L Vocalisation

The Development and Spread of L Vocalisation in Great Britain and the United States

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Abstract

L vocalisation is a phonetic feature found in many accents of English and other languages across the globe and it has received much attention from researchers in the past decades. In this thesis I investigate how L vocalisation has developed and spread in Great Britain and the United States. The data has been collected from the crowdsourced English Dialects app (Leeman et al., 2018) and recordings from the International Dialects of English Archive. The main focus of the analysis is on the frequency of L vocalisation in different regions in England and the United States and the phonetic environments in which L vocalisation is found in the United States. The results show that L vocalisation has likely spread through geographical diffusion in Great Britain, whereas in the United States, the feature appears to have developed independently in several accents, mostly in the Eastern half of the country. Furthermore, the thesis shows that L vocalisation is most often found before dorsal and nasal consonants and before approximants, suggesting that /l/ is more prone to vocalisation in these environments. There are several factors that contribute to differences in distribution and spreading of L vocalisation in Great Britain and the United States, ranging from geographical factors such as the size of the countries, to social factors such as social class and ethnic background.

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1. Introduction

Language is alive, constantly changing and evolving, sometimes faster, sometimes slower. Different aspects of language may undergo change at different rates, and a language may split at certain points, evolving into separate accents or dialects. Changes can occur in all aspects of a language, ranging from phonology to vocabulary to syntax. Understanding how a language changes can give valuable insight into the lives and cultures of the people speaking it. With the development of modern technology, our exposure to different languages and accents has changed, as many of us can now readily access media from anywhere in the world almost instantly. In this thesis I investigate the emergence and spreading of one specific phonetic feature in the English language, namely L vocalisation. L vocalisation is a linguistic feature that has received much attention by phoneticians in recent decades and happens when /l/ becomes an /o/ in a syllable-final position.

1.1 Aim and Research Questions

In this thesis I investigate how L vocalisation has emerged and developed in English accents of Great Britain and the United States. I seek to understand whether the two are connected and in which ways they are similar and how they differ. This thesis is therefore mainly developed around three research questions.

- How has L vocalisation developed?
- How has L vocalisation spread in Great Britain and the United States?
- What are the differences and similarities between L vocalisation in Great Britain and the United States?

For the first question I use findings from previous research about linguistic change, articulation of /l/ historically, and about how /l/ affects and is affected by its environment. To answer the second and third question, much information has been gathered from previous studies done on L vocalisation in English. In addition, data has been collected from recordings of accents in the United States, and from a crowdsourced phone application for Great Britain. I have then compared the data from the recordings and the app both with each other and with the findings from previous research.

A major reason why it is particularly interesting to study language change in the English language is because different varieties of English can be found across the world, as there are countries on almost every continent that have English as an official language. All these varieties of English originate from the UK, and most have arrived in their respective countries as a result of colonization. Because different areas were colonized at different times in history, Englishes with slight variations were brought along with the settlers and thus many of the Englishes had different starting points. In addition, L vocalisation may appear to be a relatively simple phenomenon on the surface level, but as we will discover throughout this thesis, it is part of an intricate process of change in the English language.

L vocalisation is the phonological phenomenon where the lateral /l/ turns into a vowel or semivowel. In English specifically, dark /l/ turns into a mid back vowel in a syllable-final or pre-pausal environment. Historically there have been several waves of L vocalisation in English. The one that will be covered in this thesis is the most recent wave, starting in the early 20th century in Great Britain.

In Received Pronunciation (RP), there are two main allophones for the lateral /l/, namely clear /l/ and dark /l/. Clear /l/ is realised by the tip of the tongue touching the alveolar ridge. Dark /l/ is produced also by raising the tip of the tongue to the alveolar ridge, but now also the back of the tongue is raised towards the velum, albeit not touching it, causing the consonant to be velarised. Both of these allophones can vocalise, but differently. While the clear /l/ will tend to vocalise into a high front vowel /i/ or palatal approximant /j/, the dark /l/ will vocalise as a mid back rounded vowel /o/. The tongue position of the dark /l/ is already very similar to the tongue position in the realisation of the mid back vowel that is produced in vocalisation. The vocalisation is produced because the tip of the tongue is dropped from the alveolar ridge, while the back of the tongue remains raised. In RP, clear /l/ will occur in syllable-initial position while dark /l/ will occur in syllable-final position and before consonants. Dark /l/ is also found before the labio-velar approximant /w/, such as in the word *always* [ɔːɬweiz]. Before the palatal approximant /j/, such as in the word *stallion* [stæljən], the lateral will be realised as a clear /l/. A reason why this is the case is likely related to the syllable boundaries in these words. In *always*, there are two syllables: [ɔːɬ] and [weiz], which means that /l/ in this case is in a syllable-final position. In the word *stallion*, /l/ can be argued to be in a syllable-initial position, making the syllables [stæ] and [ljən], and this leaving /l/ as non-velarised. In GA, dark /l/ is found in all environments. While many features from RP and

GA are often generalised to accents of England and the United States, respectively, there is great variation in accents in these countries, also in the realisation of /l/ as will be examined in depth below.

Despite clear and dark /l/ traditionally being considered the two types of /l/ found in the English language, the precise articulation of /l/ is not quite so clear-cut. When adjacent to /θ, ð/, /l/ is typically dental, and before /r/ it is post-alveolar (Bladon and Al-Bamerni, 1976, 137). The reason for this is that /θ, ð/ are dental consonants, meaning that to produce them, the tip of the tongue is in contact with the back of the upper front teeth, and producing a more dental /l/ thus requires less movement of the tongue during speech. In most accents of English, /r/ is a post-alveolar, and thus a post-alveolar /l/ requires less tongue movement when the consonants are adjacent. There may be varying levels of clearness and darkness, and it may be voiced or devoiced, depending on the environment in which it exists. Examples of this may be the word *holler* /hʌlə/, where /l/ is clear and voiced, the word *clock* /klʌk/, where /l/ is clear and at least partially devoiced, and *melt* /mełt/, where /l/ is dark and possibly partially devoiced. There may even be some level of lip rounding. In fact, Trudgill (2004, 63) comments that in a large part of south-eastern England, /l/ has acquired an /ʊ/-like vowel in front of it. It is quite likely that the lip-rounding of this preceding vowel will be carried on to the articulation of /l/ itself.

Previous findings suggest that the clear-dark /l/ allophony observed in England is also relatively recent (Johnson & Britain, 2007). One reason why this is thought to be the case has become clear by studying recordings of people who have migrated from England to New Zealand. Because the people who moved there would have brought their home accent with them, and there was not another accent of English already in New Zealand to influence the speakers, studying the accents of these immigrants also gives a strong indication of what English in England would have sounded like at the time they migrated. In recordings of the first generation of native-born Anglophone New Zealanders (born 1850-1890), some have clear /l/ in all position, and the rest have a slightly velarised /l/, and it is rarely or never vocalised (Johnson & Britain, 2007, 300; Trudgill, 2004, 79). This suggests that clear-dark /l/ allophony was still a relatively new and not a wide-spread feature in English at the time.

L vocalisation is today a prominent and well-known, perhaps even stereotypical feature of London accents, but it has spread to many accents of the South and Midlands. It is also a feature of Estuary English, which is a mix between RP and Cockney. In the past few

decades, it has also begun to appear in RP (Wells, 1982, 259). It is also found in several accents in the United States, such as in New York and Afro-American Vernacular English (AAVE). The accents and how /l/ is articulated by the speakers of said accents will be discussed in more detail in section 2.5-2.6.

Previous research from England, Australia and New Zealand suggests that L vocalisation develops soon after the development of the dark /l/, but it is not clear whether this is also the case for the United States, despite most United States accents of English having a relatively dark /l/ in all environments (Johnson & Britain 2007; Wells, 1982, 490). L vocalisation does exist in several accents in the US, but it is not as common or wide-spread as in accents of Great Britain. Understanding why this feature is not widely found in United States accents can provide more insight into how laterals, consonants where air flows along one or both sides of the tongue, change and how phonological features spread. English came to North America with the British settlers in the 17th century, and after a period of close contact with Great Britain, the United States officially became an independent nation in 1776. There may be several reasons for dark /l/ not vocalising in American English. Such reasons may be phonological, such as there being different levels of darkness, or the lack of allophonisation, or social, such as L vocalisation carrying certain associations of language that may not be desirable. The original idea for this thesis was to investigate why L vocalisation does not appear to occur much in accents of the US, but this turned out to be an investigation that would likely require more time and resources than are available for this thesis. In addition, as I show in chapter 2 and in the data collected from the recordings for this thesis, L vocalisation is in fact found in various accents across the United States. The investigation will therefore rather centre around how L vocalisation may have spread in the United States and the different ways that /l/ is realised in syllable-final position in a set of recordings of United States English from different regions.

1.2 Transcriptions

There are different ways to transcribe the vowel found in vocalisation of dark /l/. This thesis will mainly use Wells' suggestion of /o/ as the symbol for the vowel that is the product of the vocalised /l/ with lip rounding and /ɤ/ for the close-mid back vowel without lip rounding. These phonemes are only used in the transcription of my own examples, as I keep original

transcriptions in citations, and I use the accurate phonemes in the narrow transcriptions of the recordings used for this thesis. Wells argues that this symbol is the best because the alternatives /ʊ/ and /w/ do not represent the vowel satisfactorily. /ʊ/ is more front than the vowel produced in L vocalisation, and /w/ is questionable because it implies phonemic identification with prevocalic /w/ (Wells, 1994). At times, the unrounded vowel /ɤ/ may also be produced. Whether the vowel produced is rounded or unrounded is determined by the environment in which it occurs. In the word *milk*, the vowel will be rounded: [mɪok], while it will be more unrounded in the word *self* [seɤf]. The close-mid back unrounded vowel /ɤ/ will be used when the vowel produced as a result of L vocalisation does not have lip-rounding.

1.3 Structure of the Thesis

In order to answer the three research questions, what remains of this thesis is structured as follows:

Chapter 2 explains the theoretical background for this thesis. This chapter looks at the realisation of /l/ in different accents and environment and what factors may contributed to these articulatory differences, in addition to looking at what previous studies have found about the development of L vocalisation. I then explore different ways in which linguistic features may develop and subsequently spread. And lastly, I go into explanations of the articulation of /l/ and distribution of L vocalisation in various accents in Great Britain and the United States, based on what has been found in previous studies.

Chapter 3 looks into the historical background of L vocalisation. Modern L vocalisation is not the first wave of L vocalisation in English, and this chapter explores how articulation of /l/ has changed throughout the history of English and a more specific wave of L vocalisation in Early Modern English. It also looks more at the beginning of the modern wave of L vocalisation in Great Britain and how this wave differs from the Early Modern English L vocalisation.

Chapter 4 explains the methods used to collect data for this thesis and the reasoning behind the methods. For both Great Britain and the United States, data has partially been collected from previous studies carried out on L vocalisation in these regions, as well as on how linguistic features can spread. In addition, I have collected data from the Dialects of

English App for L vocalisation in Great Britain, and for the data from the United States I have used recordings from the International Dialects of English Archives, of which I have made narrow phonetic transcriptions. Because relatively little has been written about L vocalisation in the United States, I have chosen to use recordings to get data from different accents.

Chapter 5 presents and describes the data collected from the English Dialects app and the recording from IDEA. Here, I systematically go through the different parts of the data, preparing it for the next chapter in which I analyse the data.

Chapter 6 analyses the data and looks at how it relates to findings from previous studies, and what kind of patterns of spreading can potentially be observed. It uses the data found and presented in chapter 5 and analyses what the data shows us about the use and spread of L vocalisation in Great Britain and the United States. In this chapter I also use the data to answer the three research questions that make the foundation of this thesis.

In chapter 7, I go through and discuss weaknesses of this thesis and how they may have affected the research and outcome of the findings. I also give some suggestions for future research related to the topics brought up throughout this thesis and based on the weaknesses discussed.

Chapter 8 sums up the findings from this thesis and here I share final thoughts about the research conducted and how it might further influence this field of research on L vocalisation.

2. Theoretical Background

As mentioned in the introduction, a living language is ever-changing, and L vocalisation, as investigated in this thesis, is one such sound change in the English language. A sound change can be defined as having taken place when "a variant form, mechanically produced, is imitated by a second person and that process of imitation causes the system of the imitating individual to change" (Smith, 2007). Thus, a sound change can be said to have occurred when an individual adopts a new sound in a language, essentially replacing the sound they would previously have used in its place. Certainly, a change in a single individual cannot be defined as a sound change in an entire language, but if this sound change continues to be adopted by other individuals, a change will eventually be found in a majority of the speakers of a language. To be able to investigate the phenomenon that is L vocalisation, we must first understand what L vocalisation is and how modern L vocalisation is a relatively recent phenomenon in the English language.

In this chapter, I explain what L vocalisation is and how linguistic innovations spread within a language. I then go on to describe what previous studies have found about the articulation of /l/ and L vocalisation in accents of Great Britain and the United States.

2.1 What is L Vocalisation?

In this section, I explain how /l/ is articulated and differences in the articulation of /l/ in English. I then explain what L vocalisation is and how vocalised /l/ differs from non-vocalised /l/. To understand this, we must establish which articulators are involved in the production of /l/ and vocalised /l/.

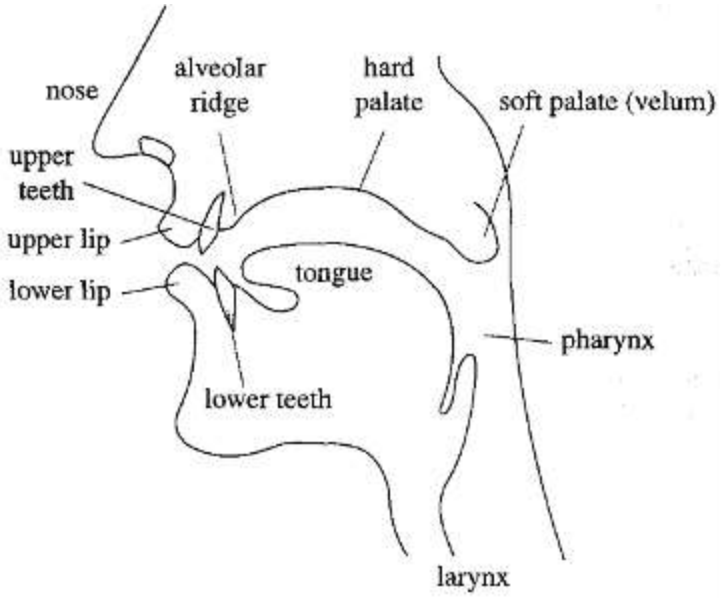

Figure 1. Diagram showing the oral cavity with names of articulators.

Figure 1 shows the oral cavity along with the names of the different articulators, the parts of the vocal tract that are used to produce different sounds. The main articulators used in the articulation of /l/ are the tongue, the alveolar ridge and the velum. In addition, the lips can be included in different ways depending on the surrounding sounds, and they take on a more prominent role when /l/ is vocalised. This figure helps to visualise what happens in the oral cavity during the articulation of /l/ as I go on to explain how /l/ is articulated and vocalised. I also use the umbrella terms "coronal" and "dorsal" to describe certain groups of consonants. Coronal consonants are those where the front part of the tongue is used to articulate the consonant, and dorsals are consonants that are articulated by using the back of the tongue.

2.1.1 Articulation of /l/

/l/ is a phoneme that can be realised as a dental, alveolar, or post-alveolar lateral approximant. In English, it tends to be an alveolar lateral approximant, meaning that it is produced with the tip of the tongue touching the alveolar ridge, a ridge in the palate, positioned behind the teeth. That it is a lateral means that air is passing along the sides of the tongue in its production, and that it is an approximant means that it is produced by bringing the articulators close together without causing audible friction. It is also a sonorant, meaning that it is nearly always voiced and that it has ongoing resonance and more acoustic energy than non-sonorant consonants, such as stops. The most basic articulatory position to produce /l/ in English is by raising the tip of the tongue up until it touches the alveolar ridge, keeping the sides and back of the

tongue lowered and the velum raised to close off the nasal cavity so that air can pass freely through the oral cavity, and the vocal cords will be vibrating in order to produce voicing during the articulation. However, there are many variables that can change aspects of the articulation, such as the environment in which /l/ is placed, the accent of the speaker and abnormalities in the oral cavity.

Now that we have established what /l/ is and how it is produced, I move on to explain the clear and dark allophones of /l/ in English, but because it is relevant to understand how syllables are constructed in English and how phonotactics work, I briefly explain that first. A syllable is a unit of speech sounds that usually consists of one vowel and one or more consonants. If we take as an example the syllable structure CVC, the names of each element are as follows: C (onset), V (nucleus), and C (coda). An example of such a syllable would be the word *bed*. Syllables can also be simpler, such as CV, VC, or even simply V, but they can also be more complex, with multiple consonants forming a consonant cluster in the onset, the coda, or both. Theoretically the most complex syllable that can be found in English is CCCVCCCC, like in the word *strengths* /streŋkθs/. However, the presence of /k/ in this word varies, as some speakers may clearly have /k/ in this consonant, others may only have an indication of it while others again do not have it at all. It is also possible for a syllable to only consist of a single consonant, in which case we say that the consonant is syllabic. This is important to note, as in English /l/ can be syllabic, and syllabic /l/ can vocalised, such as in the word *people* /piːpo/. The phonotactic restraints are what decide the order and arrangement of phonemes in a language. Generally, more sonorant phonemes like to find themselves closer to the nucleus, meaning that a syllable cluster like -pl can exist in a syllable onset in English, but not in a syllable coda, while the cluster -lp can exist in a coda, but not in an onset. In fact, in English /l/ can only find itself directly preceding or directly following the syllable nucleus, meaning that when /l/ is in a syllable coda, it will either form the coda by itself or be between a vowel and one or more following consonants. As with all phonemes, the surrounding phonemes will affect how a given phoneme is articulated in connected speech, and this is the same for /l/.

2.1.2 L Vocalisation

There are two types of L vocalisation. In the first, dark /l/ turns into a rounded back vowel. This vocalisation of dark /l/ is the form predominantly found in English accents of Great Britain, and also what this thesis investigates. Because of this, further use of the term *L vocalisation* in this thesis refers to vocalisation of dark /l/, unless otherwise specified. The other type of L vocalisation refers to the process where clear /l/ turns into a close front vowel /i/, or semivowel /j/. This form can in particular be found in the English of young children (Lin and Demuth, 2015).

Dark /l/ is a prerequisite for L vocalisation to occur, but the specific environments in which L vocalisation may occur have been widely discussed, some in more and some in less detail. Wells (1982, 259) proposes three environments in which it may be found: at the end of a syllable before a pause, such as in the word *smell* /smɛo/, before a consonant, such as in *melt* /mɛot/, or when the dark /l/ is syllabic, as in the word *people* /piːpo/. Johnson and Britain (2007, 302, 307) go into slightly more detail about which types of consonants would be more likely to result in /l/ being vocalised, finding that dark /l/ itself has a slight dorsal quality to it as the back of the tongue is raised to produce the dark /l/, and it is thus likely to occur before dorsal consonants. They also find that L vocalisation can occur before coronal consonants, these being consonants where the front part of the tongue is used for articulation. This may appear counterintuitive, as /l/ itself is a coronal consonant, and therefore there would be relatively little effort required to articulate /l/ before a coronal consonant, seeing as this would barely require any further movement of the tongue. A possible explanation for why L vocalisation can be observed before coronal consonants is that the speaker overlaps the consonants so much that /l/ ends up not being properly articulated.

Wells (1982, 258) explains that modern L vocalisation is expected to be found in the environment where /l/ exists before any consonant or in a pre-pausal position, and proposes a rule for the light/dark /l/ allophony found in many accents in England:

$$l \rightarrow ɫ \_\_ \left\{ \begin{matrix} \| \\ \#\ {}_{\circ}C \end{matrix} \right\}$$

Figure 2. Rule showing clear-dark /l/ allophony in English with clear /l/ as basic (Wells, 1982, 258).

and for L vocalisation:

$$l \rightarrow o \; / \; \_\_ \left\{ \begin{array}{c} \| \\ \#_o C \end{array} \right\}$$

Figure 3: Rule showing L vocalisation in English (Wells, 1982, 259).

L vocalisation will also have the potential to have a great impact on the phonetic system, with the formation of new diphthongs, similar to what has happened with R dropping, such as /ɪo/ in *milk* and /ɛo/ in *shelf* (Wells, 1982, 259). When R dropping occurred in English, syllable-final /r/ was in a sense also vocalised, but as opposed to the back vowels that /l/ tend to vocalise into, /r/ vocalised as the mid central vowel schwa. This resulted in several new diphthongs in British English, namely /ɪə, eə, ʊə/. This is due to the stressed vowel before the dropped /r/ lengthening or breaking. In the breaking, the vowel is followed by /ə/, which is why this new set of diphthongs ends in /ə/. Such formation of new diphthongs as a result of vocalisation of dark /l/ has previously been seen in Dutch, where /al/ and /ol/ turned into the diphthong /aʊ/ in words such as *oud* (old) /ɑut/, which comes from the Middle Dutch word *ald*.

Clear and dark /l/ now have allophonic status in English, both representing the same phoneme, but having slightly different articulation depending on context. Different accents of English will also have different distributions of clear and dark /l/. For example, in RP, clear /l/ will be found in syllable-initial position and between vowels, and dark /l/ is found in the syllable coda. However, in accents of Northumberland and South Wales, /l/ is clear in all environments, and in GA (General American) and New Zealand English it is dark in all environments.

A challenge to researchers is that it is difficult to distinguish dark /l/ from the vocalised /l/, as they are similar both in terms of acoustics and articulation, but a truly vocalised /l/ has no coronal element in the articulation (Hall-Lew, 2012). This means that the tip of the tongue is not in contact with the roof of the mouth. Like a vocalised /l/, which is generally vocalised as a mid or close-mid back vowel, dark /l/ has a sound quality very similar to such a vowel. This is due to several factors. /l/ is a sonorant and the raised dorsum gives the tongue a position that is similar to the tongue's position in mid back vowels. Lastly, there may be indications of dark /l/ having a roundedness to it in terms of lip position, which

is often found in mid back vowels in English. For these reasons, it may be difficult to distinguish between dark and vocalised /l/ when doing transcription purely based on what is heard.

