry point for this variety.

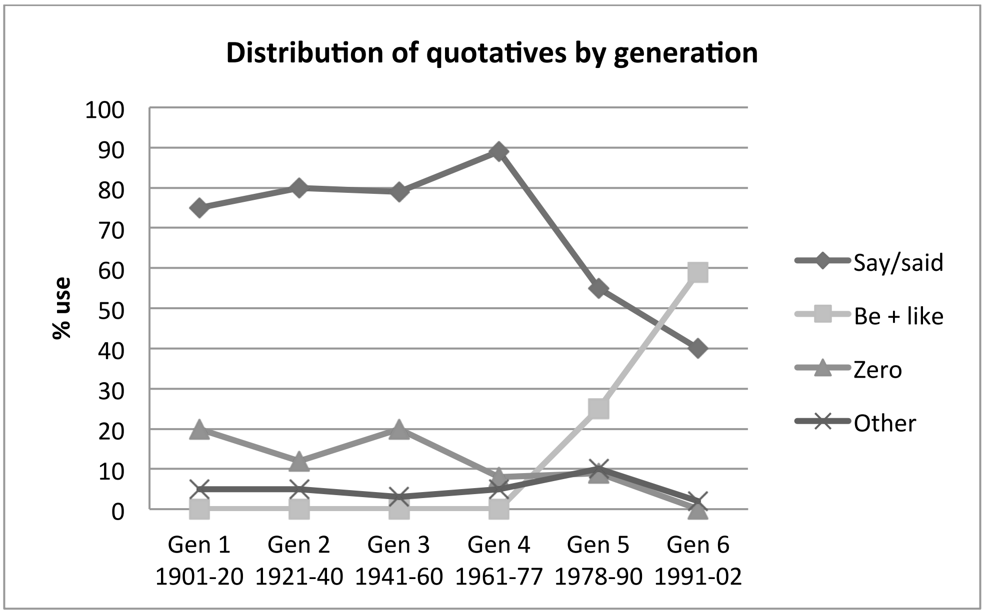


Figure 29: distribution of quotatives over six generations of Springville speakers based on Cukor-Avila & Bailey (2011:48)

Figure 29 shows that the innovative variant *be like* is not present in Springville until generation 5. As this variant gains ground, the previously dominant variant *say* begins to retreat. Between generations 5 and 6 *be like* surpasses *say* as the most frequently used quotative. What is interesting, though, is that while generation 5 represents the first point of diffusion, its continued (and increased) use by generation 6 cannot be attributed to a process of transmission, as these speakers were raised by generation 4 (their grandparents) and not generation 5 (their parents). Cukor-Avila & Bailey (2011:48) interpret these results as indicating that the feature had two points of diffusion to the Springville community: “Because of child rearing patterns, linguistic diffusion in Springville during much of the second half of the 20th century occurred as a two-step process, with diffusion recurring in a subsequent generation before innovations were transmitted by the initial generation that acquired them.” Cukor-Avila & Bailey (2011:47) suggest that both generations 5 and 6 acquired the feature at school through contact with their less rural, more linguistically innovative peers. They argue that it is this double diffusion that helps explain *be like*’s extremely rapid spread within Springville.

As a feature may diffuse to the same community more than once, it no longer seems reliable to locate its arrival to the point where it becomes visible in apparent time. However, there may be certain linguistic correlates that provide evidence as to the feature’s status as a diffused or transmitted change. For example, Cukor-Avila & Bailey (2011:44) show how, as *invariant be* becomes an integrated and therefore transmitted change, it undergoes semantic and syntactic reanalysis showing a more complex level of embedding within the linguistic system compared to the simplified distribution exhibited by the generation who acquire the form through diffusion. Indeed, Stuart-Smith et al (2013) argue that it is exactly this type of reinforcement between diffusion and transmission that explains the patterning of the so-called London features TH-fronting and L-vocalisation in Glasgow.

Stuart-Smith et al (2013:528) argue that it is the interplay between the "drip-feeding" of diffusion and the transmission between generations of features like TH-fronting that enables these features to make such rapid inroads into dialects:

alongside regular transmission, contact between Glaswegian adolescents with their relatives living in the South of England (th-fronting) and the North and South of England (l-vocalization) is continually drip-feeding these changes through diffusion via dialect contact…The Glasgow evidence is interesting because it suggests that in certain sociolinguistic contexts, diffusion by dialect contact can act to reinforce a change already undergoing intergenerational transmission.

What these analyses suggest is that a change such as TH-fronting may not only have more than one route into the variety but may actually use the same route (i.e. diffusion) more than once. This means that locating the first recorded instances of the feature is not reliable in determining when the feature diffused to a community. One diagnostic may be to examine the level of linguistic conditioning. Young changes will likely show simplification of constraints as a result of adult-to-adult learning; they may also show lower-order constraint. For instance, it may show the simpler positional constraint but not the more deeply embedded grammatical conditioning. An example is from Schleef & Ramsammy (2013), who show that positional constraints condition TH-fronting in Edinburgh but not London, and they argue this is due to it being a relatively new feature in Edinburgh. In this model of language change, as a change ages and becomes more deeply embedded it starts to develop more complex linguistic conditioning (consonant with a modular theory of grammar, i.e. Lexical Phonology, e.g. McMahon, 1994).

Following on from this discussion, what is evident is that one way of charting the course of a change within a community is to check the types of linguistic conditioning the feature undergoes. Lower-level phonological/positional constraints might suggest a more recently diffused change, while higher-order morphological/grammatical constraints could be more indicative of an integrated and transmitted change (e.g. McMahon, 1994:66; Bermúdez-Otero, 2007:7–8). I will return to this idea during the analysis, where I will attempt to test the development of grammatical constraints for this feature in the present data.

4.2 Research Questions

The discussion of TH-fronting so far suggests that it is not as simple as it is portrayed by its initial description. The change is possibly the result of several different sources, both internal and external. This may then further interact within a levelling variety. The linguistic patterns of variation provide evidence for its progression within the linguistic system of that variety. The patterns of extra-linguistic conditioning point towards whether its social evaluation may affect this embedding within the linguistic system. The broader research questions of this chapter are:

1. Is TH-fronting an ongoing change in Hastings? How does it pattern linguistically and socially?
2. What can the linguistic constraints of a feature reveal about its route into the language; can it be determined whether a feature has diffused to, or been transmitted through, a variety?
3. What can the social patterning of a feature reveal about its status within the community? Can highly salient features be literally taken “off the shelf”?

4.3 Previous research on TH-fronting

4.3.1 Linguistic Factors

Social factors are often reported as constraining TH-fronting variation more than linguistic factors. However, a range of significant linguistic constraints have been reported for many studies of TH-fronting.

4.3.1.1 *Position in word*

Word, or syllable, position is the most frequently reported linguistic constraint. While there are some general trends, word position does not appear to pattern universally.

In his study of Nottingham, Flynn (2012:330) found that word position interacted with age; although significant for both young and old speakers, he found a constraint flip between generations. For young speakers, medial word position showed the greatest degree of fronting, followed closely by initial, with final showing the least amount of fronting. For the older speakers, the final word position showed the highest degree of fronting, followed by medial and then initial. The older speakers' pattern is what would be predicted if the change is brought about through natural/perceptual factors where word initial contexts are less susceptible to neutralisation processes (cf. Kiparsky, 2008). What this might suggest, about the Nottingham data at least, is that as the change develops within a variety, it becomes less constrained by natural linguistic pressures. This flip in constraints could be due to a number of reasons. It could be that as the change develops and becomes more embedded within the linguistic system, it is less constrained by internal linguistic pressures (cf. Schleef & Ramsammy (2013) and the lack of positional constraints in London compared to Edinburgh). The social profile of the change could offer an alternative explanation; as the change is a symbol of youth speech, the younger speakers may be using the form in a hyper-dialectal way, inserting the change into the more salient positions so as to index their youth status (cf. Sharma & Sankaran, 2011). This question will be explored in greater detail with reference to the present data.

Stuart-Smith & Timmins (2006:176) found word position was a significant constraint in their corpus of Glaswegian English. They found that word final position promoted fronting more than initial, and word medial contexts showed the least amount of fronting. However, within the Glasgow data set the glottal variant [h] competes with TH-fronting in initial and medial contexts. This competition could have masked the natural tendencies of TH-fronting in terms of positional constraints. Nielsen (2010:34) conducted an analysis of TH-fronting using the same data set. He hypothesised that the word-position effect found by Stuart-Smith & Timmins (2006) was actually a syllable-position effect. Neilsen (2010:34) ran both factors and found that word position was a better predictor than syllable position and reported the following hierarchy: final > medial > initial. It is unclear why Nielsen (2010:34) finds a different constraint hierarchy to Stuart-Smith & Timmins (2006:176), although one possibility might be that he excluded contexts, or tokens, which exhibited the glottal variant when he circumscribed the variable context.

Clark & Trousdale (2009:48) also tested for the effect of syllable position and presented a 2-tier system of syllable onset and syllable coda. They found a significant difference between the positions. Here coda positions promoted fronting, while onsets inhibited it.

Although there appears to be no universal tendencies, a recurring finding is that word or syllable codas promote fronting more than word or syllable onsets. In testing for the relative effect of word versus syllable position, Nielsen (2010:34) reports that it was word rather than syllable position that accounted for the greater amount of fronting. This constraint is not a universal – it is not always shared between varieties, or, as Flynn's (2012) study of Nottingham demonstrates, within varieties.

4.3.1.2 *Lexical and grammatical category effects*

Studies into TH-fronting do not appear to show a clear line of lexical spread through the language. However, studies which have tested for lexical and grammatical category effects have found these to be significant factors. Stuart-Smith & Timmins (2006:178) report higher use of the glottal variant [h] in TH-pro (cf. Mendoza-Denton, 1997, 2008) items (i.e. *nothing, something, everything* etc), a result that is also mirrored by Lawson (2010:208). Further, they report that ordinals and proper nouns resist fronting; this is also supported by Neilsen's (2010:35) analysis. Clark & Trousdale (2009:48) find that place names and ordinals resist fronting more than other words, although Nielsen (2010) suggests that this effect is small enough to reasonably attribute to chance. Schleef & Ramsammy (2013) tested for grammatical category in London and Edinburgh, but it was not significant.

4.3.1.3 *Phonological context*

Similar to his findings for word position, Flynn (2012:337) finds that his results for phonological context also interact with age of the speakers. For the young speakers, a following consonant promotes the most fronting followed by vowels, with a following pause showing the least amount of fronting. For the old speakers, Flynn (2012:337) finds that a following consonant or pause promotes about the same level of fronting, with following vowels having a mild inhibitory effect on fronting. He does not find preceding phonological environment to show any significant effect on fronting. Schleef & Ramsammy (2013:35) report that phonological environment is not significant for the London data. Within the Edinburgh data set, only following phonological environment is significant where they report the following constraint hierarchy: sonorant > obstruent > vowel > phrase boundary (pause). Nielsen (2010:36) frames his analysis of following phonological context in terms of whether the following segment is rounded or not. He finds that there is no statistically significant difference between a rounded or unrounded segment, although the figures suggest that a rounded segment appears to inhibit fronting more than an unrounded segment. However, this could be an indirect effect of following vowel/consonant, as more vowels tend to be rounded than consonants. This would be in line with other analyses of phonological context; a following vowel seems to have an inhibitory effect on fronting.

4.3.2 Social Factors

4.3.2.1 *Age*

Age is often reported as being one of the strongest conditioning factors of TH-fronting, with a rapid increase of the non-standard variant seen between old and young speakers (Trudgill, 1999:138; Watt & Milroy, 1999:31; Docherty & Foulkes, 1999:51; Mathisen, 1999:111; Williams & Kerswill, 1999:147; Stuart-Smith & Timmins, 2006:174; Britain, 2005:1009; Llamas, 1998:106). In her study of London English, Tollfree (1999:172) finds no generational difference in levels of TH-fronting, whereas, in contrast, in Nottingham, Flynn (2012:326) shows an increase of almost 25% (young -28%, old - 4.8%). Taken together, these findings provide further support for Kerswill's (2003:36) model of diffusion for this feature. Recall the map presented previously: TH-fronting had been established in London for the greatest amount of time. However, for Nottingham, TH-fronting was a relative newcomer. It would seem that TH-fronting had run its course in London and now functions as an established variable element of the phonology. Within Nottingham, though, this change was in the full swing of the upward trajectory of the S-curve model of language change, and thus shows striking increase in frequency between the generations.

The stark increase from old to young speakers in terms of levels of TH-fronting as shown in apparent time suggests that this is a feature that is rapidly changing within the UK. Further, there is real-time evidence that corroborates this interpretation (e.g. Stuart-Smith, Timmins & Tweedie, 2007). However, when the social and linguistic constraints are examined in detail, age is often shown to interact with other factors. This might suggest something about the nature of acquisition of the feature and whether it is likely to remain stable throughout a person's life. This question is addressed directly in the section following the main results.

4.3.2.2 *Gender*

Labov (2001:280–91) identifies women as the leaders of linguistic change when a change is endogenous and beneath the level of consciousness, and also when the change is an exogenous feature associated with prestige. When a feature is a non-standard, exogenous change, women are usually observed to be behind men in terms of rates of use. In many respects, TH-fronting can be classified as a non-standard exogenous change, and Trudgill (1986) suggests that TH-fronting is an ideal feature for males to index their masculinity with. Indeed, a number of studies have reported males to show greater rates of TH-fronting than females (Milroy, 2003; Mathisen, 1999; Llamas, 1998; Kerswill & Williams, 1999, 2000; Britain, 2005). However, gender patterns often interact with other factors and processes; for example, Labov (2001) suggests that as changes near their endpoint gender differences can become less pronounced and disappear altogether. The age of the change will affect the expected gender patterns. For example, Stuart-Smith, Timmins & Tweedie (2007:236) find that while older males show higher rates than older females, this pattern is not replicated in the younger cohort.

As well as associations with masculinity, TH-fronting also appears to index youth within the UK. This association may also impact on the gender patterns found for the feature. For example, Flynn (2012:329) finds that gender interacts with class and age. Flynn (2012:329) finds that while the feature is entirely absent for older middle-class speakers, it is the younger middle-class males who show the highest rates of TH-fronting. They do it more than their female counterparts and also more than young male and female working-class speakers. Within the younger working-class speakers there is no significant gender difference. What this suggests is that TH-fronting might have very specific associations for groups within a sample; the feature appears to have different associations for young middle-class Nottingham speakers compared to the working-class speakers. Within Flynn's Nottingham sample, the young middle-class speakers span the whole range of TH-fronting variation. This is similar to Eckert's finding from her study of the jocks and burnouts in Belten High, where social group affiliation and gender interacted with levels of UH-backing. Figure 30 shows how levels of UH-backing patterned across gender and social group affiliation in adolescents from Belten High.

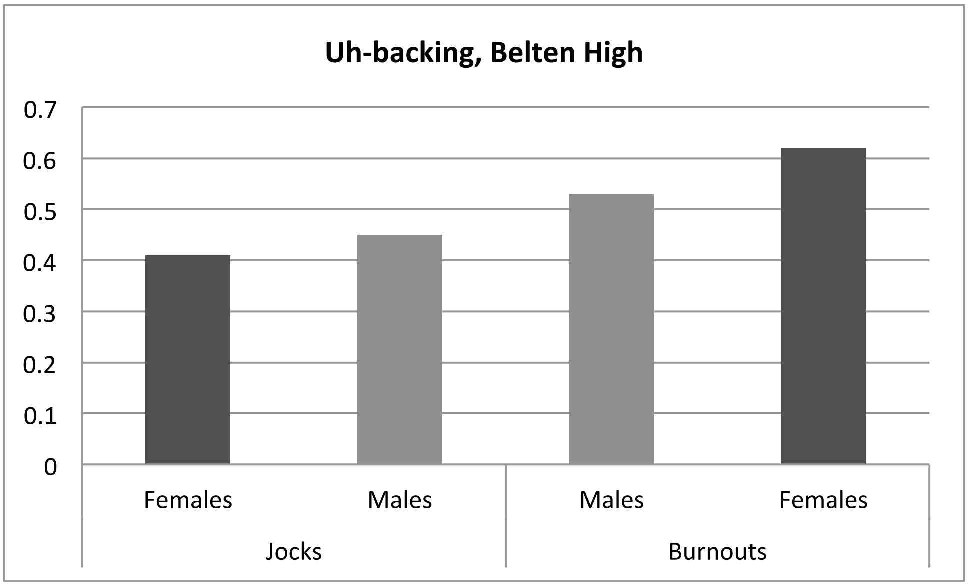


Figure 30: The "envelope effect": graph of levels of UH-backing in Jock and Burnout males and females at Belten High, from figures presented Eckert (1989)

Figure 30 shows that for UH-backing, females showed the most extreme values. Specifically, they were the most conservative (jocks) and the most innovative (burnouts), depending on their social categories. The females "envelop" the entire range of variation. Eckert (1989:263) uses this "envelope effect" to support her argument that the females make better use of linguistic resources as symbolic capital in order to orient themselves to particular groups. As Eckert (1989:262) puts it, "Girls are putting these phonological resources to better use than the boys." This effect, within TH-fronting in Nottingham, might suggest that TH-fronting has greater symbolic capital in terms of gender for the middle-class adolescents than it does for the working-class speakers. Flynn (2012:342) suggests that TH-fronting may have different associations depending on age: "A high [f,v] use for an older speaker is indicative of being 'WC', whereas for a young speaker it signifies being 'male'."

4.3.2.3 *Class*

Generally, when a class difference is found for TH-fronting, working-class speakers use higher rates than middle-class speakers, the expected pattern for a non-standard feature (Watt & Milroy, 1999:31; Stuart-Smith & Timmins, 2006:174). Kerswill (2003:232) finds that for Milton Keynes, Reading and Hull, class is a better predictor than gender; here, working-class adolescents show levels of the non-standard feature as high as 70–80%, compared to the middle-class speakers, who show levels around 25–30%.

4.3.2.4 *Style*

When style is tested, TH-fronting tends to decrease in more formal contexts, i.e. reading versus conversation (e.g. Neilsen, 2010:41). Flynn (2012:331) finds that style interacts with age where it is a significant effect for young speakers who show less use of the non-standard feature in more formal contexts. Older speakers show no style-shifting. However, the older speakers do exhibit extremely low levels of TH-fronting, and so if style shifting is there, it might not be visible.

4.3.3 SUMMARY OF CONDITIONING FACTORS

A review of the literature suggests that while there do not appear to be any clear universal tendencies for TH-fronting, some general patterns do emerge; these are summarised below.

4.3.3.1 *Linguistic:*

Word position	final > medial > initial
Following phonological context	consonants > vowels and pauses
Lexical item	Proper names and ordinals resist fronting

4.3.3.2 *Social:*

Age	young > old (although can interact with class and gender)
Gender	males > females (although can interact)
Class	working class > middle class (although can interact)
Style	casual > formal

4.4 SPECIFIC RESEARCH OBJECTIVES

Now that the variable has been contextualised within the findings of previous analyses, it is possible to draw up the specific research objectives for the present chapter:

- Examine the variable distribution over age: this will identify whether TH-fronting is a change in progress. Further, this will also offer good insight into the stage of the change; i.e. does TH-fronting show a large increase between old and young speakers indicative of a rapid change or does it appear to be progressing more gradually?
- Examine a range of linguistic constraints: this will enable a linguistic profile of the change to be gained and also enable comparison to previous analyses.

- Examine the interaction between age and the social and linguistic constraints: this will provide evidence as to the feature's point of entry and spread within the Hastings dialect and TH-fronting more generally. This will also provide evidence as to the linguistic development of this form as it becomes more established within the variety.

4.5 DATA AND METHOD

4.5.1 AUDITORY ANALYSIS

During everyday conversation, where clarity of the signal may be impaired by a number of different environmental influences such as variable speech rates or background noise, the forms [f] and [θ] may be perceptually confusable. However, the conditions used in the present study – sociolinguistic interviews recorded in a quiet room using a high-grade sample rate of recording then analysed using high specification, noise-cancelling headphones – the distinction was clear and unambiguous. It is possible to make a binary distinction between the fronted and standard variants. Further, as this is the approach that has been adopted by the vast majority of studies (e.g. Kerswill, 2002; Flynn, 2012), this was also adopted here.[17] Tokens were analysed auditorily; any difficult tokens, resulting from overlapping speech or false-starts etc, were listened to a maximum of 5 times before they were discarded from the analysis. These tokens accounted for approximately 1% of all tokens listened to. Following standard practice, I conducted a preliminary analysis to determine the range of variants (the results are presented below) and to determine the variable context.

4.5.2 CIRCUMSCRIBING THE VARIABLE CONTEXT

This chapter presents the results from analysis of the voiceless dental fricatives only. This was for a number of reasons. As the phonemes show completely exclusive distributions (e.g. Stuart-Smith, Timmins & Tweedie:2007) it is not possible to combine their analysis, and in terms of the overarching aims of the analysis, both variables would answer similar questions, e.g. the patterning of a diffused change within a levelling variety. The voiceless phoneme was chosen as it is less restricted in terms of its distribution (i.e. voiced contexts for the voiced phoneme occur word initially only in function words, and this context generally does not permit fronting). The voiceless phoneme also tends to exhibit the non-

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[17] As outlined in section 4.1.4, the acoustic profile of [f] and [θ] is not a marked contrast (Jongman, Wayland & Wong, 2000:1257). Therefore, this variable is not most reliably analysed using an acoustic approach and an auditory method is generally deemed more appropriate.

standard variant less than voiced contexts. As my previous analysis of this feature revealed that the voiced form was reaching categoricity in the speech of some speakers (i.e. 100% use of the non-standard form), it meant that no variable patterns were visible. As the voiceless phoneme exhibits less fronting than the voiced phoneme, an examination of the voiceless variable will give better indication of the variable patterns.

The voiceless phoneme may occur in any word position (initial: *think, thing, theatre* etc; medial: *athletic, nothing, Martha* etc; and final: *bath, month, teeth* etc) and permits no lexical exceptions.

While every analysable token was used, some tokens were discounted as they appeared within neutralised contexts. These were environments where, due to the following or preceding phonological context (depending on the word position of the phoneme), it was not possible to tell if the item was actually fronted due to inherent variation or through a process of assimilation. This could occur word internally, e.g. *fifth, twelfth* etc, and also across word-boundaries, e.g. *both friends*.

4.5.3 VARIANTS

Apart from the standard dental fricatives [θ, ð] and the non-standard labiodental fricatives [f,v], there were a number of alternative realisations of the phonemes. A preliminary auditory analysis revealed the following realisations:

Variable:/θ/	**Example**
[θ]	and he was like "**thank** [θaŋk] you yes darling" I was just like "yeah I love gay people" (Sadie, 16)
[f]	like tudors and henry the **eighth** [eif] and stuff like that which I quite like (Lisa, 17)
[ʔ]	we do like crazy golf or **something** [sʌŋʔɪŋk] (Danielle, 16)
Elided	um, like if obviously if people like are drunk or **something** [sʌmɪŋk] (Craig, 15)

The initial distributional analysis of the data showed that the glottalised and elided tokens were minority variants (i.e. <5% of the overall tokens). Further, their distribution was highly restricted; glottal tokens only occurred in the word *something*, and the elided tokens only occurred in the words *something*, *think* and *thing*. These tokens were removed from the following analysis as they were minority variants and because of their highly circumscribed distribution. This left a total of 2465 tokens for the final analysis.

4.5.4 Token capping, type/token ratio

The voiced dental fricative occurs fairly regularly within natural speech, so the amount of tokens that each speaker produced depended on interview length and speech rate. So that all speakers received equal representation in the data, their token numbers were capped at approximately 100 each. Lexical spread of the data was also checked in terms of type/token ratio. Particularly frequent items such as *think, thing*, and the TH-pro items (*something, everything, nothing* etc) were capped at maximum 15 tokens per speaker. This was so that the data represented a spread of lexical items and was not skewed by the highly frequent items so that the most accurate representation of the variation was gained (Wolfram, 1993:214).

4.5.5 Coding

Based on previous analyses of the feature and the research questions of the present study, the tokens were coded for the following factors:

4.5.6 Linguistic

4.5.6.1 *Word position:*

A three-way split was adopted for word position:

Initial: *I didn't really **think [fɪŋk]** about it too much* (Jimmy, 49)

Medial: *I mean you earnt it, you didn't get it for **nothing [nʌfɪŋ]*** (Mark, 67)

Final: *We **both [bəʊf]** have two daughters* (Deirdre, 72)

4.5.6.2 *Following phonological environment:*

Similar to the process outlined in section 3.6.2.3 for the analysis of phonetic conditioning for variability in the MOUTH vowel, all phonemic consonantal contexts and vowels received a separate code, as did contexts where the segment was the end of a turn.These were then collapsed based on the patterning in the data, whether the phonemic items were sufficiently phonetically similar so as to justify their inclusion in the same category and finally with reference to previous studies of the effects of phonetic conditioning on TH-fronting. The details of this breakdown are shown in table 11.

Following environment	Phonemes included	Example
End of turn	-	*I have always got money left at the end of the* ***month*** (Nina, 45)
Obstruent	b, d, g, h, k, p, s, ʃ, t, v	*it's* ***worth keeping*** *it open and see what happens* (Jimmy, 49)
Sonorant	Vowels, j, l, r, w, y, m	*it got too much playing* ***both on*** *the same day* (Craig, 16)

Table 11: following phonetic environment with examples

4.5.6.3 *Preceding phonological context:*

The same procedure for collapsing phonemic categories outlined for preceding phonetic context was adopted for following. The resultant categories are displayed in table 12.

Preceding environment	Phonemes included	Example
Start of turn	-	***Things*** *like that* (Andrea, 65)
Obstruent	d, g, k, p, s, ʃ, t, v,	*I* ***was three*** *and a half years old* (George, 91)
Sonorant	Vowels, l, r, m, n	*I made a good choice* ***I think*** (Lisa, 17)

Table 12: preceding phonetic environment with examples

4.5.6.4 *Lexical item:*

All frequently occurring words (e.g. *think, thing, thanks, something, anything* etc) received individual codes; numerals and less frequent content words also received their own code.

4.5.7 Social

As was the case for the MOUTH analysis, the data were coded for individual speaker, age and gender.

4.5.8 Statistical analysis

TH-fronting represents a categorical variable, i.e. unlike the MOUTH, which was measured in terms of a continuous levelling index. Therefore, the relative proportional frequencies of the standard versus the non-standard forms of /θ/: [θ] or [f], respectively, were analysed using R.

Again, as was the approach for the MOUTH variable, the variation was first explored through a factor-by-factor analysis. These effects were examined visually and then tested for statistical significance. Those factors which were shown to significantly condition the variation were then entered into the multivariate analysis in order to examine their relative contributions to the overall variation. A mixed-effects logistic regression model was compiled in RBrul based on the significant factors and interactions.

4.6 Results

The first view of the data shows how this feature patterned in apparent time. Figure 31 shows how the non-standard form patterned in apparent time.

4.6.1 TH-fronting in Hastings in apparent time

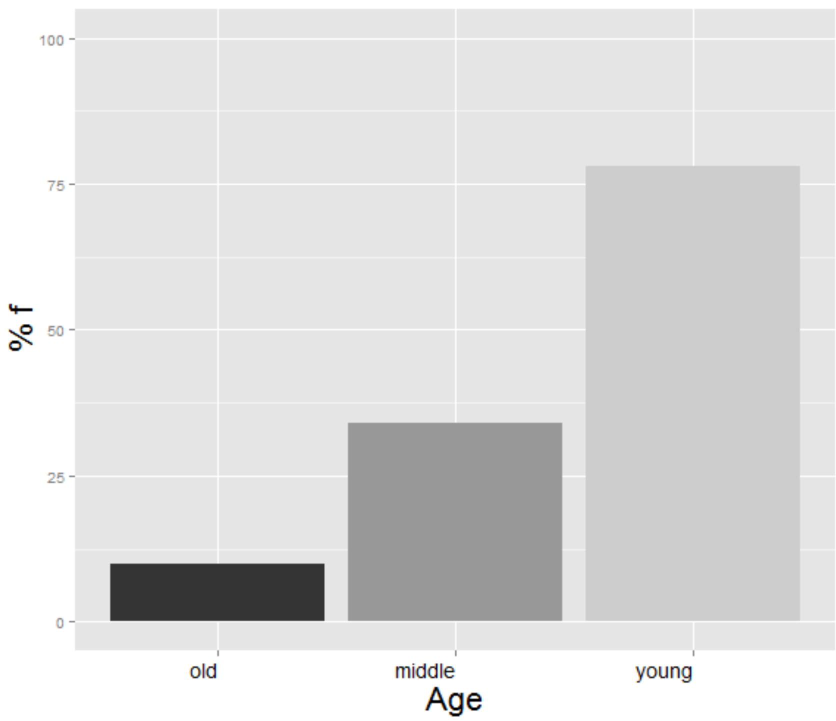

Figure 31: Proportion of [f] use in all speakers across age category

Figure 31 demonstrates that TH-fronting is a feature on the rise within Hastings. The aggregate frequency for the older speakers is 9.8%, 34% for the middle speakers and 78% for the youngest speakers. Between the old and the middle cohort the difference is 23%, with the change appearing to greatly accelerate between the middle and young cohorts, with a difference of 44%. There was a significant association between age cohort and degree of TH-fronting exhibited $\chi^2(2)$, p= <.001, meaning the observed differences are statistically significant.

The figure suggests that TH-fronting is currently a rapid change in progress within Hastings and a change which appears to be accelerating. An examination of the linguistic and social patterning of this feature over the different age cohorts will indicate how the feature is developing within the variety. However, before any analysis of the constraints, I first present an analysis of the individual behaviour for each age cohort to test whether combining them is justified (e.g. Guy, 1980:13).

4.6.2 INDIVIDUALS

Figure 32 shows the rates for the individuals in the old age cohort. Males are on the left and females on the right.

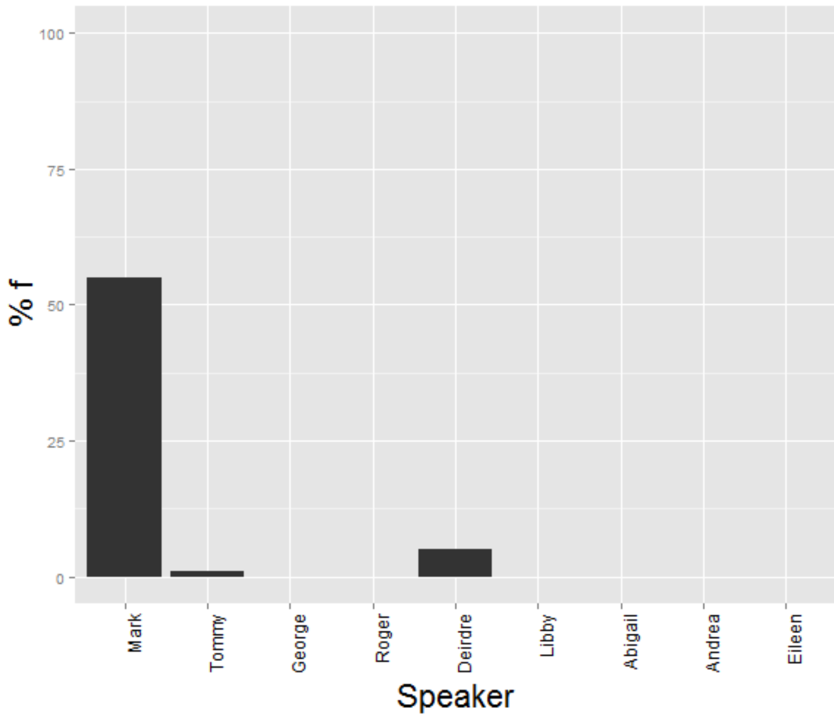

Figure 32: Proportion of [f] use in all individuals from old age cohort

It is clear from the figure above that the individuals in the old cohort do not have uniform rates of TH-fronting. Six speakers exhibit no instances of the non-standard variant, and one more speaker exhibits <5%. As these speakers do not vary, they will be removed from any further analysis. This means there are only two speakers that exhibit enough of the variable form to remain in the analysis: Mark and Deirdre. Although Deirdre shows very low levels, Mark is unusual in that he shows, in relation to the rest of the old cohort, extremely high levels of TH-fronting: 55%. Mark possibly, therefore, represents the point of entry of this form into the Hastings accent. Mark may be what Milroy (1992:184) would label an "early adopter", what Chambers (2003:113) would call a "language leader", or according to Cheshire et al (2008:19) an "innovator".

In an investigation into the sociolinguistic characteristics of innovators, Denis (2011:65-66) developed a measure he termed the "Apparent Gregarious Metric". This metric measures social network density through a content analysis of the interview (mention of friends, social circles etc). Denis (2011:67) finds a positive correlation between the Gregariousness Metric and use of the innovative general extender *and stuff*. There are a number of reasons to suspect that Mark would score highly on this metric. For instance, Mark's interview lasted close to 3 hours, compared to the hour or hour and a half of the other participants. Mark would also aptly be described as a bit of a raconteur; he worked as a fisherman and he spent much of the interview retelling anecdotes, particularly those involving his dealings with a wide range of individuals. Most likely a prototypical innovator, it is clear that Mark represents the vanguard of change within his cohort. An analysis of the patterning of this form in Mark's speech should hopefully provide evidence for the conditioning of this feature from when it patterned at an earlier stage in Hastings.

Figure 33 shows the distribution of the non-standard form for the middle individuals.

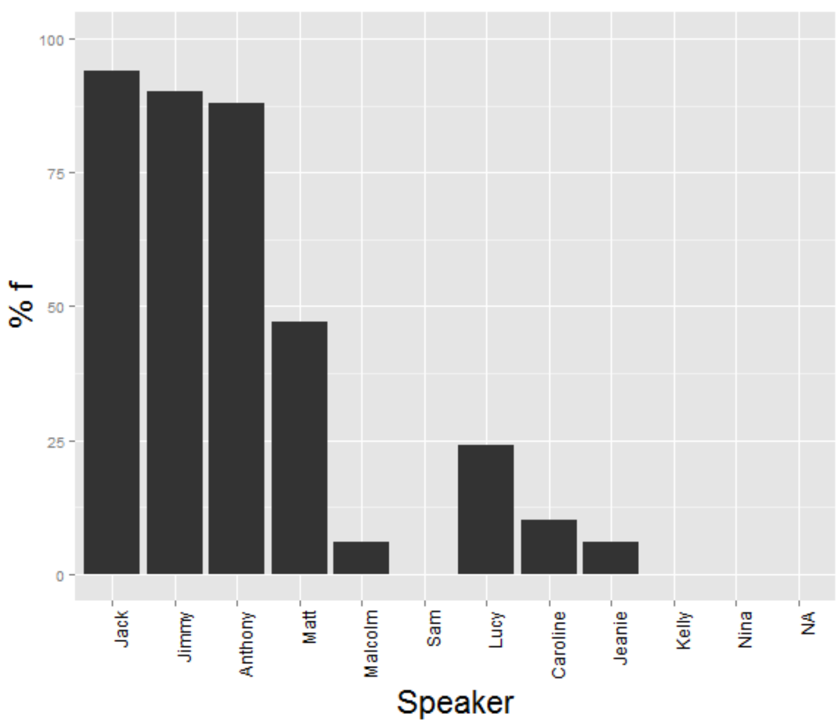

Figure 33: Proportion of [f] use in all individuals from middle age cohort

Figure 33 shows that, similar to the old cohort speakers, rates of TH-fronting are not uniform across speakers in the middle group. The data are visibly split between a group of medium to high-f users (Jack, Jimmy, Anthony and Matt) and low to non-users (Lucy, Caroline, Malcolm, Jeanie, Sam, Kelly and Nina). Moreover, this split appears to pattern with gender: the high users are all male; the low to non-users, with the exception of Malcolm and Sam, are all female. This is the expected pattern for a non-standard change from above (Labov, 2001). This striking gender split might also give some indication as to the feature's status within the community. The feature is most probably highly stigmatised, represented by the low levels of female use, while it also may have an associated covert prestige (e.g. Trudgill, 1972), shown through the high levels of male use. The speakers who are showing categorical use of the standard variant have been removed from further analysis.

Figure 34 shows the aggregate distribution of non-standard use for the middle speakers by gender.

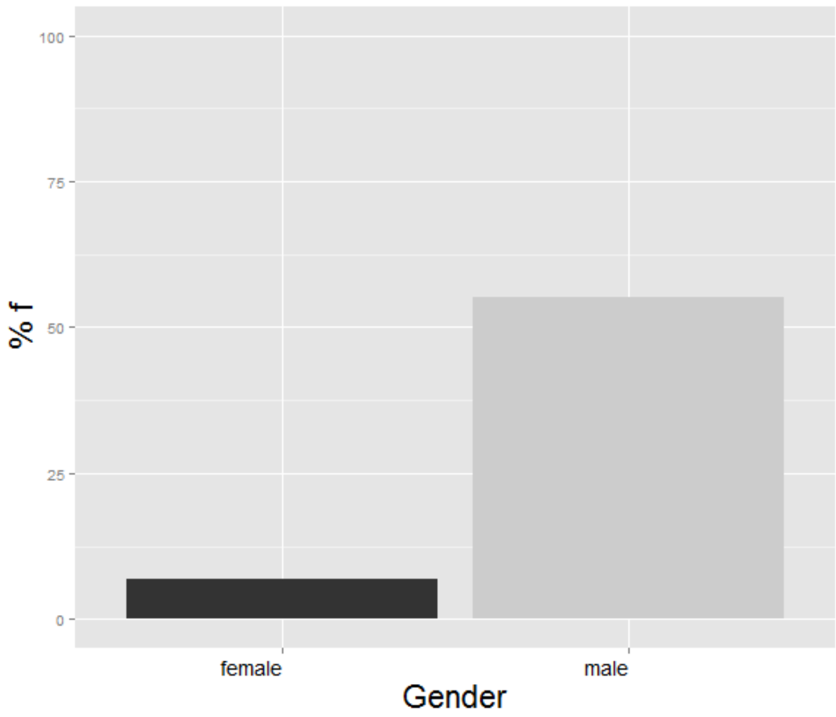

Figure 34: proportion of [f] by gender for middle age cohort

Figure 34 demonstrates the pattern indicated from the chart of the middle individuals bar. Males within the middle cohort use the non-standard variant far more than females (55% compared to 7%). Further, this association was significant $\chi^2(1)$, p= <.001.

Figure 35 reveals the individual patterning for the young cohort, again with males on the left and females on the right.

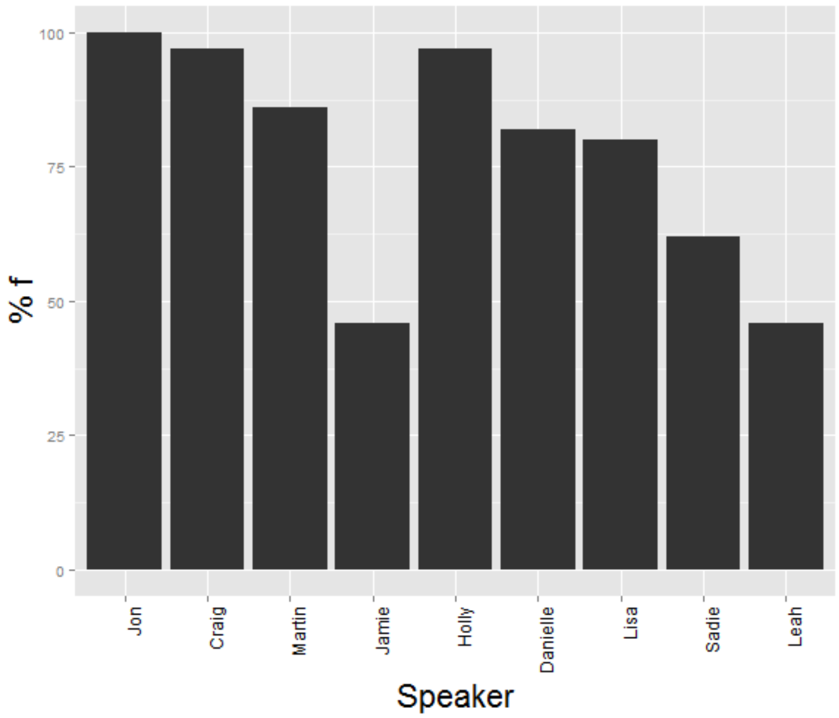

Figure 35: proportion of [f] use in all individuals from young age cohort

Figure 35 shows that for the youngest age cohort there is an extremely high rate of use. While there is a reasonably large range of the feature (45%–100%), all speakers use relatively high rates of the non-standard form. The range of variation is much less than that shown by the middle cohort. In terms of gender, the pattern seen in the middle age cohort of males in the lead is not as apparent. For the young group, males and females are amongst the highest *and* lowest users of TH-fronting, as predicted by Labov's (2001) assertion that as a change develops and nears its endpoint gender differences disappear. There is evidence, for some speakers at least, that the change is nearing its end point. Three speakers show categorical or near-categorical use of the non-standard variant (Jon, Craig and Holly). As with the categorical users of the standard variant, as these speakers do not show any variation they are excluded from the remainder of the analysis.

Figure 36 shows the variable patterning of the nonstandard form for the young cohort by gender.

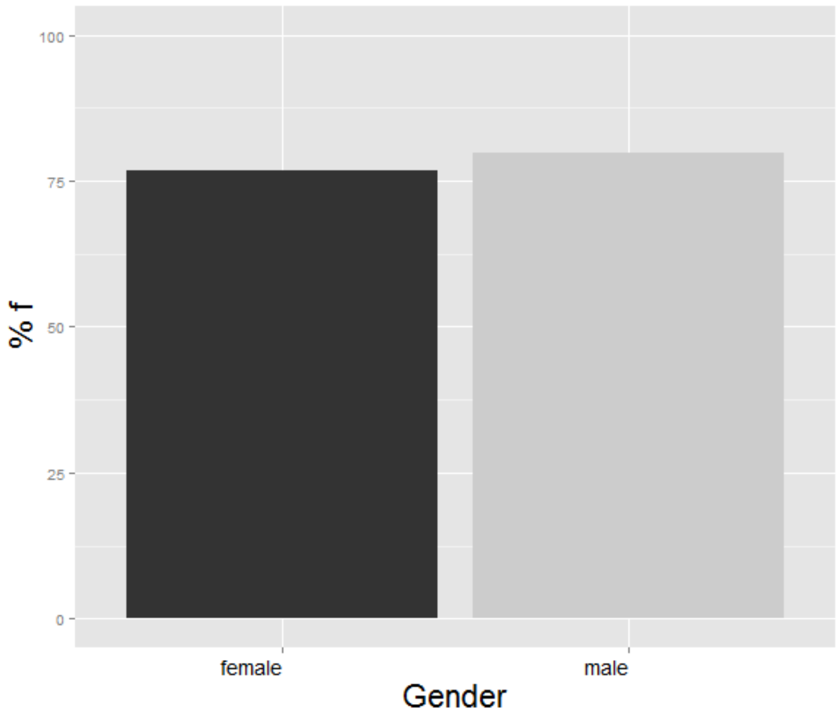

Figure 36: proportion of [f] by gender for young age cohort

Figure 36 confirms the gender pattern visible for the figure of the young individuals. The gender difference visible for the middle individuals has disappeared in the young speakers.

The following analysis of constraints is based only on speakers who show <95% of either variant. This leaves a total of 1579 tokens.

4.6.3 Word position

For linguistic constraints, word position is the most commonly reported significant factor. Figure 37 below shows how this constraint patterned in the data across all variable speakers.