Because the position of the tongue in the production of dark /l/ is more similar to the tongue position in the production of back vowels, and dark /l/ tends to be vocalised as a back vowel, one should consider whether /l/ tends to be darker and is more likely to be vocalised following a back vowel than following central and front vowels. Kijak (2010) proposes an explanation for why dark /l/ is more prone to vocalisation based on the difference in its internal structure compared to clear /l/. To explain the difference between these allophones he makes use of what is called Element Theory, a theory that suggests that sounds are made up of a set of so-called elements. The number of these elements may differ slightly, but in general there are seven elements that are believed to exist across all languages: (A) openness/coronality, (I) frontness/palatality, (U) roundedness/labiality, (ʔ) occlusion, (L) voicing/nasality, (H) frication/aspiration, and (_) headedness/velarization. These elements can be used alone or in combination with each other to represent certain sounds, and the sound that the elements may produce depend on the position in the syllable. For example, (I) will usually be said to be /i/ in a syllable nucleus, while it will be a /j/ in a syllable onset or coda. Kijak's (2010, 419) argument is that all non-high back vowels contain the element (U), roundness or labiality, and that dark /l/ also contains this element, thus being able to write dark /l/ in the form (A.U). Therefore, it is the element (U), or the roundness in dark /l/ that causes dark /l/ to be the phoneme which reacts with non-high back vowels when it follows the vowel, resulting in L vocalisation.

Dark /l/ is often categorised as being "vocalic" in nature, and to understand why this may be the case for dark /l/ but not for clear /l/, we have to understand the articulatory and acoustic difference between the two. In terms of acoustics, clear /l/ is found to have a relatively high F2 and a low F1, whereas dark /l/ has a lower F2 and a higher F1 (Sproat & Fujimura, 1993, 292). This study investigates the English /l/ in the context /i – ɪ/. F1 and F2 refer to the formants found when speech is analysed in spectrograms, which shows the resonance of the vocal tract. These formants are most clear in vowels but can also be found in more sonorant consonants. F1 shows the closeness and openness of a vowel: the higher F1 is, the more open the vowel is. F2 shows the frontness and backness of a vowel: the lower the F2, the further back is the vowel. If we now apply this to the observations of the formants found

in clear and dark /l/, clear /l/ will be acoustically more similar to a central-front or front, close vowel, while dark /l/ will share more acoustic similarities with an open-mid or mid back vowel. Now, if we look at this in combination with the articulatory differences, both clear and dark /l/ show retraction of the dorsum and lowering of the middle of the tongue, but for dark /l/, a greater degree of retraction and lowering is found in the environment that is studied. Sproat and Fujimura (1993, 304) describe that:

> "The apical gesture [using the tip of the tongue] of /l/ is a consonantal gesture. On the other hand, the dorsal retraction gesture is a vocalic gesture since it does not produce a radical constriction in the vocal tract. This latter point is related to the common assertion that dark /l/s may be viewed as basically vocalic."

At first glance it may not make sense that it is the dorsal part of the articulation that makes the dark /l/ be viewed as vocalic, as there is no real radical constriction in the vocal tract in light /l/ either. They continue to explain that dark /l/ has a weaker apical gesture, or is less coronal, than dark /l/, making the consonantal gesture in light /l/ stronger, and the vocalic gesture in dark /l/ stronger (Sproat & Fujimura, 1993, 305).

2.2 Related Processes

Language does not exist in a vacuum, and therefore neither does language change. Many factors may play a role in the development and subsequent diffusion of new linguistic features, and these new features may in turn affect other aspects of the language. This also appears to be the case for L vocalisation.

Gick (2002, 169) describes L vocalisation as only the first step in a process where the use of liquids as intrusive consonants will develop in the English language. A liquid is a consonant in which the tongue creates a partial closure in the mouth. English has two liquid consonants: /l/ and /r/. This process of liquid development in English has been recorded in accents that feature R vocalisation, thus the non-rhotic English accents, and goes in the order vocalisation → linking → merger (or near-merger) → reanalysis (intrusion) → generalisation (Gick, 2002, 169). Throughout the paper, Gick (2002) explores whether this same process can be observed in accents that undergo L vocalisation. What previous studies have found,

and as will also be shown throughout this thesis, L vocalisation is found in several English-speaking countries across the world and in many accents within these countries, meaning that the first stage in this process can certainly be observed. The second stage, linking, can also be observed in many of the accents that feature L vocalisation. Linking happens in speech when a liquid is pronounced to connect two vowels. For example, in the phrases *spell out* /spel aʊt/ and *care about* /keər əbaʊt/, which would be /speo aʊt/ and /keə əbaʊt/ without the linking /l, r/, respectively. Linking can, per definition, only occur in accents that vocalise the liquid, and is indeed found in many of these accents, as /l/ is used to connect vowels when it is found in intervocalic position (Gick, 2002, 170-171). There are exceptions to this use of linking /l/ in English, such as in Philadelphia, which we will discuss in more detail below. The next stage, merger or near-merger, means that the vowel that is left after vocalisation takes place is similar to a final vowel that already exists in the phonemic inventory. /r/ will thus often result in /ə/, and /l/ in /ɔ/ (Gick, 2002, 171). The fourth stage is reanalysis, or intrusion. Intrusion happens when a speaker inserts a liquid that is not originally there to connect two vowels, such as /r/ in the phrase *law and order* /lɔːr ən ɔːdə/. Here, one of two processes can take place: both the liquid and the vowel can be reinterpreted as vowel-final, or as /r/- or /l/-final. In the case of the former, no intrusion will take place, while in the case of the latter, /r/ or /l/ will become intrusive (Gick, 2002, 171). The final stage in this process is generalisation, and this occurs when "the reanalysis or vowel-final forms extends to the set of all possible word-final (nonglide) vowels" (Gick, 2002, 172). As opposed to intrusive /r/, which is already widely spread in many accents in England, but also Australia, this final stage of generalisation has not yet been completed in any accent (Gick, 2002, 172).

One reason for why this final stage has not been much observed in English may simply be that intrusive /l/ has not yet had enough time to fully develop in any accents. R vocalisation, or R deletion, started earlier in English than L vocalisation did, and has therefore had more time to go through these five stages to become a fully developed intrusive liquid. It is also possible that intrusive /l/ is not really seen in Great Britain because it already has an intrusive liquid, namely /r/, and these may not coexist well together. The only well-known example of intrusive /l/ in Great Britain is found in Bristol, where a word-final /ə/ is often followed by /l/, even if *-l* does not exist in the spelling.

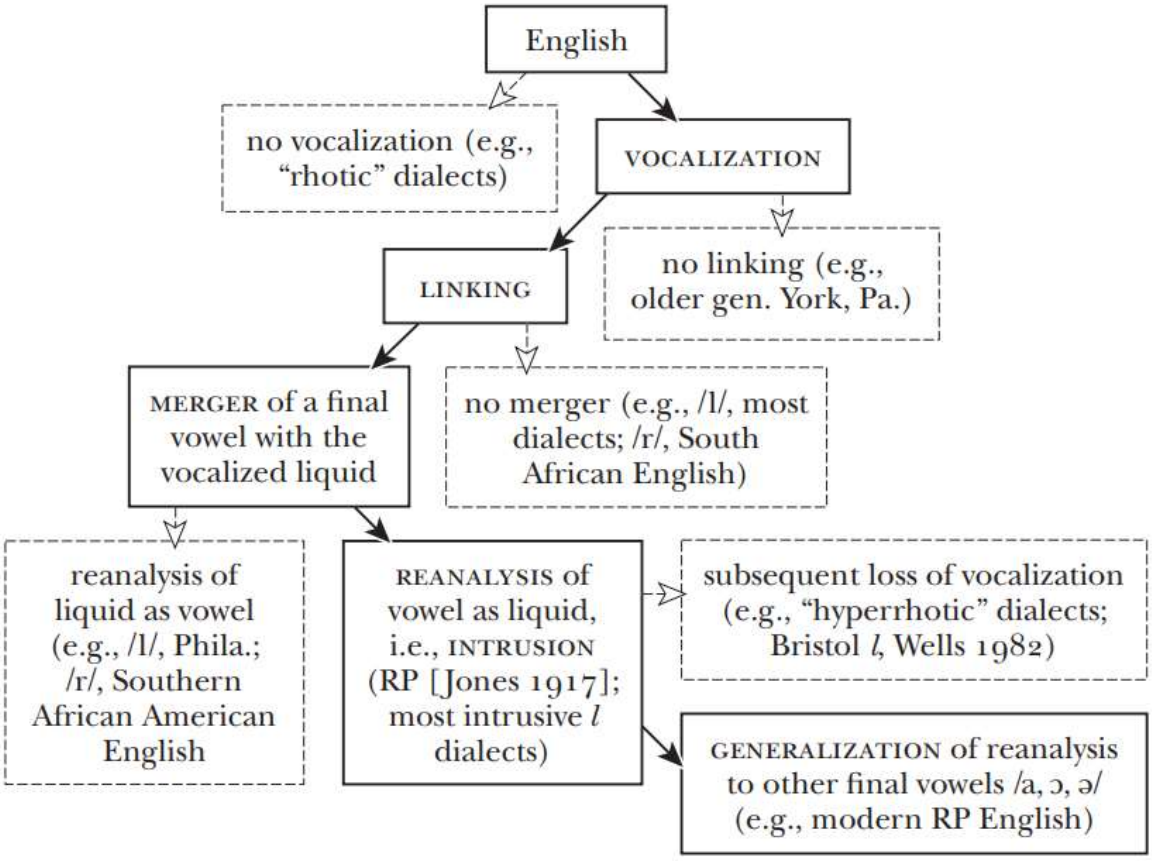

Figure 4. Flowchart demonstrating intrusion-related sequences (Gick, 2002, 174).

Another feature that may be related to L vocalisation is what is known as vowel breaking. This is a process where a vowel "breaks up" before certain consonants or consonant clusters, forming a diphthong. One known change in English where this happened in a pre-l environment is dated to the period right after the Anglo-Saxons arrived in Britain (Smith, 2007). In this case of pre-l vowel breaking, a back vowel glide developed between a front vowel and /l/+consonant. Examples of this are the words *to fall*, which is *fallan* in Proto-West Germanic and turns into *feallan* in Old English, and *self*, which is *selbaz* in Proto-West Germanic and turns into *seolf* in Old English. Another form of pre-l breaking can be observed in GA, where a schwa is inserted between a vowel and a following dark /l/ (Wells, 1982, 487). This is observed after both single vowels and diphthongs, such as in the words *rule* /ruːəl/ and *foul* /faʊəl/ (Broeders). The reason why pre-l breaking may be relevant to L vocalisation is that it shows that the presence of /l/ can trigger a back vowel to develop even if /l/ is not vocalised, further supporting Kijak's finding of dark /l/ having a rounded element to it. The example from GA appears to oppose this finding, however, as it makes the speaker insert an

unrounded mid central vowel between a back rounded vowel and /l/. Returning to the insertion of back vowels between a front vowel and /l/+consonant as described above, if this is also happening in English today, it may explain why L vocalisation is also widely found in words such as *milk* and *bell*, which have high front vowels preceding /l/. Inserting a back vowel glide between the front vowel and the /l/ leaves the tongue in a position where /l/ will be velarised and thus also easily vocalised.

Comparison between L vocalisation and R dropping, as well as linking and intrusive liquids has been made (Lindsey, 2019; Kijak, 2010). Both /l/ and /r/ are liquids, sharing their place of articulation and also behaving in similar ways in a language's phonotactics. While English distinguishes between the liquid phonemes /l/ and /ɹ/, there are languages that only have one liquid phoneme but with lateral and rhotic allophones, such as Japanese and Korean. It is therefore also possible that these features undergoing similar processes is due to the same factors. Like L vocalisation, non-rhoticity in England also emerged in the London area, however, unlike L vocalisation, non-rhoticity quickly found its way into the prestige accents while L vocalisation remains a feature often regarded as a non-prestige feature by speakers of RP.

I use RP and GA as reference accents throughout this thesis. These are often the "standard accents" that are taught to non-native speakers and will for the sake of simplicity be used when comparisons between a regional accent and a standard accent have to be made. Of course, using accents such as RP and GA as a standard comes with its issues, and I highlight some of these issues in 2.5.1 and 2.6.1 below, respectively. For general phonetic transcriptions used in examples in this thesis, I use RP.

2.3 Spread of Linguistic Features

To understand how L vocalisation has become so widespread in Great Britain, we have to understand not only how linguistic features spread, but also how they may have emerged to begin with. The next section will therefore introduce how linguistic innovations go from first emerging to how they spread through a language or accent.

2.3.1 How Do New Linguistic Features Emerge?

Language change usually begins slowly, with an innovation being found in only few speakers. After while the feature will start to gain traction and more and more speakers will pick up the new feature. As more speakers use the feature, more people will get exposed to it, allowing it to spread with increasing speed through a community. After some time, most speakers will have acquired the new feature and the rate of spreading levels out. It is now a feature found in the majority of a population, but there will generally be some people who never acquire the new feature. This process is usually described as an S-curve, where the x-axis marks time since the innovation first developed in the language and the y-axis shows the number of speakers in a population who have acquired the innovation.

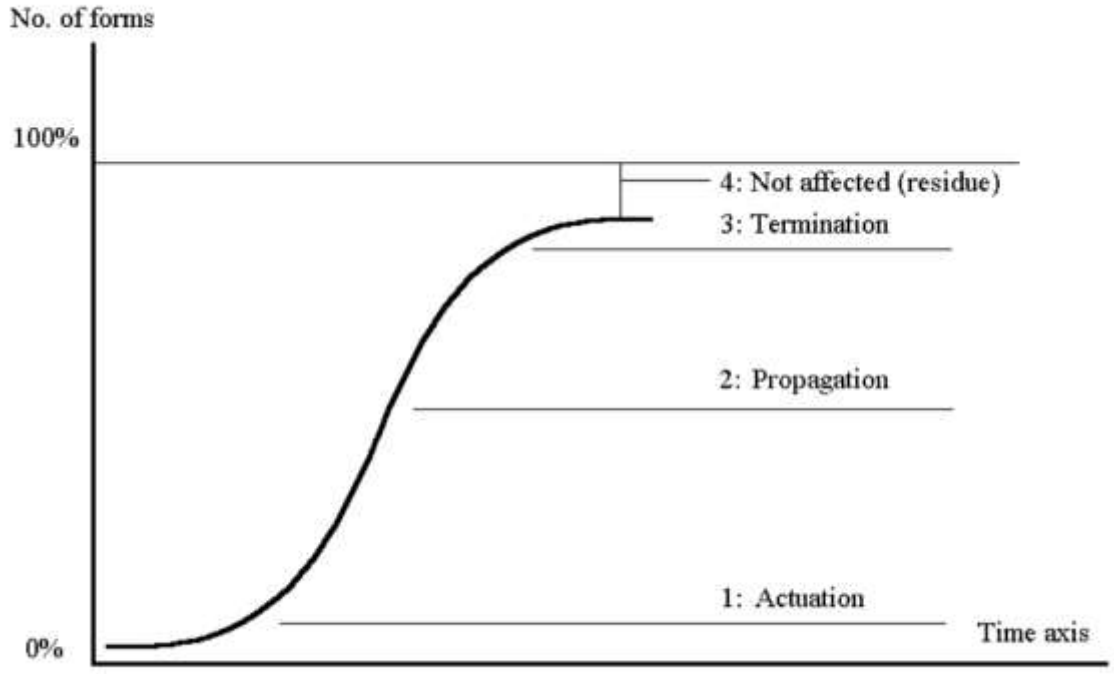

Figure 5. S-curve showing spread of linguistic innovation (Brinton, 2018).

Figure 5 shows the S-curve that is commonly used to represent the spread of a linguistic feature in a community of speakers over time. If this is used on a macro-level, for example to represent the spread of a new feature of a language in an entire country, one should expect to see many smaller s-curves along the line of the large s-curve, representing the spread of the innovation in different areas within the country, such as cities and towns. In

the case of L vocalisation, the smaller s-curves may also represent the different environments in which L vocalisation occurs, as /l/ will be more prone to vocalise in some environments than others. This results in L vocalisation at first being found only in a limited number of environments before it spreads to encompass a wider array of environments.

L vocalisation has arguably emerged through natural change, meaning that the change would be expected to happen over time due to the nature of articulation of the phoneme. A reason for this is that /l/ is a relatively marked phoneme. A marked phoneme is one that is generally more uncommon cross-linguistically and also more prone to disappearing as a result of language change. Marked phonemes are often acquired later by children in their development of speech. Johnson and Britain (2007, 297) explain that "the less marked a sound or contrast, the earlier it will be acquired by children and the more frequent its appearance is likely to be in the world's languages." Vocalised /l/ meets the criteria of being unmarked because it is more phonetically natural and structurally simpler (Johnson & Britain, 2007, 298). This is again supported by a previous wave of L vocalisation seen in the Early Modern English period, which I go more in depth about in chapter 3, as well as L vocalisation being found in various other languages, suggesting that this is an expected change.

2.3.2 How Do Linguistic Innovations Spread?

Features of language spread through what is called geographical diffusion, meaning that a feature will spread outward from the area of origin to surrounding areas. On a macro level, this is predictable enough that it is possible to create models that show the geographical routes of a linguistic innovation (Trudgill, 1986, 39). While such models show the routes via which a feature has spread, they do not show how the feature spreads between speakers. One way in which this can happen is through linguistic accommodation. This happens when two speakers are talking to each other and adjust their language to decrease the differences between their accents and dialects. While the general spread of linguistic innovations is called geographical diffusion, there are many factors within this that contribute to the actual spreading, and I will now look at some of these factors.

Trudgill (1986, 40) writes that media, such as TV likely have relatively little impact on spreading of linguistic features, as this is more of a passive influence on language: the

consumer will hear an accent, but not speak back to it, thus linguistic accommodation does not occur in this setting. However, in the 36 years that have passed since this book was published, media have become increasingly present in our daily lives. With audio- and video-based media such as podcasts, social media like YouTube and TikTok, as well as the increasing availability of television shows from all corners or the world, people get immense amounts of audio input, often for multiple hours every day. The Internet influences how we use language, and it may not only influence us in the way we write, the vocabulary and syntax of our language, but also the way we pronounce words. Just like fashion and music, language sees certain trends – popular expressions and words find their way into our daily speech and writing. Trudgill (1986, 41) defines diffusion as having taken place once a speaker begins using a language feature also in the absence of speakers that naturally use that feature.

While the most obvious way for a linguistic innovation is to spread from an urban area and outward, it can also spread directly from one urban centre to another through "urban hopping". Connections between urban areas tend to be better than between urban and rural areas, resulting in linguistic innovations reaching other urban areas before reaching the rural areas separating them. Linguistic innovations can thus initially skip over the rural areas, catching on in the urban areas after which they will spread to the rural areas.

One way in which this urban hopping can occur, is through what Steinsholt (1964, 26) describes as "language missionaries". These are people, often young females, who move to a different city for studies or work, where they pick up new linguistic features, which they later bring back to their hometowns, but they can also be people from urban areas who move and settle in rural areas but retain their urban accents (Steinsholt, 1964, 26). This way new language features can find their way from urban to rural areas.

Another factor may be a conflict between prestige and trendiness. In England, RP is still viewed as a prestigious accent associated with higher social class and a higher level of education. On the other hand, London accents may be considered to be trendy, and therefore more used in the vernacular of young people. Features of accents considered trendy may be more likely to be picked up. In this section we can distinguish between two different types of prestige: overt and covert prestige. Overt prestige happens when a speaker tries to make their accent lean more towards the standard accent of the language. This is connected to expressions of power and authority and can mark a social distance between speakers. Because

of these factors overt prestige is mostly found in more formal social settings. Covert prestige is the opposite of overt prestige and happens when a speaker tries to make their accent diverge away from the standard accent. Covert prestige can be a maintenance of traditional dialect and is often used to mark in-group relations between speakers and is generally found more in informal social situations.

Through studies and mapping language and accent features, we are often able to say something about how a feature may have emerged and spread. Most of these types of studies look into the past and at the present, rather than into the future. Part of the reason for this is that it is significantly more challenging to predict the future of a language than it is to describe its past, and related to this problem is what is called the "actuation problem". This questions why "changes in a structural feature take place in a particular language at a given time, but not in other languages with the same feature, or in the same language at other times" (Weinreich et al. 1968, 102). This ventures into a more speculative aspect of language change, and this problem is part of what will be challenged in this thesis as we try to establish why L vocalisation, which is widely observed in accents of Great Britain, is a much less prominent feature in the United States.

2.4 L Vocalisation in New Zealand and Australia

Lin and Demuth (2015, 14) note that English speaking children are often found to acquire /l/ in syllable onset earlier than /l/ in the syllable coda. Their study uses 33 Australian English-speaking children between the ages of 3 and 8 years old, of which the data from 25 of the participants is used. Data is also collected from five adults for comparison. The participants are then shown a cartoon image and an audio prompt and asked to repeat the word. Midsagittal ultrasound of the participants' tongues, as well as video of their lip movements and recordings of audio production is used to analyse the manner of articulation. Coda /l/ is found to be substituted by the approximant /w/ or the back vowel /u/, similar to what is found in L vocalisation. The study finds that there is a large jump up from the children's ability to produce /l/ in the syllable coda from the age of four to five (Lin and Demuth, 2015, 20). As the child ages, the oral and nasal cavity, as well as the teeth, tongue, lips, and velum will further develop, making the articulation of sounds possible and easier. The findings in this

study also support the idea that /l/ is a relatively marked phoneme and therefore more likely to be a natural change.