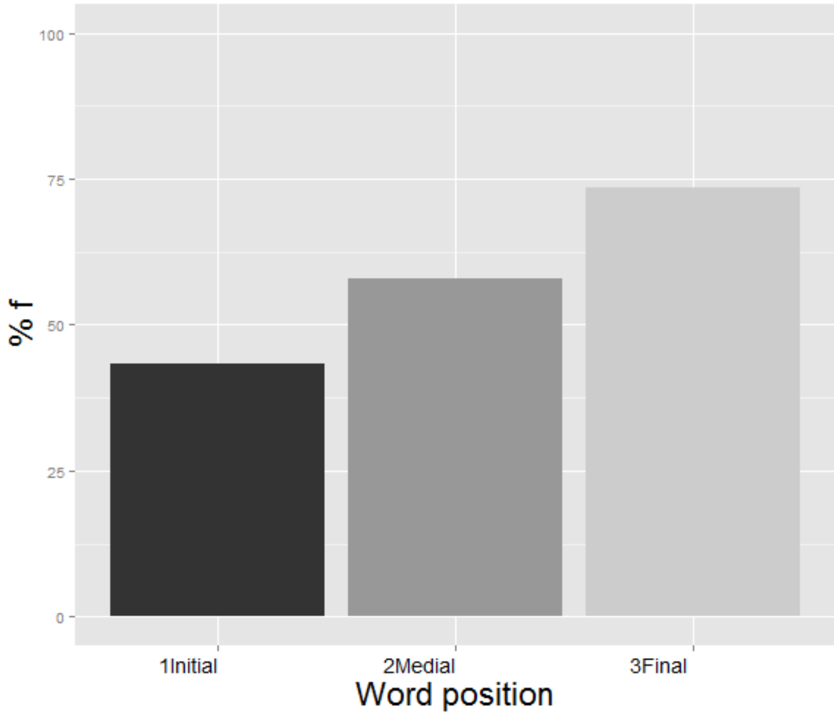

Figure 37: proportion of [f] use across word position for all variable speakers

Figure 37 shows that for all non-categorical speakers the commonly reported word position constraint is replicated in the present data: final > medial > initial. However, the aggregate scores cannot indicate whether this hierarchy is stable over time or whether this constraint erodes as the feature becomes more embedded within the dialect.

Figure 38 shows how this constraint patterns in the speech of the older innovator, Mark.

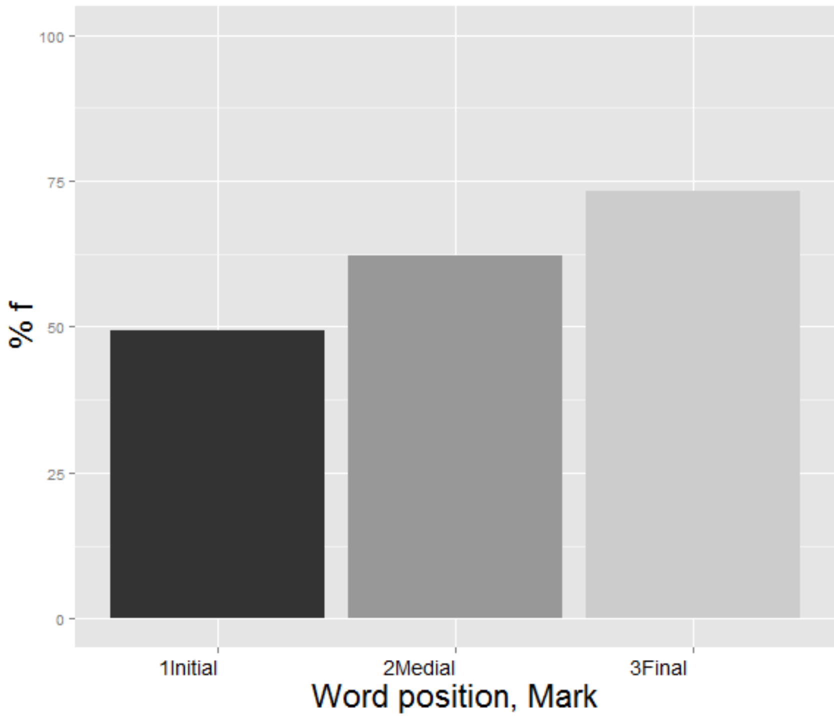

Figure 38: proportion of [f] use across word position for Mark, 67 (129 tokens)

Figure 38 reveals that Mark perfectly replicates the hierarchy shown across all variable speakers. This suggests that at its earliest stage TH-fronting was conditioned by word position.

The extremely variable rates in the middle age cohort means that there is no justification for analysing the constraints in these speakers as a group. In order to examine whether this constraint is consistent between the highest and lowest users of TH-fronting, table 13 shows the individual rates and raw scores for the individuals across word position contexts. The final column presents their overall rates when all contexts are considered.

		Initial		**Medial**		**Final**		**Overall %**
	Speaker	% f	N	% f	N	% f	N	
High [f]	**Jack**	**92**	**26**	**95**	**19**	**100**	**5**	**94**
	Jimmy	**89**	**87**	**94**	**16**	**100**	**15**	**91**
	Anthony	**86**	**57**	**100**	**18**	**83**	**6**	**89**
Low [f]	Matt	36	42	45	31	100	11	48
	Lucy	1	62	60	15	80	5	23
	Caroline	83	36	11	17	0	2	9
	Jeanie	0	52	6	15	25	4	3
Total								878

Table 13: raw numbers and proportions of middle individuals, high non-standard users (bold) and low non-standard users (not bold)

Despite low counts for some of the cells, table 13 presents a general picture of the patterns of variation. Overall, although the high-f users show greater rates, they do appear to replicate the same word position hierarchy. The low-f users also share the patterning of this constraint (apart from Caroline).

These patterns are further explored through the aggregate scores of the high-f users and the low-f users. Figures 39 and 40 demonstrate the patterning of this constraint for the high- and low-f users in the middle cohort.

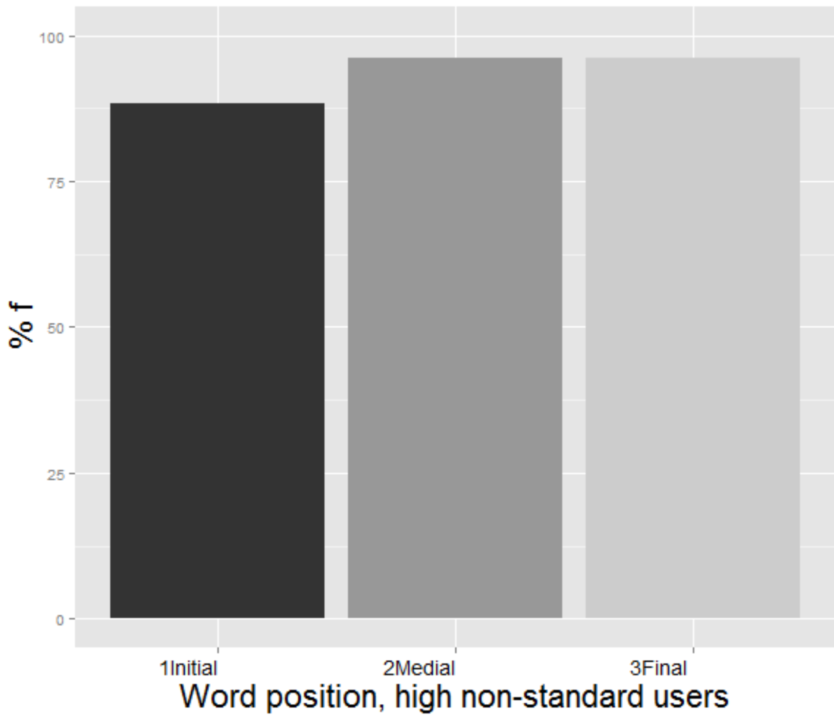

Figure 39: proportion of [f] across high-f users in middle cohort

Figure 39 shows that the hierarchy holds for the high-f users in the middle cohort. There is only a slight difference between the medial and final contexts. However, this does not suggest that the hierarchy is breaking down; it is probably more indicative that the high-rate contexts are nearing categoricity as the speakers near categoricity themselves. The initial contexts appear to be holding out, and this constraint does not appear to be affected by any conscious influence brought about through covert prestige (if this is at work). There was a significant association between word position and degree of TH-fronting exhibited within the high-f users for the middle age cohort $\chi^2(2)$, p= <.05. In sum, what the figure indicates is that even at very high rates the constraint pattern *final > medial > initial*, holds.

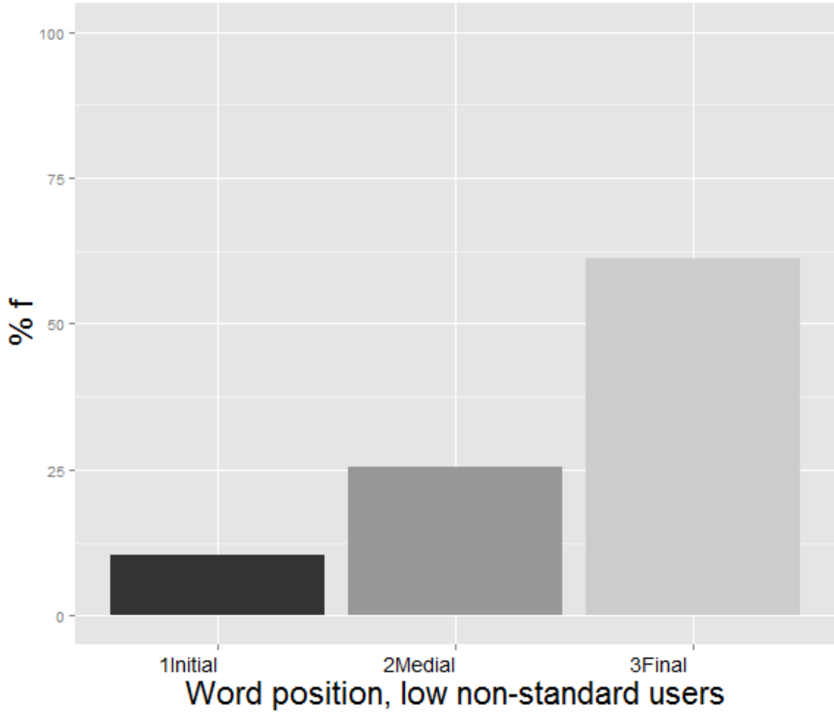

Figure 40: proportion of [f] across low-f users in middle cohort

Figure 40 shows that the pattern is replicated, and in fact more apparent, for the low-f users. Despite the large range of individual variability in terms of individual variation, the word position constraint is consistent. Even if the speakers are consciously manipulating their use of the feature, they are only able to do this in a fairly superficial way, i.e. their rates. The analysis evidence indicates that the underlying grammar remains consistent. There was a significant association between word position and degree of TH-fronting exhibited within the low-f users for the middle age cohort; as the cell counts were not large enough to warrant a Chi-squared test, a Fisher's exact test for count data was used, p = <.001.

Figure 41 shows the break down of word position for the young speakers.

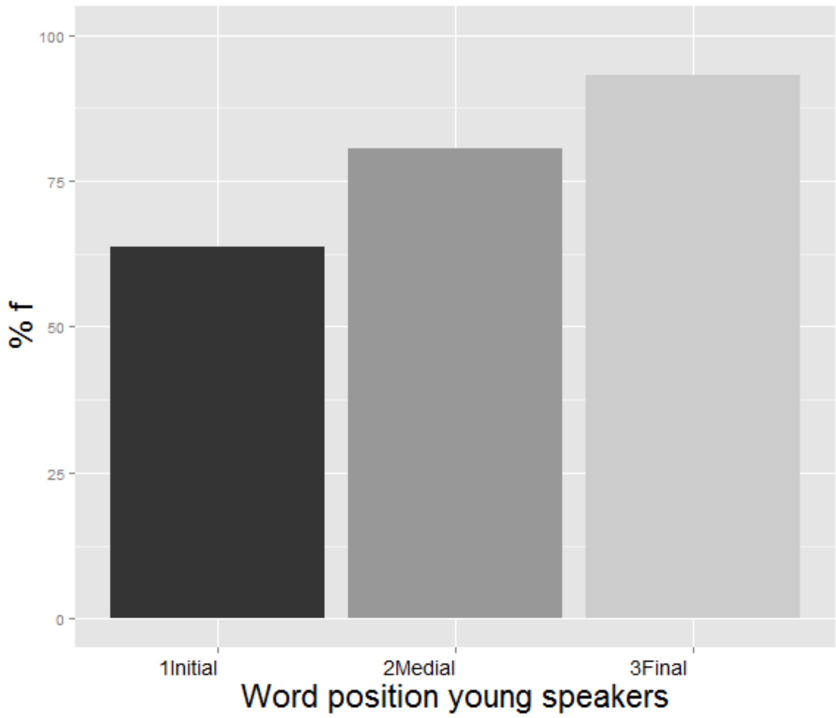

Figure 41: proportion of [f] across young cohort

Figure 41 reveals that the hierarchy is consistent for the variable users within the young group. Taken together, the evidence from the analysis of word position suggests that it is a robust constraint on the variation. There was a significant association between word position and degree of TH-fronting exhibited within the young age cohort $\chi^2(2)$, p= <.001.

Several researchers have used the positional constraint hierarchy as evidence for TH-fronting as a *neutralisation process*: “neutralisation phenomena often preferentially target segments in coda positions, both preconsonantally and non-preconsonantally” (Schleef & Ramsammay, 2013:41). This phenomenon usually receives an articulatory explanation; i.e. segments at the end of words/syllables receive less stress in terms of energy and are subject to less articulatory effort (Kiparsky, 2008). In this sense, the positional effect is an indirect lower-order phonetic effect resulting from pressure from articulatory effort.

Some phonological environment effects could work in the same way; i.e. TH may resist fronting when it is in more prosodically prominent positions, such as when it is followed by a pause compared to a consonant. The following section explores this question through an analysis of following and preceding phonological context.

4.6.4 *Phonological context*

So that following phonological segment was only examined in fully variable contexts, only word final instances were included in the analysis (159 tokens). Following the preliminary pass of the data, the more detailed coding categories were collapsed into a three-part system: end of turn, a following obstruent (all non-sonorant consonants) and a following sonorant (vowels and sonorant consonants). The basis of these categories was three-fold: how the individual contexts patterned in the data, the similarity of linguistic items and the results of previous analyses.

Figure 42 demonstrates the effect of following phonological segment on TH-fronting across all variable speakers (final contexts only).

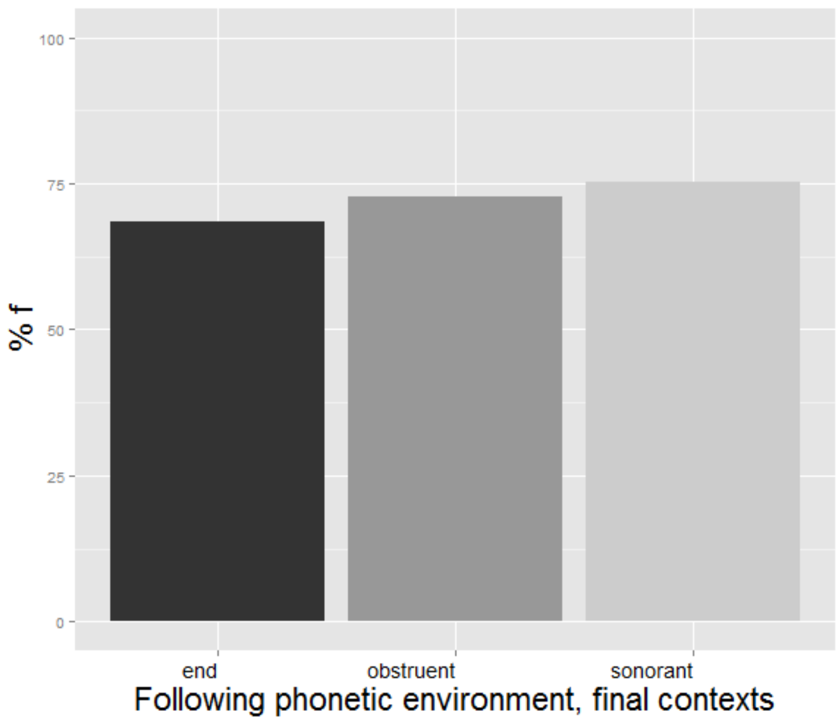

Figure 42: proportion of [f] across following phonological environments, word final position

Figure 42 reveals the effect of following phonological environment is slight. A following sonorant shows slightly more fronting than a following obstruent, which in turn shows slightly more fronting than an end of turn. However, this difference was not significant $\chi^2(2)$, p= .87.

Phonological environment was also examined as a preceding segment. So that it was only examined in fully variable contexts, only word initial instances were included in the analysis (1027 tokens). Using the same procedure for the analysis of following phonological context, after a first pass of the data the more detailed coding categories were collapsed into a three-part system: start of turn, a preceding obstruent (all non-sonorant consonants) and a preceding sonorant (vowels and sonorant consonants).

Figure 43 demonstrates the effect of preceding phonological segment on TH-fronting across all variable speakers (initial contexts only).

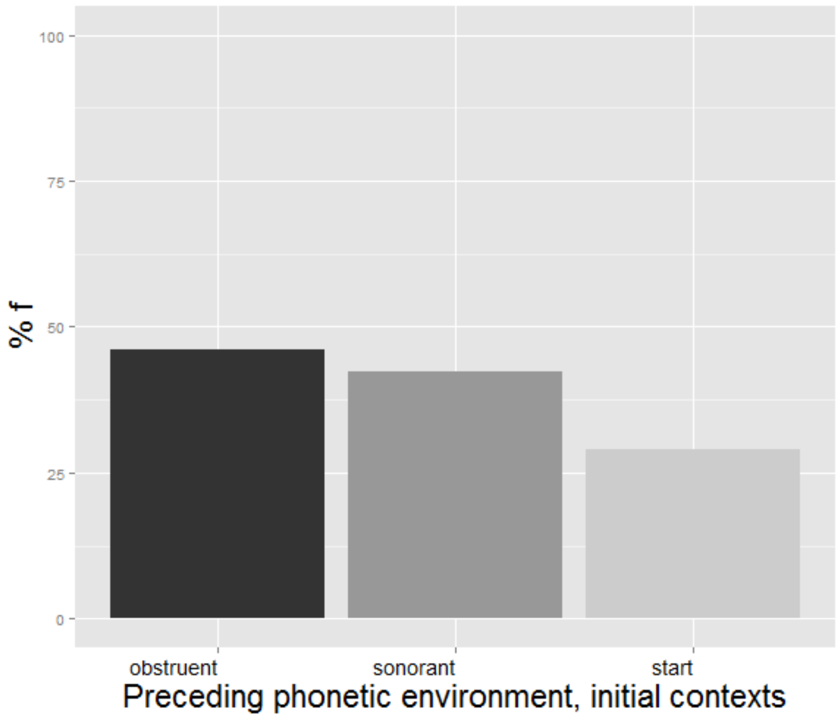

Figure 43: proportion of [f] across preceding phonological environments, word initial position

Figure 43 indicates that, similar to following environment, preceding phonetic environment exhibits a weak effect on the variation. A preceding obstruent shows the highest level of fronting, followed closely by a following sonorant, and a start of turn appears to slightly inhibit the variation. However, the difference was not significant $\chi^2(2)$, p= .07.

The results from the following and preceding analysis suggest that, in Hastings at least, TH-fronting is not a phonetically motivated change. Neither following nor preceding phonological environment will be factored into the final regression model.

Previous analyses have demonstrated that TH-fronting is conditioned lexically (e.g. Stuart-Smith & Timmins, 2006; Lawson; 2010); the following section tests for such effects in the present data.

4.6.5 Lexical item

Following an initial pass of the data, the more detailed coding schema was collapsed into larger categories. Similar to preceding and following phonetic environment, the collapsing was based on three lines of evidence: patterns in the data[18], similarity of lexical item and results from previous analyses. A five-way split was made for lexical item: content words (*athletic, wreath* etc), TH-prop items (*something, everything, anything* and *nothing*), numerals (*thirteen, fourth* etc) and the frequently occurring items *think* and *thing.*

Figure 44 shows how these lexical categories constrained the data across all age groups.

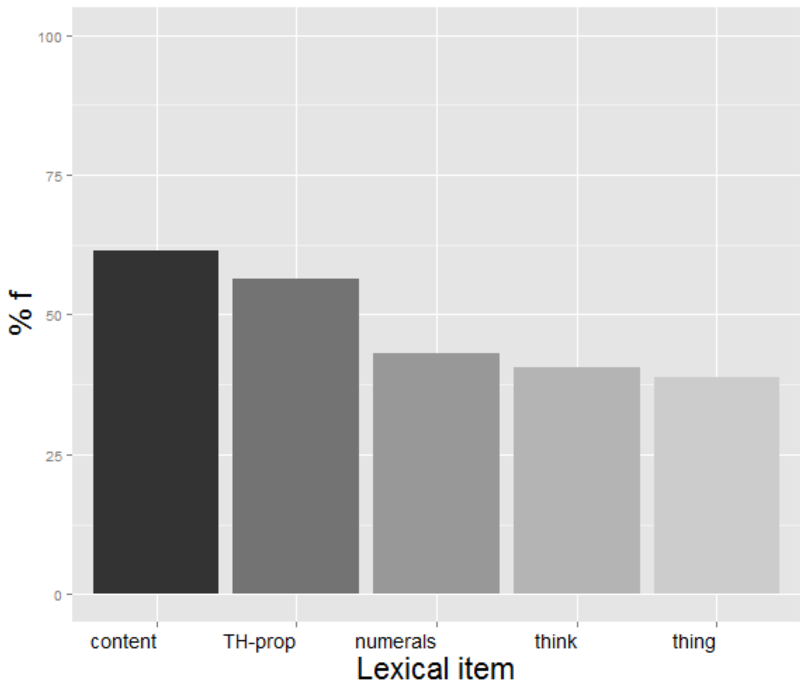

Figure 44: proportion of [f] across lexical item, for all variable speakers

Figure 44 shows that the variation was conditioned by lexical item. Content words and TH-pro items promote fronting, while numerals, *thing* and *think* inhibit fronting, with *thing* showing the lowest rates of non-standard use overall. In a Chi-squared test, lexical item was shown to be highly significant $\chi^2(4)$, p< .001.

Similar to word position, lexical item has a significant overall effect on the variable patterning. Again, this constraint is now examined across the age cohorts in order to investigate its development over time.

Figure 45 shows Mark's variable realisation as it patterns with lexical item.

[18] The justification for the collapsing of categories stipulated that items may not be included in the same category if they showed different variable effects on the patterning of the feature.

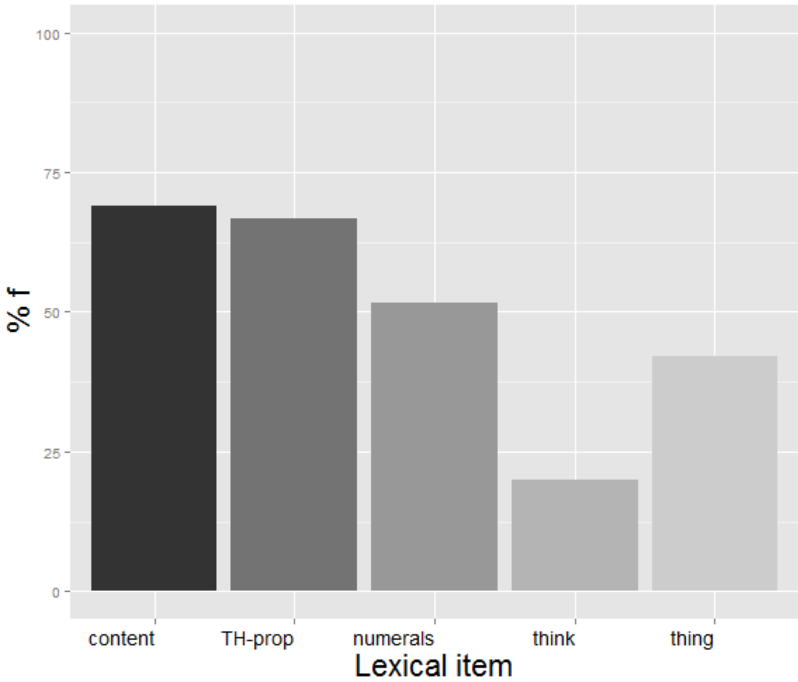

Figure 45: proportion of [f] across lexical item, for Mark, 67

As shown in figure 45, Mark the older innovator generally replicates the lexical constraints of the community at large. Content items and TH-pro items show the greatest degree of fronting, followed by numerals. *Thing* and *think* show the lowest levels of TH-fronting; it is interesting to note that these items are also word initial items and therefore might be more salient. Low cell counts meant that this pattern could not be tested reliably for statistical significance.

Following Mark's general replication of the overall patterns I turn now to the middle cohort. Again, as the individuals within this category showed such divergent ranges of non-standard use, this age group is separated and analysed in terms of two groups – high and low users of the non-standard form.

Figure 46 shows how this item patterns for the high-f users.

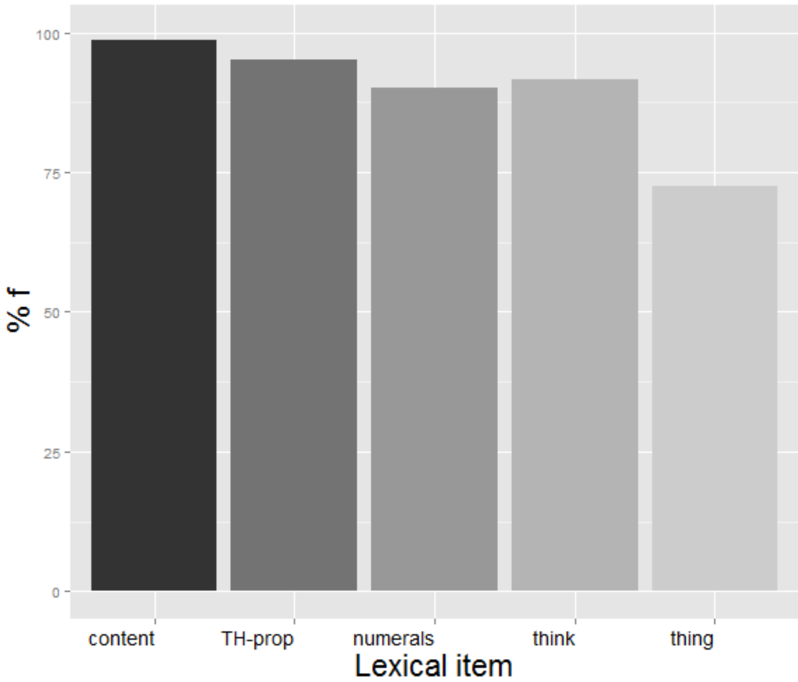

Figure 46: proportion of [f] across high-f users in middle cohort, for lexical item

Based on the distributions in figure 46, TH-fronting is less constrained by lexical item for the high-f users from the middle cohort compared to the overall patterns. However, this could just be a similar effect to that seen in word position – as the speakers near categoricity, the different contexts of use begin to show higher rates of use.

In contrast to Mark and the overall rates, the item *think* shows a relatively high rate of the non-standard variant. This may be indicative of the feature's covert prestige; the high-f-using males are using more of the non-standard form in a highly frequent word initial item. Alternatively, this could be an indirect effect of grammaticalisation of the epistemic parenthetical *I think* (Brinton & Traugott, 2005:22). Thompson and Mulac, 1991:313) argue that "*I think*", as a unit, is undergoing decategorisation through a process of grammaticalisation. Evidence for this argument comes from the observation that the unit often introduces *that*-less complements. For instance: *I think* ***that*** *the end justifies the means,* compared with: *I think the* ***Ø*** *end justifies the means.* As a result, the form is less prominent and often phonetically reduced. If TH-fronting is a reductive process, we might predict that it occurs more often with less prominent items, and this might explain the change in lexical conditioning between the generations. The argument is that the reduced, grammaticalised form of *I think* is gaining ground and is used more commonly by younger speakers. As a consequence, it is phonetically reduced and realised with the fronted [f] variant. The relationship between TH-fronting and grammatical peripherality is explored more fully in section 4.6.6, which examines TH-fronting as it occurs in general extenders.

Low cell counts meant that this pattern could not be tested reliably for statistical significance. However, comparison with the low-f users in the middle cohort may provide further insight into the mechanisms behind these variable patterns. For instance, will the low-f users also show higher use in the lexical item *think* or will this pattern only be a property of the high-f users? This is examined in figure 47, which shows how lexical item patterned for these speakers.

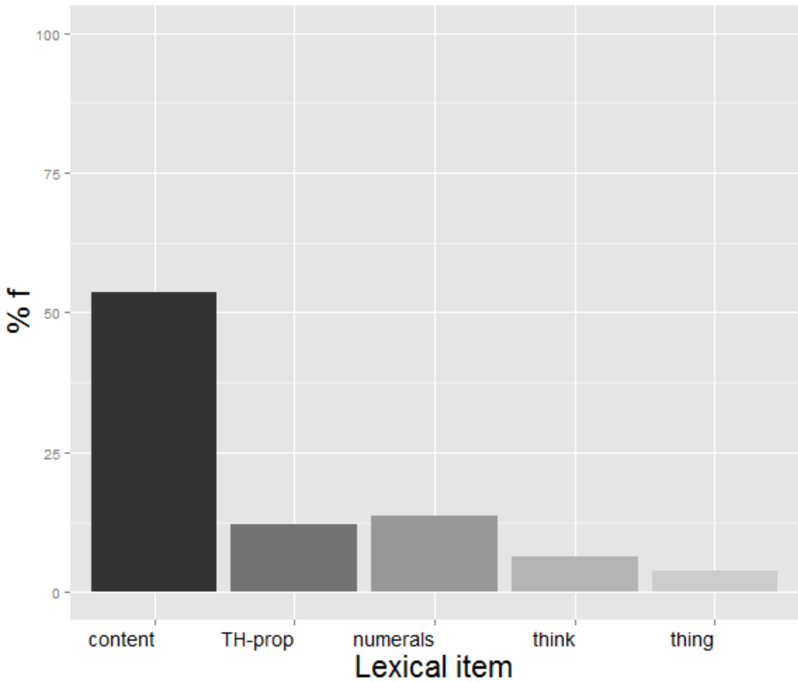

Figure 47: proportion of [f] across low-f users in middle cohort, for lexical item

Figure 47 shows that the low-f users, like Mark and the overall trend, show the lowest rates of [f] in the words *thing* and *think*. This could indicate that as well as resisting the innovation TH-fronting, they also resist the grammaticalisation of *I think*. However, further empirical work is needed in order to examine the possible relationship between these processes.

Content words show markedly higher rates than any of the other lexical items or categories. TH-pro items and numerals show comparable levels. In contrast to word position, the high-f and low-f users in the middle age cohort do appear to do something different when it comes to lexical item. In particular, the TH-pro class and the item *think* show far higher rates for the high-f users than the low-f users; whether this is the result of conscious manipulation or an actual lexical constraint is unclear. Low cell counts meant that this pattern could not be tested reliably for statistical significance.

So far lexical effects have revealed a degree of consistency (e.g. Mark and the low-f users in the middle cohort) but also a degree of inconsistency (e.g. the high-f users). Examining the lexical effect in the young speakers will enable a better evaluation as to the level of consistency for this feature between the age cohorts. Figure 48 shows how this factor patterned for the young speakers.

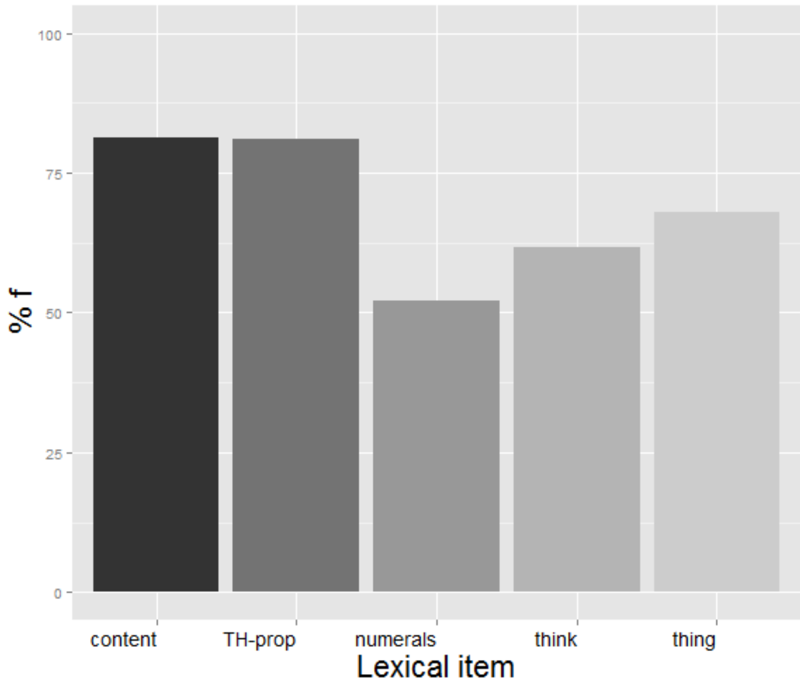

Figure 48: proportion of [f] across young cohort, for lexical item

The young speakers show a different pattern to the older innovator and pattern more similarly to the middle high-f users. For the young speakers numerals show the least amount of fronting, followed by *think* and *thing*. Similar to the trend observed for the middle high-f users, TH-pro items have gained ground and now show a slightly higher frequency of the non-standard form than the content items. Low cell counts meant that this pattern could not be tested reliably for statistical significance.

Despite showing high rates of use, TH-fronting does appear to show some lexical conditioning for the young speakers. What is more, the difference in lexical patterning between age cohorts suggests that this constraint is not reliably replicated generation after generation in the same way that word position is. This could suggest a number of things; it could mean that TH-fronting is not a lexically constrained change, or it could mean that TH-fronting can be lexically constrained but the exact patterning may take a while to stabilise within a variety.

In sum, for lexical effects, the following results were found:

- Unlike phonetic environment, lexical effects significantly constrained the data. This is indicative of an exogenous origin for the change, as changes that have spread through this route will often show lexical effects but not phonetic ones (e.g. Labov, 1992; McMahon, 1994).
- While all age groups showed a degree of lexical effects, the exact patterning of these was not consistent between generations. This could suggest that lexical effects are not transmitted alongside the spread of the feature in this community.
- One exception to this observed consistency was the behaviour of the high-f users in the middle age cohort. Here the lexical item *think* showed higher rates in comparison to the other cohorts. There are a number of possible reasons for this. It could be the association of covert prestige associated with TH-fronting that led to elevated rates in a word initial item. Another theory is that it could be a knock-on effect of the increasing grammaticalisation of *I think*. Further work is needed to resolve these issues.

Although not an investigation of the increasing grammaticalisation of *I think,* the following section reports on results of an investigation into the relationship between grammatical position and TH-fronting. This section presents an investigation into the interaction between lexical item and grammatical function on the conditioning of TH-fronting.

4.6.6 General extenders and TH-fronting

One way to examine the nature of TH-fronting is to examine the types of grammatical positions it is more likely to occur in; i.e. if TH-fronting is a reductive process, as many have argued it is (e.g. Blevins, 2004; Milroy, 2003), we might expect to see higher rates in more grammatically peripheral items.

The TH-pro items can appear in more than one syntactic position and perform a variety of grammatical functions. Broadly speaking, the TH-pro items *something*, *anything* and *everything* can function within a sentence as more central, core items, i.e. subjects or objects:

something *in the afternoon*, Nina, 45

they just used to save ***everything*** *I mean the small stuff used to go in soup*, Mark, 67

oh that's ridiculous did they get ***anything***?, Kelly, 49

Or as more peripheral items, specifically as *general extenders*, where they are non-essential discourse particles which generally occur at the end of a turn (Tagliamonte & Denis, 2010:335) and are used "to evoke some larger set" (Dubois, 1992:198):

erm it's all about drugs or ***something***, Jamie, 18

which is quite good for like socialising and ***everything***, Lisa, 17

just blocks of buildings with no character or ***anything***, Matt, 45

Apparent time research into general extenders throughout the English-speaking world has shown that they are on the rise. In a cross-study comparison of general extenders, Tagliamonte & Denis (2010) showed that in apparent time they were steeply on the rise in Toronto, Canada; London, Milton Keynes, Hull, England; Wellington, New Zealand; and Melbourne Australia, showing an average increase from 20 occurrences per 10,000 words in speakers over 60 to over 40 instances in speakers who were between 20 and 29.

As with most peripheral grammatical items, e.g. as discourse markers, this growth in peripherality can lead to a certain amount of *semantic bleaching*, which means the form tends to carry less syntactic weight (Hopper & Traugott, 1993:87). Drager (2011) carried out a study of the phonetic realisations of the word *like*, comparing it across different grammatical functions. For example:

Discourse marker like:	the restaurant was, *like*, full.
Quotative be like:	she *was like* "get off me".
Comparative like:	carrots are *like* parsnips.
Verbal like:	I do *like* lunch.

Drager (2011) found that the more peripheral contexts of use, i.e. discourse marker and quotative *like*, were subject to greater phonetic reduction than the less peripheral uses such as comparative or verbal *like.* For instance, more peripheral items were more likely to exhibit /k/ lenition and /ai/ monophthongisation. This finding supports the general finding that as a form grammaticalises, it tends to also become phonetically reduced (Tagliamonte & Denis, 2010; Levey, 2006).

This process could impact on TH-fronting; if TH-fronting is a reductive process, then it may be more likely to occur in the more grammatically peripheral extenders, akin to the findings for *like* presented by Drager (2011). If there is evidence for this process, examining its development across the age cohorts might provide insight into the embedding of TH-fronting, and by extension features like TH-fronting, within a linguistic system.

Figure 49 shows the rate of TH-fronting in TH-pro items depending on context of use – whether the item is used as a general extender or not.

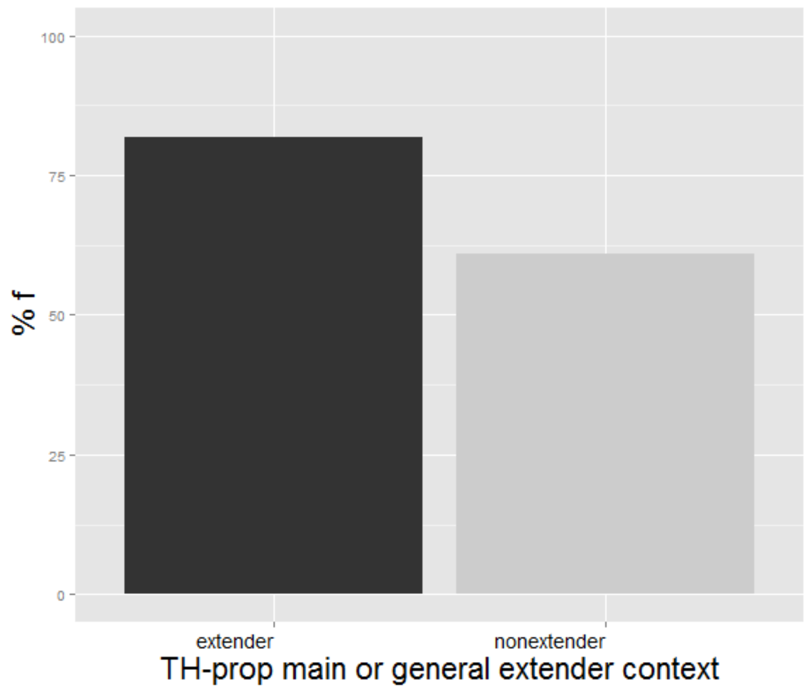

Figure 49: proportion of [f] in TH-pro items, general extender and non-extender contexts

Figure 49 indicates that grammatical context influences rates of TH-fronting. Rates of TH-fronting are higher in more grammatically peripheral items. In other words, there are higher rates of fronted forms when TH-pro items are used as general extenders. This association was highly significant: TH-pro items functioning as general extenders are more likely to be fronted than TH-pro items which occupy more grammatically core positions $\chi^2(1)$, p= <.001. In this sense, TH-fronting may be described as a process that is constrained by morphophonological factors. The finding that TH-fronting is more likely with grammatically peripheral items may provide further evidence for the description of TH-fronting as a reductive process.

However, as a review into the research into general extenders has shown, their use increases as the age of the speaker decreases. If the younger speakers in Hastings use more TH-pro items in the general extender position, this may mean that the observed lexical effect is more likely due to the underlying functions of the items. To examine this, use of the TH-pro items as general extenders is cross-tabulated with the age cohorts in the Hastings sample. This is shown in figure 50.

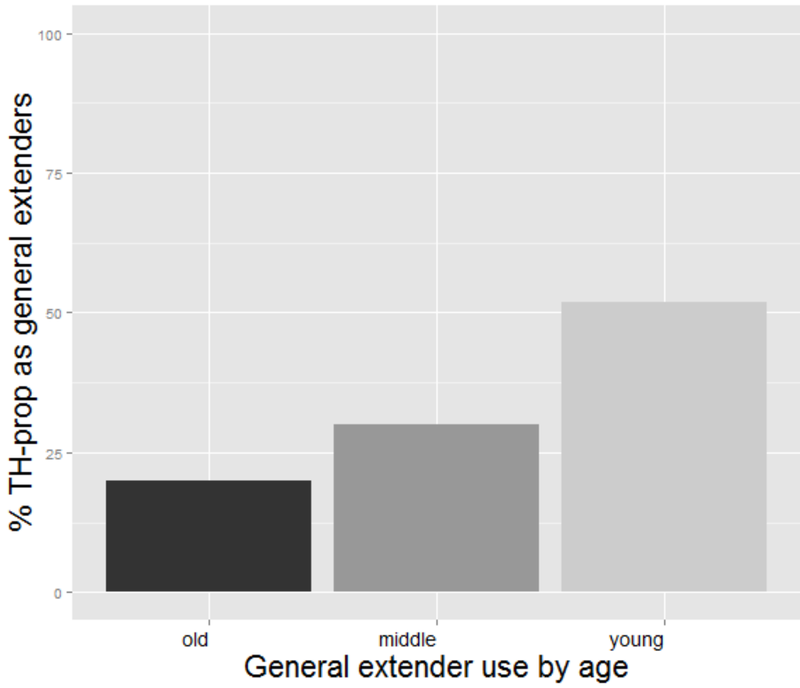

Figure 50: proportion of TH-pro items in general extender function across age

The figure shows a clear progression in terms of the increase in use of the TH-pro items in the general extender function over the age cohorts in Hastings. The old cohort use TH-pro items in this function at 18%, with the middle age cohort at 32% and the young speakers at 51%. The use of TH-pro items as general extenders is evidently on the rise in Hastings.

However, it is clear that although the older and middle speakers may use a smaller proportion of TH-prop items as general extenders, all age cohorts do use them in this function. This means that it is possible to compare each cohort's level of TH-fronting across TH-prop items when they are used in full semantic function to when they are used as general extenders. This comparison is shown in figure 51; all TH-prop items are compared for old middle and young cohorts. In this figure, black bars demonstrate the proportion of fronted tokens when the TH-prop items are used in an extender function (i.e. a grammatically peripheral role). The grey bars show the rates of non-standard use when they feature in a non-peripheral role.

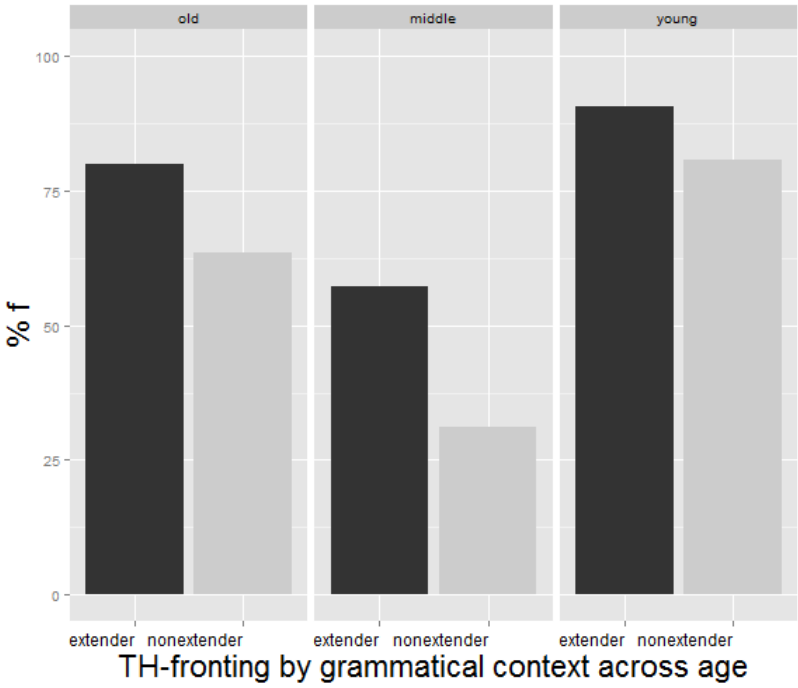

Figure 51: proportion of [f] for TH-pro items in general extender versus content function by age

Figure 51 shows that each age cohort demonstrates the same pattern for this constraint: they use more of the fronted variant in the grammatically peripheral extender functions. Low cell counts mean that this pattern cannot be tested statistically; however, as a trend it does suggest that TH-fronting is subject to morphophonological effects. More importantly, this finding is evidence that TH-fronting is a reductive process.