Apart from the darkness of /l/, factors such as the length of the preceding vowel, and the environment in which it occurs can affect the likelihood of /l/ becoming vocalised. Research has found that L vocalisation is more likely to occur after a long vowel than after a short vowel (Horvath & Horvath, 1996; Johnson & Britain, 2007, 306-7; Spero, 1996). Furthermore, L vocalisation has been found to be more likely to occur both preceding dorsals and labials (Johnson & Britain, 2007). Dorsal consonants are articulated with the back of the tongue, the dorsum, and in English this includes the consonants /j, ŋ, g, k, ʍ, w/ and labials are articulated with the lips (bilabial) and the teeth (labio-dental), including /m, p, b, f, v/ in English. Words in which L vocalisation would therefore be commonly expected would for example be *milk*, *hallway*, *help* and *solve*.

The spread of a linguistic feature does not have to be due to one factor alone but can be a combination of different factors. As shown above, L vocalisation is likely to be a natural change, one that should be expected to happen once dark /l/ appears in an accent, but we then have to question if the feature has emerged independently in all accents where it is found in England, or has it developed in one place and then spread from there? Previous studies have shown that it likely has developed independently in New Zealand, showing that L vocalisation has the potential to develop independently in different accents of English around the same time (Johnson & Britain, 2007, 300; Trudgill, 2004, 79). It has also been established that the accents that appear to be resistant to the adoption of the feature in England, are those that do not possess dark /l/. However, if L vocalisation is indeed a natural change that would be expected to happen soon after an accent acquires dark /l/, one should expect American accents of English to also have developed or rapidly be developing L vocalisation, which is not the case. Other factors that may make an accent resistant to developing L vocalisation should therefore be considered. One possibility is a social factor. By speakers of RP, L vocalisation has long been considered a low prestige feature, making the accent more resistant to adopting the feature. It has, however, slowly begun being adopted also in RP. It is possible that something similar is happening in the United States, but it may also be the case that L vocalisation is not as likely to develop naturally after all.

Since distances between places in Great Britain are relatively small geographically, it is highly likely that L vocalisation has spread between places and not simply developed

independently in every accent. On the other hand, in English speaking countries that are geographically far removed from Great Britain, such as New Zealand and the United States, it is more likely that L vocalisation has developed independently.

Stuart-Smith et al. (2013) present another factor in language change, namely television. This a relatively recent factor that can impact language, as televisions have only become more mainstream in the Western world after World War II. The study finds L vocalisation, as well as TH fronting, in non-mobile, working-class youngsters in Glasgow (Stuart-Smith et al., 2013, 501). The study is conducted by collecting qualitative data by interviewing and observing participants, done by a fieldworker, which is compared with a linguistic analysis of a sample of popular tv-dramas set in working-class London, featuring so-called media-Cockney (Stuart-Smith et al., 2013, 508). The study uses forty-eight participants, thirty-six adolescents and twelve adults, and up to forty minutes of spontaneous conversation was recorded in addition to each participant reading out a word list (Stuart-Smith et al., 2013, 509).

Another factor as to why L vocalisation is far less wide-spread in English accents of the United States may be that there are other significant differences between the phonology of United States English and British English. In both British and American accents of English, L vocalisation tends to occur in the syllable coda. A difference I want to highlight here is vowel length. In English, vowel distinction relies on two main factors: vowel length and vowel quality. This is what is used to distinguish between vowel such as /iː/ and /ɪ/, /uː/ and /ʊ/. Vowel length and quality are weighted differently by the listener, and in Southern British accents, length tends to be the primary cue, while in certain accents in the United States there is a trend towards quality being the primary cue (Uldall, 1934, 97). While the focus of this thesis is not on the vowels preceding /l/ in English, we should not ignore that such a distinction in vowel perception may influence the following consonants. As mentioned above, /l/ is found to be more likely to vocalise after long vowels than after short vowels, and it is therefore also possible that the difference in weighting of articulatory cues may influence the development and spread of L vocalisation in Great Britain and the United States. However, L vocalisation is not decided by the listener's perception, but by the speaker's articulation, so whether the weighting of length and quality of vowels has any influence on the vocalisation of /l/ cannot be said for certain without further experiments being done to test this.

2.5 L Vocalisation in Great Britain

L vocalisation in England is still typically associated with London accents, and this is also likely where it first emerged. However, today the feature is found in many accents across Great Britain, both in the South and in the North. L vocalisation has been studied in several areas in Great Britain, which I examine below. Today, the feature is found in most accents in Southern England and the Midlands, as well as in some areas in Southern Scotland. In the following section I look at various accents in Great Britain and what previous studies have found about the articulation of /l/ in these accents.

2.5.1 Received Pronunciation

The first accent I consider is Received Pronunciation (RP), which is the reference accent that I use for Great Britain in this thesis. RP is generally considered to be the standard accent of British English. It is a geographically neutral accent and often associated with higher prestige, being an accent of the higher social classes and more educated people. L vocalisation has for a long time been considered to be a socially marked feature and was not found in RP, but in recent decades it has begun to emerge also here (Wells, 1982, 294). Przedlacka (2001) looks more specifically at L vocalisation in RP and Estuary English. This study was done by looking at the speech of 16 students aged 14-16, of which eight were girls and the other eight were boys. The data for RP comes from two 13-year-old boys, in which it is found that 34% of /l/ in non-syllable initial position are vocalised. However, there is a relatively large difference between the two RP participants, as one of them vocalises 7 out of 33 tokens, while the other vocalises 50% of tokens. While this study shows that L vocalisation is indeed found in speakers of RP, it only uses two participants for this accent, both of which are males in their early teens, so the results should not be regarded to reflect speakers of RP in general.

Hughes et al. (2012, 51) note another feature that is observed in RP, where /uː/ is no longer fully back or rounded, but rather fronted to [ʉ]. It can also be diphthongal, with a more centralised, only slightly rounded onset, such as in the word *suit* [sʊ̟ʉt]. This shift in vowel position may open up a spot for a new close back vowel, and the vowel produced in L vocalisation may fill this position.

While RP is by many still considered to be the standard British accent, it is arguably beginning to become an outdated term. There is evidence suggesting that there is a levelling of accents happening, where RP has picked up features from lower class accents and vice versa. This leads me into the next accent, which is by some considered to be the "next RP".

2.5.2 Estuary English

Related to RP is Estuary English, an accent that lies between RP and a working-class London accent, retaining features of both. Trudgill (1999, 80) identifies it more specifically as an accent of the lower middle class. The term was first coined in 1984 by David Rosewarne (Altendorf, 2016, 131). The accent gets its name from the banks of the Thames estuary in London. However, the term Estuary English is considered to be problematic for several reasons. The first is that it suggests that it is a new accent, which it is in fact not, and second because it suggests that it is confined to the area of the Thames estuary (Trudgill, 1999, 80). There is not a clear line where Cockney turns into Estuary English, and where Estuary English turns into RP, but rather it lays on a spectrum between the two. Common phonetic features of Estuary English are TH-fronting, glottalizing, and L vocalisation, and it is exactly this that has been the cause of controversy surrounding Estuary English – while there is no denying that there are speakers who find themselves on a continuum between accents, one can argue that this in itself does not create its own, separate accent (Altendorf, 2016, 132). Eriksen (2015, 59) has found that there is great variation among speakers of Estuary English in how much L vocalisation is used. The study uses three British, male celebrities, and transcribes two interviews, using these to find occurrences of four different features typical of Estuary English, amongst which is L vocalisation. The participants in her study vary from using L vocalisation in 52% of possible instances to using it in 71% of possible instances, showing that L vocalisation is used frequently in Estuary English and therefore is a prominent feature of the accent.

2.5.3 London and Cockney

One of the first accents which is described to have L vocalisation is the working class accents of London. This accent is commonly referred to as Cockney, and it has several features that makes it stand out from other British English accents. L vocalisation is one of these features and is considered an integral part of Cockney, but the feature has also been found in the accent of many middle class London residents. In his study about changes in Cockney English, Nødtvedt (2011, 57) finds that L vocalisation is more abundant in the speech of adolescents than adult speakers of Cockney. The study uses 14 participants, both male and female, and adolescents as well as adults. A total number of 30 tokens is collected with each participant, resulting in a total of 420 tokens. The results show that in the speech of the adult participants, on average 67% of tokens are vocalised, while the adolescents on average vocalise 82% of tokens (Nødtvedt, 2011, 57). The high number of vocalisations among adults shows that it has already been a well-established feature of Cockney for a few generations at least, but the fact that it is found more in the speech of the adolescent participants indicates that it is still spreading further. L vocalisation is likely spreading not so much to new speakers of Cockney, but to new environments in speech where L vocalisation was previously not found. The results also suggest that L vocalisation is used slightly more by females than males, both among the adult and adolescent participants (Nødtvedt, 2011, 59). This is expected, as females tend to be the drivers of linguistic change and linguistic innovations are often first used and spread among the female speakers of a population.

2.5.4 Multicultural London English

Multicultural London English (MLE) is an accent that has been on the radar of researchers more and more in recent years. As urban areas become more multicultural, the accents of these areas are influenced by speakers with different linguistic backgrounds, the results of which can be found especially among younger speakers in many larger cities across Europe (Chesire et al., 2011). Where Estuary English was a popular research topic, MLE now appears to be taking over. MLE is slowly replacing Cockney, and while it does share some features with Cockney, there are also aspects in which the accents clearly diverge. While H dropping, where /h/ is dropped from the beginning of words as in *house* /ˈaʊs/, is a prominent feature of Cockney, in MLE we see a reversal of this, as word-initial /h/ is

pronounced. Another feature which Cockney is known for is TH fronting, and this is also found in MLE. However, we see another feature come in here, namely TH stopping, which happens when /θ, ð/ turn into /t, d/, resulting in words like *thing* and *this* being pronounces as /tɪŋ/ and /dɪs/, respectively. As in Cockney, L vocalisation is a prominent feature of MLE.

2.5.5 Fenlands

The Fenlands, also known as the Fens, is an area in the East of England and East Midlands. In their study on L vocalisation as a natural feature, Johnson and Britain (2007, 295) explore the emergence and spread of L vocalisation in the Fenlands and find that is a fairly recent acquired feature of the Fenland dialect. Speakers on the Eastern side of the Fens were found to be less likely to have vocalised /l/ than speakers in other parts of the Fens. Furthermore, Fenland adolescents were found to have the highest levels of vocalisation, followed by people aged 20-30 and finally people aged 50-65 (Johnson & Britain, 2007, 308). This further suggests that L vocalisation is a newer language feature in the area, as younger speakers tend to be at the forefront of language changes. The study further shows that young speakers (aged 15-30) vocalise /l/ in around 80% of instances in West, Central and South Fens, but only in around 65% of instances in the East Fens (Norfolk), while older speakers (aged 50-65) vocalise /l/ in around 60% of instances in South Fens, 30% of instances in West and Central Fens, and only 10% of instances in East Fens (Johnson & Britain, 2007, 299). These results show that the feature either has not yet had time to spread to East Fens, or that the area may be more resistant to the adoption of the feature. It is likely a combination of these two factors, as later acquisition of dark /l/ can make an accent more resistant to the adoption of L vocalisation, but with time it probably will become a more prominent feature also in the East Fens.

2.5.6 Southampton

Another accent in which L vocalisation is found is that of Southampton, a port city in Southern England. Wallace (2007, 217), in her study of accent features in Southampton, has found that 78% of tokens were vocalised by speakers under the age of 30, 75% of tokens

were vocalised by speakers aged 30-59, and 46% of tokens were vocalised in speakers over 59 years old. This shows a significant difference in L vocalisation in speakers under 60 and those over 60 years old (Wallace, 2007, 218). This is a similar pattern as that found in the Fenland accents, where L vocalisation also occurs more frequently in the speech of younger people than in that of older people. Furthermore, the rates of vocalisation in different social classes in Southampton are considered and divided into class 1, 2, and 3, and L vocalisation is found to decrease slightly the higher the social class of the speaker, with class 3 vocalising 70% of tokens, class 2 vocalising 66% of tokens, and class 1 vocalising 65% of tokens. However, these differences are not statistically significant (Wallace, 2007, 219). This shows that L vocalisation is a well-established phonological feature in the Southampton accent, and it is likely not strongly associated with low prestige accents.

2.5.7 Manchester

L vocalisation is also found in Manchester, a city in North-West England, where /l/ is velarised in both onset and coda positions. Notably, here /l/ may also be vocalised in initial position (Hughes et al. 2012, 116). This is not the case for most accents of England, as there are not many accents that have dark /l/ also in syllable onset. The articulation of /l/ also tends more towards dark /l/ in Middlesbrough, but here it is rarely vocalised (Hughes et al. 2012, 120). The reason why it is rarely vocalised is likely that the articulation only leans more towards a dark /l/ and is not very velarised.

2.5.8 Northern England

There is a certain gradient that can be seen in the articulation of /l/ as one moves further towards the north of England. In the Fenlands and Cambridge, as well as Manchester, L vocalisation is found. In Liverpool, /l/ tends to be velarised (Hughes et al. 2012, 114). Moving northwards, Middlesbrough, /l/ tends towards the darker end of the spectrum but is still not fully velarised and only rarely vocalised. Accents in Cumbria and Northumberland then have clear /l/ in all environments.

2.5.9 Scotland

While L vocalisation certainly appears to be the most abundant in accents of Southern England, it can also be found in certain Scottish accents, such as Glaswegian and that of Aberdeen. In the Scottish Highlands, clear /l/ is most commonly found in all environments, while dark /l/ is usually found in all environments in the Lowlands (Trudgill, 2004, 80). Hughes et al. (2012, 132) note that L vocalisation is common in Aberdeen. How the feature has spread here may be more difficult to explain, as it has in a sense skipped over the accents of Northern England, in which L vocalisation is not found. On the other hand, it has been found to emerge independently in New Zealand, showing that there is a possibility that the same has happened in Scotland. However, Scotland is geographically close to accents that have an abundance of L vocalisation, and there is much language contact between Scotland and Southern English accents, not only directly through people travelling and moving, but also in the form of popular culture and media. Because of these factors, Scottish people are likely to regularly be exposed to accents that feature L vocalisation, making it possible for the feature to also spread into Scottish accents. Stuart-Smith (2013, 531) argues that TV shows such as *EastEnders* have accelerated the spreading of typical Cockney features such as L vocalisation. This goes against the points made Trudgill (1986, 40), who claims that TV is unlikely to have a significant effect on language change since it is a passive activity. However, as previously pointed out, the consumption of media has changed rapidly over the past decades and the time spent watching TV will have been higher in 2013 than in 1986. In addition, the types of media consumed through TV were likely different, and it is therefore not unthinkable that while TV did not have a significant effect on language change in the 1980s, it did so in the 2010s. In addition, people now have access to and consume many other forms of media with audio, ranging from podcasts to vlogs on YouTube and short-form video content on TikTok and Instagram. While these forms of media still represent passive consumption, these forms of media are particularly popular among teens and young adults, whose language development is still ongoing, and they may therefore be more likely to be influenced by media they consume.

2.6 L Vocalisation in the United States

Compared to the British Isles, there appears to be less dialectal variation in the United States, and there is also less variation in the articulation of /l/. Clear-dark /l/ allophony is found to have developed relatively recently in Great Britain, not being widespread until the middle of the 19th century, suggesting that the dark /l/ found in American English has developed independently (Johnson & Britain, 2007, 300). Although L vocalisation is not such a widespread or rapidly spreading feature as in Great Britain, it does exist in some accents of the United States. It is mentioned in particular in descriptions of some East Coast accents, such as New York and Pennsylvania. Wells (1982, 259) also writes about a variant of L vocalisation in the south of the United States, where a non-prevocalic /l/ can be changed into a velar lateral. In the following section, I explore in more depth what has been found about the articulation of /l/ in American English in previous studies.

Although one generally distinguishes between clear and dark /l/, these are not black-and-white categories, as there is a continuum of clearness and darkness between them. In their study of American English, Yuan and Liberman (2021, 41) measure the clearness and darkness of /l/ in different environments and find that /l/ is the darkest in word final position, between a stressed vowel and a consonant. This is followed by /l/ in word final position following a stressed vowel and preceding an unstressed vowel and /l/ following a stressed vowel and preceding an unstressed vowel, respectively. When /l/ is in word initial position preceding a stressed vowel, it is the clearest, and when it is in intervocalic position following and unstressed vowel and preceding a stressed vowel it is slightly less clear. This study shows that the environment of /l/ plays an important role in how velarised the articulation will be.

2.6.1 General American

General American is often considered to be the standard accent of the United States, in a sense being the American version of RP. Although there are suggestions of where the accent originates, generally accents in the North-East, it is no longer bound to a geographical area and tends to be associated with higher social class and a sign of a higher level of education. It is, however, not a homogeneous national standard accent. /l/ is generally velarized, making dark /l/ a prominent feature of the accent. There are also words in which L can be vocalised,

such as *palm* /paːm/. These tend to be words where /l/ is preceded by a back vowel and followed by a labial, something which I return to later. Schneider (2008, 48) notes that post-vocalic /l/ is increasingly vocalised by educated speakers in GA, except in juncture. It thus appears that, much like with RP, L vocalisation is beginning to find its way into the standard variety of English in the United States. It is, however, not yet widely documented.

2.6.2 Pennsylvania

Nevertheless, /l/ is generally relatively dark in all positions in English accents of the United States, and I will now go on to describe the articulation of /l/ in some accents that have been found to have L vocalisation, beginning with Pennsylvania, a state in the north-east of the US. Like in most British accents, /l/ tends to be vocalised as [o] but can also be realised as a velar or labio-velar glide [ɰ]. It can even be deleted altogether (Schneider, 2008, 79). What sets L vocalisation in Philadelphia apart from L vocalisation in most other English accents, is that it can also be vocalised in intervocalic position, usually when /l/ follows open vowels with primary word stress, such as in the name of the city itself (Ash, 1982; Schneider, 2008, 79). This agrees with the previous findings of linking /l/ not being a clear feature in the accent of Philadelphia. This feature makes Philadelphia English one of the more exceptional accents that features L vocalisation but does not necessarily use linking /l/. Gick (2002, 175) comments that intrusive /l/ is in fact found in Pennsylvania, with an example from York, which uses intrusive /l/ exclusively with peers who also use the feature, as it is a heavily socially marked feature and therefore very rarely found outside of personal settings. This use of intrusive /l/ suggests that it is considered to be an in-group marker and a part of covert prestige.

2.6.3 New York State

In New York, also in the North-East of the United States and a neighbouring state of Pennsylvania, L vocalisation is common and often found in non-prevocalic contexts (Schneider, 2008, 75). Hubbels (1972, 50-51) describes the different allophones found in the New York accent in more detail, distinguishing between three forms of clear /l/ and two

forms of dark /l/. However, there is no mention made of the vocalisation of /l/. The study used speech recordings from 30 primary informants, all but one of whom were monolingual English speakers and most of whom were native New Yorkers, and nine supplementary informants (Hubbels, 1972, 12, 133). Recordings were then made by letting participants read 365 test sentences, a story and speaking freely. These recordings were then transcribed by the author and notes were made on the articulation of sounds produced by the informants (Hubbels, 1972, 13). The study was first published in 1950 as the author's thesis. It is therefore quite possible that L vocalisation was uncommon in New York at the time the study was done, but the number of participants may also be a factor, as it is a relatively small number of people.

2.6.4 Southern Accents

In rural Southern white accents, L vocalisation can also be found, but like in Philadelphia, this is mostly deletion of the consonant and occurs before labials, except /b/, as in the words *help* [hɛp] and *twelve* [tʰwev] (Schneider, 2008, 107). Wells (1982, 550-551) notes that /l/ shows more variation in the Southern accents than those of the North and, like in RP, the deletion of /l/ is often stigmatised and associated with low social class. In the south, /l/ is also often found to be articulated as a velar, lateral approximant [ʟ]. This is mostly found following /ə/ and /ʊ/, such as in the words *middle* [ˈmɪdɻ] and *full* [fʟː] (Wells, 1982, 551). Urban Southern accents also see L vocalisation as a prominent feature. This has been preserved from traditional Southern accents, and it is often transcribed as the close-mid back unrounded vowel [ɤ], but it usually has some lip rounding (Tillery and Bailey, 2008, 125).

2.6.5 African American Vernacular English

African American Vernacular English (AAVE) is another variety in which L vocalisation is found, but unlike most accents discussed here, AAVE is not an accent tied to a geographical location, but rather associated with an ethnic group. I must note, though, that AAVE shares many phonetic features with accents of the Southern United States. There are different theories about the origin of AAVE, but Edwards (2008, 181-182) describes two main

possibilities: it may be influenced by a substratum of African languages spoken by slaves brought to America, or it may have features preserved from non-standard varieties of English spoken by the slaves' white owners. L vocalisation is found particularly among younger speakers of AAVE (Labov, 2003, 130). /l/ is generally vocalised in post-vocalic, pre-consonantal positions. It usually vocalised rather than deleted; however, deletion may occur after mid front vowels. Vocalisation mostly occurs following back vowels (Schneider, 2008, 186). It does appear to be the case in AAVE that /l/ is more often deleted than vocalised. In words like *told*, it may even be deleted in such a manner that both elements of the cluster are deleted, leaving a pronunciation like [tɔːʔ] (World Englishes, 2013, 145). When /l/ is not deleted, it may be realised as [ʊ], in which case it is vocalised in a similar manner as in British accents of English, or as [ʟ], as is seen in the South. Like AAVE, Afro-Bahamian also tends to vocalise /l/ in post-vocalic position (Schneider, 2008, 186). Intrusive /l/ has also been observed in AAVE in Raleigh, North Carolina (Gick, 2002, 176).