4.6.7 SUMMARY OF CONDITIONING FACTORS

Before the relative effects are considered in a multivariate analysis, the main findings are reviewed for the individual factors.

- Age: TH-fronting was identified as a change in progress as indicated through the increased use of the non-standard form over time. While the old cohort used less than 10% of the non-standard form, younger speakers used almost 80%.
- Old individuals: in the old cohort there was only one speaker who showed any significant amount of TH-fronting. This speaker was taken to represent the point of entry of this form to Hastings, and his variable patterns were assumed to reflect the earliest stage of this variable feature in Hastings.

- Middle individuals: the individuals in the middle cohort did not behave uniformly and instead were analysed in terms of those who used high rates of the non-standard form and those who used lower rates of the non-standard form. This split further corresponded with a gender difference where males used higher rates than females.
- Young individuals: the young individuals showed fairly uniform rates of use. Categorical speakers were removed from the variable analysis. Unlike the middle cohort, there was no evidence of a gender difference.
- Word position: this factor strongly conditioned the variation and was consistent across age cohorts.
- Preceding and following phonetic environment: phonetic environment did not significantly condition the variation.
- Lexical effects: lexical item was shown to condition the variation for every age cohort. However, the patterning of this factor was not consistent across ages. A possible reason for this was that, as this feature has yet to fully stabilise in this variety, lexical effects are not transmitted between generations. Alternatively, the inconsistent lexical effects may reflect changes in grammatical functions of individual items.
- Grammatical peripherality: examining the different functions of TH-pro items revealed that more peripheral functions promoted a greater degree of TH-fronting, a finding that was consistent across the age cohorts.

In review of these findings, TH-fronting is a rapidly changing feature in Hastings which has gone from being virtually absent to almost categorical over the course of three generations. While word position and lexical item constrained the data, phonetic effects were not significant; this possibly provided evidence for the assertion that TH-fronting is change that comes from outside the community and is spread through diffusion.

Some factors revealed consistency between age groups. For instance, word position and grammatical peripherality were constant. These findings could suggest that these constraints are transmitted along the variable itself. Alternatively, these findings could provide evidence for the description of TH-fronting as a reductive process and therefore one that is more likely to arise in less prominent positions (i.e. word finally and in grammatically light functions, cf. Shockey, 2003: Drager, 2011). Other factors were inconsistent – lexical item for instance, possibly as this factor has yet to stabilise or possibly because it is masked by interacting factors (grammatical function for instance).

Following the factor-by-factor analysis, all constraints are considered simultaneously in a multivariate analysis.

4.6.8 Multivariate analysis

The multivariate analysis was conducted using RBrul (Johnson, 2009: http://www.danielezrajohnson.com/Rbrul.R). Based on the analysis of the individual constraints, a step-up/step-down analysis was performed with the following factors entered into the model:

Fixed:	Random:
Word position	Speaker
Lexical item (collapsed categories)	Interacting:
Age	Age*lexical item
Gender	Age*gender

The resulting model is shown in table 14.

Significant predictors	Factor weight	Log odds	N	Proportion of [f]-realisations
Position				
Final	0.74	1.04	242	0.73
Medial	0.39	-0.47	659	0.39
Initial	0.36	-0.57	1563	0.36
Lexical item				
Content	0.74	1.06	684	0.74
TH-Pro	0.58	0.33	544	0.58
Numerals	0.45	-0.22	408	0.45
Thing	0.37	-0.52	379	0.37
Think	0.34	-0.65	449	0.34
Age				
Young	0.98	1.04	242	0.99
Middle	0.4	-0.47	659	0.4
Old	0.02	-0.57	1563	0.02
Gender				
Male	0.8	1.38	1211	0.8
Female	0.2	-1.38	1253	0.2
Lexical item*age				
Old:				
Content	0.79	1.34	281	0.15
Thing	0.79	1.33	114	0.07
Think	0.35	-0.61	107	0.03
Numerals	0.3	-0.84	159	0.09
TH-pro	0.23	-1.22	165	0.08
Middle:				
Think	0.67	0.7	189	0.27
Numerals	0.65	0.61	147	0.37
TH-pro	0.57	0.29	168	0.3
Content	0.34	-0.67	215	0.5
Thing	0.29	-0.92	159	0.2
Young:				
TH-pro	0.72	0.93	211	0.85
Numerals	0.56	0.56	102	0.65
Think	0.48	-0.71	153	0.7
Thing	0.4	-0.41	106	0.76
Content	0.34	-0.68	188	0.84
				Deviance = 1259.25 *df* = 19 Standard deviation for speaker = 2.9

Table 14: logistic mixed-effects model of TH-fronting in Hastings

Table 14 shows that, consistent with the factor-by-factor analysis, all significant factors in the individual analysis made a significant contribution to the model. The step-up and step-down analyses matched indicating that any significant interaction was accounted for.

The model demonstrates that from the factors tested, four were significant: word position, lexical item, age and gender. Lexical item also showed a significant interaction with age so that old, middle and young speakers showed different constraint patterning for this factor. Word position showed the previously reported hierarchy: word final contexts favoured fronting, while medial and initial contexts disfavoured fronting, as revealed through their relative factor weights. Lexical item was also significant: overall content words and TH-pro items favoured TH-fronting. Numerals and the items *thing* and think moderately disfavoured TH-fronting.

For age, as the apparent time view of the data indicated, the young age cohort strongly favoured fronting, the middle cohort mildly disfavoured it and the old age cohort strongly disfavoured fronting. Males strongly favoured fronting, while females strongly disfavoured it. An interaction between age and gender was tested for but was not selected as significant. This suggests that once individual behaviour was factored into the model, the gender effect was consistent for each age cohort.

The interaction between age and lexical item was revealed as significant. This confirmed the earlier analysis that showed that this constraint showed patterning specific to each age cohort. The old cohort showed the following pattern: content words > thing > think > numerals > TH-pro items; middle speakers the following: think > numerals > TH-pro items > content words > thing; and young speakers the following: TH-pro items > numerals > think > thing > content words. The different ranking of lexical effects across the age cohorts suggests that this factor is not as strong as word position. Further, as the analysis of the general extenders suggested, the visible lexical effects may be directly linked to grammatical features. More work into the relationship between grammatical context and TH-fronting is necessary in order to disentangle these effects.

Before the discussion, one finding that perhaps merits slightly more attention is the speed at which the change has spread. Hastings is not unique in showing an almost categorical switch from the standard form to the non-standard form over the course of three generations. However, a change that appears to function this quickly and operate with such a high degree of awareness will inevitably invite an alternative interpretation. TH-fronting may indeed not change as fast as the apparent time data suggests, and the patterns demonstrated here could in fact be an example of age-grading. However, in order to test this empirically requires real-time data. Given the time-scale involved, projects that have gathered real-time data have only very recently had the time depth necessary to yield actual findings (e.g. Gregersen, 2009; Sankoff; 2007). However, as demonstrated by Gillian Sankoff (2004), the longitudinal British documentary 7-up[19] can provide a useful source of real-time data. Therefore, in order to explore the question of age-grading versus actual change, the following section presents the results from a small-scale real-time study of TH-fronting in data from the 7-up documentary.

4.6.9 Age-grading or rapid change: a small scale real-time study

From the 7-up sample of participants a sub-sample of three working-class females from London – Jackie, Lynn and Sue – was selected. Being from London not only made them suitable for comparison with my Hastings data, but also, as London is often identified as the source of the feature (e.g. Milroy, 2007), there was a good chance the variable would feature in the speech of these individuals. Indeed, a preliminary analysis confirmed that the feature was variably present.

Using the data from three working-class female speakers from London, I charted their use of TH-fronting over the course of their lives. These findings are shown in figure 52 below.

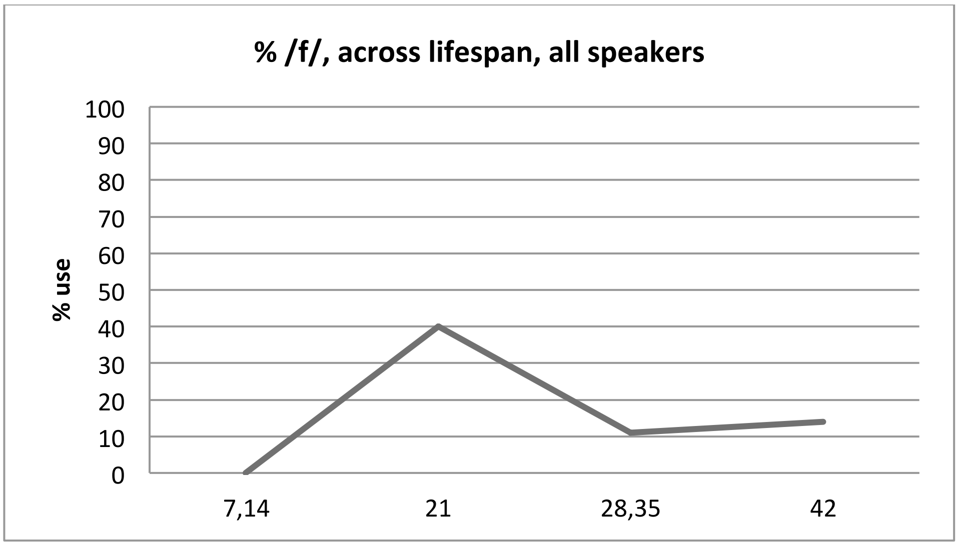

Figure 52: % use of non-standard [f] for all speakers combined

Figure 52 demonstrates that the women used variable rates of the form over their lives. They used none of the non-standard during childhood, followed by a spike in use during adolescence. During middle age they showed a retreat away from the non-standard form, followed by a slight rise in use as they reached later middle age.

What this finding suggests is that TH-fronting may be far from stable across a speaker's lifetime. The 7-up data therefore indicate a clear case of age-grading. However, age-

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[19] http://en.wikipedia.org/wiki/Up_Series

grading as defined by Labov (1994:84) refers to a situation where, although speaker rates of a feature may fluctuate over the course of their lives, the feature itself is not changing: "If individuals change their linguistic behaviour throughout their lifetimes, but the community as a whole does not change, the pattern can be characterised as one of *age-grading*".

Many studies of TH-fronting have shown that TH-fronting is a feature undergoing change in the UK. Further, the rates reported here for the East London females are far lower than more recent recordings of Londoners, suggesting that this feature has been in a process of change (Tollfree, 1999; Schleef & Ramsammy, 2013). The results here suggest that these processes are not mutually exclusive and they may occur together.

Further investigation into the conditioning of this feature in the 7-up data revealed that while the rates varied over time, the patterning of the strongest linguistic constraint remained stable. This is shown figure 53.

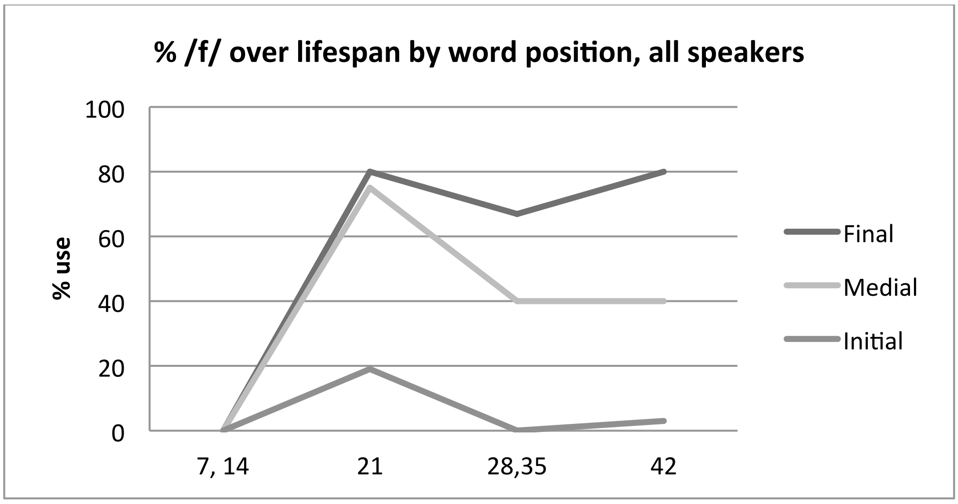


Figure 53: proportion of non-standard [f] use over time

Figure 53 demonstrates that the word position constraint is stable over time – that is, even while the rates are variable, the pattern of final > medial > initial remains constant. What the results from the 7-up data suggest is that while the overall rates of TH-fronting may be variable, the underlying grammar is less prone to disruption. This is in line with Labov's (1994:111–2) suggestion that across their lifetimes, speakers are only able to modify the more surface elements of their language: "variables operating at a high level of social awareness are modified through a person's life...categories that underlie the surface variation remain stable".

Taken together, these findings suggest a number of things about TH-fronting in the southeast. First, this is a change that is subject to age-grading; speakers may vary their rates of use over time. Second, while speakers may have control over and vary the rates of use, the underlying grammar (expressed here in the positional constraint) remains stable. Finally, and most importantly, these findings, together with the results from many apparent time studies, suggest that TH-fronting may be an example of a change in progress that is simultaneously subject to age-grading; i.e. the two processes are not mutually exclusive.

In sum, what this study may suggest is that while the feature may be in a process of change, apparent time analyses must be approached with a degree of caution, as they may slightly overestimate the rate of change.

4.7 Discussion

Now that the patterns in the data have been explored, it is possible to return to the research questions.

1. Is TH-fronting an ongoing change in Hastings? How does it pattern linguistically and socially?

TH-fronting is variably present in Hastings. It shows a large range of individual variation: more than half of the speakers in the old cohort showed categorical rates of the standard variant, while several of the younger speakers showed the opposite trend of categorical use of the non-standard form. The middle cohort showed a marked split in terms of extremely high-f users (>70%) and low to non users of the non-standard form. The view from apparent time suggests that, within Hastings, this feature has gone from being barely present, to reaching categoricity within the space of two generations. This striking increase may be linked to a number of different factors, for instance the nature and status of the feature itself as well as the current linguistic trends at work within England – specifically, large-scale levelling which involves the extensive diffusion of supralocal features such as TH-fronting. These patterns of diffusion may be further combined with other, internal factors; this point is discussed in more detail below.

The feature was conditioned by a number of factors. Starting with linguistic constraints, Hastings echoed many previous studies of TH-fronting where word position was a powerful constraint. Word position was a conditioning factor for all variable speakers and was also consistent across age insofar as each cohort replicated the same hierarchy: final > medial > initial. As several other researchers have also done, this finding was related to the theory that TH-fronting as a neutralisation process (i.e. a contrast is lost) is more likely in less prominent positions, i.e. coda/medial position as opposed to word initial contexts, which receive greater stress in terms of energy and articulatory effort. This was also related to the finding that there was a visible (although not statistically significant) trend for turn initial and final as well as following/preceding sonorants to inhibit fronting. However, on the whole, phonetic conditioning was not significant, which suggests that TH-fronting is not, as previous descriptions have also attested, a phonetically motivated change in the traditional Neogrammarian sense. However, that is not to say that its spread and propagation is not aided by particular system-internal factors which make it a favourable or "natural" change. For instance, as discussed in section 4.1.4, TH-fronting has many characteristics that aid its spread; for instance /f/ and /θ/ are acoustically similar (Jongman, Wayland & Wong, 2000). Further, articulatorily, /θ/ is harder to master than /f/ and is usually acquired later (Milroy, 2003:218). In sum, as TH-fronting is favoured in less prosodically prominent positions, the word position effect may provide evidence for TH-fronting as a reductive process.

Although lexical item was significant for each cohort, they each showed a slightly different ordering of the hierarchy. A clear lexical explanation for this result was not obvious; rather it could possibly relate to the feature's route into the language, i.e. that it is both transmitted through the generations, hence it increases incrementally through the generations, and it is also continually reinforced through diffusion, which may explain why the lexical patterning is not preserved across the different generations as it is continually disrupted.

Altogether, the rapid spread, the positional effect and the lexical effect suggest three (related) things about TH-fronting. First, the steady and rapid increase in apparent time suggests that this feature is embedded and is therefore being transmitted from generation to generation. Second, the consistent word position effect may suggest that this constraint is passed down alongside the form. Alternatively, the consistency may indicate the reductive nature of the change where the overriding tendency for the form to occur in less prominent positions is replicated by all variable speakers, regardless of age. Third, the inconsistent lexical patterning may suggest that TH-fronting is spread through a combination of transmission and diffusion – transmission shown through the increase over time and diffusion demonstrated in the inconsistent patterning of lexical effects over the generations. The inconsistent lexical effect compared to the consistent word position effect suggests that the change exhibits an interplay of sources – transmission reinforced through repeated diffusion.

This line of reasoning is arguably strengthened through the analysis of grammatical peripherality which supported the description of TH-fronting as a reductive feature. Although grammatical category did not feature in the final multivariate analysis, an exploration of this factor did suggest that it conditioned the variation. Specifically, a particular subset of the TH-pro items could function as *general extenders*, a grammatically peripheral role. Grammatical peripherality has previously been shown to correlate with phonetic reduction (e.g. Drager, 2011). This was also the case in the Hastings data, where grammatical category was a predictor of phonetic reduction; i.e. TH-fronting was more likely to be fronted if it was being used as a general extender (e.g. *he took me to the cinema* ***and everything***) compared to when it was used as a more central grammatical role. Further, each age cohort showed the same pattern for this effect. This finding suggests that, like the word position effect, the reductive nature of this process means it is more likely to occur in less prominent positions, both prosodically and grammatically.

In terms of social factors, as with many other studies of TH-fronting, age was a highly significant predictor of TH-fronting, with young speakers using far more of the non-standard form than older speakers. Again, in line with previous research, gender was also a significant predictor. Overall, the model showed that male speakers showed higher rates of TH-fronting than females. The factor-by-factor analysis suggested that gender and age interacted (although this was not selected by the model as significant). The gender pattern echoed previous findings for this form, that it is a male-led and stigmatised change from above.

2. What can the linguistic constraints of a feature reveal about its route into the language; can it be determined whether a feature has diffused to, or been transmitted through a variety?

A comparison of results from Hastings with previous analyses of TH-fronting and other (possibly) diffusing features suggests a number of things. Most notably, as mentioned previously, probably the best evidence for the origin of the feature is the lack of phonetic conditioning and the presence of lexical conditioning. These results suggest that TH-fronting originates from outside the system (i.e. it is not brought about through internal linguistic pressures) and is likely spread through diffusion; in the case of Hastings this feature most likely comes from London. However, as touched on in the section above, TH-fronting may not exhibit a single route into the language and may in fact spread through the combination of diffusion and transmission. Despite the lack of evidence for a *phonetic* motivation, there is evidence for a type of correspondence between internal and external motivations for the change. For instance, it is more common in word final positions and grammatically peripheral roles. While these may not indicate a solely internal origin for TH-fronting in Hastings, what these findings may suggest is how TH-fronting, as a reductive process, is in many ways a catalysed change. Here diffusion and transmission exhibit an almost symbiotic relationship where each route strengthens the other and they combine to accelerate the change.

3. What can the social patterning of a feature reveal about its status within the community? Can highly salient features be literally taken “off the shelf”?

As well as the interplay of external and internal motivation for the form, J. Milroy (2003:164) describes its social profile as a modern and regionless “youth” form as yet another factor that aids its spread. Combined with its ease of acquisition, its attractive social status makes it a prototypical example of an “off the shelf” change (L. Milroy, 2007:150).

The mini real-time study conducted on the 7-up data can also contribute to the social profiling of TH-fronting. The three women from London all showed a sharp spike in the use of the feature in adolescence followed by a sharp retreat in use of the feature as they entered middle age. This suggests that the feature exists high enough above the level of consciousness that it is subject to vary over a person’s life. This also suggests that the feature does in fact carry associations of stigma and perhaps indirectly also with youth culture. As Chambers (2003:186) labels them, “declarations of adolescence” can take linguistic forms such as increased usage of slang and a conscious rebelling against the standard. The patterns in the 7-up data could be linked to the concept of the “linguistic marketplace” (Bourdieu & Boltanski, 1975). That is, as a speaker moves through stages of their lives different features have fluctuating market values relative to their inclusion under the “standard language” banner. During adolescence, slang and non-standard features have a high market value. As speakers age, they experience greater pressure to conform as the value of the standard register increases (Chambers, 2003:187). Sankoff & Laberge (1978) note that this is particularly true of “language sensitive” roles such as teachers and administrators. Traditionally, a greater proportion of women go into these roles; this might be one reason why women show a greater retreat towards the standard than men. This may have been the cause of the gender split within the middle cohort in the Hastings sample. A check on the careers pursued by the 7-up women, Jackie, Lynn and Sue, reveals that they worked as a secretary, a university administrator and a librarian respectively. These are classic language-sensitive roles; it may have been the pressure from the linguistic marketplace to conform to the standard that caused the radical drop in TH-fronting in their speech.

The results from the real-time study suggest that TH-fronting is prone to age-grading. This does not mean that TH-fronting isn’t a feature in the process of change; it is certainly on the rise. However, it would appear that apparent time studies may have overestimated the rate of change. All three London speakers from the real-time study showed evidence of age-grading, i.e. an increase in adolescence followed by a decrease as they entered adulthood.

The data confirmed many previous descriptions of TH-fronting as a male-led change. Indeed, Trudgill (1999) noted that TH-fronting possessed many characteristics that make it an ideal candidate for indexing masculinity. Taking the evidence from the mini real-time study together with the gender effect present in the Hastings data supports the frequent description of TH-fronting as a non-standard feature. Although it may be becoming more prevalent, and as a result possibly less stigmatised, its use as a marker of youth suggests that it may retain its associated covert prestige for a little while yet. The marked generational increases, combined with the fluctuating rates of the feature as shown by the 7-up study, suggest that TH-fronting is a readily available linguistic accessory which can be taken “off the shelf” at any point.

4.7.1 Conclusion

The study of TH-fronting in Hastings showed that it is a feature undergoing rapid change, as is likely the case for the southeast more generally. An examination of the linguistic and social constraints suggested the interplay of internal and external sources that may combine to bring about the extremely rapid spread of this feature. The analysis of the feature supported its description as an easily acquirable and highly salient “off the shelf feature”. This description was underlined by the results of the real-time study, which showed the speakers making a marked withdrawal from the feature as they entered adulthood. Interestingly, while the speakers were able to vary their rates of the feature, they did not display the same level of command over the underlying grammar. In sum, the analysis of TH-fronting provided an example of the interaction between system internal and system external motivations for language change.

5 GOOSE-FRONTING

5.1 INTRODUCTION

This chapter looks at GOOSE-fronting, a change that has been described as an endogenous change which is motivated by internal linguistic pressures (Labov, 1966). However, as outlined in greater detail in the research context, the distinction between endogenous and exogenously motivated changes can become blurred as a result of contact (e.g. Kerswill et al, 2008; Mesthrie, 2010). The present chapter aims to contribute to our understanding of how these forces may interact through an empirical analysis of GOOSE-fronting. The analysis of this internally driven change will provide a comparison to the putatively externally motivated changes analysed so far.

5.1.1 GOOSE-FRONTING: DEFINITION AND DESCRIPTION

The GOOSE vowel refers to the lexical set which is outlined by Wells (1982:147) as "those words whose citation form in RP and GenAm has the stressed vowel /u(:)/". Despite its IPA symbol, which denotes a high, fully back rounded vowel, in English it is typically more central than this label suggests (Catford, 1988:128) and is alternatively, and perhaps more accurately, transcribed as [ü], or [ʉ]. It can occur in both checked positions where it is bound by preceding and following consonants (i.e. *food, spruce, moon* etc), and also in following unchecked positions where the word does not contain a following consonant (i.e. *who, crew, due* etc), and it is frequently preceded by the palatal approximant /j/ (or jod) (i.e. *new, queue, beauty*) (Wells, 1982:147).

As well as GOOSE, this form and the associated change is also referred to in the literature as /uw/ or /uw/-fronting (e.g. Labov, 2001). Many recent studies have shown that this feature appears to be getting fronter in apparent time (e.g. Harrington et al, 2008:2825) in many separate varieties of English. GOOSE-fronting has been found in North America (Labov, 1994, 2001; Clarke et al 1995; Ash, 1996; Fought, 1999; Hall-Lew, 2005; Fridland, 2008), Australia (Cox, 1999), New Zealand (Easton & Bauer, 2000) and in South Africa (Mesthrie, 2010). GOOSE-fronting has also been found in many varieties of British English: in London (Cheshire et al, 2011; Tollfree, 1999; Altendorf & Watt, 2008), Standard Southern British English (henceforth SSBE) (Hawkins & Midley, 2005; Altendorf & Watt, 2008; Williams & Kerswill, 1999), RP varieties (Roach & Hartman, 1997; Harrington, 2008:2825), Nottingham (Flynn, 2012:20), Manchester (Hughes et al 2011) and Carlisle (Jansen, 2010).

The majority of studies report the change in GOOSE in terms of a single front/back dimension, and commonly report the degree of change through measuring the second formant (F2). The reason for doing so is that the front/back dimension of the vowel space correlates with the second formant (F2) (Johnson, 1997:107). Back vowels have lower F2 than front vowels. This means fronter articulations produce higher F2 frequencies. In addition to how front the realisation of the vowel, some phonetic descriptions of GOOSE report that it is often articulated with varying degrees of diphthongisation. It is therefore sometimes transcribed as [ʊu] (Catford, 1988:128; Wells, 1982:147). However, results from these studies indicate that while this may be a variable aspect of the GOOSE vowel in many varieties, this element does not appear to be a change in progress. In fact, analyses into this variable element suggest that the diphthongisation may be a cue that serves to distinguish GOOSE from the high front vowels. In an indirect way this phonetic aspect actually promotes GOOSE-fronting, as it prevents a GOOSE/FLEECE merger (Chladkova & Hamman, 2011).

5.1.2 GOOSE-fronting: a change from below

On the whole, studies of GOOSE-fronting report linguistic and social patterning consistent with what Labov (1966) terms a change from below. The next two sections provide a summary of these findings and how they support this definition, starting first with the linguistic profile of this change.

5.1.3 Change from below: linguistic profile

A central characteristic of changes from below is that they are motivated by “the operation of internal, linguistic factors” (Labov, 1994:78). Labov’s (1994:116) third principle of the internal motivation for linguistic change states that a natural phonetic tendency is for “back vowels move to the front”. However, while there may be support for this principle by way of the numerous studies which report changes such as GOOSE-fronting, the principle is in itself not explanatory.

Stockwell & Minkova (1997) suggest that one reason for this tendency is the relative crowding of the back vowel space in comparison to the front of the vowel space. This is schematised in figure 54.

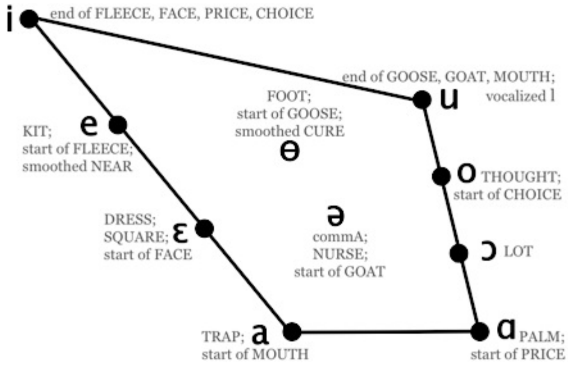


Figure 54: vowel quadrilateral (based on British English) (from Lindsey, 2012)

Stockwell & Minkova (1997) argue that this "overcrowding" exerts a functional pressure on the back vowels, and in order to make them maximally differentiable they naturally move to the front of the vowel space over time.

As well as an overcrowded back vowel space, preceding phonetic environment is also often implicated in the motivation of this change. The GOOSE vowel is frequently preceded by the palatal approximant /j/. This can occur alone in words such as *you, use, youth,* and also in preceding consonantal clusters which contain jod e.g. *news, few, beauty, tune* etc. Fridland (2008:446) argues that this pre-palatal environment promotes a fronter articulation of the following consonant. Further, as the preceding palatal environment occurs so frequently, the fronter articulation becomes the normal target. This target is extended to other phonetic environments and applied categorically (Harrington et al, 2008:2830). Harrington et al (2008:2830) suggest that GOOSE-fronting "involves realignment in production of the phonetically back allophones of /u/ toward a phonetically front position". This "realignment" suggests a category shift induced by coarticulatory tendencies. This description was further supported by a perceptual study where younger speakers showed an /u/ category boundary that was much closer to /i/ than the older speakers (Harrington et al, 2008:2825).

Overall, the crowded back vowel space coupled with the high incidence of preceding palatals creates a phonological environment which induces fronting (Fridland & Bartlett, 2006:18). These then provide an explanation for the tendency of back vowels to front, as outlined in Labov's (1994:116) third principle. Further support for an internal linguistic motivation comes via the presence of strong phonetic conditioning of the change. Studies of GOOSE-fronting demonstrate that this is almost always the case, and preceding and following environment are frequently reported as the strongest constraints on the variation (e.g. Labov, 1994, 2001; Clarke et al 1995; Ash, 1996; Fridland, 2008; Flynn, 2012).

In sum, both the system internal motivation and the strong linguistic conditioning suggest that linguistically, GOOSE-fronting behaves as a characteristic change from below. The following section reviews the social profile of this change.

5.1.4 Change from below: social profile

While GOOSE-fronting is widespread, there is little evidence to suggest that speakers are aware of it. It is not subject to overt social commentary and it does not appear to exhibit connotations of prestige or stigma. Nor does it show any strong associations with particular social or regional groups (Fridland, 2008; Haddican et al, 2013). Where social conditioning has been shown to operate on GOOSE-fronting, it frequently operates at a locally meaningful level (e.g. Fought, 1999; Mesthrie, 2010). Further, social effects are frequently overshadowed when compared to linguistic constraints (e.g. Hall-Lew, 2011).

In summary, GOOSE-fronting appears to be a widely occurring, linguistically conditioned change. Its prevalence in the English-speaking world is likely brought about by parallel but independent developments due to the phonological pressures shared by different varieties (Fridland, 2008:4449). Although GOOSE-fronting has been seen to occur alongside some larger vowel shifts, it does not appear to interact directly with any other part of the vowel system (Labov, 1994:209). A related point suggests that one reason it acts independently is that, despite extreme fronting, GOOSE retains articulatory/acoustic properties that keep it distinct from FLEECE. GOOSE-fronting does not show any consistent social patterning and speakers do not appear to be aware of it. These observations suggest that GOOSE-fronting is a naturally occurring endogenous change that operates below the level of consciousness and is hence typical of a “change from below” (Labov, 2007:346).

5.1.5 Endogenous change and levelling

Recall section 1.2.2. which describes Kerswill’s (2002:187) distinction between *regional dialect levelling* the outcome and *dialect levelling* the process. Kerswill (2001:187) describes regional dialect levelling as the “loss of localised features in urban and rural varieties of English in Britain, to be replaced with features found over a wider region”. He further suggests two main mechanisms involved: diffusion and levelling. In short, the first, *diffusion*, refers to situations where features spread outwards from dominant cultural centres, usually cities (Trudgill, 1983; Britain, 2002), whereas the second, *levelling*, is where there is a reduction in the amount of variability which sees "the reduction or attrition of *marked* variants" (Trudgill, 1986:98). Kerswill (2003:224) makes the point that distinguishing these two processes is "conceptually straightforward"; however, in interpreting the data they can be difficult to separate as they both involve the incoming of supralocal forms. One focus of this research is to contribute to the understanding of how these mechanisms function and how they contribute to regional dialect levelling. One way of gaining insight to how these different types of changes develop could be to further contrast them with a seemingly endogenous change. This is the rationale behind the selection of an endogenous change alongside the exogenous variable analyses.

5.1.6 Research questions

The research questions of the present chapter are:

1. Is GOOSE-fronting an ongoing change in Hastings? What do the linguistic and social patterns of this variable indicate about the origin of this change?
2. If GOOSE-fronting, in line with most other descriptions of this process, behaves as an internally motivated change from below, how does this compare to other types of changes, for example changes brought about through levelling or diffusion?

5.1.7 Linguistic and social constraints on GOOSE-fronting

Before it is possible to outline the specific research objectives, it is first necessary to take a more detailed look at the findings from previous studies of GOOSE-fronting. As linguistic factors are reported on more frequently and are often reported as having a greater influence on the variation, these are described first. Following this, GOOSE-fronting as it is constrained by social factors is discussed.

5.1.8 Linguistic factors

As predicted for an internally motivated change (e.g. Labov, 1994), phonetic factors are generally reported as conditioning the change most strongly. Phonetic factors are most commonly dealt with in terms of preceding and following environment.

5.1.8.1 *Coda -/l/*

A coda /l/, in words such as *tool*, *school* and *rule* etc, is frequently reported as the strongest phonetic constraint (Labov, 2011:262; Hall-Lew, 2005:4; Fridland, 2008:443, Mesthrie, 2010:10). Some researchers suggest that the inhibitory nature of coda /l/

contexts is representative of a phonological divide labelled the GOOSE/GHOUL split (Labov, 1994; Wells, 1982). This is due to the fact that early evidence suggested that the inhibitory effect was absolute; i.e. these contexts did not permit *any* degree of fronting (Ash, 1996). Later studies suggest that this environment does eventually participate, but at a much slower rate (e.g. Flynn, 2012:34). This may indicate that every context is ultimately susceptible to fronting, although pre-coda /l/ resists the change for the longest amount of time (Fridland, 2008:445). However, because of the extreme effect this context has relative to all other following phonetic environments, it is generally excluded from the final analysis.

5.1.8.2 *Preceding phonetic environment*

Excluding coda /l/, the strongest and most frequently reported constraint is preceding phonetic environment. Two main findings emerge from the literature on GOOSE-fronting with regards to preceding phonetic environment. First, there appears to be striking regularity in the patterning of this constraint between separate varieties. Second, this constraint weakens over time.

In terms of the constraint pattern, most studies present a preliminary fine-grained break down of the conditioning of preceding phonetic environment. This is then usually collapsed into either a two-way, coronal versus non-coronal split (e.g. Labov, 2011:267, Ash, 1996, Hall-Lew, 2005:4, Cheshire et al, 2011:171), or a three-way palatal, coronal and non-coronal split (e.g. Fridland, 2008:442; Flynn, 2012:29, Mesthrie, 2010:14). Both approaches reveal the same patterning: palatals tend to front more than coronals, which tend to front more than non-coronals, i.e. palatals > coronals > non-coronals. As Fridland (2008:442) observes, GOOSE-fronting is “exceedingly regular in its progression in different speech communities”. In other words, the rates at which different preceding environments participate in the change tend to follow a set order.

As mentioned, as GOOSE-fronting develops, this effect weakens. This means that for communities where the change is relatively new, preceding phonetic environment tends to show a stronger effect than it does in communities where the change has been established longer. For example, Harrington et al (2008:2830) found that phonetic conditioning on GOOSE-fronting was more pronounced in the older speakers than it was in the younger speakers, who showed greater levels of GOOSE-fronting overall. The tendency for the preceding phonetic conditioning to weaken over time is similar to that of the findings related to coda /l/. That is, just as eventually coda /l/ contexts participate in the change, preceding phonetic conditioning weakens so that all phonetic environments behave more uniformly over time.

The regularity of conditioning, and the virtually universal nature of the constraint hierarchy of this change in disparate varieties of English, has been used as further evidence in support of the description of GOOSE-fronting as an “internally driven shift” (Fridland, 2008:449).

5.1.8.3 *Following phonetic environment*

Following the exclusion of coda /l/ contexts, it is then possible to see the comparable effects of other following environments. However, the majority of studies, having removed following coda /l/ from the main analysis, report this factor as non-significant and remove this factor group from the analysis (Mesthrie, 2010:10).

Fridland (2008:444) reports that following phonetic environment is only significant when tokens with a preceding palatal are excluded from the analysis. Following this, she reports on a two-way split where coronals promote fronting more than non-coronals. In line with Fridland (2008), Flynn (2012:367) reports the following hierarchy for following phonetic environment when coda /l/ and preceding palatals are excluded from the analysis:

Consonant > pause > vowel

5.1.9 Social Factors

In studies of GOOSE-fronting, social effects are neither as pronounced nor pattern as consistently between varieties compared to the linguistic effects. Below, an outline of the studies that have found significant social effects for this change is presented.

5.1.9.1 *Age*

When viewed in apparent time, GOOSE-fronting usually shows an increase from old to young and indicates a change in progress. Age is usually the strongest social predictor. GOOSE-fronting was identified as a change in progress in US English (e.g. Ash, 1996). Hall-Lew (2005:5) reports that age was the most important social factor in her study of western US speakers in Arizona. Here, younger speakers showed higher rates of GOOSE-fronting than older speakers.

Age was also shown to be a significant factor in England. In his study of Nottingham speakers, Flynn (2012:23) showed that younger speakers fronted GOOSE significantly more than older speakers. Cheshire et al (2011:168) showed that adolescent speakers of Multicultural London English (MLE) showed greater levels of GOOSE-fronting than their main caregivers. While the adolescents showed greater degrees of GOOSE-fronting than their caregivers, they also showed more fronted GOOSE tokens than the two younger age cohorts (8–9 and 12–13yr olds). This most probably reflects the so-called "adolescent peak" (e.g. Labov, 2001: 455), where, as they mature into adolescence, children continue to advance the change through a process of incrementation, until their vernaculars stabilise (Cheshire et al, 2005:171). The presence of an adolescent peak further corroborates the interpretation of a change in progress within this speech community. Chapter 6 explores the concept of adolescent peaks and their implications for the propagation of change in progress.

5.1.9.2 *Gender*

In general, GOOSE does not show consistent patterning for gender. Observed gender effects are often not significant, or their effects are overshadowed by linguistic constraints (e.g. Hall-Lew, 2005). Further, gender is often shown to interact with other factors. Flynn (2012:26) showed that gender interacted with age where young females were significantly in the lead of their male counterparts, but this was not the case for the older speakers. Similarly, Kerswill (2005:1034) found that 12-year-old girls were in the lead of this change in Milton Keynes but that age and gender did not show up as significant predictors in any other cross-tabulation of age and gender within his sample.

Gender sometimes serves as an explanatory variable when a more micro-level analysis of the data is undertaken. In her study of GOOSE-fronting in Chicano English, Fought (1999:18) showed that gender interacted significantly with class and also gang-membership in predicting the extent a speaker participated within in the change. Males and females in this community differed in terms of the ranking of these constraints. For males, class was only a predictor for non-gang affiliated speakers who showed higher levels of GOOSE-fronting. For females, the opposite pattern was found where class was only a predictor when the speaker *was* affiliated with a gang. This study demonstrated that minority groups were in fact participating in mainstream language trends where they had previously been described as adhering to their own community-specific language norms (e.g. Labov, 1994:157). Further, it showed that the patterns needed to be understood in terms of locally meaningful social categories in order to account for the change, in this case gang-affiliation (Fought, 1999:5, see also Eckert & McConnell-Ginet, 1992:461).

5.1.9.3 *Class*

Similar to gender, class often shows weak and/or mixed results. Class occasionally shows up as an interacting factor, as, for example, in the Fought (1999) study detailed above. Flynn (2012:371) showed that class, like gender, interacted with age. For the older cohort, the middle-class speakers showed statistically significant elevated levels of GOOSE-fronting. The young speakers showed the same trend, but it was not statistically significant. Kerswill (2005:1033–4) suggests that GOOSE-fronting might have been more advanced in non-standard accents, as RP is shown to lag behind other varieties in terms of this change (e.g. Bauer, 1985). This might be further evidence for the observation that GOOSE-fronting is an endogenous change, operating beneath the level of consciousness. Its prevalence in non-standard accents compared to RP might reflect Labov’s (2001:32) principle I, where changes from below are led by the interior social classes. Kerswill’s (2005) observation suggests that this may have been the case with GOOSE-fronting in British varieties of English.

In sum, for class and gender, the observation that this feature does not show strong or consistent patterning is in line with its description as a change from below; i.e. it escapes social commentary and tends to be driven by system internal forces and constrained by linguistic factors.

5.1.9.4 *Style*

As a change that is typically described as operating below the level of consciousness, GOOSE-fronting would not be predicted to show style shifting. However, similar to Fought (1999), Mesthrie (2010) showed how, given the right set of social circumstances, GOOSE-fronting could rise above the level of consciousness.

In his study of GOOSE-fronting in post-Apartheid South Africa, Mesthrie (2010:3) argued that the form had developed social significance for some speakers due to the mixing of different ethnicities who had been previously segregated. Mesthrie (2010:3) structured his sample in terms of ethnicity to reflect the dominant groups living in South Africa. Following segregation, a consequence of the linguistic mixing of different ethnicities was the emergence of what Mesthrie (2010:28) referred to as a deracialised standard. Unsurprisingly, this standard was greatly influenced by the norms of White South African

English. This new standard interacted with existing standards and varieties, as revealed through the complex interplay of social and linguistic forces. Many features which were previously markers of “White South African English” were reinterpreted as indexers of middle-class speech. One example of this relates to GOOSE-fronting. For this feature, White South Africans showed a much fronter vowel than non-white speakers. For many speakers who were of non-white ethnicities, GOOSE-fronting rose above the level of consciousness; i.e. it was so much fronter in the speech of the white South African speakers that the difference was perceptible. Mesthrie (2010:28) found that all non-white ethnicities showed a move towards the White South African English norm.

Crucially, in terms of overt social awareness, not only did the non-white ethnicities show a move towards the White South African English norm, the feature began to show sociolinguistic tendencies associated with prestige changes from above. For instance, Mesthrie (2010:28) reported that the Black females demonstrated fronter GOOSE tokens when reading word-lists compared with more casual conversation. In other words, a change that most commonly operates below the level of consciousness had begun to show style shifting.

5.1.10 Summary of conditioning factors

A number of trends for the linguistic conditioning of GOOSE emerge from a review of previous studies:

- Linguistic conditioning of this feature is most commonly reported as much stronger than the social conditioning.
- The constraint patterns for the linguistic conditioning tend to be consistent across different varieties.
- Coda /l/ has been observed to be a strong (though not absolute) inhibitory factor, and for this reason it is most commonly excluded from the final analysis.
- Preceding phonetic context is the strongest conditioning factor and exhibits the following hierarchy: palatals > coronals > non-coronals.
- Some studies reported the operation of following phonetic environment as a conditioning factor with the following associated hierarchy: consonant > pause > vowel.

Compared to linguistic factors, social factors tend to have less impact on the observed variation, which is consistent with an internally driven change. However, some trends do emerge:

- Age is frequently reported to be a significant factor where younger speakers exhibit higher rates of fronting than older speakers, suggesting a change in progress.
- When social factors operate, they seem to function at a local level. Once established, GOOSE-fronting sometimes develops social associations, but these are not consistent and are often particular to the local community (e.g. Fought, 1999; Mesthrie, 2010).

In sum, these findings indicate that GOOSE-fronting usually starts out as a phonetically conditioned change which operates below the level of consciousness. Although subject to developing social evaluation, this is commonly negotiated at a local level.

Following the general trends, I turn now to examine GOOSE-fronting in the local context as it patterns in the southeast.

5.1.11 GOOSE-FRONTING IN THE SOUTHEAST

Traditional descriptions of the GOOSE- vowel in the southeast describe it as having a variety of realisations. Wright (1905) describes the /u/ type monophthong as a development from the Old English diphthong [eow] and notes that there is huge variation in the pronunciation of this vowel throughout England. Specifically within Sussex, Wright (1905) notes the presence of an ingliding high front vowel [iu] in words such as *rue, true*, the presence of a palatal and an ingliding front vowel in [jiu] in *you*, and a monophthongal but slightly fronted [u] in words such as *blew*, and open diphthong in *chew*. What this description suggests is that the GOOSE vowel has demonstrated a wide range of variation and evidence of diphthongal quality from very early on. There is also evidence of a slight fronted quality from very early on.

Wells (1985:306-7) describes the London GOOSE vowel (in particular Cockney) as being diphthongised and fronter than its RP counterpart. This supports Kerswill's (2005:1033–4) suggestion that fronting may have been more advanced in non-standard accents, although does not suggest that GOOSE-fronting is a non-standard feature *per se*. Gimson (1969:114–5) reports that the GOOSE vowel can have "slight" diphthongal variants and, further, that these diphthongal variants tend to be more basilectal, although he notes that many SSBE speakers use a slight inglide.