2.6.6 Other Accents of the United States

L vocalisation has also been observed in a few more English accents of the United States without much more detail about it being available. A study on laterals in accents of Kansas found that participants tend to vocalise /l/ following back vowels, such as in the words *pool* and *goal* (Strelluf, 2016). If we follow the process from L vocalisation to intrusive /l/ that was described above, an assumption can be made that accents that show intrusive /l/ also must feature L vocalisation. Gick (2002, 176) uses a map to show where intrusive /l/ has been observed, and from this we can assume that L vocalisation also exists in accents in the South-West, more specifically Oklahoma City and Dallas, Texas, in the Mid-Western region that is Southern Ohio, in addition to several accents in the North-East: Pennsylvania, New Jersey, Delaware, and Maryland. What is notable about intrusive /l/ in Oklahoma and Texas, is that it tends to follow /ə/, the same as is seen in intrusive /l/ found in Bristol (Gick, 2002, 177).

There is little to no mention of L vocalisation being found in the Western half of the United States in the literature, and a possible explanation for this may be that there has been more ongoing contact with England and its accents on the East Coast, which may have influenced the varieties of English found there. It is therefore unlikely that L vocalisation is a

prominent feature of accents in the Western United States. Furthermore, intrusive /l/ has not been reported by reliable sources any further west than Texas (Gick, 2002, 176).

2.7 Summary

This chapter has laid the theoretical foundation that the rest of this thesis will build upon. The articulation of /l/ and its allophones in English has been detailed, and L vocalisation has been defined. I have shown that rather than having two distinct allophones, /l/ finds itself along a spectrum varying from a very clear /l/ to a very velarised, dark /l/, after which it may make the transition to becoming vocalised when the speaker no longer touches the tip of their tongue to the palate. L vocalisation is likely only the beginning of a greater sequence of language change happening in English going from velarising and vocalising /l/ to /l/ becoming an intrusive consonant. I have also looked at how linguistic innovation will spread within a language.

The section about Great Britain has shown that a considerable amount of research has been done on the articulation of /l/ and L vocalisation in various accents of both England and Scotland. L vocalisation is already found in a major part of Great Britain and looks to still be spreading further to the accents in which it has not been established as a prominent feature. In the section about the United States, I have shown that despite L vocalisation not often being mentioned in the context of the United States, it is a common feature in a variety of accents, particularly along the East Coast of the country.

To understand more about how /l/ has changed over time, as well as how and where L vocalisation are thought to have developed, we will now have a look at historical records that describe how /l/ has been articulated in the English language over time.

3. Historical Background

Language is constantly changing, and when it comes to phonology, many changes happen in "waves", where a change may occur relatively fast, after which it persists in the language for a longer period of time. This is also the case with L vocalisation. In the previous chapter, a sound change was defined as a new phonetic or phonological phenomenon in a language. This modern wave of L vocalisation is indeed a more recent change in the English language, it is not the first time it occurs. In fact, a similar change occurred during the Early Modern English period, the results of which are still seen in the language today and are found in almost all accents of English across the world. In this chapter, I go through materials that have been written on historical change in the articulation of /l/. This will further expand the base for answering the research questions about how L vocalisation may have developed and spread in English.

3.1 History of the Articulation of /l/ in English

It can be difficult to determine the exact pronunciation of phonemes in earlier varieties of a language, but a lot of information can still be gathered by looking at the pronunciation of phonemes in other languages in the same language family and how the pronunciation of these has diverged. In addition, orthographic evidence can give information about the pronunciation of words, as I detail in 3.2 below.

By comparing /l/ in different Germanic languages, it has been found that Anglian possibly had a velarised /l/, which was then adopted by the West-Saxons of England through language contact (Smith, 2007, 4.6-4.7). Hogg and Denison (2006, 90) describe syllable-final /l/ as being velarised in West-Saxon. These descriptions of dark /l/ in Anglian and West-Saxon suggest that clear/dark /l/ allophony has existed in English since before the Old English period, albeit not necessarily consecutively.

Given this background about the pronunciation of /l/ in English historically, we can now look at historical L vocalisation in English, and we find here clear evidence of at least one prior wave of L vocalisation, during the Early Modern English period.

3.2 Early Wave of L Vocalisation

L vocalisation has occurred in English before, in the Early Modern English period, which lasted from the late 15th century to the mid-late 17th century. This wave has left a lasting change in the language, as many of the words in which /l/ previously was articulated still have a silent or vocalised /l/ to this day. Of course, there are no recordings of people's speech from this time available and we instead have to rely on orthographic evidence to determine whether L vocalisation occurred in certain words. During this time, the spelling of the English language was not yet fully standardized, and often scribes would write words closely to the way they were pronounced. This means that we can find spellings such as "haf" for *half* and "stauke" for *stalk* (Prins, 1972, 213). Another method we can use to find evidence for early L vocalisation is through rhyme in poetry. If two words are rhymed, and one of them contains an <l> in spelling while the other does not, this suggests that the /l/ was vocalised. An example of this would be the words *could* and *good* (Prins, 1972, 213). During this early wave of L vocalisation, /l/ has been lost in pronunciation in words like *talk, balm,* and *yolk,* while <l> has been retained in spelling. Jespersen (1909, 291 §10.41) describes this vocalisation as having occurred when /l/ has existed "between /au/ or /ɔ·u/ and /k/ or a labial consonant." He further explains that /l/ has been lost due to a reduction of stress in words like *would* and *should,* as they have become weak verb forms (Jespersen, 1909, 293 §10.453). Notably, <l> has been retained in writing despite being vocalised in speech in most accents. A similar process has been observed in other Germanic languages around the same time, such as Dutch and German, but also in languages of other language families, such as the Slavic language Slovene and the Uralic language Veps. It is, in other words, not a process exclusive to English, and can therefore be inferred to be a change that should be expected in given linguistic environments. As we have previously established, dark /l/ is required for L vocalisation to occur, but a language having dark /l/ does not mean that it will necessarily undergo L vocalisation.

As shown here, stress has previously been a factor in the vocalisation and loss of /l/ in certain words, and it is possible that this also plays a role in the vocalisation of /l/ in English today. In English, as with many other Germanic languages, stress falls mostly on the beginning of a syllable, meaning that the dark /l/, which tends to find itself in the syllable coda, receives little stress. Due to /l/ being a relatively marked phoneme, it requires more

effort to produce, and therefore the speaker may opt for a vowel that is acoustically very similar to dark /l/ but requires considerably less effort to produce.

3.3 Modern L Vocalisation

This historical wave of L vocalisation should not be confused with modern L vocalisation, as they are not connected. Wells (1982, 259) describes the feature to likely be less than a century old in London accents. However, at the time of writing this thesis, 40 years have passed since the publication of this book and it will now be more than a century old, as is supported by Kjederqvist (1903, 107-110), who described the feature in the accent of Pewsey, in the South-West of England, as early as 1903. This is the first recorded observation of L vocalisation in England. Kjederqvist (1903, 107) notes that "M.E. [Middle English] *l* has either remained or become *o* in Pewsey" and suggests that it is indeed dark /l/ in the accents that has vocalised. An earlier study of phonetic features in accents of England was done by Ellis (1889), detailing the accents as they were in the second half of the 19th century. Here, only one symbol is used to describe /l/, while several different variations of /r/ are used, suggesting that there was relatively little variation in the articulation of /l/ in accents of England at the time (Ellis, 1889). *The Linguistic Atlas of England* then shows that dark /l/ has spread across the southern half of England by the 1960s, and L vocalisation was already observed in Surrey, Sussex, Essex, and Oxfordshire (Johnson & Britain, 2007, 300). *The Linguistic Atlas of England* is one of the most comprehensive accounts of dialectal features in England. The data for this atlas is based on a questionnaire with over 1300 questions meant to elicit information about lexical, phonological, morphological, and syntactic features of dialects across England. The collection of data was done by field workers, who were instructed to seek out elderly participants in smaller, agricultural villages, preferably no more than 15 miles apart. The participants had to be native of the place and preferably also have parents who were native there. As the survey took around 18 hours to complete, it was generally done using multiple participants, and the final collection hosted over 404,000 items of information (Orton et al. 1978). The data collected for the atlas has been analysed and presented in the form of maps that show the distribution of each feature and includes several maps that show the pronunciation of /l/ in different environments, such as in the words *tail* and *uncle* (Orton et al. 1978, Ph165b, Ph246). The general pattern appears to be that Southern

England has dark /l/ in syllable-final position, while Northern England has a clear /l/ in that same environment. L vocalisation is found in Kent, the London area, and the area around Swindon, which is west of London (Orton et al. 1978). This pattern can be observed in figure 6 below, which shows the pronunciation of /l/ in the word *weasel* in England. This map further supports the observations made by Kjederqvist (1903) about L vocalisation being found in the Pewsey accent relatively early.

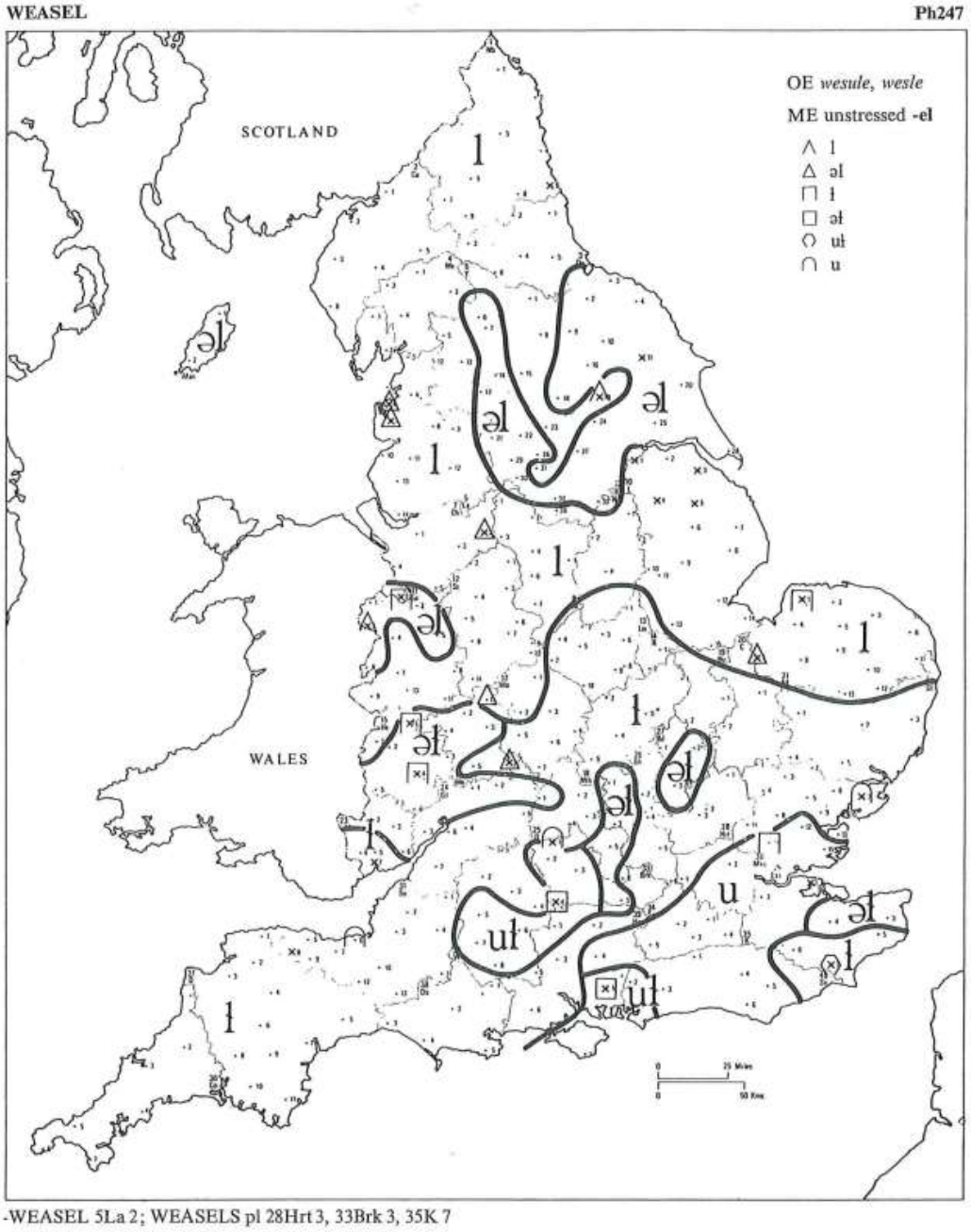

Figure 6. Map depicting the pronunciation of /l/ in the word "weasel" in England (Orton et al. 1978, Ph247).

One of the first people to describe L vocalisation in England more thoroughly is Jones (1956, 91 §298), who wrote about dark /l/ being vocalised in accents of London. He goes on to explain that it is not only the articulation of the /l/ that is affected by the darkness or vocalisation of /l/, but also the articulation of the vowels preceding /l/ are affected, such as the /iː/ in the word *field* is replaced by an opener /i/, resulting in the pronunciation /fiɬd/ or /fiod/ (Jones, 1959, 192 §299).

In 2.2, I talk about the process from the development of L vocalisation to intrusive /l/. In England, this process of hypercorrection can also be found. This is particularly notable in the Bristol accent, which tends to add /l/ to words ending in a vowel, particularly /ə/, making words like *Eva* /ˈiːvəl/ and *evil* homophones (Hughes et al. 2012, 87). The place name itself, Bristol, is an example of this hypercorrection. The name comes from the Old English place name *Brycgstow, Bridgestow* in Middle English, meaning "assembly place by a bridge" (Online Etymology Dictionary). This overcompensation can be explained by the accents of the area tending to drop /l/ following /ə/, and people being taught that there should at times be /l/ in such contexts, but as a result insert /l/ following /ə/ in words where there in spelling is no <l> (Jones, 1956, 93 §307-308). This usually happens regardless of what follows. A similar type of "intrusive" /l/ has also been reported in southern Pennsylvania (Hughes et al. 2012, 87). Kijak (2010, 407) states that intrusive /l/ is a wide-spread feature in the Northeast of the United States, suggesting that it is found also beyond Southern Pennsylvania. The study finds that intrusive /l/ is mostly found following the mid-back vowel /ɔː/, but there are also instances in which it occurs following other non-high vowels, such as /ə, ɑː/ (Kijak, 2010, 408).

A more well-known form of intrusion is intrusive /r/, a wide-spread feature in non-rhotic accents. Linking /r/ is also closely related to this. Intrusive /r/ occurs when one syllable ends in a vowel and the following syllable begins with a vowel. To then separate the two vowels, /r/ can be inserted between the two, as in the word *drawing* /dɹɔːɹɪŋ/. Linking /r/ generally occurs when <r> at the end of a word that would not be pronounced if the word is said by itself is pronounced because it is followed by a word starting with a vowel, but this also happens intervocalically within a word. One can then ask why the liquids are more prone to be linking and intrusive consonants than the approximants /j, w/. This is debatable, as some argue that the approximants /j, w/ are also used as intrusive consonants in words and phrases like chaos /keijəz/ and *to eat* /tʊw iːt/. Others, however, will disagree about the presence of

these approximants in such environments. In any case, linking and intrusive liquids tend to be more noticeable as they are more marked sounds than /j, w/.

There are some differences between Early Modern English L vocalisation and Modern L vocalisation that should be highlighted. The first is that Modern English L vocalisation appears to occur in a much wider range of environments than Early Modern English L vocalisation. While the early wave is found to be limited to the position between /au/ or /ɔ·u/ and /k/ or a labial consonant, Modern L vocalisation is found in a pre-consonantal and pre-pausal context regardless of the phonemes surrounding it. In addition, there are no clear indications of any further processes related to L vocalisation taking place during Early Modern English L vocalisation, such as linking or even intrusion.

3.4 Development of L Vocalisation in the United States

A considerable amount has been written about laterals in Great Britain throughout history, describing them and how they have changed over time. Much less has been written about laterals in Northern American accents, and there are few historical records of historical American English. There may be several factors for why this is the case.

The United States differs from Great Britain in several ways. As the world's 4th biggest country in terms of area, distances between places are significantly greater. This could potentially result in great differences in accents within the nation, but this is where the second point comes in: English has existed in the United States for much shorter than in Great Britain. This means that the different accents have had considerably less time to develop and diverge. While accents in Great Britain have had over a millennium to develop their own special features, English in the United States has only had around five centuries to develop, and likely less than that, as people were not spread across the country from the very beginning. The United States is also more ethnically and culturally diverse than Great Britain, meaning that there is more influence from other languages and cultures on English in the US.

English had already undergone the first wave of L vocalisation by the time settlers arrived in the United States, leaving /l/ vocalised in words like *talk* and *yolk*, as in accents of Great Britain. L vocalisation is also commonly found in a pre-labial position such as in the

word *calm* /kaːm/, which may also be a result of pre-labial vocalisation found in Early Modern English L vocalisation. The modern wave, however, had not yet started, and as it appears, clear-dark /l/ allophony did not develop until the 19th century either. Based on this evidence we can assume that the English that was first was spoken by settlers in the United States only had clear /l/. This means that L vocalisation in the United States likely has developed independently of that from Great Britain, just like in New Zealand.

Looking at how the articulation of /l/ has evolved over time shows that it is a sound prone to change, not only in English, but in many languages. It has gone through different stages in the past and will likely continue to do so in the future. As two clear cycles of L vocalisation have been recorded in the past, it is not impossible that it will happen again in the future.

3.5 Summary

In this chapter, I have given more historical background about both the articulation of /l/ in English and L vocalisation in the Early Modern English period. As discussed here, the remnants of this earlier wave of L vocalisation can still be found in English today, both in Great Britain and the United States. The reason why this is also found in the United States is because it took place before England colonised North America, and the settlers therefore brought this early L vocalisation with them in their accents.

4. Methods and Corpus

In this chapter, I explain the methods used to collect the data on which the empirical part of this thesis is based. This thesis looks at L vocalisation in both Great Britain and the United States, but since much has been written about the phenomenon in Great Britain already, data for L vocalisation in Great Britain will be based on the English Dialects app (Leeman et al., 2018), whereas the section about the United States will be based on data collected from recordings from the International Dialects of English Archive.

4.1 The English Dialects App

Data for L vocalisation in Great Britain has mainly been collected from previous data, which explore different aspects of L vocalisation in Great Britain, both diachronically and geographically, describing how the realisation of /l/ has changed over time in different accents. This allows the analysis of how L vocalisation may have spread across accents of Great Britain. In addition to previous data, the English Dialects app has been used, which is a phone application that collects data based on crowdsourcing (Leeman et al., 2018). This app is meant to collect data about 26 different dialect features, ranging from the pronunciation of certain vowels to the use of intrusive /r/, and L vocalisation. Although 73% of the features checked for in the app are phonological, there are also morphological, lexical, and syntactic features. Users are presented with a quiz where they choose which option fits their pronunciation the best. At the end of the quiz, they are presented with three locations in which the app predicts where the accent in question is from, and the user chooses whether this is correct or not. The data collected through this app is presented in the form of heat maps, where users can see in which areas of the British Isles the different variations are the most prominent. As the app's data collection is based on crowdsourcing, it is subject to change, and therefore screenshots have been taken of the maps, on which the analysis in this thesis is based. This also prevents issues with access to the app from interfering with the progress of the thesis.

For L vocalisation the example word *shelf* is used, and three possible pronunciations of the word are presented: "shelf [l]", "shelf [ɬ]", and "shelf [u], [ʊ]". It thus checks for clear

/l/, dark /l/, and vocalised /l/ in a syllable-final V/l/C environment. It is important to note here that it only checks for one specific environment though: between a close front unrounded vowel and a labio-dental fricative. While it certainly gives an indication of where L vocalisation may be found in Great Britain, there is a limit to the detail that can be recorded this way. But it is understandable considering the nature of the app that there has to be a balance between the amount of detail recorded and making the questionnaire short enough to collect data from more participants.

4.2 The International Dialects of English Archive

For the section on L vocalisation in the United States I have decided to use recordings from a corpus to analyse the articulation of /l/ from different accents. I use sample recordings from *The International Dialects of English Archive* (IDEA), of seven participants to analyse the articulation of /l/ in different contexts. IDEA is a corpus containing recordings of people from different countries across the whole world speaking English. It was founded in 1998 by Paul Meier, professor emeritus at the University of Kansas and a leading figure in the world of stage dialects (dialectsarchive.com). As of January 2021, it had 1570 traditional recordings, representing around 100 different countries of the world. It is a free resource made available for research, and samples can be submitted both by people doing field research and by individuals who record their own accent. The reason for choosing recordings from this archive is that it provides detailed information about the participants, such as their gender, ethnicity, age, level of education and other influences on their accents, making it easier to control for variables. The recordings are grouped by area, and it is the area in which the participant spent most of their formative years which decides where a recording will be listed. Along with the recordings also comes an orthographic transcription, which makes it easier to identify possible environment for L vocalisation to occur. Lastly, all recordings include a standardized text which is read aloud by the participants, making it easier to directly compare the pronunciation of certain words and sounds. Two standard texts are used in the recordings in this archive, but I have chosen to only use recordings that use the more recent text, called "Comma Gets a Cure." This text uses J.C. Wells' lexical sets. These lexical sets are a list of 24 sets of English words that are grouped together based on their common vowel. The lexical sets are designed to make it easier to compare phonetic systems in a clear and organised manner. While some of the recordings do come with a narrow phonetic transcription, the

number of these for accents from the United States is limited and I have therefore chosen to make my own transcription of the recordings.

Now, before continuing, some strengths and weaknesses of using recordings must be highlighted. The first is the fact that the participants know that they are being recorded, meaning that they likely make adjustments to their speech, consciously of subconsciously. As mentioned, the recordings in IDEA consist of two parts: a text that is read out loud and a free speech section. When people read a text out loud, they tend to be more careful with pronunciation and enunciate words more clearly. Therefore, using a recording where participants read a standardized text only, would likely not yield the same results as a recording of their free speech. Because the recordings in IDEA have both a part that is read out loud by participants and a part of free speech, we can compare how the same words compare across different accents. In addition, these two forms of recorded speech make it possible to see presence or absence of L vocalisation in the participants' free speech.

I have chosen to use seven recordings for this study because the United States is a large country, so to get recordings that are more spread out I use recordings from different dialect regions based on the dialect map of the United States by Robert Delaney (2013) as shown in figure 7 below. This divides the United States accents into three main categories: general Northern (blue), Midland (purple), and general Southern (red), which are then each divided into several subcategories. General Northern covers the largest area geographically, so I have chosen three recordings from here, and two each from the Midland and general Southern regions. I have attempted to cover an area as large as possible in each region by picking recordings by participants living relatively far apart in the respective regions. The availability of recordings done by participants within the limitations of variables that are explained above has still been a slightly limiting factor in choosing the states from which participants are. Two participants are from neighbouring states: New York and Pennsylvania, but I have chosen to still use these based on two main factors. The first is that L vocalisation has been described to be widely present in the accents of these two states, and the second is that these exist in different accent regions on the map. This means that if L vocalisation is found in the recordings of these speakers, there is potential to compare L vocalisation in two accents that are geographically close but still categorised in two different accent regions.

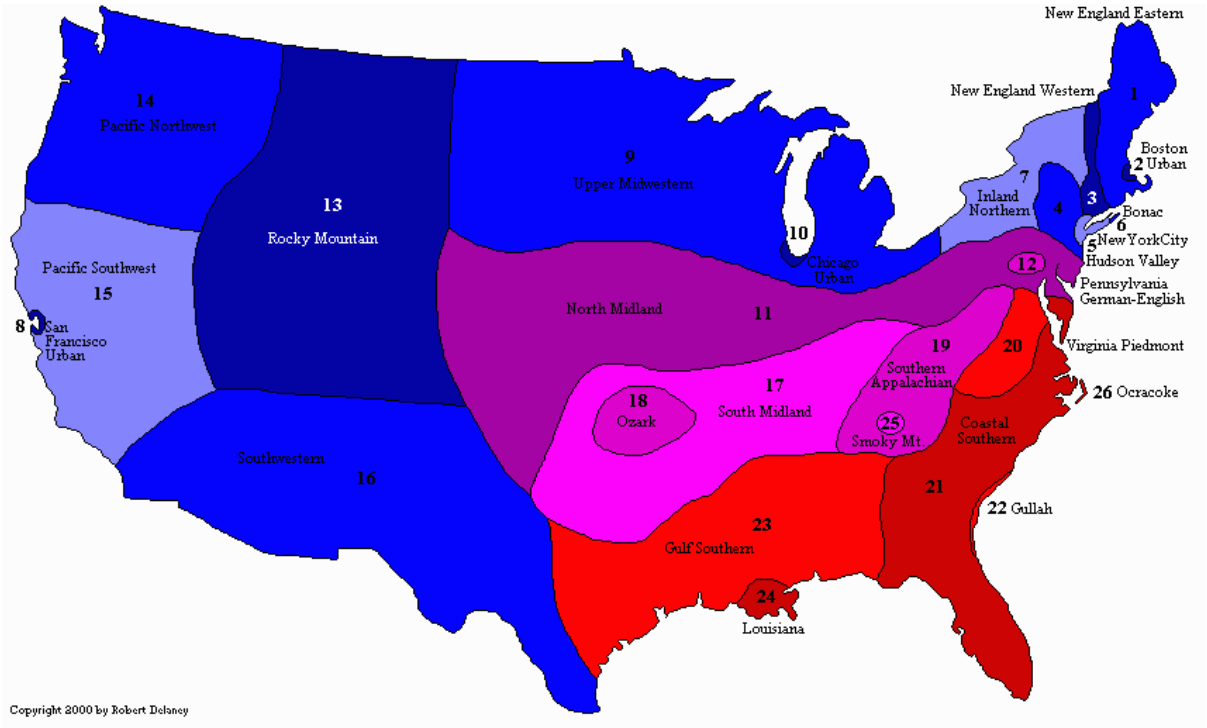

Figure 7. Dialect map of the United States (Delaney, 2013).

A challenge of doing a phonetic transcription is that it can be difficult to hear the difference between a velarized /l/ and a vocalised /l/. While the physical distinction between the two is clear – in a velarized /l/ the tip of the tongue touches the palate, while in a vocalised /l/ the tip of the tongue is dropped down from the palate – auditorily the distinction is minute. It takes professional phoneticians years of training to hear all the minor differences between sounds. IDEA does have a smaller collection of recordings of which a narrow phonetic transcription has already been made, but the selection of this was too small to use for this thesis, and I have thus opted for making the phonetic transcription myself. As the recordings are all of newer date, the sound quality is relatively good, making this process of transcribing considerably easier. The downside of the recordings all being newer is that it does not provide diachronic data, as we have for the section about Great Britain. The limited amount of literature about L vocalisation in the United States does not provide much insight into the development of the feature either, as most of this literature is also of a newer date.

Using the recordings and orthographic transcriptions, I have identified possible environments in which L vocalisation may occur. After identifying these environments, I have transcribed them in a narrow phonetic transcription, meaning that attention is paid to minor differences in sounds which often are marked with diacritics. The parts of the

recordings in which L vocalisation cannot occur are not relevant to this study and have therefore not been transcribed. Using these transcriptions, it has then been possible to make comparisons between the recordings, in particular for the section *Comma gets a Cure*, as this is the same for all recordings and thus shows variations in pronunciation of the same words and phrases. Although L vocalisation generally is found in a pre-consonantal or pre-pausal environment, word final, intervocalic environments have been included for the reason that in Philadelphia intervocalic L vocalisation can occur, and thus such environments have been included in the reading part of all recordings. However, the only cases where intervocalic /l/ has been included is if /l/ is in word-final non-pre-pausal position and the following word begins with a vowel.

In addition to investigating how frequently each participant vocalises /l/, different environments in which /l/ is vocalised have been identified to understand better when L vocalisation is most likely to occur. Due to the scope of this thesis, I have decided to only focus on the realisation of /l/ in syllable final position. The environments are therefore based on the consonant, or lack thereof, following /l/. The vowel preceding it has not been considered due to the limited scope of this thesis, despite the preceding vowel likely having an effect on the articulation of /l/. In total, 12 environments have been identified, although some of these overlap, as type of articulation and place of articulation are listed separately. The list of environments is as follows: pre-pausal, syllabic, pre-dorsal, pre-coronal, pre-labial, pre-plosive, pre-fricative, pre-nasal, pre-approximant, inter-vocalic, pre-trill, and pre-affricate. For example, if /l/ precedes the phoneme /k/, it will fall under the categories pre-dorsal and pre-plosive, while /l/ preceding /m/ will fall under the categories pre-labial and pre-nasal. Understanding where L vocalisation is most likely to occur can not only give insight into which environments may elicit L vocalisation more than others, but also in differences between accents when it comes to environments in which /l/ preferably is vocalised.

4.2.1 Participants

In this section, I present how I have chosen the participants that are used in this study, as well as some general information about each participant that is relevant for their linguistic background. First, however, I discuss some of the variables and how they relate to the choice of participants. To limit variables, I have chosen to use recordings from females born after

1980, and those who are reported to have had the least influence of external accents. Females are generally found to be at the forefront of linguistic change. Apart from one, all participants are Caucasian, as this will eliminate as many variables as possible of accent features being related to ethnic background. The only non-Caucasian is the participant from Louisiana, who is of African American descent. However, as explained above, AAVE has many features in common with accents of the Southern United States, which is the reason why I have accepted this for Louisiana. All participants have also lived in the place of the recording for the majority of their lives, with parents from the same region. The reason why this study only uses participants born after 1980 is that this means that participants to a great extent have grown up with access to the Internet. Choosing participants born earlier would have been an option, but by choosing younger participants, more recent phonological features may be found in their speech. Picking only participants born after 1980 also limits the variable of age, as the participants acquired their language and linguistic features around the same time. Apart from one participant, who is born in the 90s, all are born in the 80s. Because I only have one recording from each participant, the data will be cross-sectional, meaning that it shows the speech of the participants at one given point in time.

The first recording is from New York, which is labelled a Northern Inland accent. As discussed above, L vocalisation has been recorded in the New York accent. I have used the recording *New York 15*, featuring a 25-year-old, Caucasian female, born in 1983. The participant was born in Virginia, but has since lived in in Buffalo, New York. The participant is at the time of the recording pursuing a bachelors' degree in theatre, which may have some influence on her speech, such as articulating more clearly.

The second recording is from North Dakota, classified as an upper Midwestern accent. The recording used is *North Dakota 1*, featuring a 20-year-old female born in 1982. The participant's ethnic background is not specified, but in the recording, she mentions that she is of Irish descent. The participant moved to Kansas at the age 18 and is living there at the time of recording and studies theatre.

The third recording is from California, of which the accent is labelled as a Pacific Southwestern accent. I have not found any mention in previous literature of L vocalisation being a feature of this accent. For this I use the recording *California 4*, featuring a 24-year-old, Caucasian female born in 1981. The participant was born in Indiana, and has lived in

Northern California, Boston, Massachusetts, and Indianapolis before moving to Southern California at the age of eight. Her level of education is not specified.

The fourth recording is from Missouri, which is labelled as a South Midland accent. The recording used here is *Missouri 21*. It features a 27-year-old Caucasian female born in 1981. Education and other influences on speech have not been specified, but the description does list the participant's occupation as "student", suggesting that the participant is taking some sort of higher education.

The fifth recording is from Pennsylvania, which is labelled as a North Midland accent. As discussed above, L vocalisation is found to be a common feature in Pennsylvania. The recording used is *Pennsylvania 12*. The participant is a 20-year-old Caucasian born in 1998, and has grown up in Pittsburgh, Pennsylvania. At the time of recording, the participant has lived in Milwaukee, Wisconsin for two academic years. Although the participant is around the same age at the time of recording as the other participants, she is born considerably later, meaning that there may be some more recent features in her accent than a participant born in the 1980s would have.

The sixth recording is from Louisiana and is labelled a Gulf Southern accent. The recording used is *Louisiana 3*. The participant is a 20-year-old African American born in 1985 and is studying nursing at the time of recording. L vocalisation and L deletion has been found in Southern accents and in AAVE, which likely has had influence on the accent of the participant, as she is African American. This is not ideal, as this participant diverges from the other participants in ethnic background, but as discussed, south-eastern accents of the United States share many similarities with AAVE, reducing the difference between the participant's ethnolect and the local accent.

The last recording is from Florida, which is labelled a Coastal Southern accent. The recording used is *Florida 5*. The participant is a 20-year-old Caucasian female born in 1987. The participant has lived in South Florida her whole life and is at the time of recording studying public communications in university. The scholarly commentary on IDEA also deems the participant's accent to be quite a reliable reflection of the accent of the region. While Florida is also a Southern state, the area has seen linguistic influence from other languages, such as Spanish, as well as Northern accents due to large groups of people migrating from Northern states to Florida.

The standard text “Comma gets a Cure” contains 15 possible environments in which L vocalisation may occur. Within this is included the word *palm*, in which the L is generally vocalised in GA, possibly due to the Early Modern English L vocalisation, but since it does not necessarily have to be in different accents, it has been included here. The tokens may be either words or phrases, depending on whether /l/ occurs in syllable coda within a word, such as *childhood*, or in syllable and word final position such as *bowl of*, as well as if this word occurs at the end of a word group.

4.3 Summary

In this chapter, I have presented the methods that I use to collect data for this thesis. The resources and participants have been described. In addition, I have presented how I use these resources to collect the data to conduct my research and why I have made the choices that I have. This concludes the methods chapter, and I am now moving on to present the data that I have collected.

5. Data

In this chapter, I present the data that has been collected and discuss what can be found in this data. Both the findings from the Dialects of English app and the recordings from IDEA will be presented in detail. Furthermore, I explore in more detail where L vocalisation may have first developed in Great Britain and how it has subsequently spread, and the distribution of L vocalisation in the United States based on the seven recordings from the corpus.

5.1 Great Britain

I first present the data for accents of Great Britain, which is found in the English Dialects app. The screenshots and data are presented in the order of *shelf* [l], *shelf* [dark l], and *shelf* [vocalised l] to show them in the order in which the change from clear /l/ to L vocalisation occurs.

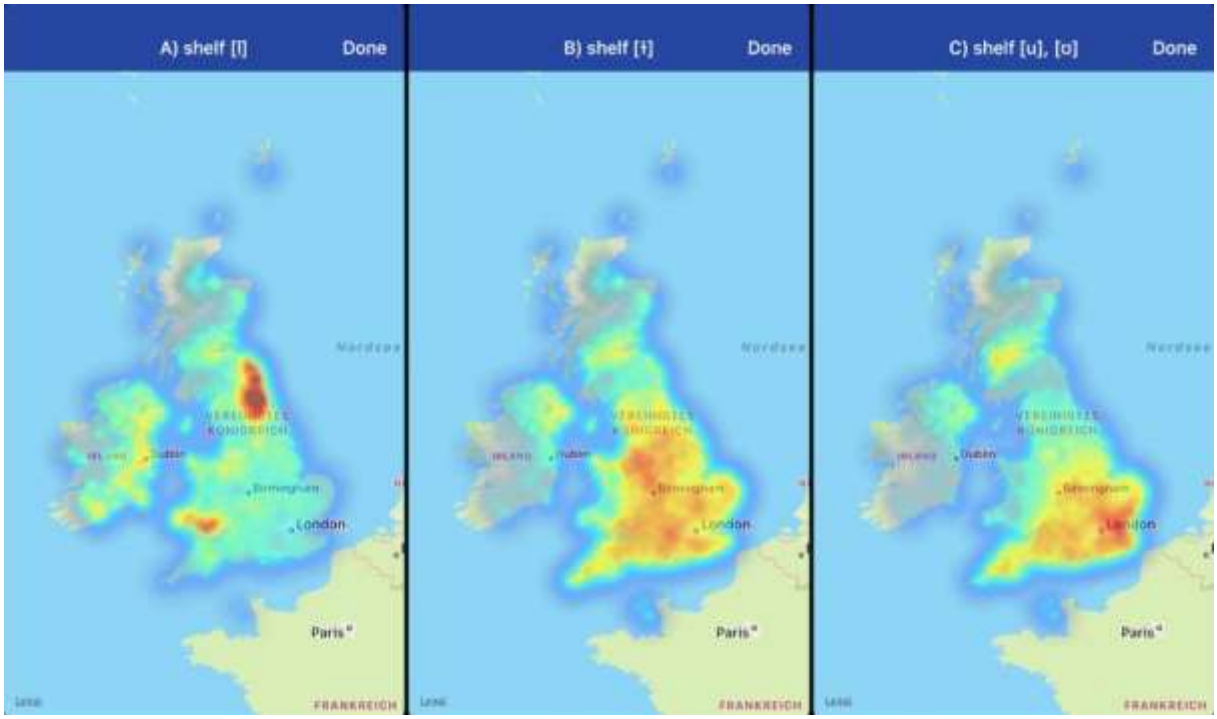

Figure 8. Dialects of English app map showing distribution of clear /l/, dark /l/, and vocalised /l/ in the word shelf in the United Kingdom and Ireland [Date accessed: 12.06.2022].

Figure 8 shows the three maps taken from the Dialects of English app. The first map shows the distribution of clear /l/ in the word *shelf*, the second map shows the distribution of dark /l/ in the word *shelf*, and the third map shows the distribution of vocalised /l/ in the word *shelf* in the United Kingdom.

Map 1 shows the map for *shelf* [clear l], showing at least some use in most of Great Britain, but there is a clear abundance in the North-East, as well as in Southern Wales. It appears to be used only little in Southern England, and barely, if at all, in Cornwall, Kent, and the coastal regions of Norfolk and Suffolk.

Map 2 shows the map for *shelf* [dark l]. It shows a rather even, high abundance in all of southern England, relatively little in Northern England and Southern Scotland, but there is an increase in use in the area around Edinburgh. In Wales, it is also used less, similar to Northern England.

The map for *shelf* [vocalised l] shows the highest use of vocalised /l/ in the word *shelf* in the area of London, from where it gradually becomes less common. It is virtually not found at all in Wales, and sparingly in Southern Scotland. However, there is a clear increase in its use in the area of Edinburgh and Glasgow. That it is the most abundant in the area of London and fans out from there also supports the idea that L vocalisation may have originated in London and spread to other accents through geographical diffusion.

These results show much of the same as what has been found in previous research done on L vocalisation in Great Britain. They also show that, although not used to the same extent as in Southern England, dark /l/ and L vocalisation do occur in Northern England. This suggests that also in Northern England there may be a shift towards velarisation of /l/ in syllable final position. In Scotland, it appears that only the accents the area around Glasgow and Edinburgh are currently subject to this change. Both dark /l/ and vocalised /l/ appear prominent also in the area of Bristol, which is the only known area in Great Britain featuring wide-spread intrusive /l/. The results found in these maps also closely correlates to what is found in the *Linguistic Atlas of England*, with vocalised and dark /l/ being found more abundantly in Southern England and the Midlands, while in Northern England, /l/ tends to be clear.

5.2 United States

This section looks at the data collected from the recordings of accents of the United States, exploring how often the different accents vocalise /l/ and in which environments L vocalisation tends to occur most frequently.

Table 1: Total number of tokens and number and percentage of vocalised tokens in recordings.

	New York 15	North Dakota 1	California 4	Missouri 21	Pennsylvania 12	Louisiana 3	Florida 5
Possible occ.	32	32	32	28	39	35	26
Vocalisations	7	15	6	2	16	21	5
Percentage	21.8	46.9	18.8	7.1	41.0	60.0	19.2

Table 1 shows the total number of tokens in each recording, as well as the number of tokens that are vocalised by each participant and the percentage of vocalisations in each recording. As shown in table 1, all participants vocalise at least a few of the tokens, but some significantly more than others. The participant with the least vocalisations is Missouri 21, who only vocalises 7.1% of tokens. Louisiana 3 is the only participant with more than 50% of tokens vocalised, although arguably some instances would fall under deletion rather than vocalisation, such as [wəʔ] for *well* in the spontaneous speech. As discussed above, L deletion is commonly found in southern and AAVE accents, so it is not unexpected that it also is found in the recording.

L vocalisation is rarely if at all, mentioned in the context of California, and indeed the recording generally shows dark /l/ in the tokens, with the tip of the tongue clearly being in contact with the alveolar ridge. However, a few of the tokens are still vocalised, namely *palm*, *always* and *almost*, as well as the words *golf* and *golfing*. It may be the case that these vocalisations are merely an idiosyncrasy of the participant, but it is also possible that L vocalisation is not a prominent feature of the particular accent, and therefore does not receive much attention compared to other, more prominent features. In the words *palm*, *always*, and *almost*, the /l/ tends to be vocalised also in GA, so the most notable vocalisation

for California 4 is *golf(ing)*. As previously mentioned, the vocalisations in *palm* and *almost* may be a remnant of the Early Modern English L vocalisation.

Louisiana 3 is the participant with the greatest number of /l/ not being articulated. Many of the instances are vocalisations, but as opposed to the other participants, several tokens also feature /l/ deletion, rather than true vocalisation, such as in the words *school* /ˈskuː/ and *well* /wəʔ/. The deletion in *well* /wəʔ/ agrees with the findings from *World Englishes* that L deletion is more likely to occur after mid front vowels (Schneider, 2008, 186). While the deletion in *school* /ˈskuː/ seemingly contradicts this, it is possible that the nature of the close back rounded vowel is close enough to a mid-close rounded vowel and therefore does not require a glide, making /l/ appear deleted rather than vocalised. Vocalisation in word-final position also tends to be rounded /o/, such as in the words *animal* /ˈænɪmo/ and *neo-natal* /ˈnioˌneɪɾəo/. This recording shows that both L vocalisation and L deletion are features in the accent of Louisiana, as well as AAVE, as has previously been described.

New York 15 vocalises 7 tokens, making up 21.8% of the total number of tokens. Two of these words are *palm* and *balmy*, which tend to be vocalised even in GA. One notable vocalisation is in *tell you* [ˈtʰɛɯ.ˌjʊ], where /l/ is vocalised as the close back unrounded vowel /ɯ/. Vocalised /l/ is commonly seen more in the range of mid to close mid, and the reason why the participant uses a close back vowel in this environment may be the /j/ that follows. /j/ is a palatal approximant, meaning that the tongue is raised towards palate, and by using a close back vowel before it, the tongue has to make less adjustments to go from the vowel position to that of the following consonant. This in nonetheless and interesting observation, as in British English, /l/ is often clear before /j/ and a clear /l/ before /j/ can be observed in older speakers of the New York accent, such as former president Donald Trump and physicist Richard Feynman.

As discussed above, the Pennsylvania accent is also known to have L vocalisation, and the recording for Pennsylvania 12 indeed shows that L vocalisation can be found here, with 41.0% of tokens being vocalised. Most of the vocalisations are the close-mid back rounded vowel /o/, as can be seen in words like *typical* [ˈtʰɪpʰɪkʰəo] and *middle* [ˈmɪɾo]. In other words, the preceding vowel is simply lengthened, as in the words *palm* [ˈpaːm] and *always* [ˈaːweɪz], or in the word *able to* [eɪbə.ɾə], where the vocalisation is a /ə/. It is only very short, connecting the two words.

A more surprising result can be found in the data from North Dakota 1, who vocalises 46.9% of tokens, being the second highest behind Louisiana 3. The accent of North Dakota is not specifically mentioned in the context of L vocalisation in previous research, and it does indeed not appear that much has been written on the accent of North Dakota at all. It is possible that this accent has been overlooked in accounts of L vocalisation in the United States, or perhaps that the number of vocalisations is a result of the participant's idiosyncrasies. More research of the accent of North Dakota would be required to determine this. While the other recordings mostly show /l/ being vocalised as /o/, North Dakota 1 features many instances of /l/ being vocalised as the close-mid back unrounded vowel /ɤ/.