Altendorf & Watt (2008:190) note that GOOSE-fronting is a change in apparent time in SSBE at several surveyed locations (London, Colchester and Canterbury). They describe younger speakers as having fronter realisations, particularly following /j/. Williams & Kerswill (1999) report GOOSE-fronting in Milton Keynes and Reading. Tollfree (1999:168) reports variable realisations of GOOSE along the front/back dimension and that younger speakers appear to exhibit a more open quality GOOSE vowel. Cheshire et al (2011:163) observe that GOOSE is very front in MLE. Harrington et al (2008:2829) revealed significant differences between young and old speakers of SSBE in terms of GOOSE-fronting.

It is clear from studies from the southeast that this change does appear to be well underway in many southern varieties. These studies further suggest that this feature is more advanced in non-standard accents and particularly extreme in London. The present study aims to contribute to this area not only through providing another analysis of the feature, but by examining these results in light of the broader research aims of the thesis. Specifically, how does a seemingly endogenous change behave in a variety that is undergoing regional dialect levelling? It is this question, as well as the preceding discussion, which motivate the specific research objectives of the present chapter.

5.2 SPECIFIC RESEARCH OBJECTIVES

- Examine the variable by age in order to establish whether GOOSE is a change in progress in Hastings.
- Identify and examine the linguistic constraints in order to identify whether the patterning in Hastings is consistent with the dominant trends for this form, and further, whether this change displays the linguistic conditioning typical of an endogenous change from below.
- Examine the interaction between age and the social and linguistic constraints, as this will provide insight into the social and linguistic development of the change. This will also provide evidence as to the mechanism of change; i.e. do seemingly endogenous changes from below behave as predicted in varieties undergoing levelling?

5.3 DATA AND METHOD

5.3.1 ACOUSTIC ANALYSIS

In contrast to the previous analysis of the MOUTH vowel, which was subject to an auditory analysis, GOOSE was measured acoustically. This decision was taken for a number of reasons. First, in contrast to MOUTH, variability in the GOOSE vowel was not reliably distinguishable through an auditory analysis. The variability formed a cline, not a series of distinct categories. Second, the majority of studies of GOOSE-fronting have carried out an acoustic analysis; adopting this approach would mean that my results are comparable to this body of work.

5.3.2 FORCED ALIGNMENT AND VOWEL EXTRACTION (FAVE-ALIGN)

Chapter 2, section 2.4.3 provides a detailed description of FAVE-align, how it operates and the nature and quantity of the measures this type of data processing provides. The following section provides information as it is relevant to the present analysis of GOOSE-fronting.

To recap, FAVE-align enables the automatic forced alignment of transcripts with the associated sound files and the extraction of vowel formant measurements. It aligns the transcript with the sound file phoneme by phoneme and then returns a time-aligned Praat .textgrid (Boersma & Weenink, 2012). This .textgrid is further processed by the vowel extraction element, which takes a series of measurements for every vowel encountered (first three formants, duration, inglide measures for diphthongs etc). The program then outputs a tab-delimited .txt file of the vowel measures.

Relevant for the following analysis is the exact point of measurement. As a rule, all vowel measures are taken one-third between the vowel onset and offset. However, a number of measurement heuristics have evolved through the course of the development of FAVE-align to "reduce measurement errors due to choosing a measurement point too far into the nucleus-glide transition" (Labov et al, 2013:36, based on Evanini, 2009). For coronal onsets FAVE-align takes the /u/ measures immediately at vowel onset; for all other phonemes, to counter the influence of the preceding environment, the measure is taken one-third of the way into the vowel duration (Labov et al, ibid). The program then returns measures of the first three formants. The .textgrids were manually checked to ensure that:

1. The FAVE labelling was accurate

The first 30 tokens of 6 speakers were checked by hand – 2 from each age cohort, with an equal gender split. On average <1 out of the 30 tokens checked for each speaker was mislabelled. Following this check the decision was taken to only check erroneous-looking tokens and exclude mislabelled or problem tokens (e.g. arising from issues such as background noise or overlapping speech). Tokens were judged as erroneous if they had an F2 measure of less than 900Hz or more than 2100Hz. Following manual checking, less than 2% of the data was judged as erroneous – a rate that is comparable, if not better than, the predicted human error rate (Fruehwald, 2014).

2. Whether FAVE point of measurement was an appropriate one

Inspecting the spectrograms of the FAVE-aligned .textgrids confirmed that the measurement point of the FAVE procedure appeared appropriate. The spectrograms in figure 55 display two coronal onset tokens.

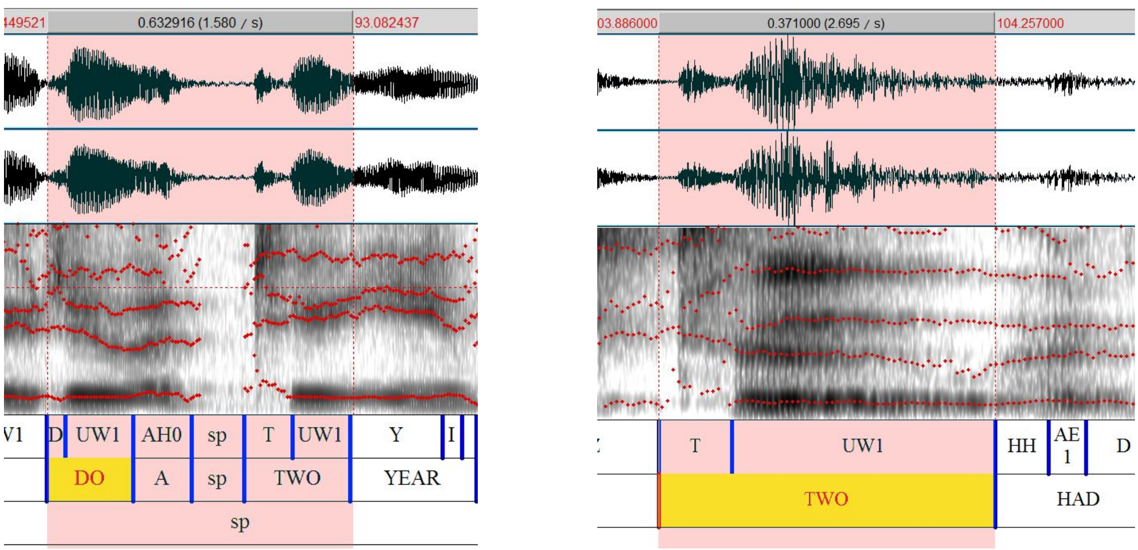


Figure 55: Spectrogram images of coronal onset GOOSE tokens (Holly, 18; and Roger, 82)

Figure 55 shows two examples of unchecked coronal onset GOOSE tokens. The *do* and *two* on the left is taken from Holly, a young female from the sample, and the one on the right is taken from Roger, an older male. Based on previous analyses of GOOSE in the literature, and how the Hastings data patterned, these two speakers were chosen as representatives of the two extremes of the GOOSE-vowel variation found in this sample. The spectrograms show that the GOOSE vowel is relatively steady following the immediate onset of the vowel, indicating that for coronal onsets this is an appropriate point of measurement for this vowel. Figure 56 shows a GOOSE token with a non-coronal onset.

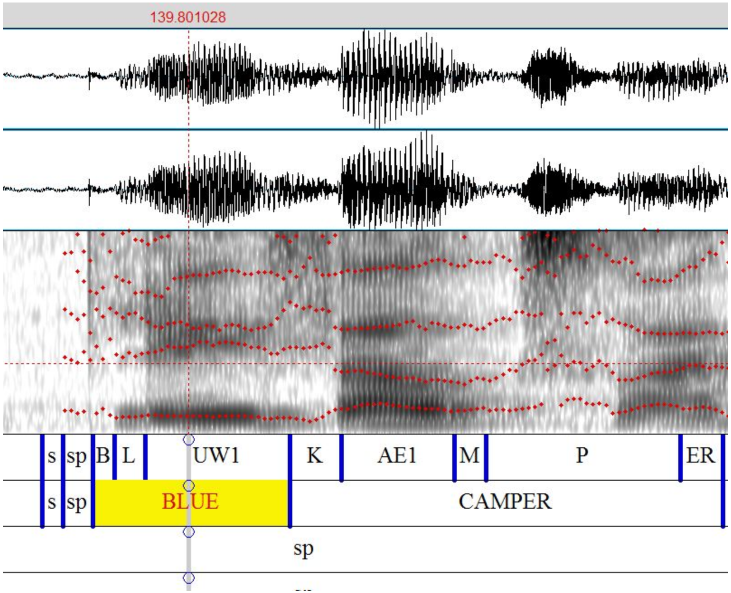


Figure 56: Spectrogram image of non-coronal onset GOOSE token (Holly, 18)

From figure 56 it is possible to see the lowering effect the lateral has on the second formant of the vowel. Therefore, unlike coronal onsets, taking the vowel measurement one-third in minimises the potential for taking erroneous measurements resulting from coarticulatory effects.

5.3.3 AUDITORY ANALYSIS AND MANUAL CHECKING

In addition to checking the accuracy of the FAVE-align toolkit, tokens were subject to an auditory analysis to also inspect a number of aspects of the measurement method.

1. Whether F2 was an appropriate parameter to measure.

F2 at a single point in the vowel were judged to be appropriate measures to chart GOOSE-fronting in the Hastings data for a number of reasons. First, although trajectories may vary slightly between speakers, the overarching aim here was to judge the extent of GOOSE-fronting in apparent time and to see how this feature patterned sociolinguistically.

Second, taking F2 measures means the study is directly comparable to the majority of previous sociolinguistic studies of the feature. This therefore enables these results to be situated within the wider context of previous analyses.

2. Whether diphthongisation was present in the vowel trajectories.

Previous analyses report that the GOOSE vowel is often diphthongised and that this is a non-standard feature (Catford, 1988:128; Wells, 1982:306–7, Gimson, 1969:114–5). The auditory analysis revealed that the GOOSE vowel occasionally exhibited some level of diphthongisation. However, this was not marked: occasionally it was a slight inglide, sometimes it was more pronounced, although it generally appeared in the latter part of the vowel and was most probably due to the anticipatory co-articulatory effects of the following segment. Further, this was not exclusive or particularly pronounced in any of the sub-sample checked; i.e. all ages and both genders produced a degree of diphthongisation.

This supports Chladkova & Hamman's (2011:479) suggestion that this is a stable feature of the GOOSE vowel and not one that is changing in apparent time. They go on to suggest that this is an acoustic cue that helps listeners distinguish between FLEECE and GOOSE minimal pairs such as *geese/goose* or *needle/noodle* (Chladkova & Hamman, 2011:476).

In sum, this series of checks indicated that F2 measurements are useful and reliable parameters for the analysis of GOOSE-fronting. The FAVE-align labelling was highly accurate and proved an extremely useful tool in the extraction of vowel measurements.

5.3.4 Normalisation

The results presented here are based on an acoustic analysis. Normalisation of acoustic data is necessary so that the differences found between speakers and/or groups can be reliably attributed to actual linguistic variability and not taken as a result of naturally occurring anatomical differences. Normalisation is described in greater detail in section 2.4.3. This section also includes the reasoning behind the chosen method of normalisation, the modified Watt and Fabricius (2009) technique.

5.3.5 Token capping, type/token ratio

The automatic vowel extraction generated an average of between 100 and 200 GOOSE tokens per speaker, depending on interview length. To make sure that speakers had equal representation within the entire data set, each speaker token number was capped at 100. Lexical spread of the data was also checked in terms of type/token ratio. Particularly frequent lexical items such as *you* and *to* were capped at 10 tokens per speaker. This was so that the data represented a spread of lexical items and was not skewed by the highly frequent ones. This was to ensure the most accurate representation of the variation was gained (Wolfram, 1993:214).

5.3.6 CODING

Based on previous analyses, all tokens were coded for a number of factors.

5.3.6.1 *Linguistic*

5.3.6.1.1 Preceding and following phonetic environment

Despite the tendency for the majority of studies to report on 2–4 categories of preceding phonetic contexts, so as to not decide on the relevant parameters a priori, a fully elaborated coding schedule was used. This included all phonemic consonantal contexts, while vowels were coded in terms of five categories: high front vowels (FLEECE, KIT), mid/open front vowel (DRESS, TRAP), schwa, mid back (LOT, GOOSE), low back (THOUGHT, PALM). Similar to the procedure reported on previously for the collapsing of items, the categories were based on linguistic similarity of items, categories used in previous analyses and how the contexts patterned in the present data.[20]

5.3.6.1.2 Lexical item

Each lexical item received an individual code. This was to examine whether there were any emergent lexical effects for this feature, as this type of conditioning can develop in the latter stages of a previously phonetically conditioned change (e.g. NYC short-*a* system, Labov, 2007). This also ensured that the distribution of the lexical spread of items was taken account of and that any divergent items were also taken account of so that an accurate representation of the variability was gathered. Again, as with previous analyses (see section 4.6.5 for detail) following a preliminary analysis, lexical items were collapsed into larger lexical categories.

5.3.6.2 *Social*

Data were coded for age, gender and individual speaker.

5.3.7 ANALYSIS

GOOSE-fronting was measured as a continuous variable; the normalised F2 values were analysed using R. Again, as was the approach for the previous variables, the variation was first explored through a factor-by-factor analysis. These effects were examined visually and then tested for statistical significance. Those factors which were shown to significantly condition the variation were then entered into the multivariate analysis in order to examine their relative contributions to the overall variation. A linear mixed-

[20] Following the exclusion of coda /l/ items, so that following phonetic was only investigated in fully variable contexts, only items which were unchecked in coda contexts were analysed for this factor. For instance, items such as *to, do, few* etc were included, whereas items such as *tune, beauty, lose* etc, which show coda checking, were excluded. Instances of initial unchecked environments for GOOSE are extremely rare; this approach was therefore not possible in the analysis of preceding environment.

effects regression model was compiled in RBrul based on the significant factors and interactions. Total token numbers are 2974.

5.4 Results

The results are presented in a number of stages. First of all the GOOSE/GHOUL split is investigated through a comparison of GHOUL items i.e. *school, tool, fool* etc with all other contexts, GOOSE items. Following this, the linguistic factors are considered one by one, with social factors analysed in a cross-tabulated fashion alongside these.

I first examine whether there is evidence for the so-called GOOSE/GHOUL split in the Hastings data.

5.4.1 Preliminary results: coda-/l/

Figure 57 shows how these two potential vowel categories patterned in the data. As the analysis of GOOSE is conducted through a continuous measure, boxplots are used for the presentation of results. These figures display the median (middle line) and the upper and lower inter-quartile ranges (the top and bottom edges of the boxes). The lines (or whiskers) represent the the maximum and minimum values for that category, and individual dots display any outliers. Most reference will be made to the mid-line, as this represents where the majority of the data points clustered. The spread of the data (length of the boxes) will also be referred to, as this indicates the range of the data and therefore indicates how focussed or diffuse a category's measures were. As described above, GOOSE-fronting is measured through a comparison of normalised F2 measures, where higher F2 measures indicate fronter GOOSE vowels. Therefore, higher boxes represent more front GOOSE tokens.

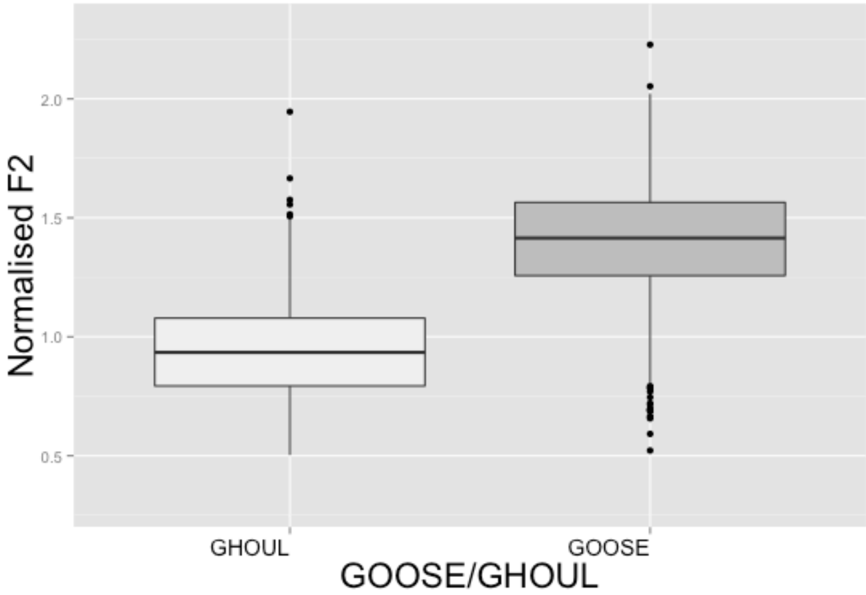


Figure 57: GOOSE-fronting (normalised F2) by following phonetic context; coda /l/ is in red

Figure 57 indicates that coda /l/ environments show a strong inhibitory effect on GOOSE-fronting. GHOUL tokens are markedly backer, as shown by the visibly lower GHOUL boxplot. In short, the GOOSE/GHOUL split is in evidence in the Hastings data. Coda /l/ environments are removed from the remainder of the analysis of linguistic constraints. Before this, however, the following figure examines whether the inhibitory effect of coda /l/ weakens over time (e.g. Fridland, 2008:443). Figure 58 shows how the GOOSE/GHOUL split patterned in apparent time.

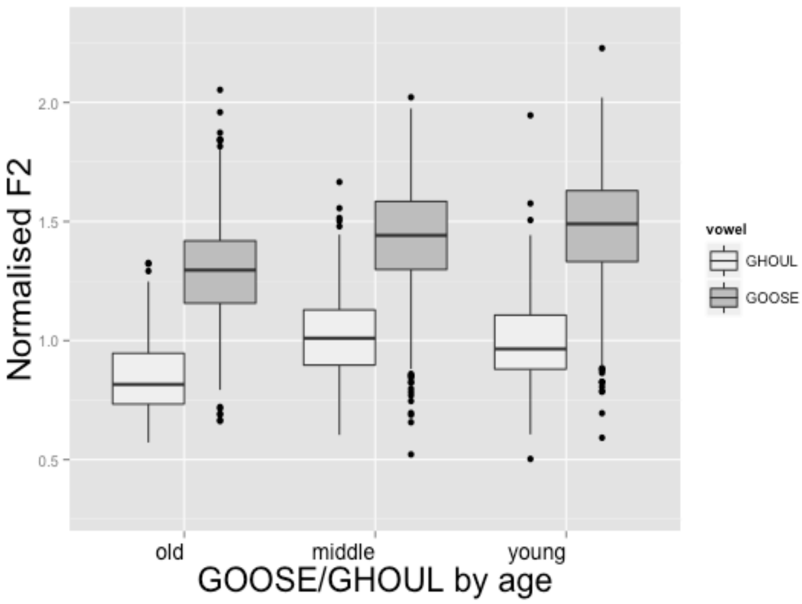


Figure 58: GOOSE- versus GHOUL-fronting (normalised F2) by age-category

An absolute inhibitory effect of following /l/ is not present. Figure 58 shows that both GOOSE and GHOUL are not stable over time. GOOSE shows a clear upward trajectory;

with every age cohort, the average GOOSE F2 increases. In other words, GOOSE is becoming fronter over time. However, it is clear from the GHOUL tokens that this vowel is also not stable over time. This is particularly clear through comparison of the old and middle cohorts, where both vowels become fronter and appear to move almost in step with each other. The same is not the case for the young to middle to young age cohorts. Here a clear increase in F2 is visible for GOOSE but not for GHOUL, which is more or less the same height as the middle age speakers' GHOUL tokens.

Two important points arise from this finding, both with implications for the coming analysis.

1. GOOSE and GHOUL pattern differently for each age cohort; GHOUL is consistently and markedly backer than GOOSE, and for this reason, coda /l/ environments are removed from any further analysis.
2. The inhibitory effect of coda /l/ is by no means absolute. In other words, both GOOSE and GHOUL front over time. This has implications for the presentation of results. Research into GOOSE often presents fronting as a percentage based on a speaker's vowel space. This is done by calculating the difference between a speaker's mean F2 FLEECE vowel and their mean F2 pre-l GOOSE vowel, then calculating the degree of fronting by converting the token's F2 value into percentage of the overall space (Ash, 1996; Flynn, 2012:19). This technique demonstrated in figure 59 below.

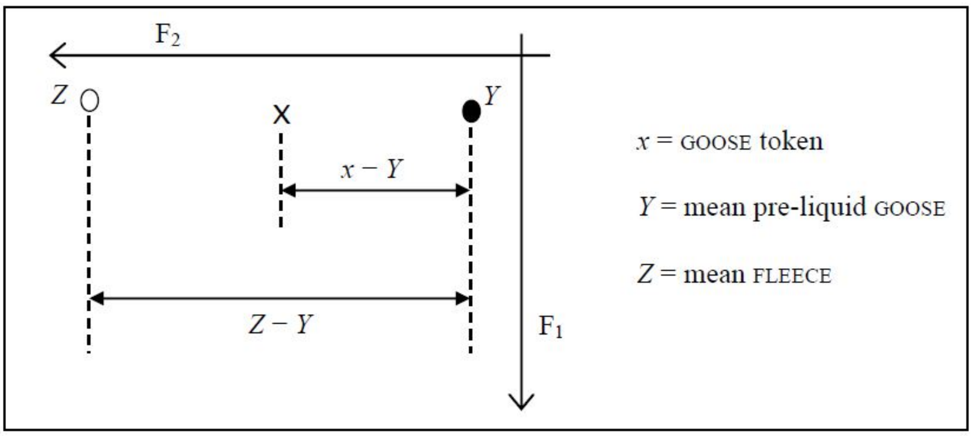


Figure 59: GOOSE-fronting as a percentage of total vowel space (from Flynn, 2012:19)

As figure 58 indicated, there is evidence to suggest that the GOOSE/GHOUL split in Hastings is not absolute or stable over time. Because of this, calculating the difference between mean FLEECE and pre-l GOOSE tokens would underestimate the overall degree of fronting, and for this reason the results here will be presented using the normalised F2 values as opposed to being converted into a percentage .

Vowel plots of the entire vowel space provide another method of visualising the effect shown in figure 58. Figure 60 shows a series of vowel plots taken from each age and gender stratification of the sample of Hastings speakers.

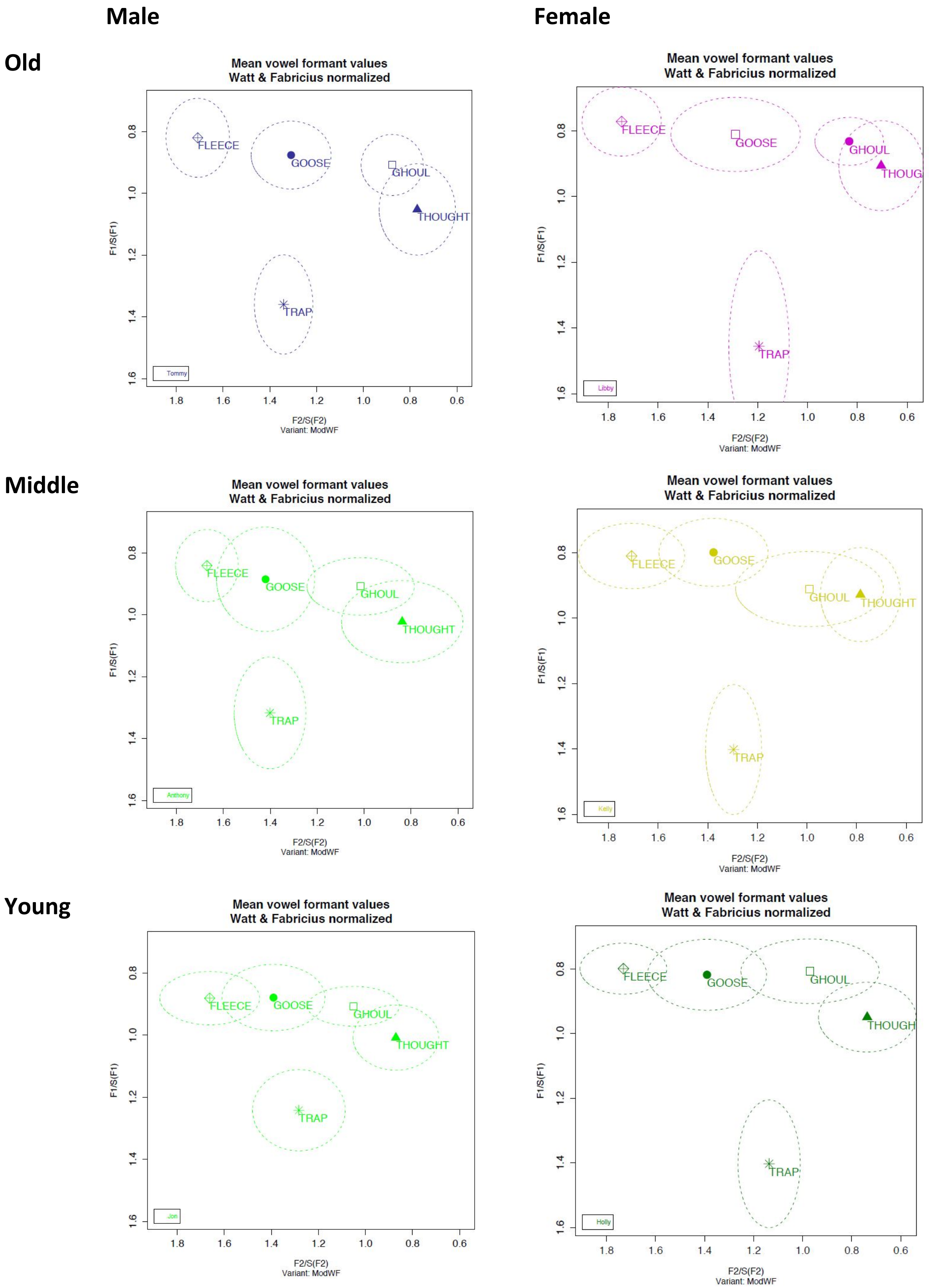


Figure 60: normalised vowel plots demonstrating relative effect of GOOSE/GHOUL split in individual speakers, males and females from each age cohort

Figure 60 provides a view of how the GOOSE/GHOUL split is progressing through time across a number of individuals. A number of trends emerge from this view of the data:

1. The change can be viewed in terms of the amount of overlap between the high vowels (FLEECE, GOOSE and GHOUL). For instance, the sharpest contrast is between the older and the middle speakers. While the older speakers retain separated vowel spaces for each of the categories, this is not the case for the middle speakers, who show a degree of overlap between them. This trend continues to the younger speakers, who show the greatest amount of overlap of all three high vowels plotted.
2. This view of the data further demonstrates the weakening of the GOOSE/GHOUL split, as indicated through the previous boxplot. It is possible to see from the position of the vowels between the old, middle and young speakers that as the GOOSE vowel moves from the back of the centre to the front of the centre, the GHOUL vowel moves from a back position to a more central one.

Coda /l/ environments are excluded from the remaining analysis. This yields a total of 2702 tokens.

5.4.2 INDIVIDUALS

In accordance with Guy (1980:13), in order to justify the examination of the data in terms of the larger social factors, the individual rates of GOOSE-fronting are examined. This is to determine whether the groups behave as groups and cluster relatively close together or whether there are any major outliers that will either prohibit the collapsing of the individuals into categories, or need to be removed.

Figure 61 presents the patterning of this feature across the older individuals.

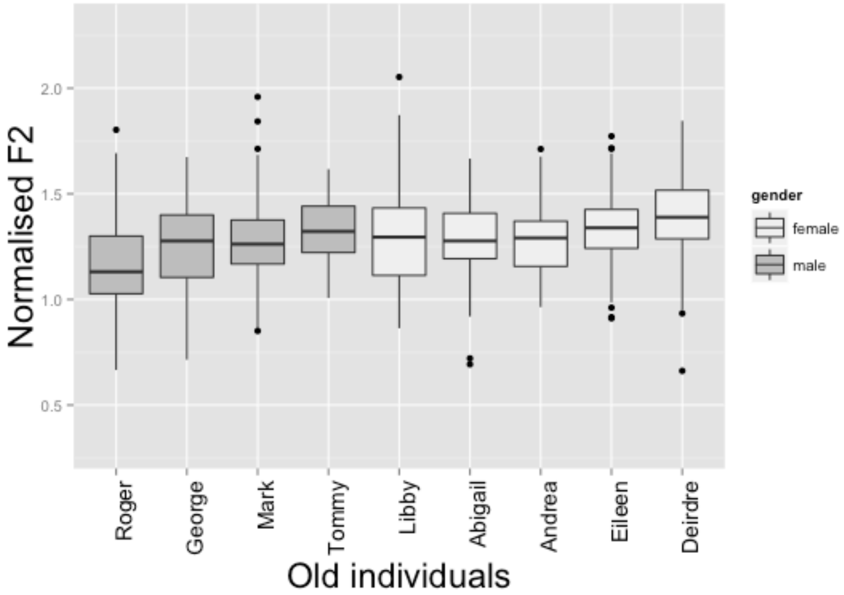


Figure 61: normalised F2 values, old individuals

Figure 61 shows that the older speakers exhibit similar ranges of variation to each other, demonstrated by the fairly uniform spread of the individual plots; i.e. they all sit within 0.5 points of the normalised data measure. The older speakers exhibit a fairly narrow range of variation, and all the individuals overlap with one another; it is therefore justifiable to combine these individuals into a larger age category for further analysis.

The array of the older individuals indicates that, at this stage, females are leading the change, as females show higher normalised F2 than the males. Gender patterns will be examined across all age groups. Figure 62 shows the patterning of this feature across the individuals in the middle cohort.

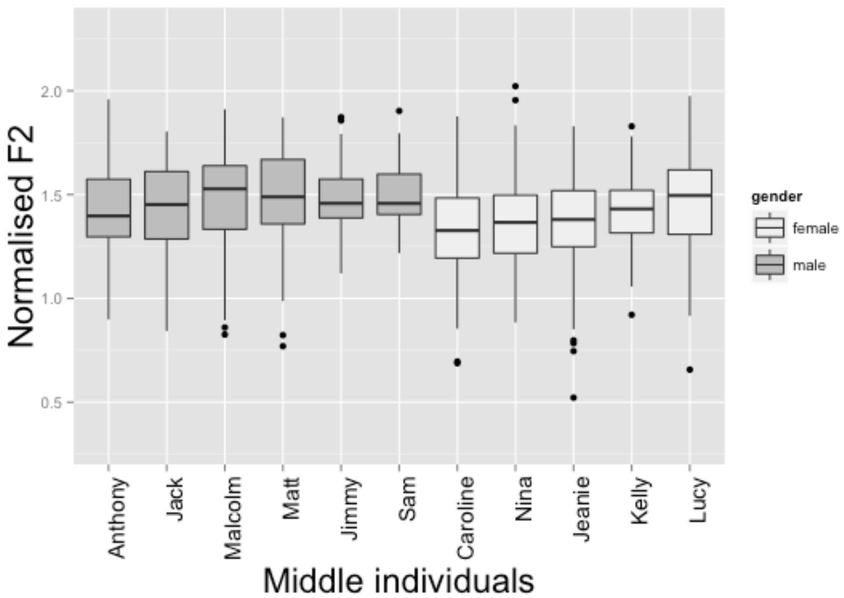


Figure 62: normalised F2 values, middle individuals

Figure 62 reveals that, similar to the older speakers, the middle individuals exhibit similar ranges and spreads of variation to one another. The middle-aged speakers' medians look to be on average more than the older speakers, which is the expected pattern if GOOSE-fronting is a change in progress within this community. In contrast to the older speakers, males appear to be in the lead for this age cohort. Again, as all the individuals overlap, they can be combined for consideration across all age groups. Figure 63 presents F2 measures for the young individuals.

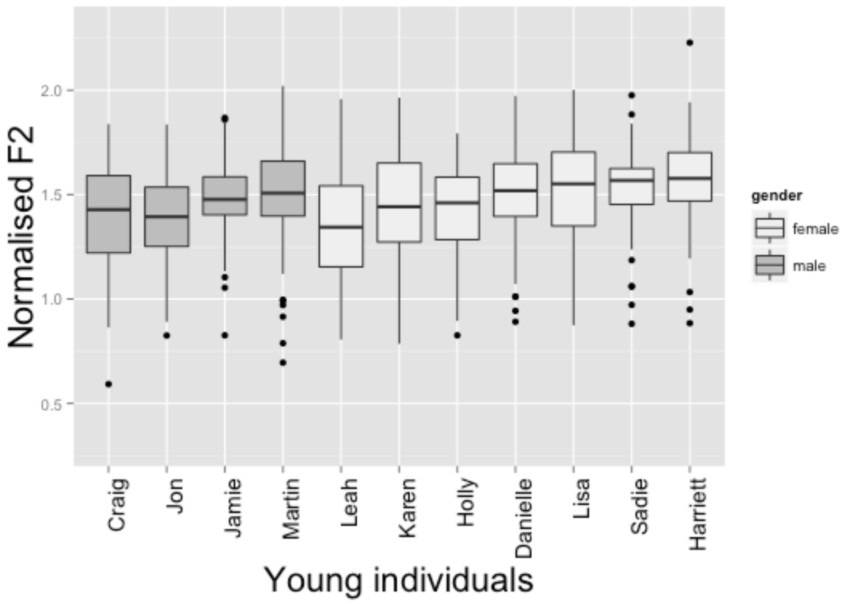


Figure 63: normalised F2 values; Hastings, young individuals

Again, as with the older and middle speakers, figure 63 shows that the young speakers exhibit a fairly close range of variation. No speaker appears to be behaving radically differently to any of the others.

On the whole, the females within the young cohort appear to be ahead of the males for this feature. This is in contrast to the middle speakers but in line with the older speakers. An analysis of gender once the groups are combined will enable a closer examination of this tendency.

Overall, the individuals in each age cohort exhibit similar enough rates and spreads to warrant comparing their combined rates. The individual patterns suggest that gender interacts with age: for the young and the old age cohorts females look to be in the lead, while for the middle age cohort it is the males who are ahead of the change. However, before this interaction is examined, figure 64 presents an apparent time view of the data.

5.4.3 Social Factors

5.4.3.1 *Age*

Figure 64 shows the aggregate F2 measures across the three adult age cohorts.

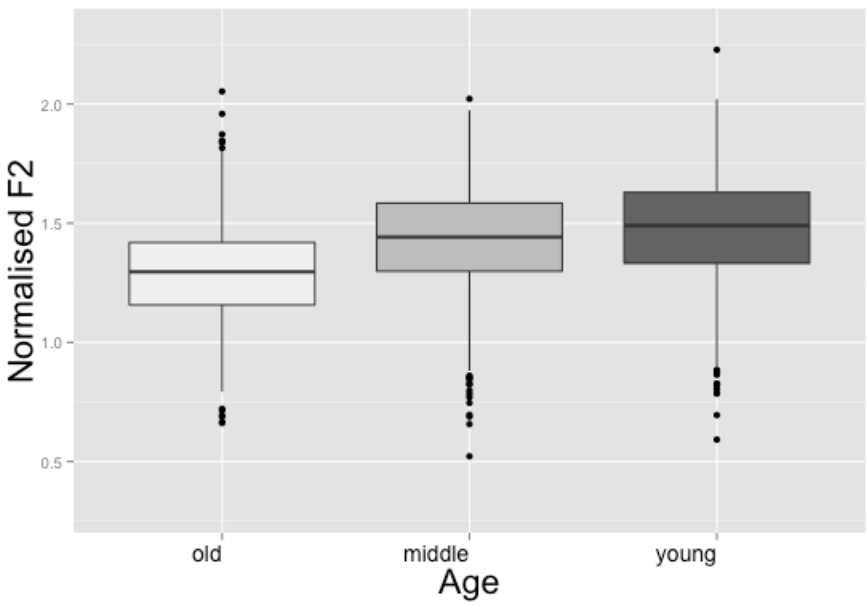


Figure 64: normalised F2 values by age

Figure 64 demonstrates a clear pattern over time: for each subsequent age group, the mean F2 value increases. This indicates a change in progress; GOOSE-fronting is underway in Hastings. As shown through the boxes having roughly equal width, all age cohorts show similar range of F2. A one-way ANOVA revealed that the difference between age cohorts is statistically significant ($F(2)159.2$, $p<.000$. Further, post hoc pairwise Bonferroni comparisons demonstrated that differences between all age cohorts were highly significant, (old-middle: $p<.000$; middle-young: $p<.000$).

The rate of change does vary over time. The most rapid point of change is between the old and the middle cohort, who have mean normalised F2 measures of 1.24 and 1.39, a difference of .15. The young cohort has a mean normalised F2 value of 1.43, which is a difference of only .04. The rapid period of change is between the old and the middle cohorts. This may be important as it is also where the individual plots suggested that a gender flip in terms of the leaders of this change occurs. This could provide evidence as to the development of this change and provide evidence as to any social associations it may possess. First it is necessary to see if the observed gender differences are statistically significant or not.

5.4.3.2 *Gender*

The individual plots indicated a interaction of gender and age. Figure 65 shows how gender patterned by each age group.

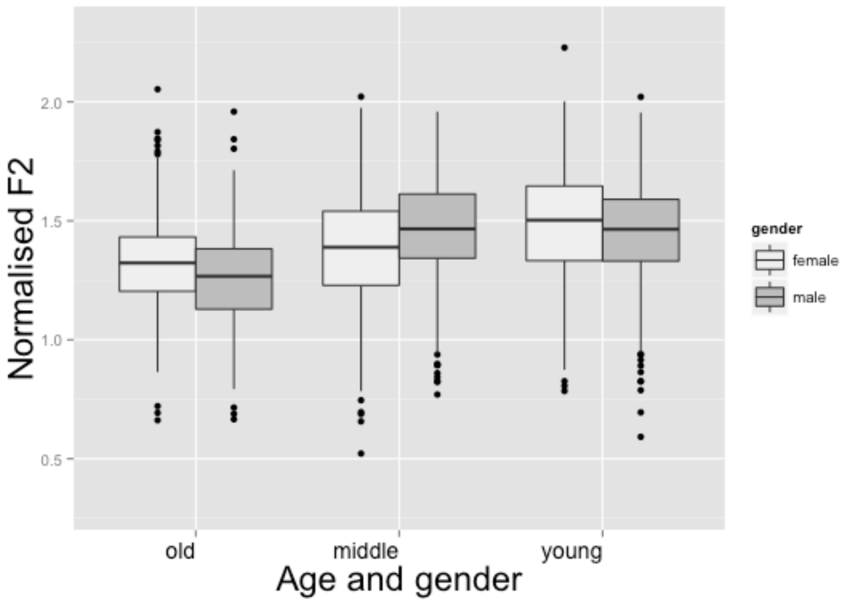


Figure 65: normalised F2 values by age and gender

Figure 65 clarifies a number of trends implied by the individual plots. For the young and the old age cohorts, females are in the lead of this change. For the middle age cohort, males are in the lead. The difference between males and females is also greater within this age cohort. The middle speakers are marked in that they show the greatest increase and the opposite gender patterning.

Welch two sample t-tests were performed to check whether the observed gender differences were statistically significant. For the old age cohort, the gender difference was highly significant, with females showing higher rates of GOOSE-fronting than males (p-value <.001). Similarly, for the young cohort, gender was significant, with females showing higher rates than the males (p-value < .05). For the middle age cohort, gender was again highly significant, but in this case males showed higher rates than the females (p-value <.001). In sum, gender is significant for all ages, however it interacts with age. Young and old females show significantly higher F2. However, this trend is reversed for the middle speakers, where the males show significantly higher F2 than the females. The implication of this gender flip is explored in greater detail during the discussion, where it is related to previous findings that demonstrate social conditioning of GOOSE-fronting.

Previous research has shown that linguistic factors are often stronger and more consistent predictors of GOOSE-fronting. The following sections present the findings from the analyses of linguistic constraints.

5.4.4 Linguistic Factors

Following the removal of coda /l/ environments and the establishing of GOOSE-fronting as a change in progress in Hastings data, it is possible to examine the linguistic constraints in detail.

5.4.4.1 *Preceding phonetic environment*

As outlined in the methodology, the initial analysis of preceding phonetic environment used a fully articulated phonetic coding scheme. Through multiple passes of the data these detailed categories were collapsed into four main categories based on a number of lines of reasoning (similarity of item, patterning of the data, previous analyses). The categories for preceding phonetic environment formed from this collapsing are: palatals, coronals, non-coronals and the sonorants /l,r,w[21]/. Figure 66 shows the effect of preceding phonetic environment on GOOSE-fronting.

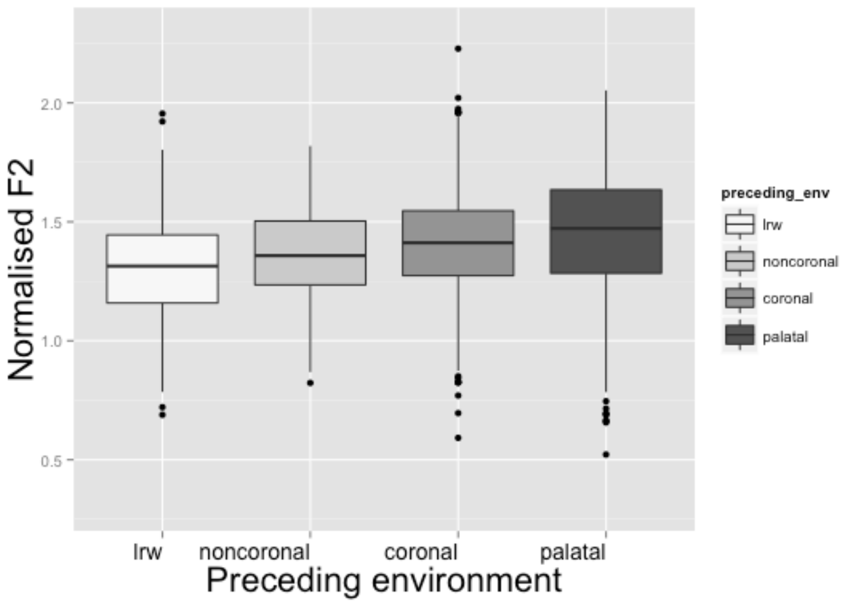


Figure 66: normalised F2 values by preceding phonetic environment

Figure 66 demonstrates the effect of preceding phonetic environment. Specifically, the figure shows that palatals promote the greatest degree of fronting, followed by coronals, non-coronals and finally the sonorant category /l,r,w/, which shows the least degree of fronting. An ANOVA confirmed that the visible trend was statistically significant ($F(3)$ =

[21] As /l/ was shown to pattern more similarly to /r/ and /w/ compared to coronal items, it was included in this category as opposed to with the other coronal items.

32.39, p=.000). Further Bonferroni tests revealed that all pairwise comparisons were significantly different: palatals versus coronals (p=.000), coronals versus non-coronals (p=.000), and non-coronals and the sonorant category (p<.05); therefore, all differences between the phonetic categories are significant.

These findings indicate that Hastings aligns with the majority of previous studies where preceding phonetic environment conditioned GOOSE-fronting. Further, Hastings replicates the commonly reported pattern. Previous analyses (e.g. Fridland, 2008) have also shown that this effect, like the GOOSE/GHOUL split, is prone to weaken over time. This is tested in the present data through examining the patterning of this factor by age. These results are presented in figure 67.