Florida 5 vocalises five tokens, making up 19.2% of the total number of tokens. Two of these vocalisations are in the words *palm* and *almost*, which tend to also be vocalised in GA. These, including /l/ in the phrase *all the*, are vocalised by lengthening /a/. The final two vocalisations are in the words *animal* and *well*, where the vocalisation is a close-mid back rounded vowel, resulting in the pronunciations [ˈænɪmo] and [ˈwɛo], respectively.

Missouri 21 is the accent covered in this thesis with the least amount of vocalisation, vocalising only 7.1% of tokens. This constitutes only two out of the total number of tokens, these words being *palm* [ˈpʰaːm] and *almost* [ɑːmoʊst]. As mentioned above, /l/ is commonly vocalised in these words in GA. L vocalisation is therefore likely not very prominent in this accent. It appears that little has been written on accent features found in Missouri, if anything at all, and it is therefore difficult to determine if the results may be generalizable to this accent area. However, the fact that Missouri is not really mentioned in the context of L vocalisation in the United States makes it likely that L vocalisation is not a prominent feature here. On the other hand, it is mentioned that Missouri's neighbouring state Kansas features L vocalisation, but the extent to which it is found is unknown (Strelluf, 2016). This means that it is quite possible that L vocalisation is indeed present to a certain extent in Missouri as well, as can be seen in the speech of this participant.

As established, after L vocalisation occurs, linking /l/ can develop in an accent. This must happen after L vocalisation has already occurred, because otherwise it would simply be /l/ in an intervocalic environment. Linking /l/ is observed in the recordings, such as in the phrase *bowl of* [bɔʊɬəv] (Pennsylvania 12). Intrusive /l/ has not been observed in any of the recordings used in this thesis. However, there are instances of intervocalic /l/ being vocalised or deleted. This presence of linking /l/ and absence of intrusive /l/ suggests that the accent of

Pennsylvania has at least reached stage 5 in the process from L vocalisation to intrusive /l/ as described by Gick (2002, 169). These occur at the end of a word where the following word begins with a vowel, without these words being split by a word boundary. Examples of this are *well off* [ˈwɛo.əf] and *school and* [ˈskuː.ən] (Pennsylvania 12, Louisiana 3). As shown here, both linking /l/ and the vocalisation of intervocalic /l/ can be found in Pennsylvania. This has been mentioned in the context of Pennsylvania and specifically Philadelphia before, and the findings in these recordings indeed agree with those findings (Gick, 2002)

5.2.1 Comma Gets a Cure

Comma Gets a Cure is the title of the standard text used in all newer recordings found on the IDEA website. This means that the same text is read by all seven participants, allowing direct comparisons of the same words and phrases to be made, which gives insight into how the different accents vary in terms of the articulation of /l/. I have identified 15 possible words and phrases in which L vocalisation may occur throughout this text. In the next section, I go through the tokens from this text and examine how the participants articulate /l/ in these tokens. I also make comparisons between vocalisations of the participants based on the tokens from *Comma Gets a Cure.*

The first word, *well*, is only vocalised by two of the participants, namely Louisiana 3 [ˈwɛɤ] and Florida 5 [ˈwɵ], although one can argue that /l/ has been deleted in the latter, rather than being vocalised. In the recording of Louisiana 3, /l/ is vocalised as an unrounded back vowel. The next two, *old* and *felt*, are not vocalised by any of the participants. The same goes for the phrase *bowl of*, in which case the /l/ acts as a sort of linking /l/, connecting the two words and thus making it easier to distinguish between them than it would have been if /l/ was vocalised and only the labio-velar approximant /w/ connected the two words. *Herself* is vocalised only by North Dakota 1 [ˈhɜɪsɛɤf]. The next phrase, *official letter* is again not vocalised. In this case, the second word, *letter*, begins with /l/ and because /l/ is not really vocalised in syllable-initial position, the final /l/ in *official* merges with the /l/ in the beginning of the following word. The next word, *animal*, is the third most vocalised word in this part of the recordings, being vocalised by a total of four participants: New York 15 [ˈænəmo], North Dakota 1 [ˈænɪmɔo], Louisiana 3 [ˈænɪmo], and Florida 5 [ˈænɪmo]. Here, all four participants vocalise /l/ as a rounded back vowel. North Dakota 1 has a slight variation from the others however, as she has a slight glide, moving from the open-mid back

rounded vowel /ɔ/ to the close-mid back rounded vowel /o/. The word *sentimental* is vocalised only by Louisiana 3 [ˈsɛnəˌmɛno], like the previous word, as a close-mid back rounded vowel. *Feel* is also vocalised by only one participant, North Dakota 1 [ˈfɤ], and like in the word *herself*, /l/ is vocalised as the close-mid back unrounded vowel /ɤ/. *Beautiful* is vocalised by the two participants North Dakota 1 [ˈbjuːɾəfʊʔ] and Louisiana 3 [bjuːɾəfʊ]. Because the final vowel before /l/ is the mid-close back rounded vowel /ʊ/, it may be that this also accounts for the sound of the vocalised /l/, making the /l/ appear deleted rather than vocalised. This could perhaps be tested more thoroughly by measuring the length of the vowels. The /l/ in *palm* is vocalised by all participants, not surprisingly, as this appears to be the standard in GA as well. All participants vocalise it just by elongating the vowel /a/, apart from North Dakota 1, who glides from the open front vowel /a/ to the close-mid back vowel /o/, showing more of an active vocalisation of /l/ than the other participants. *Futile* is vocalised only by the participant North Dakota 1 [ˈfjuːtʰaɪǫ], where it is realised as the rounded back vowel /o/. The word *able* is vocalised by three of the participants, namely North Dakota 1 [ˈeɪbɤ], Pennsylvania 12 /ˈeɪbˠə/, and Louisiana 3 [ˈeɪbo]. Once again North Dakota 1 uses an unrounded vowel for the vocalisation, and Pennsylvania 12 uses a rhotacized /ə/. The word *hold* is vocalised by two participants, Pennsylvania 12 [ˈhɔod], and Louisiana 3 [ˈhoʊd]. Both participants have a glide from the main vowel in the word to the vowel that is produced when /l/ is vocalised. However, Pennsylvania 12 starts at the open-mid back vowel /ɔ/, gliding to the close-mid back vowel /o/, while Louisiana 3 begins at the close-mid back vowel /o/ and ends at the near-close back vowel /ʊ/, meaning that the Louisiana 3 chooses slightly more closed vowels than Pennsylvania 12. The final word, *almost*, is vocalised by six out of seven participants, the only one who does not vocalise /l/ being New York 15 [ˈʌɬmoːstʰ]. North Dakota 1, Missouri 21, and Pennsylvania 12 use a prolonged open back vowel /ɑ/, California 4 and Florida 5 use a prolonged open front vowel /a/, and Louisiana 3 uses a prolonged close-mid back vowel /ɔ/, once again choosing a more close vowel than the other participants.

As shown here, all participants do vocalise /l/ at least to some extent, but it differs in which words and environments it gets vocalised. Nevertheless, some patterns can be identified. First, North Dakota 1 tends to use more unrounded vowels when vocalising /l/ than the other participants, the only instances where the participant does not use an unrounded vowel being in the words *animal* and *futile*, where a rounded vowel is used. Louisiana 3 looks to be using slightly more close vowels in certain words such as in the words *hold* and *almost*

compared to the other participants. Moreover, /l/ appears to be mostly vocalised by all participants in the environment /a_m/, as seen in the words *palm* and *almost*, and this same pattern can be found in the free speech part of the recordings, such as in the word *balmy* [ˈbaːmi] (New York 15). This aligns with what would be expected as we have previously found that L vocalisation is likely to be found before labial consonants (Johnson & Britain, 2007, 307).

Doing a statistical analysis could be useful to determine whether the results are significant, but due to the low number of tokens and that I do not feel qualified to choose the right test for such an analysis I have decided that I will not be doing a statistical analysis for this thesis.

5.3 Summary

In this chapter, I have presented the data that has been collected for this thesis. For Great Britain, the maps from the English Dialects have been used to show in which regions syllable final /l/ is clear, dark and vocalised. For the United States, the transcriptions of the seven recordings from IDEA have been used. The transcriptions have then been used to find how often /l/ is vocalised in the participants' accents and how the different participants tend to vocalise /l/.

6. Analysis

Having presented all the data, we can now look at what the data shows us about the vocalisation of /l/ in Great Britain and the United States and how it has developed and spread. Although research and the timeline of L vocalisation in Great Britain and the United States suggest that the two processes likely have occurred independently of each other, we can make comparisons between the two. In this chapter, I analyse the data that was presented in chapter 5. I first compare the data found to previous research to determine how L vocalisation may have developed and spread in Great Britain. Then I look at what the data from the United States can tell us about the development and spread of the feature there and examine the environments in which L vocalisation is found in the recordings. Finally, I attempt to answer the research questions I set out to answer in chapter 1, using the data collected for this thesis.

6.1 Great Britain

In Great Britain, the modern wave of L vocalisation has first been described in the Pewsey accent (Kjederqvist 1903, 107-110). It has subsequently been observed as a common feature in the accents of London and surrounding areas. Geographical diffusion can explain the spread of L vocalisation from London to surrounding areas and further to most of Southern England, as the feature has first been reported in the London area, after which it has rapidly spread outward, now encompassing almost all of Southern England and still continuing to spread further. To explain how L vocalisation may have spread to the accents of Glasgow and Edinburgh we must consider the ways in which geographical diffusion happens in more detail. Steinsholt's (1964, 26) theory of "language missionaries" is a possible explanation of the feature's jump over Northern England to Scotland. As people, especially young women, move around for work or studies, they will pick up new linguistic features that they then bring back to their home place. Other language missionaries may be people from rural areas who have experienced a strong influence of an urban accent, or people who have moved to a new place and integrated there without giving up their original accent (Steinsholt, 1964, 26). This, combined with the popularity of television shows featuring Cockney and other regional accents, is likely to have contributed to the emergence of L vocalisation in Scotland. Because the accents of Glasgow and Edinburgh already had dark /l/, they were more susceptible to

vocalise /l/, while northern English accents have been more resistant to this change due to the lack of dark /l/.

I have previously mentioned that L vocalisation often is considered to be a feature of lower-class speech, suggesting that there is a level of stigma related to L vocalisation (Wells, 1982, 259, 550). And indeed, L vocalisation is found to be a prominent feature among working- and middle-class speakers in the London area (Trudgill, 1999, 80). However, Altendorf (2003, 67) shows that there is an apparent lack of awareness of L vocalisation in the speech of many English speakers – when asking teachers whether their students drop *t*s and *l*s, most replied that they were aware of students dropping *t*s, but did not even know what L dropping or L vocalisation was. This shows that although prestige may be considered a factor in the spread of L vocalisation across social classes, there is a lack of awareness of the feature. Returning to the results from Southampton, although L vocalisation was found to be slightly more prevalent in the speech of lower-class participants, than among the middle- and higher class participants, the difference was not statistically significant (Wallace, 2007, 219). While many speakers may not be conscious of L vocalisation in their own speech or that of others, this does not necessarily mean that it cannot contribute to the perception of accents, as people do not have to be aware of exact articulation to associate language features with certain geographical or social accents. Accommodation of speech is generally at least partially subconscious, and as dark /l/ and vocalised /l/ are auditorily very similar, this may be a feature that is observed more subconsciously. Features that are less subtle can be part of a more conscious observation, such as intrusive /l/.

6.2 United States

Compared to Great Britain, the United States is relatively diverse in the sense that there are many minority communities that are still communicating in the language of the country of their ancestors' origin. Examples of this are French communities in Louisiana and New England, Hispanic communities in California and Florida, and also many native American communities with their own languages. These languages may affect the English of the speakers and can therefore also contribute to certain phonological features being found more in certain communities.

As can be seen from Table 1, L vocalisation is found to a varying extent throughout the eastern half of the United States. Pennsylvania 12 vocalises about twice as much as New York 15, despite the two states being neighbouring ones. To determine whether there is actually a difference this big between the accents of the two states more recordings of more speakers would be necessary. However, because Pennsylvania is more frequently mentioned in the literature in the context of L vocalisation compared to New York, it is likely that L vocalisation is a more prominent feature of the Pennsylvania accent and L vocalisation can therefore be expected to occur more in this accent than in that of New York.

It may seem surprising that Missouri 21 only vocalises 7.1% of tokens, a number considerably lower than any of the other participants. It is the most central of the accents in the United States covered in this thesis. As it appears that there is a certain gradient of L vocalisation spanning from East to West in the United States, with L vocalisation being found more along the Eastern side and less on the Western side, we could expect Missouri to have a higher rate of L vocalisation than California, but this is not the case. There are different reasons why we see this result. The first is because of the limited data set and the fact that only one participant is used per region, so individual differences may play a role. Topography may also play a role in geographical diffusion, as the Appalachian Mountains form a physical barrier east of Missouri and linguistic innovation could be expected to spread around such a mountain range rather than over it.

6.2.1 Environments of L Vocalisation in the United States

In this section, I present the possible environments in which L vocalisation can occur and the environments in which /l/ is vocalised in the recordings. Although the data set is too sparse to draw any conclusions about the order in which /l/ may vocalise in different environments, is shows some clear patterns of L vocalisation in different phonetic environments. Not only has the frequency of L vocalisation in the different accents of the United States been identified, but also the environments in which the feature occurs have been paid attention to. In all, 12 environments, including place in word or word group, and the place and manner of the following consonant, where there is one, have been identified. The tables include some generalisations to limit the number of environments that have to be identified.

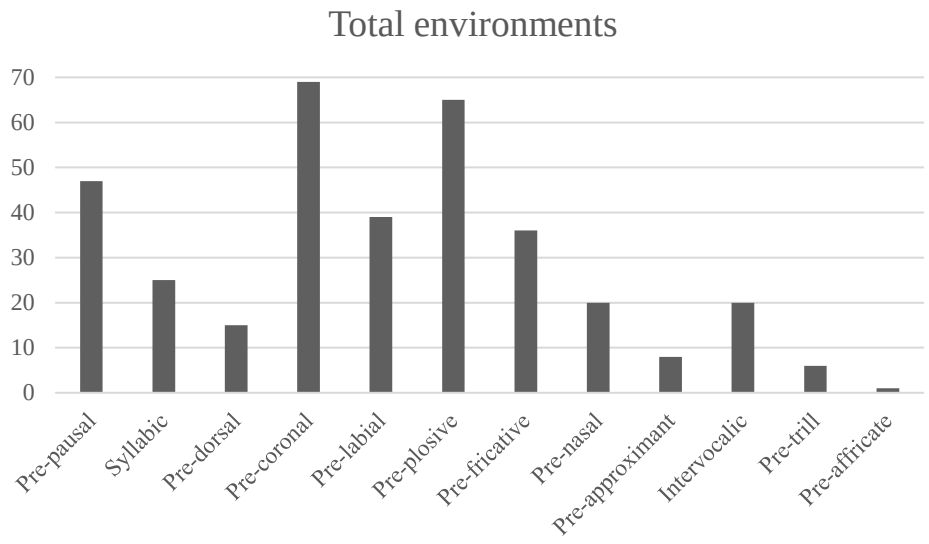

Figure 9. Total number of tokens for potential L vocalisation per environment.

Figure 9 shows the total number of environments that have been identified in the recordings from the IDEA corpus that are used in this thesis. As can be seen here, the most common potential environment related to place of articulation is pre-coronal, meaning /l/ that is followed by any consonant that is mainly coronal, including /d, θ, n/. The most common environment related to manner of articulation is pre-plosive, meaning that /l/ is followed by a stop, either lenis or fortis, such as /t, b, k/. It is also common for /l/ to occur in a pre-pausal environment. The least common environments that have been identified in the recordings are pre-approximant, pre-trill, and pre-affricate environments. The number of environments in which L vocalisation can be identified that is related to place and manner of articulation has to do with how frequently the consonants that make up these environments occur in English. It is also related to the phonotactic constraints of English, which decide which phonemes can occur together and the order in which they can occur. It must be noted that I use only 351 tokens in total, so the relative values may not be the exact same as if a much larger data pool had been used, but nonetheless it will give an indication of which environments are more common than others in spoken American English.

Now that the environments in which L vocalisation can potentially be found in the recordings are determined, we must also look at the environments in which L vocalisation is registered to occur. For this, the same environments have been used, but this time only the number of vocalisations is counted.

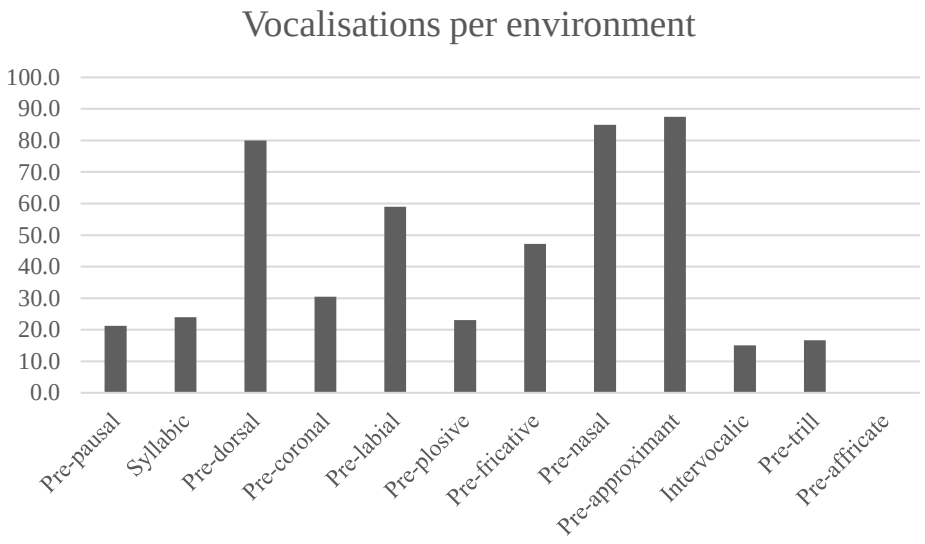

Figure 10. Percentage of tokens vocalised per environment.

Figure 10 shows how many percent of the total tokens per environment were vocalised by the participants. Pre-nasal and pre-approximant environments clearly come out on top, each with more than 80% vocalised tokens. It must be noted that there are relatively few tokens that fall into the category of pre-approximant, so this rate may be different in a larger sample size. Both the approximants /w/ and /j/ can be found here, but /l/ appears to be mostly vocalised when followed by /w/, which is both articulatorily and auditorily similar to dark /l/. This is closely followed by pre-dorsal environments, which comes out at 80.0%. Dorsal consonants require the back of the tongue to be raised, as is done in dark /l/ and mid to high back consonants. In addition, the tip of the tongue tends to be lowered. Therefore, if /l/ is vocalised in a pre-dorsal environment, the speaker has to make less effort to move from the articulation of the vowel to the dorsal consonant. In a pre-fricative environment, /l/ is vocalised 47.2% of the time and many of these are before /s, z/. This makes it interesting that *golf(ing)* is vocalised by California 4, as this is a relatively uncommon environment for vocalisations in the recordings, and I propose a possible reason for this below. Pre-labial /l/ is vocalised in around 59% of tokens, which is relatively high but perhaps lower than expected. As we have previously established, this was one of the primary environments where /l/ vocalised during the Early Modern English period, as in the words *calm* and *palm*, and also one of the few environments in which L vocalisation can be found in GA. It is possible that the vowel preceding /l/ has an impact on the vocalisation in this environment, as the previous wave of L vocalisation required /l/ to be preceded by a back vowel. In a pre-coronal environment only around 30% of tokens are vocalised, and this is likely because a coronal consonant requires

the tip of the tongue to be raised towards the roof of the mouth, albeit not necessarily touching it. Because /l/ itself is a coronal consonant, the position of the tongue only needs to shift a little to move from /l/ to the following coronal consonant, leading to this being a less favourable environment for L vocalisation than those described above. Not related specifically to place or manner of articulation, we find /l/ in a pre-pausal or syllabic position, with come out with around 21% and 23% vocalisations, respectively. These are lower than expected as these are frequently specified as environments for L vocalisation (Wells, 1982; Trudgill, 1986). I suggest that for /l/ to be vocalised in these environments, L vocalisation must already be an established feature of an accent, as these vocalisations can stand out in speech, so if the feature is considered to be a sign of low prestige, these may be environments in which it is favoured to articulate /l/ rather than vocalising it.

To now return to the vocalisation of *golf(ing)* by California 4, I suggest that the reason for this is because the articulation of the word required considerably less movement of the tongue when /l/ is vocalised. This idea of speakers adapting the articulation of phonemes to make them easier to pronounce in succession is known as the principle of least effort. First, we look at the two phonemes surrounding /l/: /ɒ/ and /f/. In the production of /ɒ/ the highest point of the tongue is further back in the oral cavity and the lips are rounded. Then, in the production of /f/, the tongue is lowered towards the bottom of the oral cavity, the lower lip touches the upper teeth and air is blown through the restricted opening between the lip and teeth. In both of these articulations, the tip of the tongue takes on a relatively low position in the mouth. The phoneme /l/ which finds itself in between these two, however, requires the tip of the tongue to be raised to an opposite extreme position, namely, to touch the alveolar ridge on the roof of the mouth. If /l/ is not vocalised in this environment, it requires much tongue movement from the speaker to transition from /_/ to /l/ and finally to /f/. Now, it must be noted that this may be an idiosyncrasy in the participant and cannot be generalised to all speakers of the same accent. There are also no other occurrences of the same environment but with other words in the recording, so it is difficult to say whether it only happens in the word *golf*, or that the participant also vocalises /l/ in words like *solve* and *evolve*. A word with a similar environment in which /l/ also tends to be vocalised is *half* /haːf/. It is, in other words, mostly a notable environment for L vocalisation in this recording and not necessarily for English in general. However, it still gives a possible explanation for why this pattern is found in the speech of California 4.