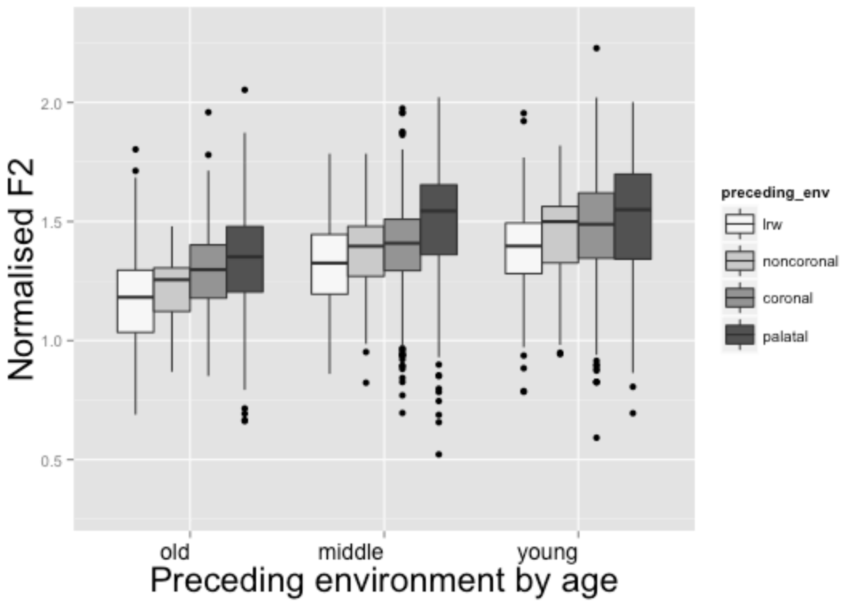


Figure 67: normalised F2 values by preceding phonetic environment and age

Figure 67 shows that preceding phonetic context is remarkably uniform across the age cohorts. Each group shows the same pattern visible in the overall analysis. ANOVA tests reveal that this trend is significant for each age cohort: old, ($F(3) = 18.62$, p=.000); middle, ($F(3) = 20.38$, p=.000); and young, ($F(3) = 9.14$, p=.000). These trends were further examined through Bonferroni pairwise comparisons for each of the age groups; that is although the overall trend is significant for each age cohort, this test reveals whether each phonetic category is significantly different from the others *within* each age cohort. In line with previous analyses of GOOSE-fronting, the pairwise comparisons revealed that this effect is weakening over time. For the older speakers, palatals versus coronals were significantly different (p<.01), as were coronals versus non-coronals (p=.01), but non-coronals and the sonorant category were not significantly different (p=.21). For the middle speakers, this trend continued: palatals versus coronals were significantly different (p=.000). However, coronals versus non-coronals (p=.99), and non-coronals and the sonorant category (p<.11) were not significantly different. The younger speakers took this trend a stage further, where, although there was a significant overall trend, the pairwise comparisons between each incremental category were not statistically significant: palatals versus coronals (p=.11), coronals versus non-coronals (p=.35), and non-coronals and the sonorant category (p=.11).

What these analyses reveal is that Hastings replicates the main findings from previous analyses of GOOSE-fronting:

- GOOSE-fronting in Hastings is significantly conditioned by preceding phonetic environment.
- Hastings replicates the commonly reported pattern for this feature: palatals > coronals > non-coronals > /l,r,w/
- The effect is consistent for each age cohort; that is, they all show the same order of categories for the conditioning of GOOSE-fronting and the overall trend is statistically significant for each age cohort.
- However, Hastings again echoes previous analyses in that the effect of preceding phonetic environment is weakening. This is demonstrated through the pairwise comparisons, which show that the iterations between the categories do not remain significant overtime.

As well as preceding phonetic environment, following environment has also been reported as significantly affecting GOOSE-fronting (e.g. Flynn, 2012:30). Similarly to the preceding environment, this factor initially received a detailed coding breakdown. Again, through previous analyses and the patterns present in the data these fine-grained categories were collapsed into a three-way split for following phonetic environment: consonant,[22] pause and sonorant. The results of this analysis are presented below.

5.4.4.2 *Following phonetic environment*

In order to control for lexical effects and only examine following phonetic conditioning where it is fully variable, this factor was only examined in unchecked syllables (i.e. *new, too, due* etc). A total of 1877 tokens informed this analysis.

[22] In this analysis the "consonant" category refers to obstruent consonants only.

Figure 68 shows the patterning of following phonetic environment across all speakers.

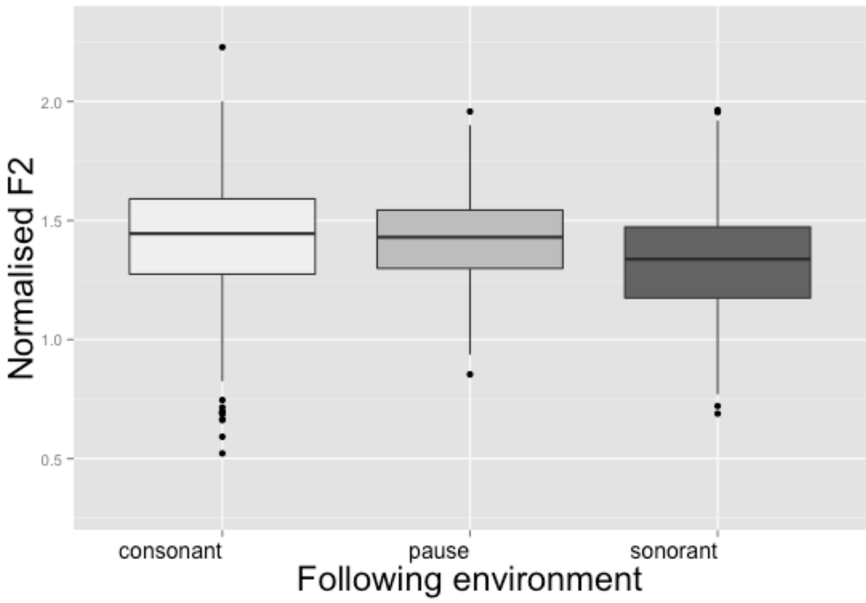


Figure 68: normalised F2 values by following phonetic environment

Figure 68 demonstrates that, similar to preceding phonetic environment, following environment also appears to condition the variability. A following consonant promotes a higher degree of fronting than a following pause, which in turn promotes a higher degree of fronting than following sonorants. The overall effect is confirmed through an ANOVA, which demonstrated that the overall trend was significant: following phonetic environment does condition the variable patterning of this change ($F(2) = 32.61$, $p=.000$). However, on closer inspection, while there is a clear difference between the sonorant context compared to the other environments, the difference between the consonant and pause contexts looks negligible. This observation is confirmed through a set of Bonferroni pairwise comparisons which revealed that the difference between the consonant and pause contexts was not significant ($p=.88$). However, the difference between the pause and sonorant context was significant ($p=.000$).

The question now is whether following phonetic environment, like the GOOSE/GHOUL split and preceding phonetic environment, also becomes weaker over time. Figure 69 presents this factor as it patterned across the age cohorts.

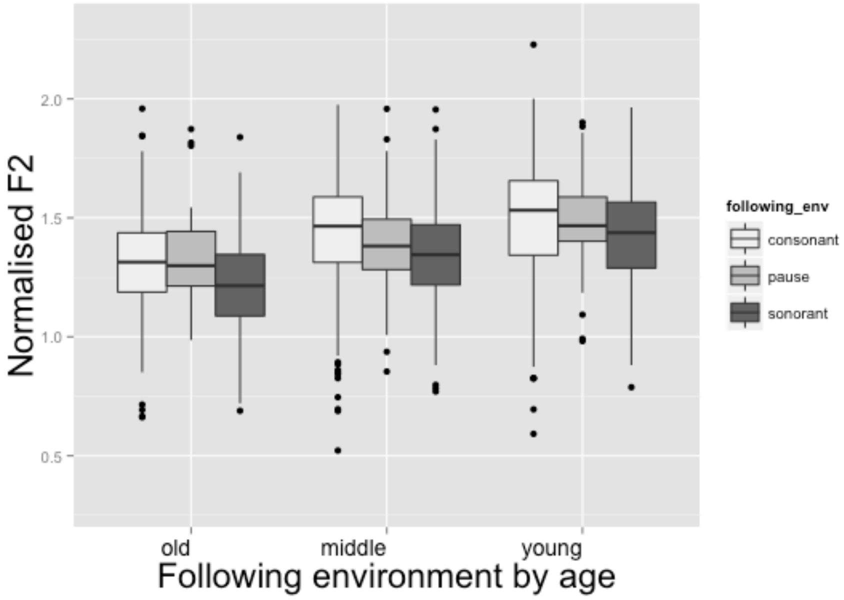


Figure 69: normalised F2 values by following phonetic environment by age

Figure 69 echoes the previous findings for preceding phonetic environment; following phonetic environment shows consistent patterning over age. On the whole, the environments show a consistent pattern: consonant > pause > sonorant. Following the procedure used to examine preceding phonetic environment, it is again possible to test whether this effect is significant for all ages and whether all ages show differences between the individual categories. ANOVA's revealed that the overall effect is significant for each age cohort: old, ($F(2) = 15.56$, p=.000); middle ($F(2) = 8.43$, p=.000); and young ($F(2) = 7.76$, p=.000). This trend was examined further through separate sets of Bonferroni comparisons for each of the age cohorts. Similar to the patterning of preceding phonetic environment, this effect is also weakening over time. The old cohort mirrors the results found across all the data: the difference between the pause and consonant contexts was not significant (p=.35); however, there was a significant difference between the pause and sonorant context (p=.000). For the middle age speakers neither pairwise comparison was significant: consonant versus pause (p=.48) and pause versus sonorant (p=.48). This was also the case for the young speakers: consonant versus pause (p=.86) and pause versus sonorant (p=.09).

The results from Hastings again mirror the general trends when this factor is reported as significant for this feature:

- Phonetic conditioning is significant

- The patterning of this factor – consonant > pause > sonorant – is in line with previous analyses (e.g. Flynn, 2012).
- This conditioning is consistent and significant for each age-cohort.
- Like GOOSE/GHOUL and preceding phonetic environment, this effect is weakening over time. While the overall trend was significant for each age cohort, only the old speakers showed significant between-pair differences.

It is possible that as the feature begins to lose its phonetic conditioning, it could be developing new types of constraint. Among others, McMahon (1994:3–8) posits that changes are neither endogenous, i.e. phonetically conditioned and gradual, nor exogenous, i.e. lexically conditioned and phonetically abrupt, in a strict either/or sense but rather these types of change represent a cline of development. Here changes may start out as phonetically conditioned and gradual but over time develop a more phonological profile and eventually develop lexical effects, i.e. as per the framework outlined by Lexical Phonology (McMahon, 1994:66). In this view, language is hierarchically modular. It is hierarchical in that the actuation of sound change starts as phonetically gradual before it can develop phonological and possibly then also lexical effects. It is modular in that the levels of language, i.e. phonetic, phonological and lexical etc, are separate modules. One source of evidence for this comes from the development of sound changes from internally driven “changes from below” into externally driven and phonetically abrupt diffused changes.

In the current analysis there is clear evidence for the erosion of the phonetic conditioning of this change. Each of the phonetic factors analysed so far has demonstrated a weakening over time. In line with Lexical Phonology, following the breakdown of phonetic constraints, the next phase in the development of a change may be the acquisition of lexical effects. Therefore, the following section examines whether there is evidence for the development of lexical effects.

5.4.4.3 *Lexical effects*

The following figure compares the two effects: phonetic and lexical. This is achieved through separating the number of frequently occurring words from the remaining analysis of preceding phonetic environment. This view of the data enables a number of aspects of the variation to be explored:

- Visualising the lexical effects beside the phonetic effects means they can be compared in terms of the consistency of conditioning; i.e. we have seen that the age-cohorts behave uniformly for the preceding phonetic environment; will this also be the case for the lexical items?
- Visualising the data in this way also enables a comparison of the type of effect; i.e. do the words behave as they would be predicted to in terms of their phonetic make up. That is, do palatal initial words like *you* show greater fronting than coronal words such as *to* or *do*, or is the lexical patterning of the data not predicated by the item's phonetic make-up?

As the lexical incidence of the GOOSE vowel is vast, it was not possible to analyse every individual lexical item. Therefore, the four most commonly occurring lexical items were chosen to be examined: *you, to, two* and *do.* These items were chosen for a number of reasons:

- Using the most frequently occurring items provides a more reliable indication of whether lexical effects are present.
- Using items that are frequently occurring homonyms means that lexical effects can be directly compared to phonetic ones. For instance, if the change was purely phonetically conditioned, then the items *to* and *two* should behave identically.
- Finally, according to exemplar usage-based models of language change, in vowel shifts, more frequently occurring items are predicted to change first (Bybee, 2002: 267; Pierrehumbert, 2002).

Figure 70 shows the four examined preceding phonetic contexts (sonorant, non-coronal, coronal and palatal) next to the four most frequently occurring lexical items *to/too, two, do,* and *you*, for each age cohort.

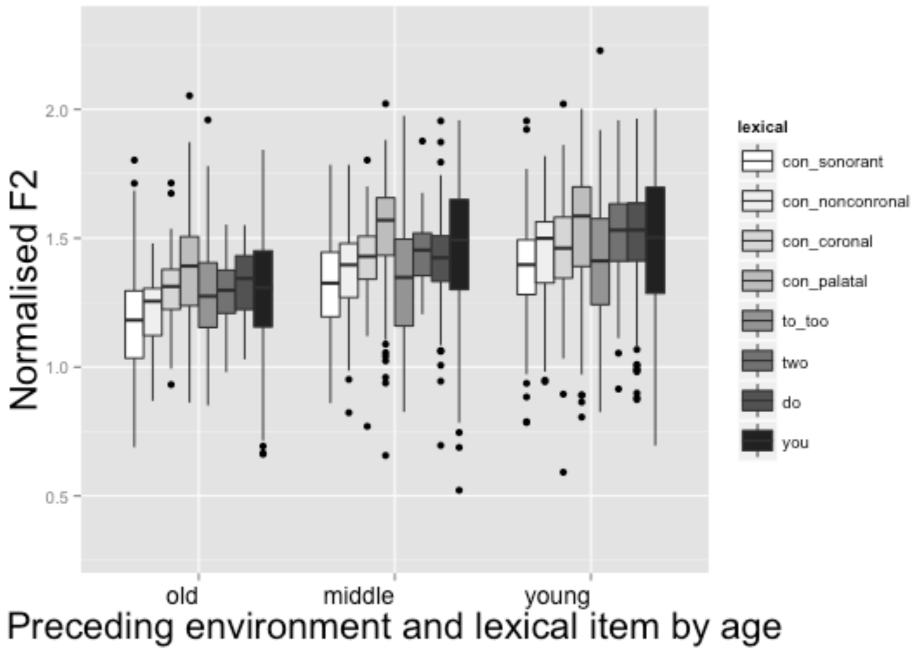


Figure 70: preceding phonetic environment and most frequently occurring lexical items by age

The patterns in figure 70 suggest a number of things about the conditioning of this feature. First, how the patterning of preceding phonetic environment compares to lexical item. Further, whether the age cohorts behave uniformly for both factors. Figure 70 shows that lexical item, on the whole, does not behave as uniformly across the age cohorts. For instance, while preceding environment demonstrates a consistent palatal > coronal > non-coronal > sonorant patterning across the board, there is no equivalent hierarchy for the lexical items. Indeed, each age cohort demonstrates a different order for the lexical items. However, there are some consistencies, for example, the words *to/too* show consistently backer articulations, but this consistency is not shared by the other items.

Figure 70 further shows that the behaviour of the words is not predictable by their phonetic properties; for example, the items *to/too* are generally backer than the main coronal category. The same trend is visible for the item *you*, which, as a palatal, should be at the front of the change and show an F2 equivalent to the other palatals. Comparison of the homonyms *to/too* and *two* further corroborates this finding, as they show divergent distributions from each other.

The question of phonetic composition compared to lexical item is explored further in figure 71. Here, for ease of visualisation, the lexical item *you* is separated from the remaining preceding environments.

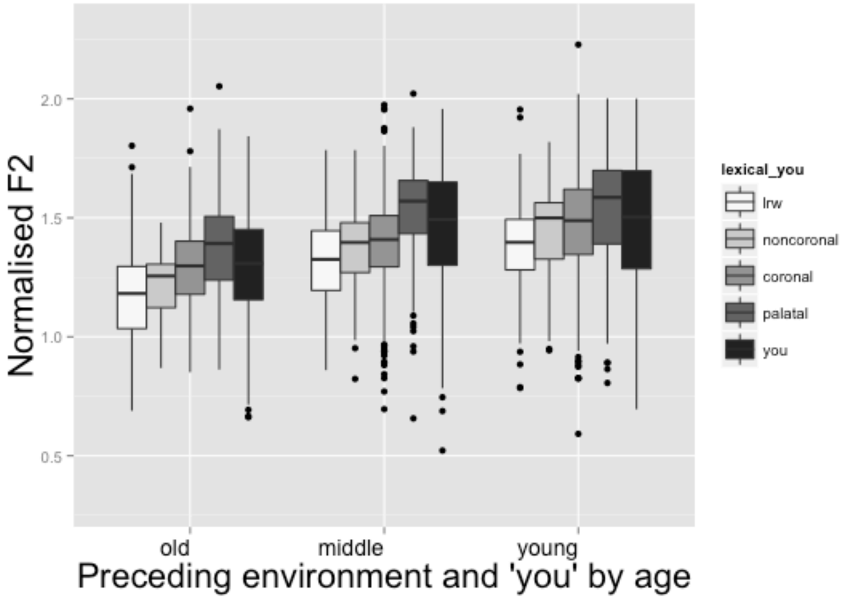


Figure 71: preceding phonetic environment and lexical item you by age

Figure 71 provided a clearer view of the trends observed above – the contrast of phonetic environment with lexical item. The lexical item *you,* a palatal initial item, is consistently backer than the general palatal environment. Further, Bonferroni pairwise comparisons revealed that the difference between the lexical item *you* and the preceding palatal environment was significant for the older speakers ($p<.01$) and the middle speakers ($p<.01$), suggesting that the lexical effect for this item was at odds to, and stronger than, the phonetic effect. However, the difference between these categories was not significant for the younger speakers ($p=.24$). This result seems at odds with the theory that lexical constraints are developing at the expense of the phonetic ones. However, the non-significant result may in fact be an indication that the phonetic conditioning has receded enough that the once strong effect of palatals has now weakened to the point that it is no longer possible to distinguish it from the lexical item *you*. This problem and the development of this change more generally is returned to and explored in more detail in chapter six, which examines data from child speech in order to explore the incrementation of the analysed changes.

Now that the factor-by-factor analysis is complete, it is possible to consider the relative effect of these factors together in a multivariate analysis; the results of this are presented below.

5.4.5 *MULTIVARIATE ANALYSIS*

A linear mixed-effects model of variation in normalised F2 was built using RBrul (Johnson, 2009; www.danielezrajohnson.com/rbrul). Based on the previous analysis, the following factors were entered into the model:

Fixed[23]
- Preceding environment
- Following environment
- Age
- Gender

Random
- Speaker

Interacting
- Age*gender

Table 15 presents the results of the linear mixed-effects model. The coefficient value does not provide any indication of the size or magnitude of the effect (as the values are based on normalised data and a true 0 for F2 is impossible). However, the coefficient does indicate the direction of the result in relation to the overall mean F2 in the data; i.e. positive coefficients indicate a condition which promotes GOOSE-fronting, and negative coefficients indicate a condition which inhibits GOOSE-fronting. The means provide the average measure for that condition, and the token count gives the number of instances the measure is based on. Finally, the range provides a measure of the effect a particular factor so that the factors may be compared; i.e. larger ranges mean a greater impact on the variation. The significance measure is also provided in order to indicate whether that factor had a statistically significant effect on the data; non-significant effects are presented in square brackets.

[23] Lexical item was not entered into the analysis as the results were not significant for all age cohorts.

Factor	Overall			Young			Middle			Old		
Age (p=.000)	coef	tkns	mean	coef	tkns	mean	coef	tkns	mean	coef	tkns	mean
Young	.075	1062	**1.47**									
Middle	.028	871	**1.43**									
Old	-.1	769	**1.28**									
range			.18									
Preceding environment (p=.000)												
Palatal	.076	954	**1.45**									
Coronal	.028	1246	**1.4**									
Non-coronal	-.03	240	**1.35**									
lrw	-.07	262	**1.3**									
range			.9									
Following environment (p=.000)												
Consonant	.3	1933	**1.43**									
Pause	.01	121	**1.42**									
Sonorant	-.05	648	**1.3**									
Range			-.09									
Gender (not sig) Age*Gender (p<.01)												
[Female]	[0]	[1453]	**[1.41]**	*.02*	*660*	***1.48***	*-.04*	*387*	***1.38***	*.023*	*406*	***1.32***
[Male]	[0]	[1249]	**[1.4]**	*-.02*	*402*	***1.45***	*.043*	*484*	***1.46***	*-.02*	*363*	***1.26***
range			**[.01]**			***.03***			***.08***			***.06***
Total (N) 2702												

Table 15: results of linear mixed-effects analysis of GOOSE-fronting in Hastings

Table 15 indicates that all main effects, with the exception of gender, were significant. Preceding phonetic environment had the strongest effect and exhibited the largest range. As shown in the factor-by-factor analysis, palatals and coronals promote fronting, while non-coronals and sonorants inhibit fronting. Following phonetic environment was also shown to significantly condition fronting where a following consonant or pause promoted fronting compared to a following sonorant.

Gender was significant for each age category. Further, the model confirmed the interaction visible in the factor analysis. Specifically, females showed significantly fronter GOOSE values in the old and young cohorts, while males were fronter within the middle cohort. This suggests that for the middle speakers, GOOSE-fronting might have a different social profile than it does for the other age cohorts. The possible reasons and implications of this are discussed below.

5.5 Discussion

Now that the analysis is complete, is it possible to situate these findings both within the previous studies of GOOSE-fronting and within the wider context of sociolinguistic theory. These findings are now discussed with reference to the research questions set out at the beginning of this chapter.

1. Is GOOSE-fronting an ongoing change in Hastings? What do the linguistic and social patterns of this variable indicate about the origin of this change?

The results presented here suggest that this feature is present in Hastings and that it is a change in progress. Younger speakers show higher normalised F2 measures than middle speakers, who in turn show higher scores than older speakers. The finding that middle speakers front GOOSE to a greater extent than the older speakers suggests that this change has been underway in Hastings for some time.

Analysis of the Hastings data echoes findings from previous analyses of GOOSE. Coda /l/ was shown to severely inhibit fronting to the extent that this context was removed from subsequent analysis. Although coda /l/ had a strong effect on GOOSE-fronting, it was not absolute, with younger speakers fronting GHOUL tokens more than older speakers. This finding is in line with Fridland (2008:445), who suggests that all contexts are susceptible to fronting but there is a set order in terms of when they participate, with coda /l/ being the last. Labov (1994) has suggested that the GOOSE/GHOUL split is a compensatory mechanism which preserves contrasts such as *too/tool* that would otherwise be lost due to l-vocalisation. An interesting area for future research could be to see how these features interact, particularly within a southeastern variety where l-vocalisation is reported to be well advanced (Tollfree, 1999:174).

Preceding phonetic environment was shown to exhibit a strong conditioning effect on GOOSE-fronting, and the hierarchy palatal > coronal > non-coronal > sonorant was found, making the Hastings data in line with the majority of GOOSE-fronting studies. Following phonetic environment was also shown to condition the variation with the constraint hierarchy: consonant > pause > sonorant > front vowel > back vowel. From the exploratory analysis, this factor did not seem to condition GOOSE-fronting as strongly as preceding phonetic environment, again a finding that is predicted by previous analyses. The preliminary analysis was confirmed by the linear mixed-effects model which showed that preceding environment was the strongest predictor.

Overall, the results from the Hastings study appear to confirm descriptions of this GOOSE-fronting as an internally driven, endogenous change. This is reflected by the linguistic constraints showing greater conditioning of the variation than social constraints, in particular preceding phonetic environment. The constraints were also strikingly uniform in that each cohort replicated the same linguistic patterning. Further, they mirrored previous analyses.

Age was the strongest social factor and indicated a change in progress. Gender was not significant on its own but interacted with age. Gender was significant for each age cohort, but showed different patterning where females were in the lead for young and old, but males were in the lead for the middle cohort. This is not the predicted pattern for this feature type. Labov (2001:292) predicts that females lead endogenous changes operating below the level of consciousness. This finding might give an indication as to the social meaning. For instance, Mesthrie (2010:28) found that gender was only significant for the black South African speakers. Here females were in the lead of males, and Mesthrie (2010:28) interpreted this as meaning that this feature exhibited connotations of prestige for black speakers. This interpretation was strengthened by the finding that black females exhibited style shifting for this feature. Although the data presented here do not have a stylistic dimension, the fact that males are in the lead may suggest that for the middle-aged speakers this feature may be slightly stigmatised.

Male-led changes are rare, but they have been reported. In their study of Louisiana English, Dubois & Horvath (2000:310) found that men were leading language changes in the direction of traditional Cajun features. They attributed this to the fact that the Cajun renaissance emphasised industries and aspects of life that were traditionally male dominated. The men had the most to gain in terms of this cultural boom and were driving the recycling of the Cajun variants. As is the case with the Mesthrie (2010) finding, the gender patterning found in the linguistic variation was interpreted as reflecting larger social trends.

Returning to the Hastings data, the question of why males should be in the lead in this age cohort remains. The findings from Mesthrie (2010) and Dubois & Horvath (2000) suggest that in order to get at this question, the language needs to be understood within the local social context. A possible answer might come from come from the population patterns within the southeast. Altendorf and Watt (2004:182–4) attribute the massive amounts of dialect levelling within the southeast to three main trends in terms of population movement. First, there was a huge exodus of Londoners following the Second World War and the slum clearances of the 1960s. Many of these people moved into surrounding southeastern towns. Young families and pensioners continue this trend. Second, the north–south divide in terms of affluence and opportunities means that one-third of the entire UK population lives in the southeast. Third, there is a great deal of mobility within the region, which leads to more weak multiplex ties. L. Milroy (2002:7) describes the social effect of this increased mobility as “large-scale disruption of close-knit, localised networks which have historically maintained highly systematic and complex sets of socially structured norms”.

Hastings has had a long tradition of contact and immigration from London. As described in chapter 2, during the 1970s, as part of the London Overspill project, 18,000 Londoners moved into the purpose-built Toll Kiln estate in Hastings as part of a planned population relocation scheme. Thomas (2006:490) suggests that the linguistic effects of this type population “swamping” can be far reaching, in some cases even leading to the reversal of vowel mergers. It is possible that this heavy immigration may have led to the temporary reorganisation of this feature along social lines. For the middle-aged speakers, who would have been teenagers during this period, this mass immigration would have meant a period of intense dialect contact while their vernaculars were not yet stable and peer influence would be at its most pronounced (Chambers, 2003:185–6). Comparative descriptions of GOOSE-fronting in London suggest that this feature was well advanced within this speech community. The middle Hastings speakers experiencing the dialect mixing would have been presented with an opportunity to accommodate to a different set of norms. It might be plausible that the women, when faced with a Cockney-sounding dialect and its associated stigma, may have resisted the pressure to align and preserved a more standard phonology and, by association, a more backed GOOSE vowel.

2. If GOOSE-fronting, in line with most other descriptions of this process, behaves as an internally motivated change from below, how does this compare to other types of changes, for example changes brought about through levelling or diffusion?

The main difference between an observed so-called endogenous change, in this case GOOSE-fronting, and a change that is thought to be exogenous, for instance TH-fronting, is the linguistic conditioning. As expected for an internally driven change, GOOSE-fronting in Hastings mirrored the linguistic conditioning reported from previous accounts of GOOSE-fronting in separate and distinct varieties of English. An exogenous change is much more likely to show idiosyncratic patterning. For example, TH-fronting is often shown to be subject to conditioning in terms of word position (cf. section 4.6.3). However, as discussed in section 4.7 above, this often interacts with other linguistic processes underway in the variety it takes root in, so that the specific patterning is not as consistently predicted. The linguistic conditioning of GOOSE-fronting is also relatively stable between the different age-cohorts, although it is weakening. This weakening is in line with previous analyses, which have shown that as this feature develops part of this process is the loss of linguistic conditioning. This was the case in Cheshire et al's (2011) study of multicultural London English. Here Cheshire et al (2011:171) found that for the youngest age cohorts (8–9 and 12–13 year olds), the effect of a preceding coronal (versus a non-coronal) was highly significant ($p<.001$ and $p<.01$ respectively). However, for the next oldest age cohort, the 16–19 year olds, this constraint was not significant. Cheshire et al (2011:171) suggest this is an example of what Labov (1994:346) defines as *incrementation*, which "may take the form of an increase in frequency, extent, scope or specificity of a variable". The London data appear to show a change in specificity where the fronting is no longer specific to pre-coronal environments. The development of this change was explored in the present analysis through the examination of emergent lexical effects. This analysis revealed that while phonetic effects were weakening, lexical effects were possibly on the rise. Lexical item conditioned the variation in a way that was not predictable through phonetic make-up. This was shown through the homonyms *to* and *two* showing divergent patterning and through the behaviour of the lexical item *you*. This item, as a palatal initial item, should have shown a strong degree of fronting; however, it showed one of the backest distributions of all environments considered. So a possible prediction for this feature within the Hastings data might be the total erosion of phonetic conditioning with the replacement of lexical constraints as the feature develops. This a question is revisited during the examination of the incrementation process chapter 6.

5.5.1 Conclusion

This chapter has provided an analysis of GOOSE-fronting. The analysis showed that it echoed the patterns found by previous analyses of this feature. The wider questions asked whether there would be any linguistic or social consequences in terms of the patterning of an endogenous feature within a variety that is undergoing levelling. The results and discussion suggest that these do interact. The observed social conditioning of the feature, shown here as a flip in the gender conditioning where males were shown to be in the lead of the change during the most rapid phase of its development, was interpreted as having arisen through a process of dialect contact. These findings were linked to previous work that has found social patterning for this feature, and other analyses that have demonstrated male-led changes. Overall, this analysis suggests that levelling varieties provide a good test site to explore the interaction between different types of processes. This is due to the observation that, as regional dialect levelling involves a degree of dialect contact, it is possible to examine the interaction of external and internal mechanisms of change. This analysis suggests an interesting area for future research. In particular, it may be useful in the examination of different changes that may interact at a linguistic as well as social level – the effect l-vocalisation has on GOOSE-fronting for instance.

6 PEAKS WITHIN PHONOLOGY: CONTRASTING INCREMENTATION ACROSS THREE SOUND CHANGES

6.1 THE STORY SO FAR…

Recall section 2.5, which outlined the thesis structure, detailing that chapters 3, 4 & 5 would present a traditional apparent time analysis of the data. The justification for this structure was that it meant the dominant variable patterns could be established first in the adult data. This chapter focuses specifically on the data as it patterns in the speech of the youngest cohort. As the following chapter will demonstrate, providing a detailed examination of the patterns in this age cohort can give a good indication as to the next stage of development in the course of a change. Further, this research has so far presented an analysis of three features purported to be changing via three different mechanisms: levelling, diffusion and an endogenously motivated change. Evidence from studies based on data from preadolescent speakers has suggested that, alongside other important aspects of linguistic change, studies of incrementation can provide further insight into how different mechanisms differ in the propagation of language change (Tagliamonte & D'Arcy, 2009:98). Therefore, not only will this data set provide an insight into the future of the analysed changes, examining the incrementation of these features will also provide another perspective through which to compare and contrast the various mechanisms of change.

The introduction provides a review of recent work into incrementation and, further, examines how these findings motivate the specific research objectives of this chapter.

6.2 INTRODUCTION

This chapter investigates adolescent peaks through extending the apparent time analysis of the three ongoing sound changes to include a group of preadolescent speakers. During the progression of language change, when viewed in apparent time, preadolescent speakers have been shown to lag behind the leading adolescents (Labov, 2001; Tagliamonte & D'Arcy, 2009). This is visible in apparent time through the presence of what Labov (2001:454) terms an *adolescent peak*. Adolescent peaks have been "observed by empirical study" in a range of variable types (Labov, 2001:454; Tagliamonte & D'Arcy, 2009:92; Labov et al, 2013:39). Labov (2001:456) suggests that these results provide support for the claim that the adolescent peak is a “general requirement of change in progress” (Labov, 2001:455).

However, there are a number of caveats which relate to the putative universality of adolescent peaks. First, stage of change affects the presence and size of the adolescent peak; it is not predicted to be visible at the very early or late stages of change (Labov, 2001:453). A second caveat relates to gender. Labov (2001:456) predicts that adolescent peaks will only be visible for females. In addition to the two caveats above, Tagliamonte & D’Arcy (2009:70) suggest that the nature or process involved in the specific change in question could also have an impact. For example, whether it is brought about through contact as opposed to driven by system internal forces may have implications for how that change increments within a variety. It is this suggestion that motivates the main focus of this chapter – to compare and contrast the patterns of incrementation across a range of different phonological processes of change.

Investigating the possible impact that the specific *process* of change has on the feature’s incrementation by analysing the changes in the speech of the preadolescents will enable another perspective through which to contrast the features. For instance, will each of the variables show an adolescent peak, and if not, why not? Further, will the evidence from the present analysis support or refute the theory that adolescent peaks are a feature of female speech only.

What follows is an outline of the process of incrementation. This is followed by an outline of Labov’s (2001) *Logistic Model of Incrementation*. The logistic model is relevant as it relates to the first of the identified caveats, how the stage of the change impacts on the presence of an adolescent peak. This then leads to a discussion of the second caveat – gender – and discusses the contrasting results found by Labov (2001) and Tagliamonte & D’Arcy (2009).

6.2.1 INCREMENTATION AND ADOLESCENT PEAKS

Incrementation refers to the gradual advancement of a language change within a speech community (Labov, 2001:454). This involves each successive generation moving the change on beyond the level of their predecessors. However, research has shown that children start out modelling their parents’ linguistic systems before orienting away and aligning with their peers. The final stage in this process is for the adolescent speakers to actually advance the language a stage further so that they move the change along another increment. This process is more or less complete by the time children reach seventeen (Labov, 2001:447).

This means that younger children lag behind the leading adolescents in the propagation of changes:

> *The frequency of incoming (i.e. innovative) forms is highest among adolescents; preadolescents are consistently found to use incoming forms less frequently, not more frequently, than their immediate elders, while postadolescents also use the same forms less frequently.* (Tagliamonte & D'Arcy, 2009:59)

When viewed in apparent time, this creates what Labov (2001:454) terms the "adolescent peak". Figure 72 displays an idealised representation of an adolescent peak as it would appear in apparent time.

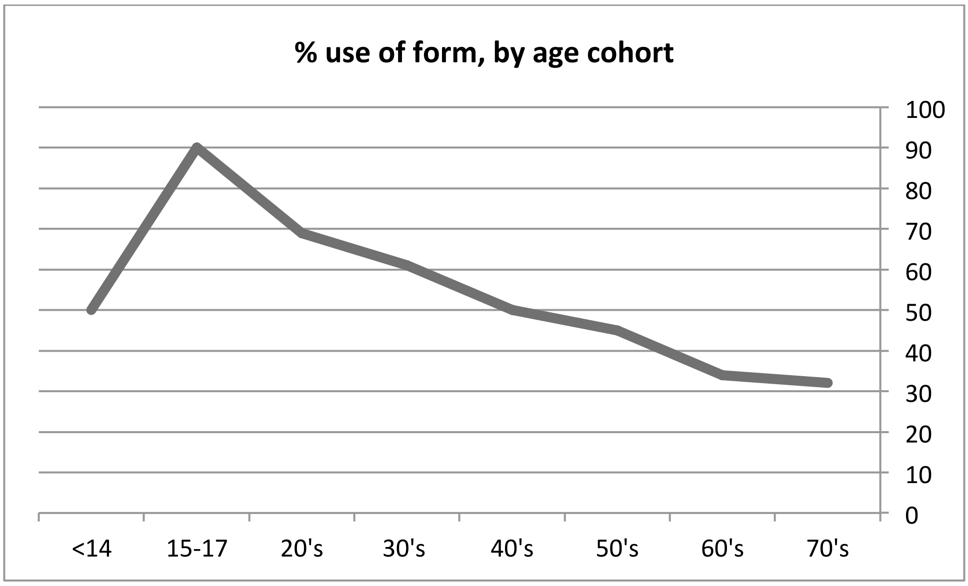


Figure 72: idealised adolescent peak in apparent time (based on Tagliamonte, 2011:49)

This lag was initially interpreted as indicating a reversal in the direction of the change (Labov, 2001:454–5). However, Labov (2001:454–5; 2013:39) went on to reinterpret this apparent time pattern as evidence for the "incrementation of linguistic change". In fact, the adolescent peak is a cyclically recurring feature of each cohort.

6.2.2 Evidence for incrementation: peaks in and beyond phonology

The adolescent peak has been demonstrated across a wide range of different variable types. In a review of nine ongoing female-dominated sound changes in Philadelphia, Labov (2001:458) found a peak in every one. This is shown in the figure 73.

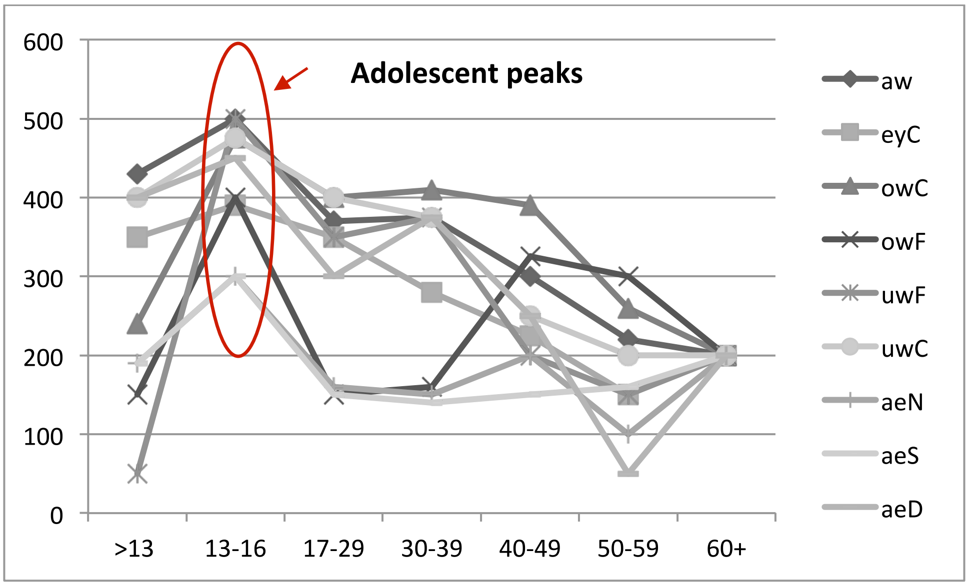


Figure 73: apparent time view of nine ongoing sound changes in Philadelphia (based on Labov, 2001:458)

Figure 73 shows that for each of the nine sound changes, there is an adolescent peak between 13 and 17 years of age.

Tagliamonte & D'Arcy (2009) built on these findings and investigated the behaviour of preadolescent speakers across a range of morphosyntactic and discourse-pragmatic features. Figure 74 presents an apparent time view of their findings.

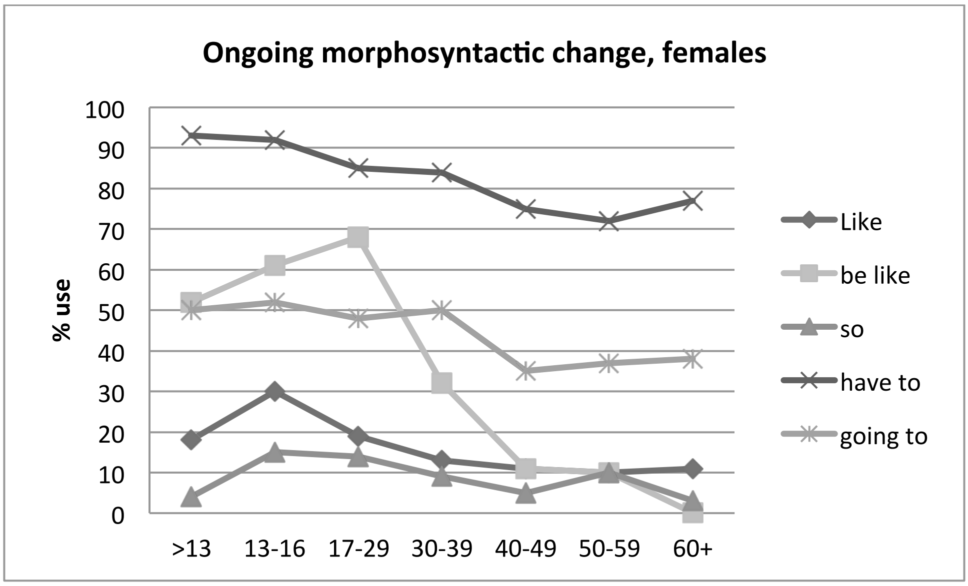


Figure 74: apparent time view of six ongoing morphosyntactic and discourse pragmatic changes (females only), based on Tagliamonte & D'Arcy (2009:82)

As shown in figure 74, Tagliamonte and D'Arcy found adolescent peaks in 5 out of 6 of the variables they investigated. Taken together, these results demonstrate the pervasiveness of an adolescent peak and indicate that it is likely a universal property of all language change processes:

Our results converge in demonstrating that innovating morphosyntactic(-semantic) and discourse-pragmatic variables, just like phonological variables, surge forward to a pinnacle in adolescence as the newest cohort carries a change further than did speakers of the previous generation. This provides strong support for the observation that the peak in apparent time is a general requirement of synchronic change (Tagliamonte & D'Arcy, 2009; 100).

However, while the adolescent peak was present for 5 changes, its absence for the deontic modal form "have to" and its negligible presence for future "going to" needs to be explained. While peaks may be a general requirement of synchronic change, they are affected by a number of factors; this leads me to the aforementioned caveats. The first one discussed relates to the *stage* of the change and how this impacts on the presence and prominence of the peak. In order to account for this influence of the stage of change, the process of incrementation needs to be examined in some more detail, notably, how incrementation functions in a logistic fashion. However, in order to explain this, it is useful to first unpack how incrementation functions through a slightly simpler linear model. The main features of this model can then be extrapolated onto the logistic model. The linear model is described below through reference to an idealised trend study with the aim of clarifying the relationship between incrementation and adolescent peaks.

6.2.3 Incrementation and peaks in apparent time: the linear model

Figure 75 presents a figure based on Labov's (2001:449) linear model of incrementation.

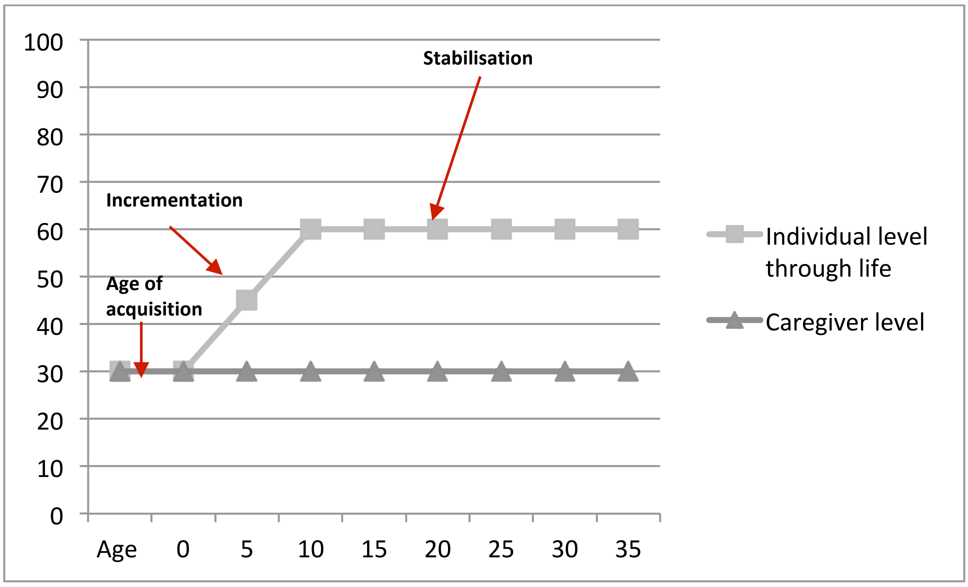


Figure 75: idealised model of incrementation (based on Labov, 2001)

Figure 75 demonstrates that, first, during early childhood, the individuals acquire the same level of the innovative form as their caregivers. Then, between the ages of 5 and 17 years old they then increase the frequency beyond the level of their caregivers. In other words, they *increment* the change to the next stage. Finally, the speakers stabilise and remain more or less at that level for the rest of their lives (Tagliamonte & Wagner, 2014).

6.2.4 CAVEAT 1: STAGE OF CHANGE

In figure 75 incrementation is imagined in a linear fashion; i.e. each new cohort moves the change on at the same rate. In the instance above, this was at a steady rate of 10% every ten years. However, research into linguistic change has shown that it does not progress at a steady rate; i.e. incrementation does not happen in a linear fashion. Change advances slowly at first, with each successive generation moving the change forward in small increments with the rate of the change accelerating as it becomes more established, and eventually tailing off as it reaches completion; this creates the characteristic S-curve of language change:

> *Gradually the new forms oust the old. When the innovation has spread…the change appears to take off, and spreads rapidly in a relatively short time-span. After a period of momentum, it is likely to slacken off, and the residue is cleared slowly, if at all. The slow beginning, rapid acceleration, then slow final stages can be diagrammed as an S-curve, which represents the profile of a typical change. (Aitchison, 1995:87)*

The S-curve model of language change is now widely accepted and has been confirmed by "numerous studies" (Chambers, 2003:222). However, this S-curve is at odds with a linear model of incrementation. Labov (2001:453) resolved this conflict through recasting his model of incrementation as a logistic progression as opposed to a linear one. This meant that instead of each generation moving the change on in equal increments, each successive cohort shows an increment of a greater magnitude that the previous one. Modelling incrementation in this way does, however, have consequences for when, where and to what extent we would expect to find adolescent peaks. This point is outlined by Tagliamonte & D'Arcy (2009:71):

> *the prominence of the peak relates directly to the rate of change: the faster the rate, the greater the peak. The converse is also true. The peak is therefore dependent on the rate of change: the increments must be large enough to create*

one. We can therefore predict that for very slow-moving changes, such as those nearing completion, a peak may not be visible because the increments may be too small.

6.2.4.1 *Logistic incrementation, S-curves and the rate of change*

Logistic incrementation is compatible with the non-steady progression of language change – slow at first then accelerating and finally slowing down creating an *S-curve*, (e.g. Verhulst, 1845). The repetitive cycle of incrementation, whereby adolescents advance the change relative to the rates of their immediate elders, creates a fairly straight line of incrementation with a sloping peak and tail – the aforementioned S-curve. In other words, the adolescent peak represents the leading edge of the change, and the degree that each generation advances the change depends on the stage of the change. The relationship between logistic incrementation and the S-curve model of language change is visualised in figure 76, taken from Labov et al (2013:39).

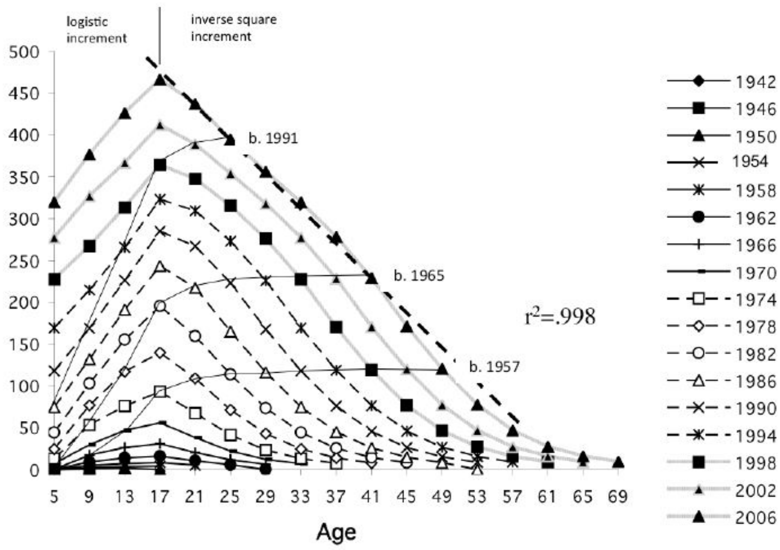


Figure 76: Idealised model of logistic incrementation, traced every four years, from Labov et al (2013:39)

The figure above shows an idealised pattern of language change for successive groups of speakers sampled every four years. The figure demonstrates a number features of the relationship between the individual, the community and the rate of language change. First, the accelerating rate of the change is represented by the steepening of each successive cohort's peak.

Tagliamonte & Wagner (2014) outline this model of incrementation by relating the behaviour of the differently aged individuals to their generations. For instance, in 1962 (shown by the black circles) the change has only just started. Individuals over the age of 25 are unaffected by it, and the 5-year-olds have not acquired the change from their 29-year-old mothers (because they do not have it). However, the older children have acquired the change, as they are influenced by their peers and have picked the change up from them and incremented past their parents, the 17-year-olds represent the leading edge of the change.

Compare this pattern to 1986, the white triangles. Having aged 24 years, the 17-year-olds are now 41. These individuals stabilized at age 17, so their rates have remained the same.[24] In contrast, the individuals who were 13, 9 and 5 in 1962 all continued to increment, only stabilizing when they reached 17. For the 13-year-olds, there were only four more years left to increment, so they have only moved their rates on a small amount. This is compared to the individuals who were 5 in 1962; they still had 12 years to increment the change further, and they have advanced their rates a great deal and overtaken their slightly older peers. This process is cyclical and continues for every generation. Therefore, when the community is measured again in 2006, the 17-year-old peak is very steep, and the change is incrementing at a much quicker rate than it did at the beginning of the change.

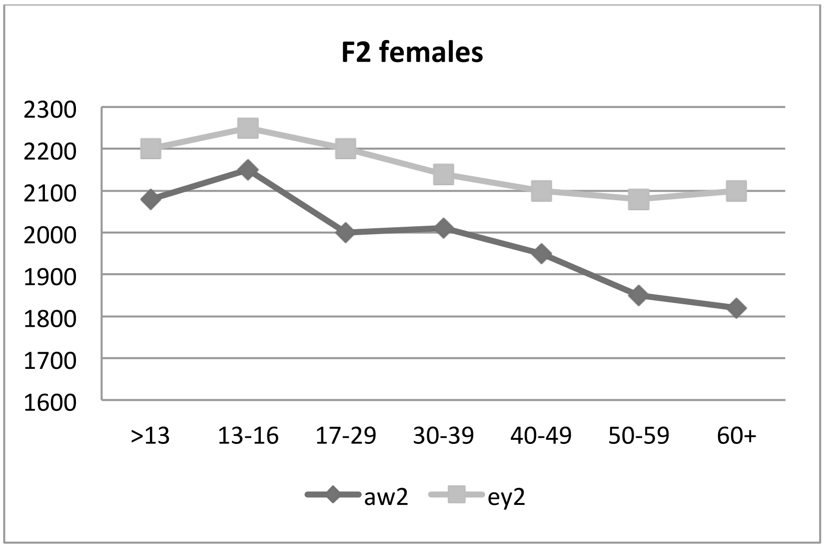
Once incrementation is remodelled as a logistic function as opposed to a linear one, it is then compatible with the observed S-curve trajectory of language change. Indeed, it is the stage of the change which Tagliamonte & D'Arcy (2009:96) use to explain the observed missing peaks for the deontic modal form "have to" and its negligible presence for future "going to". For these changes, they argue that as the changes are nearing completion they are therefore progressing at an extremely slow rate, thus showing no visible peak in apparent time.

As well as stage of the change, Labov (2001:461) identified gender as a factor that determined the presence or absence of an adolescent peak. The following section details his evidence for this prediction. It also outlines some counter-evidence from Tagliamonte & D'Arcy (2009:88), who suggest that adolescent peaks will be present for both male and female speakers.

[24] While this model accounts for life-span change during pre-adolescent development, it contends that post 17 years the system is stable. The model does not take into account the potential for "life-span" change in the same way as outlined by, e.g., Sankoff & Blondeau, 2007. In these cases, individuals participate in ongoing changes later in life, i.e. after their linguistic systems have become relatively stabilised.

6.2.5 CAVEAT 2: GENDER

Labov (2001:459) states that gender interacts with the incrementation of a change and the presence or absence of the adolescent peak. Specifically, Labov (2001:461) suggests that adolescent peaks will only be visible for females. Evidence for this comes from his contrasting male and female patterns of change for the same phonological changes in Philadelphia. Figure 77 contrasts males and females for two vocalic changes ongoing in Philadelphia.



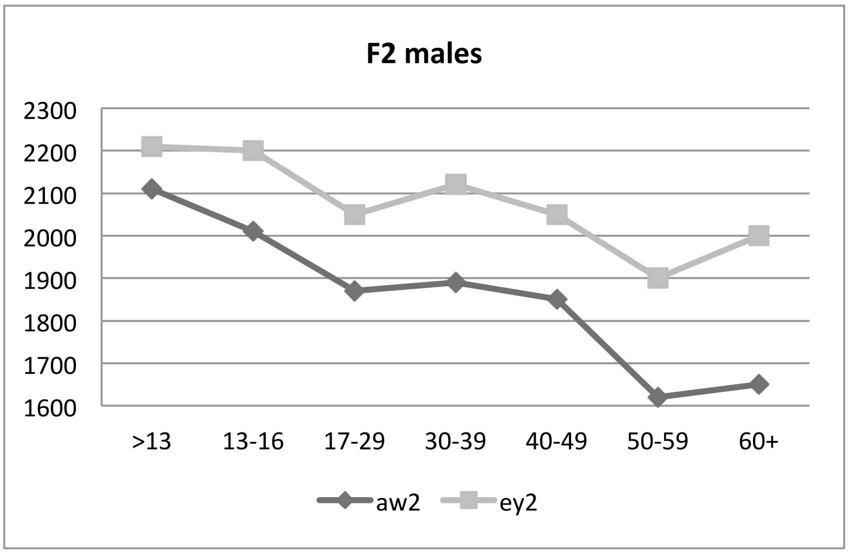


Figure 77: male and female patterns of incrementation for female-led changes, based on Labov (2001:456)

Figure 77 shows that, for two well-documented sound changes in progress in Philadelphia, while the female speakers show an adolescent peak, the males do not.

Labov (2001:307–9) suggests that the reasons for this are due to the role of women as both leaders of language change and as most often the primary caregivers of children.

6.2.5.1 *Gender asymmetry*

Labov (2001:307) explains his prediction in light of two well-established sociolinguistic assumptions: first, that women are generally the leaders of language change (Labov, 2001:292-3), and, second, that children first acquire patterns of sociolinguistic variation through their main caregivers (e.g. Roberts, 1997; Foulkes & Docherty, 2000; Smith et al, 2007). Due to the gender asymmetry in child care (i.e. that children's main caregivers tend to be their mothers), this means that it is only the females who need to increment the change on a stage further than their mothers in order to be on the vanguard of change. For the males, matching their mother's levels of a variable automatically puts them in the lead of the previous cohort of males. This means that in order to increment changes, females will show a peak, but males will not:

> *The fact that men show the reverse pattern fits the prediction made by the gender-asymmetric model: that their participation in the change is due to the increment inherited from their female caretaker, not the incrementation process…* (Labov, 2001:457)

In the nine female-led changes ongoing in Philadelphia, Labov demonstrates that his prediction, to a certain degree, is borne out in the patterns. In every one of the nine female-led sound changes in Philadelphia, the female speakers showed adolescent peaks; however, for the male data the patterns are less clear-cut. In the male data, only five of the changes reveal the predicted lack of peak; the other changes reveal an adolescent peak at around the same point as was observed for the females. Labov (2001:457–8), uses this evidence in support of the gender-asymmetric model of language change and explains the presence of the peaks in some of the changes as indicating the beginning of a reversal for these changes.

In their study of discourse-pragmatic and morphosyntactic features, Tagliamonte & D'Arcy (2009:82) find evidence that does not mirror Labov's findings. Tagliamonte & D'Arcy demonstrate that adolescent peaks are not solely a facet of female speech. This is shown in figure 78.

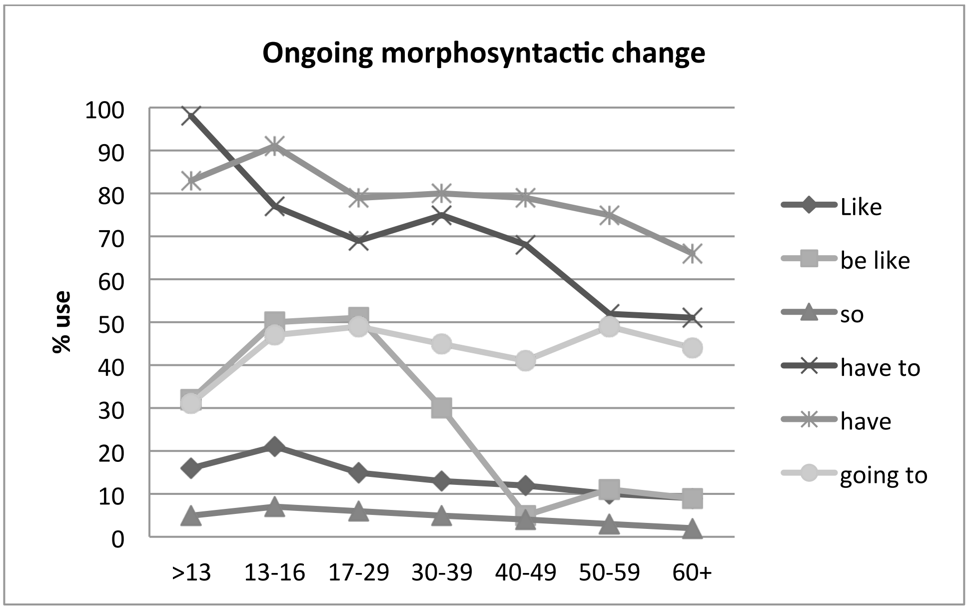
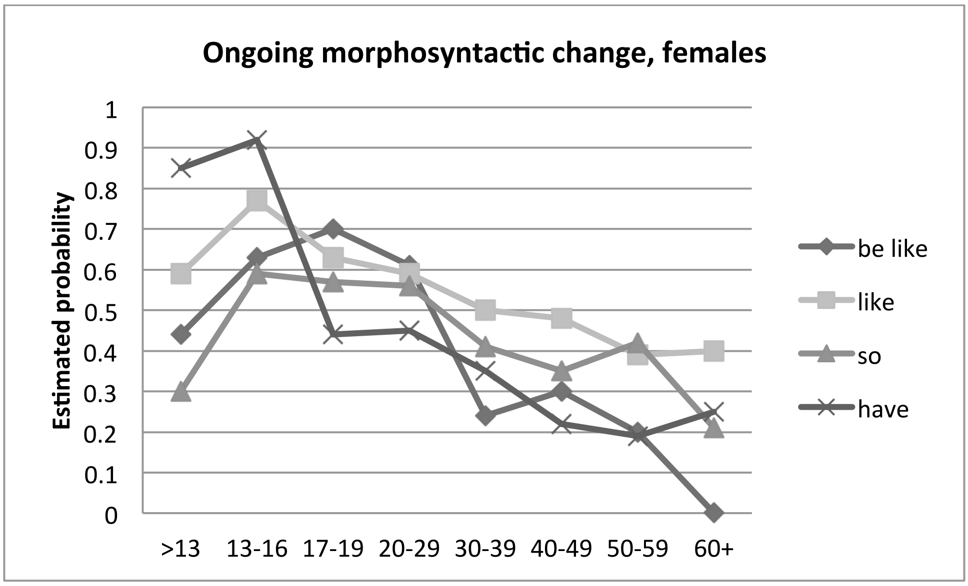


Figure 78: apparent time view of six ongoing morphosyntactic and discourse pragmatic changes (males only), based on Tagliamonte & D'Arcy (2009:82)

As shown by figure 78, Tagliamonte & D'Arcy (2009:82) find adolescent peaks in all but two of the changes – the rise of the deontic modal "have to" and future "going to".

Further, in a closer look at the data, Tagliamonte & D'Arcy reveal that while there is gender asymmetry in the changes in progress insofar as the females are in the lead, both males and females show an adolescent peak for the majority of the features. This is shown in figure 79, which shows how the features that exhibit peaks pattern by gender.



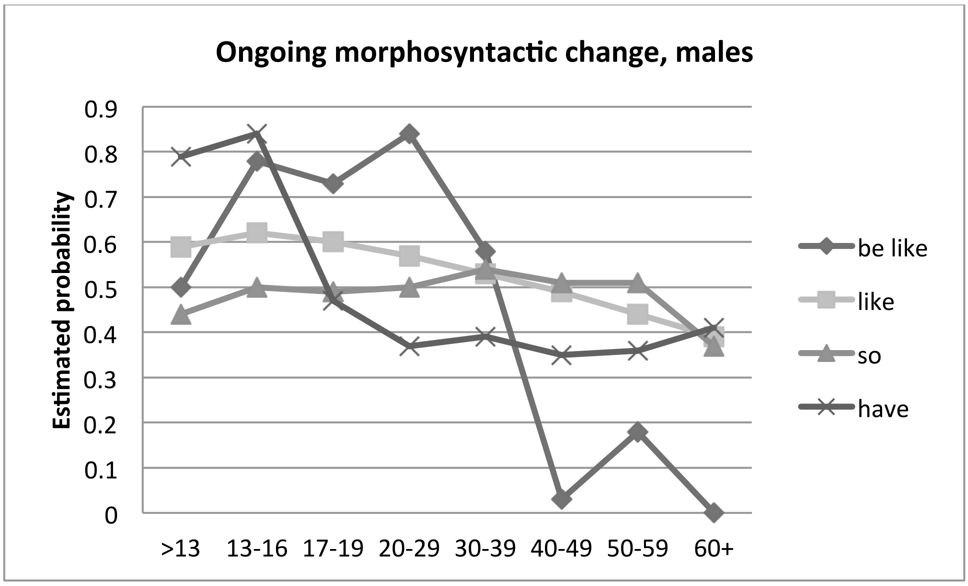


Figure 79: apparent time view of male and female patterns in 4 ongoing discourse pragmatic and morphosyntactic changes (Tagliamonte & D'Arcy, 2009:82)

Figure 79 reveals that adolescent peaks are present for males and females in the morphosyntactic changes examined by Tagliamonte & D'Arcy (2009). Based on these findings, Taglimonte & D'Arcy (2009:97) argue that it is not only females who increment changes, but males do so as well:

> *If they did not, then there is no obvious explanation as to why peaks appear in the apparent-time trajectories for men. It is also striking that the peaks are identically situated to those in the trajectories for the women. We suggest, therefore, that the explanation lies in the observation that for some changes men simply lag behind women in their participation in the incrementation process. Their rate of change is*

> *slower, resulting in smaller increments of change in comparison to their female peers.*

What both these sets of findings, Labov (2001) and Taglimonte & D'Arcy (2009), suggest is that the adolescent peak is a near-universal feature of language change in progress. While Labov's (2001) model originally predicted that the peak was a property of female incrementation only, Tagliamonte & D'Arcy (2009) argue that it is in fact a property of male and female speech. They further suggest that rather than gender being the chief predictor of the occurrence of adolescent peaks, it is actually better predicted by the stage of the change whereby early stage changes or changes near completion would not be expected to show a peak in apparent time.

Overall, the discussion has outlined two caveats with regards to the universality of adolescent peaks: Labov (2001) predicts that they will not be present in data from males and, due to the nature of the logistic model of change, much smaller for new changes and those that are nearing completion, a prediction supported by evidence from Tagliamonte & D'Arcy (2009). One focus of the present chapter will be to contribute to the work outlined so far in the introduction.

6.2.6 A THIRD POSSIBLE CAVEAT: PROCESS

As well as stage of change and gender, Tagliamonte & D'Arcy (2009:98) argue that some "potentially incisive directions for future research" would be to extend the investigation of adolescent peaks to include factors beyond these. They suggest that the origin, nature and type of feature could also prove fruitful avenues for future research:

> *Another possibility is to focus in on the nature of language change itself, not simply with respect to its speed or point of change, but also with respect to its origin (inside or outside the community) and its nature and type (evolutive or adaptive (e.g. Andersen 1973), transmitted or diffused (Labov 2007)). (Taglimonte & D'Arcy, 2009:98)*

It is this point that provides the motivation for the present study. This chapter aims to return to phonology in order to examine adolescent peaks across a range of different processes of sound change. As well as contributing to previous findings for gender and the stage of change, the present study aims to open this investigation out to also include the type of process underlying the mechanism of the sound change in progress. To this end, the present chapter aims to directly address Tagliamonte & D'Arcy's (2009) suggestion by analysing preadolescent data across three contrasting variable types. The features differ along a number of parameters. First, their origin: two features come from outside the community, whereas the other is most likely driven by system internal factors. Second, the features are all changing through different mechanisms: levelling, diffusion and system internal phonetic pressures. The three variables are: the MOUTH vowel, TH-fronting, and GOOSE-fronting.

6.2.7 Returning to phonology: 3 features, 3 processes

The present analysis aims to contribute to this discussion through an analysis of three different features which appear to be changing through three different processes:

1. MOUTH vowel variation: recent investigations into the MOUTH vowel have suggested that it is changing through a process of *levelling* (e.g. Kerswill, 2002:697). In apparent time, speakers from Hastings showed a marked reduction in the number of variants. While older speakers alternated with roughly equal rates between three or four forms, the young speakers only used two and showed clear preference for one form – the lowest backest diphthong, which is often described as the most supralocal variant (Wells, 1982; Tollfree, 1999). Therefore, these results indicated that the MOUTH vowel was changing in Hastings through a process of levelling.
2. TH-fronting: this language change is most commonly attributed to a process of *diffusion* whereby innovations spread out from large, dominant, urban centres (commonly cities) to the surrounding areas (Trudgill, 1982:52–87). In Hastings, TH-fronting was shown to have spread extremely fast; old speakers showed near categorical rates of the standard form, while the opposite was true for the young speakers, and the change was male led. TH-fronting did not show any complex linguistic conditioning, which may be indicative of its route into the dialect through a process of diffusion.
3. GOOSE-fronting: this represents an *endogenous* change insofar that it is driven "by the operation of internal, linguistic factors" (Labov, 1994:78). GOOSE is getting fronter in apparent time, with each successive cohort showing a significantly higher normalised F2. Preceding phonetic environment was the strongest constraint, with the Hastings data replicating the near-universal constraint

hierarchy: palatals > coronals > noncoronals > lrw. Gender was shown to interact with age, with females in the lead for the old and the young cohort, but males in the lead for the middle-aged cohort.

Following this discussion, it is now possible to situate the aims of the present analysis in terms of two distinct (yet related) research questions.

6.3 Research questions

1. Will each of the different processes show an adolescent peak in apparent time? And if not, why not?
2. What will the patterning of the constraints reveal about a) whether or not peaks are a property of female speech only, and b) how will the linguistic patterning contrast for the three different processes?

6.4 Methodology

6.4.1 Analysis

All variable analyses were conducted as outlined by the chapters dealing with the individual variables (see previous chapters for detailed accounts). In contrast to the analyses presented in the variable chapters, the analysis presented here is descriptive only. Planned work for the future will examine whether the observed differences are statistically significant.

6.5 Results

6.5.1 MOUTH: a levelling change

The graph below shows the spread of data from the adult speakers. There was a total of 5 variable forms: [ɛɪ] in red, [æʊ] in olive green, [æ] in emerald green, [aʊ] in blue and [a:] in purple. The forms can be roughly split between those which are more “local” and those which have a wider regional currency within the southeast and are more “supralocal”:

Local		**Supralocal**	
[ɛɪ]	traditional local southern variant	[a:]	supralocal Cockney back monophthong
[æʊ]	traditional local southern variant	[aʊ]	supralocal neutral back diphthong
[ɛ]	traditional front monophthong		

Recall that in section 3.6.1 two clear patterns emerged from the spread of variants in the adult data. First, each successive cohort shows a reduction in the range of variable forms.

The oldest speakers show a spread of a number of variants where all variants accounted for some of the variance. As the cohorts decrease in age, the overall spread of the variation also declines. This observation introduces the second clear pattern, the shift from local to supralocal forms.

The question now is whether the preadolescents will demonstrate the predicted adolescent peak and show higher levels of the local forms than the adolescents, or whether they will continue the march towards supralocalisation. Figure 80 shows how these variants patterned over all four age cohorts.

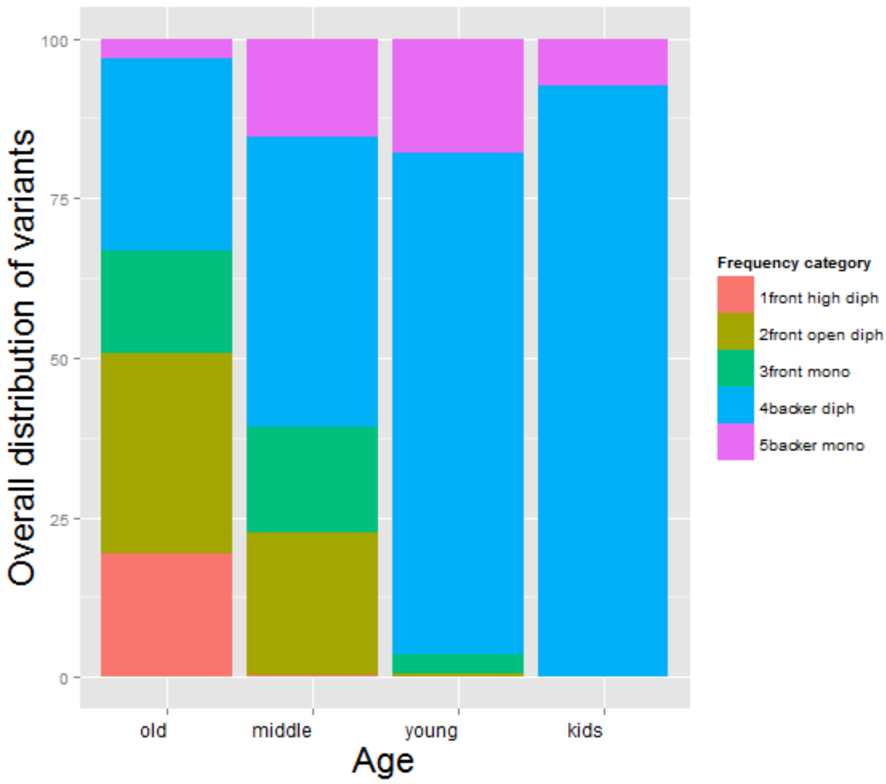


Figure 80: Full range of variants across age cohorts, all speakers

From figure 80 it is clear that the preadolescents do not show any lag. In fact, they use 100% of the supralocal forms. The local forms, which made up the minority forms in the speech of the adolescents, have been completely eradicated in the speech of the preadolescents. For this form, the preadolescents do not show a peak but rather advance the trend towards full supralocalisation and the completion of the change. As this change has reached completion, there is no reason to examine the patterning of internal and external constraints for the youngest cohort. Instead, this apparent time trend is more clearly represented through the numerical scale.

6.5.1.1 *The levelling Index*

What is striking about the patterning of the full complement of variable forms in apparent time is that there is no evidence of an adolescent peak. The youngest cohort move the change further along in the same direction as the age groups above them. This pattern can be seen more clearly when the variants are viewed in terms of the *Levelling Index* (based on Kerswill & Williams, 2000). As stated in chapter 3, the range of variability demonstrated that the change in Hastings represented a cline from higher and more front variants to lower more back forms. This movement through the vowel space, from local forms to supralocal forms, indicated a process of *Dialect Levelling*; the range of variability decreased from the older to the younger speakers, who were opting for "a socially and regionally more neutral variant" (Kerswill et al (2008:462). The Levelling Index measures this process through use of a numerical scale, as shown in table 16.

Levelling index	**2**	**3**	**4**	**5**	**6**
Variant	[ɛɪ]	[ɛ - æ]	[æʊ]	[a:]	[aʊ]
	← Local--Supralocal →				

Table 16: Levelling Index cline of variants

Table 16 shows how the variants are ranked along a "supralocal" cline. Figures 81 shows how the levelling index patterned by age.

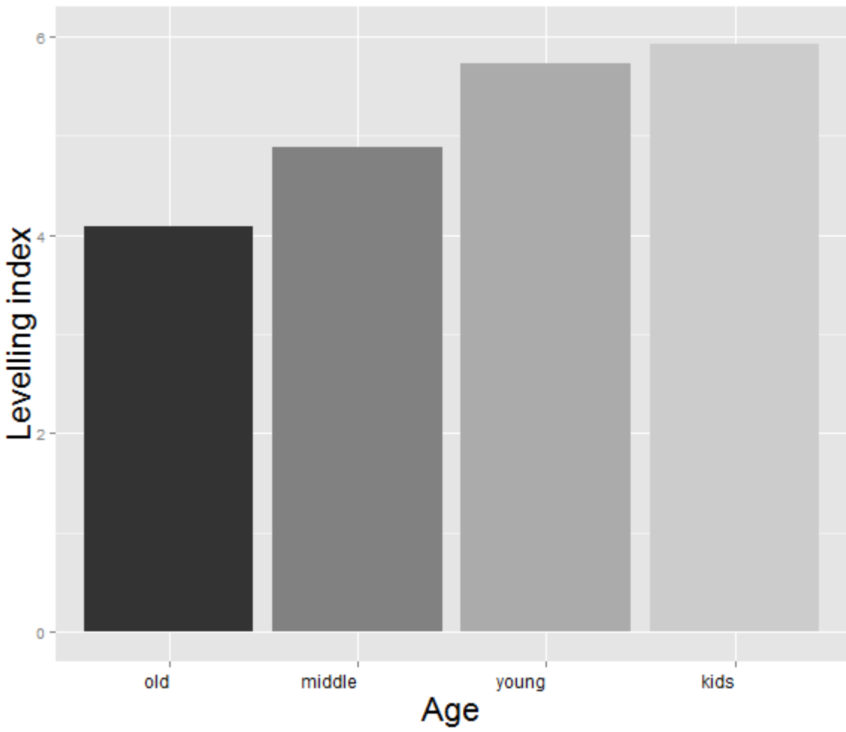


Figure 81: Levelling Index for old, middle, young and child age cohort, all speakers

Figure 81 shows that each successive cohort advances the levelling process; the preadolescents do not lag behind the teenagers and show a greater proportion of lowered and backed forms. Even with the preadolescents included, the view in apparent time is that of a monotonic increase through time; there is no adolescent peak. However, as the change has now reached completion, the size of the increase between the adolescents and preadolescents is much smaller than the difference between the other age cohorts.

6.5.1.2 *Summary of findings for MOUTH:*

- The preadolescents in the youngest cohort continue the process of levelling using a higher proportion of low back forms than the age cohorts above them. Further, they show no instances of any of the local, traditional forms. These forms, while in the minority, were still present in the speech of the teenagers.
- The results from the apparent time analysis of the levelling index showed a lack of an adolescent peak; there was no lag, and the preadolescents were in advance of the change compared to the teenagers. In order to determine whether this is something that is particular to this feature (and possibly also levelling features more generally), or something particular to the speech community, the other features need to be examined.
- These results demonstrate that the levelling of the MOUTH vowel is a process that has reached completion in Hastings.

There are a number of possible interpretations for the lack of an adolescent peak for the MOUTH vowel. For instance, it could be related to the stage of the change, the nature of the process involved or even the sociolinguistic situation in Hastings. Hopefully comparing the incrementation of the other features will enable a clearer picture, first through an examination of incrementation in TH-fronting.

6.5.2 TH-FRONTING: A DIFFUSING CHANGE

The analysis of TH-fronting in the adult data above showed that TH-fronting is a change in progress in Hastings. There is a monotonic increase in the form between the old and middle and middle and young cohorts. The size of the increase also revealed that this ongoing change in Hastings is progressing at an extremely fast rate. The observation that the older speakers use close to categorical rates of the standard form suggests that this cohort represents the point of entry of TH-fronting to the grammar in Hastings, while the young speakers' use of near-categorical rates of the non-standard suggests that this change is what Labov (2001:446) terms "new and vigorous". For the next stage in the analysis, I now include the preadolescent speakers in order to determine whether they lag behind, or advance beyond, the levels of the leading adolescents; this is shown by figure 82.

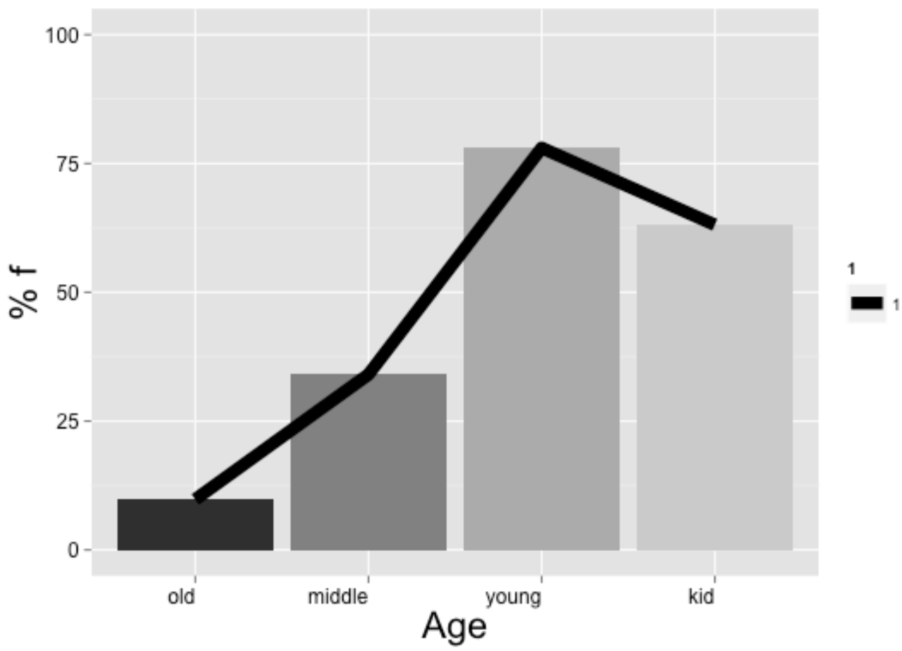


Figure 82: rates of TH-fronting (non-standard [f] use) in apparent time, all speakers

Figure 82 shows the apparent time view of the data with the preadolescent speakers included. The youngest speakers use more of the non-standard form than the middle-aged speakers but less of the form than the teenagers in the age cohort above. This creates a peak in apparent time.

Labov (2001:461) argued that, for female-led changes, an adolescent peak would not be visible for males. Taglimonte & D'Arcy (2009:82) however, showed that males and females both demonstrated adolescent peaks for female-led changes. For male-led changes, Labov (2001:461) suggested that the model of incrementation would be more complex but lacked a big enough spread of male-led variables to develop or test it. He cautiously suggested that it may function similarly to the gender asymmetry displayed for the female-led changes. Figure 83 presents the predicted pattern.

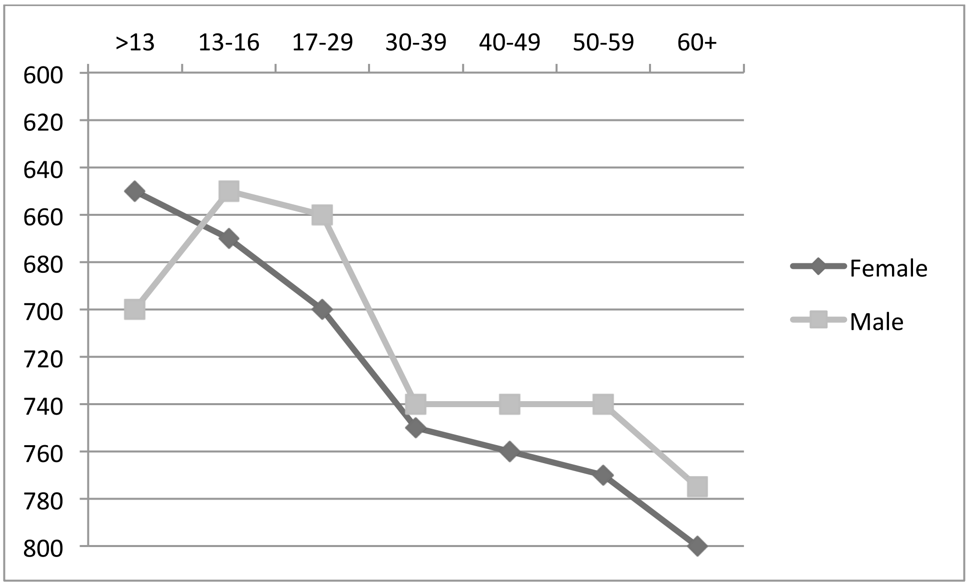


Figure 83: predicted pattern of incrementation for males and females for a male-led change, based on Labov (2001:461)

Figure 83 shows how the proposed model of incrementation for male-led changes is a mirror image of the female-led changes whereby males show a peak in apparent time while females continue with a monotonic slope up until preadolescence. The results from the analysis of TH-fronting may be able to make a small contribution here. Patterns in the Hastings data, alongside findigs from previous studies, have shown that TH-fronting is generally a male-led change. This finding was partially replicated in the Hastings data, where gender was shown to interact with age so that, while males were in advance of the change for the old and middle cohorts, there was no significant gender difference for the young speakers. However, as the preadolescent speakers showed more conservative rates of the non-standard form, we might also expect them to replicate the more conservative gender pattern of the community at large. In order to determine whether this is the case or not, I now turn to examine what the preadolescents are doing in terms of gender and how these patterns compare to the rest of the sample.

6.5.2.1 *Gender*

Figure 84 compares the gender patterning across all age cohorts. The trendlines demonstrate how the adolescent peaks differ between males (blue) and females (red).

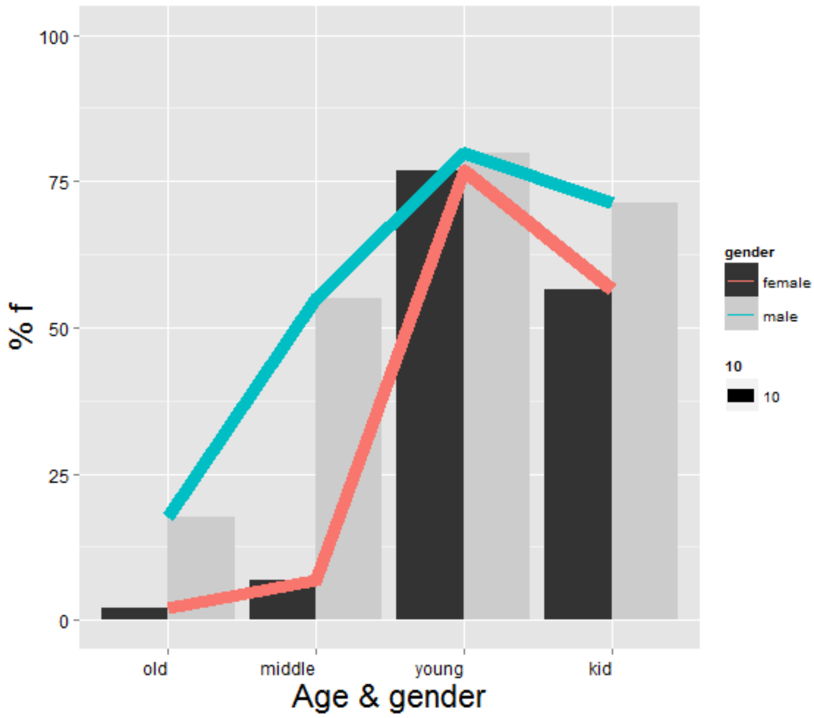


Figure 84: rates of TH-fronting by gender in apparent time

Figure 84 reveals a number of important things about the gender patterning of this feature in apparent time. First, males are in the lead of females for every age cohort except the young teenage speakers. There are a number of reasons why the teenagers may not replicate the gender pattern of the wider community; these will be examined in the discussion. What is important to note at this point is that similar to their more conservative rates, the preadolescent speakers also demonstrate a more conservative gender pattern where they replicate the pattern of the older and middle cohorts and not the teenagers; that is, the males are in the lead of the females. The second important finding is the patterning of the adolescent peak for each gender. For the female speakers there is a clear and pronounced adolescent peak; the preadolescent females show a distinct lag behind the preadolescent teenagers. Further, while there is little difference between the old and middle cohorts, the rates of the non-standard form show a steep increase between the middle and young cohorts. The males show a contrasting pattern. For instance, while there is evidence of an adolescent peak, the difference between the adolescents and the preadolescents is negligible. Further, the increase between old and middle and middle and young is more or less steady. This is in contrast to the females, who show a steep increase between middle and young. These patterns may indicate that the males and females are at different stages for this change; again, this point will be returned to and explored more fully in the discussion.

The main analysis of TH-fronting in Hastings showed that the strongest internal constraint was word position where word final position (words like *bath*) shows significantly more fronting than word medial position (words such as *athlete*), which shows significantly more fronting than word initial positions (words like *think*). Within the adult data, this constraint was replicated for each age cohort. The previous analysis of gender showed that the youngest speakers replicated the social constraint; the following section investigates whether they also replicate the position constraint.

6.5.2.2 *Word position*

Figure 85 shows the rates of fronted tokens for word position across all four age cohorts.

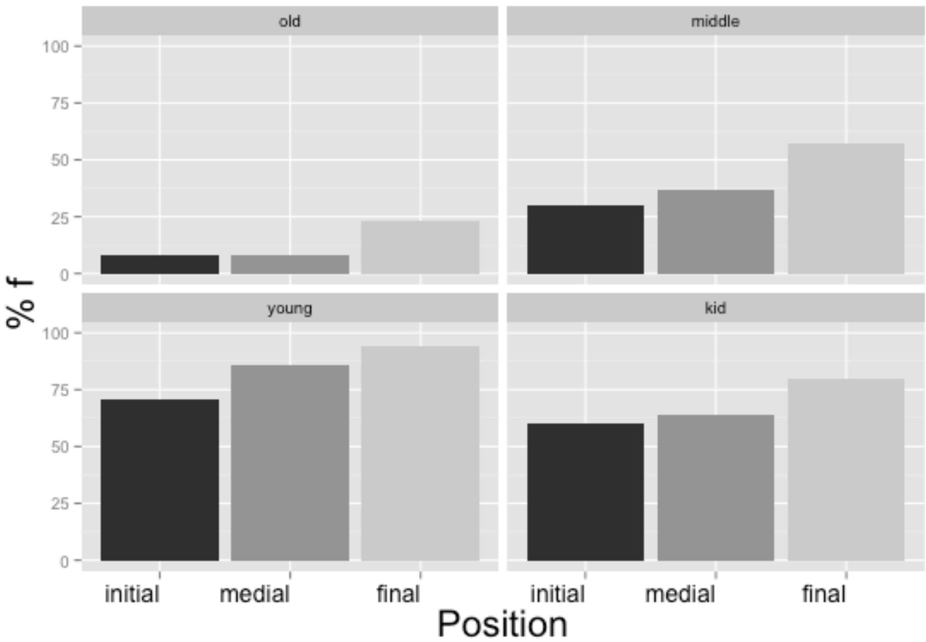


Figure 85: rates of TH-fronting (non-standard [f] use) by word position in apparent time

Based on figure 85, it is clear that this constraint is replicated at every stage of the feature's development. All age cohorts display the same hierarchy: final > medial > initial. This could suggest that the feature is transmitted alongside its constraints. However, an alternative interpretation is that the word position constraint is an epiphenomenon and expresses the underlying reductive tendencies of TH-fronting. In this proposed scenario, TH-fronting functions as a linguistic primitive where linguistically less prominent positions (i.e. medial and final) would be more susceptible to the reductive process (e.g. Kiparsky, 2008; Shockey, 2003). From this view of the data it is not possible to tell which of these processes are at work. I return to these issues in light of the research questions; first, I turn to the summary of the data.

6.5.2.3 *Summary of TH-fronting findings:*

- TH-fronting is changing in apparent time in Hastings; there was a monotonic increase in the non-standard, labiodental form with each successive generation. The exception to this was the youngest cohort where the preadolescents' average rate of the form was less than the teenagers (although more than the middle-aged speakers); this pattern demonstrates a classic adolescent peak, the predicted pattern for a change in progress.
- As with the overall rates, the youngest cohort also demonstrated a more conservative pattern for gender. Here males showed higher rates of the non-standard form, the same as the middle speakers and in contrast to the young speakers, where the gender difference had disappeared.
- Unlike gender, the constraint hierarchy for word position (final > medial > initial) was replicated at every age cohort. This was taken as evidence for either one of two things. First, it could mean that TH-fronting is a reductive process and thus the positional constraint is really representing the underlying effect of prominence. Alternatively, it could be that the form is transmitted alongside its constraints.

In sum, each generation moved the change on in terms of frequency, bar the youngest cohort, who demonstrated a lag characteristic of a classic adolescent peak. This lag will likely disappear as the preadolescents reach linguistic maturity and surpass the levels of TH-fronting of the age group above them and thus take the change nearer to completion. In terms of constraints, the preadolescents showed several different patterns: similar to their overall rates, they demonstrated a more conservative gender pattern than the adolescents; they replicated the positional constraint shared by the all other age cohorts. Interestingly, although TH-fronting is a male-led change, both genders showed an adolescent peak. However, the contrasting contours of the peaks most likely reflect the fact that the males and females represent different stages of the change, with the males in advance and slowing down as they reach completion. The finding that the males' adolescent peak was negligible in comparison to that of the females was most likely due to the fact that they were in the lead of the change; the males were nearing completion, and the overall rate of change was declining.