If we return to the early wave of L vocalisation in English, we see that /l/ is vocalised between /au/ or /ɔ·u/ and /k/ or a labial consonant (Jespersen, 1909, 293 §10.453). This may suggest that these environments are more prone to vocalisation than other environments. Now, this thesis does not take into consideration the preceding vowels in the tokens found in the recordings, but looking at the following consonants, we see that L vocalisation is mostly found when /l/ is followed by a dorsal or labial consonant. This suggests that L is most likely to vocalise in these environments and that it is therefore also likely that in accents where L vocalisation is only beginning to emerge, it will mostly be found in precisely these environments. As mentioned, when a linguistic feature spreads, the spreading tends to take the shape of an s-curve, and many smaller s-curves can be found along the main curve. These smaller s-curves represent the specific environments in which the innovation can be found. Applying this to L vocalisation, the environments of pre-dorsal and pre-labial will be found relatively low along the main curve. As we move up, other environments that are increasingly resistant to L vocalisation will be found.

6.3 Comparison of the Articulation of /l/ by Participants from Same Accent Region

As explained in the methods chapter, I have chosen seven participants from different accent areas. The map used to determine these regions divides the United States into three main regions, each which are then divided into smaller areas. In this section, I make comparisons between the articulation of /l/ and L vocalisation in the speech of participants from the same region to find out if there are notable differences between speakers from the same region but different areas in the United States.

6.3.1 General Northern

This is the largest region and I have therefore used three participants from this region: New York 15, North Dakota 1, and California 4. New York 15 is from the North-East of the United States, North Dakota from the Central North, and California 4 is from the West.

The biggest difference between these accents is the number of vocalisations in the speech of these participants. New York 15 vocalises 21.8% of tokens, North Dakota 1 46.9% and California 4 vocalises 18.8% of tokens. The first thing to note is that contrary to expectations of New York 15 showing the highest rate of L vocalisation, North Dakota 1 vocalises more than twice as much as both New York 15 and California 4. Despite not being mentioned in the context of L vocalisation in previous literature, the feature may be quite prominent in the accent of North Dakota.

Moving on to the quality of /l/ and vocalised /l/ in the speech of these participants we notice that all three participants tend to have a relatively dark /l/, although there are some exceptions. When it comes to vocalisation, North Dakota 1 stands out because, as opposed to the other two participants, she not only vocalises /l/, but in some instances deletes it completely, replacing it with a glottal stop, as in the word *April* [ˈeɪpɹəʔ]. As shown in chapter 2, deletion of /l/ can be found in some accents in the United States, but these tend to be found in the Southern States and AAVE, so this is a notable observation for the North Dakota accent.

6.3.2 Midland

From the Midland region, I use the recordings Missouri 21, a South Midland accent, and Pennsylvania 12, a North Midland accent. Both participants use dark /l/ when /l/ is not vocalised, both in the section that is read out and the free speech. L vocalisation is a well-known feature of the accents found in Pennsylvania, and this is indeed supported by the data found in this thesis, as Pennsylvania 12 vocalises 41.0% of tokens. This is a major contrast to Missouri 21, who only vocalises 7.1% of tokens, only two out of the total number of tokens. These are *palm* and *almost*, both words in which /l/ tends to be vocalised also in the reference accent, GA. These vocalisations are also not rounded, but rather the open back vowel is lengthened. Pennsylvania 21, on the other hand, displays a more varied set of vocalisations, with both rounded and unrounded vowels, as well as intervocalic vocalisations.

6.3.3 General Southern

From the General Southern region, the recordings Louisiana 3, a Gulf Southern accent, and Florida 5, a Coastal Southern accent, are used. /l/ tends to be velarised when it is not vocalised. Like the Midlands accents, there is a great difference in the number of tokens vocalised. Louisiana 3 vocalises the most tokens, at 60.0%, while Florida 5 vocalises 19.2% of tokens. Looking at the differences between articulation we see some other differences as well. Louisiana tends to vocalise /l/ as the rounded mid back vowel /l/, but there are also instances of an unrounded vowel. As opposed to Florida 5, there are also several instances of /l/ being deleted rather than vocalised. Florida 5 also tends to vocalise /l/ as a rounded mid back vowel, but the roundedness appears somewhat weaker than in Louisiana 3.

6.4 Research Questions

6.4.1 How Has L Vocalisation Developed?

The first question of the thesis asked how L vocalisation has developed. For this, the primary resource has been previous research done on L vocalisation and language change.

Apart from some remnants of Early Modern English L vocalisation, there is no reason to think that the development of L vocalisation in Great Britain and the United States is related. Based on previous research and the data from the Dialects of English app, we have established that L vocalisation in Great Britain most likely originated in the London area and diffused out from there through contact between speakers in surrounding areas, as long as the speakers had dark /l/, which is a prerequisite for L vocalisation to develop. In the United States, it is less clear-cut where L vocalisation may have originated.

As the study by Johnson and Britain suggests (2007), L vocalisation appears to be a natural language change that would be expected to happen. Many languages across the world have gone through a process of L vocalisation, and just like we see in English, there are languages that have gone through this process more than once. L vocalisation has also been observed to have developed independently in different English-speaking countries, such as the UK, New Zealand and the United States. In addition, /l/ is found to be a relatively marked

phoneme, and children therefore acquire the sound later than more unmarked sounds. This makes it easier for the feature to spread across different accents. The accents that have resisted the acquisition of L vocalisation the most are those that adopted the clear-dark /l/ distinction later and those that still only have clear /l/ in all environments. Velarisation of /l/ also appears to be a relatively recent development in Great Britain, likely only first appearing a few decades before L vocalisation began to develop. Like L vocalisation, dark /l/ appears to still be spreading, and it is therefore likely that L vocalisation will also continue to spread, encompassing more and more accents of Great Britain.

While L vocalisation is primarily found in accents in the Easter half of the country, it is challenging to determine a point of origin for L vocalisation in the United States as we can do for Great Britain due to the lack of historical records of variation in articulation of /l/, and there is not necessarily one such point either. Rather than frequency in use of L vocalisation increasing and leading towards a specific area, in the United States there appear to be multiple, separated areas in which the feature has developed independently. While New York and Pennsylvania see more of the traditional form of L vocalisation, southern accents feature more L deletion, suggesting two separate processes of L vocalisation taking place. This may be due to different factors, such as geographical distances and different types of linguistic influence, such as substratum influence of heritage languages, as described above.

6.4.2 How Has L Vocalisation Spread in Great Britain and the United States?

The second question was how L vocalisation has spread in Great Britain and the United States, and that is what I try to answer in this section. The data used to answer this is partially taken from that has been found in previous studies presented in this thesis and partially from the data I have collected from the English Dialects app and the recordings from IDEA.

L vocalisation has developed and spread rapidly across the accents of Great Britain, likely becoming as widespread as it is only the past century. It also appears to still be spreading further, as even accents that are described to have clear /l/ in all environments begin to see some degree of velarisation of /l/ in syllable final position. Even accents that are

more resilient to the feature are likely to adopt it eventually, as is shown to be happening in the Fenland accents.

L vocalisation in Great Britain was first described in the accent of Pewsey but is also noted early to be found in accents of London and surrounding areas, after which the feature has been noted and described in other accents in Great Britain. Combined with the data from the maps from the Dialects of English App, there is evidence that L vocalisation first began in Southern England accents, such as those of Pewsey and London, around the early 1900s, after which it spread to surrounding areas through linguistic dispersion. It has since spread to most of Southern England and the Midlands, as well as to Glaswegian and the Edinburgh accent. As the feature has "jumped over" Northern England, we must determine how it may have developed or spread to these accents of Southern Scotland. First, it is possible that L vocalisation has developed independently, but this is not very likely, considering the close proximity to English accents that already had L vocalisation. I have proposed other ways in which L vocalisation may have spread to Scotland. The first being that young people have brought it with them after studying or working in an area where the L vocalisation is a prominent feature of the accent, such as in London. The other way is through the influence of popular TV shows and media. Many popular TV shows feature Cockney or regional accents, and watchers may pick up linguistic features from these shows to be hip or trendy. Up until the late 1980s, the primary accent heard on TV was RP, but in the past decades a wider array of accents is heard, not only in popular TV shows, but also on the news. While the factors of diffusion may differ on a micro level, it is safe to say that geographical diffusion is the main cause of L vocalisation emerging in most of southern England and Scotland so rapidly.

In the accents of the United States, L vocalisation is less common, and it has not been studied as thoroughly as it has been in Great Britain. As suggested by Johnson and Britain (2007), it is most likely that dark /l/ has developed independently in the English of the United States, as is also the case for L vocalisation. It is, as mentioned, difficult to pinpoint a similar origin in the United States, and I suggest that there is not one single origin here for multiple reasons. First, the United States is a considerably larger country in terms of area than Great Britain, making it more difficult for linguistic features to spread through geographical diffusion. Second, despite L vocalisation being mainly found in accents in the Eastern half of the country, there does not appear to be an "epicentre" from which it fans out as is seen in England. There is an issue with determining this with more certainty, as there is little

historical research on the pronunciation of /l/ in the United States, making it challenging to know how different pronunciations were distributed in the past. Social stratification is also arguably different in Great Britain and the United States. The United States is more ethnically diverse, and despite there being a change towards a more equal society, racial segregation is still highly present, also leading to certain linguistic features being associated with the speech of certain ethnic groups. While this study has not explored that aspect of L vocalisation in the United States, it is possible that this diversity may have an influence on the spread of the feature. Lastly, the United States has both historically and today seen more direct influence from foreign languages than Great Britain, which may have contributed to the development of L vocalisation. It is also possible that the East Coast sees more L vocalisation than the West Coast because they traditionally have had closer contact with Great Britain through their ports. As discussed, L vocalisation is a prominent feature of AAVE, and although AAVE shares many features with the South-Eastern accents, it is not a regional accent. There is a trend of the adoption of certain AAVE features in other accents, such as the dropping of copular BE and the use of "ain't" in negations, and it is therefore also possible that L vocalisation is adopted from AAVE in the United States, at least in certain accents.

To return to the actuation problem of why a certain change may take place in one language but not in another, or in the same language at a different time, it is difficult to give a clear answer to this problem when it comes to L vocalisation in English. Nevertheless, based on the data collected and the history of language contact between the United Stated and other English-speaking communities across the world, it is possible to highlight some factors that may have contributed to the different patterns of language change that we see in Great Britain and the United States.

It is possible that L vocalisation has faced the same resistance in the United States as non-rhoticity has. While the close contact with England caused many accents on the East Coast of the United States to adopt a non-rhotic variety of English, areas with fewer cultural connections to Great Britain came into power after the civil war of the 1860s, and the prestige accent shifted away from the non-rhotic accents in favour of rhotic American English. Non-rhoticity is still found in non-prestige accents in areas along the East Coast of the United States today. It is possible that L vocalisation sees a similar resistance. However, the appearance of L vocalisation mainly took place in Great Britain after the American civil war and thus also at a time when British English already had a lesser impact on American English. Still, although Altendorf (2003, 67) found that teachers in London were mostly unaware of

L vocalisation in their students' speech, the possibility of American English resisting language features that are strongly associated with British English should be considered as a factor. Subconscious perception of the feature may also be a factor even if people are unaware of the feature.

6.4.3 What Are the Differences and Similarities Between L Vocalisation in Great Britain and the United States?

My third and final research question for this thesis is about the differences and similarities between L vocalisation in Great Britain and the United States. While L vocalisation in its core is the same linguistic change in both Great Britain and the United States, there are also differences between the two. In this section, I address some similarities and differences that have been found through the research for this thesis. The answer to this question is primarily based on the data that I have collected for this thesis from the English Dialects app and the IDEA recordings.

The first point has to do with the spreading, or lack thereof. In Great Britain, there is a clear pattern of geographical diffusion showing how L vocalisation spread out from its place of origin and now can be found in a majority of accents. In the United States, such a pattern cannot be detected, and rather it appears more sporadically across the Eastern half of the country. We can therefore assume that L vocalisation has developed independently in multiple accents in the United States.

With the spreading of L vocalisation, it is also possible that intrusive /l/ will become more common. It is already found both in Bristol and several accents of United States but is mostly used in personal contexts due to it being socially marked. However, as the accents go through the process described by Gick (2002), there is a high likelihood that it will become used more frequently as more accents begin acquiring L vocalisation and those that already have the feature go through the process of generalisation where /l/ becomes intrusive after the word-final vowels /a, ɔ, ə/. It is still unclear whether intrusive /l/ and /r/ can coexist as they do not appear to do so in any accents currently, but it is unlikely that they will coexist well together because they both appear in similar environments and therefore would compete. Intrusive /r/ is typically found in non-rhotic accents, and as most accents in the United States are rhotic, it is possible that /l/ will be the preferred intrusive liquid in the United States.

Despite these differences, the environments in which L vocalisation appears are much the same. Both in the United States and in Great Britain, L vocalisation tends to appear in a syllable-final or pre-pausal position. It also tends to vocalise as a rounded mid or close-mid back vowel. While I have not analysed the distribution of L vocalisation in different phonetic environments in accents of Great Britain, it appears that the environments that are more prone to vocalisation in British English are equivalent to what I have found in my analysis of environments in American English. Both in the English of Great Britain and the United States, /l/ is prone to vocalisation before labials and dorsals, and it is likely that these are also the environments in which it will first emerge.

Finally, I want to point out that the areas where L vocalisation and R deletion are found greatly overlap. In Great Britain, both L vocalisation and non-rhoticity are found in most of the South and decreasing as we move further North. However, Southern Scottish accents are rhotic, while L vocalisation is found in those areas. In the United States, non-rhotic accents are generally found along the Eastern side of the country, which is also the case for L vocalisation. The same is the case for both Australia and New Zealand. It also appears that R deletion appears somewhat before L vocalisation begins to develop in an accent. While this alone does not mean that there is correlation between these two features, they are both liquids, and the process for their vocalisation or deletion is to a large degree the same. While the exact relation between the development of these two features requires further studying to determine, the fact that the areas in which they are found overlap so closely suggests that they may affect each other's development and distribution.

6.5 Summary

Dark /l/ does not appear to be a deciding factor of the level of L vocalisation in different accents of the United States in the same way that it is in Great Britain. While we in Great Britain see a pattern of L vocalisation appearing shortly after an accent has acquired dark /l/, in the United States, the development of L vocalisation looks to be more sporadic, not showing signs of geographical diffusion, despite most accents having a relatively dark /l/ in all environments.

7. Discussion

In this chapter, I address some of the weaknesses of this thesis, both related to the scope of the thesis and the research itself. Weaknesses in research open up gateways to new research that can be used to fill the gaps in the knowledge we have, and this is therefore an important section. I then talk about some of my own suggestions for future research endeavours based on what I have found through the process of working on this thesis. These will relate back to the weaknesses of this thesis as well as include suggestions for different types of research that can strengthen the foundation on which we build further knowledge about L vocalisation and its spreading in the various accents of English.

7.1 Weaknesses

This thesis has been limited by both time and resources and gives more of a general overview of the distribution in Great Britain and the United States. The section about L vocalisation in accents of the United States uses data from a very limited selection of participants, using only seven participants to represent the greater part of the country. Using only one recording from an entire accent region means that there is likely variation within the accents that are not accounted for in the data. Although the participants have been selected to limit variables and outside influences, there is no denying that this may still lead to results that cannot be generalised across a larger population. Participants may also have certain idiosyncrasies that lead to the results being different from the general population from the area for which they have been selected. The main reason for choosing the number of participants that I have, is time available, as making transcriptions and analysing the data takes considerable time. Another important reason is that I have prioritised controlling for as many variables as possible, which has greatly limited the number of recordings that could be used. As I am not in the United States, doing my own field work is not a possibility, and thus I have relied on data collected by others for this thesis.

Another weakness related to the data collected from the IDEA recordings in the challenge of hearing the difference between dark and vocalised /l/. I have previously mentioned this, but due to the dorsal and vocalic elements found in both dark and vocalised /l/, it can be difficult to distinguish them just by hearing, something that usually requires

much training to do accurately. And while I have transcribed the tokens found in the recordings to the best of my ability, it is possible that errors have been made in the process.

For the data from Great Britain, I have used a crowdsourced app, which of course brings its own weaknesses. First, the majority of the participants will not have much knowledge about linguistics or phonetics, which means that incorrect answers may have been given. In addition, people may not be aware of how they articulate certain words and therefore may be influenced by the options that they are given, creating a bias. Finally, non-native speakers may use the app and there may be participants who do not take the questionnaire seriously, giving false answers. While the app has been designed to limit the role these factors play, for example by suggesting three different places or origin based on the answers given, they should be taken into consideration as it is not possible to control for these factors in this form of data collection.

7.2 Suggestions for Future Research

In this thesis, I have used two different methods to investigate L vocalisation. The first is the self-reporting of speakers of English through a crowdsourced app. The second is making phonetic transcriptions of the speech of native speakers. However, there are many ways in which L vocalisation can potentially be studied, and next I make some suggestions for studies that can highlight and investigate various aspects of the feature.

As shown in this thesis, /l/ has been, and still is, subject to much change in the English language, making it an ever-relevant topic to study. Not only does it go through change in English, but also in other languages, as shown by the examples of other languages that have gone through waves of L vocalisation. With the background in Gick's process from L vocalisation to intrusive /l/, there may be many promising future endeavours that can be made in the field. L vocalisation is now relatively well described as a feature, but not as much is known about how it may affect further language change. Studying this in more detail can give insight into how different processes in language change are related to each other. For example, if L vocalisation can be part of a systemic change, it may be possible to make predictions of how the phonetic system will regulate itself when L vocalises. Furthermore, we may gain a greater understanding of how social factors, such as class or ethnic background, may influence the diffusion of linguistic innovations. Finally, and as I have shown, different

factors may affect the diffusion of new language features, and studying these more can give insight into what may contribute to language change and what may not. For example, studying the effect of social media on speech can show whether such a type of passive language input can lead to people adopting new language features.

One possibility is using a type of imaging to see exactly what happens to the different articulators in the articulation of varying grades of clear and dark /l/, as well as L vocalisation. Not only can this be used to gain further understanding of how L vocalisation may develop, but it can also show possible differences in L vocalisation in various accents of English. This can for example be done with ultrasound, where the shape of the tongue is measured to see how it transitions from one sound to another. Other options may be fMRI or EMA, which can be used to track more specific points of the tongue, but these options are considerably more expensive and less readily available than ultrasound.

Another option is doing a perceptual study. As discussed, L vocalisation and related phenomena such as linking and intrusive /l/ might be associated with certain social classes or in- and out-group relations in both Great Britain and the United States. Doing a study that investigates how speakers perceive accents with these features may shed more light onto factors that affect the development and spreading of L vocalisation and related features.

Especially for the United States there are not many studies focusing on the pronunciation of /l/ in different areas. A suggestion for future endeavours would therefore be to do more in-depth studies of /l/ in specific areas. There have been some studies done on the pronunciation of /l/ in AAVE, as well as New York and Pennsylvania. However, as the findings in this thesis show, L vocalisation is found at least to some extent in many other accents of the United States.

In line with the weaknesses of using a very limited number of participants mentioned above, using a larger number of participants per dialect region would give a greater data pool and considerably increase generalisability and give a more detailed image of nuances in the pronunciation of /l/ and L vocalisation in the accents. For instance, it could be used to show in which environments L vocalises first and which environments are more resistant to L vocalisation. But more data will also give more accurate information about the distribution of L vocalisation in the United States and the differences in both articulation of /l/ and vocalised /l/ in these accents.

Some of the more notable features found in this study could also benefit from being studied more thoroughly to find out to what extent they are actually real features of the accents in question and not merely features found only in the speech of the participants used in this study. This can for example include the L deletion found in North Dakota 1, or the vocalisation of /l/ in the environment /ɑ_f/, as found in California 4.

As with most studies, controlling for variables is important. Therefore, doing studies that limit as many variables as possible will give the possibility to further specify exactly how L vocalisation develops and spreads throughout English. As I have mentioned in 2.5.1 above, there is a shift where /uː/ is being fronted in RP, and the back vowel produced in L vocalisation may be filling the vowel position that is left empty as a result of this fronting, creating a drag-chain where one change leads to another. As a result of this, words that would become homophones as a result of L vocalisation, may not be so after all. It may therefore also be worth investigating whether L vocalisation is part of a more systemic change in RP.

7.3 Summary

In this chapter, I have covered some of the weaknesses of my study, and as the limited data may be the biggest weakness, I have to comment on the generalisability of my findings. I have been careful when making generalisations, especially when there has not been previous data that might support my findings. My findings give indications of the distribution of L vocalisation in the United States, but generalisations beyond this should not be done without having more data to base these on.

8. Conclusion

In chapter 1, I presented three research questions that formed the foundation of the research for this thesis. Each question focused on a separate aspect of L vocalisation in Great Britain and the United States, and throughout this thesis I have examined both previous research related to these questions and collected my own data in an attempt to answer these three questions. Although L vocalisation is a complex phonetic phenomenon that both affects and is affected by other speech patterns, this thesis has been able to answer the questions it is based upon to a reasonable extent. Many previous studies look at very specific aspects of L vocalisation, and this thesis is an attempt put this research into a greater context and fill out some of the gaps, in particular when it comes to descriptions of L vocalisation in the United States. It also considers differences both in the development and spread of L vocalisation in Great Britain and the United States, as the feature appears to have developed independently in these two countries, and even within different accents of the United States.

L vocalisation is found to occur in different languages, during different time periods, and in different accents of English across the world. This suggests that it is a natural change that can be expected to happen, and indeed the data found in this study supports this idea. The phenomenon is in many ways similar to R dropping in England, and it appears that both liquids go through a similar process ranging from the vocalisation or dropping of the liquid to hypercorrection and the appearance of intrusive liquids in the language.

Many aspects of L vocalisation have been thoroughly examined already, providing insight into both the geographical diffusion of linguistic innovations, but also the development of liquid consonants in English. Still there is much more to L vocalisation that can be studied to understand how L vocalisation influences and is influenced by other aspects of language, and I look forward to seeing future contributions to this field.