So far the results have explored a levelling change through examining variation in the MOUTH vowel. This feature failed to display an adolescent peak, and the youngest cohort continued the march towards supralocalisation and took the change to completion. It was unclear whether the absence of the peak was due to the process, the stage of the change or the surrounding sociolinguistic scenario. The second change TH-fronting represented a diffused male-led change. In this instance, adolescent peaks were visible for both males and females. This suggests that it was not the sociolinguistic environment in Hastings that caused the MOUTH vowel to show no peak. However, the confound of type of change and stage of change remains. Hopefully, the final change will shed more light on this question. I now turn to the final change, the endogenous feature – GOOSE-fronting. How will the incrementation of this feature fit within the bigger picture that is emerging?

6.5.3 GOOSE-FRONTING: AN ENDOGENOUS CHANGE

The analysis of GOOSE-fronting in the adult data indicated that GOOSE-fronting is a change in progress in Hastings. Each successive cohort showed a higher median normalised F2, meaning that the vowel is moving further forward in the vowel space over time.

The next stage is to see whether the youngest speakers have incremented the change a stage further and are showing higher average F2s than the adolescents, or, whether they are showing the incremental lag predicted for a change in progress. Figure 86 presents an apparent time view of this feature which includes the preadolescents.

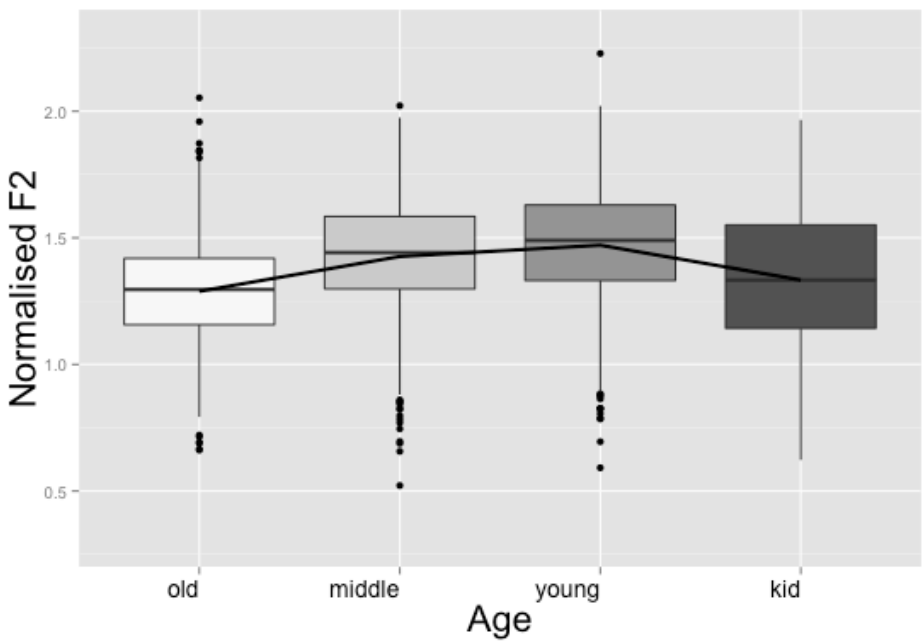


Figure 86: GOOSE-fronting (normalised F2) in apparent time, all speakers

Two major trends are visible from the figure 86. First, the preadolescents have a lower average F2 than the adolescents, revealing the predicted adolescent peak. Second, the preadolescents have a wider spread of vowel scores. While the old, middle and young cohorts exhibit similar spreads, as shown through the comparable lengths of the boxes, the preadolescents have a longer box, representing a wider spread of data points. In other words, the speakers in the youngest cohort show a wider range of variability than the old, middle and adolescent speakers. These observations may suggest that as well as not yet reaching their end point, i.e. the children have yet to increment the change, there is no current focussed target for this vowel, and they are still in the process of establishing a norm value.[25]

Previous analyses of GOOSE-fronting, including the analysis of the Hastings data, have shown that this change is usually female-led. In Hastings, gender interacted with age, as demonstrated in figure 87 (repeated from chapter 5).

6.5.3.1 *Gender*

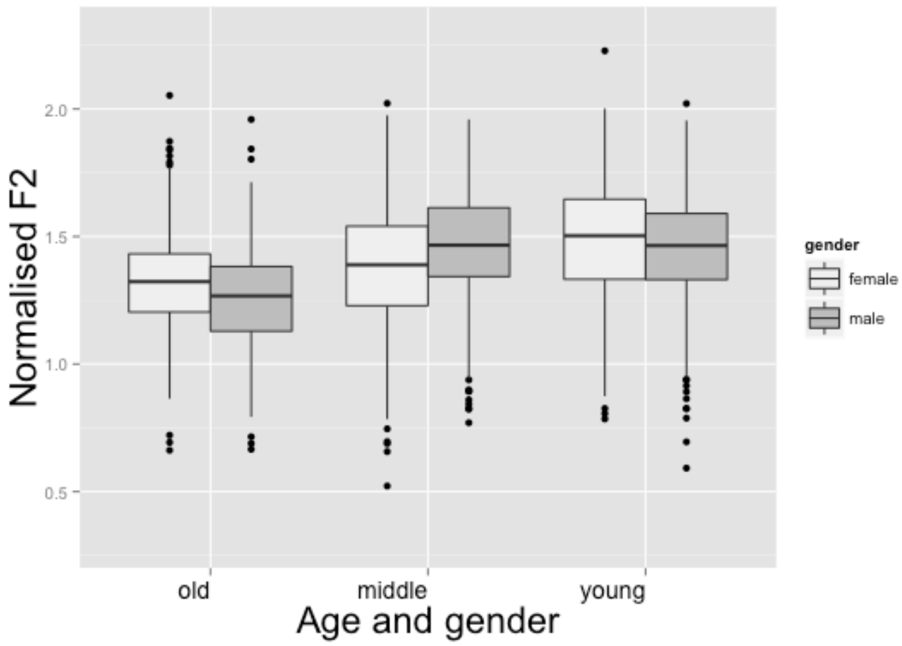


Figure 87: GOOSE-fronting (normalised F2) by gender in apparent time, adults only

Figure 87 shows how gender and age interact in the conditioning of GOOSE-fronting in Hastings. The old cohort demonstrate the expected gender pattern with females in the lead ($p < .001$); this is also the case for the young cohort ($p = .015$). However, the middle cohort does something different whereby the males are significantly out in front of the middle-aged cohort females ($p < .001$). In fact, the middle-aged males show comparable

[25] Although beyond the scope of the present work, there is evidence to suggest that children show greater co-articulatory effects of surrounding environment for vowel realisations (e.g. Zharkova et al, 2011). The increased range of variability could reflect this tendency.

levels of GOOSE-fronting to the males in the adolescent cohort, which suggests that it is this group, i.e. the middle-aged males, who are out of step with the community. A discussion of the possible reasons for this is provided in the chapter 5. For now, the question remains as to what the preadolescents do. How, if at all, will gender constrain GOOSE-fronting for the preadolescent speakers, given the contrasting patterns in the community? Figure 88 shows how the gender patterning of GOOSE-fronting for the preadolescents compared to the rest of the sample.

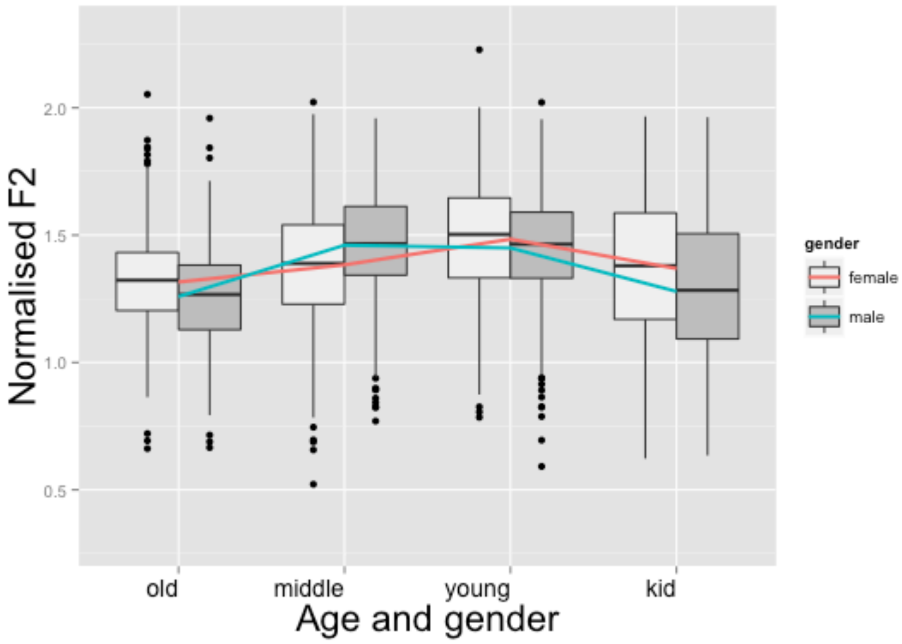


Figure 88: GOOSE-fronting (normalised F2) by gender in apparent time, all speakers

Figure 88 demonstrates two main findings. First, it shows that there is an adolescent peak visible for both the males and the females insofar as the preadolescents lag behind the adolescents. However, a steeper peak is visible for the female speakers where the middle and the preadolescents show lower levels than the adolescent speakers. The males show a steep rise in F2 from the old to the middle cohort, but this then reaches a plateau between the middle and adolescent speakers. Second, the box-plots show that the preadolescents replicate the gender pattern of the adolescents and the older speakers, with females in the lead. This is also the pattern most commonly reported by previous studies. In short, the preadolescents demonstrate the normal and predicted gender patterns, supporting the identification of the middle-aged males as the odd ones out. Again, a wider spread of variation is visible in the preadolescent data; both males and females show longer box-plots than any other group.

Unlike the gender constraint, the analysis of linguistic conditioning in the adult data revealed that every cohort behaved fairly uniformly with regards to phonetic conditioning. Further, they replicated the near-universally reported constraint hierarchy. The following section examines whether, as with gender, the preadolescents replicate the dominant pattern in the adult analysis.

6.5.3.2 *Following phonetic environment, the GOOSE/GHOUL split*

As described previously, within studies on GOOSE-fronting, following phonetic environment is most commonly shown to be the strongest conditioning factor (e.g. Fridland, 2008; Hall-Lew, 2005; Flynn, 2012). The constraint operates along a two-way phonetic split whereby following /l/, when compared to all other following phonetic environments, is shown to block fronting, a phenomenon referred to as the GOOSE/GHOUL split (e.g. Wells, 1982). Figure 89 examines whether the preadolescent speakers replicate the GOOSE/GHOUL split.

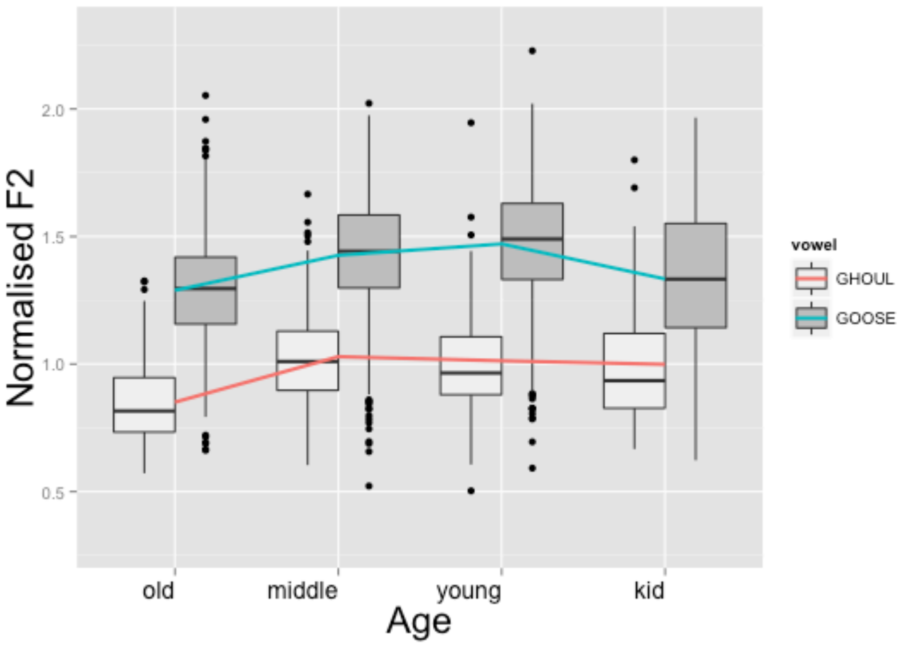


Figure 85: GOOSE/GHOUL split (normalised F2) in apparent time, all speakers

Figure 89 shows that the preadolescents do not appear to show as distinct a split for their GOOSE/GHOUL tokens as the older cohorts. In the preadolescents' data, the GOOSE and GHOUL tokens are far closer together. The preadolescents' GHOUL tokens are at comparable levels to the GHOUL tokens of the young and middle speakers, and a number of hypotheses arise from this view of the data. It could mean that this constraint is weakening and disappearing as the change increments. Several researchers have shown that this constraint weakens over time (Fridland, 2008; Flynn, 2012). Alternatively, this could be a constraint that the preadolescents will acquire as they increment the change further – i.e. at this stage, the preadolescents show a backer average GOOSE value than the teenagers. When the preadolescents make the predicted overtake of the teenagers, the GHOUL tokens may remain back and the constraint may be preserved. However, the spread of the variation for both the GOOSE and GHOUL tokens is greater for the preadolescents' data. This may offer further support for the suggestion that this feature is undergoing a level of reorganisation; the once stable constraints are becoming less so.

Despite the differences observed between the cohorts with regards to the strength of this constraint, GHOUL is clearly far backer across every age group. For this reason following coda /l/ contexts are removed from further analysis.

If the patterns visible over time for the GOOSE/GHOUL split do indicate that the feature is reorganising, further support for this interpretation could be provided through observing similar tendencies for the second strongest linguistic constraint – preceding phonetic environment. I now turn to examine preceding phonetic context to see if a similar process – i.e. a widening in variable spread through time – is visible. Hopefully, this may give a better indication of the situation with regards to following phonetic environment.

6.5.3.3 *Preceding phonetic environment*

Chapter 5 demonstrated that the adults showed the widely reported hierarchy for preceding phonetic environment (although this was shown to be weakening over time):

Palatals > coronals > non-coronals > /l,r,w/

The weakening over time may be indicative of a number of different processes. First, it may suggest that this change is no longer simply a phonetically conditioned change; it may now in fact be organised in terms of a different linguistic parameter. For example, evidence has shown that phonetic effects can give way to lexical effects over the course of historical change (e.g. MacMahon, 1994). This model of change is also supported by present-day data and analyses (e.g. Jospeh & Janda, 2000; Bermúdez-Otero, 2007). The observed weakening of this constraint in the adult data could indicate that this type of process is at work in the Hastings data. Alternatively, the apparent breaking down of this constraint may indicate a reversal in the direction of this change. Hopefully, examining the preadolescent data will enable the disentangling of these supposed processes. Figure 90 shows how this factor patterned in the preadolescent data compared to the adults.

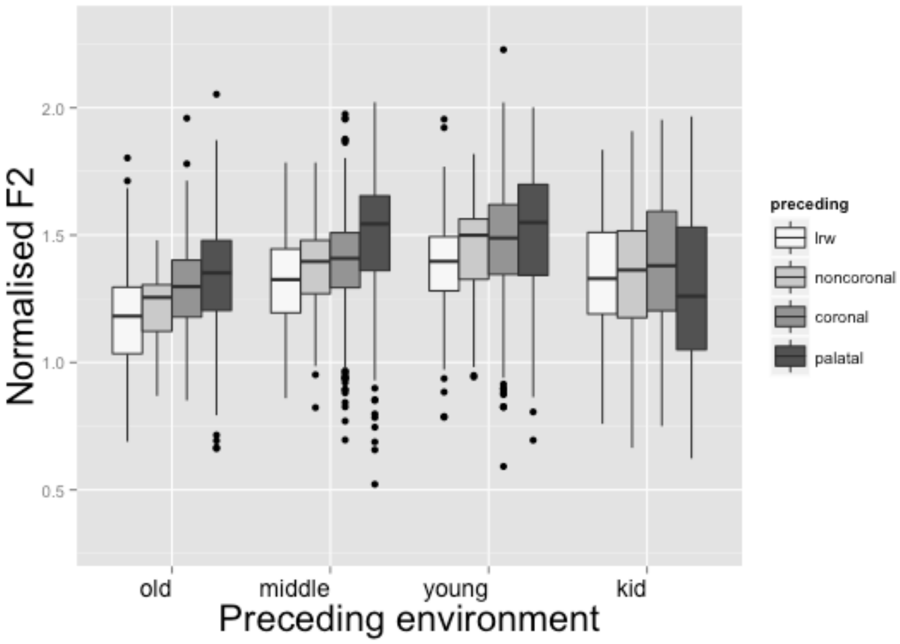


Figure 90: GOOSE-fronting (normalised F2) by preceding context in apparent time, all speakers

From figure 90 it is possible to see the gradual dissolution of the strict constraint hierarchy produced by the old cohort, and to a slightly lesser extent the middle-aged cohort. The breakdown in the phonetic conditioning that was speculated for the adolescent data is possibly confirmed by the patterning of preceding phonetic environment visible for the preadolescents. The constraint ordering for the preadolescents is markedly different to that of all the other cohorts, most strikingly in comparison to that of the oldest cohort. The figure shows that for the preadolescents, while the /l,r,w/ and non-coronal contexts show slightly lower F2 and are backer than the coronals, the palatals, on the other hand, the environment that is in the lead for the other cohorts, is highly divergent and is much backer than the other phonetic environments. The palatal environment also shows the greatest spread. The youngest cohort not only continues the trend towards the weakening of this constraint hierarchy but takes this a stage further where it has become reordered. This observation, that the youngest cohort demonstrates a radically backer GOOSE vowel when they follow palatals compared to the other phonetic environments, may suggest their behaviour is indicative of a reorganisation rather than just the loss of this constraint. It may be the case that, as this feature develops and becomes more incorporated into the linguistic system, it may restructure. As touched upon previously, instead of operating as a phonetically constrained feature, the variable may begin to be more influenced by different linguistic parameters. I now turn to examine whether there is evidence of this in the current data.

Specifically, I will examine whether there is evidence that suggests the development of lexical effects over the course of the change.

Research into the development of changes through time has shown that lexical effects are related to frequency (Labov, 1992:43). For this reason I separated the most frequent palatal item, the word *you*, from the remaining palatals in order to examine whether this highly frequent item behaved differently from the other preceding-palatal lexical items. I first turn to examine this in the adult data only. However, the question now is whether the removal of these tokens from the preadolescents' palatal items will reveal the same tendency. Is it the case that the *you* tokens are causing the entire category to look more backed? Figure 91 examines whether the preadolescent speakers continued this tendency.

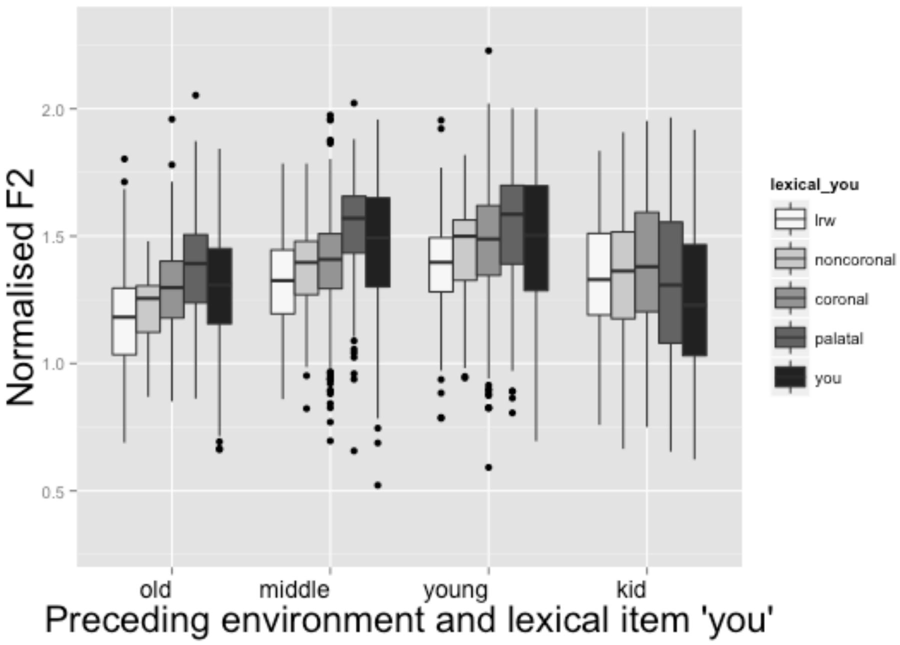


Figure 91: GOOSE-fronting (normalised F2) by preceding context, with lexical item "you" in apparent time, all speakers

Figure 91 shows how when the *you* tokens are removed from the palatal category in the preadolescent data, a different story emerges. It is clear from figure 91 that the lexical item *you* behaves differently to the other preceding palatal items. For every age cohort, *you* is much backer than the remaining palatals. However, there are a number of differences between the age groups. While the preadolescents demonstrate the same lexical effect for the word *you*, the removal of this item does not mean that they now replicate the same phonetic hierarchy as the adults. Even after separating *you* from the other palatals, the preadolescents still show a lower average F2 and a backer GOOSE vowel for the palatal category. These findings suggest two things. First, that the lexical effects have been present, or at least developing, for some time in Hastings. Second, that the preadolescents appear to be in a process of analysis; faced with input that contains both lexical and phonetic effects, they have to contend with competing constraints. The data above may suggest that the preadolescents have reanalysed the lexical effect of the backer word *you* and applied this constraint to the entire phonetic palatal category. This reanalysis could indicate the reversal of this change or could simply indicate that the preadolescents, faced with conflicting input, have either yet to master the adult pattern or are initiating a new pattern so that GOOSE-fronting is primarily a lexically conditioned change as opposed to a phonetically driven one. Again, this is a question that may only be resolved through a real-time perspective. What it does suggest, though, is that the pathway of incrementation for this change does not show the same regular ordering of the most dominant linguistic effects between the preadolescents and the adults that was observed for TH-fronting.

6.5.3.4 *Summary of findings for GOOSE-fronting:*

- GOOSE-fronting was shown to be changing in apparent time, indicated through the monotonic increase in F2 from the old through to the young speakers. This trend ends with the preadolescent speakers who showed an incremental lag: their F2 was lower than the teenagers and, like TH-fronting, an adolescent peak was visible in apparent time.
- As well as a lower F2 than the teenagers, the preadolescents also showed the widest range of F2 values. This could indicate that they had not yet settled on a norm value for this vowel. Alternatively, this may suggest a level of reorganisation in the patterning of this vowel is underway.
- The youngest cohort replicated the gender pattern of the oldest and the teenage speakers, with females showing a higher F2 and thus a fronter vowel than the males.
- For following phonetic environment, the youngest cohort demonstrated the GOOSE/GHOUL split, but to a lesser extent than the rest of the community. This could suggest a weakening or a loss of this constraint.
- For preceding phonetic environment, the often-reported hierarchy palatals > non-coronals > coronals > /l,r,w/ was more or less replicated by every age cohort, although it appeared to be weakening over time.

- For the preadolescents the palatals were much backer than the other phonetic environments. The remaining environments also showed an apparent weakening of the phonetic conditioning and did not replicate the hierarchy clearly.
- All age cohorts showed a backer vowel in the lexical item *you* than other palatal items. However, while the old middle and young groups' remaining palatals stayed out in front, the palatals in the preadolescent's data were backer than the other environments. The presence of the lexical effects in each age cohort suggests that these may have been developing for a long time and may have come to dominate the linguistic constraints, leading to the eventual breakdown of the phonetic effects. This could also possibly herald the reversal of the change.

The analysis of the three features has enabled a large number of different observations and revealed a range of different patterns. I now return to the research questions so that these results may be drawn together, with an aim to highlight what these results may indicate more broadly with regards to the adolescent peak and the pathways of incrementation for each of the changes. I will examine each research question separately and deal with each of the processes in turn, starting with the MOUTH variable. For reference, the research questions are repeated:

1. Will each of the different processes show an adolescent peak in apparent time? And if not, why not?
2. What will the patterning of the constraints reveal about a) whether or not peaks are a property of female speech only, and b) how will the linguistic patterning contrast for the three different processes?

6.6 DISCUSSION

6.6.1 MOUTH

1. Peak?

Variation in the MOUTH vowel suggested that this feature was changing through a process of levelling. The variable showed a marked reduction in the number of variable forms, and the change indicated a move away from traditional, local forms to supralocal forms which had a wider regional currency. In fact, the preadolescents showed the complete absence of local forms and the spread of the variants suggested that they had taken this change to completion. With regards to the presence of an adolescent peak, the variants needed to be ranked in order to create a numerical scale which assigned a value to the variants in terms of how local versus supralocal they were. When the data was presented in this way, no adolescent peak was visible in apparent time.

There are a number of different hypotheses as to why this change may have shown no peak. One possibility is that there is something unusual about the sociolinguistic situation in Hastings. However, this interpretation is not supported by the presence of an adolescent peak in the other features. More likely, it could be linked to the stage of the change. Labov (2001:450), and Tagliamonte & D'Arcy (2009) with reference to the logistic model of incrementation, suggest that changes nearing completion will not show an adolescent peak; this could be the case for MOUTH-levelling in Hastings.

Another alternative is that levelling, as a mechanism, functions differently to other types of language change. The acquisition and incrementation of these types of changes does not show a developmental delay, but rather the youngest members of the speech community advance the change from a much earlier stage, possibly from the outset. This would suggest that for this change the children did not show the gradual orientation away from their parents' models to their peers', but in fact never modelled their parents' levels at all. There is evidence from studies of levelling and emergent varieties that, in some situations, children adopt a more mainstream model and ignore the template provided by their parents.

Cheshire et al (2011), in their description of Multicultural London English (MLE), examine the forces that come in to play during the genesis of an emergent urban variety. The young MLE speakers experience a clash in terms of the input they receive from the parents and the model produced by their peers. For instance, southeastern English is a variety that demonstrates GOOSE-fronting; this means that, for young speakers, the normal realisation of the GOOSE vowel is front of the central vowel space. However, in many of the young speakers' parents' varieties, the GOOSE-vowel is produced with a high back articulation. In this case, Cheshire et al (2011:167) report that the young speakers only demonstrate vowels similar to their parents when their parents exhibit front vowels – in other words, when their parents' vowels better approximate the norm for the southeast generally. Further, this is the case for all age brackets, even the very youngest children (4–5 year olds), when parent influence is still expected to exert a strong influence (e.g. Kerswill, 1996). Cheshire et al (2011:167) interpret this as evidence that even very young children may use an alternative model to the one provided by their parents if it is sufficiently "deviant" from that of the mainstream norm:

> *It is apparent that very few children whose caregiver has a back vowel actually follow it…There is no significant relationship between the normalised F2 of caregiver and child. From this we conclude that the child is not influenced by their principal caregiver's pronunciation. In terms of the "feature pool" of available variants, we can see those represented by the parents appear to be rejected. Instead the children already orient towards community norms, both existing and emergent*

Multicultural London English represents a special type of sociolinguistic circumstance where the input varieties are widely divergent from the surrounding mainstream dialect. Many of the children have additional languages, and often English is not the main language spoken at home. In light of this, it is not surprising that the children might look away from their parents when acquiring the surrounding region's dialect. However, Kerswill & Williams (2000) report a similar finding from their study of Milton Keynes, where English is the first and only language spoken by the participants.

In their study of new dialect formation in Milton Keynes, Kerswill & Williams (2000) demonstrated that, in some situations, even without the presence of non-native influences, children may diverge from their parents' linguistic model from a much earlier stage than would normally be predicted. As a new town, Milton Keynes' population came from a variety of different dialect areas, which meant the children had a range of linguistic input. A trend that has been observed in many varieties of English, and one that is described as moving in tandem with GOOSE-fronting, is the fronting of the high back vowel in words like *show, cloak, road* etc, referred to by Wells (1982) as the GOAT lexical set. Kerswill & Williams (2000:102) showed how the for their sample of children aged between 4 and 12 years old, GOAT vowel articulations formed a focussed cluster compared to that of the caregivers, who showed a wide range of variability: "Unlike the children, the mothers' different regional origins are reflected in the scores" (Kerswill & Williams, 2000:101). This result is telling, as it indicates that, given a different set of conditions, children as young as four can orient towards the mainstream dialect and away from their parents. Kerswill & Williams (2000:101–2) suggest that this is evidence against the claim that children *always* use their parents' linguistic system as a model and only begin to participate in linguistic change as they get beyond the critical period and reach linguistic maturation: "…in 33 of the remaining 42 cases, the child's fronting is greater than that of the caregiver; this suggests that Milton Keynes children, as a group, are taking part in this general southeastern change" (Kerswill & Williams, 2000;102).

The evidence from the present study and the results from Cheshire et al (2011) and Kerswill & Williams (2000) may indicate that some situations and/or processes may lead children to ignore the input from their caregivers and adopt an alternative model. However, as inferred from the above discussion, the stage of the change is a clear confound in the present study. Further work is needed into newer changes that are changing through a process of levelling in order to establish whether it is indeed the process and not the stage that brought about the lack of an adolescent peak.

2. Patterning?

As the levelling of the MOUTH vowel was a change that appeared to have reached completion in the speech of the preadolescents, it was not possible to explore the patterning of the linguistic and social constraints in this case.

6.6.2 TH-fronting

1. Peak?

TH-fronting, unlike MOUTH variation, did show a peak in apparent time. Further, when the cohorts were broken down by gender, the males' and females' peaks demonstrated different trajectories. The females showed a much steeper peak compared to the males, who showed a much more gradual peak, particularly between the middle and teenage cohort. These different trajectories most likely represent the interaction between gender and the stage of the change. Two observations are important: first, that the stage of the change influences the prominence of the adolescent peak; second, that TH-fronting is widely reported as a male-led change, which was also the case in the Hastings data. The observation that the females showed a far steeper peak suggests that for them the change is still in full swing, progressing quickly and showing no signs of slowing. In contrast, the males are approaching the end of this change; it is nearing completion and beginning to slow down. The interaction between gender and stage of the change were also demonstrated within Tagliamonte & D'Arcy (2009:91), who further emphasise that "predictions regarding gender asymmetry must be interpreted in diachronic context". However, like Labov (2001:459), Tagliamonte & D'Arcy (2009) only tested the logistic model of incrementation for female-led changes. The evidence presented here is, to the best of my knowledge, the first time the model has been tested for a male-led change. The results from TH-fronting suggest that not only does the model hold, but also that the interaction between the stage of the change and incrementation operates in the same way for male-led changes as it does for female changes.

2. Patterning?

The social pattering has been dealt with through the discussion of the interaction between age, gender and the incrementation of TH-fronting. The linguistic factors also provided some insight into the pathways of incrementation of this feature. For the positional constraint, this factor showed consistent patterning across all age cohorts, including the preadolescents, who replicated the positional hierarchy seen in the adult data. This finding may suggest that the constraints are acquired alongside the variable form (e.g. Smith et al, 2007). Alternatively, it may suggest that this patterning is an inherent feature of TH-fronting as a reductive process, where it follows that it is more likely to occur in less prominent positions.

6.6.3 GOOSE-FRONTING

1. Peak?

Like TH-fronting, GOOSE-fronting as a seemingly phonetically driven change also showed a peak in apparent time. The adolescents were in the lead for this change, with the preadolescents lagging behind as demonstrated through their lower average normalised F2 values. However, while the preadolescents may have been lagging behind with regards to the proportions of use, the variable patterning of their constraints suggested that they were on the vanguard of restructuring this change. A more detailed discussion of this follows in answer to the second element of the research question.

1. Patterning?

The endogenous feature GOOSE-fronting behaved very differently to the other changes in terms of the replication of the constraints. While the preadolescents copied the gender pattern that was more common in the wider community, they appeared to be in the process of restructuring the linguistic conditioning of the feature. The constraint most commonly reported as the strongest, coda l, i.e. the GOOSE/GHOUL split, was present in the youngest speakers but much weaker. This further confirmed the suggestion that this constraint may be breaking down, a finding which has been found elsewhere (e.g.

Fridland, 2008:445; Flynn, 2012:34). Evidence for the weakening of this constraint over time came from the observation that this split appeared less and less pronounced with each subsequent generation. This trend continued for the preadolescent speakers where the GOOSE and GHOUL tokens showed overlap.

The breakdown of the phonetic conditioning was also visible in the preceding phonetic environment. The widely reported hierarchy palatals > non-coronals > coronals > /l,r,w/ was demonstrated clearly by the oldest cohort, although, similar to the GOOSE/GHOUL split, this constraint was weakening through time. Again, this was most pronounced for the preadolescents. For these speakers, the palatal environment, which is the frontest environment for the older cohorts, was in fact the backest. When this environment was broken down further, with the common lexical item *you* separated, lexical effects were evident. For each cohort, the word *you* was backer than the other palatals. However, when this context was excluded, the original hierarchy was still more or less maintained. This was not the case for the preadolescents. While they showed the same lexical effect, their *you* was also much backer, and removing this context did not restore the phonetic hierarchy. Viewed together, these findings were taken as evidence for two things. First, they indicated that lexical effects had been operating for the feature for some time, and, second, that the lexical effects may be winning out over the phonetic effects for the preadolescent speakers. In other words, when faced with two competing factors – phonetic environment and lexical conditioning – in the input they receive, the youngest speakers were ignoring the phonetic conditioning and adopting the lexical. Further, there was speculative evidence that while they may have ignored the dominant phonetic conditioning, they may have generalised and reanalysed the lexical effect for the backer word *you* to the entire class of palatals, as these tokens were backer than the other phonetic contexts.

If this is a reversal then it prompts the question of why would this happen and what is the mechanism. There are a number of possibilities. Kerswill et al (2008:451) found that many of the well-established changes in the southeast were being reversed in the new emergent variety Multicultural London English (MLE). They reported that the Diphthong Shift, a natural and pervasive change described by Wells (1982:256) as being on a par with the Great Vowel Shift, was being reversed by the speakers of MLE, particularly those speakers who had multi-ethnicity friendship groups. They inferred from this that the reversal was brought about through linguistic and dialect mixing:

> *Developments in London and the Southeast, then, run counter to the idea of drift. The reason behind this is likely to be dialect contact (with other varieties of English than British), language contact, and contact with L2 Englishes.*

The preadolescents in the present sample, while all being Britons born and bred in Hastings, attend a school that has an intake which is 50% non-British and where many of the children have English as a second or additional language. A similar process to that underway in the formation of MLE could be in operation in Hastings. The data from MOUTH-levelling has shown that the children might not always look primarily to their parents for their linguistic models and could be being influenced by their multi-lingual and multi-dialectal peers.

Another possibility is that the reversal is due to GOOSE-fronting rising above the level of consciousness, leading to a withdrawal from the change and possibly its reversal, similar to Mesthrie's (2010:18) report on the emergent deracialised standard variety in post-Apartheid South Africa, where GOOSE-fronting exhibited style-shifting. In the Hastings data, for GOOSE-fronting, the middle cohort shows an unexpected gender pattern: the males are in the lead of this change. This is not the predicted pattern for a change from below, where, according to Labov (2001:292), "women use higher frequencies of innovative forms than men do". During the 1970s and 1980s, Hastings experienced heightened levels of contact with London when thousands of people who had previously lived in London moved to the purpose-built Toll Kiln estate as part of the government-initiated programme. Studies of early London speech show that GOOSE has long been fronting in the traditional London dialect (Torgersen, forthcoming). Similar to Mesthrie's (2010) findings, this contact could have led to GOOSE-fronting rising above the level of consciousness. However, in this instance, rather than having associations of prestige, the form became stigmatised. This could have led to the females withdrawing from this change, or at least showing much more conservative levels than the equivalent men.

Labov et al (2013:53), in an apparent time study of Philadelphia spanning over 100 years, showed that some long-running and well-established Philadelphian changes were in reverse. Figure 92 shows this reversal for two changes, the raising and then lowering of

/æh/ and /oh/. The female trend line is shown in the dashed line and the male trend line in the solid line.

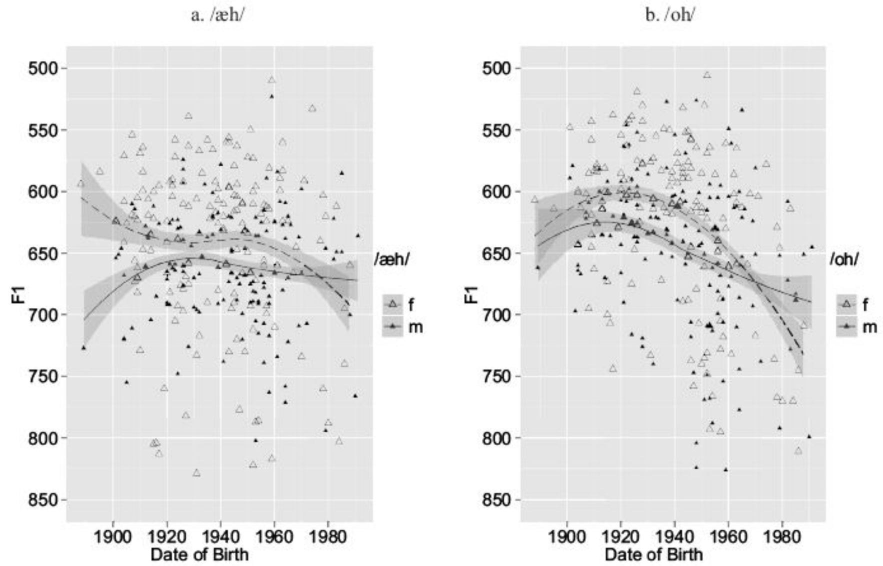


Figure 92: /aeh/ and /oh/ in apparent time in Philadelphia, from Labov et al (2013)

Figure 92 shows that the women, previously in the lead of these changes, were now leading their reversal. Labov et al (2013:52–3) interpret this as the shift in Philadelphia in towards a general Northern standard dialect and the stigmatising of Southern features and those associated with New York. This change is led by women, particularly those attaining higher levels of education; a similar process could be at work in Hastings.

However, rather than evidence of a reversal, an alternative explanation is that the restructuring exhibited by the children is an example of their incrementing the change in terms of its specificity, so that as the feature is passed down it develops new constraints and is reorganised. This reorganising is part of the normal development of a language change: "linguistic descent can be preserved even when this replication is imperfect, that is, when language changes. This is the normal type of internal language change" (Labov, 2007:347). GOOSE-fronting in Hastings may be developing from a purely phonetically driven change to one where lexical effects come to dominate. Similar to the development of the now highly complex New York City short-*a* system, GOOSE-fronting in Hastings may be at the early stages of this type of process:

> *It is clear that the New York short-a system is very far from whatever beginnings it had as a simple phonetically determined sound change. This system has developed the lexical and morphological irregularities characteristic of many late stages of a change Labov (2007:451)*

Recent models of the development of sound changes have described these processes as a series of stages. Two models are Janda & Joseph's (2001) Big Bang theory of sound change and Bermúdez-Otero's (2003) Life-cycle model of sound change. Both these models outline the development of sound change as one that starts out as a phonetically driven and conditioned process which may then develop through a series of phases developing from phonetic to phonological, to morphological and lexical. Table 17 presents a comparison of two recent models which present a sequential model of the development of sound change.

Stage	**Janda & Joseph (2001)** **Big Bang theory**	**Stage**	**Bermúdez-Otero (2007)** **Life-cycle model**
a, b	"Sound change originates", very small in scope; conditioned purely by phonetic factors	**I**	New physiological phenomenon (co-ordination failure) becomes regularised into "new phonetic rule in the grammar and manifests itself as a Neogrammarian change"
c, d	Change spreads through community, phonetic rules give way to phonological ones due to speaker generalisations	**II**	Gradual phonetic rules may develop into abrupt phonological ones.
e	Change undergoes further reanalysis, may develop "morpholexical" constraints	**III**	"phonological rules typically become sensitive to morphosyntactic structure"
		IV	Phonological rules may give way to morphological which may themselves erode so that lexical exceptions may be found.

Table 17: Comparison of Janda & Joseph's (2003:2–3) "Big bang" theory and Bermudez-Otero's (2007:7) "Life-cycle" theory of sound change

According to these models, GOOSE-fronting may be described as being the later stages of the development expected of a sound change. Whatever the process at work, i.e. a genuine reversal or a restructuring of the nature of the change, it is not possible to tell definitely from the apparent time view; again, only a real-time study may confirm this either way.

6.7 Conclusion

This chapter has presented findings from data from a sample of preadolescents. These speakers represent the transitionary phase between early acquisition and linguistic maturation and stability. The aims were two-fold. First, to gain a better insight into three seemingly different types of language change. Second, to examine the variable patterns of preadolescent speakers as a window into the different processes involved in incrementation. The results showed that the three features showed similarities and differences, most notably with regards to the presence or absence of an adolescent peak.

While TH-fronting and GOOSE-fronting both showed adolescent peaks, this was not the case for MOUTH-levelling. Possible interpretations were that levelling functions as a different mechanism and is subject to different types of social pressures. Alternatively, these results were linked to the relative stage of the change. MOUTH-levelling is a change nearing completion, and so an adolescent peak may not be visible at this point, as the rate of change would be expected to be much slower (Tagliamonte & D'Arcy, 2009). The rate of the change is linked more generally to the logistic incrementation of language change, whereby it resembles an S-curve through time. Despite the confounding factors of process and the stage of the change, the results from the present study highlight a promising area for future research which seeks to disentangle them.

The variable patterns revealed that the preadolescents were engaged in a range of different processes which contributed to the incrementation of the features. These processes were linked to larger models of language change that seek to capture the directional nature of language changes as they develop over time. These results further highlight interplay between acquisition and incrementation – specifically, how children manage to move the language on to the next stage in its course of development while simultaneously acquiring it. This emphasises the crucial role that preadolescents play within language change, as Tagliamonte (2012:50) states: "the age span between approximately 8 years of age and the 20's is a key timeframe for studying the advancement of linguistic change in progress".

7 DISCUSSION AND CONCLUSION

7.1 INTRODUCTION

Each chapter presented a detailed discussion of the implications from that specific analysis; the purpose of the present chapter is to draw all these findings together so that they may be reviewed in terms of their broader implications. This review will be structured in terms of the overarching research questions presented in chapter 1. Further, the implications of the findings are considered in terms of how they may contribute to current sociolinguistic models of sound change. I turn first to research question one, repeated below:

7.2 RETURNING TO THE RESEARCH QUESTIONS

7.2.1 HOW DO THE LINGUISTIC AND SOCIAL FUNCTIONING OF THE DIFFERENT MECHANISMS LEVELLING, DIFFUSION AND ENDOGENOUS CHANGE COMPARE AND CONTRAST? WHAT IMPLICATIONS, IF ANY, DOES THIS HAVE FOR CURRENT MODELS OF LANGUAGE CHANGE?

In review of the previous analyses, a number of trends associated with the different mechanisms emerge. The following discussion will deal with these in terms of three aspects: the linguistic trends, the social trends, and the patterns observed in the study of the incrementation of the changes.

7.2.1.1 *Linguistic*

In line with the structure of the thesis, I first turn to the exogenous changes, the levelled change, change in the MOUTH vowel, and the diffused change, TH-fronting. Echoing the descriptions outlined in chapter 1 (section 1.2.2), the two mechanisms differed in terms of the overall range of variability. For instance, the analysis of MOUTH demonstrated a clear case of levelling where there was a marked reduction in the overall number of forms used. While the older speakers used a range of different forms, the middle speakers showed more of a preference for one or two of these. Among the young speakers there was a one clearly dominant form. TH-fronting, on the other hand, was a case of one form ousting another, as opposed than the reduction of variability towards one focussed norm. Further differences were visible in the motivations of each change. While no clear system internal motivation was present for MOUTH-levelling, the patterning of TH-fronting suggested a correspondence between internal and external motivations of the sound change. The co-ordination of external and internal motivations, which serve to accelerate the diffusion of a form, could go some way to explaining how TH-fronting (and other torchbearing consonants like it; see section 1.2.2.2) have gained such ground in so short a space of time. These observations provided further support for the distinction between these two mechanisms as they operate to bring about language change.