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Appendix I. Orthographic transcriptions of IDEA recordings.

Note: The orthographic transcriptions are taken from the IDEA website, and the tokens are marked in bold font by me.

Comma Gets a Cure

Well, here's a story for you: Sarah Perry was a veterinary nurse who had been working daily at an **old** zoo in a deserted district of the territory, so she was very happy to start a job at a superb private practice in North Square near the Duke Street Tower. That area was much nearer for her and more to her liking. Even so, on her first morning, she **felt** stressed. She ate a **bowl** of porridge, checked **herself** in the mirror and washed her face in a hurry. Then she put on a plain yellow dress and a fleece jacket, picked up her kit and headed for work.

When she got there, there was a woman with a goose waiting for her. The woman gave Sarah an **official** letter from the vet. The letter implied that the **animal** could be suffering from a rare form of foot and mouth disease, which was surprising, because normally you would only expect to see it in a dog or a goat. Sarah was **sentimenta**l, so this made her **feel** sorry for the **beautiful** bird.

Before long, that itchy goose began to strut around the office like a lunatic, which made an unsanitary mess. The goose's owner, Mary Harrison, kept calling, "Comma, Comma," which Sarah though was an odd choice for a name. Comma was strong and huge, so it would take some force to trap her, but Sarah had a different idea. First she tried gently stroking the goose's lower back with her **palm**, then singing a tune to her. Finally, she administered ether. Her efforts were not **futile**. In no time, the goose began to tire, so Sarah was **able** to **hold** onto Comma and give her a relaxing bath.

Once Sarah had managed to bathe the goose, she wiped her off with a cloth and laid her on her right side. Then Sarah confirmed the vet's diagnosis. **Almost** immediately, she remembered an effective treatment that required her to measure out a lot of medicine. Sarah warned that this course of treatment might be expensive — either five or six times the cost of

penicillin. I can't imagine paying so much, but Mrs. Harrison — a millionaire lawyer — thought it was a fair price for a cure.

New York 15

Hi! Welcome to Buffalo! If you've never heard of us, well that's not actually that suprising. While Buffalo, once upon a time, was a big and important area, not so much anymore. We are thoroughly part of The Rust Belt. Heh Heh. Yeah, what a great thing. Um, I'm 25 years old, and I've lived in this area for most of my life. Um. I was born in Winchester, Virginia, which is about as far away as you can get from Buffalo. I have no memory of living there. I moved up here when I was about eight months old. So, pretty much all I can tell you about is Buffalo and what it's like to live here. Um, we have terrific, hot, summers that go into beautiful fall and finally into a bone-chilling winter. Which we all conveniently stay in our houses and only go out when we absolutely have to — shocking that would happen in winter. Uh, for some people winter would be very difficult to survive around here, particularly if you are used to a more mild winter like in Southern California, you won't enjoy Buffalo. We get cold temperatures, like right now, if the weather is thirty degrees it's practically balmy! Ehh, and if you go downtown, the wind gets so bad you might even go hypothermic if you stay out there for a couple of hours, even if you are used to the area, like we are. And let's face it: Not everyone here is used to the weather. So, you gotta be careful. Y'know.

North Dakota 1

I was born in Bismark, North Dakota. Uh, a blustery winter, of course, starting in September. Um, I lived in North Dakota **all** my life, surrounded by Germans and Norwegians. We were one of the only Irish families there. Um, when we were in **school** we were taught to salute the flag, and we brought our groceries in bags. And when we go outside, we put on our coats, and when we go to the lake we ride in boats and uhhh, where I lived about three hours from the Canadian border so it was just a short trip, and then you could hear an even more pronounced, um, accent. People were I'm from would say "ay" after certain sentences, and you can here [sic] a slight "aboot" [when we say about]. I lived in Nnn-North Dakota. I lived in the same

bedroom eighteen years of my life **until** I moved to Kansas, which is eight-hundred **miles** south. I lived in Bismarck, North Dakota, which is the **capital**, and there's probably about sixty-thousand **people** that live there, so it's not a **small** tiny town but, um, I lived in one of the busiest streets, but even then, um, we've had deer in our back yard and rabbits and raccoons. And there was once, when I was **little**, and it was **April,** probably the, eh, very end of **April**, **almost** early May, when I was 13 and we had a tremendous snow storm that shut down the town for four days and cars were buried and it was like ten feet of snow or something rediculous, and there was actually a moose that was **walking** down Main Street. I learned this song when I was in first grade —- um, they passed our copies of the North Dakota s-state song, which I don't remember that one, and they passed out, you know, copies of **all** the different **national** songs and things that we needed to learn for some government presentation, and then another one they passed out was the North Dakota song, and everywhere I go, every **national** conference and anything I've ever been to, this is the thing that **people** get the biggest kick out of: *"You ought to go to North Dakota, but you just can't say goodbye. The skies are bluer than blue, the folks are friendlier too, and if you don't believe me, **well** there's only thing to do. You ought to go to North Dakota, but you just can't say goodbye."*

California 4

'K, um, I grew up in Thousand Oaks, California, but I was born in Indiana. **Well**, I lived in Indiana for the f- like about two years, and then I moved to, uh, Boston, Massachusetts, and I lived there **till** I was about 5, and then I moved to, uh, San Ramon, uh, in San Fransisco, and I lived there for a **couple** of years, and then I moved to Thousand Oaks, when I was 8. And I've lived here ever since. My mom, um, grew up in Georgia, Savannah. She flew around a lot, um, er, **traveled**, grew up in different areas, because my grand'a' was in the military. But mostly **all** throughout the South. And the same with my dad, Georgia. Mmm-hmm. Um, **well**, it was really fun. I hadn't seen my grandparents in about a year and a half, so, and I'm very close to my grandparents. They're, uh, my mom's parents. And it was really fun because my mom was there, and, uh, my grandparents **also** [sic, obviously] were there, and my brother and my sister-in-law, and my five-month **old** niece and my two-and-a-half-year **old** nephew. So we were **all** there, in one **little** house, [laughs] which was so fun, and we went, um ... My

grandparents live at a **golf** course, so we got to drive around in their **golf** cart, and go **golfing** and go swimming, and go to their — we went to their club, um, for Mother's Day, and had brunch there. And hung out a lot, and just — my grandparents watch the new, a lot. CNN is **always** on, so I got to catch up with my **world** news. Um, and it was — it was really — it was too short, but I think my mom and I are gonna go back in July. So, for, my grand'a's birthday's July 25th, so I think we're gonna make an effort to go see them a **little** bit more, take like quick trips. You know, we took the red-eye on Friday night, so we got in Saturday morning, and then we were there **till**, um ... Tuesday we left. So, it was — I didn't miss that much, and so that was good. So we kind of want to do that. As they're getting **older**, they're not willing to come out here any more, so, we're gonna try to make an effort to get to see them more, 'cause my Gram's gonna be 83 in July.

Missouri 21

Well, I was born in St. Louis, Missouri, um, September 9th, 1981, and, um, I was born at a **hospital** that my father actually worked at. And, um, he delivers babies, but he did not deliver me. Uh, it's against the law, at that time. Um, and, uh, I have an **older** sister, Ashley, who is two-and-a-half years **older** than me. Early **childhood**, um, we lived in a neighborhood that was very, uh, close-knit. **All** neighbors were **comfortable**, and **sociable** with everyone, and we lived across the street from, uh, good family friends, and my **older** sister and one of their daughters across the street, uh, were close friends. And, uh, they used to **yell** across the street to each other, when they were just toddlers. My sister, Ashley, would **yell** over at Christy, "Kiki, Kiki!" And Christy would **yell** back at Ashley, "Ya, ya! Ya, ya!" Um, an' I remember hearing from my mom — it's one of her favorite stories, she used to **tell** — uh, when she brought me home from the **hospital,** my sister looked at me. My mom said, you know, "Here's your new sister," in this kind of grand introduction, and my sister looked at me and, took a moment, and then said, "OK. Can I go play outside now?"

Pennsylvania 12

I had a really good **childhood**. We were a pretty **well**-off family, so my mom and dad, and my mom and dad were very loving. Um, they had a really good relationship, and so I had a really happy **childhood**, and ...

Uh, I like the downtown area but, eh, no, no, downtown is my favorite. Yeah [laughs], like theater district, in particular. ... Um, I just have a lot of good memories of like going to get lunch down there with friends or, um, going to like a show with my, my mom and sister. Um, yeah, we're we're a big **musical-theatre** family, we're a bunch of nerds so ...

Uh, high **school** was a strange experience. Um, my freshman year was rea-, really good; um I had a lot of upperclassmen friends, um, so I mean it was — I **feel** like it was a pretty **typical** freshman year. Um, the adjustment was **difficult** especially with math I remember being hard, but, um, it was fine. And then sophomore year, uh, like the second week into **school**, my mom died, um, of lung cancer, and so obviously that sucked. But, um, the year actually ended up being my second favorite year of high **school** because, uh, everybody was just kinda gathered around me and I **felt** like I had a lot of really good, close friends, um — and, granted, a lot of them were **older**, but **still** like I **felt** like I kinda had a place. Um, and then junior year a lot of my friends had graduated at that point, and, um, it just was a really hard academic year and just was not a good time. Um, but senior year was great; um, I got a lead in the **musical**; I was on varsity for both teams; I had a boyfriend; like, it was — senior year was great; that was by far by favorite year. ...

So I grew up in Upper Saint Clair, which is definitely an uppity community. Um, definitely a higher, like m-, like, what is it? Upper-**middle** class? Yeah, upper-**middle** class community, um, a **little** bit **wealthier**, but I **will** say compared to like the Midwest — so I go to college at Marquette — and compared to the **people** who are like, uh, upper-**middle** class there, Pittsburgh is so much better. Um, they're **all** so like, snobby, and I thought like Upper Saint Clair kids could be snobby and like rich and **all** that, but they're like snobby without even realizing it; like at least the kids here who are snobby like know like, "Yeah I'm a rich, snobby **asshole**," but, like they don't realize it. So yeah, um, but everybody's **always** been really good to me and my family, and ... yeah ...

Louisiana 3

I was born May 2, 1985, in New Orleans, Louisiana, at Charity **Hospital**. I grew up in the Ninth Ward, mostly raised across the street from my grandparents. We stayed on Mazant. It wasn't the best neighborhood in town, but it was home. I was attending a Catholic **school, called** St. Mary's of the **Angels**, and, um, I went there from pre-K to eighth grade. And in the neighborhood, you wouldn't expect to meet so many nice people, but they were **all** there. And after eighth grade, graduating and everything, decided to go to high **school**, and I attended a historically black **school called** St. Mary's Academy. I didn't want to go there, but I had to make the best of it. It was a part of my history, my family history. My mom went there for high **school**, so she wanted to keep the tradition going, I guess you can say. um, I graduated form St. Mary's Academy in 2003, and from there I decided to go to Dillard University, also in New Orleans. At Dillard, my major was nursing. I've **always** wanted to be a nurse. **Well**, not really. I wanted to be a, a pediatrician, and I was like, "**Well**, maybe that's too many years of **school**." So, I downgraded to bein' a **neonatal** nurse, 'cause I love babies. I think they're like God's gift to every person who can have a kid. Kids are **beautiful**. Um, when I went to Dillards, for — I want to say about — this would have been my third year. And, um, then the storm hit, of course. Katrina passed through, and I had to change **schools** and everything, and now I'm in a foreign place, tryin' to make sense of everything that's going on. It's like, really hard; it's confusing. You know, I've never been so stressed in my **whole** entire life. But I, I guess out of **all** of this, I've learned how to appreciate life, how to be **thankful**, just for breathing every day. You know, because I, I could have been, you know, **still** in New Orleans, struggling with everybody else, tryin' to survive. But I was blessed that God gave me another chance, and he was like, "You can do it, you can do it." So I'm tryin' to make the best out of this. But it's really hard, it's very hard.

Florida 5

I am a public-communications major at Florida Atlantic University. That's located in Boca Raton. I am currently living, um, 20 minutes south of there. I take I-95 back and forth. Um, because FAU is right off I-95, it's, it's just east of there, and I live right off I-95 as **well**. There is another highway which I could take, the Turnpike, but that would be completely out of my way. Um, 20 minutes, 25 minutes, it's not, it's not a huge **ordeal**, but, um, traffic can be pretty bad in the morning, rush hour definitely. And coming home at around 4 or 5 o'clock.

Gas can also get expensive coming back and forth, **although** now gas prices are pretty decent, I have to say. Um, when I go to the gas station, I, pay for gas. I usually use my, my debit card and, and you know, I usually use regular gas and put it in my gas tank — make sure the engine's off. Um, and, I pump it and **fill** it. Pretty much I always **fill** it up, um, **all** the way so I don't have to make as many trips to the gas station. I try not to drive on empty at **all**. The classes I'm currently taking at FAU are, um, Communication, Gender, and Language. I'm taking Ethnicity and Communication. I'm taking **Small**-Group Processes. And I'm also taking a sociology class, um, Human Sexuality and **Social** Change. Um, I like my classes a lot right now. It's been about fifteen credits of classes I'm taking. Um, my teachers can be, seem a **little** hard, but they're, I think, I think they're, they're really good. And, oh also I'm taking Mass Communication Theory as **well**. That's, that's another class that I, I definitely need to take. But I'm really enjoying the semester so far. Next semester I hope to take up an internship of of some sort. Whether it's working for a news station or something along those lines.

Appendix II. Phonetic transcriptions of tokens from IDEA recordings.

New York 14

Comma Gets a Cure	Free speech
[ˈweɬ]	[ˈweokəm]
[ˈɔːɬd]	[ˈweɬ]
[ˈfeɬtʰ]	[ˈwaɪl]
[ˈboʊɬ ə]	[ˈbɛɬtʰ]
[hɹˈsɛɬf]	[ˈɔʊɬd]
[əˈfɪʃɬ ˈɬɛɾəɹ]	[ˈɔːɬd]
[ˈænəmo ˈʍʊ]	[ˈaːɬ]
[ˌsɛ̃nəˈmɛn~tʰɬ]	[ˈtʰɛɯ.ˌjʊ.ˈbaʊtʰ]
[ˈfiːɬ]	[ˈbjuːɾəˌfʊɬ ˈfɑːɬ]
[ˈbjuːɾəfʊɬ]	[ˈɑː]
[ˈpaːm]	[ˈpʰiːpᵊɬ]
[ˈfjuːɾaɪɬ]	[ˈdɪfɪkʰʌɬtʰ]
[ˈeɪbəɬ]	[ˈmaɪo]
[hoːɬd]	[ˈkʸɔːo]
[ˈʌɬmoːstʰ]	[ˈbaːmi]
	[ˈkʰʌpᵊɬ.ˌaʊɹz]
	[ˈkʰɛːɹfʊɬ]

North Dakota 1

Comma Gets a Cure	Free speech

[ˈwᵊɬ]	[aɤ]
[ɔːɬd]	[ˈskuːɤ]
[ˈfɛɬt]	[ˈənthɪɬ.aɪ]
[ˈbɔːɬ.əv]	[ˈmaɪɤ.ˈsæʊθ]
[ˈhɜɪsɛɤf]	[ˈkʰæpɪɾəˤ]
[əˈfɪʃɬ.ɛɾəɹ]	[ˈpʰiːpɬ]
[ˈænɪmɔo]	[ˈsmaːɬ]
[ˈsɛnthɪˌmɛndəɬ]	[ˈɬɪɾɬ]
[ˈfɪɤ]	[ˈeɪpɹəɬ]
[ˈbjuːɾəfʊʔ]	[ˈeɪpɹəʔ]
[ˈpʰaːom]	[ˈaˑməst]
[ˈfjuːtʰaɪˤ]	[ˈwaːkʰɪŋ]
[ˈeɪbɤ]	[aːɤ]
[hɔːɬd]	[ˈnæʃnəɬ]
[ɑˑmoʊst]	[ˈnæʃnəɬ]
	[ˈpʰiːpɤ]
	[wəɬ]

California 4

Comma Gets a Cure	**Free speech**
[ˈwᵊɬ]	[wʌɬ]
[ˈɔːɬd]	[ˈtʰiɬ]
[ˈfɛɬt]	[ˈkʰɑpʰɬ]
[ˈbɔːɬ]	[ˈtˠævɬd]

[hɜɹˈsɛɬf]	[ˈɑːɬ]
[əˈfɪʃɬ]	[wɬ]
['ænəməɬ]	[ˈɔːɬ]
[ˈsɛntʰəˌmɛntʰəɬ]	[ˈɔːɬd]
[ˈfiːɬ]	[ˈɑːɬ]
[ˈbjuːɾəfʊɬ]	[ˈɬɪɾɬ]
[ˈpʰaːm]	[ˈgɒːf]
[ˈfjuːtʰaɪl]	[ˈgɒːf]
[ˈeɪbᵊɬ]	[ˈgɒːfiːn]
[ˈhɔːɬd]	[ˈaːweɪz]
[ˈaːməst]	[ˈwɜɹɬd]
	[ˈɬɪɾɬ]
	[ˈtʰɪɬ]
	[ˈɔːɬdəɹ]

Missouri 21

Comma Gets a Cure	**Free speech**
[ˈwɛɬ]	[ˈwɛɬ]
[ˈɔːɬd]	[ˈhɑspʰɪɾɬ]
[ˈfɛɬt]	[ˈoʊɬdəɹ]
[ˈboʊɬ]	[ˈɔːɬdəɹ]
[hɜɹˈsɛɬf]	[ˈt͡ʃaɪɬdhʊd]
[eˈfɪʃɬ]	[ˈaːɬ]
[ˈænəməɬ]	[ˈkʰʌmtʰɹbɬ]

[ˈsɛntʰəˌmɛntʰəɬ]	[ˈsoʊʃəbɬ]
[ˈfiːɬ]	[ˈoʊɬdəɹ]
[ˈbjuɾəfʊɬ]	[ˈjɛɬ]
[ˈpʰaːm]	[ˈjɛɬ]
[ˈfjuːɾəɬ]	[ˈjɛɬ]
[ˈeɪbɬ]	[ˈtʰɛɬ]
[ˈhɔːɬd]	[ˈhɑspʰəɾəɬ]
[ɑːmoʊst]	

Pennsylvania 12

Comma Gets a Cure	**Free speech**
[ˈeɬ]	[ˈt͡ʃaɪɬdhʊd]
[ˈɔːɬd]	[ˈwɛoˑəf]
[ˈfɛɬt]	[ˈt͡ʃaɪɬdhʊd]
[ˈbɔːɬ]	[ˈmjuːskʰəɤˑˈθiːəɾɹ]
[hɜɹˈsɛɬf]	[ˈskuːɬ]
[əˈfɪʃɬ]	[ˈfiːɬ]
[ˈænɪməɬ]	[ˈtʰɪpʰɪkʰəo]
[ˈsɛntʰɪˌmɛntʰəɬ]	[ˈdɪfɪˌkʰʌɬt]
[ˈfiːɬ]	[ˈskuːo]
[ˈbjuːɾəfʊɬ]	[ˈskuːɬ]
[ˈpaːm]	[fɛɬʔ]
[ˈfjuːtʰaɪɬ]	[ˈɔːoɾəɹ]
[ˈeɪbˠə]	[ˈstʰɪɬ]

[ˈhɔod]	[ˈfɛot]
[ˈɑːmoːst]	[ˈmjuːzɪkʰəɬ]
	[ˈmɪɾɬ]
	[ˈmɪɾo]
	[ɬɪɬ]
	[ˈwəoθiˑəɹ]
	[ˈwɪo]
	[ˈpiːpo]
	[ˈmɪɾɬ]
	[ˈaː]
	[ˈaːɬ]
	[ˈæshoʊɬ]
	[ˈaːweɪz]

Louisiana 3

Comma Gets a Cure	**Free speech**
[ˈwɛɤ]	[ˈhæspʰɪɾəɬ]
[ˈɔːɬ]	[ˈskuːɬⁿ]
[ˈfeɬ]	[ˈkʰoʊ]
[ˈboʊɬ]	[ˈeɪnd͡ʒoʊz]
[hɜɹˈsɛɬf]	[ˈɔː]
[oˈfɪʃˠɬ ˈɬɛɾəɹ]	[ˈskuː.ən]
[ˈænɪmo]	[ˈskuː]
[ˈsɛnəˌmɛno]	[ˈkʰoʊd]

[ˈfiːɬ]	[ˈskuːɬ]
[bjuːɾəfʊ]	[ˈaːweɪz]
[ˈpʰaːm]	[wəʔ]
[ˈfjuːɾˠɬ]	[wəɤ]
[ˈhoʊd]	[ˈskuːɬ]
[ˈeɪbo]	[ˈnioˌneɪɾəo]
[ˈɔːmoʊst]	[ˈbjuːɾəfuo]
	[ˈskuːz]
	[ˈhoʊɬ]
	[ˈɔː]
	[ˈdeŋkfuo]
	[ˈstʰɪɬ.ɪn]

Florida 5

Comma Gets a Cure	**Free speech**
[ˈwɵ]	[ˈwəɬ]
[ˈɔːɬd]	[ˈɔːɹdiːɬ]
[ˈfeɬt]	[ˈaɬðoʊ]
[ˈbɔːɬ.əv]	[ˈfiɬ]
[həɹˈsəɬf]	[ˈfiɬ]
[əˈfiʃɬ.ˈɛɾəɹ]	[ˈaː.ðə]
[ˈænɪmo]	[ˈaːɬ]
[ˈsɛntɪˌmɛnəɬ]	[ˈsmaːɬ]
[ˈfiːɬ]	[ˈsoʃəɬ]

[ˈbjuːɾəfʊɬ]	[ˈɬɪɾɬ]
[ˈpʰam]	[ˈwɛo]
[ˈfjuːtʰaɪɬ]	
[ˈeɪbɬ]	
[ˈhɔːɬd]	
[ˈaːmoʊst]	