As well as differences, the evidence also indicated clear similarities in both external mechanisms. For instance, both led to an increase in linguistic homogeneity over the region as a whole. Further, both mechanisms involved variation between abrupt categorical forms as opposed to a continuous, gradual scale. In terms of the categorisation of these types of change, these two characteristics, when viewed from a traditional theoretical perspective, provide slightly puzzling results. That is, on the one hand they behave as typical diffused changes insofar as they are phonetically abrupt; however, on the other hand, they do not permit any lexical exception and so can also be described as lexically abrupt. In the classic distinction between Neogrammarian changes and lexically diffused ones, the exogenous changes appear to possess elements of both types of change, as illustrated in table 18.

		Dimensions	
		Phonetic	*Lexical*
Modes	*Neogrammarian sound change*	gradual	abrupt
	Lexical Diffusion	abrupt	gradual

Table 18: distinction between Neogrammarian versus Lexically Diffused sound change (based on Labov, 1992)

The exogenous changes investigated, MOUTH-levelling and TH-fronting, do not fit neatly into the categorisation implied by table 18. For instance, both changes permit no lexical exceptions. That is, they are lexically abrupt. However, the variants for both changes were discrete phonetic categories as opposed to a continuous phonetic cline. This implies that they are also phonetically abrupt. What this means in terms of the distinction above is that MOUTH-levelling and TH-fronting exhibit the phonetic characteristics of lexically diffused changes but the lexical properties of Neogrammarian ones.

While these findings may have been difficult to reconcile in the more traditional model, they fit well within more recent developments – for instance, those models which posit a more articulated and modular view of sound change. In this view, language change is modular in the sense that there are separate elements or tiers in language, for example, phonetics versus phonology versus lexis. However, the model is more articulated in that there are intermediate categories between phonetic and lexical. This model of sound change is more or less in line with the theory proposed by Lexical Phonology (as discussed in more detail in section 5.4.4.2).

As well as more gradations between phonetics and lexis, as opposed to the categorical distinction between gradual phonetic change and abrupt lexical change (outlined by table 18), the modular feed forward model also includes a temporal dimension. This means that the modules are formulated within a sequential model. This model is represented through the flow chart in figure 93 below:

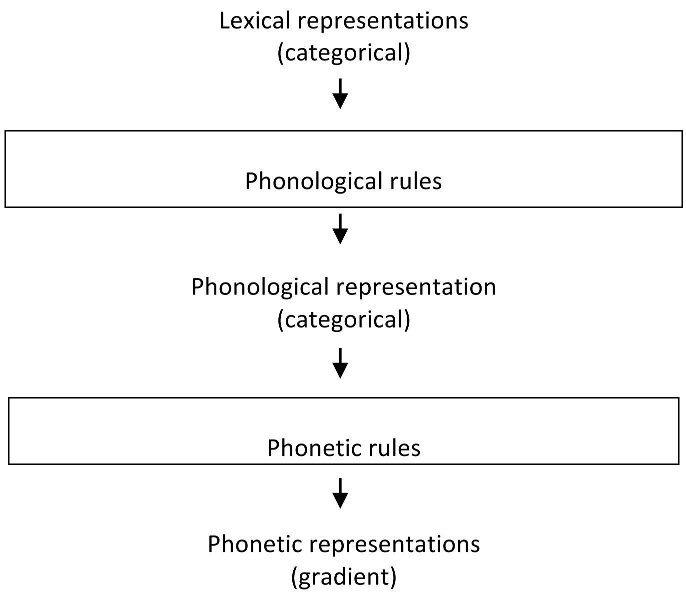


Figure 93: Modular feed forward model of phonology; diagram based on Pierrehumbert (2002), based on Bermudez-Otero (2007)

In this model, variation is permitted along any of the stages/modules. For example, variation within lexical representations would be expressed as change that was lexically gradual, as it diffused through the lexicon, affecting some words before others. However, it would also be resting on phonological rules, and so the variation would be phonetically abrupt. This type of change would correspond to the lexically diffused changes as they are outlined in the table above. The opposite end of the model, shown by the lowest module in the chart above, represents gradient phonetic change akin to that described by Neogrammarian change. This is is change that is phonetically continuous but also affects every possible word. It is, therefore, lexically abrupt. So, while the poles of the model correspond to the traditional distinction between Neogrammarian and lexically diffused changes, it is the intermediate modules that best describe exogenous changes such as those demonstrated by MOUTH-levelling and TH-fronting. Within this model, the changes examined here fit within the phonological rule element of the sequence. That is, they are categorical in the phonological sense, but have not yet developed into the next stage so as to affect the lexical representation of the word class (therefore every word is affected). Based on this model, table 18 can be recast with these extra dimensions added, as shown in table 19.

Mode of implementation		Possible?	**Innovation in what component of the grammar?**
Phonetic dimension	*Lexical Dimension*		
abrupt	Gradual	Yes	lexical representations
abrupt	Abrupt	Yes	phonological rules
gradual	Abrupt	Yes	phonetic rules
gradual	Gradual	No	

Table 19: modular feed forward model of phonology in terms of phonetic and lexical characteristics (from Bermudez-Otero, 2007:7)

In contrast to the exogenous changes, the endogenous feature, GOOSE-fronting, behaved differently and possibly provides further support for the model outlined above. Here there was evidence for internal phonetic motivation in the form of preceding phonetic environment. Further, unlike the two exogenous forms, GOOSE-fronting was a continuous and gradual change, and therefore a prototypical Neogrammarian change. However, the patterns of development for this feature, as evidenced through the analysis of the constraints over time, suggest further support for the temporal aspect of this model. Recall in the analysis presented in chapter 5 that one constraint analysed was preceding phonetic environment. This constraint was significant for every age cohort. Moreover, the patterning of this constraint was uniform across the different ages. However, on closer inspection, a series of pairwise comparisons for the phonetic conditioning for each age cohort revealed that this effect was weakening over time. Further, there was evidence for emergent lexical effects. In short, the change, over time, was developing from a phonetically driven and conditioned change into a phonological one that exhibited lexical effects. These two findings, together with the patterns found in the exogenous changes, provide empirical support for the modular feed forward model of sound change.

Returning again to the comparison of the constraint patterning for GOOSE-fronting and the exogenous changes, while GOOSE-fronting did reveal a degree of weakening over time, the actual patterning between cohorts was consistent. This is in contrast to TH-fronting and MOUTH-levelling where, apart from those constraints that I have argued elsewhere are attributable to the tendencies of reductive processes to occur in less prominent positions (e.g. word position for TH-fronting), the patterning of constraints did not show the same degree of consistency between the different age cohorts. For instance, although lexical effects were visible and significant for all age cohorts in both changes, the exact patterning of these was not consistent between generations. What this suggests is that these features, i.e. the exogenous and the endogenous, are not passed on in the same way between generations. This finding further supports Labov's (2007:307) distinction between the different types of language learning that accompany these types of change, i.e. transmission versus diffusion (outlined in section 1.2.5).

These findings suggest that a feature's route into a language can have a bearing on its variable patterning long after its first point of entry. Specifically, the lack of consistent constraint ordering between generations might indicate that diffusion as a process influences the nature of that form within the receptive variety for as long as it continues to diffuse there. In other words, while the feature is still attributable to an outside source, possesses foreign associations and continues to make it way into the system via this route, the constraints will continue to show a level of disruption. This model is supported by Cukor-Avila & Bailey's (2011:43) findings that the same change, here quotative *be like,* diffused more than once to the rural Texan community they were investigating (see section 4.1.7 for detailed review). A similar process could be at work here for TH-fronting where the form, although now part of the local phonology in Hastings, also continues to diffuse to the community. The effect is that the two processes, transmission and diffusion, effectively combine to *reinforce* one another. While diffusion amplifies the effects of transmission, essentially accelerating the change, it also disrupts the faithful replication of the constraints between generations.

This interpretation is supported by the Stuart-Smith et al's (2013:531) work into diffusion of "London" features to Glasgow. Here they empirically demonstrate the interaction of these processes: "These results suggest an interplay of processes, original diffusion, and then transmission within the community, topped off by diffusion through dialect contact." Results and interpretation from the present work hopefully strengthen this interpretation.

7.2.1.2 *Social*

Similar to the linguistic constraints, the comparison of the three sound changes revealed similarities and differences across social constraints. Starting with the behaviour of the individuals, for MOUTH-levelling and GOOSE-fronting the individuals in each age cohort showed values that were relatively similar to each other. However, for TH-fronting, the individuals showed wildly varying rates. This was the case for the individuals overall, that is, inter-generationally, where the community went from being almost categorically standard to categorically non-standard. This high level of variability was also the case for each age cohort where there was such a striking degree of intra-speaker variation that it was not possible to combine the old or middle speakers into age-based groups. One reason for this may have been down to the highly salient and easily acquirable nature of TH-fronting which means it has previously been described as an “off the shelf feature” (Milroy, 2007:149). This description was supported by the small-scale real-time study (section 4.7). This showed that TH-fronting was susceptible to change through the course of a person’s life, demonstrated by the behaviour of the three female participants from the 7-up documentary. Their varying levels of TH-fronting over their lifetimes revealed absence of the form as children, heightened levels during adolescence, a marked dip in middle age, and a “retreat towards the vernacular” as they approached late middle age (e.g. Chambers, 2003:203). These results, combined with the high level of individual variation found in the analysis, underline TH-fronting’s status as an “off the shelf” feature.

The gender patterning of each variable also suggests a number of things about the status of each feature. Again, there were similarities and differences. For example, although MOUTH-levelling and GOOSE-fronting were both, on the whole, female-led changes, the underlying mechanisms for these similar patterns most likely differ. GOOSE-fronting is probably best characterised as a *change from below*. In Labov’s (2001:292) principle four of the social factors of linguistic change, he states that:

> *In linguistic change from below, women use higher frequencies of innovative forms than men do.*

The results from the present analysis of such a change provide further support for this principle. MOUTH-levelling on the other hand, as originating from outside the system and community is more likely an example of a *change from above.* Here Labov’s (2001:275) principle would predict that:

> *In linguistic change from above, women adopt prestige forms at a higher rate than men.*

However, in some ways developments in MOUTH-levelling do not involve a prototypical change from above. Specifically, although the local, higher forms are falling out of use, they are not stigmatised in a way that is associated with socioeconomic status. What these forms do represent, however, are more regionally marked variants compared to the more neutral, supralocal forms (e.g. Kerswill et al, 2008:461). This suggests that changes brought about through levelling operate socially like changes from above. Here, females adopt the incoming forms at a higher rate than men because of their non-local social associations, as opposed to overt associations of prestige (Kerswill et al, 2008:467).

This principle can also be seen at work in the gender patterning of TH-fronting. For this feature, although there was a great degree of individual variation, males were shown to be in the lead. Again this is the expected pattern for a change of this type – a stigmatised change from above. Men were on the vanguard of this change, possibly through its associations of covert prestige (e.g. Trudgill, 1972) where the form may have indexed some form of masculinity (e.g. Kiesling, 2004). Alternatively, this pattern may have been an example of a change that was previously female-led but, due to its associated stigma, the women may have started to retreat from this change. This would be a similar scenario to that reported by Labov et al (2013:53) for the ongoing vowel changes in Philadelphia (see section 6.6.3).

In sum, the dominant gender patterning of all three features provided further evidence in support of Labov’s social principles of linguistic change. Females led the change from below and also the change from above, represented by the incoming of, if not prestigious, then regionally favourable forms. Males led the incoming stigmatised form, again the predicted pattern. However, while the main patterns do lend support to the Labov’s principles, an examination of the details complicates the picture slightly. This issue will be returned to in the discussion of the third research question. The discussion now turns to consider the patterns of the features as they underwent incrementation.

7.2.1.3 *Incrementation*

The patterns in the preadolescent data provided a useful perspective for the interpretation of the patterns found in the adult data. A chief aim of this analysis was to use a study of incrementation to investigate further how and whether levelling as a process operated in a different way to other types of externally motivated changes.

I will start with the principal finding: the presence or absence of adolescent peaks. Both GOOSE-fronting and TH-fronting demonstrated the expected adolescent peaks where the preadolescent speakers showed lower rates/measures for the incoming, innovative form. However, this was not the case for the MOUTH vowel, where no adolescent peak was visible. In this instance, the youngest speakers continued the change to the point that there was a complete absence of any of the local forms in their speech. There were a number of possible reasons for this. First, as outlined in the research context for chapter 6, a number of caveats exist for when and where we would expect to see adolescent peaks. The most relevant here are stage of change and type of change. The lack of an adolescent peak suggested that it was indeed a different type of mechanism. One visible way in which it differs is in its mode of incrementation; i.e. preadolescents do not show the lag characteristic of other mechanisms of change. Evidence in support of this interpretation came from other studies which had investigated high-contact varieties and examined the speech of children compared to their parents. For instance, Cheshire et al (2011:167) found no correlation between the GOOSE-vowel for younger speakers of Multicultural London English and their parents when their parents diverged radically from the norm for this variety. Kerswill & Williams (2000:101) reported a similar finding in their study which compared the GOAT vowel for children and their parents in a new town. In this scenario, there was a great deal of contact between highly divergent varieties. However, when faced with this variability, unlike the adults, who showed markedly different realisations for this vowel, the children’s speech showed a focussed cluster. The children appeared to be discarding their parent’s model and forging a new, levelled norm alongside their peers.

While in many ways the interpretation above may be a plausible one, the data presented here was confounded by the stage of the change. MOUTH-levelling in Hastings was very close to completion, and at this stage of a change it is unlikely to show a pronounced peak at all. Therefore, one avenue for future research would be to disentangle these factors and examine a range of changes in order to examine whether younger changes that are operating through a process of levelling demonstrate a peak or not.

Mechanism aside, the analysis of incrementation also enabled the examination of gender and stage of change to be viewed in more detail. For instance, for TH-fronting, the adolescent peak was steeper and more pronounced for the females than it was for the males. This is in line with the previous observation from the adult data that this is a male-led change. The reason for this difference in slope is most probably down to the rate of change, which in turn is influenced by the stage of change. This relates to the S-curve model of language change whereby changes progress more slowly at the beginnings and ends of their lives (e.g. Aitchison, 1995:87). For TH-fronting in the Hastings data the males were likely reaching the end point of this change. However, the females still had a way to go. This explains why TH-fronting was progressing at a slower rate for the males than the females. This finding possibly also contributed the first empirically examined example of the incrementation of a male-led change. The results here illuminate another aspect of the model and provide further evidence for the suggestion that male-led changes behave exactly as female-led changes. That is, both males and females will exhibit an adolescent peak, and the leading group's slope will flatten out before that of the following group.

In addition to the social patterning, the study of incrementation also enabled a closer look at the linguistic trends observed in the analysis of the adult data. In particular, for GOOSE-fronting it was possible to see the continued weakening of the phonetic conditioning, combined with the lexical constraints becoming stronger and more established. This trend was particularly noteworthy as it occurred while the preadolescents, in terms of their overall rates, still lagged behind the leading adolescents. What this implies is that while the preadolescents may have not yet reached their endpoint in terms of their eventual rates of use, they do contribute to the development of the change from an earlier stage; i.e. they restructure the constraints from the outset. One question this analysis poses is whether the trends relating to the reorganisation of the variable will continue to develop as the preadolescents reach their adult-like levels of use for this feature. In other words, do changes increment along a set of stages, i.e. first in terms of its specificity, seen here in the restructuring of constraints, then in terms of its rate, i.e. when the preadolescents eventually overtake the rates of use of the adolescents? Or, alternatively, do both types of incrementation happen concurrently? Only a real-time study would be able to actually resolve this question. However, it does suggest an avenue for future research.

7.2.2 How do these mechanisms contribute to regional dialect levelling?

Although the changes operate through different mechanisms, and their effects are expressed differently in the grammar, they all contribute to regional dialect levelling by decreasing the amount of regional variability present. This is demonstrated most clearly through the example of MOUTH-levelling. Figure 94 (repeated from chapter 3) demonstrates this process visually.

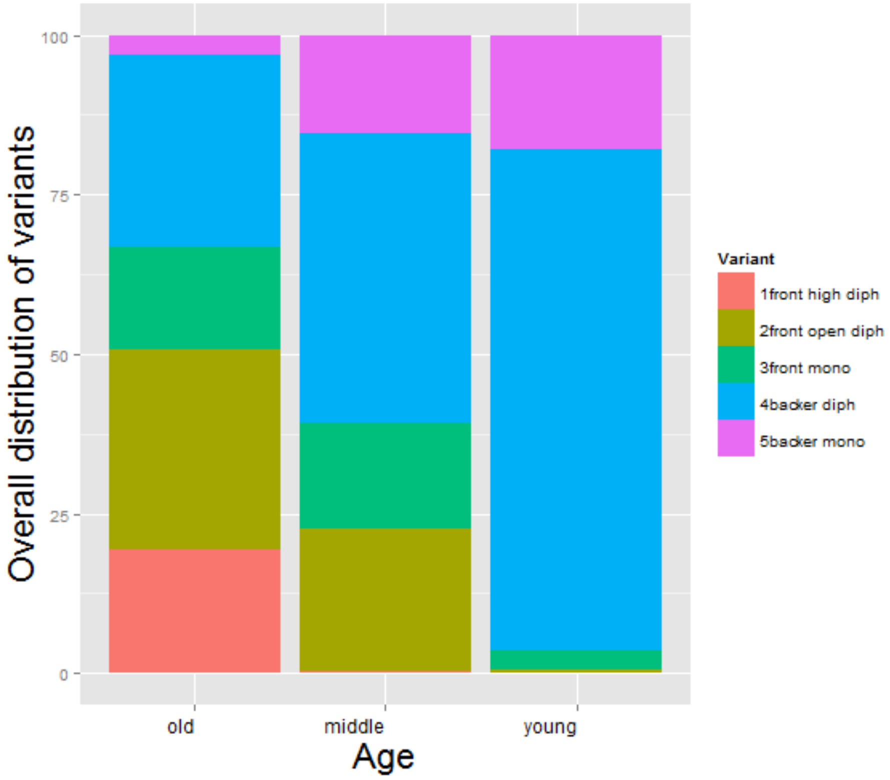


Figure 94: distribution of MOUTH variants by age

Figure 94 shows how the range of variability is reduced over time. The older speakers' use is split over the five variants. The middle age cohort shows a reduction in this variability; the most traditional form is almost completely gone, and the newer, lower diphthong is starting to become established as the dominant variant. This trend is even more apparent for the youngest speakers where the lowest backest diphthong is clearly the dominant form. As well as decreasing the internal dialectal variability, levelling of this type also leads to greater homogeneity between dialects. The variants that ultimately win out in a levelling scenario are those which are socially and regionally more neutral, pushing out the more rural and urban local forms.

Diffusion, in this instance as it refers to TH-fronting, like levelling, leads to greater homogenisation in broader dialectal area, as the variants that spread are often those which are not "impeded" by local or traditional associations (Kerswill, 2002:197).

However, in a less obvious sense, endogenous changes also contribute to regional dialect levelling, as they represent changes that occur in many separate varieties simultaneously. If the phonetic and social conditions are favourable, as they must be in Hastings, it means that accents will "naturally" become more similar to each other, as they will all drift in the same direction. There is evidence for this phenomenon in the numerous accounts of GOOSE-fronting throughout the UK and throughout English varieties worldwide. What is more, not only do disparate varieties show the same change, but, as an internal change driven and conditioned by inherent linguistic factors, they also demonstrate the same patterning of constraints, further contributing to their similarity.

7.2.3 HOW WELL DOES THE DISTINCTION BETWEEN CHANGE FROM ABOVE AND CHANGE FROM BELOW HOLD WITHIN A VARIETY SUSCEPTIBLE TO REGIONAL DIALECT LEVELLING?

Following the review of the major findings, it is possible to consider some of the more nuanced findings that perhaps did not fit as neatly into the established sociolinguistic models.

One example is the gender flip for the middle speakers for GOOSE-fronting. Although, on the whole this change was female-led (i.e. this was the patterning for the old and young cohorts), for the middle cohort, males were in the lead. This is not the expected pattern for changes from below, where women tend to lead innovations which operate below the level of consciousness. However, previous studies have shown that in some instances seemingly endogenous changes can become disrupted and exhibit social patterns more associated with changes from above. One example, which is discussed in detail in chapter 5, is Mesthrie's study of GOOSE-fronting where the fronted variants behaved like incoming prestige forms. A similar force could have been operating in Hastings following the influx of Londoners to the purpose-built Toll Kiln estate. For many of the (now) middle-aged speakers, this would have brought about a great deal of contact with a working-class London variety while they were adolescents. Previous analyses have shown that this change was more advanced in white working-class London varieties (e.g. Tollfree, 1999:172). A situation similar to that described by Mesthrie could have caused this previously endogenous change to rise above the level of consciousness. It may have been that the more fronted variants came to acquire either a level of covert prestige or stigma that, like TH-fronting, became a marker of male speech. Recall the extract from

Anthony, one of the middle-aged speakers, in chapter two, when he describes the mixing that the new estate brought about:

> *the kids that used to come in from the estate were different. Lots of fights with them lots of conflict with them 'cause they were different they you know they weren't they weren't like us you know. They'd they're from a different background, different way of life and it showed yeah there was a lot of conflict to start with and gra- I know most of them now you know 'cause I played football with a lot of them, (Anthony, middle male)*

Although the opinion he outwardly expresses is negative, the fact that he and his friends clearly felt threatened by this influx of new lads (who they eventually ended up playing football with) suggests that they did hold them in some regard. This kind of process resonates well with Wells' (1994:6) description of the insidious influence that Cockney appears to exert upon more standard southern and RP accents: "some of the changes, it seems clear, can reasonably be attributed to influence from Cockney, often overtly despised, but covertly imitated". This type of covert prestige is often implicated as the social force behind the progression of non-prestige, or stigmatised, male-led changes from above. For instance, in his study of Norwich, Trudgill (1972:186) examined the role of covert prestige in driving male-led changes. One change Trudgill examined was the non-standard variable jod-dropping, where words such as *tune* or *news* would be variably realised as [tun] and [nuz] (non-standard) as opposed to [tjun] and [njuz] (standard). Here Trudgill (1972:181) demonstrated that despite being a stigmatised feature, males in Norwich would *over-report* their use of the non-standard form, suggesting that the form was valued on some level by the male speakers.

Another example of the interplay between the external and internal factors that suggests an overlap between the two types of language change is how the phonetic aspects of TH-fronting, in many ways, make it an almost natural change (e.g. Chambers, 2003:271). Although TH-fronting is still arguably best described as an exogenous change spread through diffusion, there is a degree of correspondence between its linguistic features that accelerate its spread and embedding. For instance, phonetically, the articulatory simpler nature of the labiodentals compared to the interdentals, as evidenced through the order these phonemes are acquired (e.g. Milroy, 2003:218), is advantageous for their spread. As described in chapter 4, Chambers (2003:270) describes changes of this sort as "linguistic primitives" where part of the acquisition process that children undergo involves suppressing this type of natural tendency and matching their output to the canonical form they experience in the linguistic input they receive. However, if TH-fronting is already an established feature in the variety they are acquiring, then these children will receive input that reinforces the natural linguistic primitive, and it will likely persist beyond their early development. While not undermining Labov's (2001) distinction between above and below, taking a closer look at the internal and external correspondences for a change can help to explain the extremely rapid spread of particular sound changes.

7.3 CONCLUSION

This thesis contributes to two main issues in sociolinguistic research. First, to the understanding of the mechanisms involved in *regional dialect levelling* and second, how this account can inform models of sound change more generally. Through the investigation of three contrasting mechanisms of change it has provided a detailed account of how they function, and, crucially, how they each contribute to regional dialect levelling through the reduction of regional linguistic variability. Situating these results within the wider context of sociolinguistic theory has enabled this evidence to contribute to our understanding of the associated models of language change. On the whole, the evidence presented here has provided further support for the principles outlined by Labov (2001). However, particular details of the changes examined, for instance their variable patterns or their linguistic characteristics, have also suggested that the clear-cut distinction between exogenous changes from above and endogenous changes from below does not always hold, particularly in scenarios involving contact.

Returning to Labov's (2007:343) two-way split between transmission and diffusion as the associated routes for the two types of change, this research indicates that these routes are not always separate. Echoing previous findings (e.g. Cukor-Avila, 2011; Stuart-Smith et al, 2013), the results presented here provide further evidence for a third scenario whereby the two processes may combine or overlap. For instance, the analysis of GOOSE-fronting indicated that an endogenous change had possibly risen above the level of consciousness, or how the interplay between the linguistic and social characteristics of TH-fronting may help to explain its ubiquity among contemporary British varieties.

8 APPENDICES

1. Application for ethical approval: adult data
2. Participant pack: adult data
3. Application for ethical approval: child data
4. Participant pack: child data
5. Transcription protocol

8.1 APPLICATION FORM FOR ETHICAL APPROVAL: ADULT DATA

This application form should be submitted to the Ethics Officer as a Word attachment to email.
All correspondence should be sent to: Ethics@arts.gla.ac.uk
The current Ethics Officer is Dr Jane Goldman, Faculty of Arts, Room 401, 5 University Gardens, (0141 330) 5163.

All questions must be answered.

1. Name(s) of person(s) submitting research proposal:

Sophie Holmes

2. Position held (e.g. Lecturer, postgraduate or undergraduate student etc.):

Postgraduate student, MLitt

3. Department, Centre or School:
English Language

4. Contact Address:

Sophie Holmes
Department of English Language
University of Glasgow
12 University Gardens, Glasgow G12 8QQ

5. Email (GU email address preferred) :

0220147h@student.gla.ac.uk

6. If you are a student, confirm that the checklist form is attached to this application. YES

7. Project title:

London calling: assessing the spread of metropolitan features in the southeast

8. Proposed project end date:

September 2010

9. Have all investigators read, understood and accepted the Faculty Ethical Policy, a statement of which is available on the Faculty website at http://www.arts.gla.ac.uk/faculty/html/ethics.htm?
YES

10. Does your proposal involve human subjects, materials or data not in the public domain? YES

If you answered YES to Question 10, please answer questions 11 and 12 and append a copy of your research proposal and any other supporting documents to this application.

11. Independent contact name (in case of complaints or questions from participants). This could be your head of department, line manager, supervisor, etc.): Dr Jennifer Smith (supervisor)

12. What in your opinion are the ethical considerations involved in this proposal? You should consult the ethical policy statements of the AHRC and/or ESRC, and you may also wish to consider some or all of the following issues:

- issues of safety, including the experience of the subjects AND the investigators

This study involves recording participants from Hastings at a convenient and familiar location for the participants.
Sensitive personal information may be revealed at the discretion of the participants during the interviews. All information will be treated as strictly confidential and stored in accordance with the 1998 Data Protection Act.
Interviews are intended to be semi-structured, spontaneous information on a variety of topics will be gathered and therefore it is difficult to predict the nature if the information disclosed. The interview schedule (supporting document 2) details areas of interest, although personal they are not sensitive or traumatic topics – the potential for participants becoming distressed is minimal.

- issues of consent (It is expected that consent will be given in writing. Are the subjects students, or others in a dependent relationship? Does the research include children or people with special needs? Will payment or any other incentive be made to any research subject? How is consent to be obtained?)

Participants will be given an information sheet (supporting document 3) explaining the general purpose of the study (specific attention will not be drawn to language in order to ensure elicitation of more natural speech)
Participants will be given greater detail of information as to the purpose of the study through the de-brief sheet (supporting document 4).
What is involved in the study: 1 hour and a half recorded interview with the principle investigator (Sophie Holmes).
The information sheet explains this procedure and how participants' data will be treated.
Participants will therefore make a fully informed decision about whether to participate or not.
Participants will fill in and sign a consent form (supporting document 5) if they are willing to participate.
They will be paid expenses for their time.
All participants will be over 18 and therefore able to give their own consent.

- issues of confidentiality (Can subjects be identified from information held by another party? Who will have access to the data and what measures will be adopted to maintain the confidentiality of research subjects and to comply with data protection requirements, e.g. will data be anonymised?)

Data will be anonymised with numbers and/or pseudonyms by default.
All reference to personal names, place names or any other information that could lead to the identification of participants will not be included in the transcript.

- issues of security (Where and how will the data be stored? Will it be destroyed after the research is done? Does the department have a policy on this and if so, who is responsible for it?)

The data will be securely stored in a locked cupboard within the Department of English language at the University of Glasgow and on one password protected laptop. Access to the data is restricted to Dr Jennifer Smith (supervisor) and myself.

It may be used anonymously for further projects, papers, lab open days etc. if the participants consent.

- issues of balance (Are there any cultural, social or gender-based characteristics of the research subjects which have affected the design of the project or which may affect its conduct?)

The purpose of this study is to gain data to inform a subsequent data collection in order to investigate variation and change in Hastings in relation to identity. This requires an age-stratified sample, although the sample recorded for this project is exclusively young people.
All of the participants will be treated equally.

13. If applying for funding for this research, please give name of funding body:

ESRC: confirmed, 1+3 studentship

End of Project Report
The Committee requires that a brief report be provided within one month of the completion of the research, giving details of any ethical issues which have arisen (a copy of the report to the funder, or a paragraph or two will usually be sufficient). This is a condition of approval and in line with the committee's need to monitor research.
In addition, any unforeseen events which might affect the ethical conduct of the research, or which might provide grounds for discontinuing the study, must be reported immediately in writing to the Ethics Committee. The Committee will examine the circumstances and advise you of its decision, which may include referral of the matter to the central University Ethics Committee or a requirement that the research be terminated.

Date of submission of form:

23/04/10

Signature of person making the proposal:
(type name if emailing) Sophie Holmes

Thank you for filling in this form. You should receive confirmation of ethical approval within two weeks of submitting it. IMPORTANT: if a decision is needed quickly, e.g. to meet a deadline, please flag this with a covering note giving an e-mail address. We will try to respond as soon as possible.

For office use:
DECISION

Initials of scrutineers (if applicable):

Signature of Faculty Ethics Officer:

Date of decision:

8.2 Hastings project: participant pack, adult data

Information for participants

Firstly, thank you for agreeing to take part!
These recorded interviews are for research I am undertaking into Hastings, specifically the identities and attitudes of people who live here.
Taking part in the research will require that you be recorded for an hour and a half; an informal interview with me about your feelings and experience of coming from and living in Hastings.

Unless you specifically give me consent to use your name in association with your recording, I will store and refer to all recordings with numbers and/or pseudonyms. The also applies to the information that you give me about yourself in the background sheet.

All recordings and information disclosed will be treated as strictly confidential. Your recordings will be stored securely and only be accessible to myself and those working on this project.

You may withdraw from the study at any point.

Many thanks!

Further information is available from:
(Sophie Holmes: S.Holmes@englang.arts.gla.ac.uk)

Hastings project

INFORMANT CONSENT FORM

I have read and understood the information sheet and this consent form. I have had an opportunity to ask questions about my participation.

I understand that I am under no obligation to take part in this study, and that I have the right to withdraw from this study at any stage before or during data collection, without giving any reason.

Please indicate your consent to be a research subject here by deleting "do not agree":

- I agree / do not agree to participate in this study as detailed in the information sheet
- I agree / do not agree that anonymous audio recordings of my voice may be stored indefinitely and used for academic purposes (including analysis, research, academic conference presentations, and future applications for research funding).

In addition to the consent above, please indicate whether you consent to any of the following:

- I agree / do not agree that anonymous recordings of my voice can be used in university teaching.

PARTICIPANT DETAILS

Name: ______________________________________

Signatures: __________________________________ Date: …../……/11

Further information is available from:

(Sophie Holmes: S.Holmes@englang.arts.gla.ac.uk)

Hastings project

BACKGROUND QUESTIONNAIRE

University of Glasgow

Name: ____

Informant number (researcher to fill in): ________

Age: ____

Where were you:

Born? ____

Raised? ____

Other places you have lived (include ages and length of stay)?

____

____

Father's place of birth: ____

Mother's place of birth: _______________________________________

What would you call your accent? ____________________________

Hastings project
DEBRIEF

Thank you for taking the time to be interviewed and recorded!
The title of my PhD is 'London calling: assessing the spread of metropolitan features in the southeast'. As I'm sure you've guessed from the interview, I am interested in identity and also the way people speak. Specifically whether people from Hastings perceive themselves as having a unique 'Hastings' identity and accent, separate to a more general southeastern one. Further, how people's feelings about Hastings affect the way they sound.

These recordings will allow me to explore these issues in depth – so thank you!

8.3 APPLICATION FORM FOR ETHICAL APPROVAL: CHILD DATA

This application form should be submitted to the Ethics Officer as a Word attachment to email.
All correspondence should be sent to: Ethics@arts.gla.ac.uk
The current Ethics Officer is Dr Jane Goldman, Faculty of Arts, Room 401, 5 University Gardens, (0141 330) 5163.

All questions must be answered.

1. Name(s) of person(s) submitting research proposal:

Sophie Holmes-Elliott

2. Position held (e.g. Lecturer, postgraduate or undergraduate student etc.):

Postgraduate student, PhD

3. Department, Centre or School:
English Language

4. Contact Address:

Sophie Holmes
Department of English Language
University of Glasgow
12 University Gardens, Glasgow G12 8QQ

5. Email (GU email address preferred) :

0200147h@student.gla.ac.uk, s.e.m.holmes@gmail.com

6. If you are a student, confirm that the checklist form is attached to this application. YES

7. Project title:

London calling: assessing the spread of metropolitan features in the southeast

8. Proposed project end date:

May 2012

9. Have all investigators read, understood and accepted the Faculty Ethical Policy, a statement of which is available on the Faculty website at http://www.arts.gla.ac.uk/faculty/html/ethics.htm?
YES

10. Does your proposal involve human subjects, materials or data not in the public domain? YES

If you answered YES to Question 10, please answer questions 11 and 12 and append a copy of your research proposal and any other supporting documents to this application.

11. Independent contact name (in case of complaints or questions from participants). This could be your head of department, line manager, supervisor, etc.):
Dr Jennifer Smith (supervisor)

12. What in your opinion are the ethical considerations involved in this proposal? You should consult the ethical policy statements of the AHRC and/or ESRC, and you may also wish to consider some or all of the following issues:

- issues of safety, including the experience of the subjects AND the investigators

The proposed data collection is to supplement my previous data collection (recorded interviews with adults) with recorded interviews with children (10 participants in total).
This study involves recording child participants (7 – 11 year olds) from Hastings at their school. The children will be interviewed in pairs by the researcher (Sophie Holmes-Elliott) at a time deemed appropriate and convenient by their teacher. A teacher will be present although will not participate.
All information will be treated as strictly confidential and stored in accordance with the 1998 Data Protection Act.
Interviews are intended to be semi-structured, spontaneous information on a variety of topics will be gathered and therefore it is difficult to predict the nature if the information disclosed. The interview schedule (supporting document 2) details areas of interest, although personal they are not sensitive or traumatic topics – the potential for participants becoming distressed is minimal.

- issues of consent (It is expected that consent will be given in writing. Are the subjects students, or others in a dependent relationship? Does the research include children or people with special needs? Will payment or any other incentive be made to any research subject? How is consent to be obtained?)

As the participants are children under the age of 16 the written informed consent of parents will be obtained prior to the interviews.
Researcher has been subject to full Disclosure Scotland screening.
I contacted the primary school's Head Teacher and, pending ethical approval, I have been granted permission to carry out research (recorded interviews) with the pupils during May 2012.
Once Ethical Approval has been granted a letter (document 3), along with detailed information concerning the interview and data storage (document 4), consent from (document 5) and background questionnaire (document 6) will be sent ahead of my visit. These will be circulated among parents of children who may be eligible for the study. The letter outlines the general purpose of my research and also provides clear information on:

  - **What is involved in the study: 40 minutes recorded interview with the principle investigator (Sophie Holmes-Elliott) and one other participant.**
  - **The nature of the topics discussed**
  - **How participants' data will be stored and treated.**

- issues of confidentiality (Can subjects be identified from information held by another party? Who will have access to the data and what measures will be adopted to maintain the confidentiality of research subjects and to comply with data protection requirements, e.g. will data be anonymised?)

Data will be anonymised with numbers and/or pseudonyms by default.
All reference to personal names, place names or any other information that could lead to the identification of participants will not be included in the transcript.

- issues of security (Where and how will the data be stored? Will it be destroyed after the research is done? Does the department have a policy on this and if so, who is responsible for it?)

The data will be securely stored in a locked cupboard within the Department of English language at the University of Glasgow and on one password protected laptop. Access to the data is restricted to Dr Jennifer Smith (supervisor) and myself.

It may be used anonymously for further projects, papers, lab open days etc. if the participants consent.

- issues of balance (Are there any cultural, social or gender-based characteristics of the research subjects which have affected the design of the project or which may affect its conduct?)

The purpose of this study is to gain data to inform a subsequent data collection in order to investigate variation and change in Hastings in relation to identity. This requires an age-stratified sample, as the youngest participants are under 16 an additional ethics application was made.

All of the participants will be treated equally.

13. If applying for funding for this research, please give name of funding body:

ESRC: confirmed, 1+3 studentship

End of Project Report

The Committee requires that a brief report be provided within one month of the completion of the research, giving details of any ethical issues which have arisen (a copy of the report to the funder, or a paragraph or two will usually be sufficient). This is a condition of approval and in line with the committee's need to monitor research.

In addition, any unforeseen events which might affect the ethical conduct of the research, or which might provide grounds for discontinuing the study, must be reported immediately in writing to the Ethics Committee. The Committee will examine the circumstances and advise you of its decision, which may include referral of the matter to the central University Ethics Committee or a requirement that the research be terminated.

Date of submission of form:

23/04/10

Signature of person making the proposal:
(type name if emailing) Sophie Holmes-Elliott

Thank you for filling in this form. You should receive confirmation of ethical approval within two weeks of submitting it. IMPORTANT: if a decision is needed quickly, e.g. to meet a deadline, please flag this with a covering note giving an e-mail address. We will try to respond as soon as possible.

For office use:

DECISION

Initials of scrutineers (if applicable):

Signature of Faculty Ethics Officer:

Date of decision:

8.4 HASTINGS PROJECT: PARTICIPANT PACK, CHILD DATA

INFORMATION FOR PARENTS

Firstly, thank you for allowing your child to take part!
These recorded interviews are for research I am undertaking into Hastings, specifically I am looking at the Hastings accent and how it may be changing.
Taking part in the research will require that your child be recorded for a 40 minutes; an informal interview about everyday topics such as games, favourite TV shows, pets, birthdays etc
Unless you specifically give me consent to use your child's name in association with their recording, I will store and refer to all recordings with numbers and/or pseudonyms. This also applies to the information that you give me about your child and yourself in the background information sheet.
All recordings and information disclosed will be treated as strictly confidential. Your child's recording will be stored securely and only be accessible to myself and those working on this project.

You may withdraw your child from the study at any point.

Many thanks!

Further information is available from:
(Sophie Holmes-Elliott: **s.holmes-elliott.1@research.gla.ac.uk.**)

Hastings speech project

PARENTAL CONSENT FORM

I have read and understood the information provided in the letter and this consent form. I have had an opportunity to ask questions about my child's participation.

I understand that I am under no obligation to consent to my child taking part in this study, and that I have the right to withdraw them from this study at any stage before or during data collection, without giving any reason.

Please indicate your consent to be a research subject here by deleting "do not agree":

- I agree / do not agree my child may participate in this study as detailed in the information sheet
- I agree / do not agree that anonymous audio recordings of my child's voice may be stored indefinitely and used for academic purposes (including analysis, research, academic conference presentations, and future applications for research funding).

In addition to the consent above, please indicate whether you consent to any of the following:

- I agree / do not agree that anonymous recordings of my child's voice can be used in university teaching.

Name of parent :______________________________

Parent's signature:__________________________

Hastings speech project
BACKGROUND INFORMATION

Child's name: ____

Informant number (researcher to fill in): _________

Age of child: ____

Where was your child:

Born? ____________________________________

Raised? ___________________________________

Languages other than English spoken at home: ______________________

Child's mother's place of birth: _____________________________________

Child's father's place of birth: ______________________________________

8.5 TRANSCRIPTION PROTOCOL

General items:

Capitalisation

Transcribers should follow standard written capitalisation patterns, and capitalise words at the beginning of a sentence, proper names, and so on.

Spelling

Transcribers use standard orthography. When in doubt about the spelling of a word or name, please consult a standard reference, e.g. an online dictionary or other reference material.

Contraction

Transcribers should transcribe contractions only when a contraction is actually produced by the speaker. Transcribers should take care to transcribe exactly what they hear and not what they expect to hear.

If a speaker uses a contraction, the word is transcribed as contracted: *they're, she's* and so on. If the speaker uses a complete form, the transcriber uses a full form*: they are, she is* etc. (But see section on negative contractions below).

Numbers

All numerals are written out as complete words. Hyphenation is used for numbers between twenty-one and ninety-nine only.

Twenty-two
Nineteen ninety-five
Seven thousand two hundred and seventy-five
Nineteen oh nine

Abbreviations

In general abbreviations should be avoided and words should be transcribed exactly as spoken. The exception is that when abbreviations are used as part of a personal title, they remain as abbreviations as in standard writing:

```
Mr. Brown
Mrs. Jones
Dr. Spock
```

However, when they are used in any other context, they are written out in full:

```
I went to the doctor and he wrote me a prescription.
Hey mister, do you know the way to the station?
```

The abbreviated form of *because* should be transcribed as '*cause* with an apostrophe in front of it.

Acronyms and spoken letters

Acronyms that are normally written as a single word but pronounced as a sequence of individual letters should be written in all caps, with each individual letter surrounded by spaces: I think these shouldn't have spaces.

```
H S B C
R S P C A
G C S E 's
```

Punctuation

Annotators should use standard punctuation for each transcription. Punctuation is written as normally appears in standard writing, with no additional space around the punctuation marks.

Acceptable punctuation is limited to full stops, exclamation marks and question marks at the end of a sentence, and commas within a sentence.

Only use '?' for questions.

Same for imperatives – only orders:

```
Come here!
```

Quotation marks are used to indicate direct speech or thoughts within a narrative and should be used consistently for that purpose:

```
"oh", I'm like "I forgot about that".
And then my dad said "what about the necklace?" I had to tell
him that I lost it.
And the more I thought about it, the more I thought "why
not?"
```

Filled pauses and hesitation sounds

Form	Example
Ah Eh Er Uh um	Ah, there we go With her girlfriend, eh well I knew, I knew her girlfriend The kids, er, parents let their kids get away with more 'cause I needed uh, life insurance They have a little, um, it's like a garage but it's open

Partial words

When a speaker breaks off in the middle of a word, transcribers transcribe as much of the word as they can make out. A single dash without preceding space is used to indicate at which point the word is broken off.

```
Yes, absolute- absolutely
Well I gu- I guess that would be right actually
```

Restarts

Speaker restarts are indicated with a double dash. Transcribers use this convention for cases where a speaker stops short, cutting themselves off before continuing with or rephrasing the utterance.

```
Did people uh-- did fights ever break out uh over hockey?
Since she-- when she died we moved from across the street.
```

Unclear or unintelligible speech.

Sometimes there will be words or sections that are impossible to make out. The general rule is that if you still cannot make it out after 3 listens, mark it up as incomprehensible by using (inc). Don't try to second-guess what someone says.

```
And at the time she was (inc) and I said that was enough
```

When someone makes a noise or exclamation that is not a word or a recognised exclamation (i.e. ha!) then mark it as a non-lexicalised item by using (nli):

```
And we all arrived and were like "surprise" and she was
screaming and laughing like "(nli)"
```

Interjections

The following standardised spellings are used to transcribe interjections. Interjections do not require any special symbol.

```
Ha
Mm
Nah
Oh
Ooh
Oops
Uh-huh
Whoa
Yay
Yup
```

Other transcription symbols

In addition to the transcription conventions outlined above, the following symbols are used for the transcription of other kinds of noises made by either the main speaker or one of the other participants in the interviews:

{LG} laughter	(speaker laughs)
{NS} noise	(Loud background noise, e.g. a door slamming, cars honking)
{CG} Cough	(speaker coughs)
{BR} Breath	(speaker takes a very audible breath)

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